

DETAILED OPERATING PLAN FOR COLUMBIA RIVER TREATY STORAGE

1 AUGUST 2002
THROUGH 31 JULY 2003



COLUMBIA RIVER TREATY OPERATING COMMITTEE

JULY 2002

**COLUMBIA RIVER TREATY ENTITY AGREEMENT ON THE
DETAILED OPERATING PLAN
FOR COLUMBIA RIVER TREATY STORAGE
1 AUGUST 2002 THROUGH 31 JULY 2003**

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 includes 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 Assured Operating Plan.

The Entities agree that Treaty storage shall be operated and electric power delivered in accordance with the attached "Detailed Operating Plan for Columbia River Treaty Storage – 1 August 2002 through 31 July 2003" (2002-03 Detailed Operating Plan), dated July 2002.

The Entities agree that the December 1991 Entity Agreement on "Principles and Procedures for the Preparation and Use of Hydroelectric Operating Plans," or its successor, will guide the Entities in implementing the 2002-03 Detailed Operating Plan.

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

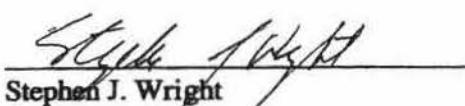
Executed for the Canadian Entity this 3rd day of July, 2002.

By


Larry I. Bell
Chair

Executed for the United States Entity this 22nd day of July, 2002.

By


Stephen J. Wright
Chairman

By


Brigadier General David A. Fastabend
Member

CONFORMED COPY

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DETAILED OPERATING PLAN FOR COLUMBIA RIVER TREATY STORAGE 1 AUGUST 2002 THROUGH 31 JULY 2003

I. REFERENCES AND INTERPRETATION

In this document:

- A. "Assured Operating Plan" (AOP) means the document "Columbia River Treaty Hydroelectric Operating Plan-Assured Operating Plan for Operating Year 2002-03" dated January 2000."
- B. "Canadian storage" means the storage provided by Canada under Article II of the Treaty, which is a total of 19.12 cubic kilometers ($\text{km}^3 = 10^9 \text{ m}^3$) (15.5 million acre feet (Maf)) at the Mica, Duncan, and Arrow reservoirs.
- C. "Delivery of the Canadian Entitlement" 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 B - Scheduling Guidelines as they may be subsequently modified or amended by the Operating Committee.
- 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 Plan" means the document "Columbia River Treaty Flood Control Operating Plan," dated October 1999.
- F. "Libby Coordination Agreement (LCA)" means the "Columbia River Treaty Entity Agreement Coordinating the Operation of the Libby Project With the Operation Of Hydroelectric Plans on the Kootenay River and Elsewhere in Canada", dated 16 February 2000.
- G. "Libby Operating Plan" means the operating plan prepared by the U.S. Army Corps of Engineers on behalf of the U.S. Entity for the Libby project in accordance with Section 9 of the LCA.
- H. "Operating Committee" means the Columbia River Treaty Operating Committee.
- I. "Operating Year" means the period from 1 August 2002 through 31 July 2003.
- J. "Principles and Procedures" (POP) means the document "Principles and Procedures for the Preparation and Use of Hydroelectric Operating Plans," dated December 1991, or any future document the Entities agree supercedes the 1991 document.
- K. "Refill Regulations" means multi-water-year hydro regulations that determine the Power

Discharge Requirements used in the calculation of the Assured Refill Curves and the Variable Refill Curves. The Corps of Engineers' staff performs these regulations for the Operating Committee.

- L. "Runoff Volume Forecast Program for Canadian Columbia River Treaty Reservoirs" means the document of that title dated 1 January 1992, with subsequent modifications as agreed by the Operating Committee.
- M. "Treaty Storage Regulation" (TSR) means the Coordinated System hydro regulation study performed for the Operating Committee by Bonneville Power Administration (BPA) staff that implements the DOP operating criteria using actual and forecasted stream flow conditions.
- N. "Weekly Treaty Storage Operation Agreement" means the note electronically transferred (e-mail or fax) each Friday 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.

II. PREPARATION AND SCOPE

A. General

This Detailed Operating Plan (DOP) for Canadian storage is based on the operating criteria contained in the 2002-03 Assured Operating Plan (AOP) and its supporting hydro regulation studies, together with scheduling procedures and other mutually beneficial changes from the AOP data agreed to by the Entities.

This DOP incorporates the use of Standard International (SI, or metric) measurements; for operational purposes, reliance should be placed on measurements in the English system.

B. Storage Amounts

The usable Canadian storage space available for power purposes during the Operating Year is 19.119 km³ (15.500 Maf) in Canada distributed as follows:

Duncan Reservoir

1.727 km³ (1.400 Maf, 705.8 thousand second-foot-days (ksfd)) between elevations 576.68 meters (m) (1892.0 feet) and 546.87 m (1794.2 feet) as measured at Duncan forebay, and based on British Columbia Hydro and Power Authority (BC Hydro) table dated 21 February 1973.

Arrow Reservoir

8.758 km³ (7.100 Maf, 3579.6 ksfd) between elevations 440.13 m (1444.0 feet) and 419.98 m (1377.9 feet) as measured at Fauquier, B.C., and based on BC Hydro table dated 28 February 1974.)

Kinbasket Reservoir (Mica)

8.634 km³ (7.000 Maf, 3529.2 ksfd) between elevations 754.38 m (2475.0 feet) and 707.41 m (2320.9 feet) as measured at Mica forebay, and based on BC Hydro table

dated 25 March 1974. The total available storage between these elevations is 14.802 km³ (12.000 Maf, 6050.0 ksf), but only 8.634 km³ (7.000 Maf, 3529.2 ksf) of this storage is required for power purposes.

The usable Canadian storage available for normal flood control purposes in the 2002-03 Assured Operating Plan for the Operating Year is 1.567 km³ (1.270 Maf) in Duncan Reservoir below elevation 576.68 m (1892.0 feet), 6.291 km³ (5.100 Maf) in Arrow Reservoir below elevation 440.13 m (1444.0 feet), and 2.566 km³ (2.080 Maf) in Kinbasket Lake (Mica Reservoir), except that additional storage may also be operated for flood control purposes under special circumstances, as described in Section 3-2 of the Flood Control Plan. The Canadian Entity has requested flood control space be transferred between Mica and Arrow in accordance with Section 6-6 of the Flood Control Plan, and the Operating Committee will agree by 1 November 2002, on the detailed procedures for implementing the flood control exchange.

C. Preparation of the Treaty Storage Regulation Study

The Treaty Storage Regulation (TSR) study uses DOP operating criteria for both Canadian and U.S. projects to define a Canadian storage operation. The 2002-03 TSR 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 2002-03 AOP Step I hydro regulation study (which included the Kootenay Lake 5-step logic), except for the following changes agreed to by the Operating Committee:

1. Brownlee storage operation will be simulated by using CRC's and ECC's instead of the fixed operation from Idaho Power Company that was included in the 03 AOP. The CRC's will be the 1929 through 1932 AOP storage operation. The Base ECC will be the CRC1. The VECC's will be the same as the AOP 60-year average for January through March, and the same as the CRC1 for April through July.
2. Flood control rule curves will be updated to the 2002 Preliminary Data Submittal from the Corps of Engineers. These updated flood control curves will include VarQ at Hungry Horse but not Libby VarQ and will not include shifted flood control from Brownlee and Dworshak to Grand Coulee. Flood control curves at Grand Coulee will be adjusted for any excess space expected to refill at upstream projects during the flood control season. The Mica and Arrow flood control rule curves and their effect on the TSR will be determined by the Operating Committee as stated in subsection II(B) above.
3. The water supply forecast error at Arrow in January will be updated as submitted by the Canadian Section in August 1997.
4. Use of the Operating Rule Curve (ORC) for the upstream refill requirement at both Canadian and U.S. projects for the variable refill curve.
5. Hydro-independent data will be updated from the best data available. Unless otherwise agreed by the Operating Committee, this will be either from the Pacific Northwest Coordination Agreement Actual Energy Regulation (AER), or for those projects not included in the AER, the 60-year median from the 2002-03 AOP

Step I hydro regulation study.

6. The hydro regulation model used will be BPA's HYDSIM version 25.

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.

The TSR includes the operating guides and limits listed in Sections VI and VII of this DOP. During the operating year, the Operating Committee may agree to other mutually beneficial changes to the TSR data and model.

D. 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 which will be updated by the U.S. Entity when expected operations change. The operation of Libby in the 2002-03 TSR will be based on the 2002-03 AOP Step 1 hydro-regulation study.

III. POWER DELIVERIES

A. Delivery of the Canadian Entitlement

Under Section 2. (1)(a) of the Canadian Entitlement Purchase Agreement (CEPA), the sale of the Canadian Entitlement attributable to Duncan Lake storage terminated on 31 March 1998, and the sale attributable to Arrow Lakes storage terminated on 31 March 1999. Under Section 2(3) of CEPA, the percentage of the downstream power benefits attributable to each Canadian storage project is the percentage of that storage as set out in Article II of the Treaty to the total Canadian storage. The storage volume at Duncan Lake is 1.73 km³ (1.4 Maf), at Arrow Lakes is 8.76 km³ (7.1 Maf), the whole Canadian storage is 19.12 km³ (15.5 Maf), so the ratio is 8.5/15.5. The obligation of the United States to return Canadian Entitlement to Canada for operating year 2002-03 during the period 1 August 2002 through 31 March 2003 is:

1. Energy Entitlement to be Returned

Average Annual Energy = 534.5 aMW * (8.5 Maf/15.5 Maf) = 293.1 aMW

2. Capacity Entitlement to be Returned

Dependable Capacity = 1170.7 MW * (8.5 Maf/15.5 Maf) = 642.0 MW

Following the expiration of the CEPA on 31 March 2003, there will be no further CEPA obligations. Therefore, the obligation of the United States to deliver the Canadian Entitlement to Canada during 1 April 2003 through 31 July 2003 is:

3. Energy Entitlement Returned
Average Annual Usable Energy = 534.5 aMW
4. Capacity Entitlement Returned
Dependable Capacity = 1170.7 MW

Arrangement for the delivery of this Canadian entitlement power, including the point of delivery, transmission losses, and scheduling guidelines, are defined by the Entity Agreement on Aspects of the Delivery of Canadian Entitlement dated 29 March 1999, and Articles V and VIII of the Columbia River Treaty. Section 11 of Attachment B to the Entity Agreement delegates to the Operating Committee the responsibility for modifying or amending Attachment B - Scheduling Guidelines, as needed from time to time.

B. Entitlement Purchase Agreement Compensation

The Entity agreements on the Determination of Downstream Power Benefits (DDPB) for the operating year 2002-03 indicated that the U.S. Entity is not entitled to receive any energy but is entitled to receive 0.3 MW dependable capacity from BC Hydro during the period 1 August 2002 through 31 March 2003, in accordance with CEPA Sections 7 and 10. Due to the small capacity value and zero energy owed, the Entities agree to waive the obligation to deliver capacity in accordance with Sections 7 and 10 of the CEPA.

C. LCA Power

In accordance with Section 7(b) of the Libby Coordination Agreement (LCA), the Canadian Entity shall deliver to the U.S. Entity one (1) average MW, shaped flat, during the period 1 August 2002 through 31 July 2003. In accordance with Section 10 of the LCA, the Entities shall deliver and receive power relating to the provisional draft of Arrow reservoir. Suitable arrangements will be made between BC Hydro and BPA for delivery of LCA power at the points of interconnection between B.C. Hydro and the Federal Columbia River Transmission System.

D. Operational Agreement Power

In accordance with subsection IV(c) of this DOP, the Entities shall deliver and/or receive power required by operational agreements entered into by the Operating Committee. Suitable arrangements will be made between BC Hydro and BPA for delivery of Operational Agreement Power at the points of interconnection between BC Hydro and the Federal Columbia River Transmission System.

IV. STORAGE OPERATION

A. Operation Authority

The operation of Canadian storage by the Columbia River Treaty Operating Committee during the period 1 August 2002 through 31 July 2003 shall be in accordance with

Sections I through VII of this DOP and any operational agreements signed by the Entities during the operating year. Consistent with the operating objectives in this section, the Operating Committee is authorized to enter into subsequent agreements on behalf of the Entities for mutual benefits within the period covered by this DOP.

B. Storage Operation to TSR Level

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, except as allowed in subsections C and D below or the Flood Control Plan.

C. Storage Operation Above and Below TSR Levels

Consistent with the Flood Control Plan, operating limits defined in Section VII, and the objectives and limitations defined in this Sub-Section, the Operating Committee may agree to mutually beneficial arrangements to store above or draft below the TSR levels to meet power and non-power objectives.

1. Power Objectives:

Power objectives include minimizing spill and optimizing energy production, power marketing, and purchase decisions. 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 power benefits from operational agreements.

2. Non-power Objectives:

Operations designed to help meet nonpower 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.

Canadian non-power objectives contemplated include, but are not limited to, whitefish and trout spawning downstream of Keenleyside, dust storm avoidance upstream of Keenleyside, and recreation needs. U.S. non-power objectives include, but are not limited to, storage up to 1.233 km³ (1 Maf) for anadromous fish flow augmentation, minimum flows at Vernita Bar for fish spawning, and recreation needs. Non-power objectives considered in this section do not include flood control and operating limits in Section VII.

Recognizing that it may not be possible to meet all nonpower 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.

D. Provisional Draft at Arrow

The Canadian Section of the Operating Committee may provisionally draft from Arrow reservoir below TSR levels in accordance with Section 10 of the LCA.

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 flood control 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 seventh 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. Preliminary seasonal runoff volume forecasts for the Columbia River at The Dalles, Oregon, shall be made available by the U.S. Section on the second 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 ten days and the last ten days of each month). Additional TSR studies will be performed at the request of either section of the Operating Committee, but not more often than once per week. The actual and forecasted unregulated stream flows, variable energy content curves, flood control storage evacuation requirements, and variable flood control refill curves will be updated for each TSR study as agreed by the Operating Committee.

During the Flood Control Storage Evacuation Period and the Flood Control Refill period, the project's Upper Rule Curves will be determined through 31 July by the North Pacific Region, Northwestern Division, U.S. Army Corps of Engineers, in accordance with the Flood Control Plan. 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. Weekly Agreement for Storage Regulation during the Storage Drawdown Season

- a) **Timing:** A preliminary request will be made not later than noon each Thursday, followed by a final agreement by noon Friday.
- b) **Confirmation:** Confirmation of the Treaty Storage Operation Agreement will be transmitted via electronic mail or fax on Friday in accordance with the following format unless otherwise agreed:

This message confirms our verbal agreement on _____ (day, month [spell-out], and year) 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.

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 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.

- c) **Period Covered by Weekly Treaty Storage Operation Agreement:** The period covered by the agreement shall be from 0800 hours on the Saturday following the date of weekly request to 0800 hours on the Saturday a week later. Changes from the previous week's agreement shall commence at 0800 hours on Saturday, or as soon thereafter as permitted by the limits of VII(B)7.
- d) **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 9), Arrow (Exhibit 10), and Mica (Exhibit 11). The change in Arrow storage content will be determined using the recorded reservoir elevation at the gauge near Fauquier, B.C.
- e) **Delivery:** Storage releases 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 storage water agreed to is released from Duncan, Arrow, and Mica reservoirs, provided an amount equal to or greater than the storage water release from Duncan reservoir is concurrently discharged from Kootenay Lake.
- f) **Modification:** If any modification to a written Weekly Treaty Storage Operation Agreement is agreed 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, 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 the 2002-03 AOP, this DOP, and operating agreements entered into pursuant to this DOP.

- g) Provisional Draft: Scheduling arrangements for provisional draft from Arrow reservoir, in accordance with Section 10 of the LCA, shall be done during the Weekly Treaty Storage Operation Agreement phone call, and subsequently confirmed by e-mail.
 - h) Non-routine Operation: Any special operation that is agreed to by the Operating Committee will be suitably documented.
2. Daily Agreement for Storage Regulation during Flood Control Season
- a) Forecasts: Day-to-day stream flow forecasts will be accomplished by use of computer simulation by the National Weather Service River Forecasting Center. The regulation center required by the Flood Control Plan for the flood regulation will be located in the North Pacific Region, Northwestern Division, U.S. Army Corps of Engineers offices in Portland, Oregon.
 - b) Daily Requests for Project Outflows: Pursuant to the operating rules in the Flood Control Plan, the outflows from individual Canadian storage projects are specified on a day-to-day basis. 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. Daily 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.
3. Regulation during Winter Floods: Daily requests for project outflows from Canadian projects are normally implemented in the flood-control 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 flood control 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 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 Flood Control Operating Plan is filled. The requests for such regulation will be in accordance with procedures described above. If, as a result of operation for winter flood control, a reservoir ends up above its upper rule curve, then an appropriate outflow schedule for that reservoir will be determined to ensure that the reservoir will be drafted to its upper rule curve as soon as feasible.

VI. OPERATING GUIDES

A. **Operating Rule Curve**

The Operating Rule Curve (ORC) for the whole of Canadian storage shall be the sum of the ORC's for each of Duncan, Arrow, and Mica. The ORC for each of the Duncan, Arrow, and Mica Reservoirs during the period 1 August 2002 through 31 July 2003 is determined in accordance with the reference documents of Section I, and is defined as follows:

1. During the period 1 August 2002 through 31 December 2002, it is the higher of the First Critical Rule Curve or the Assured Refill Curve.
2. During the period 1 January 2003 through 31 July 2003, it 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; then it is defined by the VRC.
3. During the period 1 January 2003 through 15 April 2003, it will not be lower than the Limiting Rule Curve designed to protect firm loads with recurrence of 1936-37 hydro conditions unless a lower reservoir elevation is required for flood control (Exhibit 6).
4. During any month in the 2002-03 Operating Year, it will not be higher than the Upper Rule Curve, defined as the maximum elevation of each reservoir established by flood control 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 tabulated with specified qualifications in Section 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. 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 VRC's for Arrow, Duncan, and Mica shall be constructed based on procedures and power discharge requirements as specified in Exhibit 7, 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 VRC for Arrow will be 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 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 7 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 in both English and SI (Metric) units. SI values are displayed with either one or two decimal places to assure consistency with English units and do not imply that level of precision.

