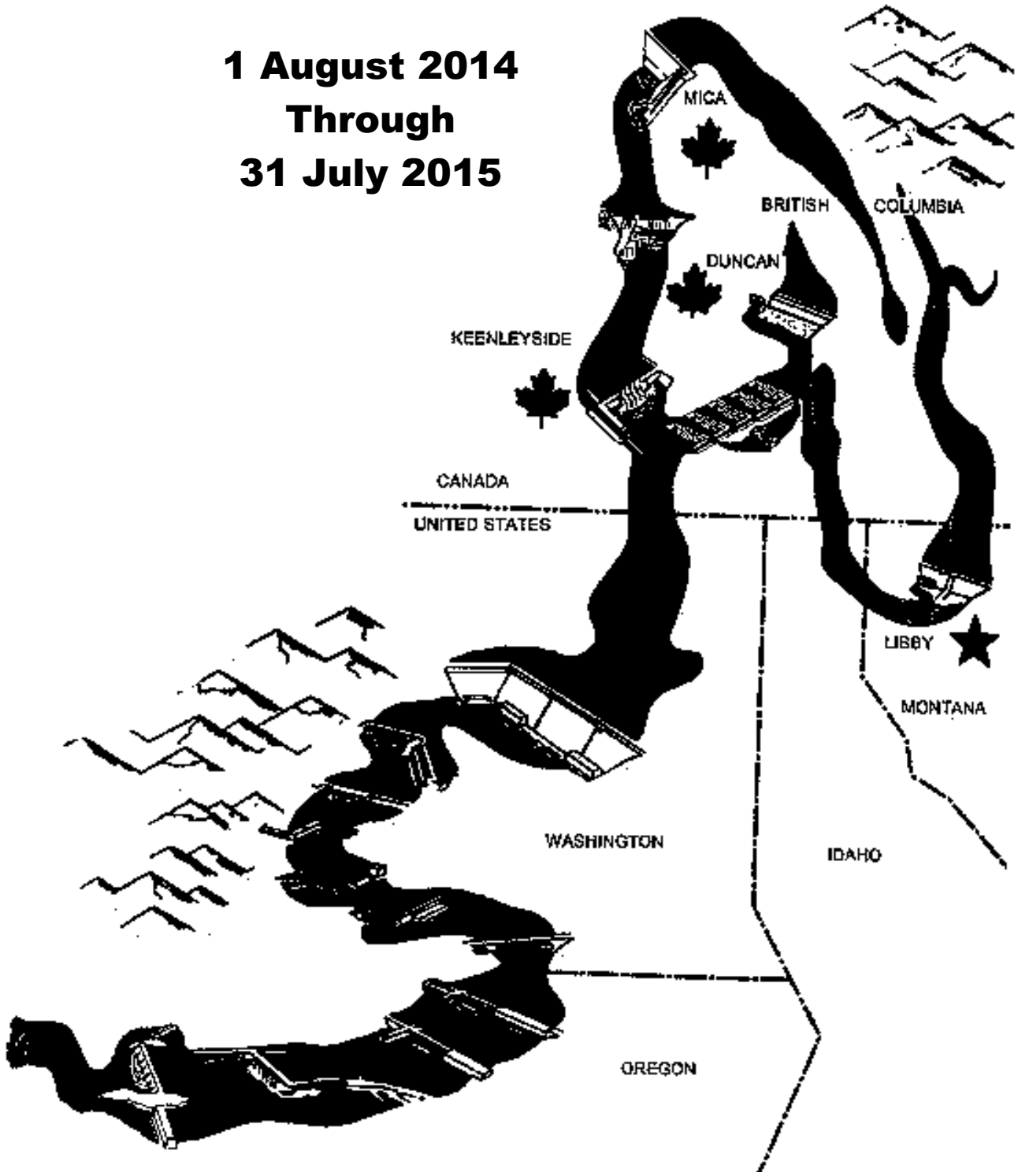
COLUMBIA RIVER TREATY
DETAILED OPERATING PLAN
FOR CANADIAN STORAGE

1 August 2014
Through
31 July 2015



Columbia River Treaty Operating Committee **June 2014**

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COLUMBIA RIVER TREATY ENTITY AGREEMENT ON THE

DETAILED OPERATING PLAN

FOR CANADIAN STORAGE

1 AUGUST 2014 THROUGH 31 JULY 2015

Article XIV 2.(k) of the Columbia River Treaty between Canada and the United States of America (Treaty) provides that the power and duties of the Entities include "*preparation and implementation of detailed operating plans that may produce results more advantageous to both countries than those that would arise from operation under the plans* [Assured Operating Plans (AOP)] *referred to in Annexes A and B.*"

The Entities agree that Canadian storage shall be operated and electric power delivered in accordance with the attached "Detailed Operating Plan for Canadian Storage – 1 August 2014 through 31 July 2015" (the 2014-15 Detailed Operating Plan), dated June 2014.

The Entities agree that the "Columbia River Treaty Principles and Procedures for Preparation and Use of Hydroelectric Operating Plans for Canadian Treaty Storage," dated November 2003, or any future document the Entities agree supersedes the 2003 document, and any Appendices approved by the Operating Committee, will guide the Entities in implementing the 2014-15 Detailed Operating Plan.

In witness thereof, the Entities have caused this Agreement to be executed.

Executed for the Canadian Entity this 12th day of JUNE, 2014.

By _____
Chris O'Riley
Chair

Executed for the United States Entity this 16th day of June, 2014.

By _____
Elliot E. Mainzer
Chairman

By _____
Brigadier General John S. Kem
Member

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COLUMBIA RIVER TREATY
DETAILED OPERATING PLAN
FOR CANADIAN STORAGE
1 AUGUST 2014 THROUGH 31 JULY 2015

I. REFERENCES AND INTERPRETATION

In this document:

A. "Aspects Agreement" means the Entity Agreement on Aspects of the Delivery of the Canadian Entitlement for 1 April 1998 through 15 September 2024 between the Canadian Entity and the United States Entity, dated 29 March, 1999, together with its Attachment A – Points of Delivery and Attachment B - Scheduling Guidelines, as those Guidelines may be subsequently modified or amended by the Operating Committee.

B. "Assured Operating Plan" (AOP) means the hydroelectric operating plan developed in accordance with the Columbia River Treaty (Treaty) for the Operating Year as further described in the document "Columbia River Treaty Hydroelectric Operating Plan - Assured Operating Plan for Operating Year 2014-15 (AOP15) executed September 2010."

C. "Canadian storage" and "Canadian Treaty Storage" mean the storage provided by Canada under Article II of the Treaty, which is a total of 15.5 million acre feet (Maf) at the Mica, Duncan, and Arrow reservoirs.

D. "Detailed Operating Plan" (DOP) means a detailed operating plan prepared for the Operating Year by the Operating Committee pursuant to the guidelines provided in the Principles and Procedures and consisting of the contents of this document.

E. "Flood Control Operating Plan" (FCOP) means the document "Columbia River Treaty Flood Control Operating Plan, dated May 2003", including any published updates.

F. "Libby Coordination Agreement (LCA)" means the "Columbia River Treaty Entity Agreement Coordinating the Operation of the Libby Project With the Operation Of Hydroelectric Plants on the Kootenay River and Elsewhere in Canada", dated 16 February 2000.

G. "Libby Operating Plan" (LOP) means the operating plan prepared by the U.S. Army Corps of Engineers ("Corps of Engineers") on behalf of the U.S. Entity for the Libby project in accordance with Section 9 of the LCA, and incorporated as Attachment B to the LCA.

H. "Operating Committee" means the Columbia River Treaty Operating Committee.

I. "Operating Year" means the period from 1 August 2014 through 31 July 2015.

J. "Principles and Procedures" (POP) means the document "Columbia River Treaty Principles and Procedures for Preparation and Use of Hydroelectric Operating Plans for Canadian Treaty Storage," dated October 2003, or any future document the Entities agree supersedes the 2003 document, and any updated Appendices approved by the Operating Committee.

K. "Short Term Libby Coordination Agreement" ("STLA") means the "Columbia River Treaty Short-Term Entity Agreement on Coordination of Libby Project Operations", dated 27 September 2013, which supplements the Libby Coordination Agreement and establishes an Arrow Provisional Account of 600 ksfd available for use by the Canadian Entity under terms of the Agreement. The Agreement is assigned the Bonneville Power Administration contract number 13PG-10008.

L. "Supplemental Operating Agreement" (SOA) means any operating agreement(s) (signed either by the Entities or the Operating Committee) that authorize Canadian storage operations above or draft below the Treaty Storage Regulation levels as described in Section IV(A) of this DOP and Section 11 of the LCA, but not including Section 10 of the LCA.

M. "Treaty Storage Regulation" (TSR) means the Coordinated System hydro regulation study performed for the Operating Committee by Bonneville Power Administration (BPA) staff using actual and forecasted streamflow conditions and implementing operating criteria contained in this DOP, including any changes agreed to under subsection II(E), but excluding subsection IV(D) and SOA operations authorized under subsection IV(A). The TSR is used in accordance with POP and this DOP to determine operational Treaty rights to monthly regulation of Treaty storage.

N. "Weekly Treaty Storage Operation Agreement" means the note electronically transferred (e-mail or Fax) the last working day of each week from the U.S. Section to the Canadian Section of the Operating Committee to confirm the verbal agreement by the Operating Committee for the weekly Treaty storage changes and outflows that implement this DOP, including any changes agreed to under subsection II(E) and Section IV.

Other capitalized terms used in this document, not defined above, should be interpreted to have the meaning ascribed to them in POP (either in the definitions or the text), the FCOP or the generally accepted meaning within the industry in the Columbia River Basin.

II. PREPARATION AND SCOPE

A. General

This DOP for Canadian storage is based on the operating criteria contained in the AOP15 and its supporting hydro regulation studies with agreed revisions noted in subsection II(D) below, together with scheduling procedures and mutually beneficial changes from the AOP15 data agreed to by the Entities.

This DOP was developed in accordance with the procedures outlined in the POP. This DOP document includes storage/elevation tables for the Canadian Storage projects that have been extended to include potential surcharge elevations. These are provided in Exhibits 10, 11, and 12. The new project data contained in these exhibits were not used in either the AOP15 or the DOP15 studies and are provided for the reader's convenience.

The Operating Committee has agreed beginning with this DOP to only publish system and project data and constraints in terms of Imperial British units. This is in keeping with the usual practice of relying upon these units for all operational purposes. Parallel publishing of SI (metric) units is being discontinued for purposes of both clarity and brevity.

B. Storage Amounts

The usable Canadian storage space available for power purposes during the Operating Year is 15.5 Maf in Canada distributed as follows:

Duncan Reservoir

1.4 Maf (705.8 thousand second-foot-days (ksfd)) between elevations 1,892.0 feet and 1,794.2 feet as measured at Duncan forebay, and based on British Columbia Hydro and Power Authority (B.C. Hydro) table dated 21 February 1973 and updated 1 February 2013.

Arrow Reservoir

7.1 Maf (3,579.6 ksfd) between elevations 1,444.0 feet and 1,377.9 feet as measured at Fauquier, B.C, and based on B.C. Hydro table dated 28 February 1974 and updated 1 February 2013. It is recognized that for dam safety purposes a different gauge may be used to limit the maximum Arrow actual elevation.

Mica Reservoir

7 Maf (3,529.2 ksfd) between elevations 2,475.0 feet and 2,320.9 feet as measured at Mica forebay, and based on B.C. Hydro table dated 25 March 1974 and updated 1 February 2013. The total available storage between these elevations is 12 Maf (6,050.0 ksfd), but only 7 Maf (3,529.2 ksfd) of this storage is utilized for power purposes, except as described in paragraph VII(C)6.

C. Flood Risk Management

The requirements for flood risk management (FRM) operations are defined in the Treaty and the FCOP. In accordance with Section 6-6 of the FCOP, the Canadian Entity selected for the AOP15 a reallocation of Mica/Arrow system FRM space to be 4.08 Maf at Mica and 3.6 Maf at Arrow for the Operating Year. The usable Canadian storage available for normal FRM purposes during the Operating Year will be 1.27 Maf in Duncan Reservoir below elevation 1,892.0 feet, 3.6 Maf in Arrow Reservoir below elevation 1,444.0 feet, and 4.08 Maf in Mica Reservoir below elevation 2,475.0 feet. Additional storage may also be operated for FRM purposes under special circumstances, as described in Section 3-2 of the FCOP.

During the 2014-15 Operating Year, the Canadian Entity may request a different allocation of Mica/Arrow system flood space. To the extent that the requested allocation differs from that included in the AOP15, the Operating Committee will develop and execute an agreement that will result in the same Treaty flows at the U.S.-Canadian border as that provided in the AOP15 as modified in subsection II(D), unless otherwise agreed by the Operating Committee.

During the refill period, the Canadian Section of the Operating Committee may request local FRM elevations for Arrow with the intent to minimize the occurrence of flows above 180 kcfs at Trail (as measured at Birchbank) or as updated with best available information based on BC Hydro operating policies for flood impacts. This local FRM objective which is below 225 kcfs will be included in the FRM rule curve and input as the Upper Rule Curve in the TSR studies only to the extent that it does not jeopardize system FRM needs.

In order to accommodate local minimum flow requirements downstream of Duncan Dam beginning with the 2009-10 Operating Year, the Canadian Entity has requested a permanent variance to the February Duncan FRM draft requirements in the May 2003 FCOP. The Corps of Engineers has agreed to the permanent variance as described in subsection II(D)2 below.

D. Preparation of the Treaty Storage Regulation Study

The TSR study uses DOP operating criteria for both Canadian and U.S. projects to define a Canadian storage operation. The TSR15 study shall be based on the loads, thermal and other resources, rule curves, non-power constraints, and other plant and operating data contained in the AOP15 Step I hydro regulation study, except for the following changes agreed to by the Entities:

1. FRM rule curves for Canadian projects defined as noted in subsection II(C) above unless otherwise agreed by the Operating Committee.

2. Limiting Duncan end of February FRM rule curve to no lower than 1,812.5 feet (usable content 93.2 ksfd). This change does not affect the critical rule curves.

3. Use of hydro-independent (HI) generation included in the Actual Energy Regulation (AER), plus other HI generation based upon the 80-year median values for all other HI projects not updated in the AER and for which updates are not available from the project owner. To make this process more consistent with the PNCA AER, the HI operation of the eight Federal Willamette projects (Big Cliff, Detroit, Foster, Green Peter, Cougar, Dexter, Lookout Point, and Hills Creek) will be added to the TSR hydro-regulation model and the same inflow and elevation data submitted for the AER will be used.

4. In accordance with the Arrow Project Operating Criteria (APOC) as shown in Table 1, the maximum January outflow at Arrow in the TSR is limited to 70,000 cfs.

5. Forecast errors and distribution factors are based on the historic 80-year 2010 Modified Streamflow record, and as updated in Appendix 8 of the 2003 POP, adopted on 7 May 2013. Forecast errors were updated and approved at the March 2012 CRTOC meeting and distribution factors were updated and approved at the May 2012 CRTOC meeting. The Operating Committee may revise forecast errors and distribution factors in accordance with subsection II(E).

6. The 1 February 2014 PNCA data submittal for Grand Coulee pumping flows (based on net flow from pumping and generation at the pumps/generators) or current forecast values if available will be used for current and future months. Actual values for after-the-fact months will be used. Adjustments to return flows are not needed because the observed streamflows and streamflow forecasts include return flows.

7. Operation of Mica, Arrow, Duncan, Revelstoke, and Brilliant projects are based upon plant data used in 2014 PNCA planning studies.

8. Use of forecasted streamflows as a percentage of 80-year medians from the 2010 Modified Flows without Grand Coulee pumping.

9. The hydro regulation model used will be PCHYDSIM version 29, or a later version if agreed upon by the Operating Committee.

10. During the FRM evacuation period, the FRM curves at Grand Coulee may be adjusted to recognize drafts below the FRM levels at upstream storage reservoirs (including Canadian Treaty projects) in accordance with the latest update to the "Standard Operating Procedure for Computation of Flood Control Criteria for Treaty Storage Regulation and Actual Energy Regulation Models" agreed to by the Operating Committee.

11. Operation of Dworshak is based on the data used in 2014 PNCA planning studies. Dworshak will have a total minimum outflow of 1,600 cfs. This represents a minimum release of 1,500 cfs through the powerhouse and 100 cfs of miscellaneous flow for the hatchery. Dworshak will be operated to meet minimum flow or FRM objectives in all periods except June through September. Target contents are used for June through September. The target contents used for July and mid-August correspond to the median elevations developed by the COE in their HYSSR 80-yr study to achieve smooth outflows during this time frame.

12. 80-year median Energy Content Curves are used for the operation of Ross based on 2014 PNCA planning studies.

13. The operation of Mossyrock, Mayfield, Swift #1, Swift #2, Merwin, Alder, and Yale will be based on past actual inflows and elevations, and 80-year median inflows and median Variable Energy Content Curves for future months.

14. Plant data including h/k values, generation vs discharge, spill vs discharge, physical project limits, storage elevation tables, tailwater rating curves, maximum generation table and full gate h/k values for projects (Cabinet Gorge, Little Falls, Long Lake, Monroe Street, Nine Mile, Noxon, Post Falls, Upper Falls, Rocky Reach, and Rock Island) are those included in 2014 PNCA planning studies.

15. Project operating constraints including initial storage contents, fish spill, minimum spill, spill caps, minimum and maximum outflows, minimum target, and maximum storage contents for projects (Coeur d'Alene Lake, Lower Baker, Upper Baker, Gorge, Ross, Dworshak, Libby, Little Goose, Lower Monumental, and Lower Granite) are those used in 2014 PNCA planning studies.

16. Brownlee's storage operation is based on critical rule curves and power discharge requirements included in the AOP15, as well as by a project minimum flow in support of a year-round minimum navigation flow of 6,500 cfs at Hells Canyon. In DOPs prior to DOP14, this navigation flow requirement was referenced to a 13,000 cfs flow minimum at Lime Point. However, an agreement between the U.S. Army Corps of Engineers and Idaho Power Company established this new reference flow point and amount.

