ADJUSTMENT OF SYSTEM REFILL

Flood Risk Management Requirements
Report #8 for Water Year 2017
Issue Date: 24 May 2017

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 (shown in Table 1) have been prepared using the most recent official seasonal volume forecasts. The April-August volume forecast at The Dalles Dam based on the May 2017 official forecast is 111,123 kaf. All other water supply 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 Controlled Flow (CF) based on the May forecast and available upstream storage is 380 kcfs. See the FCOP for how the CF 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.
Columbia Basin Water Management declared the initiation of system refill on May 4, and the refill initiation date for each reservoir is summarized in Table 1. During the runoff season, end-of-month reservoir elevation targets and control flow may change in response to the shape and timing of the runoff.

Due to early season runoff, the Columbia Basin Water Management is reissuing these requirements for end of month targets.

E. Individual Project Flood Risk Management Requirements Discussion.
This guidance is to be used for planning purposes and will be revised as updated streamflow forecasts become available and when additional operation guidance is needed.

SKQ - Sėliš Ksanka Qĺispė Dam is operating on channel restrictions and is currently slightly above the end of month elevation of 2890 feet.

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]	1662	2810	4080	4080	29 Apr	4080	2448	286	0
ARDB (ft)	1430.5	1422.9	1414.1	1414.1	02 May	1414.1	1429.0	1440.0	1444.0
DCDB (ft)	1839.3	1815.3	1812.8	1807.7	24 Apr	1807.7	1828.8	1872.5	1892.0
LIB (ft) [4]	2396.2	2433.7	2382.1	2325.4	24 Apr	2325.4[4]	Est	Est	2459.0
LIB (kcfs)	n/a	n/a	n/a	n/a	24 Apr	n/a	15.9	n/a	n/a
HGH (ft)	3543.8	3549.0	3539.8	3533.6	01 May	3531.3	3546.8	3560.0	3560.0
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	1290.0	1267.1	1234.0	03 May	1232	1262.0	1289.5	1290.0
BRN (ft)	2077.0	2048.3	2036.0	2024.0	03 May	2012.6	2060.0	2077.0	2077.0
DWR (ft)	1528.3	1531.1	1493.1	1471.1	03 May	1530	1580.0	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 historical 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. Sėliš Ksanka Qĺispė Dam, formerly known as Kerr Dam.

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	11569	10737	10798	11503	11392			104	86%
ARDB	Apr-Aug	23045	21065	21248	22530	23320			106	80%
DCDB	Apr-Aug	2010	1954	1942	2036	2103			105	80%
LIB	Apr-Aug	6861	5583	6783	7654	8190			139	74%
HGH	May-Sep	1828	1489	1691	1769	2018			119	72%
SKQ[1,2]	Apr-Jul	5649	5790	6327	7364	7527			130	59%
ALF[1]	Apr-Jul	11413	11505	12255	14894	15206			129	55%
GCL[1]	Apr-Aug	54930	53656	57336	64955	68159			120	67%
BRN[1]	Apr-Jul	4801	5327	7560	10845	11277			206	46%
DWR	Apr-Jul	3055	2541	2867	2984	2941			122	43%
TDA[1]	Apr-Aug	84945	82821	92337	105039	111123			127	60%

Notes:

1. Official water supply forecasts for SKQ (KERM), ALF, GCL, BRN and TDA are the ESP 5-day-QPF median values published by the NWRFC on the following days for 2017: Jan 5, Feb 3, Mar 3, Apr 5, May 3, Jun 5.
2. Sėliš Ksanka Qĺispė Dam, formerly known as Kerr Dam.
3. Residual runoff values are applicable beginning in April. Residual runoff (%) is the percentage of the current month's seasonal volume forecast that has yet to runoff during the forecast period. For example, 74% of the forecasted April through August runoff volume for Libby has yet to runoff.

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