- | | |
|---|-----------|
| 1. Assured Refill Curve for Duncan, Arrow, and Mica. | Exhibit 1 |
| 2. First Critical Rule Curve for Duncan, Arrow, Mica, and the whole of Canadian storage. | Exhibit 2 |
| 3. Second Critical Rule Curve for Duncan, Arrow, Mica, and the whole of Canadian storage. | Exhibit 3 |
| 4. Third Critical Rule Curve for Duncan, Arrow, Mica, and the whole of Canadian storage. | Exhibit 4 |
| 5. Fourth Critical Rule Curve for Duncan, Arrow, Mica, and the whole of Canadian storage. | Exhibit 5 |
| 6. Lower Limit for Operating Rule Curve based on 1936-37 Hydro Conditions. | Exhibit 6 |
| 7. Variable Refill Curve Procedures. | Exhibit 7 |
| 8. Coordinated System Loads and Resources | Exhibit 8 |

C. Rule Curves for Future Operating Years

The Second, Third, and Fourth Year Critical Rule Curves for future operating years are not included in this DOP (as they were in prior DOP's) because there is no change from the AOP values.

D. Reservoir Capacity Tables

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

1. Duncan Reservoir Capacity Table (based on BC Hydro Table dated 21 February 1973). Exhibit 9
 2. Arrow Reservoir Capacity Table (based on BC Hydro Combined Storage Table dated 28 February 1974). Exhibit 10
 3. Mica Reservoir Capacity Table (based on BC Hydro Table dated 25 March 1974). Exhibit 11

VII. OPERATING LIMITS

A. Duncan Project

1. Maximum outflow is 566.34 cubic meters per second (m^3/s) (20,000 cubic feet per second (cfs)) through outlets with the limit of 283.17 m^3/s (10,000 cfs) each month in the TSR model.
 2. Minimum average weekly outflow is 2.83 m^3/s (100 cfs).
 3. Maximum rate of change in outflow is normally 113.27 m^3/s (4,000 cfs) per day unless a larger change is necessary to accomplish the objectives of the Flood Control Plan.
 4. Normal full pool elevation is 576.68 m (1,892.0 feet).
 5. Normal minimum pool elevation is 546.87 m (1,794.2 feet).
 6. Normal maximum reservoir average monthly draft rate in elevation during any month is limited to 0.30 m (1 foot) per day.

B. Arrow Project

1. Maximum outflow is limited to physical capability only, except during January when Attachment C to the LCA requires that outflows in actual operations and in the TSR be limited to a maximum of 2,265 m³/s (80,000 cfs) unless higher outflows are needed to meet flood control requirements.
 2. Minimum average weekly outflow is 141.58 m³/s (5,000 cfs).
 3. Maximum rate of change in outflow is normally 424.75 m³/s (15,000 cfs) per day unless a larger change is necessary to accomplish the objectives of the Flood Control Plan.
 4. Normal full pool elevation is 440.13 m (1,444.0 feet).
 5. Normal minimum pool elevation is 419.98 m (1,377.9 feet).

6. Normal maximum reservoir average monthly draft rate in elevation during any month is limited to 0.30 m (1 foot) per day.

C. Mica Project

The Mica Project Treaty storage operation in the TSR will be according to the Mica Project Operating Criteria shown in the following table except as qualified in subsections VII(C)1 through VII(C)8.

1. Variable Refill Curves (VRC) shall be constructed according to Exhibit 7 with the 31 July Treaty storage content of 8,634.54 hm³ (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 8455.94 hm³ (3,456.2 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 the following table, except for the limitations or changes required by subsections VII(C)3 through VII(C)8. The End of Previous Month Arrow Storage Content shall be determined from a current TSR study, except that during January through July only the normal procedures for determining Arrow's VRC (as specified in Exhibit 7) will be included. Mica's 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 Outflows shown in the following table and as defined in Note 2/1, and by the Maximum Outflow as defined in Note 1/ when the Target End-of-Month Storage Content is below 8,634.54 hm³ (3,529.2 ksfd) unless needed to accomplish the objectives of the Flood Control Plan.
4. Mica operation to the Target Month Average Outflow shall be limited by the Minimum Target Treaty Content shown in the following table. 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. During July, the Mica operation to the Target Month Average Outflow shall not be less than the outflow necessary to meet the Target End-of-Month Storage Content of 8,455.94 hm³ (3,456.2 ksfd).
6. Mica outflows will be increased during the months October through June as required to avoid violation of the Upper Rule Curve.
7. Each month, within two working days of determination of the final TSR, normally available within the first ten days of the month, one correction to the adjusted Mica outflow may be made, consistent with subsections VII(C)3 through VII(C)6.
8. Storage releases from Mica in excess of 8.63 km³ (7 Maf) that result from operating Mica under the criteria described in VII(C)2 through VII(C)7 above will

be retained in the Arrow reservoir, subject to flood control criteria at Arrow, and Mica will be reduced to Minimum Outflow as required to minimize releases in excess of 8.63 km³ (7 Maf). The total combined storage draft from Mica and Arrow will not exceed 17.39 km³ (14.1 Maf) unless flood control criteria will not permit the additional Mica storage releases for minimum flow purposes to be retained at Arrow.

MICA PROJECT OPERATING CRITERIA (English)

Month	End of Previous Month Arrow Storage Content (ksfd)	Target Operation		Target Operation Limits		
		Month Average Outflow (cfs)	End-of-Month Storage Content 1/ (ksfd)	Minimum Target Treaty Storage Content 2/ (ksfd)	Maximum Outflow (cfs)	Minimum Outflow (cfs)
August 1-15	2,600 - FULL	-	3,486.2	-	34,000	15,000
	1,650 - 2,600	16,000	-	0.0	-	15,000
	0 - 1,650	29,000	-	0.0	-	15,000
August 16-31	3,400 - FULL	-	3,529.2	-	-	15,000
	1,450 - 3,400	21,000	-	0.0	-	15,000
	0 - 1,450	30,000	-	0.0	-	15,000
September	3,460 - FULL	-	3,529.2	-	-	10,000
	1,870 - 3,460	22,000	-	0.0	-	10,000
	740 - 1,870	24,000	-	0.0	-	10,000
	0 - 740	32,000	-	0.0	-	10,000
October	3,225 - FULL	-	3,396.2	-	34,000	10,000
	2,530 - 3,225	21,000	-	0.0	-	10,000
	1,840 - 2,530	23,000	-	0.0	-	10,000
	0 - 1,840	32,000	-	0.0	-	10,000
November	3,280 - FULL	20,000	-	0.0	-	12,000
	2,610 - 3,280	22,000	-	0.0	-	12,000
	830 - 2,610	24,000	-	0.0	-	12,000
	0 - 830	32,000	-	0.0	-	12,000
December	3,290 - FULL	22,000	-	341.3	-	21,000
	1,895 - 3,290	25,000	-	341.3	-	21,000
	1,000 - 1,895	27,000	-	341.3	-	21,000
	0 - 1,000	30,000	-	341.3	-	21,000
January	2,980 - FULL	24,000	-	91.3	-	15,000
	2,060 - 2,980	26,000	-	91.3	-	15,000
	2,020 - 2,060	24,000	-	91.3	-	15,000
	0 - 2,020	28,000	-	91.3	-	15,000
February	1,810 - FULL	21,000	-	0.0	-	15,000
	780 - 1,810	23,000	-	0.0	-	15,000
	190 - 780	25,000	-	0.0	-	15,000
	0 - 190	23,000	-	0.0	-	15,000
March	1,570 - FULL	18,000	-	0.0	-	15,000
	1,290 - 1,570	24,000	-	0.0	-	15,000
	1,070 - 1,290	20,000	-	0.0	-	15,000
	0 - 1,070	27,000	-	0.0	-	15,000
April 1-15	1,690 - FULL	-	281.3	-	34,000	13,000
	1,300 - 1,690	-	0.0	-	34,000	13,000
	800 - 1,300	18,000	-	0.0	-	13,000
	0 - 800	-	26.3	-	34,000	13,000
April 16-30	980 - FULL	15,000	-	0.0	-	14,000
	755 - 980	13,000	-	0.0	-	13,000
	735 - 755	-	0.0	-	27,000	14,000
	0 - 735	10,000	-	0.0	-	10,000
May	340 - FULL	10,000	-	0.0	-	10,000 3/
	245 - 340	10,000 3/	-	0.0	-	10,000 3/
	150 - 245	16,000	-	0.0	-	10,000 3/
	0 - 150	20,000	-	0.0	-	10,000 3/
June	1,480 - FULL	10,000	-	0.0	-	10,000 3/
	1,070 - 1,480	10,000 3/	-	0.0	-	10,000 3/
	480 - 1,070	12,000	-	0.0	-	10,000 3/
	0 - 480	18,000	-	0.0	-	10,000 3/
July	1,940 - FULL	-	3,456.2	-	34,000	10,000 3/
	1,820 - 1,940	19,000	-	0.0	-	10,000 3/
	1,700 - 1,820	12,000	-	0.0	-	10,000 3/
	0 - 1,700	27,000	-	0.0	-	10,000 3/

Notes: 1/ For end-of-month storage content target operation, a maximum outflow of 34,000 cfs will apply if the Target End-of-Period Storage Content is less than 3529.2 ksfd in every month, except April 16-30 the maximum outflow is 27,000 cfs.

2/ For month average outflow target operation, Mica outflows will be reduced to minimum to maintain the reservoir above the Minimum Target Treaty Storage Content.

3/ The Entities have agreed to change the Mica Minimum Outflow from 8,000 cfs listed in the AOP to 10,000 cfs.

MICA PROJECT OPERATING CRITERIA (SI)

Month	Target Operation			Target Operation Limits		
	End of Previous Month Arrow Storage Content (hm ³)	Month Average Outflow (m ³ /s)	End-of-Month Storage Content 1/ (hm ³)	Minimum Target Treaty Storage Content 2/ (hm ³)	Maximum Outflow (m ³ /s)	Minimum Outflow (m ³ /s)
August 1-15	6361.2 - FULL 4036.9 - 6361.2 0.0 - 4036.9	- 453.07 821.19	8529.3 -	- 0.0 0.0 -	962.77 -	424.75 424.75 424.75
August 16-31	8318.4 - FULL 3547.6 - 8318.4 0.0 - 3547.6	- 594.65 849.50	8634.5 -	- 0.0 0.0 -	-	424.75 424.75 424.75
September	8465.2 - FULL 4575.1 - 8465.2 1810.5 - 4575.1 0.0 - 1810.5	- 622.97 679.60 906.14	8634.5 -	- 0.0 0.0 -	-	283.17 283.17 283.17 283.17
October	7890.3 - FULL 6189.9 - 7890.3 4501.7 - 6189.9 0.0 - 4501.7	- 594.65 651.29 906.14	8309.1 -	- 0.0 0.0 -	962.77 -	283.17 283.17 283.17 283.17
November	8024.8 - FULL 6385.6 - 8024.8 2030.7 - 6385.6 0.0 - 2030.7	- 566.34 622.97 679.60 906.14	-	- 0.0 0.0 -	-	339.80 339.80 339.80 339.80
December	8049.3 - FULL 4636.3 - 8049.3 2446.6 - 4636.3 0.0 - 2446.6	- 622.97 707.92 764.55 849.50	-	- 835.0 835.0 -	-	594.65 594.65 594.65 594.65
January	7290.9 - FULL 5040.0 - 7290.9 4942.1 - 5040.0 0.0 - 4942.1	- 679.60 736.24 679.60 792.87	-	- 223.4 223.4 -	-	424.75 424.75 424.75 424.75
February	4428.3 - FULL 1908.3 - 4428.3 464.9 - 1908.3 0.0 - 464.9	- 594.65 651.29 707.92 651.29	-	- 0.0 0.0 -	-	424.75 424.75 424.75 424.75
March	3841.2 - FULL 3156.1 - 3841.2 2617.9 - 3156.1 0.0 - 2617.9	- 509.70 679.60 566.34 764.55	-	- 0.0 0.0 -	-	424.75 424.75 424.75 424.75
April 1-15	4134.8 - FULL 3180.6 - 4134.8 1957.3 - 3180.6 0.0 - 1957.3	- - - 0.0 509.70 - - 64.3	688.2 -	- - 0.0 -	962.77 - 962.77 -	368.12 368.12 368.12 368.12
April 16-30	2397.7 - FULL 1847.2 - 2397.7 1798.3 - 1847.2 0.0 - 1798.3	- 424.75 368.12 - - 0.0 283.17 -	-	- 0.0 0.0 -	-	396.44 368.12 396.44 283.17
May	831.8 - FULL 599.4 - 831.8 367.0 - 599.4 0.0 - 367.0	- 283.17 283.17 3/ 453.07 - 566.34 -	-	- 0.0 0.0 -	-	283.17 3/ 283.17 3/ 283.17 3/ 283.17 3/
June	3621.0 - FULL 2617.9 - 3621.0 1174.4 - 2617.9 0.0 - 1174.4	- 283.17 283.17 3/ 339.80 - 509.70 -	-	- 0.0 0.0 -	-	283.17 3/ 283.17 3/ 283.17 3/ 283.17 3/
July	4746.4 - FULL 4452.8 - 4746.4 4159.2 - 4452.8 0.0 - 4159.2	- - 538.02 - 339.80 - 764.55 -	8455.9 -	- 0.0 0.0 -	962.77 -	283.17 3/ 283.17 3/ 283.17 3/ 283.17 3/

Notes:

1/ For end-of-month storage content target operation, a maximum outflow of 962.77 m³/s will apply if the Target End-of-Period Storage Content is less than 8634.5 hm³ in every month, except April 16-30 the maximum outflow is 764.55 m³/s.

2/ For month average outflow target operation, Mica outflows will be reduced to minimum to maintain the reservoir above the Minimum Target Treaty Storage Content.

3/ The Entities have agreed to change the Mica Minimum Outflow from 226.53 m³/s listed in the AOP to 283.17 m³/s.

EXHIBITS**Exhibit 1 - Assured Refill Curves (English) 1/**

Month	DUNCAN				MICA				ARROW								
	1931 Inflow cfs 3/	PDR cfs 4/	Water Available for Refill		1931 Inflow cfs	PDR cfs 4/	Water Available for Refill		CRC1 ksfd	ARC ksfd	1931 Inflow cfs	PDR cfs 4/	Water Available for Refill		MICA Refill ksfd 2/	ARC ksfd	
			cfs	ksfd			cfs	ksfd					cfs	ksfd			
July	7320	2000	5320	164.9	705.8	56477	25000	31477	975.8	3354.3	3529.2	88586	51000	37586	1165.2	975.8	3579.6
June	8030	1800	6230	186.9	540.9	60178	25000	35178	1055.3	2190.7	2553.4	114636	50000	64636	1939.1	1055.3	3390.2
May	5170	1500	3670	113.8	354.0	28058	25000	3058	94.8	543.3	1498.1	68098	45000	23098	716.0	94.8	2506.5
Apr2	981	1500	-519	-7.8	240.2	7217	25000	-17783	-266.7	83.0	1403.2	20504	40000	-19496	-292.4	-266.7	1885.3
Apr1	981	1500	-519	-7.8	248.0	4679	15000	-10321	-154.8	733.7	1670.0	10700	40000	-29300	-439.5	-154.8	1911.0
Mar	555	1500	-945	-29.3	255.8	3219	8000	-4781	-148.2	1448.8	1824.8	7653	20000	-12347	-382.8	-148.2	2195.7
Feb	428	500	-72	-2.0	285.1	2593	3000	-407	-11.4	1554.6	1973.0	5813	8000	-2187	-61.2	-11.4	2430.2
Jan	428	100	328	10.2	287.1	2834	3000	-166	-5.1	1887.4	1984.4	6430	5000	1430	44.3	-858.5	2480.0
Dec	461	100	361	11.2	276.9	3533	3000	533	16.5	2842.9	1989.6	6694	5000	1694	52.5	-267.5	1577.2
Nov	684	100	584	17.5	265.7	5176	3000	2176	65.3	3110.4	1973.1	9483	5000	4483	134.5	-221.6	1257.2
Oct	1090	100	990	30.7	248.2	8751	3000	5751	178.3	3332.0	1907.8	14691	5000	9691	300.4	-194.5	901.1
Sep	2310	100	2210	66.3	217.5	23110	3000	20110	603.3	3526.5	1729.5	39739	5000	34739	1042.2	-1.1	406.2
Aug2	4530	100	4430	70.9	151.2	38261	3000	35261	564.2	3527.6	1126.2	62605	5000	57605	921.7	-1.6	0.0
Aug1	4530	100	4430	66.5	80.3	53542	3000	50542	758.1	3529.2	562.0	82249	5000	77249	1158.7	3529.2	0.0