17. Noxon Special Logic in HYDSIM was removed (as in DOP14) because the updated h/k data provided by Avista Utilities made the logic obsolete. Originally the logic was used to reduce the calculated generation at higher flows.

18. Corra Linn '5-Step Logic' in HYDSIM was removed (as in DOP14) to reflect current operating practices, as approved at the May 2012 CRTOC meeting. Prior to DOP14/AOP18, Libby and Duncan discharges were reduced through a step-wise modeling procedure whenever the level of Kootenay Lake exceeded its IJC Rule Curve level.

19. Maximum and minimum storage limits and minimum flow limits for projects (Lower Baker, Upper Baker, and Gorge) are based on data used in 2014 PNCA planning studies .

20. Removal of existing minimum storage limit for Ross by Seattle City Light's request.

Although not changed from the AOP15, some notable assumptions for this TSR include:

21. U.S. FRM curves will include VarQ at Hungry Horse but not at Libby, and will not include

Variable End-of-December FRM rule curves at Libby or shifted FRM spaces from Brownlee and/or Dworshak to Grand Coulee.

The Canadian FRM curves will not include impacts due to VarQ and Variable End-of-December FRM rule curves at Libby or any impacts related to shifting of FRM spaces from Brownlee and/or Dworshak to Grand Coulee unless otherwise agreed by the Operating Committee.

22. Arrow Project Operating Criteria (APOC) will be updated based on the procedures defined in subsection VII(B)7 of this DOP. This includes minimum flow limits which may be reduced as needed to as low as 5,000 cfs to avoid drafting the combined Mica and Arrow storage below 14.1 Maf.

23. The Variable Refill Curve Lower Limits (VRCLLs) are used at Grand Coulee only and are fixed for all three forecast levels, 80, 95, and 110 Maf, respectively. The January and February Grand Coulee VRCLL values are the same as its ORCLL, while the March to June VRCLL are based on historic minimum elevations for firm power operation of 1,225 feet in March-April, 1,240 feet in May, and 1,285 feet in June.

The TSR includes the operating guides and limits discussed in Sections VI and VII of this DOP.

E. Authorization for Changes to the TSR

The Operating Committee is authorized to modify the TSR only as needed to correct errors or omissions, update forecast data and procedures, and update the hydroregulation model.

F. Libby

Libby operating limits and the expected operation of the Libby project are not included in the DOP. That information is available in the Libby Operating Plan that will be updated by the U.S. Entity when planned operations change. The operation of Libby in the TSR15 will be based on the AOP15 Step 1 operating criteria.

III. POWER DELIVERIES

A. Delivery of the Canadian Entitlement

The obligation of the United States to return the Canadian Entitlement to Canada for the Operating Year based on the AOP15 is:

Capacity Entitlement = 1,368.6 MW
Energy Entitlement = 479.9 annual aMW

Arrangement for the delivery of this Canadian entitlement power, including the point of delivery, transmission losses, and scheduling guidelines, are defined by the Aspects Agreement, and Articles V and VIII of the Columbia River Treaty. Section 11 of Attachment B to the Aspects Agreement delegates to the Operating Committee the responsibility for modifying or amending Attachment B - Scheduling Guidelines, as needed from time to time.

B. LCA Power

In accordance with Section 7(b) of the LCA, the Canadian Entity shall deliver to the U.S. Entity one (1) average MW, shaped flat, during the Operating Year.

Section 10 and Attachment C of the LCA relating to the provisional draft of Arrow reservoir are suspended during the period the STLA is in effect.

C. STLA

On 27 September 2013, the Entities signed a Short-term Libby agreement (STLA) to address, until 31 August 2015, issues raised by the Canadian Entity concerning adoption by the U.S. of the VarQ flood control regime for Libby Dam operations.

This agreement provides the Canadian Entity additional flexibility to draft and store from Arrow reservoir. Energy value associated with Arrow provisional transactions are to be settled in financial payments.

During the term that this Agreement is in effect, the LCA shall also remain in effect, provided that Section 10 and Attachment C of the LCA are suspended during the time that this Agreement is in effect.

D. Operational Agreement Power

In accordance with Section IV of this DOP, the Entities shall make arrangements to deliver and/or receive power required by any SOA. The Entities hereby authorize and direct B.C. Hydro and BPA to make suitable arrangements for delivery of Operational Agreement Power at the points of interconnection between B.C. Hydro and the Federal Columbia River Transmission System.

IV. STORAGE OPERATION

A. Operation Authority

The operation of Canadian storage by the Operating Committee during the period 1 August 2014 through 31 July 2015 shall be in accordance with this DOP, the FCOP, the LCA, and any SOA applicable to this Operating Year. Consistent with the operating objectives in this section, the Operating Committee is authorized to enter into SOAs consistent with the objectives defined in subsection IV(C) that adjust flow requirements to store above or draft below end-of-month TSR levels, and may include the delivery of power, for mutual benefits that occur during the period covered by this DOP.

B. Canadian Storage Operation

The Weekly Treaty Storage Operation Agreements shall be based on operating Canadian storage to the end-of-month contents contained in the current TSR study, and any operations under SOAs and the LCA (as described in subsections C and D below), or as required by the FCOP.

From time to time, due to updated forecasts or differences between forecast and actual inflows, the actual operation of Treaty composite storage will differ from the end of period storage prescribed by the TSR as modified by SOA, LCA, or FRM operations. The Operating Committee will make reasonable efforts to correct these inadvertent differences via the regular Weekly Treaty Storage Operation Agreements in a timely manner without exceeding the specified project limits for discharges and ramp-rates.

C. Objectives for Supplemental Operating Agreements

Consistent with the FCOP and operating limits defined in Section VII (excluding subsection VII(B)7) of this DOP, the objectives for SOAs include the following:

1. Power Objectives:
   Power objectives include minimizing spill and optimizing energy production, and power value. Operations for power objectives may be combined with non-power objectives. When appropriate, the Operating Committee will make suitable arrangements for delivery of power relating to sharing of benefits from operational agreements.

2. Non-power Objectives:
   Potential Canadian non-power objectives may include, but are not limited to, whitefish and trout spawning downstream of Arrow, dust storm avoidance upstream of Arrow, and recreation objectives. Potential U.S. non-power objectives may include, but are not limited to, storage of water up to 1 Maf for anadromous fish flow augmentation, minimum flows at Bonneville dam and at Vernita Bar for fish spawning, and recreation needs. Non-power objectives considered in this section do not include FRM and operating limits in Section VII.

   Recognizing that it may not be possible to meet all non-power objectives, the Operating Committee shall in general attempt to share equally the risk and amount of failure. The parties shall make reasonable efforts to use available flexibility at their projects prior to requesting changes to the Treaty storage operation.

   Operations designed to help meet non-power objectives do not imply that either Entity acknowledges any obligation, domestic or international, to meet those objectives. The Entities agree that operations for non-power objectives do not set a precedent concerning any current or future dispute over Treaty rights and obligations, nor do they set a precedent for non-power objectives or flow objectives and contents.

D. Provisional Operation at Arrow

The Canadian Section of the Operating Committee may provisionally draft/store at Arrow reservoir below/above TSR levels in accordance with Section 6 of the STLA.

E. General Storage Operation Guidelines

The values used in the AOP studies to define the various rule curves were period-end values only. In actual operation, it is necessary to operate in such a manner during the course of each period that these period-end values can be achieved in accordance with the operating rules. Due to the normal variation of power load and streamflow during any period, straight-line interpolation between the period-end points should not be assumed. During the storage drawdown season, Canadian storage should not be drafted below its period-end point at any time during the period unless it can be conservatively demonstrated that sufficient inflow is available, in excess of the minimum outflow required to serve power demand, to refill the reservoir to its end-of-period values as required.

V. SCHEDULING STORAGE REGULATION

A. Operating Data

The Operating Committee will exchange all current operating data necessary for the regulation of Canadian storage projects as soon as available, including the beginning and end of the FRM season.

B. Volume Runoff Forecasts

Seasonal runoff volume forecasts for Canadian Treaty Projects shall be made available by the Canadian Section no later than the fifth working day of each month, as required. The Operating Committee may request forecasts of seasonal runoff volume at periods other than those representing month-end conditions if hydrologic conditions warrant. Seasonal runoff volume forecasts for the Columbia River at The Dalles, Oregon, shall be made available by the U.S. Section no later than the fifth working day of each month, as required.

C. Treaty Storage Regulation Study

The TSR study is performed at least twice each month (within the first nine working days and the last eight working days of each month, unless otherwise agreed on by the Operating Committee). Actual unregulated streamflows and forecasted unregulated streamflows will be updated for each TSR study. Variable refill curves, FRM storage evacuation requirements, and variable FRM refill curves will be updated for the first TSR of the month. At the request of either section of the Operating Committee, additional TSR studies shall be performed to reflect the most current unregulated streamflow forecasts and rule curves. The Operating Committee shall agree on procedures for developing streamflow forecasts and rule curves at that time. Additional information regarding TSR study input may be found in POP Section 4.4A and POP Section 4.4B.

Errors and omissions in the TSR will be handled as follows, unless otherwise agreed on:

1. All identified errors, omissions, or revisions in the TSR issued during the current Operating Year should be documented and reported to the Operating Committee.

2. Errors/omissions identified within two working days of the initial TSR distribution which, in the view of either Section, may affect the final TSR for the previous operation period or which may impact operations prior to issuance of the next TSR, should be corrected immediately and the TSR re-run. If such errors/omissions are identified after the two-day review period, the TSR will be corrected only if requested by either Section of the Operating Committee.

3. Errors/omissions that do not affect the final TSR for the previous period or impact operations prior to issuance of the next TSR should be corrected in the subsequent TSR.

4. Errors/omissions that affect periods previously finalized and which result in a significant impact to the TSR in future periods, should be brought to the attention of the Operating Committee for resolution.

During the FRM storage evacuation period and the FRM refill period, project FRM curves will be determined by the Columbia Basin Water Management Division, Northwestern Division, U.S. Army Corps of Engineers, in accordance with the FCOP and the latest update to the "Standard Operating Procedures for Computation of Flood Control Criteria for Treaty Storage Regulation and Actual Energy Regulation Models". These curves will be computed consistent with the timing of the TSR Schedule.

D. Scheduling Agreements

Unless otherwise agreed, requests by the U.S. Section of the Operating Committee for the regulation of the Canadian storage content will be made to the Canadian Section on a regular basis in accordance with the following procedures:

1. Storage Regulation

a) Timing: A preliminary request will be made during a weekly conference call or other agreed means not later than noon each Thursday, followed by a final agreement by noon Friday, or the last working day of the week.

b) Confirmation: The agreed operation will be confirmed in a Weekly Treaty Storage Operation Agreement transmitted via electronic mail or fax on Friday, or the last working day of the week, in accordance with the following format unless otherwise agreed:

> This message confirms our verbal agreement on _____ (*date*) that the _____ (*storing/drafting*) of an estimated _____ ksfd ____ (*in/from)* the whole of Canadian storage for the Period _____ through _____ is consistent with the Detailed Operating Plan (DOP).
>
> This agreement is based on an estimated average inflow during the above-mentioned period of
> _____ kcfs to Duncan Reservoir,
> _____ kcfs to Libby Reservoir,
> _____ kcfs to Mica Reservoir, an
> Estimated average regulated inflow of
> _____ kcfs to Arrow Reservoir, and an
> Estimated regulated outflow of
> _____ kcfs from the Libby Project,
> That will result in average weekly Treaty discharges of
> _____ kcfs from the Duncan Project,
> _____ kcfs from the Mica Project, and
> _____ kcfs from the Arrow Project.
>
> This operation of the whole of Canadian storage is based on the _____(date) DOP TSR expected end-of-_____ (*month, except split April & August*) storage level for the whole of Canadian storage of _____ ksfd.
> This operation includes expected _____ (*storage above/draft below*) the end-of-_____ (*month, except April & August*) DOP TSR level for the whole of Canadian storage of _____ ksfd.
>
> Treaty discharges will be made effective at the Canadian-United States border. The Weekly Treaty Storage Operation Agreement will be deemed to have been fulfilled if the total amount of Treaty water agreed to is released from Arrow plus Duncan reservoir provided an amount equal to or greater than the water released from Duncan reservoir is concurrently discharged from Kootenay Lake.

c) SOAs and STLA: The Weekly Treaty Storage Operation Agreements shall indicate storage operations under any SOA or the STLA/LCA.

d) Period Covered by Weekly Treaty Storage Operation Agreement: The period covered by the agreement shall be from Saturday following the date of the weekly request to the following Friday.

e) Release Determination: The amount of water released or stored during the period of the Weekly Treaty Operation Storage Agreement will be determined by the changes in reservoir contents based on the recorded reservoir elevation and storage capacity tables for Duncan (Exhibit 10), Arrow (Exhibit 11), and Mica (Exhibit 12). The

change in Arrow storage content will be determined using the recorded reservoir elevation at the gauge near Fauquier, B.C.

f) Modification: If any modification to a written Weekly Treaty Storage Operation Agreement is agreed to by the Operating Committee, a further written Storage Agreement superseding the original will be dispatched immediately by the U.S. Section of the Operating Committee to the Canadian Section of the Operating Committee. In accordance with Section 12 of the LCA, during the 2014-15 Operating Year, the Canadian Section shall implement at the request of the U.S. Section, up to five (5) mid-week requests for changes to the Canadian storage operation, consistent with this DOP, STLA and operating agreements entered into pursuant to this DOP. In addition, upon receipt of the preliminary weekly request each Thursday, the Canadian Section may request a modification to the current week's Treaty Storage Operation as may be necessary to meet flow ramping and fish salvage requirements in transitioning project releases from one Treaty week into the next, subject to agreement by the U.S. Section.

g) Provisional Arrow Operation: A preliminary request by the Canadian Section for provisional operation at Arrow reservoir, in accordance with Section 6 of the STLA, shall be made concurrent with the preliminary flow request. Any Arrow provisional request will be confirmed not later than 12:00 pm on Thursday (or earlier if needed to meet the WECC holiday prescheduling calendar in accordance with the STLA Exhibit C), and subsequently documented in the Weekly Treaty Storage Operation Agreement.

h) Non-routine Operation: Any special operation that is agreed to by the Operating Committee will be suitably documented.

2. Storage Regulation during FRM

a) Forecasts: Daily time-step streamflow forecasts will be accomplished by use of computer simulation by the National Weather Service River Forecast Center. The regulation center required by the FCOP for the flood regulation will be located in the Columbia Basin Water Management Division, Northwestern Division, U.S. Army Corps of Engineers' offices in Portland, Oregon.

b) Requests for Project Outflows: Pursuant to the operating rules in the FCOP, the outflows from individual Canadian storage projects may be specified, as outlined in the FCOP. Requests will be coordinated by telephone daily or on an as-needed basis, by conference calls between members of the Operating Committee or their representatives. The requests will normally prescribe the requested outflows as a mean daily discharge in cubic feet per second, for the 24-hour period from noon to noon of each day. Requests for project outflows will be determined by methods as agreed upon, and documented with a confirmation agreement by a message transmitted via e-mail or Fax from the Corps of Engineers, in Portland, Oregon. The Canadian Section of the Operating Committee or their representative will make acknowledgment of this agreement via e-mail or Fax. Any modification of the documented daily request shall be agreed by the Operating Committee before being put into effect, and shall be documented immediately using the procedure described above.

c) Regulation during Winter Floods: Daily requests for project outflows from Canadian

projects are normally implemented in the FRM refill period. During the occurrence of winter floods (periods of high winter flows) in the Lower Columbia River, if a special regulation of Arrow storage becomes necessary to preserve the natural FRM storage effect, then the outflows from Arrow will be regulated on a day-to-day basis by agreement of the Operating Committee in accordance with the requests of the U.S. Section of the Operating Committee. Insofar as is possible, the outflows from Arrow will not exceed the calculated natural lake outflows until the space obligated for this purpose as shown on Chart 5 of the FCOP is filled. The requests for such regulation will be in accordance with procedures described above. If, as a result of operation for winter FRM, a reservoir ends up above its FRM rule curve, then an appropriate outflow schedule for that reservoir will be determined to ensure that the reservoir will be drafted to its FRM rule curve as soon as feasible.

VI. OPERATING GUIDES

A. Operating Rule Curve

The ORC for the whole of Canadian storage shall be the sum of the ORCs for each of Duncan, Arrow, and Mica. The ORC for each of the Duncan, Arrow, and Mica Reservoirs during the period 1 August 2014 through 31 July 2015 is determined in accordance with the reference documents of Section I, and is defined as follows:

1. During the period 1 August 2014 through 31 December 2014, the ORC is the higher of the First Critical Rule Curve or the Assured Refill Curve.

2. During the period 1 January 2015 through 31 July 2015, the ORC is the higher of the First Critical Rule Curve or the Assured Refill Curve, unless the Variable Refill Curve (VRC) is below the higher of the above two curves (but no lower than the VRCLL), then it is defined by the VRC.

3. During the period 1 January 2015 through 15 April 2015, the ORC will not be lower than the Operating Rule Curve Lower Limit, designed to protect firm loads with recurrence of 1936-37 hydro conditions, unless a lower reservoir elevation is required for FRM (Exhibit 3).

4. During any month in the Operating Year, the ORC will not be higher than the FRM Rule Curve, defined as the maximum elevation of each reservoir established by FRM requirements and may be modified on mutual agreement for construction and other contingency requirements.

5. Operation of Mica will be in accordance with the Mica Project Operating Criteria (Table 3) tabulated with specified qualifications in subsection VII(C). Differences between Mica's storage operation and its ORC (or Proportional Draft Point (PDP) if different) shall be balanced with equal and opposite changes to Arrow's ORC (or PDP) to the extent possible within agreed Operating Limits (as described in subsection VII(B)). The obligation to operate Mica and Arrow to produce optimum benefits in Canada and downstream in the United States will be deemed to have been fulfilled by operating to these criteria.

