Flood Risk Management Requirements
Report #7 for Water Year 2013
Issue Date: 10 May 2013

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, PPL Montana, 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 May 2013 official forecast is 82502 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 May forecast is 296.6 kcfs. 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 30April 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 system controlled flow has increased to 320 kcfs from the ICF of 297 kcfs due to the compressed nature of the unregulated runoff hydrograph.

Current refill requirements:

- Grand Coulee Dam elevation not to exceed 1277.2 ft before May 31st.
- The Dalles maximum instantaneous flow not to exceed 340 kcfs.

E. Individual Project Flood Risk Management Requirements Discussion.
Projects shall stay at or below 30 April flood risk management requirement elevations until project refill is triggered. See Table 1 for individual project refill dates.

Table 1. Flood Risk Management Requirements

Project	31Jan	28Feb	31Mar	30 Apr[4]	Refill Date	Requirement until refill date	31 May[4]	30 Jun[4]	31 Jul[4]
MCDB (kaf)[3]	1662	2810	4080	4080	6 May	n/a	2693	571	0
ARDB (ft)	1430.5	1422.9	1414.1	1414.1	9 May	1414.1	1430.6	1444.0	1444.0
DCDB (ft)	1839.3	1812.5	1809.9	1807.7	1 May	n/a	1841.7	1879.1	1892.0
LIB (ft)[5]	2395.2	2404.3	2405.8	2411.8	1 May	n/a	Est	Est	2459.0
LIB (kcfs)	n/a	n/a	n/a	n/a	1 May	n/a	18	18	n/a
HGH (ft)	3541.4	3537.1	3537.2	3532.6	1 May	n/a	3542.5	3560.0	3560.0
KERM (ft)	n/a	n/a	n/a	n/a	-	n/a	2890.0	2893.0	2893.0
ALF (ft)[1]	2060.0	2060.0	2056.0	2056.0	-	2056.0	2062.5	2062.5	2062.5
GCL (ft)[2]	1290.0	1290.0	1282.6	1258.5	10 May	1258.5	1277.2	1290.0	1290.0
BRN (ft)	2077.0	2055.1	2064.7	2071.2	10 May	2071.2	2077.0	2077.0	2077.0
DWR (ft)[2]	1539.3	1546.7	1563.7	1568.5	10 May	1568.5	1597.4	1600.0	1600.0

Notes:

1. Albeni Falls flood risk management elevations are based on readings at the Hope gage.
2. Grand Coulee and Dworshak flood risk management data may reflect shift volumes from Dworshak to Grand Coulee.
3. KAF units refer to required flood risk management space (draft) in the reservoir.
4. Flood risk management requirements for May, June and July are based on estimated normal runoff shape. Under certain circumstances, the Flood Control Refill Curve (FCRC) procedure will be used to determine when refill is to begin at each project where applicable.
5. 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 (Maf)

Project	Forecast Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Current month Forecast % of Normal[2]	Residual Runoff[1] as of 7-May (%)
MCDB	Apr-Aug	11574	11444	11113	11474	11299			103	94
ARDB	Apr-Aug	23609	22842	22067	22604	22676			103	91
DCDB	Apr-Aug	2283	2079	1975	2061	2094			104	92
LIB	Apr-Aug	6898	6384	6315	6189	6535			111	89
HGH	May-Sep	1968	1877	1743	1750	1789			106	94
KERM	Apr-Jul	5483	5489	5365	5824	5925			102	79
ALF	Apr-Jul	11162	10691	9997	10816	11082			94	75
GCL	Apr-Aug	58230	54536	54020	55882	57373			101	83
BRN	Apr-Jul	4650	4229	3744	3478	2864			52	72
DWR	Apr-Jul	2587	2202	2128	2036	2296			95	65
TDA	Apr-Aug	92030	81863	80372	81811	82502			94	79

Notes:

1. Residual runoff values are applicable starting April. Residual runoff volume (Maf) is the amount of the current month's seasonal volume forecast that is still left to runoff. The percentage shows the volume that is yet to runoff, divided by the forecasted volume. As an example, at Libby, the residual runoff volume will be the current month's Apr-Aug forecast volume minus the amount of observed runoff since April 1st.
2. All % Normal values are based on 30-yr (1981-2010) averages as determined by the River Forecast Center.

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Peter F. Brooks, P.E., D.WRE
Ch., Hydrologic Engineering and Power Branch