Exhibit 1M - Assured Refill Curves (SI) 1/

Month	DUNCAN				MICA				ARROW								
	1931 Inflow m³/s 3/	PDR m³/s 4/	Water Available for Refill		ARC hm³	1931 Inflow m³/s	PDR M³/s 4/	Water Available For Refill		CRC1 hm³	ARC hm³	1931 Inflow m³/s	PDR m³/s 4/	Water Available For Refill		MICA Refill hm³ 2/	ARC hm³
			m³/s	hm³				m³/s	hm³					m³/s	hm³		
July	207.28	56.63	150.65	403.5	1726.8	1599.25	707.92	891.33	2387.4	8206.6	8634.5	2508.47	1444.16	1064.32	2850.7	2387.4	8757.8
June	227.38	50.97	176.41	457.3	1323.4	1704.05	707.92	996.13	2582.0	5359.8	6247.1	3246.13	1415.84	1830.29	4744.2	2582.0	8294.5
May	146.40	42.48	103.92	278.3	866.1	794.51	707.92	86.59	231.9	1329.2	3665.3	1928.32	1274.26	654.06	1751.9	231.9	6132.4
Apr2	27.78	42.48	-14.70	-19.0	587.7	204.36	707.92	-503.56	-652.6	203.1	3433.1	580.61	1132.67	-552.06	-715.5	-652.6	4612.6
Apr1	27.78	42.48	-14.70	-19.0	606.8	132.49	424.75	-292.26	-378.8	1795.1	4085.8	302.99	1132.67	-829.68	-1075.3	-378.8	4675.5
Mar	15.72	42.48	-26.76	-71.7	625.8	91.15	226.53	-135.38	-362.6	3544.6	4464.6	216.71	566.34	-349.63	-936.5	-362.6	5372.0
Feb	12.12	14.16	-2.04	-4.9	697.5	73.43	84.95	-11.52	-27.9	3803.5	4827.1	164.61	226.53	-61.93	-149.8	-27.9	5945.7
Jan	12.12	2.83	9.29	24.9	702.4	80.25	84.95	-4.70	-12.6	4617.7	4855.0	182.08	141.58	40.49	108.5	-2100.3	6067.6
Dec	13.05	2.83	10.22	27.4	677.5	100.04	84.95	15.09	40.4	6955.4	4867.8	189.55	141.58	47.97	128.5	-654.5	3858.8
Nov	19.37	2.83	16.54	42.9	650.1	146.57	84.95	61.62	159.7	7609.9	4827.4	268.53	141.58	126.94	329.0	-542.2	3075.9
Oct	30.87	2.83	28.03	75.1	607.2	247.80	84.95	162.85	436.2	8152.1	4667.6	416.00	141.58	274.42	735.0	-475.9	2204.8
Sep	65.41	2.83	62.58	162.2	532.1	654.40	84.95	569.45	1476.0	8627.9	4231.4	1125.28	141.58	983.70	2549.8	-2.7	993.8
Aug2	128.28	2.83	125.44	173.4	369.9	1083.43	84.95	998.48	1380.3	8630.6	2755.4	1772.77	141.58	1631.19	2255.0	-3.9	0.0
Aug1	128.28	2.83	125.44	162.6	196.5	1516.14	84.95	1431.19	1854.8	8634.5	1375.0	2329.03	141.58	2187.45	2835.0	8634.5	0.0

Notes on Exhibit 1 and Exhibit 1M:

- 1/ The Assured Refill Curve indicates the end-of-month storage content required to assure refill of Canadian storage by 31 July based on 1931 historical monthly inflow. The monthly inflow at each reservoir is reduced by deducting the Power Discharge Requirements 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: these values are computed by subtracting current month from previous month's higher of Mica's ARC or CRC1 except July value is Mica full minus previous month's higher of Mica's ARC or CRC1. CRC1 is shown in Exhibit 2.
- 3/ Inflows are from the 1990 Level Modified streamflow (Hydrosim file).
- 4/ PDRs are from the 2002-03 AOP.

Exhibit 2 - First Critical Rule Curves (English & SI)

End-of-Month Usable Storage Content

Month	(English) (ksfd)				(SI) (hm ³)			
	Mica	Arrow	Duncan	Total	Mica	Arrow	Duncan	Total
August 15	3529.2	3579.6	705.8	7814.6	8634.5	8757.8	1726.8	19119.2
August 31	3527.6	3578.0	705.5	7811.1	8630.6	8753.9	1726.1	19110.6
September	3526.5	3576.9	701.6	7805.0	8627.9	8751.2	1716.5	19095.7
October	3332.0	3356.5	685.9	7374.4	8152.1	8212.0	1678.1	18042.2
November	3110.4	3133.3	640.3	6884.0	7609.9	7665.9	1566.6	16842.4
December	2842.9	2550.2	418.0	5811.1	6955.4	6239.3	1022.7	14217.4
January	1887.4	1714.4	234.6	3836.4	4617.7	4194.5	574.0	9386.1
February	1554.6	1295.9	158.3	3008.8	3803.5	3170.5	387.3	7361.3
March	1448.8	1136.9	146.2	2731.9	3544.6	2781.5	357.7	6683.9
April 15	733.7	577.8	141.1	1452.6	1795.1	1413.6	345.2	3553.9
April 30	83.0	380.7	137.0	600.7	203.1	931.4	335.2	1469.7
May	543.3	1034.0	250.0	1827.3	1329.2	2529.8	611.7	4470.7
June	2190.7	2566.3	524.0	5281.0	5359.8	6278.7	1282.0	12920.5
July	3354.3	3368.5	704.0	7426.8	8206.6	8241.4	1722.4	18170.4

Source: First-year critical rule curves from the 2002-03 AOP.

Exhibit 3 - Second Critical Rule Curves (English & SI)

End-of-Month Usable Storage Content

Month	(English) (ksfd)				(SI) (hm ³)			
	Mica	Arrow	Duncan	Total	Mica	Arrow	Duncan	Total
August 15	3495.6	3544.8	702.4	7742.8	8552.3	8672.7	1718.5	18943.5
August 31	3454.1	3502.7	690.8	7647.6	8450.8	8569.7	1690.1	18710.6
September	3262.5	3308.4	655.8	7226.7	7982.0	8094.3	1604.5	17680.8
October	2864.9	2885.4	593.2	6343.5	7009.3	7059.4	1451.3	15520.0
November	2229.8	2268.1	440.0	4937.9	5455.4	5549.1	1076.5	12081.1
December	1815.4	1628.1	269.5	3713.0	4441.6	3983.3	659.4	9084.2
January	700.8	626.3	84.0	1411.1	1714.6	1532.3	205.5	3452.4
February	693.2	665.0	74.8	1433.0	1696.0	1627.0	183.0	3506.0
March	645.3	670.9	57.7	1373.9	1578.8	1641.4	141.2	3361.4
April 15	89.9	424.7	67.5	582.1	219.9	1039.1	165.1	1424.2
April 30	75.2	380.7	77.2	533.1	184.0	931.4	188.9	1304.3
May	494.9	884.0	90.6	1469.5	1210.8	2162.8	221.7	3595.3
June	1786.0	1906.5	280.0	3972.5	4369.6	4664.4	685.0	9719.1
July	2847.1	2908.2	497.6	6252.9	6965.7	7115.2	1217.4	15298.3

Adjusted for Crossover

Source: Second-year critical rule curves from the 2002-03 AOP, except when higher than the first year critical rule curve use the first year critical rule curve.

Exhibit 4 - Third Critical Rule Curves (English & SI)
End-of-Month Usable Storage Content

Month	(English) (ksfd)				(SI) (hm³)			
	Mica	Arrow	Duncan	Total	Mica	Arrow	Duncan	Total
August 15	3032.8	3096.6	564.1	6693.5	7420.0	7576.1	1380.1	16376.3
August 31	3058.0	3101.0	618.2	6777.2	7481.7	7586.9	1512.5	16581.1
September	2898.8	3079.7	578.6	6557.1	7092.2	7534.8	1415.6	16042.6
October	2652.3	2671.2	532.7	5856.2	6489.1	6535.4	1303.3	14327.8
November	2077.4	2188.5	427.7	4693.6	5082.6	5354.4	1046.4	11483.4
December	1476.1	1384.0	217.0	3077.1	3611.4	3386.1	530.9	7528.4
January	501.0	514.4	61.0	1076.4	1225.7	1258.5	149.2	2633.5
February	489.6	415.5	45.8	950.9	1197.9	1016.6	112.1	2326.5
March	496.4	430.2	57.7	984.3	1214.5	1052.5	141.2	2408.2
April 15	31.0	181.6	57.4	270.0	75.8	444.3	140.4	660.6
April 30	0.0	13.5	57.1	70.6	0.0	33.0	139.7	172.7
May	160.3	394.0	18.8	573.1	392.2	964.0	46.0	1402.1
June	1257.6	1288.6	192.3	2738.5	3076.8	3152.7	470.5	6700.0
July	1815.8	1841.5	346.1	4003.4	4442.5	4505.4	846.8	9794.7

Source: Third-year critical rule curves from the 2002-03 AOP.

Exhibit 5 - Fourth Critical Rule Curves (English & SI)
End-of-Month Usable Storage Content

Month	(English) (ksfd)				(SI) (hm³)			
	Mica	Arrow	Duncan	Total	Mica	Arrow	Duncan	Total
August 15	1809.7	1835.2	368.9	4013.8	4427.6	4490.0	902.6	9820.2
August 31	1697.2	1698.4	336.7	3732.3	4152.4	4155.3	823.8	9131.4
September	1484.6	1334.8	312.0	3131.4	3632.2	3265.7	763.3	7661.3
October	1153.0	1194.7	160.0	2507.7	2820.9	2923.0	391.5	6135.3
November	588.4	604.7	70.0	1263.1	1439.6	1479.5	171.3	3090.3
December	151.3	193.0	0.6	344.9	370.2	472.2	1.5	843.8
January	0.5	0.0	0.0	0.5	1.2	0.0	0.0	1.2
February	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Fourth-year critical rule curves from the 2002-03 AOP.

Exhibit 6 - Lower Limit for Operating Rule Curve (English & SI)
End-of-Month Usable Storage Content

Month	(English) (ksfd)			(SI) (hm³)		
	Mica	Arrow	Duncan	Mica	Arrow	Duncan
January	365.0	337.7	57.5	893.0	826.2	140.7
February	233.2	198.1	21.8	570.5	484.7	53.3
March	29.8	25.9	3.5	72.9	63.4	8.6
April 15	0.0	0.0	0.0	0.0	0.0	0.0

Source: ECC Lower Limits for Mica, Arrow, and Duncan are from the 2002-03 AOP.

Exhibit 7 - Variable Refill Curve Procedures (English)

The Variable Refill Curves (VRC) indicate the end-of-month storage content required to refill Canadian storage based on forecasts of natural inflow volume. The probable forecast volume at each reservoir is reduced by deducting the 95 percent confidence forecast error, Power Discharge Requirements (PDR), and water required for refill at upstream reservoirs based on the ORC. The 2002-03 AOP studies made for the U.S. Coordinated System operation indicate that the PDR's for all cyclic reservoirs must be greater than project minimum release to allow filling in accordance with the Principles and Procedures coincident with carrying system firm load when the Columbia River at The Dalles natural January-July runoff volume is lower than 95 million acre-feet. The following schedule for PDR's will apply when computing the VRC's during the period January 1 through June 1, unless the Operating Committee agrees to updated study results.

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

Project	Jan	Feb	Mar	Ap1	Ap2	May	Jun	Jul
<u>Mica PDRs</u>								
ARC	3000	3000	8000	15000	25000	25000	25000	25000
80 Maf	3000	8000	8000	15000	15000	20000	21000	21000
95 Maf	3000	3000	3000	3000	5000	5000	15000	19000
110 Maf	3000	3000	3000	3000	3000	3000	15000	19000
Distribution Factors	0.9750	0.9770	0.9740	0.9812	0.9650	0.7950	0.4950	N/A
Forecast Errors (ksfd)	652.9	510.3	465.3	444.4	444.4	360.4	360.4	N/A
<u>Arrow PDRs</u>								
ARC	5000	8000	20000	40000	40000	45000	50000	51000
80 Maf	5000	15000	15000	20000	22000	28000	43000	45000
95 Maf	5000	5000	5000	8000	13000	23000	43000	45000
110 Maf	5000	5000	5000	5000	13000	23000	43000	45000
Distribution Factors – Total	0.9710	0.9747	0.9691	0.9741	0.9530	0.7483	0.4631	N/A
Forecast Errors (ksfd) – Total	1233.1	987.3	825.3	715.1	715.1	501.4	501.4	N/A
Distribution Factors – Local	0.9680	0.9730	0.9640	0.9680	0.9390	0.7020	0.4270	N/A
Forecast Errors (ksfd) – Local	761.8	632.8	504.9	403.2	403.2	341.8	341.8	N/A
<u>Duncan PDRs</u>								
ARC	100	500	1500	1500	1500	1500	1800	2000
80 Maf	100	100	100	100	800	1000	2800	3200
95 Maf	100	100	100	100	300	500	2800	3000
110 Maf	100	100	100	100	100	100	2800	3000
Distribution Factors	0.9720	0.9790	0.9740	0.9790	0.9570	0.7580	0.4690	N/A
Forecast Errors (ksfd)	289.7	266.7	238.5	215.5	215.5	179.3	179.3	N/A

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) PDR's are from the 2002-03 AOP but Arrow's forecast error in January is updated. Data may be revised upon completion of the Operating Committee Refill Studies. The Canadian Entity reserves the right to request changes to the revised data.

Exhibit 7M - Variable Refill Curve Procedures (SI)

The Variable Refill Curves (VRC) indicate the end-of-month storage content required to refill Canadian storage based on forecasts of natural inflow volume. The probable forecast volume at each reservoir is reduced by deducting the 95 percent confidence forecast error, Power Discharge Requirements (PDR), and water required for refill at upstream reservoirs based on the ORC. The 2002-03 AOP studies made for the U.S. Coordinated System operation indicate that the PDR's for all cyclic reservoirs must be greater than project minimum release to allow filling in accordance with the Principles and Procedures coincident with carrying system firm load when the Columbia River at The Dalles natural January-July runoff volume is lower than 117.2 km³. The following schedule for PDR's will apply when computing the VRC's during the period January 1 through June 1, unless the Operating Committee agrees to updated study results.

**POWER DISCHARGE REQUIREMENTS
FOR JANUARY - JULY VOLUME RUNOFF
OF THE COLUMBIA RIVER AT THE DALLES, OREGON**
(m³/s)

Project	Jan	Feb	Mar	Ap1	Ap2	May	Jun	Jul
Mica PDRs								
ARC	84.95	84.95	226.53	424.75	707.92	707.92	707.92	707.92
98.68 km ³	84.95	226.53	226.53	424.75	424.75	566.34	594.65	594.65
117.18 km ³	84.95	84.95	84.95	84.95	141.58	141.58	424.75	538.02
135.69 km ³	84.95	84.95	84.95	84.95	84.95	84.95	424.75	538.02
Distribution Factors	0.9750	0.9770	0.9740	0.9812	0.9650	0.7950	0.4950	N/A
Forecast Errors (hm ³)	1597.4	1248.5	1138.4	1087.3	1087.3	881.8	881.8	N/A
Arrow PDRs								
ARC	141.58	226.53	566.34	1132.67	1132.67	1274.26	1415.84	1444.16
98.68 km ³	141.58	424.75	424.75	566.34	622.97	792.87	1217.62	1274.26
117.18 km ³	141.58	141.58	141.58	226.53	368.12	651.29	1217.62	1274.26
135.69 km ³	141.58	141.58	141.58	141.58	368.12	651.29	1217.62	1274.26
Distribution Factors – Total	0.9710	0.9747	0.9691	0.9741	0.9530	0.7483	0.4631	N/A
Forecast Errors (hm ³) – Total	3016.9	2415.5	2019.2	1749.6	1749.6	1226.7	1226.7	N/A
Distribution Factors – Local	0.9680	0.9730	0.9640	0.9680	0.9390	0.7020	0.4270	N/A
Forecast Errors (hm ³) – Local	1863.8	1548.2	1235.3	986.5	986.5	836.2	836.2	N/A
Duncan PDRs								
ARC	2.83	14.16	42.48	42.48	42.48	42.48	50.97	56.63
98.68 km ³	2.83	2.83	2.83	2.83	22.65	28.32	79.29	90.61
117.18 km ³	2.83	2.83	2.83	2.83	8.50	14.16	79.29	84.95
135.69 km ³	2.83	2.83	2.83	2.83	2.83	2.83	79.29	84.95
Distribution Factors	0.9720	0.9790	0.9740	0.9790	0.9570	0.7580	0.4690	N/A
Forecast Errors (hm ³)	708.8	652.5	583.5	527.2	527.2	438.7	438.7	N/A

Notes:

- 1) If the forecasted natural January through July volume runoff at The Dalles is less than 98.7 km³, the Power Discharge Requirement in the 98.7 km³ schedule will be used. For intermediate forecasted volumes, the Power Discharge Requirement will be interpolated linearly between the values shown above.
- 2) PDR's are from the 2002-03 AOP but Arrow's forecast error in January is updated. Data may be revised upon completion of the Operating Committee Refill Studies. The Canadian Entity reserves the right to request changes to the revised data.

**Exhibit 8 - Coordinated System Loads and Resources used in the TSR
(ENERGY in aMW)**

Month	LOADS Total Loads <u>1/</u>	RESOURCES					REGULATED HYDRO LOAD	
		Hydro Indep. <u>2/</u>	Imports <u>3/</u>	Thermal (Large & Small)	Combst. Turbine	Misc. <u>4/</u>		
August 15	22095	1272.6	1654	4955	1950	1885	11716.6	10378.4
August 31	22012	1245.7	1695	4955	1866	1885	11646.7	10365.3
September	21557	1182.4	1799	4955	1851	1865	11652.4	9904.6
October	21999	1202.5	1872	4955	2096	1823	11948.5	10050.5
November	23872	1218.6	2079	4955	2056	1833	12141.6	11730.4
December	25418	1071.0	2212	4955	2101	1830	12169.0	13249.0
January	25827	1108.5	2124	4955	2110	1828	12125.5	13701.5
February	24710	971.4	2192	4955	2108	1837	12063.4	12646.6
March	23338	1049.6	1707	4768	2105	1855	11484.6	11853.4
April 15	22266	1319.4	1379	4595	1648	1902	10843.4	11422.6
April 30	22394	1364.8	1336	3522	1296	1811	9329.8	13064.2
May	23781	1809.8	1310	3137	1569	1637	9462.8	14318.2
June	23989	1728.8	1195	4023	1801	1919	10666.8	13322.2
July	22269	1425.7	1623	4955	1906	1901	11810.7	10458.3

Notes:

- 1/ The total loads as the sum of PNW Area load, firm exports, maintenance, and firm surplus.
- 2/ Updated from the 31 hydro-independent projects in the AER (1929 for above example) plus the 60-year median from the 2002-03 AOP for the remaining hydro-independent projects.
- 3/ Imports include thermal firm imports and non-thermal firm imports.
- 4/ Miscellaneous resources include PURPA, cogeneration, renewable, and energy management system.

