

Flood Risk Management Requirements  
Report #3 for Water Year 2014  
Issue Date: 10 March 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, 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.**  
None are currently in effect.

**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 Mar 2014 official forecast is 88832 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 March forecast is 329 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 Requirement Discussion.**  
No system refill requirements at this time.

**E. Individual Project Flood Risk Management Requirements Discussion.**  
No specific individual requirements at this time.

**Table 1. Flood Risk Management Requirements**

Project	31Jan	28Feb	15Mar	31Mar	15 Apr	30 Apr <sup>3</sup>	31 May <sup>3</sup>	30 Jun <sup>3</sup>	31 Jul <sup>3</sup>
MCDB (kaf) <sup>2</sup>	1662	1840	n/a	4080	n/a	4080	2448	286	0
ARDB (ft)	1430.5	1430.1	n/a	1414.1	n/a	1414.1	1423.9	1443.2	1444
DCDB (ft)	1846.9	1829.4	1826.9	1826.9	n/a	1826.9	1846.3	1880.1	1892.0
LIB (ft) <sup>4</sup>	2426.7	2436.4	n/a	2440.9	n/a	2440.9	n/a	n/a	n/a
LIB (cfs)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
HGH (ft)	3544.4	3539.0	n/a	3532.4	3529.4	3526.4	3552.1	3560.0	3560.0
KERM (ft)	n/a	n/a	n/a	n/a	2883.0	n/a	2890.0	2893.0	2893.0
ALF (ft) <sup>1</sup>	2060.0	2060.0	n/a	2056.0	n/a	2056.0	2062.5	2062.5	2062.5
GCL (ft) <sup>5</sup>	1290.0	1290.0	n/a	1266.8	1250.6	1236.7	1262.8	1289.5	1290.0
BRN (ft) <sup>5</sup>	2077.0	2073.6	n/a	2067.3	2064.4	2059.3	2074.4	2077.0	2077.0
DWR (ft) <sup>5</sup>	1546.5	1543.5	n/a	1517.6	1499.8	1515.9	1573.2	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. Flood risk management requirements for May, June and July are based on estimated normal runoff shape. 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 Dam WCM, Rule 1 of the VarQ operating procedures, during the refill period releases will be limited to the hydraulic capacity of the powerhouse to the best extent possible.
5. Grand Coulee, Brownlee, and Dworshak flood risk management data reflect shift volumes from Dworshak and Brownlee to Grand Coulee. Values reflect a DWR and BRN shift to GCL on Mar 31 and Apr 15.

**Table 2. Water Supply Forecasts (Kaf)**

Project	Forecast Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Current month Forecast % of Normal	Residual Runoff <sup>1</sup> (%/ Maf)
MCDB	Apr-Aug	10300	10358	10207					93	
ARDB	Apr-Aug	19678	20003	19926					91	
DCDB	Apr-Aug	1785	1728	1761					88	
LIB	Apr-Aug	5432	5192	5505					94	
HGH	May-Sep	1787	1819	2142					109	
KERM <sup>2</sup>	Apr-Jul	6367	5433	6737					116	
ALF <sup>2</sup>	Apr-Jul	11816	10126	13807					112	
GCL <sup>2</sup>	Apr-Aug	54638	48197	57818					102	
BRN <sup>2</sup>	Apr-Jul	3723	3246	3861					71	
DWR	Apr-Jul	2296	2274	2701					111	
TDA <sup>2</sup>	Apr-Aug	84888	72458	88832					101	

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 1<sup>st</sup>.
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.

Peter F. Brooks, P.E., D.WRE  
Ch., Hydrologic Engineering and Power Branch