PP Change Request Form

Change Request Number: 14BON001 Table BON-16 Add PH2 Mid-Range
Date Submitted: 3/29/2013
Project: BON
Requester Name, Agency: FPOM BON Ops Task Group

Location of Change - FPP Project and Section:
BON section 5.2 (Turbine Unit Operating Range) and Table BON-16 (PH2 1% range)

Existing Language in 2014 FPP:

5.2. Turbine Unit Operating Range.

5.2.1. Turbines will be operated within ±1% of peak turbine efficiency (1% range) from April 1 through October 31, as specified in the *BPA Load Shaping Guidelines* (**Appendix C**).

5.2.2. Turbine units at PH1 will operate within the 1% range and within cavitation limits at various project heads as shown in **Table BON-15**.

5.2.3. Turbine units at PH2 will operate at the mid to lower 1% range (unless total dissolved gas waivers are exceeded in the tailrace) and within cavitation limits at various project heads as shown in **Table BON-16**.

Proposed Language:

5.2.1. Turbines will be operated within ±1% of peak turbine efficiency (1% range) from April 1 through October 31, as specified in the *BPA Load Shaping Guidelines* (**Appendix C**), and as defined in **Tables BON-15 (PH1)** and **BON-16 (PH2)**. Through regional coordination with FPOM and TMT, the 1% operating range guidelines have been modified to minimize turbulence in PH2 gatewells for bypassed juvenile salmonids until structural and/or other solutions are implemented. The modified turbine unit operating ranges are defined below in **section 5.2.2**.

5.2.2. From April 1 through October 31[LSW1], turbine units will operate sequentially in the following order of operating ranges to pass increasing levels of flow:

a. PH2 units within 1% mid-range;

b. Then, PH1 units up to 1% upper limit;

c. Then, PH1 units up to BOP;

d. Then, additional flow in excess of what can be passed in steps above will be passed in one of the three following ways:

i. April 1–April 9: PH2 units up to 1% upper limit.

ii. April 10–June 15 (Spring Spill) w/ Juvenile[LSW2] Trigger[1]: When[LSW3] juvenile spring Chinook collection counts at BON JMF are greater than adult spring Chinook total passage counts for three consecutive days (juvenile trigger), Project Fisheries will notify the control room to maintain PH2 units within 1% mid-range as a hard constraint and pass additional flow as spill.

~~ii.~~iii. April 10–June 15 (Spring Spill) w/ Adult Trigger[2]: When adult spring Chinook (excluding jacks) total passage counts are greater than juvenile spring Chinook collection counts at BON JMF for two consecutive days (adult trigger), Project Fisheries will notify the control room to operate PH2 up to 1% upper limit in priority order from north to south: 18, 17, 16, 15, 14, 13, 12, 11.

~~iii.~~iv. June 16–October 31: PH2 units up to 1% upper limit.

[1] **Juvenile spring Chinook:** reported as "CollCount" in SMP Smolt Data (query current year BO2 Combined Chinook Yearling), available online at: http://www.fpc.org/smolt/smpsubmitdataquery_2014v7.html

[2] **Adult spring Chinook:** reported as "Adult Chinook daily" in Corps Adult Fish Count Running Sum Report for Bonneville, available online at: http://www.nwp.usace.army.mil/Missions/Environment/Fish/Data.aspx

Table BON-1. Bonneville Dam Powerhouse Two Turbine Units 11–18 Output (MW) and Discharge (cfs) Per Unit at Lower, Mid-Range and Upper Limits of the 1% Peak Efficiency Operating Range.[1]