Source: Loads and resources are from the 2002-03 AOP DDPB Document, Table 1A, Regulated Hydro Load plus Other Coordination Hydro.

Exhibit 9 – Duncan Reservoir Capacity Table (English)
ksfd

ELEVATION IN FEET	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	AVERAGE DIFFERENCE PER TENTH FT
1892.	705.8										
1891.	696.9	697.8	698.7	699.6	700.5	701.3	702.2	703.1	704.0	704.9	0.89
1890.	688.0	688.9	689.8	690.7	691.6	692.4	693.3	694.2	695.1	696.0	0.89
1889.	679.2	680.1	681.0	681.8	682.7	683.6	684.5	685.4	686.2	687.1	0.88
1888.	670.4	671.3	672.2	673.0	673.9	674.8	675.7	676.6	677.4	678.3	0.88
1887.	661.5	662.4	663.3	664.2	665.1	665.9	666.8	667.7	668.6	669.5	0.89
1886.	652.8	653.7	654.5	655.4	656.3	657.1	658.0	658.9	659.8	660.6	0.87
1885.	644.0	644.9	645.8	646.6	647.5	648.4	649.3	650.2	651.0	651.9	0.88
1884.	635.3	636.2	637.0	637.9	638.8	639.6	640.5	641.4	642.3	643.1	0.87
1883.	626.6	627.5	628.3	629.2	630.1	630.9	631.8	632.7	633.6	634.4	0.87
1882.	617.9	618.8	619.6	620.5	621.4	622.2	623.1	624.0	624.9	625.7	0.87
1881.	609.2	610.1	610.9	611.8	612.7	613.5	614.4	615.3	616.2	617.0	0.87
1880.	600.6	601.5	602.3	603.2	604.0	604.9	605.8	606.6	607.5	608.3	0.86
1879.	592.0	592.9	593.7	594.6	595.4	596.3	597.2	598.0	598.9	599.7	0.86
1878.	583.4	584.3	585.1	586.0	586.8	587.7	588.6	589.4	590.3	591.1	0.86
1877.	574.8	575.7	576.5	577.4	578.2	579.1	580.0	580.8	581.7	582.5	0.86
1876.	566.3	567.1	568.0	568.8	569.7	570.5	571.4	572.2	573.1	573.9	0.85
1875.	557.8	558.6	559.5	560.3	561.2	562.0	562.9	563.7	564.6	565.4	0.85
1874.	549.3	550.1	551.0	551.8	552.7	553.5	554.4	555.2	556.1	556.9	0.85
1873.	540.9	541.7	542.6	543.4	544.3	545.1	545.9	546.8	547.6	548.5	0.84
1872.	532.4	533.2	534.1	534.9	535.8	536.6	537.5	538.3	539.2	540.0	0.85
1871.	524.0	524.8	525.7	526.5	527.4	528.2	529.0	529.9	530.7	531.6	0.84
1870.	515.7	516.5	517.4	518.2	519.0	519.8	520.7	521.5	522.3	523.2	0.83
1869.	507.3	508.1	509.0	509.8	510.7	511.5	512.3	513.2	514.0	514.9	0.84
1868.	499.0	499.8	500.7	501.5	502.3	503.1	504.0	504.8	505.6	506.5	0.83
1867.	490.7	491.5	492.4	493.2	494.0	494.8	495.7	496.5	497.3	498.2	0.83
1866.	482.4	483.2	484.1	484.9	485.7	486.5	487.4	488.2	489.0	489.9	0.83
1865.	474.2	475.0	475.8	476.7	477.5	478.3	479.1	479.9	480.8	481.6	0.82
1864.	466.0	466.8	467.6	468.5	469.3	470.1	470.9	471.7	472.6	473.4	0.82
1863.	457.8	458.6	459.4	460.3	461.1	461.9	462.7	463.5	464.4	465.2	0.82
1862.	449.7	450.5	451.3	452.1	452.9	453.7	454.6	455.4	456.2	457.0	0.81
1861.	441.6	442.4	443.2	444.0	444.8	445.6	446.5	447.3	448.1	448.9	0.81
1860.	433.5	434.3	435.1	435.9	436.7	437.5	438.4	439.2	440.0	440.8	0.81
1859.	425.4	426.2	427.0	427.8	428.6	429.4	430.3	431.1	431.9	432.7	0.81
1858.	417.4	418.2	419.0	419.8	420.6	421.4	422.2	423.0	423.8	424.6	0.80
1857.	409.4	410.2	411.0	411.8	412.6	413.4	414.2	415.0	415.8	416.6	0.80
1856.	401.4	402.2	403.0	403.8	404.6	405.4	406.2	407.0	407.8	408.6	0.80
1855.	393.5	394.3	395.1	395.9	396.7	397.4	398.2	399.0	399.8	400.6	0.79
1854.	385.6	386.4	387.2	388.0	388.8	389.5	390.3	391.1	391.9	392.7	0.79
1853.	377.7	378.5	379.3	380.1	380.9	381.6	382.4	383.2	384.0	384.8	0.79
1852.	369.9	370.7	371.5	372.2	373.0	373.8	374.6	375.4	376.1	376.9	0.78
1851.	362.1	362.9	363.7	364.4	365.2	366.0	366.8	367.6	368.3	369.1	0.78
1850.	354.3	355.1	355.9	356.6	357.4	358.2	359.0	359.8	360.5	361.3	0.78

Exhibit 9 – Duncan Reservoir Capacity Table (English)
ksfd

ELEVATION IN FEET											AVERAGE DIFFERENCE PER TENTH FT
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
1849.	346.6	347.4	348.1	348.9	349.7	350.4	351.2	352.0	352.8	353.5	0.77
1848.	338.9	339.7	340.4	341.2	342.0	342.7	343.5	344.3	345.1	345.8	0.77
1847.	331.2	332.0	332.7	333.5	334.3	335.0	335.8	336.6	337.4	338.1	0.77
1846.	323.6	324.4	325.1	325.9	326.6	327.4	328.2	328.9	329.7	330.4	0.76
1845.	316.0	316.8	317.5	318.3	319.0	319.8	320.6	321.3	322.1	322.8	0.76
1844.	308.5	309.2	310.0	310.7	311.5	312.2	313.0	313.7	314.5	315.2	0.75
1843.	300.9	301.7	302.4	303.2	303.9	304.7	305.5	306.2	307.0	307.7	0.76
1842.	293.5	294.2	295.0	295.7	296.5	297.2	297.9	298.7	299.4	300.2	0.74
1841.	286.0	286.7	287.5	288.2	289.0	289.7	290.5	291.2	292.0	292.7	0.75
1840.	278.6	279.3	280.1	280.8	281.6	282.3	283.0	283.8	284.5	285.3	0.74
1839.	271.2	271.9	272.7	273.4	274.2	274.9	275.6	276.4	277.1	277.9	0.74
1838.	263.9	264.6	265.4	266.1	266.8	267.5	268.3	269.0	269.7	270.5	0.73
1837.	256.6	257.3	258.1	258.8	259.5	260.2	261.0	261.7	262.4	263.2	0.73
1836.	249.4	250.1	250.8	251.6	252.3	253.0	253.7	254.4	255.2	255.9	0.72
1835.	242.2	242.9	243.6	244.4	245.1	245.8	246.5	247.2	248.0	248.7	0.72
1834.	235.0	235.7	236.4	237.2	237.9	238.6	239.3	240.0	240.8	241.5	0.72
1833.	227.9	228.6	229.3	230.0	230.7	231.4	232.2	232.9	233.6	234.3	0.71
1832.	220.8	221.5	222.2	222.9	223.6	224.3	225.1	225.8	226.5	227.2	0.71
1831.	213.8	214.5	215.2	215.9	216.6	217.3	218.0	218.7	219.4	220.1	0.70
1830.	206.8	207.5	208.2	208.9	209.6	210.3	211.0	211.7	212.4	213.1	0.70
1829.	199.9	200.6	201.3	202.0	202.7	203.3	204.0	204.7	205.4	206.1	0.69
1828.	193.0	193.7	194.4	195.1	195.8	196.4	197.1	197.8	198.5	199.2	0.69
1827.	186.1	186.8	187.5	188.2	188.9	189.5	190.2	190.9	191.6	192.3	0.69
1826.	179.3	180.0	180.7	181.3	182.0	182.7	183.4	184.1	184.7	185.4	0.68
1825.	172.6	173.3	173.9	174.6	175.3	175.9	176.6	177.3	178.0	178.6	0.67
1824.	165.9	166.6	167.2	167.9	168.6	169.2	169.9	170.6	171.3	171.9	0.67
1823.	159.2	159.9	160.5	161.2	161.9	162.5	163.2	163.9	164.6	165.2	0.67
1822.	152.6	153.3	153.9	154.6	155.2	155.9	156.6	157.2	157.9	158.5	0.66
1821.	146.1	146.7	147.4	148.0	148.7	149.3	150.0	150.6	151.3	151.9	0.65
1820.	139.6	140.2	140.9	141.5	142.2	142.8	143.5	144.1	144.8	145.4	0.65
1819.	133.2	133.8	134.5	135.1	135.8	136.4	137.0	137.7	138.3	139.0	0.64
1818.	126.8	127.4	128.1	128.7	129.4	130.0	130.6	131.3	131.9	132.6	0.64
1817.	120.5	121.1	121.8	122.4	123.0	123.6	124.3	124.9	125.5	126.2	0.63
1816.	114.3	114.9	115.5	116.2	116.8	117.4	118.0	118.6	119.3	119.9	0.62
1815.	108.1	108.7	109.3	110.0	110.6	111.2	111.8	112.4	113.1	113.7	0.62
1814.	102.0	102.6	103.2	103.8	104.4	105.0	105.7	106.3	106.9	107.5	0.61
1813.	96.0	96.6	97.2	97.8	98.4	99.0	99.6	100.2	100.8	101.4	0.60
1812.	90.0	90.6	91.2	91.8	92.4	93.0	93.6	94.2	94.8	95.4	0.60
1811.	84.1	84.7	85.3	85.9	86.5	87.0	87.6	88.2	88.8	89.4	0.59
1810.	78.3	78.9	79.5	80.0	80.6	81.2	81.8	82.4	82.9	83.5	0.58

Exhibit 9 – Duncan Reservoir Capacity Table (English)
ksfd

ELEVATION IN FEET	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	AVERAGE DIFFERENCE PER TENTH FT
1809.	72.5	73.1	73.7	74.2	74.8	75.4	76.0	76.6	77.1	77.7	0.58
1808.	66.9	67.5	68.0	68.6	69.1	69.7	70.3	70.8	71.4	71.9	0.56
1807.	61.3	61.9	62.4	63.0	63.5	64.1	64.7	65.2	65.8	66.3	0.56
1806.	55.8	56.3	56.9	57.4	58.0	58.5	59.1	59.6	60.2	60.7	0.55
1805.	50.4	50.9	51.5	52.0	52.6	53.1	53.6	54.2	54.7	55.3	0.54
1804.	45.1	45.6	46.2	46.7	47.2	47.7	48.3	48.8	49.3	49.9	0.53
1803.	39.9	40.4	40.9	41.5	42.0	42.5	43.0	43.5	44.1	44.6	0.52
1802.	34.8	35.3	35.8	36.3	36.8	37.3	37.9	38.4	38.9	39.4	0.51
1801.	29.8	30.3	30.8	31.3	31.8	32.3	32.8	33.3	33.8	34.3	0.50
1800.	25.0	25.5	26.0	26.4	26.9	27.4	27.9	28.4	28.8	29.3	0.48
1799.	20.3	20.8	21.2	21.7	22.2	22.6	23.1	23.6	24.1	24.5	0.47
1798.	15.7	16.2	16.6	17.1	17.5	18.0	18.5	18.9	19.4	19.8	0.46
1797.	11.3	11.7	12.2	12.6	13.1	13.5	13.9	14.4	14.8	15.3	0.44
1796.	7.1	7.5	7.9	8.4	8.8	9.2	9.6	10.0	10.5	10.9	0.42
1795.	3.0	3.4	3.8	4.2	4.6	5.0	5.5	5.9	6.3	6.7	0.41
1794.			0.0	0.4	0.8	1.1	1.5	1.9	2.3	2.6	0.37

Exhibit 9M – Duncan Reservoir Capacity Table (SI)

hm³

ELEVATION IN METERS												AVERAGE DIFFERENCE PER 3/100 M
	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27		
576.68	1726.8											2.18
576.38	1705.0	1707.2	1709.4	1711.6	1713.8	1715.8	1718.0	1720.2	1722.4	1724.6		
576.07	1683.3	1685.5	1687.7	1689.9	1692.1	1694.0	1696.2	1698.4	1700.6	1702.8		
575.77	1661.7	1663.9	1666.1	1668.1	1670.3	1672.5	1674.7	1676.9	1678.9	1681.1		2.15
575.46	1640.2	1642.4	1644.6	1646.6	1648.8	1651.0	1653.2	1655.4	1657.3	1659.5		
575.16	1618.4	1620.6	1622.8	1625.0	1627.2	1629.2	1631.4	1633.6	1635.8	1638.0		2.18
574.85	1597.1	1599.3	1601.3	1603.5	1605.7	1607.7	1609.9	1612.1	1614.3	1616.2		2.13
574.55	1575.6	1577.8	1580.0	1582.0	1584.2	1586.4	1588.6	1590.8	1592.7	1594.9		2.15
574.24	1554.3	1556.5	1558.5	1560.7	1562.9	1564.8	1567.0	1569.2	1571.5	1573.4		2.13
573.94	1533.0	1535.2	1537.2	1539.4	1541.6	1543.6	1545.8	1548.0	1550.2	1552.1		2.13
573.63	1511.8	1514.0	1515.9	1518.1	1520.3	1522.3	1524.5	1526.7	1528.9	1530.8		2.13
573.33	1490.5	1492.7	1494.6	1496.8	1499.0	1501.0	1503.2	1505.4	1507.6	1509.6		2.13
573.03	1469.4	1471.6	1473.6	1475.8	1477.7	1479.9	1482.2	1484.1	1486.3	1488.3		2.10
572.72	1448.4	1450.6	1452.5	1454.7	1456.7	1458.9	1461.1	1463.1	1465.3	1467.2		2.10
572.42	1427.3	1429.5	1431.5	1433.7	1435.7	1437.9	1440.1	1442.0	1444.2	1446.2		
572.11	1406.3	1408.5	1410.5	1412.7	1414.6	1416.8	1419.0	1421.0	1423.2	1425.1		2.10
571.81	1385.5	1387.5	1389.7	1391.6	1393.8	1395.8	1398.0	1399.9	1402.1	1404.1		2.08
571.50	1364.7	1366.7	1368.9	1370.8	1373.0	1375.0	1377.2	1379.1	1381.4	1383.3		2.08
571.20	1343.9	1345.9	1348.1	1350.0	1352.2	1354.2	1356.4	1358.4	1360.6	1362.5		2.08
570.89	1323.4	1325.3	1327.5	1329.5	1331.7	1333.6	1335.6	1337.8	1339.8	1342.0		2.06
570.59	1302.6	1304.5	1306.7	1308.7	1310.9	1312.8	1315.0	1317.0	1319.2	1321.2		2.08
570.28	1282.0	1284.0	1286.2	1288.1	1290.3	1292.3	1294.3	1296.5	1298.4	1300.6		2.06
569.98	1261.7	1263.7	1265.9	1267.8	1269.8	1271.7	1273.9	1275.9	1277.9	1280.1		2.03
569.67	1241.2	1243.1	1245.3	1247.3	1249.5	1251.4	1253.4	1255.6	1257.6	1259.8		2.06
569.37	1220.9	1222.8	1225.0	1227.0	1228.9	1230.9	1233.1	1235.0	1237.0	1239.2		2.03
569.06	1200.5	1202.5	1204.7	1206.7	1208.6	1210.6	1212.8	1214.7	1216.7	1218.9		2.03
568.76	1180.2	1182.2	1184.4	1186.4	1188.3	1190.3	1192.5	1194.4	1196.4	1198.6		2.03
568.45	1160.2	1162.1	1164.1	1166.3	1168.3	1170.2	1172.2	1174.1	1176.3	1178.3		2.01
568.15	1140.1	1142.1	1144.0	1146.2	1148.2	1150.1	1152.1	1154.1	1156.3	1158.2		2.01
567.84	1120.1	1122.0	1124.0	1126.2	1128.1	1130.1	1132.0	1134.0	1136.2	1138.2		
567.54	1100.2	1102.2	1104.2	1106.1	1108.1	1110.0	1112.2	1114.2	1116.1	1118.1		1.98
567.23	1080.4	1082.4	1084.3	1086.3	1088.2	1090.2	1092.4	1094.4	1096.3	1098.3		1.98
566.93	1060.6	1062.6	1064.5	1066.5	1068.4	1070.4	1072.6	1074.5	1076.5	1078.5		1.98
566.62	1040.8	1042.7	1044.7	1046.7	1048.6	1050.6	1052.8	1054.7	1056.7	1058.6		1.98
566.32	1021.2	1023.2	1025.1	1027.1	1029.0	1031.0	1033.0	1034.9	1036.9	1038.8		1.96
566.01	1001.6	1003.6	1005.6	1007.5	1009.5	1011.4	1013.4	1015.3	1017.3	1019.3		1.96
565.71	982.1	984.0	986.0	987.9	989.9	991.9	993.8	995.8	997.7	999.7		1.96
565.41	962.7	964.7	966.7	968.6	970.6	972.3	974.2	976.2	978.2	980.1		1.93
565.10	943.4	945.4	947.3	949.3	951.2	953.0	954.9	956.9	958.8	960.8		1.93
564.80	924.1	926.0	928.0	930.0	931.9	933.6	935.6	937.5	939.5	941.5		1.93
564.49	905.0	907.0	908.9	910.6	912.6	914.5	916.5	918.5	920.2	922.1		1.91
564.19	885.9	887.9	889.8	891.5	893.5	895.5	897.4	899.4	901.1	903.0		1.91
563.88	866.8	868.8	870.7	872.5	874.4	876.4	878.3	880.3	882.0	884.0		1.91

