

## **Fish Passage Plan (FPP) Change Request Form**

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**Change Form # & Title:** 18LGS001 – March 1 Bypass Start  
**Date Submitted:**  
**Project:** Little Goose Dam  
**Requester Name, Agency:** Lisa Wright - Corps RCC; Ann Setter - Corps NWW  
**Final Action:**

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### **FPP SECTION:**

Chapter 4 – Little Goose Dam:

- 2.3.1 (Juvenile Facilities - Winter Maintenance Period)
- 2.3.2 (Juvenile Facilities - Fish Passage Season)
- 3.2. (Routine Maintenance)

**JUSTIFICATION FOR CHANGE:** Revises the FPP as necessary to incorporate a March 1 start for the Little Goose Dam juvenile bypass system, as recommended by the Joint Technical Staff Memorandum on October 10, 2017.<sup>1</sup>

By March 1, 2018, LGS will install screens in the top three available priority units and begin sampling. Screens will be installed in additional units earlier than April 1 if maintenance schedules allow.

**PROPOSED CHANGE:** *[see pages below with edits to existing FPP in track changes]*

### **COMMENTS:**

### **RECORD OF FINAL ACTION:**

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<sup>1</sup> [pweb.crohms.org/tmt/documents/FPOM/2010/2017\\_FPOM\\_MEET/2017\\_OCT/Early%20Start%20Up%20letter.pdf](http://pweb.crohms.org/tmt/documents/FPOM/2010/2017_FPOM_MEET/2017_OCT/Early%20Start%20Up%20letter.pdf)

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### **2.3.1. Juvenile Facilities - Winter Maintenance (December 16 – March 31\*).**

***\*In 2018, the bypass system will begin operations March 1 – see section 2.3.1.2.***

#### **2.3.1.1. Forebay Area and Intakes.**

- i. Remove debris from forebay and gatewell slots.
- ii. Rake trashracks just prior to the operating season.
- iii. Measure drawdown in gatewell slots after cleaning trashracks with ESBSs installed.
- iv. Inspect and repair gatewell dip net as needed.

#### **2.3.1.2. ESBS, Flow Vanes, and VBS. *\*In 2018, install screens by March 1 in at least the first three operational units in the priority order defined in Table LGS-5. Additional units may be screened prior to April 1 if maintenance schedules allow.***

- i. After ESBSs are removed for winter maintenance, inspect for juvenile salmonid mortalities and all other incidental fish mortalities. Inspect ESBSs within a week after removal, or as soon as practical. All mortalities are to be counted, or otherwise estimated, for each ESBS and reported to CENWW-OD-T.
- ii. Maintenance completed on all screens.
- iii. Inspect ESBSs prior to installation and operate debris cleaner (dogged off on deck) to ensure proper operation.
- iv. Log results of trial run.
- v. Inspect VBSs with underwater video camera at least 1x/year; repair as needed.
- vi. Inspect flow vanes to make sure they are in good condition and all surfaces smooth. Repair as needed.

#### **2.3.1.3. Collection Channel.**

- i. Water-up valve capable of operating when needed.
- ii. Orifice lights operational.
- iii. Orifices clean and valves operating correctly.
- iv. Orifice cycling and air backflush system operational.

#### **2.3.1.4. Transportation Facilities.**

- i.** Flume switch gate maintained and in good operating condition.
  - ii.** Flume interior smooth with no rough edges.
  - iii.** Perforated plate smooth with no rough edges.
  - iv.** Wet separator and fish distribution system maintained and ready for operation as designed.
  - v.** Brushes and screens on crowders in good condition with no holes in screens or rough edges.
  - vi.** Crowders maintained, tested, and operating correctly.
  - vii.** All valves, slide gates, and switch gates maintained and in good operating condition.
  - viii.** Retainer screens in place with no holes in screens or sharp wires protruding.
  - ix.** Barge and truck loading pipes free of debris, cracks, or blockages and barge loading boom maintained and tested.
  - x.** All sampling equipment should be maintained and in good operating condition prior to watering up the facilities. *[\*In 2018, the bypass system will begin operations March 1 – see section 2.3.1.2].*
  - xi.** Maintain juvenile PIT-tag system as required (see “*Columbia Basin PIT-tag Information System, General Gate Maintenance and Inspection, Walla Walla District*”, February 2003). Coordinate with PSMFC.
  - xii.** Mini- and midi-tanks maintained and in good operating condition.
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### **2.3.2. Juvenile Facilities - Fish Passage Season (April 1\*–December 15).**

