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MEMORANDUM

TO: Kathryn Kostow, ODFW
Ed Bowles, ODFW

FROM: Michele DeHart

DATE: July 15, 2015

SUBJECT: Estimated Reductions in Spill from Proposed Emergency Action List

In response to your request, we have reviewed the draft Emergency Action List (list) (attached) that was circulated at the FPAC meeting on July 14, 2015. This draft list was modified from the existing list by NMFS for consideration by other FPAC members. The list has not been finalized, as FPAC is still discussing the proposed changes. The draft list is a set of successive actions that could be implemented if Bonneville Power Administration declares a power emergency. Under a declared power emergency, the implementation of the Biological Opinion is no longer required. The MW values in the list are estimates of the additional MW that may be made available by the action. We have modeled how spill will change as each of the actions are implemented. The list is implemented in order from top to bottom.

To model spill under the 2015 Fish Operations Plan, versus spill with each of the successive actions of the Emergency Action List (17 actions in total), we relied on the July 13, 2014 STP model. Using this STP, we estimated an average flow for the month of August at Lower Granite (LGR) and McNary (MCN) dams. We then assumed the LGR average August flow (23.85 Kcfs) for all Snake River sites and the MCN average August flow (128.58) for all Lower Columbia River sites. Table 1 is provided to highlight the 2015 summer operations under the FOP, as well as other assumptions we made in this modeling effort (e.g., powerhouse minimums and miscellaneous flows).

Table 1. Spill operations, powerhouse minimums, and miscellaneous flows assumed for modeling August spill under 2015 FOP and proposed Emergency Actions List.

Project	2015 Fish Operations August Spill Operation	Power House Minimums (Kcfs)	Miscellaneous Flows (Kcfs)
LGR[A]	18 Kcfs/18 Kcfs	12	0.0
LGS[B]	Fixed spill operation of 7 Kcfs	11.5	0.0
LMN	17 Kcfs/17 Kcfs	12	0.0
IHR	45 Kcfs/Gas Cap	9.0	1.0
MCN	50%/50%	50.0	5.0
JDA	30%/30%	50.0	5.0
TDA	40%/40%	50.0	6.0
BON[C]	95 Kcfs/95 Kcfs or 85 Kcfs/121 Kcfs	30.0	12.0

[A] Assumed Unit 2 priority at LGR (i.e., approximately 12 Kcfs powerhouse minimum)

[B] Assumed fixed spill operation at LGS adopted at June 25, 2015 TMT meeting which specifies 7 Kcfs spill at flows less than 24 Kcfs.

[C] At average August flow levels from July 13, 2015 STP, 85 Kcfs/121 Kcfs and 95 Kcfs/95 Kcfs operations resulted in virtually the same spill levels under the 2015 FOP. Therefore, assumed 95 Kcfs/95 Kcfs spill for whole August period when modeling 2015 FOP.

Results:

Spill at each project is shown for the FOP implementation under the assumed flows. If BPA declares a power emergency the first action in the list is implemented (change is denoted in red, Table 2). If that change is sufficient for BPA to meet power needs, no other action is necessary. If not, they proceed to the next action on the list. This process is repeated until all 17 actions are implemented and spill goes to zero at all FCRPS projects.

A summary of the estimated total spill volume (MAF) with each successive step is provided in Table 2.

Table 2. Comparison of the amount of spill that occurs with each successive action as compared to the spill that would have occurred if the FOP were implemented.