Exhibit 9M – Duncan Reservoir Capacity Table (SI)
hm³

ELEVATION IN METERS											AVERAGE DIFFERENCE PER 3/100 M
	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27	
563.58	848.0	849.9	851.7	853.6	855.6	857.3	859.2	861.2	863.2	864.9	1.88
563.27	829.2	831.1	832.8	834.8	836.7	838.4	840.4	842.4	844.3	846.0	1.88
562.97	810.3	812.3	814.0	815.9	817.9	819.6	821.6	823.5	825.5	827.2	1.88
562.66	791.7	793.7	795.4	797.3	799.1	801.0	803.0	804.7	806.6	808.4	1.86
562.36	773.1	775.1	776.8	778.8	780.5	782.4	784.4	786.1	788.0	789.8	1.86
562.05	754.8	756.5	758.4	760.2	762.1	763.8	765.8	767.5	769.5	771.2	1.83
561.75	736.2	738.1	739.9	741.8	743.5	745.5	747.4	749.1	751.1	752.8	1.86
561.44	718.1	719.8	721.7	723.5	725.4	727.1	728.8	730.8	732.5	734.5	1.81
561.14	699.7	701.4	703.4	705.1	707.1	708.8	710.7	712.4	714.4	716.1	1.83
560.83	681.6	683.3	685.3	687.0	689.0	690.7	692.4	694.3	696.1	698.0	1.81
560.53	663.5	665.2	667.2	668.9	670.9	672.6	674.3	676.2	678.0	679.9	1.81
560.22	645.7	647.4	649.3	651.0	652.8	654.5	656.4	658.1	659.8	661.8	1.79
559.92	627.8	629.5	631.5	633.2	634.9	636.6	638.6	640.3	642.0	643.9	1.79
559.61	610.2	611.9	613.6	615.6	617.3	619.0	620.7	622.4	624.4	626.1	1.76
559.31	592.6	594.3	596.0	597.9	599.7	601.4	603.1	604.8	606.8	608.5	1.76
559.00	575.0	576.7	578.4	580.3	582.0	583.8	585.5	587.2	589.1	590.9	1.76
558.70	557.6	559.3	561.0	562.7	564.4	566.1	568.1	569.8	571.5	573.2	1.74
558.39	540.2	541.9	543.6	545.3	547.1	548.8	550.7	552.4	554.2	555.9	1.74
558.09	523.1	524.8	526.5	528.2	529.9	531.6	533.4	535.1	536.8	538.5	1.71
557.79	506.0	507.7	509.4	511.1	512.8	514.5	516.2	517.9	519.7	521.4	1.71
557.48	489.1	490.8	492.5	494.2	495.9	497.4	499.1	500.8	502.5	504.2	1.69
557.18	472.2	473.9	475.6	477.3	479.0	480.5	482.2	483.9	485.7	487.4	1.69
556.87	455.3	457.0	458.7	460.5	462.2	463.6	465.3	467.1	468.8	470.5	1.69
556.57	438.7	440.4	442.1	443.6	445.3	447.0	448.7	450.4	451.9	453.6	1.66
556.26	422.3	424.0	425.5	427.2	428.9	430.4	432.1	433.8	435.5	437.0	1.64
555.96	405.9	407.6	409.1	410.8	412.5	414.0	415.7	417.4	419.1	420.6	1.64
555.65	389.5	391.2	392.7	394.4	396.1	397.6	399.3	401.0	402.7	404.2	1.64
555.35	373.4	375.1	376.5	378.2	379.7	381.4	383.1	384.6	386.3	387.8	1.61
555.04	357.4	358.9	360.6	362.1	363.8	365.3	367.0	368.5	370.2	371.6	1.59
554.74	341.5	343.0	344.7	346.2	347.9	349.4	351.1	352.6	354.3	355.7	1.59
554.43	325.9	327.4	329.1	330.5	332.2	333.7	335.2	336.9	338.4	340.1	1.57
554.13	310.2	311.7	313.4	314.9	316.6	318.1	319.5	321.2	322.7	324.4	1.57
553.82	294.8	296.3	298.0	299.5	300.9	302.4	304.1	305.6	307.0	308.8	1.54
553.52	279.6	281.1	282.6	284.3	285.8	287.2	288.7	290.2	291.9	293.3	1.52
553.21	264.5	265.9	267.4	269.1	270.6	272.1	273.5	275.0	276.7	278.2	1.52
552.91	249.6	251.0	252.5	254.0	255.4	256.9	258.6	260.1	261.5	263.0	1.49
552.60	234.9	236.3	237.8	239.3	240.7	242.2	243.7	245.1	246.6	248.1	1.47
552.30	220.2	221.7	223.1	224.6	226.1	227.5	229.0	230.5	231.9	233.4	1.47
551.99	205.8	207.2	208.7	210.2	211.6	212.9	214.3	215.8	217.3	218.7	1.44
551.69	191.6	193.0	194.5	195.7	197.2	198.7	200.1	201.6	202.8	204.3	1.42

Exhibit 9M – Duncan Reservoir Capacity Table (SI)

hm³

ELEVATION IN METERS											AVERAGE DIFFERENCE PER 3/100 M
	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27	
551.38	177.4	178.8	180.3	181.5	183.0	184.5	185.9	187.4	188.6	190.1	1.42
551.08	163.7	165.1	166.4	167.8	169.1	170.5	172.0	173.2	174.7	175.9	1.37
550.77	150.0	151.4	152.7	154.1	155.4	156.8	158.3	159.5	161.0	162.2	1.37
550.47	136.5	137.7	139.2	140.4	141.9	143.1	144.6	145.8	147.3	148.5	1.35
550.17	123.3	124.5	126.0	127.2	128.7	129.9	131.1	132.6	133.8	135.3	1.32
	110.3	111.6	113.0	114.3	115.5	116.7	118.2	119.4	120.6	122.1	1.30
549.56	97.6	98.8	100.1	101.5	102.8	104.0	105.2	106.4	107.9	109.1	1.27
549.25	85.1	86.4	87.6	88.8	90.0	91.3	92.7	93.9	95.2	96.4	1.25
548.95	72.9	74.1	75.4	76.6	77.8	79.0	80.2	81.5	82.7	83.9	1.22
548.64	61.2	62.4	63.6	64.6	65.8	67.0	68.3	69.5	70.5	71.7	1.17
548.34	49.7	50.9	51.9	53.1	54.3	55.3	56.5	57.7	59.0	59.9	1.15
548.03	38.4	39.6	40.6	41.8	42.8	44.0	45.3	46.2	47.5	48.4	1.13
547.73	27.6	28.6	29.8	30.8	32.1	33.0	34.0	35.2	36.2	37.4	1.08
547.42	17.4	18.3	19.3	20.6	21.5	22.5	23.5	24.5	25.7	26.7	1.03
547.42	17.4	18.3	19.3	20.6	21.5	22.5	23.5	24.5	25.7	26.7	1.03
546.81			0.0	1.0	2.0	2.7	3.7	4.6	5.6	6.4	0.91

Exhibit 10 – Arrow Reservoir Capacity Table (English)
ksfd

ELEVATION IN FEET											AVERAGE DIFFERENCE PER TENTH FT
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
1444.	3579.6										
1443.	3514.1	3520.6	3527.2	3533.7	3540.3	3546.8	3553.4	3559.9	3566.5	3573.0	6.55
1442.	3448.9	3455.4	3461.9	3468.5	3475.0	3481.5	3488.0	3494.5	3501.1	3507.6	6.52
1441.	3384.0	3390.5	3397.0	3403.5	3410.0	3416.4	3422.9	3429.4	3435.9	3442.4	6.49
1440.	3319.5	3325.9	3332.4	3338.8	3345.3	3351.7	3358.2	3364.6	3371.1	3377.5	6.45
1439.	3255.2	3261.6	3268.1	3274.5	3280.9	3287.3	3293.8	3300.2	3306.6	3313.1	6.43
1438.	3191.4	3197.8	3204.2	3210.5	3216.9	3223.3	3229.7	3236.1	3242.4	3248.8	6.38
1437.	3127.8	3134.2	3140.5	3146.9	3153.2	3159.6	3166.0	3172.3	3178.7	3185.0	6.36
1436.	3064.6	3070.9	3077.2	3083.6	3089.9	3096.2	3102.5	3108.8	3115.2	3121.5	6.32
1435.	3001.7	3008.0	3014.3	3020.6	3026.9	3033.1	3039.4	3045.7	3052.0	3058.3	6.29
1434.	2939.2	2945.4	2951.7	2957.9	2964.2	2970.4	2976.7	2982.9	2989.2	2995.4	6.25
1433.	2877.0	2883.2	2889.4	2895.7	2901.9	2908.1	2914.3	2920.5	2926.8	2933.0	6.22
1432.	2815.1	2821.3	2827.5	2833.7	2839.9	2846.0	2852.2	2858.4	2864.6	2870.8	6.19
1431.	2753.5	2759.7	2765.8	2772.0	2778.1	2784.3	2790.5	2796.6	2802.8	2808.9	6.16
1430.	2692.3	2698.4	2704.5	2710.7	2716.8	2722.9	2729.0	2735.1	2741.3	2747.4	6.12
1429.	2631.5	2637.6	2643.7	2649.7	2655.8	2661.9	2668.0	2674.1	2680.1	2686.2	6.08
1428.	2570.9	2577.0	2583.0	2589.1	2595.1	2601.2	2607.3	2613.3	2619.4	2625.4	6.06
1427.	2510.7	2516.7	2522.7	2528.8	2534.8	2540.8	2546.8	2552.8	2558.9	2564.9	6.02
1426.	2450.8	2456.8	2462.8	2468.8	2474.8	2480.7	2486.7	2492.7	2498.7	2504.7	5.99
1425.	2391.2	2397.2	2403.1	2409.1	2415.0	2421.0	2427.0	2432.9	2438.9	2444.8	5.96
1424.	2331.9	2337.8	2343.8	2349.7	2355.6	2361.5	2367.5	2373.4	2379.3	2385.3	5.93
1423.	2272.8	2278.7	2284.6	2290.5	2296.4	2302.3	2308.3	2314.2	2320.1	2326.0	5.91
1422.	2214.1	2220.0	2225.8	2231.7	2237.6	2243.4	2249.3	2255.2	2261.1	2266.9	5.87
1421.	2155.7	2161.5	2167.4	2173.2	2179.1	2184.9	2190.7	2196.6	2202.4	2208.3	5.84
1420.	2097.7	2103.5	2109.3	2115.1	2120.9	2126.7	2132.5	2138.3	2144.1	2149.9	5.80
1419.	2040.1	2045.9	2051.6	2057.4	2063.1	2068.9	2074.7	2080.4	2086.2	2091.9	5.76
1418.	1982.9	1988.6	1994.3	2000.1	2005.8	2011.5	2017.2	2022.9	2028.7	2034.4	5.72
1417.	1926.1	1931.8	1937.5	1943.1	1948.8	1954.5	1960.2	1965.9	1971.5	1977.2	5.68
1416.	1869.6	1875.2	1880.9	1886.5	1892.2	1897.8	1903.5	1909.1	1914.8	1920.4	5.65
1415.	1813.5	1819.1	1824.7	1830.3	1835.9	1841.5	1847.2	1852.8	1858.4	1864.0	5.61
1414.	1757.8	1763.4	1768.9	1774.5	1780.1	1785.6	1791.2	1796.8	1802.4	1807.9	5.57
1413.	1702.4	1707.9	1713.5	1719.0	1724.6	1730.1	1735.6	1741.2	1746.7	1752.3	5.54
1412.	1647.4	1652.9	1658.4	1663.9	1669.4	1674.9	1680.4	1685.9	1691.4	1696.9	5.50
1411.	1592.7	1598.2	1603.6	1609.1	1614.6	1620.0	1625.5	1631.0	1636.5	1641.9	5.47
1410.	1538.4	1543.8	1549.3	1554.7	1560.1	1565.5	1571.0	1576.4	1581.8	1587.3	5.43
1409.	1484.5	1489.9	1495.3	1500.7	1506.1	1511.4	1516.8	1522.2	1527.6	1533.0	5.39
1408.	1430.9	1436.3	1441.6	1447.0	1452.3	1457.7	1463.1	1468.4	1473.8	1479.1	5.36
1407.	1377.7	1383.0	1388.3	1393.7	1399.0	1404.3	1409.6	1414.9	1420.3	1425.6	5.32
1406.	1324.7	1330.0	1335.3	1340.6	1345.9	1351.2	1356.5	1361.8	1367.1	1372.4	5.30
1405.	1272.1	1277.4	1282.6	1287.9	1293.1	1298.4	1303.7	1308.9	1314.2	1319.4	5.26

Exhibit 10 – Arrow Reservoir Capacity Table (English)
 ksfd

ELEVATION IN FEET											AVERAGE DIFFERENCE PER TENTH FT
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
1404.	1219.5	1224.8	1230.0	1235.3	1240.5	1245.8	1251.1	1256.3	1261.6	1266.8	5.26
1403.	1167.3	1172.5	1177.7	1183.0	1188.2	1193.4	1198.6	1203.8	1209.1	1214.3	5.22
1402.	1115.4	1120.6	1125.8	1131.0	1136.2	1141.3	1146.5	1151.7	1156.9	1162.1	5.19
1401.	1063.9	1069.0	1074.2	1079.3	1084.5	1089.6	1094.8	1099.9	1105.1	1110.2	5.15
1400.	1012.8	1017.9	1023.0	1028.1	1033.2	1038.3	1043.5	1048.6	1053.7	1058.8	5.11
1399.	962.5	967.5	972.6	977.6	982.6	987.6	992.7	997.7	1002.7	1007.8	5.03
1398.	912.7	917.7	922.7	927.6	932.6	937.6	942.6	947.6	952.5	957.5	4.98
1397.	863.2	868.1	873.1	878.0	883.0	887.9	892.9	897.8	902.8	907.7	4.95
1396.	814.1	819.0	823.9	828.8	833.7	838.6	843.6	848.5	853.4	858.3	4.91
1395	765.2	770.1	775.0	779.9	784.8	789.6	794.5	799.4	804.3	809.2	4.89
1394.	716.2	721.1	726.0	730.9	735.8	740.7	745.6	750.5	755.4	760.3	4.90
1393.	667.5	672.4	677.2	682.1	687.0	691.8	696.7	701.6	706.5	711.3	4.87
1392.	619.3	624.1	628.9	633.8	638.6	643.4	648.2	653.0	657.9	662.7	4.82
1391.	571.5	576.3	581.1	585.8	590.6	595.4	600.2	605.0	609.7	614.5	4.78
1390.	524.2	528.9	533.7	538.4	543.1	547.8	552.6	557.3	562.0	566.8	4.73
1389.	477.9	482.5	487.2	491.8	496.4	501.0	505.7	510.3	514.9	519.6	4.63
1388.	432.3	436.9	441.4	446.0	450.5	455.1	459.7	464.2	468.8	473.3	4.56
1387.	387.2	391.7	396.2	400.7	405.2	409.7	414.3	418.8	423.3	427.8	4.51
1386.	342.6	347.1	351.5	356.0	360.4	364.9	369.4	373.8	378.3	382.7	4.46
1385.	298.5	302.9	307.3	311.7	316.1	320.5	325.0	329.4	333.8	338.2	4.41
1384.	254.6	259.0	263.4	267.8	272.2	276.5	280.9	285.3	289.7	294.1	4.39
1383.	211.2	215.5	219.9	224.2	228.6	232.9	237.2	241.6	245.9	250.3	4.34
1382.	168.4	172.7	177.0	181.2	185.5	189.8	194.1	198.4	202.6	206.9	4.28
1381.	126.1	130.3	134.6	138.8	143.0	147.2	151.5	155.7	159.9	164.2	4.23
1380.	84.3	88.5	92.7	96.8	101.0	105.2	109.4	113.6	117.7	121.9	4.18
1379.	43.2	47.3	51.4	55.5	59.6	63.7	67.9	72.0	76.1	80.2	4.11
1378.	2.7	6.7	10.8	14.8	18.9	22.9	27.0	31.0	35.1	39.1	4.05
1377.									0.0	2.70	