6. The VRCs for Arrow, Duncan, and Mica shall be constructed based on procedures and power discharge requirements as specified in Exhibit 4 (Total Inflow Method), except that the Operating Committee, in consideration of mutually beneficial operating arrangements, may agree to use an alternate procedure for Arrow which uses Arrow local inflows (Arrow Local Inflow Method) as follows.

a) If the current TSR study shows for the end of the current month that 1) the projected Mica Treaty storage content is lower than its ORC, and 2) the Coordinated System draft point is on the ORC, then the TSR shall be rerun with Arrow's VRC calculated as follows:

i) The forecast volume of inflow for Arrow will exclude the volume of inflow above the Mica project. This Arrow local inflow volume will be reduced by a forecast error such that there is a 95 percent probability that the reduced forecast is equaled or exceeded.

ii) The total Mica target outflow as specified in subsection VII(C) will be added to the forecast volume described in a(i) above.

iii) In computing water available for refill of Arrow Reservoir, the power discharge requirements for Arrow as specified in Exhibit 4 will be deducted from the volume calculated in a(ii).

b) During any period when the Arrow Local Inflow Method is used, the Mica/Arrow balancing (as described in subsection VI(A)5) is not used. This is implemented in BPA's hydro regulation model by setting the composite ORC for Canadian storage equal to the Mica Treaty storage content as defined in subsection VII(C), plus the ORC at Arrow and Duncan.

B. Rule Curves and Operating Data

Rule Curves and operating data are shown as follows:

1.	Assured Refill Curves for Duncan, Arrow, and Mica.	Exhibit 1
2.	Critical Rule Curves for Duncan, Arrow, Mica, and the whole of Canadian storage.	Exhibit 2
3.	Operating Rule Curve Lower Limits for Duncan, Arrow, Mica, based on 1936-37 Hydro Conditions.	Exhibit 3
4.	Variable Refill Curve Procedures, including Power Discharge Requirements for January – July Volume Runoff of the Columbia River at The Dalles, Oregon for Duncan, Arrow, and Mica.	Exhibit 4
5.	Coordinated System Loads and Resources Used in the AOP15.	Exhibit 5
6.	TSR Critical Rule Curves and ARCs for Other Major Projects.	Exhibit 6
7.	U.S. PDRs and VRC Lower Limits.	Exhibit 7
8.	U.S. Operating Rule Curve Lower Limits based on 1936-37 Hydro Conditions.	Exhibit 8
9.	Composite Canadian Storage Contents from the DOP15 80-Year Continuous TSR hydroregulation study.	Exhibit 9

C. Reservoir Capacity Tables

The following tables shall be considered to be the official storage for the projects:

1.	Duncan Reservoir Capacity Table (based on B.C. Hydro Table dated 21 February 1973 and updated 1 February 2013).	Exhibit 10
2.	Arrow Reservoir Capacity Table (based on B.C. Hydro Table dated 28 February 1974 and updated 1 February 2013).	Exhibit 11
3.	Mica Reservoir Capacity Table (based on B.C. Hydro Table dated 25 March 1974 and updated 1 February 2013).	Exhibit 12

VII. OPERATING LIMITS

A. Duncan Project

1. Maximum outflow is 20,000 cfs through outlets but limited to 10,000 cfs each month in the TSR model.

2. Minimum average weekly outflow is 100 cfs.

3. Maximum rate of change in outflow is normally 4,000 cfs per day unless a larger change is necessary to accomplish the objectives of the FCOP.

4. Normal full pool elevation is 1,892.0 feet.

5. Normal minimum pool elevation is 1,794.2 feet.

6. Normal maximum reservoir average monthly draft rate in elevation during any month is limited to 1 foot per day.

B. Arrow Project

1. In actual operation, Arrow maximum outflow is limited to physical capability, except during January when the Entities agree to continue the LCA Attachment C limit of 80,000 cfs. This January outflow limit applies to average weekly flows and may be exceeded if otherwise agreed or higher outflows are needed to meet FRM requirements or compensate for Duncan underruns.

2. Minimum average weekly outflow is 5,000 cfs.

3. Maximum rate of change in outflow is normally 15,000 cfs per day unless a larger change is necessary to accomplish the objectives of the FCOP.

4. Normal full pool elevation is 1,444.0 feet as measured at the Fauquier gauge.

5. Normal minimum pool elevation is 1,377.9 feet.

6. Normal maximum reservoir average monthly draft rate in elevation during any month is limited to 1 foot per day.

7. The Arrow reservoir storage operation in the TSR will be limited by a maximum outflow, minimum outflow, or a maximum storage level as defined by the Arrow Project Operating Criteria (APOC) as shown in Table 1. The APOC includes the following:

   a) Arrow's outflows will be limited, under all water conditions, to a maximum monthly outflow of 70,000 cfs in January and 60,000 cfs in February, subject to FRM requirements.

   b) The minimum average monthly outflow is increased from 5,000 cfs to 10,000 cfs for July through January, 20,000 cfs for February and March, 15,000 cfs for April 1-15, 12,000 cfs for April 16-30, 10,000 cfs for May, and no change for June at 5,000 cfs. These minimum monthly outflows will be decreased as needed (but limited to no lower than 5,000 cfs) to prevent the combined draft of Mica and Arrow from exceeding 14.1 Maf.

   c) Arrow's storage contents during February through June are limited to a calculated maximum FRM level depending on the forecast for The Dalles residual unregulated runoff for the current month through July.

   d) APOC Implementation: In the DOP, the default implementation of the APOC will use the distribution factors shown in Table 2. These distribution factors are multiplied by the current month through July forecast volumes at The Dalles, to calculate future month through July volume forecasts. The resulting residual month through July volumes are then used to determine the maximum storage levels from the criteria provided in Table 1.

Table 1 – Arrow Project Operating Criteria
1/

Period	Volume Runoff Period	The Dalles Volume Runoff (Maf)	Maximum Storage Limit 2/ 3/ (ksfd)	Maximum Outflow Limit 4/ (cfs)	Minimum Outflow Limit 5/ (cfs)
August 15 thru December	-		URC	-	10,000
January	-		URC	70,000	10,000
February	1 Feb - 31 Jul	≤ 70	URC	60,000	20,000
		>70 to <80	URC to 1,800		
		≥ 80	1,800		
March	1 Mar - 31 Jul	≤ 65	URC		20,000
		>65 to <75	URC to 900		
		≥ 75	900		
April 15	1 Apr - 31 Jul	≤ 61	URC		15,000
		>61 to <70	URC to 900		
		≥ 70	900		
April 30	1 Apr - 31 Jul	≤ 61	URC		12,000
		>61 to <70	URC to 1,000		
		≥ 70	1,000		
May	1 May - 31 Jul	≤ 68	URC		10,000
		>68 to <70	URC to 2,200		
		≥ 70	2,200		
June	1 Jun - 31 Jul	≤ 33	URC		5,000
		>33 to <35	URC to 3,300		
		≥ 35	3,300		
July			URC		10,000

Notes:

1. All APOC limits apply to the TSR study only.
2. If the Maximum Storage Limit is computed to be above the URC, then the URC will apply.
3. Interpolate when there are two values. For example, if the February-July volume runoff is between 70 Maf and 80 Maf, then the Maximum Storage Limit is interpolated between February's URC and 1,800 ksfd.
4. The Maximum Average Monthly Outflow Limit takes precedence over the Maximum Storage Limit. However, the Maximum Outflow Limit may be exceeded to avoid storage above the URC.
5. The Minimum Average Monthly Outflow Limit is an operating limit and may be reduced to as low as 5,000 cfs (Treaty minimum) to avoid drafting Mica+Arrow storage beyond 14.1 Maf.

Table 2 – APOC Implementation: Distribution Factors for The Dalles

Forecast Date	Forecast Period	The Dalles Distribution Factors 1/					
		Jan-Jul	Feb-Jul	Mar-Jul	Apr-Jul	May-Jul	Jun-Jul
1-Jan	1 Jan - 31 Jul	1.0000	0.9440	0.8860	0.8080	0.6800	0.4270
1-Feb	1 Feb - 31 Jul		1.0000	0.9390	0.8560	0.7200	0.4520
1-Mar	1 Mar - 31 Jul			1.0000	0.9120	0.7670	0.4810
1-Apr	1 Apr - 31 Jul				1.0000	0.8410	0.5280
1-May	1 May - 31 Jul					1.0000	0.6280
1-Jun	1 Jun - 31 Jul						1.0000

Notes:

1. Unless otherwise agreed, the DOP15 will apply these distribution factors to the monthly volume forecast at The Dalles for computing the Month-July runoff volumes required by the APOC.
2. These distribution factors are calculated from the 2010 Modified streamflows mean 80 year Jan-Jul, Feb-Jul, etc., volumes. For example, if the 1 May volume runoff forecast equals 65 Maf, then based on the June-July distribution factor of 0.6280, the estimated June-July volume runoff is 40.8 Maf, and from Table 1, the Arrow maximum storage limits in May and June are the URC and 3,300 ksfd respectively.

C. Mica Project

The Mica Project Treaty storage operation in the TSR will be according to the Mica Project Operating Criteria shown in Table 3 except as qualified in subsections VII(C)1 through VII(C)6.

1. VRCs shall be constructed according to Exhibit 4 with the 31 July Treaty storage content of 3,529.2 ksfd. However, the Operating Committee may agree to set Mica's VRC July refill target equal to the Mica End of Month Storage Content of 3,467.2 ksfd indicated on the following "Mica Project Operating Criteria" table.

2. Mica project operation will be determined by the End of Previous Month Arrow Storage Content as shown in Table 3, except for the limitations or changes required by subsections VII(C)3 through VII(C)6. The End of Previous Month Arrow Storage Content shall be determined from the current TSR study, except when the Arrow Local Inflow Method is used for the prior month. Then the End of Previous Month Arrow Storage Content will be established using the most recent TSR with the Arrow Total Inflow Method used. Mica's target operation will be defined either by a Target End of Month Storage Content or a Target Month Average Outflow.

3. Mica operation to the Target End-of-Month Treaty Storage Contents shall be limited by the Minimum and Maximum Outflows shown in Table 3, unless needed to accomplish the objectives of the FCOP.

4. Mica operation to the Target Month Average Outflow shall be limited by the Minimum Target Treaty Content shown in Table 3. Mica outflows shall be reduced as required down to a lower limit of the Minimum Outflow shown in the table below, to prevent draft below

the Minimum Target Treaty Storage Content. Minimum Outflows may cause the reservoir to draft below the Minimum Target Treaty Content.

5. Mica outflows will be increased during the months October through July as required to avoid violation of the FRM Rule Curve.

6. Treaty storage releases from Mica in excess of 7 Maf that result from operating Mica under the criteria described in VII(C)2 through VII(C)5 above will be retained in the Arrow reservoir, subject to FRM and minimum flow requirements at Arrow, and Mica will be reduced to Minimum Outflow as required to minimize releases in excess of 7 Maf. The total combined storage draft from Mica and Arrow will not exceed 14.1 Maf unless FRM or minimum flow criteria at Arrow will not permit the excess Mica storage releases to be retained at Arrow. If such a release should occur, the target Mica operation will remain as specified in Mica Project Operating Criteria, and the excess release will be returned as soon as the operating criteria permit.

Table 3 – Mica Project Operating Criteria

	Target Operation			Target Operation Limits		
Period	End-of-Previous-Period Arrow Storage Content (ksfd)	Period Average Outflow (cfs)	End-of-Period Treaty Storage Content 1/ (ksfd)	End-of-Period Minimum Treaty Storage Content 2/ (ksfd)	Period Maximum Outflow 1/ (cfs)	Period Minimum Outflow 3/ (cfs)
August 1-15	3,300 - FULL	-	3,379.2	-	34,000	15,000
	1,450 - 3,300	25,000	-	0.0	-	15,000
	0 - 1,450	32,000	-	0.0	-	15,000
August 16-31	3,060 - FULL	-	3,529.2	-	34,000	15,000
	1,300 - 3,060	25,000	-	0.0	-	15,000
	0 - 1,300	32,000	-	0.0	-	15,000
September	3,570 - FULL	-	3,529.2	-	34,000	10,000
	3,480 - 3,570	25,000	-	0.0	-	10,000
	2,140 - 3,480	27,000	-	0.0	-	10,000
	0 - 2,140	32,000	-	0.0	-	10,000
October	3,450 - FULL	-	3,428.4	-	34,000	10,000
	2,860 - 3,450	21,000	-	0.0	-	10,000
	1,360 - 2,860	25,000	-	0.0	-	10,000
	0 - 1,360	32,000	-	0.0	-	10,000
November	3,400 - FULL	22,000	-	0.0	-	10,000
	3,030 - 3,400	19,000	-	0.0	-	10,000
	1,100 - 3,030	25,000	-	0.0	-	10,000
	0 - 1,100	32,000	-	0.0	-	10,000
December	3,240 - FULL	22,000	-	204.1	-	10,000
	2,400 - 3,240	25,000	-	204.1	-	10,000
	690 - 2,400	27,000	-	204.1	-	10,000
	0 - 690	32,000	-	204.1	-	10,000
January	2,250 - FULL	24,000	-	204.1	-	12,000
	2,210 - 2,250	26,000	-	204.1	-	12,000
	1,560 - 2,210	28,000	-	204.1	-	12,000
	0 - 1,560	29,000	-	204.1	-	12,000
February	1,370 - FULL	21,000	-	0.0	-	12,000
	940 - 1,370	26,000	-	0.0	-	12,000
	850 - 940	22,000	-	0.0	-	12,000
	0 - 850	26,000	-	0.0	-	12,000
March	570 - FULL	25,000	-	0.0	-	12,000
	440 - 570	17,000	-	0.0	-	12,000
	160 - 440	21,000	-	0.0	-	12,000
	0 - 160	26,000	-	0.0	-	12,000
April 1-15	520 - FULL	17,000	-	0.0	-	12,000
	400 - 520	12,000	-	0.0	-	12,000
	20 - 400	15,000	-	0.0	-	12,000
	0 - 20	21,000	-	0.0	-	12,000
April 16-30	890 - FULL	10,000	-	0.0	-	10,000
	490 - 890	12,000	-	0.0	-	10,000
	40 - 490	10,000	-	0.0	-	10,000
	0 - 40	15,000	-	0.0	-	10,000
May	160 - FULL	8,000	-	0.0	-	8,000
	20 - 160	10,000	-	0.0	-	8,000
	0 - 20	12,000	-	0.0	-	8,000
June	2,140 - FULL	10,000	-	0.0	-	8,000
	1,450 - 2,140	8,000	-	0.0	-	8,000
	1,140 - 1,450	10,000	-	0.0	-	8,000
	0 - 1,140	16,000	-	0.0	-	8,000
July	3,110 - FULL	-	3,467.2	-	34,000	10,000
	2,880 - 3,110	-	3,405.2	-	34,000	10,000
	1,650 - 2,880	22,000	-	0.0	-	10,000
	0 - 1,650	24,000	-	0.0	-	10,000

Notes:

1/ If the Mica End-of-Period Treaty Storage Content is less than 3,529.2 ksfd, then a Period Maximum Outflow of 34,000 cfs will apply. These maximum flows may be exceeded for FRM.

2/ If a Period Average Outflow target operation would otherwise cause Mica to violate its End-of-Period Minimum Treaty Storage Content, then Mica outflow will be reduced as needed, but not lower than the Period Minimum Outflow, in order to maintain the reservoir at the End-of-Period Minimum Treaty Storage Content.

3/ Period Minimum Outflow only applies if the Period Average Outflow target operation would result in a Mica content below the End-of-Period Minimum Treaty Storage Content.

EXHIBITS

Exhibit 1 - Assured Refill Curves 1/

	MICA						ARROW						DUNCAN				
	1931 Inflow 1/	PDR 3/	Water Available for Refill		CRC1	ARC	1931 Inflow 1/	PDR 3/	Water Available for Refill		MICA Refill 2/	ARC	1931 Inflow 1/	PDR 3/	Water Available for Refill		ARC
Period	(cfs)	(cfs)	(cfs)	(ksfd)	(ksfd)	**(ksfd)**	(cfs)	(cfs)	(cfs)	(ksfd)	(ksfd)	**(ksfd)**	(cfs)	(cfs)	(cfs)	(ksfd)	**(ksfd)**
AG1	52,256	3,000	49,256	738.8	3,529.2	**0.0**	81,791	5,000	76,791	1,151.9	3,529.2	**0.0**	5,228	100	5,128	76.9	**31.4**
AG2	39,483	3,000	36,483	583.7	3,529.2	**0.0**	61,808	5,000	56,808	908.9	0.0	**0.0**	3,875	100	3,775	60.4	**91.8**
SEP	23,088	3,000	20,088	602.6	3,492.1	**400.3**	38,819	5,000	33,819	1,014.6	-37.1	**0.0**	2,310	100	2,210	66.3	**158.1**
OCT	8,755	3,000	5,755	178.4	3,352.4	**578.7**	14,417	5,000	9,417	291.9	-139.7	**0.0**	1,089	100	989	30.7	**188.8**
NOV	5,167	3,000	2,167	65.0	2,997.2	**643.7**	9,356	5,000	4,356	130.7	-355.2	**0.0**	684	100	584	17.5	**206.3**
DEC	3,525	3,000	525	16.3	2,488.7	**660.0**	6,470	5,000	1,470	45.6	-508.5	**0.0**	461	100	361	11.2	**217.5**
JAN	2,828	3,000	-172	-5.3	1,591.1	**654.6**	6,442	5,000	1,442	44.7	-897.6	**0.0**	428	100	328	10.2	**227.6**
FEB	2,584	3,000	-416	-11.6	768.9	**643.0**	5,751	5,000	751	21.0	-822.2	**531.5**	428	100	328	9.2	**236.8**
MAR	3,214	3,000	214	6.6	471.2	**649.6**	7,842	5,000	2,842	88.1	-119.3	**738.9**	554	100	454	14.1	**250.9**
AP1	4,669	3,000	1,669	25.0	458.9	**674.6**	12,052	5,000	7,052	105.8	25.0	**819.7**	825	100	725	10.9	**261.8**
AP2	7,221	3,000	4,221	63.3	469.8	**738.0**	20,475	7,322	13,153	197.3	63.3	**953.7**	1,137	100	1,037	15.6	**277.3**
MAY	28,098	3,478	24,620	763.2	930.7	**1,501.2**	69,119	5,079	64,040	1,985.2	763.2	**2,175.7**	5,170	114	5,056	156.7	**434.1**
JUN	60,185	6,834	53,351	1,600.5	2,576.4	**3,101.7**	114,506	23,024	91,482	2,744.5	1,600.5	**3,319.6**	8,030	641	7,389	221.7	**655.7**
JUL	56,556	42,766	13,790	427.5	3,406.7	**3,529.2**	88,892	66,715	22,177	687.5	427.5	**3,579.6**	7,320	5,705	1,615	50.1	**705.8**

Notes on Exhibit 1:

1/ The Assured Refill Curve (ARC) indicates the end-of-period storage content required to assure refill of Canadian storage by 31 July based on 1931 historical monthly inflow. The period inflow at each reservoir, based on the 2010 Level Modified streamflow record, is reduced by deducting the Power Discharge Requirements (PDR) and water required for refill, if any, at upstream reservoirs. The Entities may agree to revise the data upon the completion of the Refill Study by the Operating Committee.

