

# DETAILED OPERATING PLAN FOR COLUMBIA RIVER TREATY STORAGE

1 AUGUST 2001  
THROUGH 31 JULY 2002



COLUMBIA RIVER TREATY OPERATING COMMITTEE

JULY 2001

**COLUMBIA RIVER TREATY ENTITY AGREEMENT ON THE  
DETAILED OPERATING PLAN  
FOR COLUMBIA RIVER TREATY STORAGE  
1 AUGUST 2001 THROUGH 31 JULY 2002**

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 2001 through 31 July 2002" (2001-02 Detailed Operating Plan), dated July 2001.

The Entities agree that the December 1991 Entity Agreement on "Principles and Procedures for the Preparation and Use of Hydroelectric Operating Plans" will guide the Entities in implementing the 2001-02 Detailed Operating Plan.

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

Executed for the Canadian Entity this 11<sup>th</sup> day of July, 2001.

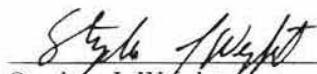
By



Robert A. Fairweather  
Acting Chair

Executed for the United States Entity this 13<sup>th</sup> day of July, 2001.

By



Stephen J. Wright  
Acting Chairman

By



Brigadier General Carl A. Strock  
Member

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**DETAILED OPERATING PLAN  
FOR COLUMBIA RIVER TREATY STORAGE  
1 AUGUST 2001 THROUGH 31 JULY 2002**

**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 2001-02" 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. The flood control allocation for this Operating Year will be 2.56  $\text{km}^3$  (2.08 Maf) at Mica and 6.29  $\text{km}^3$  (5.1 Maf) at Arrow as indicated respectively by Chart 5 and Chart 7 of the Flood Control Plan.
- 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 2001 through 31 July 2002.
- J. "Principles and Procedures" (POP) means the document "Principles and Procedures for the Preparation and Use of Hydroelectric Operating Plans," dated December 1991.
- 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 hydroregulation 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 2001-02 Assured Operating Plan (AOP) and its supporting hydroregulation studies, together with scheduling procedures and other mutually beneficial changes from the AOP data agreed to by the Entities.

### **B. Storage Amounts**

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. The usable Canadian storage space available for power purposes during the Operating Year is 19.12 km<sup>3</sup> (15.5 Maf) in Canada distributed as follows:

#### Duncan Reservoir

1.73 km<sup>3</sup> (1.4 Maf) [1,726.81 hm<sup>3</sup> (705.8 thousand second-foot-days (ksfd))] between elevations 576.68 meters (m) (1892.0 feet) and 546.87 m (1794.2 feet) measured at Duncan forebay. (Based on British Columbia Hydro and Power Authority (BC Hydro) table dated 21 February 1973.)

#### Arrow Reservoir

8.76 km<sup>3</sup> (7.1 Maf) [8,757.85 hm<sup>3</sup> (3579.6 ksfd)] between elevations 440.13 m (1444.0 feet) and 419.98 m (1377.9 feet) measured at Fauquier, B.C. (Based on BC Hydro table dated 28 February 1974.)

#### Kinbasket Reservoir (Mica)

8.63 km<sup>3</sup> (7.0 Maf) [8,634.54 hm<sup>3</sup> (3529.2 ksfd)] measured at Mica forebay. (Based on BC Hydro table dated 25 March 1974.)

The usable Canadian storage available for normal flood control purposes for the Operating

Year is 1.57 km<sup>3</sup> (1.27 Maf) in Duncan Reservoir below elevation 576.68 m (1892.0 feet); 6.29 km<sup>3</sup> (5.1 Maf) in Arrow Reservoir below elevation 440.13 m (1444.0 feet); and 2.57 km<sup>3</sup> (2.08 Maf) in Kinbasket Lake (Mica Reservoir) except that additional storage may also be operated for flood control purposes under special circumstances, as described in the Flood Control Plan. Prior to 31 December 2001, the Canadian Entity may request, and with the approval of the Operating Committee, flood control space may be transferred between Mica and Arrow.

### **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 2001-02 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 2001-02 AOP Step I hydroregulation 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 02 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 50-year average for January, May, June and July, and the same as the CRC1 for February through April.
2. Flood control rule curves will be updated to the 1 February 2000, data submittal from the Corps of Engineers. The 1 February 2001 data submittal will not be used because it includes VarQ at Libby and Hungry Horse. Except for Libby and Hungry Horse, there was no difference between the 2000 and the 2001 flood control data submittals. Changes from the 2001-02 AOP data (determined six years ago) include Canadian storage and main U.S. projects such as Libby, Hungry Horse, Grand Coulee, Brownlee, Dworshak, and John Day. The updated flood control curves will not include VarQ at Libby and Hungry Horse, nor will they include shifted flood control between Grand Coulee and Dworshak. Flood control curves at Grand Coulee will be based on the required flood control space at upstream projects and will not be adjusted for any excess space available at those projects, unless otherwise agreed by the Operating Committee.
3. Water supply forecast errors and distribution factors for Canadian projects will be as submitted by the Canadian Section in August 1997.
4. Hydro-independent data will be the 50-year average used in the 2001-02 AOP Step I hydroregulation study; and
5. The hydroregulation 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 regularly updated by the U.S. Entity. The operation of Libby in the 2001-02 TSR will be based on the 2001-02 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 km<sup>3</sup> (1.4 Maf), at Arrow Lakes is 8.76 km<sup>3</sup> (7.1 Maf), the whole Canadian storage is 19.12 km<sup>3</sup> (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 2001-02 beginning the period 1 August 2001 through 31 July 2002 is computed to be:

1. Energy Entitlement to be Returned

$$\text{Average Annual Energy} = 532.6 \text{ aMW} * (8.5/15.5) = 292.1 \text{ aMW}$$

2. Capacity Entitlement to be Returned

$$\text{Dependable Capacity} = 1427.1 \text{ MW} * (8.5/15.5) = 782.6 \text{ MW}$$

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 2001-02 indicated that the U.S. Entity is not entitled to receive any energy or dependable capacity from BC Hydro during the period 1 August 2001 through 31 March 2002, in accordance with Sections 7 and 10 of the Canadian Entitlement Purchase Agreement dated 13 August 1964. The Entity agreement on the DDPB for 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 of dependable capacity from BC Hydro during the period

1 April 2002 through July 2002, in accordance with Sections 7 and 10 of Canadian Entitlement Purchase Agreement dated 13 August 1964. Suitable arrangements will be made between BC Hydro and the Bonneville Power Administration (BPA) for delivery of this power at the points of interconnection between BC Hydro and the Federal Columbia River Transmission System.

