Flood Risk Management Requirements
Report #4 for Water Year 2022
Issue Date: 07 April 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 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.

A Dworshak Reservoir to Grand Coulee Reservoir storage shift of 320 kaf has been applied to the April 15 flood risk management requirements.

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 April 2022 official forecast is 86,007 kaf. All other forecasts can be found in Table 2 or at:
https://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 forecast is 298 kcfs. See the FCOP for how the ICF is computed. More details on the values used can be found at:
https://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	31 Jan	28 Feb	31 Mar	15 Apr	30 Apr[3]	31 May[3]	30 Jun[3]	31 Jul[3]
MCDB (kaf) [2]	1609	2810	4080	4080	4080	2448	286	0
ARDB (ft)	1430.1	1422.9	1414.1	1414.1	1414.1	1423.9	1443.2	1444.0
DCDB (ft)[5]	1839.3	1812.5[5]	1807.7[5]	1807.7	1807.7	1834.5	1877.3	1892.0
LIB (ft) [4]	2384.6	2363.9	2371.8	2370.7	2370.7	n/a	n/a	2459.0
LIB (kcfs)	n/a	n/a	n/a	n/a	n/a	TBD	TBD	n/a
HGH (ft)	3542.2	3539.3	3539.3	3543.4	3542.5	n/a	n/a	3560.0
HGH (kcfs)	n/a	n/a	n/a	n/a	n/a	TBD	TBD	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	1271.4	1289.6	1290.0
BRN (ft)	2077.0	2053.7	2059.1	2069.1	2077.0[6]	2077.0	2077.0	2077.0
DWR (ft)	1527.8	1518.6	1528.6	1559.5	1540.0[6]	1580.2	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 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. April 30 requirements for Dworshak and Brownlee are based on these projects operating to their respective Flood Control Refill Curve.

Table 2. Water Supply Forecasts (Kaf)

Project	Forecast Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Current month Forecast % of Normal
MCDB	Apr-Aug	13115	13050	12846	12727				114
ARDB	Apr-Aug	25497	25513	24959	24662				111
DCDB	Apr-Aug	2361	2398	2339	2314				113
LIB	Apr-Aug	7273	7249	6972	6992				115
HGH	May-Sep	1920	1810	1700	1600				90
SKQ[1]	Apr-Jul	5742	5676	6049	6057				99
ALF[1]	Apr-Jul	11262	11353	11867	11845				96
GCL[1]	Apr-Aug	60042	61575	61433	61846				106
BRN[1]	Apr-Jul	5216	3995	3672	3278				64
DWR	Apr-Jul	3090	2805	2669	2367				96
TDA[1]	Apr-Aug	91310	88817	86386	86007				96

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.

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