

Flood Risk Management Requirements
Report #18 for Water Year 2022
Issue Date: 06 Jul 2022

NOTE: DUE TO DIMINISHED SNOWPACK AND NEAR COMPLETION OF REFILL AT MOST PROJECTS, THIS IS THE FINAL ISSUE OF THE FLOOD RISK MANAGEMENT OPERATING REQUIREMENTS DOCUMENTATION OF WATER YEAR 2022.

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, Energy Keepers, BC Hydro 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 (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

Table 1 shows the flood risk management elevations, draft and flow limits for the evacuation, holding and refill periods. The April-August volume forecast at The Dalles Dam based on the June 2022 official forecast is 88,101 kaf. Current forecast is now 97,643 kaf per the NWRFC. All other forecasts can be found in Table 2 or at: <https://www.nwd-wc.usace.army.mil/report/colsum/>

D. System Flood Risk Management Refill Requirement Discussion.

The Initial Controlled Flow (ICF) based on the official May 2022 forecast was 312 kcfs, and the ICF date was 7 May based on the ICF calculated using the official April 2022 forecast. Based upon refill modeling of the most recent ESP traces and the projected rapid decline in runoff, **all project specific flood risk management requirements are removed and all projects are free to refill in a reasonable manner.**

E. Individual Project Flood Risk Management Requirements Discussion.

No specific individual requirements at this time.

Table 1. Flood Risk Management Requirements

| Project | 31 Jan | 28 Feb | 31 Mar | 15 Apr | 30 Apr | Date Refill Starts | 31 May ³ | 30 Jun ³ | 31 Jul ³ |
|-------------------------|--------|---------------------|---------------------|--------|---------------------|--------------------|---------------------|---------------------|---------------------|
| MCDB (kaf) ² | 1609 | 2810 | 4080 | 4080 | 4080 | 2 May | 2448 | 286 | 0 |
| ARDB (ft) ⁷ | 1430.1 | 1422.9 | 1414.1 | 1414.1 | 1414.1 | 5 May | 1421.4 | 1438.0 | 1444.0 |
| DCDB (ft) ⁵ | 1839.3 | 1812.5 ⁵ | 1807.7 ⁵ | 1807.7 | 1807.7 | 27 Apr | 1834.5 | 1877.3 | 1892.0 |
| LIB (ft) ⁴ | 2384.6 | 2363.9 | 2371.8 | 2370.7 | 2370.7 | 27 Apr | n/a | n/a | 2459.0 |
| LIB (kcfs) | n/a | n/a | n/a | n/a | ~16 | 27 Apr | ~12.3 | ~13 | n/a |
| HGH (ft) | 3542.2 | 3539.3 | 3539.3 | 3543.4 | 3542.5 | 1 May | n/a | n/a | 3560.0 |
| HGH (kcfs) | n/a | n/a | n/a | n/a | n/a | 1 May | ~7.5 | ~11 | n/a |
| SKQ (ft) | n/a | n/a | n/a | 2883.0 | n/a | - | 2890.0 | 2893.0 | 2893.0 |
| ALF (ft) ¹ | 2060.0 | 2060.0 | 2056.0 | n/a | 2056.0 | - | 2062.5 | 2062.5 | 2062.5 |
| GCL (ft) | 1290.0 | 1290.0 | 1271.5 | 1258.2 | 1250.7 | 6 May | 1260.0 | 1286.0 | 1290.0 |
| BRN (ft) | 2077.0 | 2053.7 | 2059.1 | 2069.1 | 2077.0 ⁶ | 6 May | 2077.0 | 2077.0 | 2077.0 |
| DWR (ft) | 1527.8 | 1518.6 | 1528.6 | 1559.5 | 1540.0 ⁶ | 6 May | 1588.0 ⁶ | 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 Refill Guide Curve (also known as Flood Control Refill Curve) 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.
5. Per the Duncan Storage Resevation Diagram, Duncan Reservoir is required to achieve its full flood risk management draft requirement of 1807.7 ft by 15 March.
6. Dworshak operated to local FRM requirements for the end of May.
7. Arrow operated to local FRM requirements for the end of June (per FCOP 6-3). The 30 June system flood control maximum elevation was 1444 ft.

Table 2. Water Supply Forecasts (Kaf)

| Project | Forecast Period | Jan | Feb | Mar | Apr | May | Jun | Jul 6 th NWRFC | Current month Forecast % of Normal | Residual Runoff ² (%) |
|------------------|-----------------|-------|-------|-------|-------|-------|-------|------------------------------|------------------------------------|----------------------------------|
| MCDB | Apr-Aug | 13115 | 13050 | 12846 | 12727 | 12507 | 12344 | 12946 | 116% | 54% |
| ARDB | Apr-Aug | 25497 | 25513 | 24959 | 24662 | 24656 | 24445 | 24237 | 109% | 46% |
| DCDB | Apr-Aug | 2361 | 2398 | 2339 | 2314 | 2226 | 2253 | 2388 | 117% | 45% |
| LIB | Apr-Aug | 7273 | 7249 | 6972 | 6992 | 6740 | 6276 | 6973 | 115% | 30% |
| HGH | May-Sep | 1920 | 1810 | 1700 | 1600 | 1910 | 1900 | 2280 | 129% | 16% |
| SKQ ¹ | Apr-Jul | 5742 | 5676 | 6049 | 6057 | 5472 | 5709 | 7055 | 115% | 14% |
| ALF ¹ | Apr-Jul | 11262 | 11353 | 11867 | 11845 | 10821 | 11765 | 13665 | 110% | 13% |
| GCL ¹ | Apr-Aug | 60042 | 61575 | 61433 | 61846 | 57157 | 59431 | 66045 | 114% | 32% |
| BRN ¹ | Apr-Jul | 5216 | 3995 | 3672 | 3278 | 3191 | 3186 | 3215 | 63% | 14% |
| DWR | Apr-Jul | 3090 | 2805 | 2669 | 2367 | 2399 | 2397 | 2832 | 114% | 7% |
| TDA ¹ | Apr-Aug | 91310 | 88817 | 86386 | 86007 | 83250 | 88101 | 97643 | 109% | 27% |

Notes:

1. Official water supply forecasts for SKQ, ALF, GCL, BRN and TDA are the ESP 10-day-QPF median values published by the NWRFC on the following days for 2022: Jan 5, Feb 3, Mar 3, Apr 5, May 4, Jun 3.
2. Residual runoff (%) is the percentage of the current month's seasonal volume forecast that has yet to runoff during the forecast period. For example, 36% of the forecasted April through August runoff volume for Libby has yet to runoff. Because of the amount of precipitation not included in the official June forecasts, the residuals are calculated based on daily forecasts.

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