**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 2001 through 31 July 2002. 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 BC 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 2001 through 31 July 2002 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 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 nonpower 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 nonpower objectives. When appropriate, the Operating Committee will make

suitable arrangements for delivery of power relating to sharing of power benefits from operational agreements.

2. **Nonpower 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 nonpower 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 nonpower objectives contemplated include, but are not limited to, whitefish and trout spawning downstream of Keenleyside, dust storm avoidance upstream of Keenleyside, and recreation interests. U.S. nonpower objectives include, but are not limited to, storage up to 1.23 km<sup>3</sup> (1 Maf) for anadromous fish flow augmentation, minimum flows at Vernita Bar for fish spawning, and recreation needs. Nonpower 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 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 projects 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, if necessary.
- 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, and

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 12), Arrow (Exhibit 13), and Mica (Exhibit 14). 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 2001-02 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 concurrent with and similar to the Weekly Treaty Storage Operation Agreement.
- h) **Non-routine Operation:** Any special operation that is agreed to by the Operating Committee will be suitably documented.

2. 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 2001 through 31 July 2002 is determined in accordance with the reference documents of Section 1, and is defined as follows:

1. During the period 1 August 2001 through 31 December 2001, it is the higher of the First Critical Rule Curve or the Assured Refill Curve.
2. During the period 1 January 2002 through 31 July 2002, 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 2002 through 15 April 2002, 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 2001-02 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 monthly average outflows

tabulated with specified qualifications under Operating Limits. The obligation to operate Mica 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 normal 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 using normal VRC procedures 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 normal Mica/Arrow balancing, of differences between the ORC or proportional draft point and the Mica Project Operating Criteria, is not used. This is implemented in the hydroregulation models 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 following tables, including adjustments, have been agreed to by the Entities:

1. Second Critical Rule Curves for Duncan, Arrow, Mica, and the whole of Canadian storage for Operating Year 2002-03. Exhibit 9
2. Third Critical Rule Curves for Duncan, Arrow, Mica, and the whole of Canadian storage for Operating Year 2003-04 Exhibit 10
3. Fourth Critical Rule Curves for Duncan, Arrow, Mica, and the whole Canadian storage for Operating Year 2004-05. Exhibit 11

**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 12
2. Arrow Reservoir Capacity Table (based on BC Hydro Combined Storage Table dated 28 February 1974). Exhibit 13
3. Mica Reservoir Capacity Table (based on BC Hydro table dated 25 March 1974). Exhibit 14

**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 draft in elevation during any month is limited to the equivalent of 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 m<sup>3</sup>/s (80,000 cfs) unless higher outflows are needed to meet flood control requirements.
2. Minimum average weekly outflow is 141.58 m<sup>3</sup>/s (5,000 cfs).
3. Maximum rate of change in outflow is normally 424.75 m<sup>3</sup>/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 monthly draft in elevation limited to the equivalent of 0.30 m (1 foot) per day
7. Advance notice for changes in outflow for:
  - a) Drop in downstream level of
    - 0.15 m (½ foot) - None,
    - 0.30 m (1 foot) - 1 hour,
    - 0.61 m (2 feet) - 2 hours,
    - 0.91 m (3 feet) - 24 hours, and
  - b) Rise in downstream level of
    - 0.15 m (½ foot) - None,
    - 0.30 m (1 foot) - 1 hour,
    - 0.61 m (2 feet) - 2 hours,
    - 0.91 m (3 feet) - 7 hours, only if notice is received before 10:00 a.m. that day, otherwise 24-hour notice is required.

**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 hm<sup>3</sup> (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 hm<sup>3</sup> (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 table below and as defined in Note 2/, and by the maximum outflow as defined in Note 1/ when the Target End-of-Month Storage Content is below 8,634.54 hm<sup>3</sup> (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 table below. 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 hm<sup>3</sup> (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 km<sup>3</sup> (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 km<sup>3</sup> (7 Maf). The total combined storage draft from Mica and Arrow will not exceed 17.39 km<sup>3</sup> (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<br>Arrow Storage Content<br>(KSFD) | Target Operation               |  | Minimum Target<br>Treaty Content at Mica 2/<br>(KSFD) | Minimum Outflow<br>(CFS) |
|--------------|--|--------------------------------|--|---|--------------------------|
|              |  | Month Average Outflow<br>(CFS) | End-of-Month<br>Storage Content 1/<br>(KSFD) |   |                          |
| August 1-15  | 2,600 - FULL   | -                              | 3,486.2                                      | 0.0   | 15,000                   |
|              | 1,650 - 2,600  | 16,000                         |  |   |                          |
|              | 0 - 1,650  | 26,000                         |  |   |                          |
| August 16-31 | 3,400 - FULL   | -                              | 3,529.2                                      | 0.0   | 15,000                   |
|              | 1,450 - 3,400  | 21,000                         |  |   |                          |
|              | 0 - 1,450  | 26,000                         |  |   |                          |
| September    | 3,460 - FULL   | -                              | 3,529.2                                      | 0.0   | 10,000                   |
|              | 1,810 - 3,460  | 22,000                         |  |   |                          |
|              | 0 - 1,810  | 27,000                         |  |   |                          |
| October      | 3,095 - FULL   | -                              | 3,396.2                                      | 0.0   | 10,000                   |
|              | 2,030 - 3,095  | 21,000                         |  |   |                          |
|              | 0 - 2,030  | 28,000                         |  |   |                          |
| November     | 2,900 - FULL   | 20,000                         |  | 0.0   | 12,000                   |
|              | 2,620 - 2,900  | 22,000                         |  |   |                          |
|              | 950 - 2,620  | 24,000                         |  |   |                          |
|              | 0 - 950  | 29,000                         |  |   |                          |
| December     | 3,050 - FULL   | 22,000                         |  | 207.0   | 21,000                   |
|              | 2,510 - 3,050  | 25,000                         |  |   |                          |
|              | 1,000 - 2,510  | 27,000                         |  |   |                          |
|              | 0 - 1,000  | 29,000                         |  |   |                          |
| January      | 2,570 - FULL   | 24,000                         |  | 106.2   | 15,000                   |
|              | 2,490 - 2,570  | 23,000                         |  |   |                          |
|              | 1,512 - 2,490  | 26,000                         |  |   |                          |
|              | 0 - 1,512  | 28,000                         |  |   |                          |
| February     | 1,510 - FULL   | 21,000                         |  | 0.0   | 15,000                   |
|              | 380 - 1,510  | 23,000                         |  |   |                          |
|              | 365 - 380  | 21,000                         |  |   |                          |
|              | 0 - 365  | 28,000                         |  |   |                          |
| March        | 1,285 - FULL   | 22,000                         |  | 0.0   | 15,000                   |
|              | 740 - 1,285  | 20,000                         |  |   |                          |
|              | 675 - 740  | 24,000                         |  |   |                          |
|              | 0 - 675  | 27,000                         |  |   |                          |
| April 1-15   | 1,655 - FULL   | -                              | 326.2  | 0.0   | 13,000                   |
|              | 1,450 - 1,655  | -                              | 16.2   |   |                          |
|              | 1,000 - 1,450  | 18,000                         |  |   |                          |
|              | 0 - 1,000  | -                              | 0.0  |   |                          |
| April 16-30  | 2,780 - FULL   | -                              | 56.2   | 0.0   | 10,000                   |
|              | 2,590 - 2,780  | -                              | 0.0  |   |                          |
|              | 800 - 2,590  | 10,000                         |  |   |                          |
|              | 0 - 800  | 13,000                         |  |   |                          |
| May          | 300 - FULL   | 10,000                         |  | 0.0   | 10,000 3/                |
|              | 295 - 300  | 10,000 3/                      |  |   |                          |
|              | 194 - 295  | 14,000                         |  |   |                          |
|              | 0 - 194  | 22,000                         |  |   |                          |
| June         | 1,280 - FULL   | 10,000                         |  | 0.0   | 10,000 3/                |
|              | 1,160 - 1,280  | 10,000 3/                      |  |   |                          |
|              | 480 - 1,160  | 12,000                         |  |   |                          |
|              | 0 - 480  | 17,000                         |  |   |                          |
| July         | 1,940 - FULL   | -                              | 3,456.2                                      | 0.0   | 10,000 3/                |
|              | 1,800 - 1,940  | 17,000                         |  |   |                          |
|              | 0 - 1,800  | 24,000                         |  |   |                          |