2/ Upstream refill requirement at Arrow: These values are computed by subtracting current period from previous period's higher of Mica's ARC or first year critical rule curve (CRC1), except July value is Mica full minus previous period's higher of Mica's ARC or CRC1. CRC1 is also shown in Exhibit 2.

3/ PDRs are from the AOP15.

Exhibit 2 - Critical Rule Curves

End-of-Period Usable Storage Content (ksfd)

YEAR	AUG15	AUG31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR15	APR30	MAY	JUN	JUL
							MICA							
CRC1	3,529.2	3,529.2	3,492.1	3,352.4	2,997.2	2,488.7	1,591.1	768.9	471.2	458.9	469.8	930.7	2,576.4	3,406.7
CRC2	3,512.5	3,513.9	3,250.1	2,824.3	2,192.0	1,557.8	553.9	69.6	0.0	0.0	220.2	870.1	2,069.1	3,138.9
CRC3	3,360.4	3,407.3	3,249.8	2,824.3	2,189.8	1,423.1	550.7	35.7	0.0	0.0	0.0	571.4	1,764.8	2,334.8
CRC4	2,365.5	2,344.7	2,080.3	1,596.5	1,040.5	236.8	79.7	0.0						
							ARROW							
CRC1	3,579.6	3,579.6	3,539.8	3,355.7	3,019.2	2,407.6	1,583.3	872.5	621.0	525.3	554.3	1,316.1	2,854.4	3,454.5
CRC2	3,561.8	3,563.2	3,295.6	2,844.3	2,207.3	1,506.4	571.6	237.3	0.0	9.1	317.4	1,259.6	2,266.4	3,183.1
CRC3	3,407.9	3,455.4	3,295.9	2,845.2	2,206.0	1,376.8	713.1	208.0	0.0	0.0	0.0	612.3	1,535.8	1,730.5
CRC4	1,764.2	1,854.8	2,009.9	1,590.4	1,020.5	357.1	124.8	0.0						
							DUNCAN							
CRC1	705.8	705.8	631.7	631.3	595.0	385.8	264.9	79.4	88.5	94.0	105.3	222.8	497.6	639.7
CRC2	697.0	704.7	705.8	705.8	624.7	371.4	148.8	7.0	0.0	0.0	33.1	148.1	367.7	585.3
CRC3	651.8	704.9	705.8	705.1	627.4	382.2	169.5	23.2	0.0	0.0	2.0	159.2	397.1	314.1
CRC4	238.8	131.8	100.8	92.1	50.0	0.0	0.0	0.0						
							COMPOSITE							
CRC1	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,439.3	1,720.8	1,180.7	1,078.2	1,129.4	2,469.6	5,928.4	7,500.9
CRC2	7,771.3	7,781.8	7,251.5	6,374.4	5,024.0	3,435.6	1,274.3	313.9	0.0	9.1	570.7	2,277.8	4,703.2	6,907.3
CRC3	7,420.1	7,567.6	7,251.5	6,374.6	5,023.2	3,182.1	1,433.3	266.9	0.0	0.0	2.0	1,342.9	3,697.7	4,379.4
CRC4	4,368.5	4,331.3	4,191.0	3,279.0	2,111.0	593.9	204.5	0.0						

Source: Critical Rule Curves are from the AOP15.

Exhibit 3 - Operating Rule Curve Lower Limits

End-of-Period Usable Storage Content (ksfd)

Period	Mica	Arrow	Duncan
JAN	413.9	401.3	125.5
FEB	22.4	21.7	4.4
MAR	0.0	0.0	0.0
AP1	0.0	0.0	0.0

Source: Operating Rule Curve Lower Limits are from the AOP15.

Exhibit 4 - Variable Refill Curve Procedures

The Variable Refill Curves (VRCs) indicate the end-of-period storage content required to refill Canadian storage based on forecasts of unregulated inflow volume. The probable forecast volume at each reservoir is reduced by deducting the 95 percent confidence forecast error, Power Discharge Requirements (PDRs), and water required for refill at upstream reservoirs based on the Operating Rule Curve (ORC).

POWER DISCHARGE REQUIREMENTS (CFS)
FOR JANUARY - JULY VOLUME RUNOFF
OF THE COLUMBIA RIVER AT THE DALLES, OREGON

Project	Jan	Feb	Mar	Ap1	Ap2	May	Jun	Jul
Mica								
ARC PDRs	3,000	3,000	3,000	3,000	3,000	3,478	6,834	42,766
80 MAF PDRs	3,000	3,000	3,000	3,000	3,000	3,000	22,000	30,000
95 MAF PDRs	3,000	3,000	3,000	3,000	3,000	3,000	22,000	30,000
110 MAF PDRs	3,000	3,000	3,000	3,000	3,000	3,000	22,000	30,000
Arrow								
ARC PDRs	5,000	5,000	5,000	5,000	7,322	5,079	23,024	66,715
80 MAF PDRs	5,000	5,000	5,000	5,000	5,000	5,000	42,000	53,000
95 MAF PDRs	5,000	5,000	5,000	5,000	5,000	5,000	42,000	53,000
110 MAF PDRs	5,000	5,000	5,000	5,000	5,000	5,000	42,000	53,000
Duncan								
ARC PDRs	100	100	100	100	100	114	641	5,705
80 MAF PDRs	100	100	100	100	100	100	1,200	2,400
95 MAF PDRs	100	100	100	100	100	100	1,150	2,400
110 MAF PDRs	100	100	100	100	100	100	1,100	2,400

Notes:

(1) If the forecasted natural January through July volume runoff at The Dalles is less than 80 Maf, the Power Discharge Requirement in the 80 Maf schedule will be used. For intermediate forecasted volumes, the Power Discharge Requirement will be interpolated linearly between the values shown above.

(2) PDRs are from the AOP15. Data may be revised upon completion of any Refill Studies agreed to by the Operating Committee.

(3) Distribution factors and forecast errors are shown in Appendix 8 of the 2003 POP, as revised by the Operating Committee.

Exhibit 5 - Coordinated System Loads and Resources Used in AOP15

Energy (aMW)

Period	PNW Area Firm Loads 1/	Export, Imports and Resources 2/	Coordinated Hydro Load 3/
AG1	22,455	11,268	11,187
AG2	22,435	11,464	10,971
SEP	21,118	11,362	9,756
OCT	21,182	11,424	9,758
NOV	23,661	11,840	11,821
DEC	25,678	11,842	13,836
JAN	25,968	12,645	13,323
FEB	24,957	11,777	13,179
MAR	22,936	10,915	12,022
AP1	21,677	11,201	10,476
AP2	21,734	10,723	11,012
MAY	21,151	8,953	12,198
JUN	22,103	9,895	12,208
JUL	23,336	11,382	11,954

Notes: Data for columns 1, 2, and 3 are from DDPB Table 1A of the AOP15. References to line numbers in the notes below are references to lines in DDPB Table 1A of the AOP15.

1/ The Pacific Northwest Area Firm Load including pumping, but excluding Utah Power and Light loads in Idaho (line 1d).

2/ Includes the total power flows out (line 2j), plus the total load served by flows-in (line 3i), plus the load served by other resources (lines 4f – 4b), minus the total thermal installations (line 6c), minus the hydro maintenance (line 8a), and minus the transmission system losses (line 8b). Other resources include hydro independents (1929 for example) that will be updated as described in subsection II(D)3.

3/ AOP15 Coordinated Hydro Model Load, DDPB Table 1A, line 10.

Exhibit 6 – TSR Critical Rule Curves and ARCs for Other Major Projects

End-of-Period Usable Storage Content (ksfd)
Unadjusted for Crossovers

YEAR	AUG15	AUG31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR15	APR30	MAY	JUN	JUL
							LIBBY							
ARC	1,642.5	1,693.0	1,727.7	1,723.7	1,694.8	1,643.4	1,592.3	1,540.0	1,487.3	1,472.1	1,469.9	1,925.5	2,302.4	2,510.5
CRC1	2,510.5	2,510.5	2,453.5	2,510.0	2,106.3	1,501.9	1,446.3	1,216.7	1,115.9	1,093.4	1,063.0	1,541.7	2,510.4	2,490.2
CRC2	2,494.8	2,505.4	2,408.3	2,384.0	1,951.9	1,501.5	1,262.1	1,058.4	772.0	811.6	964.9	1,441.8	2,334.0	2,510.4
CRC3	2,461.7	2,510.1	2,510.5	2,506.6	2,119.7	1,502.0	1,148.5	634.8	433.4	418.0	321.7	775.4	1,322.2	1,531.0
CRC4	1,562.5	1,575.3	1,585.6	1,560.6	1,307.2	585.9	154.3	0.0						
							CORRA LINN							
ARC	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6
CRC1	285.4	285.4	396.9	396.9	396.9	396.9	322.8	234.8	69.8	69.8	69.8	69.8	285.4	285.4
CRC2	285.4	285.4	396.9	396.9	396.9	396.9	322.8	234.8	69.8	69.8	69.8	69.8	285.4	285.4
CRC3	285.4	285.4	396.9	396.9	396.9	396.9	322.8	234.8	69.8	69.8	69.8	69.8	285.4	285.4
CRC4	285.4	285.4	396.9	396.9	396.9	396.9	322.8	57.6						
							HUNGRY HORSE							
ARC	988.6	991.2	993.8	1,010.0	1,028.1	1,039.2	1,048.3	1,058.2	1,083.0	1,115.3	1,150.6	1,503.4	1,501.0	1,503.4
CRC1	1,503.4	1,503.4	1,438.7	1,452.9	1,374.1	1,096.0	933.5	822.6	819.3	826.0	870.5	1,196.6	1,503.3	1,503.0
CRC2	1,452.7	1,376.0	1,253.6	1,123.8	932.7	651.7	438.5	435.8	420.0	510.8	662.6	935.0	1,128.5	1,054.2
CRC3	998.6	928.1	812.4	765.9	658.3	406.4	186.8	92.3	87.4	90.2	145.1	498.8	657.2	687.8
CRC4	600.0	480.0	213.6	126.3	124.0	82.2	33.2	0.0						
							KERR							
ARC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	516.5	614.7
CRC1	614.7	614.7	614.7	614.5	614.6	588.5	431.4	256.9	0.0	0.0	17.7	426.3	614.7	614.7
CRC2	614.7	614.7	614.7	614.0	613.4	598.6	458.7	295.4	0.1	40.5	188.2	426.3	614.7	614.7
CRC3	614.7	614.7	614.7	613.0	614.4	558.1	455.6	275.2	3.4	19.9	31.9	426.3	614.7	614.7
CRC4	614.7	614.7	614.7	562.4	364.9	102.7	39.8	0.0						
							ALBENI FALLS							
ARC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	404.9	582.4
CRC1	582.4	582.4	465.7	190.4	57.6	57.6	57.6	57.6	57.6	57.6	190.4	279.0	582.4	582.4
CRC2	582.4	582.4	465.7	190.4	57.6	57.6	57.6	57.6	57.6	57.6	190.4	279.0	582.4	582.4
CRC3	582.4	582.4	465.7	190.4	57.6	57.6	57.6	57.6	57.6	57.6	190.4	279.0	582.4	582.4
CRC4	582.4	582.4	465.7	190.4	57.6	57.6	57.6	0.0						
							GRAND COULEE							
ARC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	967.6	1,851.2	2,106.9	2,128.1	2,614.3	2,614.3	2,614.3
CRC1	2,614.3	2,614.3	2,531.9	2,531.9	2,531.9	2,490.7	2,490.7	2,490.7	2,004.3	1,456.0	829.5	1,317.9	2,614.2	2,614.3
CRC2	2,614.3	2,531.9	2,531.9	2,531.9	2,531.9	2,490.7	2,490.7	2,490.7	1,979.9	1,835.0	2,115.1	2,281.2	2,614.3	2,614.3
CRC3	2,614.3	2,531.9	2,531.9	2,531.9	2,531.9	2,490.7	2,490.7	2,490.7	1,966.9	1,822.3	1,571.3	2,614.2	2,614.3	2,614.3
CRC4	2,614.3	2,531.9	2,531.9	2,531.9	2,531.9	2,451.3	1,019.3	0.0						
							CHELAN							
ARC	32.0	46.0	64.2	76.6	88.3	98.0	110.5	120.9	139.1	150.4	178.7	280.4	341.5	341.5
CRC1	341.5	341.5	339.7	341.5	304.3	254.2	209.2	162.9	111.5	112.3	97.7	210.4	340.9	339.4
CRC2	341.1	339.9	315.7	274.2	225.2	173.6	114.5	75.5	37.0	70.2	120.9	213.7	313.4	340.6
CRC3	337.8	331.1	324.4	282.3	234.1	182.2	132.8	87.5	44.1	32.5	28.0	177.3	253.9	257.1
CRC4	244.4	228.2	195.2	150.4	106.6	68.8	19.8	0.0						
							BROWNLEE							
ARC	0.0	0.0	0.0	0.0	0.0	6.8	124.9	210.3	384.3	422.0	459.8	491.7	491.7	491.7
CRC1	477.8	477.8	450.1	457.1	450.1	422.4	343.4	320.4	267.2	288.5	309.7	403.5	484.8	477.8
CRC2	477.8	477.8	450.1	457.1	450.1	422.4	343.4	320.4	267.2	288.5	309.7	403.5	484.8	477.8
CRC3	477.8	477.8	450.1	457.1	450.1	422.4	343.4	320.4	267.2	288.5	309.7	403.5	484.8	453.6
CRC4	419.7	379.2	355.8	457.1	450.1	422.4	343.6	0.0						
							DWORSHAK							
ARC	269.0	258.1	240.5	235.3	238.5	225.4	224.9	232.0	335.1	474.5	579.3	940.6	1,016.0	1,016.0
CRC1	649.7	497.0	392.9	399.6	401.8	395.6	384.8	376.7	425.2	449.6	558.6	907.7	1,016.0	779.3
CRC2	643.8	497.0	392.9	387.0	372.7	387.4	375.1	425.4	517.5	700.7	868.1	1,016.0	1,016.0	779.3
CRC3	640.2	497.0	392.9	396.9	409.1	405.3	414.1	429.6	542.0	685.9	795.1	1,016.0	1,016.0	779.3
CRC4	638.0	497.0	392.9	384.1	383.3	383.0	383.0	0.0						

Exhibit 6 – TSR Critical Rule Curves and ARCs for Other Major Projects (Continued)

End-of-Period Usable Storage Content (ksfd)

Unadjusted for Crossovers

YEAR	AUG15	AUG31	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR15	APR30	MAY	JUN	JUL
							NOXON							
ARC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	116.3
CRC1	116.3	116.3	116.3	116.3	112.3	112.3	112.3	100.8	78.7	78.7	116.3	116.3	116.3	116.3
							PRIEST LAKE							
ARC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6	35.5
CRC1	35.5	35.5	35.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.5	35.5	35.5
							CDA LAKE							
ARC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6	89.5	112.5
CRC1	112.5	112.5	101.8	74.8	0.0	0.0	0.0	0.0	0.0	0.0	90.6	97.2	112.5	112.5
							LONG LAKE							
ARC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.5
CRC1	52.5	52.5	52.5	52.5	52.5	52.5	19.8	19.8	19.8	50.2	52.5	52.5	52.5	52.5

Note: The CRC data is the same as in the AOP15 studies, and is provided here to verify the critical rule curves used in the TSR studies.

Exhibit 7 – PDRs and VRC Lower Limits

PDR units in cfs; VRC Lower Limits units in ksfd

Project	Jan	Feb	Mar	Apr15	Apr30	May	Jun	Jul
Libby								
ARC PDR	4,000	4,000	4,000	4,000	4,000	4,020	9,793	4,205
80 MAF PDR	4,000	4,000	4,000	4,000	4,000	4,000	9,000	10,000
95 MAF PDR	4,000	4,000	4,000	4,000	4,000	4,000	9,000	10,000
110 MAF PDR	4,000	4,000	4,000	4,000	4,000	4,000	9,000	10,000
Hungry Horse								
ARC PDR	400	400	400	400	1,704	430	5,760	1,311
80 MAF PDR	400	400	400	400	400	400	2,000	2,300
95 MAF PDR	400	400	400	400	400	400	2,000	2,300
110 MAF PDR	400	400	400	400	400	400	2,000	2,300
Grand Coulee *								
ARC PDR	30,000	30,000	30,000	30,000	30,000	72,707	83,403	116,849
80 MAF PDR	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
95 MAF PDR	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
110 MAF PDR	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
80 MAF VRCLL	1,778.9	1,054.5	418.7	418.7	418.7	843.7	2,411.3	2,614.3
95 MAF VRCLL	1,778.9	1,054.5	418.7	418.7	418.7	843.7	2,411.3	2,614.3
110 MAF VRCLL	1,778.9	1,054.5	418.7	418.7	418.7	843.7	2,411.3	2,614.3
Chelan								
ARC PDR	50	50	50	50	50	1,976	2,019	1,958
80 MAF PDR	50	50	50	50	50	50	1,000	1,000
95 MAF PDR	50	50	50	50	50	50	50	50
110 MAF PDR	50	50	50	50	50	50	50	50

Notes:

1/ PDRs and VRCLLs are from the AOP15.