Exhibit 10M – Arrow Reservoir Capacity Table (SI)
hm³

ELEVATION IN METERS												AVERAGE DIFFERENCE PER 3/100 M
	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27		
440.13	8757.8											16.03
439.83	8597.6	8613.5	8629.6	8645.6	8661.7	8677.6	8693.7	8709.7	8725.8	8741.7		
439.52	8438.1	8454.0	8469.9	8486.0	8501.9	8517.8	8533.7	8549.6	8565.8	8581.7		15.95
439.22	8279.3	8295.2	8311.1	8327.0	8342.9	8358.6	8374.5	8390.4	8406.3	8422.2		15.88
438.91	8121.5	8137.1	8153.0	8168.7	8184.6	8200.3	8216.2	8231.8	8247.7	8263.4		15.78
438.61	7964.2	7979.8	7995.7	8011.4	8027.0	8042.7	8058.6	8074.3	8089.9	8105.8		15.73
438.30	7808.1	7823.7	7839.4	7854.8	7870.5	7886.1	7901.8	7917.4	7932.9	7948.5		15.61
438.00	7652.5	7668.1	7683.5	7699.2	7714.6	7730.3	7745.9	7761.3	7777.0	7792.4		15.56
437.69	7497.9	7513.3	7528.7	7544.3	7559.7	7575.2	7590.6	7606.0	7621.6	7637.1		15.46
437.39	7344.0	7359.4	7374.8	7390.2	7405.6	7420.8	7436.2	7451.6	7467.0	7482.4		15.39
437.08	7191.0	7206.2	7221.6	7236.8	7252.2	7267.4	7282.8	7298.0	7313.4	7328.5		15.29
436.78	7038.9	7054.0	7069.2	7084.6	7099.8	7115.0	7130.1	7145.3	7160.7	7175.9		15.22
436.47	6887.4	6902.6	6917.8	6932.9	6948.1	6963.0	6978.2	6993.4	7008.5	7023.7		15.14
436.17	6736.7	6751.9	6766.8	6782.0	6796.9	6812.1	6827.2	6842.2	6857.3	6872.3		15.07
435.86	6587.0	6601.9	6616.8	6632.0	6646.9	6661.8	6676.8	6691.7	6706.9	6721.8		14.97
435.56	6438.2	6453.2	6468.1	6482.8	6497.7	6512.6	6527.5	6542.5	6557.1	6572.1		14.88
435.26	6290.0	6304.9	6319.6	6334.5	6349.2	6364.1	6379.0	6393.7	6408.6	6423.3		14.83
434.95	6142.7	6157.4	6172.0	6187.0	6201.6	6216.3	6231.0	6245.7	6260.6	6275.3		14.73
434.65	5996.1	6010.8	6025.5	6040.2	6054.8	6069.3	6084.0	6098.6	6113.3	6128.0		14.66
434.34	5850.3	5865.0	5879.4	5894.1	5908.5	5923.2	5937.9	5952.3	5967.0	5981.4		14.58
434.04	5705.2	5719.7	5734.3	5748.8	5763.2	5777.6	5792.3	5806.8	5821.2	5835.9		14.51
433.73	5560.6	5575.1	5589.5	5603.9	5618.4	5632.8	5647.5	5661.9	5676.4	5690.8		14.46
433.43	5417.0	5431.5	5445.6	5460.1	5474.5	5488.7	5503.1	5517.6	5532.0	5546.2		14.36
433.12	5274.1	5288.3	5302.8	5317.0	5331.4	5345.6	5359.8	5374.2	5388.4	5402.8		14.29
432.82	5132.2	5146.4	5160.6	5174.8	5189.0	5203.2	5217.4	5231.6	5245.8	5259.9		14.19
432.51	4991.3	5005.5	5019.4	5033.6	5047.6	5061.8	5076.0	5089.9	5104.1	5118.0		14.09
432.21	4851.4	4865.3	4879.3	4893.4	4907.4	4921.3	4935.3	4949.2	4963.4	4977.4		13.99
431.90	4712.4	4726.3	4740.3	4754.0	4767.9	4781.9	4795.8	4809.8	4823.5	4837.4		13.90
431.60	4574.2	4587.9	4601.8	4615.5	4629.5	4643.2	4657.1	4670.8	4684.7	4698.5		13.82
431.29	4436.9	4450.6	4464.3	4478.0	4491.7	4505.4	4519.4	4533.1	4546.8	4560.5		13.73
430.99	4300.6	4314.3	4327.8	4341.5	4355.2	4368.6	4382.3	4396.1	4409.8	4423.2		13.63
430.68	4165.1	4178.5	4192.2	4205.7	4219.4	4232.9	4246.3	4260.0	4273.5	4287.2		13.55
430.38	4030.5	4044.0	4057.4	4070.9	4084.4	4097.8	4111.3	4124.7	4138.2	4151.6		13.46
430.07	3896.7	3910.2	3923.4	3936.8	3950.3	3963.5	3976.9	3990.4	4003.9	4017.1		13.38
429.77	3763.8	3777.1	3790.5	3803.7	3816.9	3830.2	3843.6	3856.8	3870.0	3883.5		13.29
429.46	3632.0	3645.2	3658.4	3671.6	3684.8	3697.8	3711.0	3724.2	3737.4	3750.6		13.19
429.16	3500.8	3514.1	3527.0	3540.2	3553.2	3566.4	3579.6	3592.6	3605.8	3618.8		13.11
428.85	3370.7	3383.6	3396.6	3409.8	3422.8	3435.8	3448.7	3461.7	3474.9	3487.9		13.02
428.55	3241.0	3254.0	3266.9	3279.9	3292.9	3305.8	3318.8	3331.8	3344.7	3357.7		12.97
428.24	3112.3	3125.3	3138.0	3151.0	3163.7	3176.7	3189.6	3202.4	3215.3	3228.0		12.87

Exhibit 10M – Arrow Reservoir Capacity Table (SI)
hm³

ELEVATION IN METERS											AVERAGE DIFFERENCE PER 3/100 M
	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27	
427.94	2983.6	2996.6	3009.3	3022.3	3035.0	3048.0	3060.9	3073.7	3086.6	3099.4	12.87
427.64	2855.9	2868.6	2881.4	2894.3	2907.1	2919.8	2932.5	2945.2	2958.2	2970.9	12.77
427.33	2728.9	2741.7	2754.4	2767.1	2779.8	2792.3	2805.0	2817.7	2830.5	2843.2	12.70
427.03	2602.9	2615.4	2628.1	2640.6	2653.3	2665.8	2678.5	2691.0	2703.7	2716.2	12.60
426.72	2477.9	2490.4	2502.9	2515.3	2527.8	2540.3	2553.0	2565.5	2578.0	2590.5	12.50
426.42	2354.9	2367.1	2379.6	2391.8	2404.0	2416.3	2428.7	2441.0	2453.2	2465.7	12.31
426.11	2233.0	2245.2	2257.5	2269.5	2281.7	2293.9	2306.2	2318.4	2330.4	2342.6	12.18
425.81	2111.9	2123.9	2136.1	2148.1	2160.3	2172.3	2184.6	2196.6	2208.8	2220.8	12.11
425.50	1991.8	2003.8	2015.8	2027.7	2039.7	2051.7	2064.0	2075.9	2087.9	2099.9	12.01
425.20	1872.1	1884.1	1896.1	1908.1	1920.1	1931.8	1943.8	1955.8	1967.8	1979.8	11.96
424.89	1752.3	1764.2	1776.2	1788.2	1800.2	1812.2	1824.2	1836.2	1848.2	1860.1	11.99
424.59	1633.1	1645.1	1656.8	1668.8	1680.8	1692.6	1704.5	1716.5	1728.5	1740.3	11.91
424.28	1515.2	1526.9	1538.7	1550.7	1562.4	1574.1	1585.9	1597.6	1609.6	1621.4	11.79
423.98	1398.2	1410.0	1421.7	1433.2	1445.0	1456.7	1468.4	1480.2	1491.7	1503.4	11.69
423.67	1282.5	1294.0	1305.8	1317.2	1328.7	1340.2	1352.0	1363.5	1375.0	1386.7	11.57
423.37	1169.2	1180.5	1192.0	1203.2	1214.5	1225.7	1237.2	1248.5	1259.8	1271.3	11.33
423.06	1057.7	1068.9	1079.9	1091.2	1102.2	1113.4	1124.7	1135.7	1147.0	1158.0	11.16
422.76	947.3	958.3	969.3	980.4	991.4	1002.4	1013.6	1024.6	1035.6	1046.7	11.03
422.45	838.2	849.2	860.0	871.0	881.8	892.8	903.8	914.5	925.5	936.3	10.91
422.15	730.3	741.1	751.8	762.6	773.4	784.1	795.1	805.9	816.7	827.4	10.79
421.84	622.9	633.7	644.4	655.2	666.0	676.5	687.2	698.0	708.8	719.5	10.74
421.54	516.7	527.2	538.0	548.5	559.3	569.8	580.3	591.1	601.6	612.4	10.62
421.23	412.0	422.5	433.0	443.3	453.8	464.4	474.9	485.4	495.7	506.2	10.47
420.93	308.5	318.8	329.3	339.6	349.9	360.1	370.7	380.9	391.2	401.7	10.35
420.62	206.2	216.5	226.8	236.8	247.1	257.4	267.7	277.9	288.0	298.2	10.23
420.32	105.7	115.7	125.8	135.8	145.8	155.8	166.1	176.2	186.2	196.2	10.06
420.02	6.6	16.4	26.4	36.2	46.2	56.0	66.1	75.8	85.9	95.7	9.91
419.71										0.0	6.61

Exhibit 11 – Mica Reservoir Capacity Table (English)
ksfd

ELEVATION IN FEET											AVERAGE DIFFERENCE PER TENTH FT
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
2475.	10121.1										5.38
2474.	10067.5	10072.9	10078.2	10083.6	10088.9	10094.3	10099.7	10105.0	10110.4	10115.7	5.36
2473.	10014.1	10019.4	10024.8	10030.1	10035.5	10040.8	10046.1	10051.5	10056.8	10062.2	5.34
2472.	9960.8	9966.1	9971.5	9976.8	9982.1	9987.4	9992.8	9998.1	10003.4	10008.8	5.33
2471.	9907.8	9913.1	9918.4	9923.7	9929.0	9934.3	9939.6	9944.9	9950.2	9955.5	5.30
2470.	9854.8	9860.1	9865.4	9870.7	9876.0	9881.3	9886.6	9891.9	9897.2	9902.5	5.30
2469.	9802.1	9807.4	9812.6	9817.9	9823.2	9828.5	9833.7	9839.0	9844.3	9849.5	5.27
2468.	9749.5	9754.8	9760.0	9765.3	9770.5	9775.8	9781.1	9786.3	9791.6	9796.8	5.26
2467.	9697.1	9702.3	9707.6	9712.8	9718.1	9723.3	9728.5	9733.8	9739.0	9744.3	5.24
2466.	9644.8	9650.0	9655.3	9660.5	9665.7	9671.0	9676.2	9681.4	9686.6	9691.9	5.23
2465.	9592.7	9597.9	9603.1	9608.3	9613.5	9618.8	9624.0	9629.2	9634.4	9639.6	5.21
2464.	9540.8	9546.0	9551.2	9556.4	9561.6	9566.8	9571.9	9577.1	9582.3	9587.5	5.19
2463.	9489.0	9494.2	9499.4	9504.5	9509.7	9514.9	9520.1	9525.3	9530.4	9535.6	5.18
2462.	9437.4	9442.6	9447.7	9452.9	9458.0	9463.2	9468.4	9473.5	9478.7	9483.8	5.16
2461.	9386.0	9391.1	9396.3	9401.4	9406.6	9411.7	9416.8	9422.0	9427.1	9432.3	5.14
2460.	9334.8	9339.9	9345.0	9350.2	9355.3	9360.4	9365.5	9370.6	9375.8	9380.9	5.12
2459.	9283.7	9288.8	9293.9	9299.0	9304.1	9309.3	9314.4	9319.5	9324.6	9329.7	5.11
2458.	9232.8	9237.9	9243.0	9248.1	9253.2	9258.3	9263.3	9268.4	9273.5	9278.6	5.09
2457.	9182.0	9187.1	9192.2	9197.2	9202.3	9207.4	9212.5	9217.6	9222.6	9227.7	5.08
2456.	9131.4	9136.5	9141.5	9146.6	9151.6	9156.7	9161.8	9166.8	9171.9	9176.9	5.06
2455.	9081.0	9086.0	9091.1	9096.1	9101.2	9106.2	9111.2	9116.3	9121.3	9126.4	5.04
2454.	9030.8	9035.8	9040.8	9045.9	9050.9	9055.9	9060.9	9065.9	9071.0	9076.0	5.02
2453.	8980.7	8985.7	8990.7	8995.7	9000.7	9005.8	9010.8	9015.8	9020.8	9025.8	5.01
2452.	8930.8	8935.8	8940.8	8945.8	8950.8	8955.8	8960.7	8965.7	8970.7	8975.7	4.99
2451.	8881.0	8886.0	8891.0	8895.9	8900.9	8905.9	8910.9	8915.9	8920.8	8925.8	4.98
2450.	8831.4	8836.4	8841.3	8846.3	8851.2	8856.2	8861.2	8866.1	8871.1	8876.0	4.96
2449.	8782.0	8786.9	8791.9	8796.8	8801.8	8806.7	8811.6	8816.6	8821.5	8826.5	4.94
2448.	8732.8	8737.7	8742.6	8747.6	8752.5	8757.4	8762.3	8767.2	8772.2	8777.1	4.92
2447.	8683.7	8688.6	8693.5	8698.4	8703.3	8708.3	8713.2	8718.1	8723.0	8727.9	4.91
2446.	8634.8	8639.7	8644.6	8649.5	8654.4	8659.3	8664.1	8669.0	8673.9	8678.8	4.89
2445.	8586.0	8590.9	8595.8	8600.6	8605.5	8610.4	8615.3	8620.2	8625.0	8629.9	4.88
2444.	8537.5	8542.4	8547.2	8552.1	8556.9	8561.8	8566.6	8571.5	8576.3	8581.2	4.85
2443.	8489.1	8493.9	8498.8	8503.6	8508.5	8513.3	8518.1	8523.0	8527.8	8532.7	4.84
2442.	8440.8	8445.6	8450.5	8455.3	8460.1	8465.0	8469.8	8474.6	8479.4	8484.3	4.83
2441.	8392.7	8397.5	8402.3	8407.1	8411.9	8416.8	8421.6	8426.4	8431.2	8436.0	4.81
2440.	8344.8	8349.6	8354.4	8359.2	8364.0	8368.8	8373.5	8378.3	8383.1	8387.9	4.79
2439.	8297.1	8301.9	8306.6	8311.4	8316.2	8321.0	8325.7	8330.5	8335.3	8340.0	4.77
2438.	8249.5	8254.3	8259.0	8263.8	8268.5	8273.3	8278.1	8282.8	8287.6	8292.3	4.76
2437.	8202.1	8206.8	8211.6	8216.3	8221.1	8225.8	8230.5	8235.3	8240.0	8244.8	4.74
2436.	8154.8	8159.5	8164.3	8169.0	8173.7	8178.5	8183.2	8187.9	8192.6	8197.4	4.73
2435.	8107.8	8112.5	8117.2	8121.9	8126.6	8131.3	8136.0	8140.7	8145.4	8150.1	4.70

Exhibit 11 – Mica Reservoir Capacity Table (English)
ksfd

ELEVATION IN FEET											AVERAGE DIFFERENCE PER TENTH FT
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
2434.	8060.9	8065.6	8070.3	8075.0	8079.7	8084.4	8089.0	8093.7	8098.4	8103.1	4.69
2433.	8014.1	8018.8	8023.5	8028.1	8032.8	8037.5	8042.2	8046.9	8051.5	8056.2	4.68
2432.	7967.5	7972.2	7976.8	7981.5	7986.1	7990.8	7995.5	8000.1	8004.8	8009.4	4.66
2431.	7921.1	7925.7	7930.4	7935.0	7939.7	7944.3	7948.9	7953.6	7958.2	7962.9	4.64
2430.	7874.9	7879.5	7884.1	7888.8	7893.4	7898.0	7902.6	7907.2	7911.9	7916.5	4.62
2429.	7828.8	7833.4	7838.0	7842.6	7847.2	7851.9	7856.5	7861.1	7865.7	7870.3	4.61
2428.	7782.9	7787.5	7792.1	7796.7	7801.3	7805.9	7810.4	7815.0	7819.6	7824.2	4.59
2427.	7737.2	7741.8	7746.3	7750.9	7755.5	7760.1	7764.6	7769.2	7773.8	7778.3	4.57
2426.	7691.6	7696.2	7700.7	7705.3	7709.8	7714.4	7719.0	7723.5	7728.1	7732.6	4.56
2425.	7646.2	7650.7	7655.3	7659.8	7664.4	7668.9	7673.4	7678.0	7682.5	7687.1	4.54
2424.	7600.9	7605.4	7610.0	7614.5	7619.0	7623.6	7628.1	7632.6	7637.1	7641.7	4.53
2423.	7555.9	7560.4	7564.9	7569.4	7573.9	7578.4	7582.9	7587.4	7591.9	7596.4	4.50
2422.	7511.0	7515.5	7520.0	7524.5	7529.0	7533.5	7537.9	7542.4	7546.9	7551.4	4.49
2421.	7466.2	7470.7	7475.2	7479.6	7484.1	7488.6	7493.1	7497.6	7502.0	7506.5	4.48
2420.	7421.6	7426.1	7430.5	7435.0	7439.4	7443.9	7448.4	7452.8	7457.3	7461.7	4.46
2419.	7377.2	7381.6	7386.1	7390.5	7395.0	7399.4	7403.8	7408.3	7412.7	7417.2	4.44
2418.	7333.0	7337.4	7341.8	7346.3	7350.7	7355.1	7359.5	7363.9	7368.4	7372.8	4.42
2417.	7288.9	7293.3	7297.7	7302.1	7306.5	7311.0	7315.4	7319.8	7324.2	7328.6	4.41
2416.	7245.0	7249.4	7253.8	7258.2	7262.6	7267.0	7271.3	7275.7	7280.1	7284.5	4.39
2415.	7201.3	7205.7	7210.0	7214.4	7218.8	7223.2	7227.5	7231.9	7236.3	7240.6	4.37
2414.	7157.7	7162.1	7166.4	7170.8	7175.1	7179.5	7183.9	7188.2	7192.6	7196.9	4.36
2413.	7114.3	7118.6	7123.0	7127.3	7131.7	7136.0	7140.3	7144.7	7149.0	7153.4	4.34
2412.	7071.0	7075.3	7079.7	7084.0	7088.3	7092.7	7097.0	7101.3	7105.6	7110.0	4.33
2411.	7028.0	7032.3	7036.6	7040.9	7045.2	7049.5	7053.8	7058.1	7062.4	7066.7	4.30
2410.	6985.1	6989.4	6993.7	6998.0	7002.3	7006.6	7010.8	7015.1	7019.4	7023.7	4.29
2409.	6942.3	6946.6	6950.9	6955.1	6959.4	6963.7	6968.0	6972.3	6976.5	6980.8	4.28
2408.	6899.7	6904.0	6908.2	6912.5	6916.7	6921.0	6925.3	6929.5	6933.8	6938.0	4.26
2407.	6857.3	6861.5	6865.8	6870.0	6874.3	6878.5	6882.7	6887.0	6891.2	6895.5	4.24
2406.	6815.1	6819.3	6823.5	6827.8	6832.0	6836.2	6840.4	6844.6	6848.9	6853.1	4.22
2405.	6773.0	6777.2	6781.4	6785.6	6789.8	6794.1	6798.3	6802.5	6806.7	6810.9	4.21
2404.	6731.2	6735.3	6739.5	6743.7	6747.9	6752.1	6756.3	6760.5	6764.7	6768.9	4.20
2403.	6689.5	6693.7	6697.9	6702.0	6706.2	6710.4	6714.5	6718.7	6722.9	6727.1	4.17
2402.	6648.0	6652.2	6656.3	6660.5	6664.7	6668.8	6673.0	6677.1	6681.3	6685.5	4.16
2401.	6606.7	6610.9	6615.0	6619.2	6623.3	6627.4	6631.6	6635.7	6639.9	6644.0	4.14
2400.	6565.5	6569.7	6573.8	6577.9	6582.1	6586.2	6590.3	6594.5	6598.6	6602.7	4.13
2399.	6524.6	6528.7	6532.8	6536.9	6541.0	6545.1	6549.2	6553.3	6557.4	6561.5	4.11
2398.	6483.9	6487.9	6492.0	6496.1	6500.1	6504.2	6508.3	6512.4	6516.4	6520.5	4.07
2397.	6443.5	6447.6	6451.6	6455.6	6459.6	6463.7	6467.7	6471.8	6475.8	6479.8	4.03
2396.	6403.5	6407.5	6411.5	6415.5	6419.5	6423.5	6427.5	6431.5	6435.5	6439.5	4.00
2395.	6363.9	6367.8	6371.8	6375.7	6379.7	6383.7	6387.6	6391.6	6395.6	6399.5	3.96