Notes: 1/ A maximum outflow of 34,000 cfs will apply if the Target End-of-Month Storage Content is less than 3,529.2 ksfd in every month except April, May, and June. For these months, the maximum outflow is 32,000 cfs in April 1-15, 27,000 cfs in April 16-30, 30,000 cfs in May, and 33,000 cfs in June.

2/ Mica outflows will be reduced to minimum to maintain the reservoir above the minimum Treaty storage content. This will override any target flow.

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   |  |  |   |  |
|--------------|--|--|--|---|--|
|              | End of Previous Month<br>Arrow Storage Content<br>(hm <sup>3</sup> ) | Month Average Outflow<br>(m <sup>3</sup> /s) | End-of-Month<br>Storage Content 1/<br>(hm <sup>3</sup> ) | Minimum Target<br>Treaty Content at Mica 2/<br>(hm <sup>3</sup> ) | Minimum Outflow<br>(m <sup>3</sup> /s) |
| August 1-15  | 6361.2 - FULL  | -  | 8,529.3  | 0.0   | 424.75                                 |
|              | 4036.9 - 6361.2  | 453.07                                       |  |   |  |
|              | 0.0 - 4036.9   | 736.24                                       |  |   |  |
| August 16-31 | 3547.6 - FULL  | -  | 8,634.5  | 0.0   | 424.75                                 |
|              | 3547.6 - 8318.4  | 594.65                                       |  |   |  |
|              | 0.0 - 3547.6   | 736.24                                       |  |   |  |
| September    | 8465.2 - FULL  | -  | 8,634.5  | 0.0   | 283.17                                 |
|              | 4428.3 - 8465.2  | 622.97                                       |  |   |  |
|              | 0.0 - 4428.3   | 764.55                                       |  |   |  |
| October      | 7572.2 - FULL  | -  | 8,309.1  | 0.0   | 283.17                                 |
|              | 4966.6 - 7572.2  | 594.65                                       |  |   |  |
|              | 0.0 - 4966.6   | 792.87                                       |  |   |  |
| November     | 7095.1 - FULL  | 566.34                                       |  | 0.0   | 339.80                                 |
|              | 6410.1 - 7095.1  | 622.97                                       |  |   |  |
|              | 2324.3 - 6410.1  | 679.60                                       |  |   |  |
|              | 0.0 - 2324.3   | 821.19                                       |  |   |  |
| December     | 7462.1 - FULL  | 622.97                                       |  | 506.4   | 594.65                                 |
|              | 6141.0 - 7462.1  | 707.92                                       |  |   |  |
|              | 2446.6 - 6141.0  | 764.55                                       |  |   |  |
|              | 0.0 - 2446.6   | 821.19                                       |  |   |  |
| January      | 6287.8 - FULL  | 679.60                                       |  | 259.8   | 424.75                                 |
|              | 6092.0 - 6287.8  | 651.29                                       |  |   |  |
|              | 3699.3 - 6092.0  | 736.24                                       |  |   |  |
|              | 0.0 - 3699.3   | 792.87                                       |  |   |  |
| February     | 3694.4 - FULL  | 594.65                                       |  | 0.0   | 424.75                                 |
|              | 929.7 - 3694.4   | 651.29                                       |  |   |  |
|              | 893.0 - 929.7  | 594.65                                       |  |   |  |
|              | 0.0 - 893.0  | 792.87                                       |  |   |  |
| March        | 3143.9 - FULL  | 622.97                                       |  | 0.0   | 424.75                                 |
|              | 1810.5 - 3143.9  | 566.34                                       |  |   |  |
|              | 1651.5 - 1810.5  | 679.60                                       |  |   |  |
|              | 0.0 - 1651.5   | 764.55                                       |  |   |  |
| April 1-15   | 4049.1 - FULL  | -  | 798.1  | 0.0   | 368.12                                 |
|              | 3547.6 - 4049.1  | -  | 39.6   |   |  |
|              | 2446.6 - 3547.6  | 509.70                                       |  |   |  |
|              | 0.0 - 2446.6   | -  | 0.0  |   |  |
| April 16-30  | 6801.5 - FULL  | -  | 137.5  | 0.0   | 283.17                                 |
|              | 6336.7 - 6801.5  | -  | 0.0  |   |  |
|              | 1957.3 - 6336.7  | 283.17                                       |  |   |  |
|              | 0.0 - 1957.3   | 368.12                                       |  |   |  |
| May          | 734.0 - FULL   | 283.17                                       |  | 0.0   | 283.17 3/                              |
|              | 721.7 - 734.0  | 283.17 3/                                    |  |   |  |
|              | 474.6 - 721.7  | 396.44                                       |  |   |  |
|              | 0.0 - 474.6  | 622.97                                       |  |   |  |
| June         | 3131.6 - FULL  | 283.17                                       | 0.0  | 0.0   | 283.17 3/                              |
|              | 2838.1 - 3131.6  | 283.17 3/                                    |  |   |  |
|              | 1174.4 - 2838.1  | 339.80                                       |  |   |  |
|              | 0.0 - 1174.4   | 481.39                                       |  |   |  |
| July         | 4746.4 - FULL  | -  | 8,455.9  | 0.0   | 283.17 3/                              |
|              | 4403.9 - 4746.4  | 481.39                                       |  |   |  |
|              | 0.0 - 4403.9   | 679.60                                       |  |   |  |

