Fish Passage Plan (FPP) Change Request Form

Change Form # & Title:	15BON003 – DSM Orifice Control
Date Submitted:	9-Oct-2014; Revised 30-Jan-2015
Project:	Bonneville Dam
Requester Name, Agency:	Ben Hausmann, BON Fisheries
Final Action:	12-Feb-2015 FPOM: APPROVED w/ edits.

FPP Section: BON Section 2.4.2.4.b. DSM2 Channel Operation.

Justification: Table BON-7 shows orifice gate open/closed positions as a function of forebay level. In actuality the DSM orifice operation is based upon channel level readings supplied to the PLC (programmable logic control) computer system. When the channel level falls below 64.25", the program will call for an orifice to open, wait 150 seconds, and repeat if necessary. If the water level rises to 64.35", the program will call for an orifice to close. The add-in water is the only other water supply to the DSM, and simply maintains a flow of 60 cfs. Since the add-in water and the orifice water originate from the PH2 gatewells, the forebay level will indirectly impact these water supplies via head pressure. However, the table as written does not accurately portray this indirect relationship and is misleading as to how the DSM functions.

Proposed Change: Delete **Table BON-7**.

2.4.2.4.b. Operation. Maintain the channel elevation between 64.2–64.4' as measured at the staff gauge in front of the ERG ~~**(Table BON-7)**~~. DSM channel elevation is maintained by a combination of add-in water, 30 non-regulating orifices and 12 regulating orifices (units 11-14). The add-in water provides a fixed input of 60 cfs and the non-regulating orifices are open at all forebay elevations. If the channel elevation ~~is not maintained in~~ exceeds the range of 64.2-64.4', the regulating orifices will open one at a time from south to north (starting at Unit 11) until proper channel elevation is achieved.

~~**Table BON-7. Regulating Orifice Control at Bonneville Dam DSM2.**~~

~~Orifice~~	~~FB ≤ 71.5'~~	~~FB ≤ 72.5'~~	~~FB ≤ 73.5'~~	~~FB ≤ 74.5'~~	~~FB ≤ 75.5'~~	~~FB ≤ 76.5'~~
~~11A-S~~	~~Open~~	~~Open~~	~~Open~~	~~Open~~	~~Open~~	
~~11B-S~~	~~Open~~	~~Open~~	~~Open~~	~~Open~~		
~~11C-S~~	~~Open~~	~~Open~~	~~Open~~	~~Open~~		
~~12A-S~~	~~Open~~	~~Open~~	~~Open~~			
~~12B-S~~	~~Open~~	~~Open~~	~~Open~~			
~~12C-S~~	~~Open~~	~~Open~~				
~~13A-S~~	~~Open~~	~~Open~~				
~~13B-S~~	~~Open~~	~~Open~~				
~~13C-S~~	~~Open~~					
~~14A-S~~	~~Open~~					
~~14B-S~~	~~Open~~					
~~14C-S~~	~~Open~~					

Comments:

9-Oct-2014 FPOM: Fredricks said orifice openings are directly tied to the forebay.

16-Jan-2015 NOAA memo: "The justification for this change indicates that there may be some confusion on how this system was designed to operate. Forebay head does have a direct relationship with orifice flow and thus channel flow. We understand the FPP must be written so it is clear for the operators (and PLC programmers) to follow. We don't object to the removal of the table, however, the justification should be reviewed by the district engineers that designed the system (suggest Steve Schlenker)."

22-Jan-2015 FPOM: Fredricks said the system is supposed to operate based on forebay so the table should be accurate. Hausmann said the channel is indirectly tied to forebay since Add-in water makes up for what the orifices cannot provide. Fredricks explained that the Add-in is designed to maintain velocity, not elevation. FPOM expressed concern about losing the history of how systems are designed and operated. Bettin suggested removing the table will take out one more piece of history. APPROVED with the recommendation that the table be replaced with a paragraph describing how the system was designed to operate. **ACTION:** Hausmann will draft a paragraph. **STATUS 30-Jan-2015**: Hausmann provided new language with the additional information requested for review at FPOM 12-Feb-2015.

12-Feb-2015 FPOM: Fredricks requested replacing the language "If channel elevation is not maintained in the range…" with "If channel elevation *exceeds* the range…" FPOM approved.

Record of Final Action:

12-Feb-2015 FPOM: Approved with edits.