Exhibit 11 – Mica Reservoir Capacity Table (English)
ksfd

ELEVATION IN FEET											AVERAGE DIFFERENCE PER TENTH FT
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
2394.	6324.5	6328.5	6332.4	6336.3	6340.2	6344.2	6348.1	6352.0	6356.0	6359.9	3.93
2393.	6285.6	6289.5	6293.4	6297.2	6301.1	6305.0	6308.9	6312.8	6316.7	6320.6	3.90
2392.	6246.9	6250.8	6254.6	6258.5	6262.4	6266.2	6270.1	6274.0	6277.8	6281.7	3.87
2391.	6208.6	6212.4	6216.2	6220.0	6223.9	6227.7	6231.5	6235.4	6239.2	6243.1	3.83
2390.	6170.6	6174.4	6178.2	6181.9	6185.7	6189.5	6193.3	6197.2	6201.0	6204.8	3.80
2389.	6132.9	6136.7	6140.4	6144.2	6147.9	6151.7	6155.5	6159.2	6163.0	6166.8	3.77
2388.	6095.5	6099.2	6103.0	6106.7	6110.4	6114.2	6117.9	6121.7	6125.4	6129.2	3.74
2387.	6058.4	6062.1	6065.8	6069.5	6073.2	6076.9	6080.6	6084.3	6088.1	6091.8	3.71
2386.	6021.7	6025.3	6029.0	6032.7	6036.3	6040.0	6043.7	6047.4	6051.0	6054.7	3.68
2385.	5985.2	5988.8	5992.5	5996.1	5999.7	6003.4	6007.0	6010.7	6014.3	6018.0	3.65
2384.	5949.0	5952.6	5956.2	5959.8	5963.4	5967.0	5970.7	5974.3	5977.9	5981.6	3.62
2383.	5913.0	5916.6	5920.2	5923.8	5927.4	5931.0	5934.6	5938.2	5941.8	5945.4	3.59
2382.	5877.4	5881.0	5884.5	5888.1	5891.7	5895.2	5898.8	5902.3	5905.9	5909.5	3.56
2381.	5842.1	5845.6	5849.2	5852.7	5856.2	5859.7	5863.3	5866.8	5870.3	5873.9	3.53
2380.	5807.0	5810.5	5814.0	5817.5	5821.0	5824.5	5828.0	5831.6	5835.1	5838.6	3.51
2379.	5772.2	5775.7	5779.1	5782.6	5786.1	5789.6	5793.0	5796.5	5800.0	5803.5	3.48
2378.	5737.6	5741.1	5744.5	5748.0	5751.4	5754.9	5758.3	5761.8	5765.3	5768.7	3.45
2377.	5703.4	5706.8	5710.2	5713.6	5717.1	5720.5	5723.9	5727.3	5730.8	5734.2	3.43
2376.	5669.3	5672.7	5676.1	5679.5	5682.9	5686.3	5689.7	5693.1	5696.5	5700.0	3.41
2375.	5635.5	5638.9	5642.3	5645.6	5649.0	5652.4	5655.8	5659.2	5662.5	5665.9	3.38
2374.	5602.0	5605.3	5608.7	5612.0	5615.4	5618.7	5622.1	5625.5	5628.8	5632.2	3.35
2373.	5568.7	5572.0	5575.4	5578.7	5582.0	5585.3	5588.7	5592.0	5595.3	5598.7	3.33
2372.	5535.6	5538.9	5542.2	5545.5	5548.8	5552.1	5555.4	5558.7	5562.1	5565.4	3.31
2371.	5502.8	5506.1	5509.3	5512.6	5515.9	5519.2	5522.5	5525.7	5529.0	5532.3	3.28
2370.	5470.2	5473.4	5476.7	5479.9	5483.2	5486.5	5489.7	5493.0	5496.3	5499.5	3.26
2369.	5437.8	5441.0	5444.3	5447.5	5450.7	5453.9	5457.2	5460.4	5463.7	5466.9	3.24
2368.	5405.6	5408.9	5412.1	5415.3	5418.5	5421.7	5424.9	5428.1	5431.4	5434.6	3.22
2367.	5373.7	5376.9	5380.1	5383.3	5386.5	5389.7	5392.9	5396.1	5399.3	5402.4	3.19
2366.	5342.0	5345.2	5348.3	5351.5	5354.7	5357.8	5361.0	5364.2	5367.4	5370.5	3.17
2365.	5310.5	5313.6	5316.8	5319.9	5323.0	5326.2	5329.3	5332.5	5335.7	5338.8	3.15
2364.	5279.1	5282.3	5285.4	5288.5	5291.6	5294.8	5297.9	5301.0	5304.2	5307.3	3.13
2363.	5248.0	5251.1	5254.2	5257.4	5260.5	5263.6	5266.7	5269.8	5272.9	5276.0	3.11
2362.	5217.1	5220.2	5223.3	5226.4	5229.5	5232.6	5235.7	5238.7	5241.8	5244.9	3.09
2361.	5186.4	5189.4	5192.5	5195.6	5198.7	5201.7	5204.8	5207.9	5211.0	5214.0	3.07
2360.	5155.9	5158.9	5162.0	5165.0	5168.0	5171.1	5174.2	5177.2	5180.3	5183.3	3.05
2359.	5125.5	5128.5	5131.6	5134.6	5137.6	5140.7	5143.7	5146.7	5149.8	5152.8	3.03
2358.	5095.4	5098.4	5101.4	5104.4	5107.4	5110.4	5113.4	5116.5	5119.5	5122.5	3.02
2357.	5065.4	5068.4	5071.4	5074.4	5077.4	5080.4	5083.4	5086.4	5089.4	5092.4	3.00
2356.	5035.6	5038.5	5041.5	5044.5	5047.5	5050.4	5053.4	5056.4	5059.4	5062.4	2.98
2355.	5005.9	5008.9	5011.9	5014.8	5017.8	5020.7	5023.7	5026.7	5029.6	5032.6	2.96

Exhibit 11 – Mica Reservoir Capacity Table (English)
ksfd

ELEVATION IN FEET											AVERAGE DIFFERENCE PER TENTH FT
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
2354.	4976.5	4979.4	4982.4	4985.3	4988.3	4991.2	4994.1	4997.1	5000.0	5003.0	2.94
2353.	4947.2	4950.1	4953.0	4956.0	4958.9	4961.8	4964.8	4967.7	4970.6	4973.6	2.93
2352.	4918.0	4920.9	4923.9	4926.8	4929.7	4932.6	4935.5	4938.4	4941.3	4944.3	2.91
2351.	4889.1	4892.0	4894.9	4897.8	4900.6	4903.5	4906.4	4909.3	4912.2	4915.1	2.90
2350.	4860.3	4863.1	4866.0	4868.9	4871.8	4874.6	4877.5	4880.4	4883.3	4886.2	2.88
2349.	4831.6	4834.4	4837.3	4840.2	4843.1	4845.9	4848.8	4851.7	4854.5	4857.4	2.87
2348.	4803.1	4805.9	4808.8	4811.6	4814.5	4817.3	4820.2	4823.0	4825.9	4828.7	2.85
2347.	4774.7	4777.5	4780.4	4783.2	4786.0	4788.9	4791.7	4794.6	4797.4	4800.2	2.84
2346.	4746.5	4749.3	4752.1	4755.0	4757.8	4760.6	4763.4	4766.2	4769.1	4771.9	2.82
2345.	4718.4	4721.2	4724.0	4726.8	4729.6	4732.4	4735.3	4738.1	4740.9	4743.7	2.81
2344.	4690.5	4693.3	4696.1	4698.8	4701.6	4704.4	4707.2	4710.0	4712.8	4715.6	2.79
2343.	4662.7	4665.4	4668.2	4671.0	4673.8	4676.5	4679.3	4682.1	4684.9	4687.7	2.78
2342.	4635.0	4637.8	4640.5	4643.3	4646.1	4648.8	4651.6	4654.4	4657.1	4659.9	2.77
2341.	4607.4	4610.2	4613.0	4615.7	4618.5	4621.2	4624.0	4626.7	4629.5	4632.2	2.76
2340.	4580.0	4582.8	4585.5	4588.2	4591.0	4593.7	4596.5	4599.2	4602.0	4604.7	2.74
2339.	4552.7	4555.4	4558.2	4560.9	4563.6	4566.4	4569.1	4571.8	4574.6	4577.3	2.73
2338.	4525.5	4528.2	4530.9	4533.6	4536.4	4539.1	4541.8	4544.5	4547.3	4550.0	2.72
2337.	4498.3	4501.0	4503.7	4506.5	4509.2	4511.9	4514.6	4517.3	4520.0	4522.8	2.72
2336.	4471.2	4473.9	4476.6	4479.3	4482.0	4484.7	4487.5	4490.2	4492.9	4495.6	2.71
2335.	4444.2	4446.9	4449.6	4452.3	4455.0	4457.7	4460.4	4463.1	4465.8	4468.5	2.70
2334.	4417.3	4420.0	4422.6	4425.3	4428.0	4430.7	4433.4	4436.1	4438.8	4441.5	2.69
2333.	4390.4	4393.1	4395.8	4398.4	4401.1	4403.8	4406.5	4409.2	4411.9	4414.6	2.69
2332.	4363.6	4366.3	4368.9	4371.6	4374.3	4377.0	4379.7	4382.3	4385.0	4387.7	2.68
2331.	4336.9	4339.6	4342.2	4344.9	4347.6	4350.2	4352.9	4355.6	4358.2	4360.9	2.67
2330.	4310.2	4312.9	4315.6	4318.2	4320.9	4323.6	4326.2	4328.9	4331.6	4334.2	2.66
2329.	4283.7	4286.3	4289.0	4291.6	4294.3	4296.9	4299.6	4302.3	4304.9	4307.6	2.66
2328.	4257.2	4259.8	4262.5	4265.1	4267.8	4270.4	4273.1	4275.7	4278.4	4281.0	2.65
2327.	4230.8	4233.4	4236.1	4238.7	4241.3	4244.0	4246.6	4249.3	4251.9	4254.5	2.64
2326.	4204.5	4207.1	4209.7	4212.3	4215.0	4217.6	4220.2	4222.9	4225.5	4228.1	2.63
2325.	4178.2	4180.8	4183.4	4186.1	4188.7	4191.3	4193.9	4196.6	4199.2	4201.8	2.63
2324.	4152.0	4154.6	4157.2	4159.9	4162.5	4165.1	4167.7	4170.3	4173.0	4175.6	2.62
2323.	4125.9	4128.5	4131.2	4133.8	4136.4	4139.0	4141.6	4144.2	4146.8	4149.4	2.61
2322.	4099.9	4102.5	4105.1	4107.7	4110.3	4112.9	4115.5	4118.1	4120.7	4123.3	2.61
2321.	4074.0	4076.6	4079.1	4081.7	4084.3	4086.9	4089.5	4092.1	4094.7	4097.3	2.59
2320.	4048.1	4050.7	4053.3	4055.9	4058.4	4061.0	4063.6	4066.2	4068.8	4071.4	2.59
2319.	4022.3	4024.9	4027.5	4030.0	4032.6	4035.2	4037.8	4040.4	4042.9	4045.5	2.58

Exhibit 11M – Mica Reservoir Capacity Table (SI)

hm³

ELEVATION IN METERS	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27	AVERAGE DIFFERENCE PER 3/100 M
754.38	24762.3										13.16
754.08	24631.1	24644.4	24657.3	24670.5	24683.5	24696.7	24709.9	24722.9	24736.1	24749.1	13.11
753.77	24500.5	24513.5	24526.7	24539.6	24552.9	24565.8	24578.8	24592.0	24605.0	24618.2	13.06
753.47	24370.1	24383.1	24396.3	24409.2	24422.2	24435.2	24448.4	24461.4	24474.3	24487.5	13.04
753.16	24240.4	24253.4	24266.4	24279.3	24292.3	24305.3	24318.2	24331.2	24344.2	24357.1	12.97
752.86	24110.8	24123.7	24136.7	24149.7	24162.6	24175.6	24188.6	24201.5	24214.5	24227.5	12.97
752.55	23981.8	23994.8	24007.5	24020.5	24033.4	24046.4	24059.1	24072.1	24085.1	24097.8	12.89
752.25	23853.1	23866.1	23878.8	23891.8	23904.5	23917.5	23930.4	23943.2	23956.1	23968.9	12.87
751.94	23724.9	23737.6	23750.6	23763.3	23776.3	23789.0	23801.7	23814.7	23827.4	23840.4	12.82
751.64	23597.0	23609.7	23622.7	23635.4	23648.1	23661.1	23673.8	23686.5	23699.2	23712.2	12.80
751.33	23469.5	23482.2	23494.9	23507.7	23520.4	23533.4	23546.1	23558.8	23571.5	23584.2	12.75
751.03	23342.5	23355.2	23368.0	23380.7	23393.4	23406.1	23418.6	23431.3	23444.1	23456.8	12.70
750.72	23215.8	23228.5	23241.2	23253.7	23266.4	23279.2	23291.9	23304.6	23317.1	23329.8	12.67
750.42	23089.5	23102.3	23114.7	23127.5	23139.9	23152.7	23165.4	23177.9	23190.6	23203.1	12.62
750.11	22963.8	22976.3	22989.0	23001.5	23014.2	23026.7	23039.1	23051.9	23064.3	23077.1	12.58
749.81	22838.5	22851.0	22863.5	22876.2	22888.7	22901.2	22913.6	22926.1	22938.8	22951.3	12.53
749.50	22713.5	22726.0	22738.5	22750.9	22763.4	22776.1	22788.6	22801.1	22813.6	22826.0	12.50
749.20	22589.0	22601.4	22613.9	22626.4	22638.9	22651.4	22663.6	22676.1	22688.5	22701.0	12.45
748.90	22464.7	22477.2	22489.6	22501.9	22514.3	22526.8	22539.3	22551.8	22564.0	22576.5	12.43
748.59	22340.9	22353.4	22365.6	22378.1	22390.3	22402.8	22415.3	22427.5	22440.0	22452.2	12.38
748.29	22217.6	22229.8	22242.3	22254.5	22267.0	22279.2	22291.5	22303.9	22316.2	22328.7	12.33
747.98	22094.8	22107.0	22119.2	22131.7	22143.9	22156.2	22168.4	22180.6	22193.1	22205.3	12.28
747.68	21972.2	21984.4	21996.6	22008.9	22021.1	22033.6	22045.8	22058.1	22070.3	22082.5	12.26
747.37	21850.1	21862.3	21874.6	21886.8	21899.0	21911.3	21923.2	21935.5	21947.7	21959.9	12.21
747.07	21728.3	21740.5	21752.7	21764.7	21776.9	21789.2	21801.4	21813.6	21825.6	21837.9	12.18
746.76	21606.9	21619.1	21631.1	21643.4	21655.3	21667.6	21679.8	21691.8	21704.0	21716.0	12.14
746.46	21486.0	21498.0	21510.3	21522.3	21534.5	21546.5	21558.5	21570.7	21582.7	21594.9	12.09
746.15	21365.7	21377.7	21389.6	21401.9	21413.9	21425.9	21437.8	21449.8	21462.1	21474.1	12.04
745.85	21245.5	21257.5	21269.5	21281.5	21293.5	21305.7	21317.7	21329.7	21341.7	21353.7	12.01
745.54	21125.9	21137.9	21149.9	21161.9	21173.9	21185.8	21197.6	21209.6	21221.6	21233.6	11.96
745.24	21006.5	21018.5	21030.5	21042.2	21054.2	21066.2	21078.2	21090.2	21101.9	21113.9	11.94
744.93	20887.8	20899.8	20911.6	20923.6	20935.3	20947.3	20959.0	20971.0	20982.8	20994.8	11.87
744.63	20769.4	20781.2	20793.2	20804.9	20816.9	20828.6	20840.4	20852.4	20864.1	20876.1	11.84
744.32	20651.3	20663.0	20675.0	20686.7	20698.5	20710.5	20722.2	20734.0	20745.7	20757.7	11.82
744.02	20533.6	20545.3	20557.1	20568.8	20580.6	20592.5	20604.3	20616.0	20627.8	20639.5	11.77
743.71	20416.4	20428.1	20439.9	20451.6	20463.4	20475.1	20486.6	20498.3	20510.1	20521.8	11.72
743.41	20299.7	20311.4	20322.9	20334.7	20346.4	20358.2	20369.7	20381.4	20393.1	20404.6	11.67
743.10	20183.2	20195.0	20206.5	20218.2	20229.7	20241.5	20253.2	20264.7	20276.4	20287.9	11.65
742.80	20067.3	20078.8	20090.5	20102.0	20113.7	20125.2	20136.7	20148.5	20160.0	20171.7	11.60
742.49	19951.5	19963.0	19974.8	19986.3	19997.8	20009.5	20021.0	20032.5	20044.0	20055.8	11.57
742.19	19836.5	19848.0	19859.5	19871.0	19882.5	19894.0	19905.5	19917.0	19928.5	19940.0	11.50

