DECLARATION OF INITIATION OF SYSTEM REFILL

Flood Risk Management Requirements
Report #5 for Water Year 2021
Issue Date: 30 April 2021

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 (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.
A deviation is in place to operate Dworshak Dam to the 30 April local FRM target elevation of 1,533.8 ft instead of the 30 April system FRM target elevation of 1,515.1 ft.

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 2021 official forecast is 78,733 kaf. Projected runoff volumes continue to fall, most recent forecast is 74,779 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 official April forecast is 277 kcfs. Based on the falling forecasts, the projected target flow will be approximately 260 kcfs in the lower Columbia. 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 in accordance with guidance for initiation of refill in low-flow years. Refill dates are listed on 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 management (FRM) 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 30 April FRM requirements are based upon the official April water supply forecasts. The 31 May FRM requirements will be updated during the first week of May based on the official May forecast.

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	Date Refill Starts	31 May[3]	30 Jun[3]	31 Jul[3]
MCDB (kaf)[2]	1662	2810	4080	3831	3831	6 May	2299	268	0
ARDB (ft)	1430.5	1422.9	1414.1	1416.1	1416.1	9 May	1425.2	1443.2	1444.0
DCDB (ft)[5]	1839.3	1812.5[5]	1807.7[5]	1807.7	1807.7	1 May	1834.5	1877.3	1892.0
LIB (ft)[4]	2408.1	2406.2	2401.0	2410.7	2409.9	1 May	n/a	n/a	2459.0
LIB (kcfs)	n/a	n/a	n/a	n/a	n/a	1 May	~10	TBD	n/a
HGH (ft)	3543.9	3543.8	3534.1	3541.9	3540.9	1 May	n/a	n/a	3560.0
HGH (kcfs)	n/a	n/a	n/a	n/a	n/a	1 May	~5.5	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	1280.1	1274.7	1272.8	10 May	1281.6	1289.8	1290.0
BRN (ft)	2077.0	2055.7	2056.7	2072.3	2074.1	10 May	2076.5	2077.0	2077.0
DWR (ft)[6]	1533.0	1536.2	1516.0	1533.8	1533.8	10 May	1572.9	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.
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. Under certain circumstances, the Flood Control Refill Curve procedure may be used to determine when refill is to begin at each project.

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	11920	11670	12116	11794				107	97%
ARDB	Apr-Aug	23266	22959	23544	23107				105	96%
DCDB	Apr-Aug	2170	2098	2186	2172				108	97%
LIB	Apr-Aug	6215	5979	5980	5549				94	95%
HGH	May-Sep	1820	1670	1805	1626				96	n/a
SKQ[1]	Apr-Jul	5632	5499	5197	4676				81	89%
ALF[1]	Apr-Jul	10919	11323	11022	10025				85	87%
GCL[1]	Apr-Aug	55490	57326	55403	53855				95	92%
BRN[1]	Apr-Jul	4202	3959	4204	3453				63	80%
DWR	Apr-Jul	2843	2432	2855	2716				112	83%
TDA[1]	Apr-Aug	82416	83271	82215	78733				90	89%

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 2021: Jan 6, Feb 3, Mar 3, Apr 5, May 5, Jun 3.
2. Residual runoff values are applicable starting 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, 95% of the forecasted April through August runoff volume for Libby has yet to runoff.

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William Proctor, P.E.
Ch., Hydrologic Engineering and Power Branch