DECLARATION OF INITIATION OF SYSTEM REFILL

Flood Risk Management Requirements
Report #5 for Water Year 2019
Issue Date: 18 APR 2019

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 April 2019 official forecast is 75,577 kaf. All other 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 Initial Controlled Flow (ICF) based on the April official forecast (3 April 2019) is 277 kcfs. However, additional precipitation during the first half of April has increased the April-August volume forecast at The Dalles Dam to 85,117 kaf (17 April 2019). Based on this more recent April water supply forecast, the Initial Controlled Flow (ICF) is 300 kcfs and the ICF date is being declared as 22 April 2019. See the FCOP for how the ICF 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 is declaring the initiation of system refill as summarized in Table 1. Note that each reservoir may begin refill on the prescribed date. Until a reservoir's refill date is reached, that reservoir must be no higher than the prescribed 30 April flood risk requirement elevation. 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. The current 31 May FRM requirements are based upon the official April water supply forecasts. These requirements will be updated during the last week of April.

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]	1662	2206	3420	3212	17 Apr	3212	1927	225	0
ARDB (ft)	1430.5	1427.3	1419.2	1420.8	20 Apr	1420.8	1428.3	1443.3	1444.0
DCDB (ft)	1840.9	1812.5	1807.7	1816.8	12 Apr	1816.8	1839.9	1878.6	1892.0
LIB (ft) [4]	2422.2	2436.4	2441.3	2449.7	12 Apr	2453.0	-	2459.0	2459.0
LIB (kcfs)	-	-	-	-	12 Apr	-	~14.1	-	-
HGH (ft)	3548.5	3548.7	3545.1	3553.1	01 May	3553.6	-	3560.0	3560.0
HGH (kcfs)	-	-	-	-		-	~5-6	-	-
SKQ (ft)	-	-	-	2883.0	-	-	2890.0	2893.0	2893.0
ALF (ft) [1]	2060.0	2060.0	2056.0	-	-	2056.0	2062.5	2062.5	2062.5
GCL (ft)	1290.0	1290.0	1283.3	1283.3	21 Apr	1278.9	1284.5	1289.9	1290.0
BRN (ft)	2077.0	2060.6	2049.3	2061.3	21 Apr	2068.7	2075.7	2077.0	2077.0
DWR (ft)	1547.9	1558.6	1559.0	1573.8	21 Apr	1573.8	1588.2	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 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 WCM, Rule 1 of the VarQ operating procedures, releases will be limited to the hydraulic capacity of the powerhouse to the best extent possible.

Table 2. Water Supply Forecasts (Kaf)

Project	Forecast Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Current Month Forecast % of Normal	Residual Runoff[2] (%)
MCDB	Apr-Aug	10560	11079	10972	10252				93	98
ARDB	Apr-Aug	21643	22302	21323	19774				90	97
DCDB	Apr-Aug	1956	2030	2007	1893				94	98
LIB	Apr-Aug	5639	5318	5478	4752				81	97
HGH	May-Sep	1533	1500	1580	1400				83	100
SKQ[1]	Apr-Jul	5123	4845	4560	4310				74	93
ALF[1]	Apr-Jul	11057	10420	9848	9714				82	89
GCL[1]	Apr-Aug	55941	51352	48998	47853				84	93
BRN[1]	Apr-Jul	4383	4160	5863	5450				100	79
DWR	Apr-Jul	2239	1951	2142	1964				81	75
TDA[1]	Apr-Aug	83322	75301	76636	75577				86	88

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 2019: Jan 4, Feb 5, Mar 5, Apr 3, May 3, Jun 5, and Jul 6.
2. Residual runoff is the percentage of the current month's seasonal volume forecast that has yet to runoff.

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