

ADJUSTMENT OF SYSTEM REFILL

Flood Risk Management Requirements
Northwestern Division
U.S. Army Corps of Engineers
Report #11 for Water Year 2018
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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 the U.S. Army Corps of Engineers, the U.S. 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 U.S. Army Corps of Engineers 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.

There are currently no deviations in place.

C. Flood Risk Management Requirements

Table 1 shows the flood risk management elevations, draft and flow limits for the evacuation, holding, and refill periods.

D. System Flood Risk Management Refill Requirement Discussion.

The Initial Control Flow (ICF) date was declared as May 6, 2018. Based upon refill modeling of the most recent ESP traces, **the Controlled Flow (CF) is approximately 475 kcfs with potential for a rapid recession.** If needed, the Controlled Flow will be further updated as the system is managed for flood risk. The Flood Risk Management Requirements for refill are shown in Table 1 and are based on modeling of the most recent ESP traces and other information.

E. Individual Project Flood Risk Management Requirements Discussion.

- Arrow (ARDB) project outflows are expected to be maintained at the current discharge flow rate of 44 kcfs through May 31, 2018.
- Duncan (DCDB) project outflows are expected to be maintained at 100 cfs for local Flood Risk Management needs beginning Friday, May 25.
- Grand Coulee discharges should target an end-of-month elevation of 1268 feet on May 31, 2018.
- Seliš Ksanka Qlispè Dam should operate on free-flow. Inflows will likely force pool elevations to approximately 2092 feet despite the Memorandum of Understanding targeting an elevation of 2090 ft at end the of May.

Table 1. Flood Risk Management Requirements

Project	31Jan	28Feb	31Mar	15 Apr	30 Apr	Date Refill Starts	31 May ³	30 Jun ³	31 Jul ³
MCDB (kaf) ²	1662	2810.0	3267.0	4080.0	4080.0	01 May	2448	286	0.0
ARDB (ft)	1430.5	1422.9	1408.5	1414.1	1414.1	04 May	1436	1443	1444.0
DCDB (ft)	1839.5	1812.5	1807.7	1807.7	1807.7	26 Apr	1845	1880	1892.0
LIB (ft) ⁴	2401.8	2387.7	2358.3	2359.3	2362.4 ⁴	26 Apr	<u>Est</u>	<u>Est</u>	2459.0
LIB (cfs)	n/a	n/a	n/a	n/a	9.2	26 Apr	~9.2	n/a	n/a
HGH (ft)	3541.5	3529.6	3496.2	3476.6	3475.4	01 May	n/a	3560	3560.0
HGH (cfs) ⁷	-	-	-	-	-	01 May	~4.2	n/a	n/a
SKQ (ft) ⁵	n/a	n/a	n/a	2883.0	n/a	-	2890 ⁵	2893	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	1289.6	1256.9	1234.0	1222.7	05 May	1268	1289	1290.0
BRN (ft)	2077.0	2046.8	2037.2	2025.0	2030.0	05 May	2069	2077	2077.0
DWR (ft)	1530.5	1516.5	1461.6	1470.0	1500.0 ⁶	05 May	1583 ⁶	1599	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. Sèliš Ksanka Qlispè Dam, formerly known as Kerr Dam is operating on free flow, ~ elevation 2092 feet.
6. Dworshak is filling on its refill guide curve, with end of May FRM of 1583 feet.
7. Hungry Horse VARQ procedures do not specify end of month targets after the start of refill (after May 1 or 10 days before the ICF date). The VARQ flows are meant as a guide for refill and are not to be interpreted as a strict minimum flow.

Table 2. Water Supply Forecasts (Kaf)

Project	Forecast Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Current Month Forecast % of Normal	Residual Runoff ³ (%)
MCDB	Apr-Aug	11117	11334	11753	11727	11406			104	77
ARDB	Apr-Aug	21606	22445	23532	23310	23172			105	72
DCDB	Apr-Aug	1995	2061	2174	2208	2167			108	73
LIB	Apr-Aug	6645	6765	7205	7189	7356			125	66
HGH	May-Sep	1964	2062	2302	2395	2500			148	58
SKQ ^{1,2}	Apr-Jul	5595	7346	7573	8241	8274			142	53
ALF ¹	Apr-Jul	12382	15152	15578	17016	17558			149	51
GCL ¹	Apr-Aug	55852	64817	65870	68335	71449			126	60
BRN ¹	Apr-Jul	5690	5509	5665	6436	5889			108	45
DWR	Apr-Jul	2941	2849	3093	3040	3032			125	38
LWG ¹	Apr-Aug	21708	22241	22871	24658	24298			115	47
TDA ¹	Apr-Aug	87282	94748	98132	103337	106883			122	55

Notes:

1. Official water supply forecasts for SKQ, ALF, GCL, BRN and TDA are the ESP 5-day-QPF median values published by the NWRFC on the following days for 2018: Jan 4, Feb 5, Mar 5, Apr 5, May 3, Jun 5, and Jul 6.
2. Sèliš Ksanka Qlispè Dam, formerly known as Kerr Dam.
3. Residual runoff is the percentage of the current month's seasonal volume forecast that has yet to runoff.

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