Notes: 1/ A maximum outflow of 962.77 m<sup>3</sup>/s will apply if the Target End-of-Month Storage Content is less than 8634.5 h m<sup>3</sup> in every month except April, May, and June.  
For these months, the maximum outflow is 906.14 m<sup>3</sup>/s in April 1-15, 764.55 m<sup>3</sup>/s in April 16-30, 849.50 m<sup>3</sup>/s in May, and 934.48 m<sup>3</sup>/s in June.

2/ Mica outflows will be reduced to minimum to maintain the reservoir above the minimum Treaty storage content. This will override any target flow.

3/ The Entities have agreed to change the Mica minimum outflow from 226.53 m<sup>3</sup>/s listed in the AOP to 283.17 m<sup>3</sup>/s.

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

| Month | DUNCAN                   |               |                               |       |             | MICA                  |               |                                  |        |              | ARROW       |                       |               |                                  |         |                           |             |
|-------|--------------------------|---------------|-------------------------------|-------|-------------|-----------------------|---------------|----------------------------------|--------|--------------|-------------|-----------------------|---------------|----------------------------------|---------|---------------------------|-------------|
|       | 1931<br>Inflow<br>cfs 3/ | PDR<br>cfs 4/ | Water Available<br>for Refill |       | ARC<br>ksfd | 1931<br>Inflow<br>cfs | PDR<br>cfs 4/ | Water<br>Available<br>for Refill |        | CRC1<br>ksfd | ARC<br>ksfd | 1931<br>Inflow<br>cfs | PDR<br>cfs 4/ | Water<br>Available<br>for Refill |         | MICA<br>Refill<br>ksfd 2/ | ARC<br>Ksfd |
|       |                          |               | cfs                           | ksfd  |             |                       |               | cfs                              | ksfd   |              |             |                       |               | cfs                              | ksfd    |                           |             |
| July  | 7320                     | 2000          | 5320                          | 164.9 | 705.8       | 56477                 | 22000         | 34477                            | 1068.8 | 3374.7       | 3529.2      | 88586                 | 52000         | 36586                            | 1134.2  | 1068.8                    | 3579.6      |
| June  | 8030                     | 2000          | 6030                          | 180.9 | 540.9       | 60178                 | 22000         | 38178                            | 1145.3 | 2312.0       | 2460.4      | 114636                | 51000         | 63636                            | 1909.1  | 1145.3                    | 3514.2      |
| May   | 5170                     | 1500          | 3670                          | 113.8 | 360.0       | 28058                 | 22000         | 6058                             | 187.8  | 664.5        | 1315.1      | 68098                 | 50000         | 18098                            | 561.0   | 187.8                     | 2750.5      |
| Apr2  | 981                      | 1500          | -519                          | -7.8  | 246.2       | 7217                  | 22000         | -14783                           | -221.7 | 204.3        | 1127.3      | 20504                 | 50000         | -29496                           | -442.4  | -221.7                    | 2377.2      |
| April | 981                      | 1500          | -519                          | -7.8  | 254.0       | 4679                  | 20000         | -15321                           | -229.8 | 523.5        | 1349.0      | 10700                 | 40000         | -29300                           | -439.5  | -229.8                    | 2597.9      |
| Mar   | 555                      | 1500          | -945                          | -29.3 | 261.8       | 3219                  | 20000         | -16781                           | -520.2 | 1225.8       | 1578.8      | 7653                  | 40000         | -32347                           | -1002.8 | -520.2                    | 2807.6      |
| Feb   | 428                      | 1500          | -1072                         | -30.0 | 291.1       | 2593                  | 20000         | -17407                           | -487.4 | 1221.4       | 2099.0      | 5813                  | 40000         | -34187                           | -957.2  | -487.4                    | 3290.2      |
| Jan   | 428                      | 100           | 328                           | 10.2  | 321.1       | 2834                  | 3000          | -166                             | -5.1   | 1779.8       | 2586.4      | 6430                  | 5000          | 1430                             | 44.3    | -8.4                      | 3579.6      |
| Dec   | 461                      | 100           | 361                           | 11.2  | 310.9       | 3533                  | 3000          | 533                              | 16.5   | 2594.8       | 2591.6      | 6694                  | 5000          | 1694                             | 52.5    | -413.1                    | 3526.9      |
| Nov   | 684                      | 100           | 584                           | 17.5  | 299.7       | 5176                  | 3000          | 2176                             | 65.3   | 3007.9       | 2575.1      | 9483                  | 5000          | 4483                             | 134.5   | -101.1                    | 3061.3      |
| Oct   | 1090                     | 100           | 990                           | 30.7  | 282.2       | 8751                  | 3000          | 5751                             | 178.3  | 3109.0       | 2509.8      | 14691                 | 5000          | 9691                             | 300.4   | -231.9                    | 2825.7      |
| Sep   | 2310                     | 100           | 2210                          | 66.3  | 251.5       | 23110                 | 3000          | 20110                            | 603.3  | 3340.9       | 2331.5      | 39739                 | 5000          | 34739                            | 1042.2  | -188.3                    | 2293.4      |
| Aug2  | 4530                     | 100           | 4430                          | 70.9  | 185.2       | 38261                 | 3000          | 35261                            | 564.2  | 3529.2       | 1728.2      | 62605                 | 5000          | 57605                            | 921.7   | 0.0                       | 1062.9      |
| Aug1  | 4530                     | 100           | 4430                          | 66.5  | 114.3       | 53542                 | 3000          | 50542                            | 758.1  | 3529.2       | 1164.0      | 82249                 | 5000          | 77249                            | 1158.7  | 3529.2                    | 141.2       |

