# 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**: **APPROVED at FPOM 9/14/17**

**FPP Section**: Table LWG-5. Unit Priority Order.

**Justification**: Due to the change of Unit 2 to fixed-blade status and Unit 1 restored to fully adjustable Kaplan, the FPP unit priority order needs to be modified.

U2 returned to service with fixed-blades on April 13, 2017 (see MOC 17LWG01 and MFR 17LWG03). Based on results of index testing on June 20, 2017, the blade angle will be adjusted in December 2017 and re-tested to determine the actual operating range. Until that time, U2 will be operated like U1 was when it had fixed-blades with a range of 125–129 MW (~17–19 kcfs).

U1 is currently scheduled to return to service October 2017 with full Kaplan capabilities.

**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 to maintain Unit 1 for adult attraction.

**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?

|  |  |  |
| --- | --- | --- |
| March 1 – December 15 | Start Units | 1, 3, then 4-6 any order, then 2 **a** |
| Stop Units | 4-6 any order, then 3, 2**b**, 1 |

-----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.

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.

9/14/17 FPOM: This change form only applies to Unit Priority in Table LWG-5. FPOM is ok with this revised priority order that prioritizes Unit 1 now that it will be adjustable within the full 1% range and modifies the priority of Unit 2 with fixed blades.

A new change form will be submitted with the updated operating range for Unit 2 with fixed blades after the angle is adjusted in December 2017 and pending index test results.

**Record of Final Action**: APPROVED at FPOM 9/14/17.