

## DECLARATION OF INITIATION OF SYSTEM REFILL

### Flood Risk Management Requirements

Report #6 for Water Year 2020

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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 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 2020 official forecast is 84,445 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 2020) is 303 kcfs and the ICF date is being declared as 2 May 2020. 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 controlled 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 first week of May.

Operationally, it is expected that flows in the lower Columbia River may be lower than the 303 kcfs calculated controlled flow as the system is refilling based on the modeling results of the ESP traces. This is due to the current projected shape of the runoff, which is expected to be of a longer duration but flatter/less pronounced flow peak. Therefore operate projects to end of month elevations rather than trying to maintain a controlled flow of 303 kcfs. Note that flows in the lower Columbia may be lower or higher than the controlled flow within limits specified by RCC to prevent flooding in the lower Columbia.

### **E. Individual Project Flood Risk Management Requirements Discussion.**

Arrow Reservoir’s 30 April FRM requirement was reduced from 3600 kaf to 3280 kaf (1414.1 feet to 1416.1 feet) by a Corps-approved deviation (16 April 2020).

**Table 1. Flood Risk Management Requirements**

<b>Project</b>	<b>31Jan</b>	<b>28Feb</b>	<b>31Mar</b>	<b>15 Apr</b>	<b>Date Refill Starts</b>	<b>30 Apr</b>	<b>31 May<sup>3</sup></b>	<b>30 Jun<sup>3</sup></b>	<b>31 Jul<sup>3</sup></b>
MCDB (kaf) <sup>2</sup>	1648	2641	4080	4080	06 May	4080	2248	286	0
ARDB (ft)	1430.5	1421.7	1414.1	1414.1	09 May	1416.1	1423.9	1443.2	1444.0
DCDB (ft)	1839.9	1812.5 <sup>5</sup>	1807.7 <sup>5</sup>	1807.7	01 May	1807.7	1834.5	1877.3	1892.0
LIB (ft) <sup>4</sup>	2426.7	2404.2	2404.1	2405.3	01 May	2405.3	n/a	n/a	2459.0
LIB (kcfs)	n/a	n/a	n/a	n/a	01 May	n/a	~18	-	n/a
HGH (ft) <sup>4</sup>	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	-	n/a
SKQ (ft)	n/a	n/a	n/a	2883.0	-	n/a	2890.0	2893.0	2893.0
ALF (ft) <sup>1</sup>	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	10 May	1253.9	1272.8	1289.7	1290.0
BRN (ft)	2077.0	2048.7	2053.4	2060.9	10 May	2061.6	2074.7	2077.0	2077.0
DWR (ft)	1564.3	1551.8	1541.7	1540.8	10 May	~1546 <sup>6</sup>	1580.9	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 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. Per the Duncan Storage Reservation Diagram, Duncan Reservoir is required to achieve its full flood risk management draft requirement of 1807.7 ft by 15 March.
6. Dworshak is filling on its refill guide curve for end of April. End of month is recalculated daily so this is an approximate value.

**Table 2. Water Supply Forecasts (Kaf)**

<b>Project</b>	<b>Forecast Period</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Current Month Forecast % of Normal</b>	<b>Residual Runoff<sup>2</sup> (%)</b>
MCDB	Apr-Aug	11179	11598	11579	11793				107	97
ARDB	Apr-Aug	22621	23898	23744	23858				109	96
DCDB	Apr-Aug	1998	2227	2214	2233				111	97
LIB	Apr-Aug	5481	6386	6349	6324				107	96
HGH	May-Sep	1582	1778	1830	1890				112	N/A
SKQ <sup>1</sup>	Apr-Jul	6378	6653	6405	5889				101	92
ALF <sup>1</sup>	Apr-Jul	11926	13167	12295	11347				96	90
GCL <sup>1</sup>	Apr-Aug	58483	63023	61265	58666				103	93
BRN <sup>1</sup>	Apr-Jul	5414	5105	4028	3875				71	76
DWR	Apr-Jul	1532	2095	2355	2333				96	82
TDA <sup>1</sup>	Apr-Aug	86909	92647	87043	84445				96	90

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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