2/ Distribution factors and forecast errors are shown in Appendix 8 of the 2003 POP.

* VRCLLs are for Grand Coulee only.

Exhibit 8 – U.S. Operating Rule Curve Lower Limits

End-of-Period Usable Storage Content (ksfd)

Period	Libby	Hungry Horse	Grand Coulee	Chelan
JAN	**947.0**	**142.2**	**2,063.3**	**103.0**
FEB	**489.4**	**58.0**	**1,563.9**	**54.0**
MAR	**114.9**	**23.1**	**520.6**	**9.8**
AP1	**32.4**	**7.0**	**110.6**	**2.5**

Source: Operating Rule Curve Lower Limits are from the AOP15.

Exhibit 9 - Composite Canadian Storage Contents

From the DOP15 80-Year Continuous TSR Study; Units in ksfd

Water Year	AU1	AU2	SEP	OCT	NOV	DEC	JAN	FEB	MAR	AP1	AP2	MAY	JUN	JUL
1928-1929	7,814.6	7,810.7	7,574.3	7,159.6	6,384.1	4,887.4	3,176.3	1,663.7	895.3	792.9	645.0	1,986.7	5,407.2	6,974.5
1929-1930	7,411.4	7,427.8	6,946.6	5,963.8	4,590.0	2,876.2	1,189.7	303.6	19.2	137.6	738.9	1,996.0	4,195.6	5,924.6
1930-1931	6,285.8	6,381.9	6,105.7	5,219.4	3,965.9	2,128.7	926.0	184.6	0.0	0.0	0.3	1,466.5	2,912.4	3,443.2
1931-1932	3,368.9	3,251.3	3,052.0	2,380.0	1,386.0	506.3	197.8	0.0	0.0	107.3	543.1	2,597.1	5,960.9	7,752.6
1932-1933	7,814.6	7,814.6	7,292.1	6,557.6	6,348.8	5,282.1	3,182.4	1,553.0	926.2	861.5	1,011.3	2,377.1	5,775.8	7,752.6
1933-1934	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,258.5	1,701.9	798.0	663.4	1,319.2	3,761.8	6,337.3	7,568.3
1934-1935	7,768.1	7,785.3	7,212.7	6,571.6	6,567.2	5,282.1	3,192.4	1,724.4	1,301.0	1,093.1	1,133.1	2,750.7	5,846.2	7,752.6
1935-1936	7,814.6	7,806.0	7,543.2	6,832.1	5,754.2	3,959.8	1,817.5	817.4	423.6	338.8	951.2	3,932.9	6,711.3	7,752.6
1936-1937	7,798.5	7,785.7	7,239.1	6,404.2	5,134.8	3,310.5	1,364.7	306.2	0.0	8.7	1.7	1,339.4	3,940.4	5,470.5
1937-1938	5,496.7	5,486.5	5,254.0	4,550.5	4,082.2	2,932.7	2,290.8	1,686.1	641.7	540.8	672.8	2,467.2	5,661.1	7,581.1
1938-1939	7,606.5	7,641.0	7,312.8	6,682.7	5,623.7	4,240.3	2,728.0	1,721.5	1,031.8	1,064.0	1,377.6	3,742.3	5,426.3	7,490.9
1939-1940	7,706.3	7,728.7	7,177.4	6,518.1	5,651.1	4,650.6	2,537.0	1,730.8	1,392.3	1,477.2	1,787.6	3,996.6	5,675.2	7,084.8
1940-1941	7,304.0	7,267.9	7,109.8	6,847.5	5,861.7	4,118.1	2,703.0	1,399.1	1,145.3	1,389.6	1,656.8	3,196.7	4,626.3	5,782.1
1941-1942	5,831.3	5,830.2	5,963.5	6,276.9	5,915.9	5,282.1	3,346.7	1,856.9	1,065.1	944.9	1,034.5	2,705.8	5,054.5	7,500.1
1942-1943	7,686.5	7,805.6	7,435.9	6,771.5	6,159.6	5,282.1	3,357.1	1,836.5	1,195.4	1,097.7	1,339.6	2,547.5	4,950.6	7,330.5
1943-1944	7,664.6	7,807.6	7,504.8	7,050.7	6,207.3	4,871.0	3,090.7	1,510.3	769.6	737.6	819.6	1,922.9	3,899.8	4,338.9
1944-1945	4,353.8	4,320.4	4,147.9	3,454.8	2,406.7	854.6	405.5	27.3	0.0	0.0	0.0	1,674.4	4,641.5	6,325.0
1945-1946	6,184.3	5,970.9	5,622.9	4,868.2	4,087.0	2,872.3	1,218.0	603.8	220.8	185.6	468.7	2,705.7	6,197.1	7,752.6
1946-1947	7,814.6	7,809.0	7,663.6	7,235.4	6,611.4	5,282.1	3,099.7	1,472.8	1,130.3	1,155.3	1,484.4	3,821.2	6,491.1	7,814.6
1947-1948	7,814.6	7,803.9	7,617.0	7,339.4	6,611.4	5,282.1	3,126.1	1,415.5	987.7	886.8	1,095.0	3,424.0	6,318.4	7,814.6
1948-1949	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,417.1	1,914.5	1,522.1	1,516.5	1,886.6	4,076.1	6,498.5	7,453.9
1949-1950	7,661.2	7,737.5	7,268.9	6,649.5	6,271.1	5,282.1	3,097.9	1,466.0	937.8	818.1	866.4	1,983.8	5,330.1	7,690.6
1950-1951	7,794.7	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,180.1	1,628.2	1,221.3	1,244.2	1,442.6	3,804.3	6,428.5	7,814.6
1951-1952	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,099.1	1,700.6	1,274.0	1,080.9	1,258.0	3,452.0	6,089.8	7,752.6
1952-1953	7,814.6	7,799.8	7,390.1	6,682.2	5,554.7	3,866.6	3,134.2	1,700.9	965.7	830.3	855.0	2,532.2	5,484.1	7,390.7
1953-1954	7,664.6	7,814.6	7,663.6	7,301.1	6,611.4	5,282.1	3,158.4	1,587.0	699.3	435.4	468.0	2,579.2	5,661.8	7,814.6
1954-1955	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,206.3	1,645.8	1,262.2	1,228.9	962.8	1,988.9	5,830.6	7,752.6
1955-1956	7,814.6	7,814.6	7,652.0	7,339.4	6,611.4	5,282.1	3,151.9	1,450.9	895.2	862.2	1,199.0	3,584.7	6,378.6	7,814.6
1956-1957	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,119.3	1,490.3	1,119.3	1,087.1	1,272.2	3,597.6	6,882.4	7,752.6
1957-1958	7,709.7	7,779.1	7,309.9	6,824.5	5,993.5	4,882.4	2,749.5	1,171.2	825.5	873.1	1,044.0	3,458.3	6,530.3	7,752.6
1958-1959	7,791.2	7,795.4	7,460.9	7,268.0	6,611.4	5,282.1	3,192.8	1,581.0	649.6	651.7	799.4	2,860.0	5,765.2	7,814.6
1959-1960	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,188.3	1,590.6	1,338.0	1,550.3	1,626.0	3,098.6	5,871.9	7,752.6
1960-1961	7,814.6	7,801.0	7,620.0	7,216.5	6,611.4	5,282.1	3,180.2	1,626.0	750.6	791.1	893.0	3,295.4	6,157.9	7,814.6
1961-1962	7,814.6	7,813.9	7,472.7	7,159.2	6,442.2	5,282.1	3,114.5	1,698.5	1,296.9	1,125.0	1,276.2	3,036.5	5,894.9	7,749.1
1962-1963	7,814.6	7,814.6	7,589.3	7,301.1	6,611.4	5,282.1	3,179.4	1,709.1	1,446.0	1,476.6	1,659.9	3,457.3	6,472.9	7,752.6
1963-1964	7,814.6	7,809.6	7,663.6	7,182.0	6,611.4	5,282.1	3,156.7	1,470.4	778.5	737.3	802.4	2,300.0	5,571.5	7,814.6
1964-1965	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,183.8	1,679.1	1,336.0	1,312.7	1,602.2	2,970.8	5,803.7	7,814.6
1965-1966	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,174.0	1,566.3	831.3	788.1	957.2	3,297.4	6,115.5	7,814.6
1966-1967	7,814.6	7,802.2	7,516.7	6,971.7	6,335.9	5,282.1	3,198.6	1,622.9	641.0	391.7	261.2	2,028.6	5,100.3	7,814.6
1967-1968	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,196.2	1,599.9	704.5	696.9	446.3	2,470.2	5,656.5	7,814.6
1968-1969	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,162.5	1,555.5	1,023.6	1,026.0	1,426.8	3,882.8	6,534.7	7,814.6
1969-1970	7,814.6	7,795.1	7,549.0	7,335.0	6,611.4	5,282.1	3,334.0	1,844.8	1,463.4	1,399.4	1,191.2	2,537.9	6,064.6	7,752.6
1970-1971	7,814.6	7,791.7	7,394.6	6,870.6	6,254.4	5,241.1	3,083.4	1,614.0	1,137.1	947.5	1,049.7	3,276.6	6,148.9	7,752.6
1971-1972	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,140.9	1,480.1	609.4	382.3	254.8	1,861.5	5,259.0	7,814.6
1972-1973	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,364.1	1,901.1	1,562.2	1,480.2	1,360.0	3,198.5	5,216.1	7,005.1
1973-1974	7,428.6	7,247.7	6,779.3	6,119.3	6,295.3	5,282.1	3,180.8	1,630.3	649.6	673.9	950.4	2,260.6	5,695.9	7,690.6
1974-1975	7,814.6	7,814.6	7,663.6	7,125.0	6,416.3	5,282.1	3,214.4	1,807.7	1,356.3	1,237.7	1,331.7	2,765.9	5,882.8	7,752.6
1975-1976	7,790.2	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,221.2	1,579.7	897.2	915.5	1,110.3	3,558.4	6,263.5	7,814.6
1976-1977	7,814.6	7,814.6	7,663.6	7,339.4	6,546.5	5,118.9	3,430.3	1,847.9	1,173.7	1,072.6	1,188.3	2,018.2	3,658.8	3,801.2
1977-1978	3,794.1	3,826.2	3,613.3	2,870.1	1,903.4	1,357.5	990.5	282.3	42.2	120.6	442.2	1,988.8	4,863.4	6,893.9
1978-1979	7,335.5	7,507.2	7,663.6	7,339.4	6,611.4	5,267.5	3,410.3	1,929.2	1,615.1	1,565.5	1,639.7	3,322.6	6,073.6	7,712.5
1979-1980	7,731.7	7,763.4	7,298.4	6,570.5	5,434.6	4,265.5	2,554.5	1,654.3	927.0	823.4	1,116.3	3,952.1	6,251.8	7,663.8
1980-1981	7,658.2	7,722.4	7,449.4	7,025.9	6,589.7	5,282.1	3,271.8	1,766.0	1,449.5	1,433.1	1,678.4	3,922.0	6,209.2	7,752.6
1981-1982	7,814.6	7,814.6	7,663.5	7,309.8	6,611.4	5,282.1	3,170.0	1,593.5	1,079.6	1,040.7	1,151.1	2,871.9	5,886.1	7,814.6
1982-1983	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,217.5	1,735.9	1,454.3	1,501.7	1,687.5	3,608.5	6,145.4	7,752.6
1983-1984	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,209.1	1,774.8	1,477.6	1,483.6	1,588.6	2,533.8	5,630.4	7,514.8
1984-1985	7,742.4	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,171.5	1,764.3	1,392.7	1,232.8	1,327.2	3,766.2	6,210.5	7,377.6
1985-1986	7,440.9	7,392.1	7,248.5	7,136.4	6,585.1	5,282.1	3,132.7	1,520.5	1,155.9	1,017.9	1,118.0	3,124.6	6,362.1	7,752.6
1986-1987	7,814.6	7,790.6	7,446.0	7,019.8	6,611.4	5,282.1	3,139.0	1,676.6	1,438.7	1,550.9	1,789.2	3,954.7	5,255.3	6,494.2
1987-1988	6,684.1	6,513.2	6,128.1	5,041.2	3,748.3	2,236.1	993.3	200.9	0.0	0.0	694.8	2,860.4	4,588.5	5,355.5

Exhibit 9 - Composite Canadian Storage Contents – Continued

From the DOP15 80-Year Continuous TSR Study; Units in ksfd

Water Year	AU1	AU2	SEP	OCT	NOV	DEC	JAN	FEB	MAR	AP1	AP2	MAY	JUN	JUL
1988-1989	5,191.8	5,065.1	4,589.5	4,031.5	3,347.8	1,886.6	924.6	205.4	33.5	42.8	420.1	2,323.1	5,452.8	6,759.7
1989-1990	7,151.3	7,387.9	7,168.9	6,414.0	6,357.1	5,282.1	3,195.2	1,624.6	985.2	924.0	1,134.5	2,811.2	5,948.2	7,752.6
1990-1991	7,814.6	7,814.6	7,529.1	7,023.1	6,611.4	5,282.1	3,241.0	1,803.9	820.6	735.7	1,131.6	3,543.4	6,227.3	7,814.6
1991-1992	7,814.6	7,814.6	7,649.4	6,883.0	6,091.9	4,910.7	2,787.5	1,731.5	1,502.9	1,556.9	1,665.3	3,954.1	5,325.9	6,507.8
1992-1993	6,565.3	6,285.7	5,938.5	5,221.1	4,132.7	2,371.7	1,065.2	221.4	37.5	59.7	254.1	2,913.2	4,895.9	6,354.7
1993-1994	6,693.9	6,988.8	7,018.8	6,288.4	4,991.8	3,300.3	1,762.1	600.9	346.3	509.1	1,155.1	3,648.3	4,760.7	6,568.7
1994-1995	6,760.4	6,520.7	5,936.7	4,941.8	3,718.3	2,353.8	1,273.6	972.2	659.1	646.4	713.4	2,360.1	5,548.8	7,286.0
1995-1996	7,664.6	7,787.7	7,485.4	7,245.5	6,611.4	5,282.1	3,289.5	1,734.2	649.6	674.6	1,082.6	2,862.2	5,901.2	7,814.6
1996-1997	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,164.7	1,622.9	684.0	671.3	738.0	2,848.7	5,873.4	7,814.6
1997-1998	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,202.1	1,728.7	1,442.1	1,508.7	1,730.3	3,961.7	6,537.0	7,752.6
1998-1999	7,814.6	7,789.1	7,461.1	6,876.4	6,315.9	5,282.1	3,191.5	1,618.0	972.3	969.2	1,168.0	2,790.5	5,793.7	7,752.6
1999-2000	7,814.6	7,814.6	7,663.6	7,244.4	6,611.4	5,282.1	3,242.2	1,697.0	1,450.4	1,501.3	1,806.4	3,600.7	6,106.6	7,752.6
2000-2001	7,814.6	7,772.3	7,406.8	6,940.8	6,051.9	4,474.2	2,673.3	1,074.5	512.2	312.4	443.7	2,010.4	3,435.4	4,005.1
2001-2002	3,962.9	3,849.6	3,369.1	2,548.3	1,662.1	406.6	191.0	1.0	0.0	0.0	167.7	1,907.6	5,369.6	7,578.7
2002-2003	7,551.5	7,585.3	7,177.4	6,204.2	4,982.6	3,240.4	2,083.7	1,670.1	918.0	876.6	1,030.2	2,713.1	5,728.0	7,061.4
2003-2004	7,248.6	7,147.5	6,582.6	6,488.7	5,609.9	3,863.8	2,500.2	1,647.5	1,100.1	1,331.6	1,659.8	3,563.1	5,777.2	7,080.9
2004-2005	7,293.8	7,730.8	7,549.5	7,339.4	6,611.4	5,282.1	3,410.2	2,059.5	1,505.3	1,530.7	1,841.2	4,021.7	6,381.8	7,752.6
2005-2006	7,722.7	7,649.7	7,177.4	7,067.5	6,611.4	5,282.1	3,268.1	1,688.3	1,230.4	1,078.4	1,214.8	3,519.4	6,371.0	7,752.6
2006-2007	7,653.0	7,522.2	7,130.2	6,299.9	6,227.0	5,256.7	3,138.6	1,517.4	93.2	215.6	522.3	2,692.6	5,844.2	7,814.6
2007-2008	7,757.2	7,541.3	7,001.1	6,320.6	5,465.0	4,404.7	2,848.1	1,750.4	987.5	846.1	691.2	3,009.2	5,590.1	7,318.5
Max.	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,430.3	2,059.5	1,615.1	1,565.5	1,886.6	4,076.1	6,882.4	7,814.6
90%	7,814.6	7,814.6	7,663.6	7,339.4	6,611.4	5,282.1	3,294.0	1,810.6	1,450.8	1,501.3	1,666.6	3,923.1	6,432.9	7,814.6
Average	7,358.5	7,358.2	7,092.3	6,606.4	5,868.3	4,555.7	2,739.1	1,419.3	903.4	873.5	1,054.1	2,957.6	5,657.8	7,271.6
Median	7,796.6	7,797.6	7,479.1	7,038.3	6,494.4	5,282.1	3,157.6	1,623.8	969.0	881.7	1,113.3	2,892.6	5,817.2	7,752.6
10%	6,275.7	6,254.2	5,938.3	5,031.3	4,070.6	2,369.9	1,177.3	301.5	37.1	119.3	440.0	1,988.6	4,640.0	6,285.0
Min.	3,368.9	3,251.3	3,052.0	2,380.0	1,386.0	406.6	191.0	0.0	0.0	0.0	0.0	1,339.4	2,912.4	3,443.2

