Flood Risk Management Requirements
Report #5 for Water Year 2014
Issue Date: 29 May 2014

A. Purpose of Flood Risk Management Requirements. These requirements provide maximum end-of-month reservoir elevations and/or minimum outflows for flood risk management projects in the Columbia River Basin. These requirements are for use by U.S. Army Corps of Engineers, BC Hydro, Bureau of Reclamation, Idaho Power, PPL Montana, and Bonneville Power Administration for operations planning and include all formally approved deviations to date. Any deviation from the flood risk management requirements herein will require approval from the Chief, Columbia Basin Water Management Division (CBWM) per the Northwestern Division's (NWD) Deviation Policy (NWDR 1110-2-6). Requirements are in accordance with the Columbia River Treaty Flood Control Operating Plan (FCOP) and any project-specific water control manuals, with variations as described below. These flood risk management requirements will be revised and re-issued as new information becomes available.

B. List of Approved Flood Deviations from Water Control Manuals.
No deviations are in place at this time.

C. Flood Risk Management Requirements
These requirements have been prepared using the most recent official seasonal volume forecasts. The April-August volume forecast at The Dalles dam based on the May 2014 official forecast is 96741 kaf. All other forecasts can be found in Table 2 or at:
http://www.nwd-wc.usace.army.mil/report/colsum/

Table 1 shows the flood risk management elevations, draft and flow limits for the evacuation, holding and refill periods. The Initial Controlled Flow (ICF) based on the May forecast is 372 kcfs. See the FCOP for how the ICF is computed. More details on the values used can be found at:
http://www.nwd-wc.usace.army.mil/report/storcorr/

D. System Flood Risk Management Refill Discussion.
Columbia Basin Water Management declared the initiation of system refill on May 9th. During the runoff season, end-of-month reservoir elevation targets and controlled flow may change in response to the shape and timing of the runoff. The system controlled flow at The Dalles for flood risk management requirements is 375 kcfs.

Current refill guidance:

- Grand Coulee Dam pool elevation not to exceed 1285 ft before June 15th.
- The Dalles maximum instantaneous flow not to exceed 385 kcfs.

E. Individual Project Flood Risk Management Requirements Discussion.
June 15th guidance is provided as recommendations to assist projects with final refill and spill control.

Table 1. Flood Risk Management Requirements

Project	31Jan	28Feb	31Mar	15 Apr	30 Apr	31 May	15 Jun[5]	30 Jun	31 Jul
MCDB (kaf) [2]	1662	1840	4080	n/a	4080	2448	n/a	286	0
ARDB (ft)	1430.5	1430.1	1414.1	n/a	1414.1	1423.8	1437	1444.0	1444.0
DCDB (ft)	1846.9	1829.4	1826.9	n/a	1817.0	1840.0	n/a	1892.0	1892.0
LIB (ft)	2426.7	2436.4	2440.9	n/a	2387.0	Est	n/a	Est	2459.0
LIB (kcfs) [4]	n/a	n/a	n/a	n/a	n/a	14.2	n/a	n/a	n/a
HGH (ft)	3544.4	3539.0	3532.4	3496.4	3495.4	n/a	n/a	3560.0	3560.0
HGH (kcfs)	n/a	n/a	n/a	n/a	n/a	6.4	n/a	n/a	n/a
KERM (ft)	n/a	n/a	n/a	2883.0	n/a	2890.0	2892.5	2893.0	2893.0
ALF (ft) [1]	2060.0	2060.0	2056.0	n/a	2056.0	2062.5	n/a	2062.5	2062.5
GCL (ft)	1290.0	1290.0	1266.8	1250.0	1235.2	1267.8	1285	1290.0	1290.0
BRN (ft)	2077.0	2073.6	2067.3	2056.1	2056.3	2077.0	n/a	2077.0	2077.0
DWR (ft)	1546.5	1543.5	1517.6	1492.5	1499.8	1572.3	n/a	1600.0	1600.0

Notes:

1. Albeni Falls flood risk management elevations are based on readings at the Hope gage.
2. KAF units refer to required flood risk management space (draft) in the reservoir.
3. Under certain circumstances, the Flood Control Refill Curve (FCRC) procedure may be used to determine when refill is to begin at each project where applicable.
4. Per the Libby and Hungry Horse Dam WCM's VarQ operating procedures, releases can be adjusted prior to June 30th to control refill.
5. June 15th numbers are presented as **guidance-only**, not as flood risk management requirements.

Table 2. Water Supply Forecasts (Kaf)

Project	Forecast Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Current month Forecast % of Normal [2]	Residual Runoff [1] (%)
MCDB	Apr-Aug	10300	10358	10207	11080	11224			102	84
ARDB	Apr-Aug	19678	20003	19926	21761	22170			101	77
DCDB	Apr-Aug	1785	1728	1761	1891	1903			95	75
LIB	Apr-Aug	5432	5192	5505	6868	6996			119	70
HGH	May-Sep	1787	1819	2142	2204	2400			142	67
KERM	Apr-Jul	6367	5433	6737	7219	7343			126	57
ALF	Apr-Jul	11816	10126	13807	14298	15163			129	55
GCL	Apr-Aug	54638	48197	57818	60382	64683			114	66
BRN	Apr-Jul	3723	3246	3861	3934	3519			64	52
DWR	Apr-Jul	2296	2274	2701	3111	3183			132	46
TDA	Apr-Aug	84888	72458	88832	92057	96741			111	61

Notes:

1. Residual runoff values are applicable starting April. Residual runoff volume (Maf) is the amount of the current month's seasonal volume forecast that is still left to runoff. The percentage shows the volume that is yet to runoff, divided by the forecasted volume. As an example, at Libby, the residual runoff volume will be the current month's Apr-Aug forecast volume minus the amount of observed runoff since April 1st.
2. Official water supply forecasts for KERM, ALF, GCL, BRN and TDA are the ESP 5-day-QPF median values published by the NWRFC on the following days for 2014: Jan 8, Feb 7, Mar 7, Apr 8, May 7, Jun 6 and Jul 8.

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