***\*In 2018, the bypass system will begin operations March 1 - see section 2.3.2.2.*** Operate from ~~April~~ **March 1\* (2018 only)** through October 31 for juvenile bypass, collection, and transport, and from November 1 through December 15 for adult fallbacks. Operate according to criteria defined below and in the *Corps of Engineers Juvenile Fish Transportation Plan (Appendix B)*. The transport program may be revised in accordance with the ESA Section 10 permit and NOAA Fisheries Biological Opinion.

#### **2.3.2.1. Forebay Area and Intakes.**

- i.** Remove debris from forebay. All floating debris will be removed whenever two acres of debris accumulates in spring and one acre in summer or fall.
- ii.** Inspect gatewell slots daily (preferably early in day shift) for debris, fish buildup, and contaminating substances (particularly oil). Clean gatewells before they become 50% covered with debris. If the volume of debris precludes the ability to keep the gatewell at least 50% clear, they should be cleaned at least once daily. If orifice flow or fish conditions are observed that indicate an orifice may be obstructed with debris, the orifice will be closed and backflushed to remove the obstruction. If the obstruction cannot be removed, the orifice will be closed and the alternate orifice for that gatewell slot operated. If both orifices become obstructed or plugged with debris the turbine unit will not be operated until the gatewell and orifices are cleared of debris.
- iii.** If a visible accumulation of contaminating substances (e.g., oil) is detected in a gatewell and cannot be removed within 24 hours, the gatewell orifices shall be closed immediately and the turbine unit shut down within one hour until the material has been removed and any problems corrected. A preferred method for removing oil from the water surface is to install absorbent (not adsorbent) socks, booms, or pads capable of encapsulating the material, and tie off with a rope for later disposal. Action should be taken as soon as possible to remove oil from the gatewell so the orifice can be reopened to allow fish to exit the gatewell. Orifices shall not be closed for longer than 48 hours.
- iv.** Log drawdown differentials in bulkhead slots at least once a week.
- v.** Remove debris from forebay and trashracks as necessary to maintain less than 1' of additional drawdown in gate slots (relative to drawdown with a clean screen). Additional raking may be required when heavy debris loads are present in the river or when fish condition indicates an issue.
- vi.** Coordinate cleaning efforts with personnel operating juvenile collection facilities.
- vii.** Dip bulkhead gatewell slots to remove fish prior to installing bulkhead for dewatering a bulkhead slot.

**2.3.2.2. ESBS, VBS, and Operating Gates.** *\*In 2018, install screens by March 1 in at least the first three operational units in the priority order defined in Table LGS-5. Additional units may be screened prior to April 1 if maintenance schedules allow.*

- i. Operate ESBSs with flow vanes attached to screen.
- ii. Operate ESBSs with debris cleaners in automatic mode. Set cleaning frequency as required to maintain clean screens and good fish passage condition. Change cleaning frequency as needed.
- iii. Monitor ESBS operating status regularly throughout work shifts via the ESBS operating computer display located in the control room.
- iv. Inspect ESBS, cleaning brush control panels located in the orifice gallery for cleaning brush failures (trouble lights) at least once per day throughout the entire fish passage season.
- v. Manually operate ESBS cleaning brush monthly during the fish passage season April\* through December 15 (more frequently if required) to verify proper and complete up-and-down brush travel and to monitor and record amperage draws. *[\*In 2018, screens will be installed by March 1 in at least the first three operational priority units – see section 2.3.2.2].*
- vi. Inspect ESBS by underwater video during turbine unit annual maintenance (more frequently if required). Thoroughly inspect VBSs at the same time.
- vii. Inspect at least two VBSs in two different turbine units by means of underwater video between spring and summer. Both turbine units should have been operated frequently during the spring. If a debris accumulation is noted, inspect other VBSs and clean debris as necessary.
- viii. If an ESBS is damaged or fails during juvenile fish passage season, follow procedures defined in **section 3.2.2**. In no case should a turbine unit be operated with a missing or a known non-operating or damaged ESBS, except as noted.
- ix. After October 1, up to half of the ESBSs may be pulled for maintenance as long as unscreened turbine units are not operated.
- x. Make a formal determination at the end of the season as to the adequacy of ESBS bar screen panels and debris cleaner brushes, and replace components as necessary.
- xi. From April 1\*–June 30, measure VBS head differentials at least once per week (more frequently if required) and biweekly for the remainder of the operating season. *[\*In 2018, screens will be installed by March 1 in at least the first three operational priority units – see section 2.3.2.2].* When a head differential of 1.5' is reached, the respective turbine unit should be operated at reduced loading ( $\leq$  110 MW) to minimize loading on the VBS and potential fish impingement until