Exhibit 10 – Duncan Reservoir Storage/Elevation Table

Units in ksfd; Dated 21February 1973; Updated 1 February 2013

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
1,902	796.1	797.0	797.9	798.8	799.7	800.6	801.5	802.4	803.3	804.2	0.90
1,901	787.0	787.9	788.8	789.7	790.6	791.5	792.4	793.3	794.3	795.2	0.91
1,900	777.9	778.8	779.7	780.6	781.5	782.4	783.3	784.2	785.1	786.1	0.91
1,899	768.8	769.7	770.6	771.5	772.4	773.3	774.2	775.1	776.0	777.0	0.91
1,898	759.7	760.6	761.5	762.4	763.4	764.3	765.2	766.1	767.0	767.9	0.91
1,897	750.7	751.6	752.5	753.4	754.3	755.2	756.1	757.0	757.9	758.8	0.90
1,896	741.7	742.6	743.5	744.4	745.3	746.2	747.1	748.0	748.9	749.8	0.90
1,895	732.7	733.6	734.5	735.4	736.3	737.2	738.1	739.0	739.9	740.8	0.90
1,894	723.7	724.6	725.5	726.4	727.3	728.2	729.1	730.0	730.9	731.8	0.90
1,893	714.8	715.7	716.6	717.5	718.4	719.3	720.1	721.0	721.9	722.8	0.89
1,892	705.8	706.7	707.6	708.5	709.4	710.3	711.2	712.1	713.0	713.9	0.90
1,891	696.9	697.8	698.7	699.6	700.5	701.3	702.2	703.1	704.0	704.9	0.89
1,890	688.0	688.9	689.8	690.7	691.6	692.4	693.3	694.2	695.1	696.0	0.89
1,889	679.2	680.1	681.0	681.8	682.7	683.6	684.5	685.4	686.2	687.1	0.88
1,888	670.4	671.3	672.2	673.0	673.9	674.8	675.7	676.6	677.4	678.3	0.88
1,887	661.5	662.4	663.3	664.2	665.1	665.9	666.8	667.7	668.6	669.5	0.89
1,886	652.8	653.7	654.5	655.4	656.3	657.1	658.0	658.9	659.8	660.6	0.87
1,885	644.0	644.9	645.8	646.6	647.5	648.4	649.3	650.2	651.0	651.9	0.88
1,884	635.3	636.2	637.0	637.9	638.8	639.6	640.5	641.4	642.3	643.1	0.87
1,883	626.6	627.5	628.3	629.2	630.1	630.9	631.8	632.7	633.6	634.4	0.87
1,882	617.9	618.8	619.6	620.5	621.4	622.2	623.1	624.0	624.9	625.7	0.87
1,881	609.2	610.1	610.9	611.8	612.7	613.5	614.4	615.3	616.2	617.0	0.87
1,880	600.6	601.5	602.3	603.2	604.0	604.9	605.8	606.6	607.5	608.3	0.86
1,879	592.0	592.9	593.7	594.6	595.4	596.3	597.2	598.0	598.9	599.7	0.86
1,878	583.4	584.3	585.1	586.0	586.8	587.7	588.6	589.4	590.3	591.1	0.86
1,877	574.8	575.7	576.5	577.4	578.2	579.1	580.0	580.8	581.7	582.5	0.86
1,876	566.3	567.1	568.0	568.8	569.7	570.5	571.4	572.2	573.1	573.9	0.85
1,875	557.8	558.6	559.5	560.3	561.2	562.0	562.9	563.7	564.6	565.4	0.85
1,874	549.3	550.1	551.0	551.8	552.7	553.5	554.4	555.2	556.1	556.9	0.85
1,873	540.9	541.7	542.6	543.4	544.3	545.1	545.9	546.8	547.6	548.5	0.84
1,872	532.4	533.2	534.1	534.9	535.8	536.6	537.5	538.3	539.2	540.0	0.85
1,871	524.0	524.8	525.7	526.5	527.4	528.2	529.0	529.9	530.7	531.6	0.84
1,870	515.7	516.5	517.4	518.2	519.0	519.8	520.7	521.5	522.3	523.2	0.83
1,869	507.3	508.1	509.0	509.8	510.7	511.5	512.3	513.2	514.0	514.9	0.84
1,868	499.0	499.8	500.7	501.5	502.3	503.1	504.0	504.8	505.6	506.5	0.83
1,867	490.7	491.5	492.4	493.2	494.0	494.8	495.7	496.5	497.3	498.2	0.83
1,866	482.4	483.2	484.1	484.9	485.7	486.5	487.4	488.2	489.0	489.9	0.83
1,865	474.2	475.0	475.8	476.7	477.5	478.3	479.1	479.9	480.8	481.6	0.82
1,864	466.0	466.8	467.6	468.5	469.3	470.1	470.9	471.7	472.6	473.4	0.82
1,863	457.8	458.6	459.4	460.3	461.1	461.9	462.7	463.5	464.4	465.2	0.82
1,862	449.7	450.5	451.3	452.1	452.9	453.7	454.6	455.4	456.2	457.0	0.81
1,861	441.6	442.4	443.2	444.0	444.8	445.6	446.5	447.3	448.1	448.9	0.81
1,860	433.5	434.3	435.1	435.9	436.7	437.5	438.4	439.2	440.0	440.8	0.81

Exhibit 10 – Duncan Reservoir Storage/Elevation Table – Continued

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
1,859	425.4	426.2	427.0	427.8	428.6	429.4	430.3	431.1	431.9	432.7	0.81
1,858	417.4	418.2	419.0	419.8	420.6	421.4	422.2	423.0	423.8	424.6	0.80
1,857	409.4	410.2	411.0	411.8	412.6	413.4	414.2	415.0	415.8	416.6	0.80
1,856	401.4	402.2	403.0	403.8	404.6	405.4	406.2	407.0	407.8	408.6	0.80
1,855	393.5	394.3	395.1	395.9	396.7	397.4	398.2	399.0	399.8	400.6	0.79
1,854	385.6	386.4	387.2	388.0	388.8	389.5	390.3	391.1	391.9	392.7	0.79
1,853	377.7	378.5	379.3	380.1	380.9	381.6	382.4	383.2	384.0	384.8	0.79
1,852	369.9	370.7	371.5	372.2	373.0	373.8	374.6	375.4	376.1	376.9	0.78
1,851	362.1	362.9	363.7	364.4	365.2	366.0	366.8	367.6	368.3	369.1	0.78
1,850	354.3	355.1	355.9	356.6	357.4	358.2	359.0	359.8	360.5	361.3	0.78
1,849	346.6	347.4	348.1	348.9	349.7	350.4	351.2	352.0	352.8	353.5	0.77
1,848	338.9	339.7	340.4	341.2	342.0	342.7	343.5	344.3	345.1	345.8	0.77
1,847	331.2	332.0	332.7	333.5	334.3	335.0	335.8	336.6	337.4	338.1	0.77
1,846	323.6	324.4	325.1	325.9	326.6	327.4	328.2	328.9	329.7	330.4	0.76
1,845	316.0	316.8	317.5	318.3	319.0	319.8	320.6	321.3	322.1	322.8	0.76
1,844	308.5	309.2	310.0	310.7	311.5	312.2	313.0	313.7	314.5	315.2	0.75
1,843	300.9	301.7	302.4	303.2	303.9	304.7	305.5	306.2	307.0	307.7	0.76
1,842	293.5	294.2	295.0	295.7	296.5	297.2	297.9	298.7	299.4	300.2	0.74
1,841	286.0	286.7	287.5	288.2	289.0	289.7	290.5	291.2	292.0	292.7	0.75
1,840	278.6	279.3	280.1	280.8	281.6	282.3	283.0	283.8	284.5	285.3	0.74
1,839	271.2	271.9	272.7	273.4	274.2	274.9	275.6	276.4	277.1	277.9	0.74
1,838	263.9	264.6	265.4	266.1	266.8	267.5	268.3	269.0	269.7	270.5	0.73
1,837	256.6	257.3	258.1	258.8	259.5	260.2	261.0	261.7	262.4	263.2	0.73
1,836	249.4	250.1	250.8	251.6	252.3	253.0	253.7	254.4	255.2	255.9	0.72
1,835	242.2	242.9	243.6	244.4	245.1	245.8	246.5	247.2	248.0	248.7	0.72
1,834	235.0	235.7	236.4	237.2	237.9	238.6	239.3	240.0	240.8	241.5	0.72
1,833	227.9	228.6	229.3	230.0	230.7	231.4	232.2	232.9	233.6	234.3	0.71
1,832	220.8	221.5	222.2	222.9	223.6	224.3	225.1	225.8	226.5	227.2	0.71
1,831	213.8	214.5	215.2	215.9	216.6	217.3	218.0	218.7	219.4	220.1	0.70
1,830	206.8	207.5	208.2	208.9	209.6	210.3	211.0	211.7	212.4	213.1	0.70
1,829	199.9	200.6	201.3	202.0	202.7	203.3	204.0	204.7	205.4	206.1	0.69
1,828	193.0	193.7	194.4	195.1	195.8	196.4	197.1	197.8	198.5	199.2	0.69
1,827	186.1	186.8	187.5	188.2	188.9	189.5	190.2	190.9	191.6	192.3	0.69
1,826	179.3	180.0	180.7	181.3	182.0	182.7	183.4	184.1	184.7	185.4	0.68
1,825	172.6	173.3	173.9	174.6	175.3	175.9	176.6	177.3	178.0	178.6	0.67
1,824	165.9	166.6	167.2	167.9	168.6	169.2	169.9	170.6	171.3	171.9	0.67
1,823	159.2	159.9	160.5	161.2	161.9	162.5	163.2	163.9	164.6	165.2	0.67
1,822	152.6	153.3	153.9	154.6	155.2	155.9	156.6	157.2	157.9	158.5	0.66
1,821	146.1	146.7	147.4	148.0	148.7	149.3	150.0	150.6	151.3	151.9	0.65
1,820	139.6	140.2	140.9	141.5	142.2	142.8	143.5	144.1	144.8	145.4	0.65
1,819	133.2	133.8	134.5	135.1	135.8	136.4	137.0	137.7	138.3	139.0	0.64
1,818	126.8	127.4	128.1	128.7	129.4	130.0	130.6	131.3	131.9	132.6	0.64
1,817	120.5	121.1	121.8	122.4	123.0	123.6	124.3	124.9	125.5	126.2	0.63
1,816	114.3	114.9	115.5	116.2	116.8	117.4	118.0	118.6	119.3	119.9	0.62
1,815	108.1	108.7	109.3	110.0	110.6	111.2	111.8	112.4	113.1	113.7	0.62

Exhibit 10 – Duncan Reservoir Storage/Elevation Table – Continued

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
1,814	102.0	102.6	103.2	103.8	104.4	105.0	105.7	106.3	106.9	107.5	0.61
1,813	96.0	96.6	97.2	97.8	98.4	99.0	99.6	100.2	100.8	101.4	0.60
1,812	90.0	90.6	91.2	91.8	92.4	93.0	93.6	94.2	94.8	95.4	0.60
1,811	84.1	84.7	85.3	85.9	86.5	87.0	87.6	88.2	88.8	89.4	0.59
1,810	78.3	78.9	79.5	80.0	80.6	81.2	81.8	82.4	82.9	83.5	0.58
1,809	72.5	73.1	73.7	74.2	74.8	75.4	76.0	76.6	77.1	77.7	0.58
1,808	66.9	67.5	68.0	68.6	69.1	69.7	70.3	70.8	71.4	71.9	0.56
1,807	61.3	61.9	62.4	63.0	63.5	64.1	64.7	65.2	65.8	66.3	0.56
1,806	55.8	56.3	56.9	57.4	58.0	58.5	59.1	59.6	60.2	60.7	0.55
1,805	50.4	50.9	51.5	52.0	52.6	53.1	53.6	54.2	54.7	55.3	0.54
1,804	45.1	45.6	46.2	46.7	47.2	47.7	48.3	48.8	49.3	49.9	0.53
1,803	39.9	40.4	40.9	41.5	42.0	42.5	43.0	43.5	44.1	44.6	0.52
1,802	34.8	35.3	35.8	36.3	36.8	37.3	37.9	38.4	38.9	39.4	0.51
1,801	29.8	30.3	30.8	31.3	31.8	32.3	32.8	33.3	33.8	34.3	0.50
1,800	25.0	25.5	26.0	26.4	26.9	27.4	27.9	28.4	28.8	29.3	0.48
1,799	20.3	20.8	21.2	21.7	22.2	22.6	23.1	23.6	24.1	24.5	0.47
1,798	15.7	16.2	16.6	17.1	17.5	18.0	18.5	18.9	19.4	19.8	0.46
1,797	11.3	11.7	12.2	12.6	13.1	13.5	13.9	14.4	14.8	15.3	0.44
1,796	7.1	7.5	7.9	8.4	8.8	9.2	9.6	10.0	10.5	10.9	0.42
1,795	3.0	3.4	3.8	4.2	4.6	5.0	5.5	5.9	6.3	6.7	0.41
1,794	-0.7	-0.3	0.0	0.4	0.8	1.2	1.5	1.9	2.3	2.6	0.37
1,793	-4.2	-3.9	-3.5	-3.2	-2.8	-2.5	-2.1	-1.8	-1.4	-1.1	0.35
1,792	-7.3	-7.0	-6.7	-6.4	-6.1	-5.8	-5.5	-5.2	-4.9	-4.5	0.31
1,791				-9.1	-8.8	-8.6	-8.3	-8.0	-7.8	-7.5	0.26

Exhibit 11 – Arrow Reservoir Storage/Elevation Table

Units in ksfd; Dated 28 February 1974; Updated 1 February 2013

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
1,446	3,710.6	3,716.8	3,723.0	3,729.2	3,735.4	3,741.5	3,747.7	3,753.9	3,760.1	3,766.3	6.19
1,445	3,645.1	3,651.7	3,658.2	3,664.8	3,671.3	3,677.9	3,684.4	3,691.0	3,697.5	3,704.1	6.55
1,444	3,579.6	3,586.2	3,592.7	3,599.3	3,605.8	3,612.4	3,618.9	3,625.5	3,632.0	3,638.6	6.55
1,443	3,514.1	3,520.6	3,527.2	3,533.7	3,540.3	3,546.8	3,553.4	3,559.9	3,566.5	3,573.0	6.55
1,442	3,448.9	3,455.4	3,461.9	3,468.5	3,475.0	3,481.5	3,488.0	3,494.5	3,501.1	3,507.6	6.52
1,441	3,384.0	3,390.5	3,397.0	3,403.5	3,410.0	3,416.4	3,422.9	3,429.4	3,435.9	3,442.4	6.49
1,440	3,319.5	3,325.9	3,332.4	3,338.8	3,345.3	3,351.7	3,358.2	3,364.6	3,371.1	3,377.5	6.45
1,439	3,255.2	3,261.6	3,268.1	3,274.5	3,280.9	3,287.3	3,293.8	3,300.2	3,306.6	3,313.1	6.43
1,438	3,191.4	3,197.8	3,204.2	3,210.5	3,216.9	3,223.3	3,229.7	3,236.1	3,242.4	3,248.8	6.38
1,437	3,127.8	3,134.2	3,140.5	3,146.9	3,153.2	3,159.6	3,166.0	3,172.3	3,178.7	3,185.0	6.36
1,436	3,064.6	3,070.9	3,077.2	3,083.6	3,089.9	3,096.2	3,102.5	3,108.8	3,115.2	3,121.5	6.32
1,435	3,001.7	3,008.0	3,014.3	3,020.6	3,026.9	3,033.1	3,039.4	3,045.7	3,052.0	3,058.3	6.29
1,434	2,939.2	2,945.4	2,951.7	2,957.9	2,964.2	2,970.4	2,976.7	2,982.9	2,989.2	2,995.4	6.25
1,433	2,877.0	2,883.2	2,889.4	2,895.7	2,901.9	2,908.1	2,914.3	2,920.5	2,926.8	2,933.0	6.22
1,432	2,815.1	2,821.3	2,827.5	2,833.7	2,839.9	2,846.0	2,852.2	2,858.4	2,864.6	2,870.8	6.19
1,431	2,753.5	2,759.7	2,765.8	2,772.0	2,778.1	2,784.3	2,790.5	2,796.6	2,802.8	2,808.9	6.16
1,430	2,692.3	2,698.4	2,704.5	2,710.7	2,716.8	2,722.9	2,729.0	2,735.1	2,741.3	2,747.4	6.12
1,429	2,631.5	2,637.6	2,643.7	2,649.7	2,655.8	2,661.9	2,668.0	2,674.1	2,680.1	2,686.2	6.08
1,428	2,570.9	2,577.0	2,583.0	2,589.1	2,595.1	2,601.2	2,607.3	2,613.3	2,619.4	2,625.4	6.06
1,427	2,510.7	2,516.7	2,522.7	2,528.8	2,534.8	2,540.8	2,546.8	2,552.8	2,558.9	2,564.9	6.02
1,426	2,450.8	2,456.8	2,462.8	2,468.8	2,474.8	2,480.7	2,486.7	2,492.7	2,498.7	2,504.7	5.99
1,425	2,391.2	2,397.2	2,403.1	2,409.1	2,415.0	2,421.0	2,427.0	2,432.9	2,438.9	2,444.8	5.96
1,424	2,331.9	2,337.8	2,343.8	2,349.7	2,355.6	2,361.5	2,367.5	2,373.4	2,379.3	2,385.3	5.93
1,423	2,272.8	2,278.7	2,284.6	2,290.5	2,296.4	2,302.3	2,308.3	2,314.2	2,320.1	2,326.0	5.91
1,422	2,214.1	2,220.0	2,225.8	2,231.7	2,237.6	2,243.4	2,249.3	2,255.2	2,261.1	2,266.9	5.87
1,421	2,155.7	2,161.5	2,167.4	2,173.2	2,179.1	2,184.9	2,190.7	2,196.6	2,202.4	2,208.3	5.84
1,420	2,097.7	2,103.5	2,109.3	2,115.1	2,120.9	2,126.7	2,132.5	2,138.3	2,144.1	2,149.9	5.8
1,419	2,040.1	2,045.9	2,051.6	2,057.4	2,063.1	2,068.9	2,074.7	2,080.4	2,086.2	2,091.9	5.76
1,418	1,982.9	1,988.6	1,994.3	2,000.1	2,005.8	2,011.5	2,017.2	2,022.9	2,028.7	2,034.4	5.72
1,417	1,926.1	1,931.8	1,937.5	1,943.1	1,948.8	1,954.5	1,960.2	1,965.9	1,971.5	1,977.2	5.68
1,416	1,869.6	1,875.2	1,880.9	1,886.5	1,892.2	1,897.8	1,903.5	1,909.1	1,914.8	1,920.4	5.65
1,415	1,813.5	1,819.1	1,824.7	1,830.3	1,835.9	1,841.5	1,847.2	1,852.8	1,858.4	1,864.0	5.61
1,414	1,757.8	1,763.4	1,768.9	1,774.5	1,780.1	1,785.6	1,791.2	1,796.8	1,802.4	1,807.9	5.57
1,413	1,702.4	1,707.9	1,713.5	1,719.0	1,724.6	1,730.1	1,735.6	1,741.2	1,746.7	1,752.3	5.54
1,412	1,647.4	1,652.9	1,658.4	1,663.9	1,669.4	1,674.9	1,680.4	1,685.9	1,691.4	1,696.9	5.5
1,411	1,592.7	1,598.2	1,603.6	1,609.1	1,614.6	1,620.0	1,625.5	1,631.0	1,636.5	1,641.9	5.47
1,410	1,538.4	1,543.8	1,549.3	1,554.7	1,560.1	1,565.5	1,571.0	1,576.4	1,581.8	1,587.3	5.43
1,409	1,484.5	1,489.9	1,495.3	1,500.7	1,506.1	1,511.4	1,516.8	1,522.2	1,527.6	1,533.0	5.39
1,408	1,430.9	1,436.3	1,441.6	1,447.0	1,452.3	1,457.7	1,463.1	1,468.4	1,473.8	1,479.1	5.36
1,407	1,377.7	1,383.0	1,388.3	1,393.7	1,399.0	1,404.3	1,409.6	1,414.9	1,420.3	1,425.6	5.32
1,406	1,324.7	1,330.0	1,335.3	1,340.6	1,345.9	1,351.2	1,356.5	1,361.8	1,367.1	1,372.4	5.3
1,405	1,272.1	1,277.4	1,282.6	1,287.9	1,293.1	1,298.4	1,303.7	1,308.9	1,314.2	1,319.4	5.26