Exhibit 11M – Mica Reservoir Capacity Table (SI)

hm³

ELEVATION IN METERS	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27	AVERAGE DIFFERENCE PER 3/100 M
741.88	19721.8	19733.3	19744.8	19756.3	19767.8	19779.3	19790.5	19802.0	19813.5	19825.0	11.47
741.58	19607.3	19618.8	19630.3	19641.5	19653.0	19664.5	19676.0	19687.5	19698.8	19710.3	11.45
741.28	19493.3	19504.8	19516.0	19527.5	19538.8	19550.3	19561.8	19573.0	19584.5	19595.8	11.40
740.97	19379.8	19391.0	19402.5	19413.8	19425.3	19436.5	19447.8	19459.3	19470.5	19482.0	11.35
740.67	19266.7	19278.0	19289.2	19300.7	19312.0	19323.2	19334.5	19345.8	19357.3	19368.5	11.30
740.36	19153.9	19165.2	19176.5	19187.7	19199.0	19210.5	19221.7	19233.0	19244.2	19255.5	11.28
740.06	19041.6	19052.9	19064.2	19075.4	19086.7	19097.9	19108.9	19120.2	19131.4	19142.7	11.23
739.75	18929.8	18941.1	18952.1	18963.4	18974.6	18985.9	18996.9	19008.1	19019.4	19030.4	11.18
739.45	18818.3	18829.5	18840.5	18851.8	18862.8	18874.1	18885.3	18896.3	18907.6	18918.6	11.16
739.14	18707.2	18718.2	18729.5	18740.5	18751.7	18762.7	18773.7	18785.0	18796.0	18807.3	11.11
738.84	18596.4	18607.4	18618.6	18629.6	18640.6	18651.9	18662.9	18673.9	18684.9	18696.2	11.08
738.53	18486.3	18497.3	18508.3	18519.3	18530.3	18541.3	18552.3	18563.3	18574.3	18585.4	11.01
738.23	18376.4	18387.4	18398.4	18409.4	18420.5	18431.5	18442.2	18453.2	18464.2	18475.3	10.99
737.92	18266.8	18277.8	18288.8	18299.6	18310.6	18321.6	18332.6	18343.6	18354.4	18365.4	10.96
737.62	18157.7	18168.7	18179.5	18190.5	18201.2	18212.2	18223.3	18234.0	18245.0	18255.8	10.91
737.31	18049.1	18059.8	18070.8	18081.6	18092.6	18103.4	18114.1	18125.1	18135.9	18146.9	10.86
737.01	17940.9	17951.7	17962.4	17973.5	17984.2	17995.0	18005.8	18016.5	18027.5	18038.3	10.81
736.70	17833.0	17843.8	17854.6	17865.3	17876.1	17887.1	17897.9	17908.6	17919.4	17930.2	10.79
736.40	17725.6	17736.4	17747.1	17757.9	17768.7	17779.4	17790.0	17800.7	17811.5	17822.3	10.74
736.09	17618.7	17629.5	17640.0	17650.8	17661.5	17672.3	17682.8	17693.6	17704.3	17714.9	10.69
735.79	17512.0	17522.8	17533.3	17544.1	17554.6	17565.4	17576.1	17586.7	17597.4	17607.9	10.67
735.48	17405.8	17416.4	17427.1	17437.7	17448.4	17458.9	17469.5	17480.2	17490.7	17501.5	10.62
735.18	17299.9	17310.4	17321.2	17331.7	17342.2	17353.0	17363.5	17374.0	17384.6	17395.3	10.59
734.87	17194.7	17205.2	17215.7	17226.3	17236.8	17247.3	17257.8	17268.3	17278.9	17289.4	10.52
734.57	17089.7	17100.3	17110.8	17121.3	17131.8	17142.3	17152.6	17163.1	17173.7	17184.2	10.50
734.26	16985.0	16995.6	17006.1	17016.3	17026.9	17037.4	17047.9	17058.4	17068.7	17079.2	10.47
733.96	16880.8	16891.3	16901.6	16912.1	16922.4	16932.9	16943.4	16953.7	16964.2	16974.5	10.42
733.66	16777.1	16787.3	16797.9	16808.1	16818.7	16828.9	16839.2	16849.7	16860.0	16870.5	10.37
733.35	16673.8	16684.1	16694.4	16704.9	16715.2	16725.4	16735.7	16746.0	16756.5	16766.8	10.32
733.05	16570.8	16581.1	16591.4	16601.6	16611.9	16622.4	16632.7	16643.0	16653.3	16663.5	10.30
732.74	16468.4	16478.7	16489.0	16499.2	16509.5	16519.8	16530.0	16540.3	16550.6	16560.8	10.27
732.44	16366.6	16376.8	16387.0	16397.2	16407.4	16417.6	16427.8	16438.0	16448.2	16458.5	10.21
732.13	16265.1	16275.3	16285.4	16295.6	16305.7	16315.9	16326.1	16336.3	16346.4	16356.6	10.17
731.83	16164.1	16174.2	16184.3	16194.4	16204.5	16214.6	16224.8	16234.9	16245.1	16255.2	10.13
731.52	16063.3	16073.4	16083.5	16093.6	16103.7	16113.8	16123.9	16134.0	16144.1	16154.2	10.10
731.22	15963.0	15973.1	15983.1	15993.1	16003.2	16013.2	16023.3	16033.3	16043.4	16053.4	10.05
730.91	15863.5	15873.4	15883.3	15893.3	15903.2	15913.2	15923.1	15933.1	15943.1	15953.1	9.96
730.61	15764.8	15774.6	15784.5	15794.3	15804.2	15814.0	15823.9	15833.8	15843.7	15853.6	9.87
730.30	15666.8	15676.6	15686.4	15696.2	15706.0	15715.7	15725.5	15735.3	15745.1	15755.0	9.79
730.00	15569.8	15579.5	15589.2	15598.9	15608.6	15618.2	15628.0	15637.7	15647.4	15657.1	9.70

Exhibit 11M – Mica Reservoir Capacity Table (SI)
 hm^3

ELEVATION IN METERS	AVERAGE DIFFERENCE PER 3/100 M										
	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27	
729.69	15473.6	15483.2	15492.8	15502.4	15512.0	15521.6	15531.3	15540.9	15550.6	15560.2	9.62
729.39	15378.3	15387.8	15397.3	15406.8	15416.4	15425.9	15435.4	15445.0	15454.5	15464.1	9.53
729.08	15283.7	15293.1	15302.6	15312.0	15321.5	15330.9	15340.4	15349.9	15359.3	15368.8	9.46
728.78	15189.9	15199.3	15208.6	15218.0	15227.3	15236.6	15246.0	15255.4	15264.8	15274.3	9.37
728.47	15096.9	15106.2	15115.5	15124.8	15134.0	15143.3	15152.6	15162.0	15171.3	15180.6	9.30
728.17	15004.7	15013.9	15023.1	15032.3	15041.5	15050.7	15060.0	15069.2	15078.5	15087.7	9.22
727.86	14913.2	14922.4	14931.5	14940.6	14949.8	14958.9	14968.1	14977.3	14986.4	14995.6	9.15
727.56	14822.5	14831.6	14840.6	14849.7	14858.7	14867.8	14876.8	14885.9	14895.0	14904.1	9.07
727.25	14732.6	14741.5	14750.5	14759.5	14768.5	14777.4	14786.5	14795.5	14804.5	14813.5	8.99
726.95	14643.4	14652.3	14661.2	14670.0	14678.9	14687.8	14696.8	14705.7	14714.7	14723.6	8.92
726.64	14554.7	14563.6	14572.4	14581.3	14590.1	14599.0	14607.8	14616.7	14625.6	14634.5	8.86
726.34	14466.8	14475.6	14484.4	14493.2	14502.0	14510.7	14519.5	14528.3	14537.1	14545.9	8.79
726.04	14379.7	14388.4	14397.1	14405.8	14414.5	14423.2	14431.9	14440.7	14449.4	14458.1	8.71
725.73	14293.3	14301.9	14310.6	14319.2	14327.8	14336.4	14345.1	14353.7	14362.4	14371.0	8.64
725.43	14207.4	14215.9	14224.5	14233.1	14241.7	14250.3	14258.9	14267.5	14276.1	14284.7	8.59
725.12	14122.2	14130.7	14139.2	14147.7	14156.2	14164.7	14173.3	14181.8	14190.3	14198.8	8.51
724.82	14037.7	14046.2	14054.6	14063.0	14071.5	14079.9	14088.4	14096.8	14105.3	14113.8	8.45
724.51	13953.8	13962.2	13970.6	13979.0	13987.4	13995.7	14004.1	14012.5	14020.9	14029.3	8.39
724.21	13870.5	13878.8	13887.2	13895.5	13903.8	13912.2	13920.5	13928.8	13937.2	13945.5	8.33
723.90	13787.9	13796.1	13804.4	13812.6	13820.9	13829.1	13837.4	13845.7	13854.0	13862.2	8.26
723.60	13705.8	13714.0	13722.2	13730.4	13738.6	13746.8	13755.0	13763.2	13771.4	13779.7	8.20
723.29	13624.4	13632.5	13640.7	13648.8	13656.9	13665.1	13673.2	13681.4	13689.5	13697.7	8.14
722.99	13543.4	13551.5	13559.6	13567.6	13575.7	13583.8	13591.9	13600.0	13608.1	13616.3	8.09
722.68	13463.1	13471.1	13479.2	13487.2	13495.2	13503.2	13511.3	13519.3	13527.3	13535.4	8.03
722.38	13383.4	13391.3	13399.3	13407.2	13415.2	13423.2	13431.2	13439.1	13447.1	13455.1	7.97
722.07	13304.2	13312.1	13319.9	13327.8	13335.7	13343.6	13351.5	13359.5	13367.5	13375.4	7.92
721.77	13225.5	13233.3	13241.2	13249.0	13256.8	13264.7	13272.6	13280.5	13288.4	13296.3	7.87
721.46	13147.3	13155.1	13162.9	13170.7	13178.5	13186.3	13194.2	13202.0	13209.8	13217.6	7.81
721.16	13069.7	13077.5	13085.2	13092.9	13100.7	13108.4	13116.2	13124.0	13131.8	13139.5	7.76
720.85	12992.6	13000.3	13008.0	13015.7	13023.3	13031.0	13038.8	13046.5	13054.2	13062.0	7.71
720.55	12915.9	12923.6	12931.2	12938.9	12946.5	12954.2	12961.9	12969.5	12977.2	12984.9	7.66
720.24	12839.9	12847.4	12855.0	12862.6	12870.2	12877.8	12885.4	12893.1	12900.7	12908.3	7.61
719.94	12764.2	12771.7	12779.3	12786.9	12794.4	12802.0	12809.5	12817.1	12824.7	12832.3	7.56
719.63	12689.0	12696.5	12704.0	12711.5	12719.1	12726.6	12734.1	12741.6	12749.1	12756.7	7.52
719.33	12614.3	12621.8	12629.2	12636.7	12644.2	12651.6	12659.1	12666.6	12674.0	12681.5	7.46
719.02	12540.1	12547.5	12554.9	12562.3	12569.7	12577.2	12584.6	12592.0	12599.5	12606.9	7.42
718.72	12466.3	12473.7	12481.0	12488.4	12495.8	12503.2	12510.5	12517.9	12525.3	12532.7	7.38
718.42	12392.9	12400.2	12407.6	12414.9	12422.3	12429.6	12436.9	12444.3	12451.6	12459.0	7.34
718.11	12320.0	12327.3	12334.6	12341.9	12349.1	12356.4	12363.7	12371.0	12378.3	12385.6	7.29
717.81	12247.5	12254.8	12262.0	12269.2	12276.5	12283.7	12291.0	12298.2	12305.5	12312.7	7.25

Exhibit 11M – Mica Reservoir Capacity Table (SI)
hm³

ELEVATION IN METERS												AVERAGE DIFFERENCE PER 3/100 M
	.00	.03	.06	.09	.12	.15	.18	.21	.24	.27		
717.50	12175.5	12182.7	12189.9	12197.1	12204.3	12211.5	12218.7	12225.9	12233.1	12240.3	7.20	
717.20	12103.7	12110.9	12118.1	12125.2	12132.4	12139.6	12146.8	12153.9	12161.1	12168.3	7.17	
716.89	12032.5	12039.6	12046.7	12053.8	12061.0	12068.1	12075.2	12082.3	12089.5	12096.6	7.13	
716.59	11961.6	11968.7	11975.8	11982.8	11989.9	11997.0	12004.1	12011.2	12018.3	12025.4	7.09	
716.28	11891.1	11898.2	11905.2	11912.2	11919.3	11926.3	11933.4	11940.4	11947.5	11954.5	7.04	
715.98	11820.9	11828.0	11835.0	11842.0	11849.0	11856.0	11863.1	11870.1	11877.1	11884.1	7.02	
715.67	11751.2	11758.2	11765.1	11772.1	11779.1	11786.0	11793.0	11800.0	11807.0	11814.0	6.97	
715.37	11681.8	11688.8	11695.7	11702.6	11709.5	11716.5	11723.4	11730.4	11737.3	11744.3	6.94	
715.06	11612.8	11619.7	11626.6	11633.5	11640.4	11647.3	11654.2	11661.1	11668.0	11674.9	6.90	
714.76	11544.0	11550.9	11557.8	11564.7	11571.5	11578.4	11585.3	11592.2	11599.0	11605.9	6.87	
714.45	11475.7	11482.5	11489.4	11496.2	11503.0	11509.8	11516.7	11523.5	11530.4	11537.2	6.83	
714.15	11407.7	11414.5	11421.3	11428.1	11434.9	11441.6	11448.5	11455.3	11462.1	11468.9	6.80	
713.84	11340.0	11346.8	11353.5	11360.3	11367.1	11373.8	11380.6	11387.4	11394.1	11400.9	6.77	
713.54	11272.6	11279.3	11286.0	11292.8	11299.5	11306.3	11313.0	11319.8	11326.5	11333.3	6.74	
712.93	11138.7	11145.4	11152.0	11158.7	11165.4	11172.1	11178.8	11185.4	11192.1	11198.8	6.68	
712.62	11072.0	11078.7	11085.4	11092.0	11098.7	11105.3	11112.0	11118.7	11125.3	11132.0	6.66	
712.32	11005.5	11012.2	11018.8	11025.5	11032.1	11038.8	11045.4	11052.1	11058.7	11065.4	6.65	
712.01	10939.3	10945.9	10952.5	10959.1	10965.8	10972.4	10979.0	10985.6	10992.3	10998.9	6.63	
711.71	10873.2	10879.8	10886.4	10893.0	10899.6	10906.2	10912.8	10919.4	10926.0	10932.7	6.61	
711.40	10807.3	10813.9	10820.5	10827.0	10833.6	10840.2	10846.8	10853.4	10860.0	10866.6	6.59	
711.10	10741.5	10748.1	10754.7	10761.2	10767.8	10774.4	10781.0	10787.5	10794.1	10800.7	6.58	
710.80	10676.0	10682.5	10689.1	10695.6	10702.2	10708.7	10715.3	10721.8	10728.4	10734.9	6.55	
710.49	10610.6	10617.1	10623.7	10630.2	10636.7	10643.3	10649.8	10656.3	10662.9	10669.4	6.53	
710.19	10545.4	10552.0	10558.5	10565.0	10571.5	10578.0	10584.5	10591.1	10597.6	10604.1	6.52	
709.88	10480.4	10486.9	10493.4	10499.9	10506.4	10512.9	10519.4	10525.9	10532.4	10538.9	6.50	
709.58	10415.6	10422.1	10428.6	10435.1	10441.5	10448.0	10454.5	10461.0	10467.5	10473.9	6.48	
709.27	10351.0	10357.5	10363.9	10370.4	10376.8	10383.3	10389.8	10396.2	10402.7	10409.2	6.46	
708.97	10286.6	10293.0	10299.5	10305.9	10312.3	10318.8	10325.2	10331.7	10338.1	10344.6	6.44	
708.66	10222.4	10228.8	10235.2	10241.6	10248.0	10254.4	10260.9	10267.3	10273.7	10280.2	6.43	
708.36	10158.3	10164.7	10171.1	10177.5	10183.9	10190.3	10196.7	10203.1	10209.5	10215.9	6.40	
708.05	10094.5	10100.9	10107.3	10113.6	10120.0	10126.4	10132.8	10139.2	10145.5	10151.9	6.38	
707.75	10030.8	10037.1	10043.5	10049.9	10056.2	10062.6	10069.0	10075.4	10081.8	10088.1	6.37	
707.44	9967.4	9973.7	9980.0	9986.4	9992.7	9999.0	10005.4	10011.7	10018.1	10024.4	6.34	
707.14	9904.1	9910.4	9916.7	9923.1	9929.4	9935.7	9942.0	9948.4	9954.7	9961.0	6.33	
706.83	9841.0	9847.3	9853.7	9859.8	9866.2	9872.5	9878.8	9885.1	9891.5	9897.8	6.31	