

Flood Risk Management Requirements  
Report #2 for Water Year 2014  
Issue Date: 12 February 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 Feb 2014 official forecast is 72458 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 February forecast is 266 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    | 2600   | n/a    | 2600                | 1560                | 182                 | 0                   |
| ARDB (ft)               | 1430.5 | 1430.1 | n/a    | 1425.6 | n/a    | 1425.6              | 1431.5              | 1443.5              | 1444.0              |
| DCDB (ft)               | 1846.9 | 1829.4 | 1829.4 | 1829.4 | n/a    | 1829.4              | 1848.0              | 1880.5              | 1892.0              |
| LIB (ft) <sup>4</sup>   | 2426.7 | 2436.4 | n/a    | 2443.3 | n/a    | 2446.1              | 2453.1              | 2459.0              | 2459.0              |
| 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    | 3533.4 | 3530.7 | 3527.9              | 3552.4              | 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)                | 1290.0 | 1290.0 | n/a    | 1283.3 | 1283.3 | 1282.7              | 1286.0              | 1289.9              | 1290.0              |
| BRN (ft)                | 2077.0 | 2073.6 | n/a    | 2075.3 | 2076.2 | 2077.0              | 2077.0              | 2077.0              | 2077.0              |
| DWR (ft)                | 1546.5 | 1543.5 | n/a    | 1548.7 | 1547.1 | 1547.1              | 1582.1              | 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, releases will be limited to the hydraulic capacity of the powerhouse to the best extent possible.

**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 |     |     |     |     |     | 94                                 |                                       |
| ARDB              | Apr-Aug         | 19678 | 20003 |     |     |     |     |     | 91                                 |                                       |
| DCDB              | Apr-Aug         | 1785  | 1728  |     |     |     |     |     | 86                                 |                                       |
| LIB               | Apr-Aug         | 5432  | 5192  |     |     |     |     |     | 88                                 |                                       |
| HGH               | May-Sep         | 1787  | 1819  |     |     |     |     |     | 107                                |                                       |
| KERM <sup>2</sup> | Apr-Jul         | 6367  | 5433  |     |     |     |     |     | 94                                 |                                       |
| ALF <sup>2</sup>  | Apr-Jul         | 11816 | 10126 |     |     |     |     |     | 86                                 |                                       |
| GCL <sup>2</sup>  | Apr-Aug         | 54638 | 48197 |     |     |     |     |     | 85                                 |                                       |
| BRN <sup>2</sup>  | Apr-Jul         | 3723  | 3246  |     |     |     |     |     | 59                                 |                                       |
| DWR               | Apr-Jul         | 2296  | 2274  |     |     |     |     |     | 93                                 |                                       |
| TDA <sup>2</sup>  | Apr-Aug         | 84888 | 72458 |     |     |     |     |     | 83                                 |                                       |

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