Exhibit 11 – Arrow Reservoir Storage/Elevation Table – Continued

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
1,404	1,219.5	1,224.8	1,230.0	1,235.3	1,240.5	1,245.8	1,251.1	1,256.3	1,261.6	1,266.8	5.26
1,403	1,167.3	1,172.5	1,177.7	1,183.0	1,188.2	1,193.4	1,198.6	1,203.8	1,209.1	1,214.3	5.22
1,402	1,115.4	1,120.6	1,125.8	1,131.0	1,136.2	1,141.3	1,146.5	1,151.7	1,156.9	1,162.1	5.19
1,401	1,063.9	1,069.0	1,074.2	1,079.3	1,084.5	1,089.6	1,094.8	1,099.9	1,105.1	1,110.2	5.15
1,400	1,012.8	1,017.9	1,023.0	1,028.1	1,033.2	1,038.3	1,043.5	1,048.6	1,053.7	1,058.8	5.11
1,399	962.5	967.5	972.6	977.6	982.6	987.6	992.7	997.7	1,002.7	1,007.8	5.03
1,398	912.7	917.7	922.7	927.6	932.6	937.6	942.6	947.6	952.5	957.5	4.98
1,397	863.2	868.1	873.1	878.0	883.0	887.9	892.9	897.8	902.8	907.7	4.95
1,396	814.1	819.0	823.9	828.8	833.7	838.6	843.6	848.5	853.4	858.3	4.91
1,395	765.2	770.1	775.0	779.9	784.8	789.6	794.5	799.4	804.3	809.2	4.89
1,394	716.2	721.1	726.0	730.9	735.8	740.7	745.6	750.5	755.4	760.3	4.9
1,393	667.5	672.4	677.2	682.1	687.0	691.8	696.7	701.6	706.5	711.3	4.87
1,392	619.3	624.1	628.9	633.8	638.6	643.4	648.2	653.0	657.9	662.7	4.82
1,391	571.5	576.3	581.1	585.8	590.6	595.4	600.2	605.0	609.7	614.5	4.78
1,390	524.2	528.9	533.7	538.4	543.1	547.8	552.6	557.3	562.0	566.8	4.73
1,389	477.9	482.5	487.2	491.8	496.4	501.0	505.7	510.3	514.9	519.6	4.63
1,388	432.3	436.9	441.4	446.0	450.5	455.1	459.7	464.2	468.8	473.3	4.56
1,387	387.2	391.7	396.2	400.7	405.2	409.7	414.3	418.8	423.3	427.8	4.51
1,386	342.6	347.1	351.5	356.0	360.4	364.9	369.4	373.8	378.3	382.7	4.46
1,385	298.5	302.9	307.3	311.7	316.1	320.5	325.0	329.4	333.8	338.2	4.41
1,384	254.6	259.0	263.4	267.8	272.2	276.5	280.9	285.3	289.7	294.1	4.39
1,383	211.2	215.5	219.9	224.2	228.6	232.9	237.2	241.6	245.9	250.3	4.34
1,382	168.4	172.7	177.0	181.2	185.5	189.8	194.1	198.4	202.6	206.9	4.28
1,381	126.1	130.3	134.6	138.8	143.0	147.2	151.5	155.7	159.9	164.2	4.23
1,380	84.3	88.5	92.7	96.8	101.0	105.2	109.4	113.6	117.7	121.9	4.18
1,379	43.2	47.3	51.4	55.5	59.6	63.7	67.9	72.0	76.1	80.2	4.11
1,378	2.7	6.7	10.8	14.8	18.9	22.9	27.0	31.0	35.1	39.1	4.05
1,377	-42.4	-37.7	-33.0	-28.3	-23.6	-18.8	-14.1	-9.4	-4.7	0.0	4.71
1,376	-89.5	-84.8	-80.1	-75.4	-70.7	-65.9	-61.2	-56.5	-51.8	-47.1	4.71
1,375	-134.7	-130.2	-125.7	-121.2	-116.6	-112.1	-107.6	-103.1	-98.5	-94.0	4.53
1,374	-179.7	-175.2	-170.7	-166.2	-161.7	-157.2	-152.7	-148.2	-143.7	-139.2	4.50
1,373	-224.5	-220.0	-215.5	-211.1	-206.6	-202.1	-197.6	-193.2	-188.7	-184.2	4.47
1,372	-268.9	-264.5	-260.0	-255.6	-251.2	-246.7	-242.3	-237.8	-233.4	-228.9	4.45
1,371	-313.2	-308.7	-304.3	-299.9	-295.5	-291.0	-286.6	-282.2	-277.8	-273.4	4.42
1,370					-339.3	-334.9	-330.6	-326.2	-321.9	-317.5	4.35

Exhibit 12 – Mica Reservoir Storage/Elevation Table

Units in ksfd; Dated 25 March 1974; Updated 1 February 2013

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
2,490	10,945.2										
2,486	10,721.7	10,727.3	10,732.9	10,738.4	10,744.0	10,749.5	10,755.1	10,760.7	10,766.2	10,770.5	5.56
2,485	10,666.3	10,671.9	10,677.4	10,682.9	10,688.5	10,694.0	10,699.6	10,705.1	10,710.7	10,716.2	5.54
2,484	10,611.0	10,616.6	10,622.1	10,627.6	10,633.1	10,638.7	10,644.2	10,649.7	10,655.3	10,660.8	5.53
2,483	10,555.9	10,561.4	10,567.0	10,572.5	10,578.0	10,583.5	10,589.0	10,594.5	10,600.0	10,605.5	5.51
2,482	10,501.0	10,506.5	10,512.0	10,517.5	10,523.0	10,528.5	10,534.0	10,539.5	10,544.9	10,550.4	5.49
2,481	10,446.2	10,451.7	10,457.2	10,462.7	10,468.1	10,473.6	10,479.1	10,484.6	10,490.0	10,495.5	5.48
2,480	10,391.6	10,397.1	10,402.5	10,408.0	10,413.5	10,418.9	10,424.4	10,429.8	10,435.3	10,440.8	5.46
2,479	10,337.2	10,342.6	10,348.1	10,353.5	10,359.0	10,364.4	10,369.9	10,375.3	10,380.7	10,386.2	5.44
2,478	10,282.9	10,288.4	10,293.8	10,299.2	10,304.6	10,310.1	10,315.5	10,320.9	10,326.3	10,331.8	5.43
2,477	10,228.8	10,234.2	10,239.7	10,245.1	10,250.5	10,255.9	10,261.3	10,266.7	10,272.1	10,277.5	5.41
2,476	10,174.9	10,180.3	10,185.7	10,191.1	10,196.5	10,201.9	10,207.3	10,212.7	10,218.0	10,223.4	5.39
2,475	10,121.1	10,126.5	10,131.9	10,137.2	10,142.6	10,148.0	10,153.4	10,158.8	10,164.1	10,169.5	5.38
2,474	10,067.5	10,072.9	10,078.2	10,083.6	10,088.9	10,094.3	10,099.7	10,105.0	10,110.4	10,115.7	5.36
2,473	10,014.1	10,019.4	10,024.8	10,030.1	10,035.5	10,040.8	10,046.1	10,051.5	10,056.8	10,062.2	5.34
2,472	9,960.8	9,966.1	9,971.5	9,976.8	9,982.1	9,987.4	9,992.8	9,998.1	10,003.4	10,008.8	5.33
2,471	9,907.8	9,913.1	9,918.4	9,923.7	9,929.0	9,934.3	9,939.6	9,944.9	9,950.2	9,955.5	5.30
2,470	9,854.8	9,860.1	9,865.4	9,870.7	9,876.0	9,881.3	9,886.6	9,891.9	9,897.2	9,902.5	5.30
2,469	9,802.1	9,807.4	9,812.6	9,817.9	9,823.2	9,828.5	9,833.7	9,839.0	9,844.3	9,849.5	5.27
2,468	9,749.5	9,754.8	9,760.0	9,765.3	9,770.5	9,775.8	9,781.1	9,786.3	9,791.6	9,796.8	5.26
2,467	9,697.1	9,702.3	9,707.6	9,712.8	9,718.1	9,723.3	9,728.5	9,733.8	9,739.0	9,744.3	5.24
2,466	9,644.8	9,650.0	9,655.3	9,660.5	9,665.7	9,671.0	9,676.2	9,681.4	9,686.6	9,691.9	5.23
2,465	9,592.7	9,597.9	9,603.1	9,608.3	9,613.5	9,618.8	9,624.0	9,629.2	9,634.4	9,639.6	5.21
2,464	9,540.8	9,546.0	9,551.2	9,556.4	9,561.6	9,566.8	9,571.9	9,577.1	9,582.3	9,587.5	5.19
2,463	9,489.0	9,494.2	9,499.4	9,504.5	9,509.7	9,514.9	9,520.1	9,525.3	9,530.4	9,535.6	5.18
2,462	9,437.4	9,442.6	9,447.7	9,452.9	9,458.0	9,463.2	9,468.4	9,473.5	9,478.7	9,483.8	5.16
2,461	9,386.0	9,391.1	9,396.3	9,401.4	9,406.6	9,411.7	9,416.8	9,422.0	9,427.1	9,432.3	5.14
2,460	9,334.8	9,339.9	9,345.0	9,350.2	9,355.3	9,360.4	9,365.5	9,370.6	9,375.8	9,380.9	5.12
2,459	9,283.7	9,288.8	9,293.9	9,299.0	9,304.1	9,309.3	9,314.4	9,319.5	9,324.6	9,329.7	5.11
2,458	9,232.8	9,237.9	9,243.0	9,248.1	9,253.2	9,258.3	9,263.3	9,268.4	9,273.5	9,278.6	5.09
2,457	9,182.0	9,187.1	9,192.2	9,197.2	9,202.3	9,207.4	9,212.5	9,217.6	9,222.6	9,227.7	5.08
2,456	9,131.4	9,136.5	9,141.5	9,146.6	9,151.6	9,156.7	9,161.8	9,166.8	9,171.9	9,176.9	5.06
2,455	9,081.0	9,086.0	9,091.1	9,096.1	9,101.2	9,106.2	9,111.2	9,116.3	9,121.3	9,126.4	5.04
2,454	9,030.8	9,035.8	9,040.8	9,045.9	9,050.9	9,055.9	9,060.9	9,065.9	9,071.0	9,076.0	5.02
2,453	8,980.7	8,985.7	8,990.7	8,995.7	9,000.7	9,005.8	9,010.8	9,015.8	9,020.8	9,025.8	5.01
2,452	8,930.8	8,935.8	8,940.8	8,945.8	8,950.8	8,955.8	8,960.7	8,965.7	8,970.7	8,975.7	4.99
2,451	8,881.0	8,886.0	8,891.0	8,895.9	8,900.9	8,905.9	8,910.9	8,915.9	8,920.8	8,925.8	4.98
2,450	8,831.4	8,836.4	8,841.3	8,846.3	8,851.2	8,856.2	8,861.2	8,866.1	8,871.1	8,876.0	4.96
2,449	8,782.0	8,786.9	8,791.9	8,796.8	8,801.8	8,806.7	8,811.6	8,816.6	8,821.5	8,826.5	4.94
2,448	8,732.8	8,737.7	8,742.6	8,747.6	8,752.5	8,757.4	8,762.3	8,767.2	8,772.2	8,777.1	4.92
2,447	8,683.7	8,688.6	8,693.5	8,698.4	8,703.3	8,708.3	8,713.2	8,718.1	8,723.0	8,727.9	4.91
2,446	8,634.8	8,639.7	8,644.6	8,649.5	8,654.4	8,659.3	8,664.1	8,669.0	8,673.9	8,678.8	4.89
2,445	8,586.0	8,590.9	8,595.8	8,600.6	8,605.5	8,610.4	8,615.3	8,620.2	8,625.0	8,629.9	4.88

Exhibit 12 – Mica Reservoir Storage/Elevation Table – Continued

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
2,444	8,537.5	8,542.4	8,547.2	8,552.1	8,556.9	8,561.8	8,566.6	8,571.5	8,576.3	8,581.2	4.85
2,443	8,489.1	8,493.9	8,498.8	8,503.6	8,508.5	8,513.3	8,518.1	8,523.0	8,527.8	8,532.7	4.84
2,442	8,440.8	8,445.6	8,450.5	8,455.3	8,460.1	8,465.0	8,469.8	8,474.6	8,479.4	8,484.3	4.83
2,441	8,392.7	8,397.5	8,402.3	8,407.1	8,411.9	8,416.8	8,421.6	8,426.4	8,431.2	8,436.0	4.81
2,440	8,344.8	8,349.6	8,354.4	8,359.2	8,364.0	8,368.8	8,373.5	8,378.3	8,383.1	8,387.9	4.79
2,439	8,297.1	8,301.9	8,306.6	8,311.4	8,316.2	8,321.0	8,325.7	8,330.5	8,335.3	8,340.0	4.77
2,438	8,249.5	8,254.3	8,259.0	8,263.8	8,268.5	8,273.3	8,278.1	8,282.8	8,287.6	8,292.3	4.76
2,437	8,202.1	8,206.8	8,211.6	8,216.3	8,221.1	8,225.8	8,230.5	8,235.3	8,240.0	8,244.8	4.74
2,436	8,154.8	8,159.5	8,164.3	8,169.0	8,173.7	8,178.5	8,183.2	8,187.9	8,192.6	8,197.4	4.73
2,435	8,107.8	8,112.5	8,117.2	8,121.9	8,126.6	8,131.3	8,136.0	8,140.7	8,145.4	8,150.1	4.70
2,434	8,060.9	8,065.6	8,070.3	8,075.0	8,079.7	8,084.4	8,089.0	8,093.7	8,098.4	8,103.1	4.69
2,433	8,014.1	8,018.8	8,023.5	8,028.1	8,032.8	8,037.5	8,042.2	8,046.9	8,051.5	8,056.2	4.68
2,432	7,967.5	7,972.2	7,976.8	7,981.5	7,986.1	7,990.8	7,995.5	8,000.1	8,004.8	8,009.4	4.66
2,431	7,921.1	7,925.7	7,930.4	7,935.0	7,939.7	7,944.3	7,948.9	7,953.6	7,958.2	7,962.9	4.64
2,430	7,874.9	7,879.5	7,884.1	7,888.8	7,893.4	7,898.0	7,902.6	7,907.2	7,911.9	7,916.5	4.62
2,429	7,828.8	7,833.4	7,838.0	7,842.6	7,847.2	7,851.9	7,856.5	7,861.1	7,865.7	7,870.3	4.61
2,428	7,782.9	7,787.5	7,792.1	7,796.7	7,801.3	7,805.9	7,810.4	7,815.0	7,819.6	7,824.2	4.59
2,427	7,737.2	7,741.8	7,746.3	7,750.9	7,755.5	7,760.1	7,764.6	7,769.2	7,773.8	7,778.3	4.57
2,426	7,691.6	7,696.2	7,700.7	7,705.3	7,709.8	7,714.4	7,719.0	7,723.5	7,728.1	7,732.6	4.56
2,425	7,646.2	7,650.7	7,655.3	7,659.8	7,664.4	7,668.9	7,673.4	7,678.0	7,682.5	7,687.1	4.54
2,424	7,600.9	7,605.4	7,610.0	7,614.5	7,619.0	7,623.6	7,628.1	7,632.6	7,637.1	7,641.7	4.53
2,423	7,555.9	7,560.4	7,564.9	7,569.4	7,573.9	7,578.4	7,582.9	7,587.4	7,591.9	7,596.4	4.50
2,422	7,511.0	7,515.5	7,520.0	7,524.5	7,529.0	7,533.5	7,537.9	7,542.4	7,546.9	7,551.4	4.49
2,421	7,466.2	7,470.7	7,475.2	7,479.6	7,484.1	7,488.6	7,493.1	7,497.6	7,502.0	7,506.5	4.48
2,420	7,421.6	7,426.1	7,430.5	7,435.0	7,439.4	7,443.9	7,448.4	7,452.8	7,457.3	7,461.7	4.46
2,419	7,377.2	7,381.6	7,386.1	7,390.5	7,395.0	7,399.4	7,403.8	7,408.3	7,412.7	7,417.2	4.44
2,418	7,333.0	7,337.4	7,341.8	7,346.3	7,350.7	7,355.1	7,359.5	7,363.9	7,368.4	7,372.8	4.42
2,417	7,288.9	7,293.3	7,297.7	7,302.1	7,306.5	7,311.0	7,315.4	7,319.8	7,324.2	7,328.6	4.41
2,416	7,245.0	7,249.4	7,253.8	7,258.2	7,262.6	7,267.0	7,271.3	7,275.7	7,280.1	7,284.5	4.39
2,415	7,201.3	7,205.7	7,210.0	7,214.4	7,218.8	7,223.2	7,227.5	7,231.9	7,236.3	7,240.6	4.37
2,414	7,157.7	7,162.1	7,166.4	7,170.8	7,175.1	7,179.5	7,183.9	7,188.2	7,192.6	7,196.9	4.36
2,413	7,114.3	7,118.6	7,123.0	7,127.3	7,131.7	7,136.0	7,140.3	7,144.7	7,149.0	7,153.4	4.34
2,412	7,071.0	7,075.3	7,079.7	7,084.0	7,088.3	7,092.7	7,097.0	7,101.3	7,105.6	7,110.0	4.33
2,411	7,028.0	7,032.3	7,036.6	7,040.9	7,045.2	7,049.5	7,053.8	7,058.1	7,062.4	7,066.7	4.30
2,410	6,985.1	6,989.4	6,993.7	6,998.0	7,002.3	7,006.6	7,010.8	7,015.1	7,019.4	7,023.7	4.29
2,409	6,942.3	6,946.6	6,950.9	6,955.1	6,959.4	6,963.7	6,968.0	6,972.3	6,976.5	6,980.8	4.28
2,408	6,899.7	6,904.0	6,908.2	6,912.5	6,916.7	6,921.0	6,925.3	6,929.5	6,933.8	6,938.0	4.26
2,407	6,857.3	6,861.5	6,865.8	6,870.0	6,874.3	6,878.5	6,882.7	6,887.0	6,891.2	6,895.5	4.24
2,406	6,815.1	6,819.3	6,823.5	6,827.8	6,832.0	6,836.2	6,840.4	6,844.6	6,848.9	6,853.1	4.22
2,405	6,773.0	6,777.2	6,781.4	6,785.6	6,789.8	6,794.1	6,798.3	6,802.5	6,806.7	6,810.9	4.21
2,404	6,731.2	6,735.3	6,739.5	6,743.7	6,747.9	6,752.1	6,756.3	6,760.5	6,764.7	6,768.9	4.20
2,403	6,689.5	6,693.7	6,697.9	6,702.0	6,706.2	6,710.4	6,714.5	6,718.7	6,722.9	6,727.1	4.17
2,402	6,648.0	6,652.2	6,656.3	6,660.5	6,664.7	6,668.8	6,673.0	6,677.1	6,681.3	6,685.5	4.16
2,401	6,606.7	6,610.9	6,615.0	6,619.2	6,623.3	6,627.4	6,631.6	6,635.7	6,639.9	6,644.0	4.14
2,400	6,565.5	6,569.7	6,573.8	6,577.9	6,582.1	6,586.2	6,590.3	6,594.5	6,598.6	6,602.7	4.13