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

| Month | DUNCAN                    |                |                                  |       |            | MICA                   |                |                                  |         |             | ARROW      |                        |                |                                  |         |                          |            |
|-------|---------------------------|----------------|----------------------------------|-------|------------|------------------------|----------------|----------------------------------|---------|-------------|------------|------------------------|----------------|----------------------------------|---------|--------------------------|------------|
|       | 1931<br>Inflow<br>m³/s 3/ | PDR<br>m³/s 4/ | Water<br>Available<br>for Refill |       | ARC<br>hm³ | 1931<br>Inflow<br>m³/s | PDR<br>m³/s 4/ | Water<br>Available<br>For Refill |         | CRC1<br>hm³ | ARC<br>hm³ | 1931<br>Inflow<br>m³/s | PDR<br>m³/s 4/ | Water<br>Available<br>For Refill |         | MICA<br>Refill<br>hm³ 2/ | ARC<br>hm³ |
|       |                           |                | m³/s                             | hm³   |            |                        |                | m³/s                             | hm³     |             |            |                        |                | m³/s                             | hm³     |                          |            |
| July  | 207.28                    | 56.63          | 150.65                           | 403.5 | 1726.8     | 1599.25                | 622.97         | 976.28                           | 2614.9  | 8256.5      | 8634.5     | 2508.47                | 1472.47        | 1036.00                          | 2774.9  | 2614.9                   | 8757.8     |
| June  | 227.38                    | 56.63          | 170.75                           | 442.6 | 1323.3     | 1704.05                | 622.97         | 1081.08                          | 2802.2  | 5656.5      | 6019.6     | 3246.13                | 1444.16        | 1801.97                          | 4670.8  | 2802.2                   | 8597.9     |
| May   | 146.40                    | 42.48          | 103.92                           | 278.3 | 880.7      | 794.51                 | 622.97         | 171.54                           | 459.5   | 1625.8      | 3217.5     | 1928.32                | 1415.84        | 512.48                           | 1372.6  | 459.5                    | 6729.3     |
| Apr2  | 27.78                     | 42.48          | -14.70                           | -19.0 | 602.4      | 204.36                 | 622.97         | -418.61                          | -542.5  | 499.8       | 2758.0     | 580.61                 | 1415.84        | -835.23                          | -1082.5 | -542.5                   | 5816.2     |
| April | 27.78                     | 42.48          | -14.70                           | -19.0 | 621.4      | 132.49                 | 566.34         | -433.84                          | -562.3  | 1280.8      | 3300.5     | 302.99                 | 1132.67        | -829.68                          | -1075.3 | -562.3                   | 6356.1     |
| Mar   | 15.72                     | 42.48          | -26.76                           | -71.7 | 640.5      | 91.15                  | 566.34         | -475.18                          | -1272.7 | 2999.0      | 3862.8     | 216.71                 | 1132.67        | -915.96                          | -2453.3 | -1272.7                  | 6869.1     |
| Feb   | 12.12                     | 42.48          | -30.36                           | -73.4 | 712.1      | 73.43                  | 566.34         | -492.91                          | -1192.5 | 2988.3      | 5135.5     | 164.61                 | 1132.67        | -968.07                          | -2342.0 | -1192.5                  | 8049.7     |
| Jan   | 12.12                     | 2.83           | 9.29                             | 24.9  | 785.6      | 80.25                  | 84.95          | -4.70                            | -12.6   | 4354.5      | 6328.0     | 182.08                 | 141.58         | 40.49                            | 108.5   | -20.4                    | 8757.8     |
| Dec   | 13.05                     | 2.83           | 10.22                            | 27.4  | 760.7      | 100.04                 | 84.95          | 15.09                            | 40.4    | 6348.4      | 6340.6     | 189.55                 | 141.58         | 47.97                            | 128.5   | -1010.7                  | 8628.9     |
| Nov   | 19.37                     | 2.83           | 16.54                            | 42.9  | 733.3      | 146.57                 | 84.95          | 61.62                            | 159.7   | 7359.1      | 6300.2     | 268.53                 | 141.58         | 126.94                           | 329.0   | -247.4                   | 7489.8     |
| Oct   | 30.87                     | 2.83           | 28.03                            | 75.1  | 690.5      | 247.80                 | 84.95          | 162.85                           | 436.2   | 7606.5      | 6140.4     | 416.00                 | 141.58         | 274.42                           | 735.0   | -567.4                   | 6913.4     |
| Sep   | 65.41                     | 2.83           | 62.58                            | 162.2 | 615.4      | 654.40                 | 84.95          | 569.45                           | 1476.0  | 8173.8      | 5704.3     | 1125.28                | 141.58         | 983.70                           | 2549.8  | -460.7                   | 5611.0     |
| Aug2  | 128.28                    | 2.83           | 125.44                           | 173.4 | 453.2      | 1083.43                | 84.95          | 998.48                           | 1380.3  | 8634.5      | 4228.2     | 1772.77                | 141.58         | 1631.19                          | 2255.0  | 0.0                      | 2600.5     |
| Aug1  | 128.28                    | 2.83           | 125.44                           | 162.6 | 279.7      | 1516.14                | 84.95          | 1431.19                          | 1854.8  | 8634.5      | 2847.9     | 2329.03                | 141.58         | 2187.45                          | 2835.0  | 8634.5                   | 345.6      |

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 2001-02 AOP.

