Fish Passage Plan (FPP) Change Request Form

Change Form # & Title:	15LGS002 – Unit 1 Low Flow Operations
Date Submitted:	July 10, 2014
Project:	Little Goose Lock & Dam
Requester Name, Agency:	Corps NWW Operations
Final Action:	APPROVED – August 14, 2014

FPP Section: LGS Section 4.1.2.2. and footnotes in Tables LGS-5, -9, -10, -11, -12.

Justification: Unit 1 special operating criteria were modified in the 2014 FPP in change form 14LGS004 to clarify intent is to operate Unit 1 in the upper 1% to push out tailrace eddy from TSW spill. When flows decrease to <38 kcfs, the project needs flexibility to operate Unit 1 within the full 1% range in order to maintain FOP spill and MOP operations.

Language in the 2015 FOP was also clarified as follows (Summer FOP pg 10):

- Turbine Unit 1 Operation: Operating range will be set manually for Little Goose Dam to restrict Turbine Unit 1 operation to approximately the upper 25% of the ±1% of best efficiency range (about 16-17.5 kcfs) when the spillway weir is in operation. This will ensure a strong current along the south shore to counter the strong eddy that forms in the tailrace during operation of the spillway weir in bay 1. A strong south shore current in the tailrace is important for both adult fish passage and juvenile fish egress. If low flow conditions occur (<38 kcfs), or if the spillway weir is not in service at any flow, then Unit 1 may operate within the full ±1% of best efficiency range to minimize impacts on spill levels (see FPP Section 8).

However, language in FPP table footnotes "*…with only Unit 1 operating…*" is inconsistent with this clarification and with spill pattern tables at flows 31.5–38.0 where Unit 1 is below 16 kcfs and both Units 1 and 2 are operating.

Proposed Change: footnote to Tables LGS-1 (Unit Priority), LGS-2,-10,-11,-12 (Spill Patterns):

> ***See section 4.1.2.2.** At river flow >38 kcfs, Unit 1 is manually restricted to operate in the upper 25% of the 1% range at 115–125 MW (~16.0-17.5 kcfs). Assume other units will operate approximately uniformly within their full 1% ranges. When other units are operating at <16.0 kcfs, assume Unit 1 is at the lower end of the 1% upper range (~16.0 kcfs). When average unit discharge is >16.0 kcfs, assume all units operating uniformly. At low river flow <38 kcfs ~~with only Unit 1 operating~~, Unit 1 may operate within full 1% range.

4.1.2.2. Unit 1 Special Operation. During fish passage season when the spillway weir (TSW) is operating in spillbay 1 and total project outflow is greater than 38 kcfs, Turbine Unit 1will be operated in the upper 25% of the 1% range. Historically, the GDACS program tended to balance flow out of all units in operation. However, this operation will at times result in an unbalanced operation where more flow is passing through Unit 1 than other operating units. Physical modeling has indicated that a higher flow out of Unit 1 is very important to disrupt the eddy that forms along the south shore downstream of the powerhouse when the TSW is operating in bay 1 in order to optimize tailrace conditions for both adult passage and juvenile egress. When the TSW is removed from service during summer spill ~~and low flow criteria are achieved (<38 kcfs)~~, the tailrace eddy is mostly non-existent and all turbine units may be operated within the full 1% range. When total project outflow is less than 38 kcfs, Unit 1 may be operated within the full 1% range as necessary to maintain minimum operating pool (MOP) and spill operations in accordance with the FOP.

Comments:

Record of Final Action:

8/14/14 FPOM - APPROVED