Exhibit 12 – Mica Reservoir Storage/Elevation Table – Continued

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
2,399	6,524.6	6,528.7	6,532.8	6,536.9	6,541.0	6,545.1	6,549.2	6,553.3	6,557.4	6,561.5	4.11
2,398	6,483.9	6,487.9	6,492.0	6,496.1	6,500.1	6,504.2	6,508.3	6,512.4	6,516.4	6,520.5	4.07
2,397	6,443.5	6,447.6	6,451.6	6,455.6	6,459.6	6,463.7	6,467.7	6,471.8	6,475.8	6,479.8	4.03
2,396	6,403.5	6,407.5	6,411.5	6,415.5	6,419.5	6,423.5	6,427.5	6,431.5	6,435.5	6,439.5	4.00
2,395	6,363.9	6,367.8	6,371.8	6,375.7	6,379.7	6,383.7	6,387.6	6,391.6	6,395.6	6,399.5	3.96
2,394	6,324.5	6,328.5	6,332.4	6,336.3	6,340.2	6,344.2	6,348.1	6,352.0	6,356.0	6,359.9	3.93
2,393	6,285.6	6,289.5	6,293.4	6,297.2	6,301.1	6,305.0	6,308.9	6,312.8	6,316.7	6,320.6	3.90
2,392	6,246.9	6,250.8	6,254.6	6,258.5	6,262.4	6,266.2	6,270.1	6,274.0	6,277.8	6,281.7	3.87
2,391	6,208.6	6,212.4	6,216.2	6,220.0	6,223.9	6,227.7	6,231.5	6,235.4	6,239.2	6,243.1	3.83
2,390	6,170.6	6,174.4	6,178.2	6,181.9	6,185.7	6,189.5	6,193.3	6,197.2	6,201.0	6,204.8	3.80
2,389	6,132.9	6,136.7	6,140.4	6,144.2	6,147.9	6,151.7	6,155.5	6,159.2	6,163.0	6,166.8	3.77
2,388	6,095.5	6,099.2	6,103.0	6,106.7	6,110.4	6,114.2	6,117.9	6,121.7	6,125.4	6,129.2	3.74
2,387	6,058.4	6,062.1	6,065.8	6,069.5	6,073.2	6,076.9	6,080.6	6,084.3	6,088.1	6,091.8	3.71
2,386	6,021.7	6,025.3	6,029.0	6,032.7	6,036.3	6,040.0	6,043.7	6,047.4	6,051.0	6,054.7	3.68
2,385	5,985.2	5,988.8	5,992.5	5,996.1	5,999.7	6,003.4	6,007.0	6,010.7	6,014.3	6,018.0	3.65
2,384	5,949.0	5,952.6	5,956.2	5,959.8	5,963.4	5,967.0	5,970.7	5,974.3	5,977.9	5,981.6	3.62
2,383	5,913.0	5,916.6	5,920.2	5,923.8	5,927.4	5,931.0	5,934.6	5,938.2	5,941.8	5,945.4	3.59
2,382	5,877.4	5,881.0	5,884.5	5,888.1	5,891.7	5,895.2	5,898.8	5,902.3	5,905.9	5,909.5	3.56
2,381	5,842.1	5,845.6	5,849.2	5,852.7	5,856.2	5,859.7	5,863.3	5,866.8	5,870.3	5,873.9	3.53
2,380	5,807.0	5,810.5	5,814.0	5,817.5	5,821.0	5,824.5	5,828.0	5,831.6	5,835.1	5,838.6	3.51
2,379	5,772.2	5,775.7	5,779.1	5,782.6	5,786.1	5,789.6	5,793.0	5,796.5	5,800.0	5,803.5	3.48
2,378	5,737.6	5,741.1	5,744.5	5,748.0	5,751.4	5,754.9	5,758.3	5,761.8	5,765.3	5,768.7	3.45
2,377	5,703.4	5,706.8	5,710.2	5,713.6	5,717.1	5,720.5	5,723.9	5,727.3	5,730.8	5,734.2	3.43
2,376	5,669.3	5,672.7	5,676.1	5,679.5	5,682.9	5,686.3	5,689.7	5,693.1	5,696.5	5,700.0	3.41
2,375	5,635.5	5,638.9	5,642.3	5,645.6	5,649.0	5,652.4	5,655.8	5,659.2	5,662.5	5,665.9	3.38
2,374	5,602.0	5,605.3	5,608.7	5,612.0	5,615.4	5,618.7	5,622.1	5,625.5	5,628.8	5,632.2	3.35
2,373	5,568.7	5,572.0	5,575.4	5,578.7	5,582.0	5,585.3	5,588.7	5,592.0	5,595.3	5,598.7	3.33
2,372	5,535.6	5,538.9	5,542.2	5,545.5	5,548.8	5,552.1	5,555.4	5,558.7	5,562.1	5,565.4	3.31
2,371	5,502.8	5,506.1	5,509.3	5,512.6	5,515.9	5,519.2	5,522.5	5,525.7	5,529.0	5,532.3	3.28
2,370	5,470.2	5,473.4	5,476.7	5,479.9	5,483.2	5,486.5	5,489.7	5,493.0	5,496.3	5,499.5	3.26
2,369	5,437.8	5,441.0	5,444.3	5,447.5	5,450.7	5,453.9	5,457.2	5,460.4	5,463.7	5,466.9	3.24
2,368	5,405.6	5,408.9	5,412.1	5,415.3	5,418.5	5,421.7	5,424.9	5,428.1	5,431.4	5,434.6	3.22
2,367	5,373.7	5,376.9	5,380.1	5,383.3	5,386.5	5,389.7	5,392.9	5,396.1	5,399.3	5,402.4	3.19
2,366	5,342.0	5,345.2	5,348.3	5,351.5	5,354.7	5,357.8	5,361.0	5,364.2	5,367.4	5,370.5	3.17
2,365	5,310.5	5,313.6	5,316.8	5,319.9	5,323.0	5,326.2	5,329.3	5,332.5	5,335.7	5,338.8	3.15
2,364	5,279.1	5,282.3	5,285.4	5,288.5	5,291.6	5,294.8	5,297.9	5,301.0	5,304.2	5,307.3	3.13
2,363	5,248.0	5,251.1	5,254.2	5,257.4	5,260.5	5,263.6	5,266.7	5,269.8	5,272.9	5,276.0	3.11
2,362	5,217.1	5,220.2	5,223.3	5,226.4	5,229.5	5,232.6	5,235.7	5,238.7	5,241.8	5,244.9	3.09
2,361	5,186.4	5,189.4	5,192.5	5,195.6	5,198.7	5,201.7	5,204.8	5,207.9	5,211.0	5,214.0	3.07
2,360	5,155.9	5,158.9	5,162.0	5,165.0	5,168.0	5,171.1	5,174.2	5,177.2	5,180.3	5,183.3	3.05
2,359	5,125.5	5,128.5	5,131.6	5,134.6	5,137.6	5,140.7	5,143.7	5,146.7	5,149.8	5,152.8	3.03
2,358	5,095.4	5,098.4	5,101.4	5,104.4	5,107.4	5,110.4	5,113.4	5,116.5	5,119.5	5,122.5	3.02
2,357	5,065.4	5,068.4	5,071.4	5,074.4	5,077.4	5,080.4	5,083.4	5,086.4	5,089.4	5,092.4	3.00
2,356	5,035.6	5,038.5	5,041.5	5,044.5	5,047.5	5,050.4	5,053.4	5,056.4	5,059.4	5,062.4	2.98
2,355	5,005.9	5,008.9	5,011.9	5,014.8	5,017.8	5,020.7	5,023.7	5,026.7	5,029.6	5,032.6	2.96

Exhibit 12 – Mica Reservoir Storage/Elevation Table – Continued

Elevation (feet)	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Average Difference (per 0.1 ft)
2,354	4,976.5	4,979.4	4,982.4	4,985.3	4,988.3	4,991.2	4,994.1	4,997.1	5,000.0	5,003.0	2.94
2,353	4,947.2	4,950.1	4,953.0	4,956.0	4,958.9	4,961.8	4,964.8	4,967.7	4,970.6	4,973.6	2.93
2,352	4,918.0	4,920.9	4,923.9	4,926.8	4,929.7	4,932.6	4,935.5	4,938.4	4,941.3	4,944.3	2.91
2,351	4,889.1	4,892.0	4,894.9	4,897.8	4,900.6	4,903.5	4,906.4	4,909.3	4,912.2	4,915.1	2.90
2,350	4,860.3	4,863.1	4,866.0	4,868.9	4,871.8	4,874.6	4,877.5	4,880.4	4,883.3	4,886.2	2.88
2,349	4,831.6	4,834.4	4,837.3	4,840.2	4,843.1	4,845.9	4,848.8	4,851.7	4,854.5	4,857.4	2.87
2,348	4,803.1	4,805.9	4,808.8	4,811.6	4,814.5	4,817.3	4,820.2	4,823.0	4,825.9	4,828.7	2.85
2,347	4,774.7	4,777.5	4,780.4	4,783.2	4,786.0	4,788.9	4,791.7	4,794.6	4,797.4	4,800.2	2.84
2,346	4,746.5	4,749.3	4,752.1	4,755.0	4,757.8	4,760.6	4,763.4	4,766.2	4,769.1	4,771.9	2.82
2,345	4,718.4	4,721.2	4,724.0	4,726.8	4,729.6	4,732.4	4,735.3	4,738.1	4,740.9	4,743.7	2.81
2,344	4,690.5	4,693.3	4,696.1	4,698.8	4,701.6	4,704.4	4,707.2	4,710.0	4,712.8	4,715.6	2.79
2,343	4,662.7	4,665.4	4,668.2	4,671.0	4,673.8	4,676.5	4,679.3	4,682.1	4,684.9	4,687.7	2.78
2,342	4,635.0	4,637.8	4,640.5	4,643.3	4,646.1	4,648.8	4,651.6	4,654.4	4,657.1	4,659.9	2.77
2,341	4,607.4	4,610.2	4,613.0	4,615.7	4,618.5	4,621.2	4,624.0	4,626.7	4,629.5	4,632.2	2.76
2,340	4,580.0	4,582.8	4,585.5	4,588.2	4,591.0	4,593.7	4,596.5	4,599.2	4,602.0	4,604.7	2.74
2,339	4,552.7	4,555.4	4,558.2	4,560.9	4,563.6	4,566.4	4,569.1	4,571.8	4,574.6	4,577.3	2.73
2,338	4,525.5	4,528.2	4,530.9	4,533.6	4,536.4	4,539.1	4,541.8	4,544.5	4,547.3	4,550.0	2.72
2,337	4,498.3	4,501.0	4,503.7	4,506.5	4,509.2	4,511.9	4,514.6	4,517.3	4,520.0	4,522.8	2.72
2,336	4,471.2	4,473.9	4,476.6	4,479.3	4,482.0	4,484.7	4,487.5	4,490.2	4,492.9	4,495.6	2.71
2,335	4,444.2	4,446.9	4,449.6	4,452.3	4,455.0	4,457.7	4,460.4	4,463.1	4,465.8	4,468.5	2.70
2,334	4,417.3	4,420.0	4,422.6	4,425.3	4,428.0	4,430.7	4,433.4	4,436.1	4,438.8	4,441.5	2.69
2,333	4,390.4	4,393.1	4,395.8	4,398.4	4,401.1	4,403.8	4,406.5	4,409.2	4,411.9	4,414.6	2.69
2,332	4,363.6	4,366.3	4,368.9	4,371.6	4,374.3	4,377.0	4,379.7	4,382.3	4,385.0	4,387.7	2.68
2,331	4,336.9	4,339.6	4,342.2	4,344.9	4,347.6	4,350.2	4,352.9	4,355.6	4,358.2	4,360.9	2.67
2,330	4,310.2	4,312.9	4,315.6	4,318.2	4,320.9	4,323.6	4,326.2	4,328.9	4,331.6	4,334.2	2.66
2,329	4,283.7	4,286.3	4,289.0	4,291.6	4,294.3	4,296.9	4,299.6	4,302.3	4,304.9	4,307.6	2.66
2,328	4,257.2	4,259.8	4,262.5	4,265.1	4,267.8	4,270.4	4,273.1	4,275.7	4,278.4	4,281.0	2.65
2,327	4,230.8	4,233.4	4,236.1	4,238.7	4,241.3	4,244.0	4,246.6	4,249.3	4,251.9	4,254.5	2.64
2,326	4,204.5	4,207.1	4,209.7	4,212.3	4,215.0	4,217.6	4,220.2	4,222.9	4,225.5	4,228.1	2.63
2,325	4,178.2	4,180.8	4,183.4	4,186.1	4,188.7	4,191.3	4,193.9	4,196.6	4,199.2	4,201.8	2.63
2,324	4,152.0	4,154.6	4,157.2	4,159.9	4,162.5	4,165.1	4,167.7	4,170.3	4,173.0	4,175.6	2.62
2,323	4,125.9	4,128.5	4,131.2	4,133.8	4,136.4	4,139.0	4,141.6	4,144.2	4,146.8	4,149.4	2.61
2,322	4,099.9	4,102.5	4,105.1	4,107.7	4,110.3	4,112.9	4,115.5	4,118.1	4,120.7	4,123.3	2.61
2,321	4,074.0	4,076.6	4,079.1	4,081.7	4,084.3	4,086.9	4,089.5	4,092.1	4,094.7	4,097.3	2.59
2,320	4,048.1	4,050.7	4,053.3	4,055.9	4,058.4	4,061.0	4,063.6	4,066.2	4,068.8	4,071.4	2.59
2,319	4,022.3	4,024.9	4,027.5	4,030.0	4,032.6	4,035.2	4,037.8	4,040.4	4,042.9	4,045.5	2.58
2,318	3,996.6	3,999.2	4,001.8	4,004.3	4,006.9	4,009.5	4,012.0	4,014.6	4,017.2	4,019.7	2.57
2,317	3,971.0	3,973.6	3,976.1	3,978.7	3,981.3	3,983.8	3,986.4	3,989.0	3,991.5	3,994.1	2.56
2,316	3,944.8	3,947.3	3,949.9	3,952.4	3,955.0	3,957.6	3,960.1	3,962.7	3,965.2	3,967.8	2.55
2,310	3,794.0	3,796.5	3,799.1	3,801.6	3,804.1	3,806.6	3,809.2	3,811.7	3,814.2	3,816.7	2.53
2,280	3,083.5	3,085.9	3,088.2	3,090.6	3,093.0	3,095.3	3,097.7	3,100.1	3,102.4	3,104.8	2.37
2,240	2,279.6	2,281.6	2,283.6	2,285.6	2,287.6	2,289.6	2,291.7	2,293.7	2,295.7	2,297.7	2.01