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

End-of-Month Usable Storage Content

| Month     | (English)<br>(ksfd) |        |        |        | (SI)<br>(hm <sup>3</sup> ) |        |        |         |
|-----------|---------------------|--------|--------|--------|----------------------------|--------|--------|---------|
|           | 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 | 3529.2              | 3575.0 | 702.0  | 7806.2 | 8634.5                     | 8746.6 | 1717.5 | 19098.6 |
| September | 3340.9              | 3406.3 | 665.0  | 7412.2 | 8173.8                     | 8333.9 | 1627.0 | 18134.7 |
| October   | 3109.0              | 3222.4 | 640.0  | 6971.4 | 7606.5                     | 7883.9 | 1565.8 | 17056.2 |
| November  | 3007.9              | 2994.6 | 472.3  | 6474.8 | 7359.1                     | 7326.6 | 1155.5 | 15841.2 |
| December  | 2594.8              | 2295.6 | 420.0  | 5310.4 | 6348.4                     | 5616.4 | 1027.6 | 12992.4 |
| January   | 1779.8              | 1542.9 | 240.0  | 3562.7 | 4354.5                     | 3774.9 | 587.2  | 8716.5  |
| February  | 1221.4              | 1352.6 | 170.0  | 2744.0 | 2988.3                     | 3309.3 | 415.9  | 6713.5  |
| March     | 1225.8              | 1362.7 | 123.0  | 2711.5 | 2999.0                     | 3334.0 | 300.9  | 6634.0  |
| April 15  | 523.5               | 817.3  | 117.9  | 1458.7 | 1280.8                     | 1999.6 | 288.5  | 3568.9  |
| April 30  | 204.3               | 334.0  | 126.3  | 664.6  | 499.8                      | 817.2  | 309.0  | 1626.0  |
| May       | 664.5               | 1075.9 | 243.8  | 1984.2 | 1625.8                     | 2632.3 | 596.5  | 4854.5  |
| June      | 2312.0              | 2406.5 | 518.6  | 5237.1 | 5656.5                     | 5887.7 | 1268.8 | 12813.1 |
| July      | 3374.7              | 3372.8 | 705.5  | 7453.0 | 8256.5                     | 8251.9 | 1726.1 | 18234.5 |

Source: First-year critical rule curves from the 2001-02 AOP.

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

End-of-Month Usable Storage Content

| Month     | (English)<br>(ksfd) |        |        |        | (SI)<br>(hm <sup>3</sup> ) |        |        |         |
|-----------|---------------------|--------|--------|--------|----------------------------|--------|--------|---------|
|           | Mica                | Arrow  | Duncan | Total  | Mica                       | Arrow  | Duncan | Total   |
| August 15 | 3511.0              | 3543.3 | 705.8  | 7760.1 | 8590.0                     | 8669.0 | 1726.8 | 18985.9 |
| August 31 | 3478.7              | 3506.7 | 684.8  | 7670.2 | 8511.0                     | 8579.5 | 1675.4 | 18765.9 |
| September | 3110.6              | 3208.9 | 665.0  | 6984.5 | 7610.4                     | 7850.9 | 1627.0 | 17088.3 |
| October   | 2577.7              | 3199.4 | 640.0  | 6417.1 | 6306.6                     | 7827.7 | 1565.8 | 15700.1 |
| November  | 1732.4              | 2860.8 | 472.3  | 5065.5 | 4238.5                     | 6999.2 | 1155.5 | 12393.3 |
| December  | 1675.2              | 1717.5 | 240.0  | 3632.7 | 4098.5                     | 4202.0 | 587.2  | 8887.8  |
| January   | 712.6               | 801.5  | 63.8   | 1577.9 | 1743.4                     | 1960.9 | 156.1  | 3860.5  |
| February  | 565.8               | 848.8  | 40.0   | 1454.6 | 1384.3                     | 2076.7 | 97.9   | 3558.8  |
| March     | 561.7               | 774.0  | 2.1    | 1337.8 | 1374.3                     | 1893.7 | 5.1    | 3273.1  |
| April 15  | 39.7                | 426.1  | 11.9   | 477.7  | 97.1                       | 1042.5 | 29.1   | 1168.7  |
| April 30  | 12.9                | 284.7  | 21.6   | 319.2  | 31.6                       | 696.5  | 52.8   | 781.0   |
| May       | 651.9               | 689.0  | 118.6  | 1459.5 | 1594.9                     | 1685.7 | 290.2  | 3570.8  |
| June      | 1858.2              | 1801.4 | 329.4  | 3989.0 | 4546.3                     | 4407.3 | 805.9  | 9759.5  |
| July      | 2969.9              | 3005.2 | 523.7  | 6498.8 | 7266.2                     | 7352.5 | 1281.3 | 15900.0 |

Adjusted for Crossover

Source: The 2001-02 second-year critical rule curves are from the 2000-01 DOP unless higher than the first year critical rule curve.

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

| <b>Month</b> | <b>(English)<br/>(ksfd)</b> |              |               |              | <b>(SI)<br/>(hm<sup>3</sup>)</b> |              |               |              |
|--------------|-----------------------------|--------------|---------------|--------------|----------------------------------|--------------|---------------|--------------|
|              | <b>Mica</b>                 | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> | <b>Mica</b>                      | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> |
| August 15    | 3118.2                      | 3166.6       | 586.6         | 6871.4       | 7629.0                           | 7747.4       | 1435.2        | 16811.6      |
| August 31    | 3047.5                      | 3092.2       | 653.7         | 6793.4       | 7456.0                           | 7565.4       | 1599.3        | 16620.7      |
| September    | 2992.4                      | 3055.2       | 660.0         | 6707.6       | 7321.2                           | 7474.9       | 1614.8        | 16410.8      |
| October      | 2567.8                      | 3095.0       | 640.0         | 6302.8       | 6282.4                           | 7572.2       | 1565.8        | 15420.4      |
| November     | 1727.1                      | 2860.8       | 470.6         | 5058.5       | 4225.5                           | 6999.2       | 1151.4        | 12376.1      |
| December     | 1521.1                      | 1560.3       | 240.0         | 3321.4       | 3721.5                           | 3817.4       | 587.2         | 8126.1       |
| January      | 676.8                       | 800.8        | 61.1          | 1538.7       | 1655.9                           | 1959.2       | 149.5         | 3764.6       |
| February     | 559.4                       | 592.5        | 40.0          | 1191.9       | 1368.6                           | 1449.6       | 97.9          | 2916.1       |
| March        | 546.2                       | 561.0        | 1.8           | 1109.0       | 1336.3                           | 1372.5       | 4.4           | 2713.3       |
| April 15     | 39.7                        | 360.7        | 8.6           | 409.0        | 97.1                             | 882.5        | 21.0          | 1000.7       |
| April 30     | 1.1                         | 25.2         | 8.3           | 34.6         | 2.7                              | 61.7         | 20.3          | 84.7         |
| May          | 0.0                         | 486.8        | 70.0          | 556.8        | 0.0                              | 1191.0       | 171.3         | 1362.3       |
| June         | 778.7                       | 1652.3       | 307.9         | 2738.9       | 1905.2                           | 4042.5       | 753.3         | 6701.0       |
| July         | 1703.1                      | 1698.8       | 510.0         | 3911.9       | 4166.8                           | 4156.3       | 1247.8        | 9570.9       |

Adjusted for Crossover

Source: The 2001-02 third-year critical rule curves are from the 2001-02 AOP unless higher than the first or second year critical rule curves. This procedure differs from the normal procedure to use data from the second previous DOP because the 1999-00 DOP did not use data from the 2001-02 AOP.

