Flood Risk Management Requirements
Report #8 for Water Year 2020
Issue Date: 05 JUN 2020

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.

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 June 2020 official forecast is 93,436 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. 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.
The ICF date was declared as May 2, with an ICF of 303 kcfs. The ICF flow rate was based on the official April 2020 seasonal runoff volume forecast. Based upon the most recent ESP traces, it is anticipated that flows in the lower Columbia River will average about 300 kcfs for the month of June. However, due to the anticipated shape of the runoff and operational considerations, it is expected that flows in the lower Columbia River through mid June will range from 350-400 kcfs. Therefore operate the projects to end of month elevations rather than trying to maintain a consistent flow.

The Flood Risk Management Requirements shown in Table 1 are based on the official June 2020 seasonal runoff volume forecasts and modeling. During the runoff season, end-of-month reservoir elevation targets may change in response to the shape and timing of the runoff.

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

Table 1. Flood Risk Management Requirements

Project	31Jan	28Feb	31Mar	15 Apr	Date Refill Starts	30 Apr	31 May[3]	30 Jun[3]	31 Jul[3]
MCDB (kaf) [2]	1648	2641	4080	4080	27 Apr	4080	2248	286	0
ARDB (ft)	1430.5	1421.7	1414.1	1414.1	30 Apr	1416.1	1428.0	1443.0	1444.0
DCDB (ft)	1839.9	1812.5[5]	1807.7[5]	1807.7	22 Apr	1807.7	1834.5	1892.0	1892.0
LIB (ft) [4]	2426.7	2404.2	2404.1	2405.3	22 Apr	2405.3	n/a	n/a	2459.0
LIB (kcfs)	n/a	n/a	n/a	n/a	22 Apr	n/a	~17.5	~16.5	n/a
HGH (ft) [4]	3547.8	3540.3	3532.8	3526.4	01 May	3522.9	n/a	n/a	3560.0
HGH (kcfs)	n/a	n/a	n/a	n/a	01 May	n/a	~7	~8.5	n/a
SKQ (ft)[5]	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	1289.9	1278.6	1270.6	01 May	1253.9	1275.0	1288.0	1290.0
BRN (ft)	2077.0	2048.7	2053.4	2060.9	01 May	2061.6	2074.7	2077.0	2077.0
DWR (ft)	1564.3	1551.8	1541.7	1540.8	01 May	~1546	1590.5	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 and June 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. Libby and Hungry Horse refill is guided by their VarQ flows.
4. Per the Libby Dam and Hungry Horse Dam WCMs, Rule 1 of the VarQ operating procedures, releases will be limited to the hydraulic capacity of the powerhouse to the best extent possible.
5. SKQ to continue operating the project on free flow until after flows on the Flathead River at Columbia Falls decrease and are forecast to remain below flood stage based on National Weather Service forecasts and flood stage criteria.

Table 2. Water Supply Forecasts (Kaf)

Project	Forecast Period	Jan	Feb	Mar	Apr	May	Jun	Current Month Forecast % of Normal	Residual Runoff[2] (%)
MCDB	Apr-Aug	11179	11598	11579	11793	11308	12173	111	78
ARDB	Apr-Aug	22621	23898	23744	23858	23162	24190	110	74
DCDB	Apr-Aug	1998	2227	2214	2233	2178	2132	106	55
LIB	Apr-Aug	5481	6386	6349	6324	5759	5795	98	68
HGH	May-Sep	1582	1778	1830	1890	1970	2200	130	50
SKQ[1]	Apr-Jul	6378	6653	6405	5889	6263	6708	116	47
ALF[1]	Apr-Jul	11926	13167	12295	11347	12169	13406	114	43
GCL[1]	Apr-Aug	58483	63023	61265	58666	60098	65111	115	59
BRN[1]	Apr-Jul	5414	5105	4028	3875	3848	3961	72	36
DWR	Apr-Jul	1532	2095	2355	2333	1960	2187	90	21
TDA[1]	Apr-Aug	86909	92647	87043	84445	87323	93436	107	53

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 2020: Jan 6, Feb 5, Mar 4, Apr 3, May 5, Jun 3, and Jul 7.
2. Residual runoff is the percentage of the current month's seasonal volume forecast that has yet to runoff.

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