the VBS can be cleaned. Clean VBSs as soon as possible after a 1.5' head differential is reached.

**xii.** Inspect at least two VBSs in two different turbine units between spring and summer. Both units should have been operated frequently in the spring. If debris accumulation is noted, inspect other VBSs and clean debris as necessary.

**xiii.** If extreme cold weather is forecasted (< 20°F for ≥ 24 hours) between Thanksgiving and December 15, ~~ESBSs and STSs screens~~ may be removed. The project will first request special permission from CENWW-OD-T. CENWW-OD-T will inform NOAA Fisheries and FPOM of the action. NOAA's National Weather Service forecast for Little Goose Dam is available at: <http://forecast.weather.gov/MapClick.php?lat=46.5874&lon=-118.0261>

### **2.3.2.3. Collection Channel.**

**i.** Orifices clean and operating. Operate at least one orifice per gateway slot (preferably the north orifice). If the project is operating within the Minimum Operating Pool (MOP), additional orifices may be operated to maintain a full collection channel. If orifices must be closed to repair any part of the facility, do not close orifices in operating turbine units with ESBSs in place for longer than 5 hours. If possible, keep to less than 3 hours. Reduce turbine unit loading to the lower end of the 1% efficiency range if deemed necessary by the Project Biologist. Monitor fish conditions in gatewells hourly or more frequently during orifice closure periods.

**ii.** Orifice lights operational and operating on open orifices. Orifice lights and area lights may be turned off the evening before channel is dewatered at end of season (dewatering occurs on December 16 or later) to encourage fish to exit the channel volitionally. Area lights can be turned on briefly for personnel access if necessary.

**iii.** Replace all burned out orifice lights within 24 hours of notification. Orifice lights shall remain lighted 24 hours/day.

**iv.** Orifice jets hitting no closer than 3' from back wall, collection channel full.

**v.** Orifice valves are either fully open or closed.

**vi.** Backflush orifices at least once per day and more frequently if required. During periods of high fish and debris passage, April 1\* through July 31, orifices should be inspected and backflushed once per 8-hour shift or more frequently as determined by the Project Biologist, to keep orifices clean. *[\*In 2018, screens will be installed by March 1 in at least the first three operational priority units – see section 2.3.2.2].* If debris is causing continual orifice plugging problems in a particular turbine unit gateway, the respective turbine unit generation may be restricted to the lower end of the 1% turbine efficiency range to minimize orifice plugging problems.

vii. If utilizing the automatic orifice backflush system, inspect as determined by the Project Biologist (but at least once per 8-hour shift unless coordinated differently) to ensure that the orifices are opening and closing correctly and are clear of debris. The Project Biologist will determine the frequency of automatic orifice cycling and back-flushing to maintain clear orifices.

viii. Water-up valve capable of operating when needed.

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### 3. **FISH FACILITIES MAINTENANCE**

#### 3.2. **Maintenance – Juvenile Fish Facilities.**

**3.2.1. Scheduled Maintenance.** Scheduled maintenance of juvenile facilities is conducted throughout the year. Long-term maintenance or modifications of facilities that require them to be out of service for extended periods of time are conducted during the winter maintenance period (December 16–March 31\*). During fish passage season, parts of the facilities are maintained on a daily, weekly, or longer interval to keep them in proper operating condition. [\*In 2018, screens will be installed by March 1 in the first three operational priority units - see sections 2.3.1 and 2.3.2].