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

| <b>Month</b> | <b>(English)<br/>(ksfd)</b> |              |               |              | <b>(SI)<br/>(hm<sup>3</sup>)</b> |              |               |              |
|--------------|-----------------------------|--------------|---------------|--------------|----------------------------------|--------------|---------------|--------------|
|              | <b>Mica</b>                 | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> | <b>Mica</b>                      | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> |
| August 15    | 1718.6                      | 1722.3       | 480.0         | 3920.9       | 4204.7                           | 4213.8       | 1174.4        | 9592.9       |
| August 31    | 1563.1                      | 1653.1       | 450.0         | 3666.2       | 3824.3                           | 4044.5       | 1101.0        | 8969.7       |
| September    | 1511.2                      | 1607.0       | 430.0         | 3548.2       | 3697.3                           | 3931.7       | 1052.0        | 8681.0       |
| October      | 1360.4                      | 1323.7       | 250.0         | 2934.1       | 3328.4                           | 3238.6       | 611.7         | 7178.6       |
| November     | 1022.3                      | 696.9        | 100.0         | 1819.2       | 2501.2                           | 1705.0       | 244.7         | 4450.9       |
| December     | 176.1                       | 614.5        | 2.0           | 792.6        | 430.8                            | 1503.4       | 4.9           | 1939.2       |
| January      | 10.0                        | 99.1         | 1.0           | 110.1        | 24.5                             | 242.5        | 2.4           | 269.4        |
| February     | 0.0                         | 0.0          | 0.0           | 0.0          | 0.0                              | 0.0          | 0.0           | 0.0          |

Source: The 2001-02 fourth-year critical rule curves are from the 2001-02 AOP unless higher than the first, second, or third year critical rule curves. This procedure differs from the normal procedure to use data from the third previous DOP because the 1998-99 DOP did not use data from the 2001-02 AOP.

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

| <b>Month</b> | <b>(English)<br/>(ksfd)</b> |              |               | <b>(SI)<br/>(hm<sup>3</sup>)</b> |              |               |
|--------------|-----------------------------|--------------|---------------|----------------------------------|--------------|---------------|
|              | <b>Mica</b>                 | <b>Arrow</b> | <b>Duncan</b> | <b>Mica</b>                      | <b>Arrow</b> | <b>Duncan</b> |
| January      | 651.6                       | 771.0        | 59.1          | 1594.2                           | 1886.3       | 144.6         |
| February     | 399.3                       | 435.5        | 16.0          | 976.9                            | 1065.5       | 39.1          |
| March        | 0.0                         | 0.0          | 0.0           | 0.0                              | 0.0          | 0.0           |
| Apr-15       | 0.1                         | 0.6          | 0.0           | 0.2                              | 1.5          | 0.0           |

Source: ECC Lower Limits for Mica, Arrow, and Duncan are from the 2001-02 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 by July 31 based on forecasts of natural inflow volume. The probable forecast volume runoff through July 31 at each reservoir for each month January through June is reduced by deducting the 95 percent confidence forecast error, the average percent runoff during that month, and the Power Discharge Requirements (PDR) and water required for refill at upstream reservoirs (based on the Operating Rule Curve) from the end of the month through July 31. The 2001-02 AOP Step I hydroregulation studies indicate that the PDR's for Canadian and most cyclic U.S. reservoirs must be greater than project minimum release to allow filling in accordance with the Principles and Procedures document. 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 use updated study results.

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

| <b>Project</b>     | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Ap1</b> | <b>Ap2</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> |
|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mica PDRs</b>   |            |            |            |            |            |            |            |            |
| ARC                | 3000       | 20000      | 20000      | 20000      | 22000      | 22000      | 22000      | 22000      |
| 80 MAF             | 3000       | 10000      | 10000      | 10000      | 12000      | 20000      | 20000      | 20000      |
| 95 MAF             | 3000       | 3000       | 3000       | 8000       | 10000      | 12000      | 15000      | 18000      |
| 110 MAF            | 3000       | 3000       | 3000       | 8000       | 10000      | 12000      | 15000      | 18000      |
| <b>Arrow PDRs</b>  |            |            |            |            |            |            |            |            |
| ARC                | 5000       | 40000      | 40000      | 40000      | 50000      | 50000      | 51000      | 52000      |
| 80 MAF             | 5000       | 18000      | 20000      | 20000      | 22000      | 30000      | 42000      | 44000      |
| 95 MAF             | 5000       | 5000       | 5000       | 8000       | 20000      | 27000      | 37000      | 37000      |
| 110 MAF            | 5000       | 5000       | 5000       | 8000       | 20000      | 27000      | 37000      | 37000      |
| <b>Duncan PDRs</b> |            |            |            |            |            |            |            |            |
| ARC                | 100        | 1500       | 1500       | 1500       | 1500       | 1500       | 2000       | 2000       |
| 80 MAF             | 100        | 100        | 100        | 100        | 1500       | 1800       | 2700       | 2900       |
| 95 MAF             | 100        | 100        | 100        | 100        | 400        | 600        | 2700       | 2900       |
| 110 MAF            | 100        | 100        | 100        | 100        | 400        | 600        | 2700       | 2900       |

**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 Requirements will be interpolated linearly between the values shown above.
- (2) Data is from the 2001-02 AOP for Canadian projects. 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 by July 31 based on forecasts of natural inflow volume. The probable forecast volume runoff through July 31 at each reservoir for each month January through June is reduced by deducting the 95 percent confidence forecast error, the average percent runoff during that month, and the Power Discharge Requirements (PDR) and water required for refill at upstream reservoirs (based on the Operating Rule Curve) from the end of the month through July 31. The 2001-02 AOP Step I hydroregulation studies indicate that the PDR's for Canadian and most cyclic U.S. reservoirs must be greater than project minimum release to allow filling in accordance with the Principles and Procedures document. 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 use updated study results.