Scenario	Emergency Action List Description	Estimated Daily Spill (Kcfs)								Total Spill (MAF)
		LGR	LGS	LMN	IHR	MCN	JDA	TDA	BON	
FOP		11.85	7.0	11.85	13.85	64.29	38.57	51.43	86.58	17.55
Step 1	Reduce spill at LGR to RSW only	6.8	7.0	11.85	13.85	64.29	38.57	51.43	86.58	17.24
Step 2	Step 1 + Reduce spill at IHR to RSW & attraction spill	6.8	7.0	11.85	11.8	64.29	38.57	51.43	86.58	17.11
Step 3	Steps 1-2 + Reduce spill at LMN to RSW only	6.8	7.0	7	11.8	64.29	38.57	51.43	86.58	16.82
Step 4	Steps 1-3 + Eliminate spill at LGR	0.0	7.0	7	11.8	64.29	38.57	51.43	86.58	16.40
Step 5	Steps 1-4 + Eliminate spill at LGS	0.0	0.0	7	11.8	64.29	38.57	51.43	86.58	15.97
Step 6	Steps 1-5 + Eliminate spill at LMN	0.0	0.0	0.0	11.8	64.29	38.57	51.43	86.58	15.54
Step 7	Steps 1-6 + Reduce spill at IHR to RSW only	0.0	0.0	0.0	8.4	64.29	38.57	51.43	86.58	15.33
Step 8	Steps 1-7 + Eliminate spill at IHR	0.0	0.0	0.0	0.0	64.29	38.57	51.43	86.58	14.81
Step 9	Steps 1-8 + Reduce spill at BON to 75 Kcfs	0.0	0.0	0.0	0.0	64.29	38.57	51.43	75	14.10
Step 10	Steps 1-9 + Reduce spill at MCN to 30% of flow	0.0	0.0	0.0	0.0	38.57	38.57	51.43	75	12.52
Step 11	Steps 1-10 + Reduce spill at BON to 50 Kcfs	0.0	0.0	0.0	0.0	38.57	38.57	51.43	50	10.98
Step 12	Steps 1-11 + Reduce spill at MCN to 20% of flow	0.0	0.0	0.0	0.0	25.72	38.57	51.43	50	10.19
Step 13	Steps 1-12 + Eliminate spill at BON	0.0	0.0	0.0	0.0	25.72	38.57	51.43	0.0	7.12
Step 14	Steps 1-13 + Eliminate spill at JDA	0.0	0.0	0.0	0.0	25.72	0.0	51.43	0.0	4.74
Step 15	Steps 1-14 + Reduce spill at TDA to 30%	0.0	0.0	0.0	0.0	25.72	0.0	38.574	0.0	3.95
Step 16	Steps 1-15 + Eliminate spill at MCN	0.0	0.0	0.0	0.0	0.0	0.0	38.574	0.0	2.37
Step 17	Steps 1-16 + Eliminate spill at TDA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

Emergency Actions List (Updated via TMT as of May 27, 2009) NOAA's revised list for the summer of 2015

July – August period (MW amounts are approximate)

Reduce spill at LWG to RSW only (~9 kcfs) 70MW

Reduce spill at IHR to RSW with training spill limited to 2 stops at Bay 1

Reduce spill at LMN to RSW only (~9 kcfs) 63 MW

Reduce spill at LWG to 0 63MW

Reduce spill at LGS to 0 77MW

Reduce spill at LMN to 0 119 MW

Reduce spill at IHR to RSW only (~9 kcfs) 133MW

Reduce spill at IHR to 0 180MW

Reduce spill at BON to 75 kcfs

Reduce spill at NCN to 30% of flow

• Reduce spill at BON to 50 kcfs while maintain B2CC spill 105/210MW

 Reduce spill at MCN to 20% of flow 180MW

 Reduce spill at BON to 0 200MW

 Reduce spill at JDA to 0 338MW

 Reduce spill at TDA to 30% 106MW

 Reduce spill at MCN to 0 (to save water for future hours)

 Reduce spill at TDA to 0 324MW

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Comment [PW1]: Plenty of unloaded turbines available

Deleted: Increase generation at JDA to operate outside 1% up to full load

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 Increase generation at TDA to operate outside 1% up to full load¶

Comment [PW2]: RSW is already out, maintain 30% spill

Deleted: Reduce spill at LGS to RSW only

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Comment [PW3]: Plenty of unloaded units

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Comment [PW4]: Plenty of unloaded units

Deleted: Increase generation at BON PH I to operate outside 1% up to full load

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Deleted: Reduce spill at BON to 50 kcfs while maintain B2CC spill 105/210MW¶
 Reduce MCN to TSW's only¶

Deleted: Increase generation at BON PH II to operate outside 1% up to full load