Project Head (ft)	Powerhouse Two (Units 11-18)											
	With STS						No STS					
	1% Lower Limit		1% Mid-Range		1% Upper Limit		1% Lower Limit		1% Mid-Range		1% Upper Limit	
			13kcfs	15kcfs					13kcfs	15kcfs		
	(MW)	(cfs)	(MW)	(MW)	(MW)	(cfs)	(MW)	(cfs)	(MW)	(MW)	(MW)	(cfs)
35	27.6	11,259	31.9	36.8	44.3	18,068	28.2	11,444	32.1	37.0	45.1	18,277
36	28.5	11,271	32.9	37.9	45.8	18,097	29.2	11,455	33.1	38.2	46.6	18,306
37	29.4	11,279	33.9	39.1	47.3	18,121	30.1	11,464	34.1	39.4	48.1	18,331
38	30.3	11,284	34.9	40.3	48.8	18,139	31.0	11,470	35.2	40.6	49.7	18,350
39	31.3	11,287	36.0	41.6	50.3	18,153	32.0	11,473	36.3	41.8	51.2	18,364
40	32.2	11,288	37.1	42.8	51.8	18,162	32.9	11,474	37.3	43.0	52.7	18,374
41	33.0	11,259	38.1	44.0	53.3	18,197	33.7	11,445	38.3	44.2	54.3	18,409
42	33.8	11,230	39.1	45.2	54.9	18,228	34.6	11,415	39.4	45.4	55.8	18,441
43	34.6	11,201	40.2	46.3	56.4	18,255	35.4	11,386	40.4	46.6	57.4	18,468
44	35.4	11,172	41.2	47.5	57.9	18,278	36.2	11,357	41.4	47.8	58.9	18,493
45	36.2	11,144	42.2	48.7	59.4	18,299	37.0	11,328	42.5	49.0	60.5	18,514
46	37.0	11,139	43.2	49.8	61.0	18,366	37.9	11,324	43.5	50.2	62.1	18,581
47	37.8	11,135	44.2	51.0	61.9	18,200	38.7	11,319	44.5	51.3	63.0	18,415
48	38.7	11,129	45.2	52.1	62.7	18,040	39.6	11,314	45.5	52.5	63.8	18,255
49	39.5	11,124	46.2	53.3	63.5	17,887	40.4	11,308	46.5	53.6	64.7	18,101
50	40.3	11,118	47.2	54.4	67.5	18,598	41.3	11,303	47.5	54.8	68.7	18,817
51	41.3	11,154	48.1	55.5	69.8	18,850	42.2	11,339	48.4	55.9	71.1	19,072
52	42.3	11,187	49.1	56.7	72.1	19,091	43.2	11,373	49.4	57.0	73.4	19,316
53	43.2	11,219	50.1	57.8	74.5	19,323	44.2	11,405	50.4	58.1	75.8	19,551
54	44.2	11,249	51.0	58.8	76.5	19,536	45.2	11,436	51.3	59.2	76.5	19,431
55	45.2	11,278	52.1	60.1	76.5	19,115	46.2	11,466	52.4	60.5	76.5	18,975
56	46.4	11,343	53.2	61.3	76.5	18,718	47.4	11,531	53.5	61.7	76.5	18,581
57	47.6	11,404	54.2	62.6	76.5	18,336	48.6	11,593	54.6	63.0	76.5	18,202
58	48.8	11,461	55.4	63.9	76.5	17,967	49.9	11,652	55.7	64.3	76.5	17,836
59	50.0	11,515	56.5	65.1	76.5	17,611	51.1	11,707	56.8	65.6	76.5	17,483
60	51.2	11,567	57.6	66.4	76.5	17,267	52.3	11,760	57.9	66.8	76.5	17,142
61	51.8	11,532	58.5	67.5	76.5	16,978	53.0	11,724	58.9	67.9	76.5	16,857
62	52.5	11,498	59.5	68.6	76.5	16,699	53.7	11,690	59.8	69.1	76.5	16,582
63	53.1	11,466	60.4	69.7	76.5	16,428	54.3	11,657	60.8	70.1	76.5	16,315
64	53.7	11,434	61.3	70.7	76.5	16,166	55.0	11,625	61.7	71.2	76.5	16,056
65	54.4	11,405	62.3	71.8	76.5	15,912	55.6	11,595	62.6	72.3	76.5	15,806
66	55.4	11,448	63.2	72.9	76.5	15,671	56.7	11,639	63.6	73.4	76.5	15,570
67	56.5	11,490	64.2	74.0	76.5	15,437	57.8	11,682	64.6	74.5	76.5	15,341
68	57.5	11,532	65.1	75.1	76.5	15,210	58.9	11,724	65.5	75.6	76.5	15,119
69	58.6	11,571	66.1	76.3	76.5	14,990	59.9	11,764	66.5	76.5	76.5	14,903
70	59.6	11,610	67.0	77.3	76.5	14,775	61.0	11,803	32.1	37.0	76.5	14,693

1. **Table based on January 2001 data (HDC). Updated 2006 and 2014 (added Mid-Range).**

Justification for Change:
FPOM requested adding PH2 1% mid-range columns since PH2 may be limited to mid-range operation. See Memo to FPOM from Bonneville Turbine task group for justification.

Comments from others:
See FPC memo.

9 May 2013 FPOM: Lorz provided change form and supporting documentation. Wright asked if steps 1-3 could just be accepted now. Lorz and Fredricks said this is a package deal. Lorz said going to BOP at PH1 is a contentious issue with some in the Region and they feel the spill is an acceptable trade-off. Baus and Wright would like to avoid the TMT SOR process but FPOM isn't quite willing to accommodate that request by parsing out sections of the change form. There is some fear of kicking the trigger issue down the road and this needs to be dealt with sooner rather than later. CRITFC, NOAA, USFWS support the change form. IDFG was absent. ODFW supported it at the last meeting, but no rep was at the May FPOM. BPA and USACE need to take this back to their chain of command. Aside from the fact that this couldn't be accepted today, Bettin suggested this is a good time to present this. Fredricks said this is probably the more documented decision FPOM has made and it will likely be included in the 2014 BiOp. ACTION: FPOM will take the change form to their respective agencies and bring their position back to June FPOM meeting.

22 May 2013 TMT: IDFG (Kiefer), WDFW (Morrill), ODFW (Kruger, VanDyke) agree w/ change form.

13 June 2013 FPOM: NOAA, USFWS, CRITFC, Colville, IDFG and ODFW: support change form as written. BPA: defer to Corps policy decision and will follow Corps' lead.
Corps: decision pending further policy/legal review of proposed operation.

17 Jan 2014 NOAA Memo: 14BON001 - PH2 Mid-Range Operation. Obviously, we agree with this one but where is it in terms of process? Action should occur before the juvenile passage season starts.

22 Jan 2014 FPOM: ***Continues to be pending.*** RCC looks forward to continuing to coordinate in-season. This will likely be implemented in-season as it was in 2013. CRITFC expressed frustration with stalling of this change form. NOAA believes a decision should be made prior to the juvenile fish passage season. This issue will be dealt with once Fredricks returns to the office. Lorz kindly pointed out that NWD has had two years to address this change form and we are no closer to having it finalized.

13 Feb 2013 FPOM: Still pending further discussions between FPOM, TSP and others considering PNNL data mining results, etc. Until then, continue to manage via in-season coordination.

5 May 2014 via email: Corps RCC proposed edits (in track changes).

7 May 2014: Approved as revised by FPOM BON Ops Task Group Super-committee – Fredricks, Conder, Wills, Van Dyke, Bettin, Mackey, Baus, Wright, Klatte, Peterson, Hausmann, Guajardo, Traylor, Carroll, Sears.

Record of Final Action: Approved at the 8 May 2014 FPOM meeting. USFWS and ODFW were not in support but did not oppose the change form.