**POWER DISCHARGE REQUIREMENTS  
FOR JANUARY - JULY VOLUME RUNOFF  
OF THE COLUMBIA RIVER AT THE DALLES, OREGON  
(m<sup>3</sup>/s)**

| <b>Project</b>         | <b>Jan</b> | <b>Feb</b> | <b>Mar</b> | <b>Ap1</b> | <b>Ap2</b> | <b>May</b> | <b>Jun</b> | <b>Jul</b> |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Mica PDRs</b>       |            |            |            |            |            |            |            |            |
| ARC                    | 84.95      | 566.34     | 566.34     | 566.34     | 622.97     | 622.97     | 622.97     | 622.97     |
| 98.68 km <sup>3</sup>  | 84.95      | 283.17     | 283.17     | 283.17     | 339.80     | 566.34     | 566.34     | 566.34     |
| 117.18 km <sup>3</sup> | 84.95      | 84.95      | 84.95      | 226.53     | 283.17     | 339.80     | 424.75     | 509.70     |
| 135.69 km <sup>3</sup> | 84.95      | 84.95      | 84.95      | 226.53     | 283.17     | 339.80     | 424.75     | 509.70     |
| <b>Arrow PDRs</b>      |            |            |            |            |            |            |            |            |
| ARC                    | 141.58     | 1132.67    | 1132.67    | 1132.67    | 1415.84    | 1415.84    | 1444.16    | 1472.47    |
| 98.68 km <sup>3</sup>  | 141.58     | 509.70     | 566.34     | 566.34     | 622.97     | 849.50     | 1189.31    | 1245.94    |
| 117.18 km <sup>3</sup> | 141.58     | 141.58     | 141.58     | 226.53     | 566.34     | 764.55     | 1047.72    | 1047.72    |
| 135.69 km <sup>3</sup> | 141.58     | 141.58     | 141.58     | 226.53     | 566.34     | 764.55     | 1047.72    | 1047.72    |
| <b>Duncan PDRs</b>     |            |            |            |            |            |            |            |            |
| ARC                    | 2.83       | 42.48      | 42.48      | 42.48      | 42.48      | 42.48      | 56.63      | 56.63      |
| 98.68 km <sup>3</sup>  | 2.83       | 2.83       | 2.83       | 2.83       | 42.48      | 50.97      | 76.46      | 82.12      |
| 117.18 km <sup>3</sup> | 2.83       | 2.83       | 2.83       | 2.83       | 11.33      | 16.99      | 76.46      | 82.12      |
| 135.69 km <sup>3</sup> | 2.83       | 2.83       | 2.83       | 2.83       | 11.33      | 16.99      | 76.46      | .82.12     |

Notes:

- (1) If the forecasted natural January through July volume runoff at The Dalles is less than 98.68 km<sup>3</sup>, the Power Discharge Requirements in the 98.68 km<sup>3</sup> schedule will be used. For intermediate forecasted volumes, the Power Discharge Requirements will be interpolated linearly between the values shown above.
- (2) Data is from the 2001-02 AOP for Canadian projects. 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<br>Total<br>Loads <u>1/</u> | RESOURCES                 |                      |                            |                    |                 |       | REGULATED<br>HYDRO<br>LOAD |
|-----------|-----------------------------------|---------------------------|----------------------|----------------------------|--------------------|-----------------|-------|----------------------------|
|           |                                   | Hydro<br>Indep. <u>2/</u> | Imports<br><u>3/</u> | Thermal<br>(Large & Small) | Combst.<br>Turbine | Misc. <u>4/</u> | Total |                            |
| August 15 | 21718                             | 1200                      | 1364                 | 4702                       | 1924               | 2046            | 11236 | 10481.8                    |
| August 31 | 21635                             | 1191                      | 1407                 | 4702                       | 1840               | 2046            | 11186 | 10449.5                    |
| September | 21203                             | 1125                      | 1169                 | 4702                       | 1821               | 2008            | 10825 | 10378.1                    |
| October   | 21567                             | 1179                      | 1281                 | 4702                       | 2061               | 2000            | 11223 | 10343.7                    |
| November  | 23446                             | 1324                      | 1937                 | 4703                       | 2019               | 2009            | 11992 | 11454.1                    |
| December  | 25023                             | 1313                      | 2188                 | 4703                       | 2061               | 2014            | 12279 | 12743.8                    |
| January   | 25607                             | 1289                      | 2420                 | 4703                       | 2061               | 1955            | 12428 | 13179.2                    |
| February  | 24513                             | 1164                      | 2476                 | 4703                       | 2061               | 1956            | 12360 | 12153.0                    |
| March     | 23238                             | 1201                      | 2078                 | 4515                       | 2061               | 1960            | 11815 | 11422.9                    |
| April 15  | 22046                             | 1469                      | 1816                 | 4168                       | 1604               | 2003            | 11060 | 10986.2                    |
| April 30  | 22180                             | 1494                      | 1302                 | 3451                       | 1612               | 1911            | 9770  | 12410.2                    |
| May       | 23525                             | 1750                      | 1172                 | 2610                       | 1888               | 1413            | 8833  | 14691.7                    |
| June      | 23692                             | 1652                      | 1275                 | 4261                       | 1944               | 2018            | 11150 | 12542.2                    |
| July      | 21962                             | 1337                      | 1432                 | 4702                       | 2053               | 2000            | 11524 | 10437.7                    |

Notes:

1/ The total loads as the sum of PNW Area load, firm exports, maintenance, and firm surplus.

2/ Based on the 50-year average.

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 2001-02 AOP DDPB Document, Table 1A, Regulated Hydro Load plus Other Coordination Hydro.

**Exhibit 9 - Second Critical Rule Curves for OY 02-03 (English & SI)**  
 End-of-Month Usable Storage Content

| <b>Month</b> | <b>(English)<br/>(ksfd)</b> |              |               |              | <b>(SI)<br/>(hm<sup>3</sup>)</b> |              |               |              |
|--------------|-----------------------------|--------------|---------------|--------------|----------------------------------|--------------|---------------|--------------|
|              | <b>Mica</b>                 | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> | <b>Mica</b>                      | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> |
| August 15    | 3511.0                      | 3543.3       | 705.8         | 7760.1       | 8590.0                           | 8669.0       | 1726.8        | 18985.9      |
| 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                        | 400.5        | 77.2          | 552.9        | 184.0                            | 979.9        | 188.9         | 1352.7       |
| 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      |

Source: These rule curves are from the 2002-03 second year AOP study.

**Exhibit 10 - Third Critical Rule Curves for OY 03-04 (English & SI)**  
 End-of-Month Usable Storage Content

| <b>Month</b> | <b>(English)<br/>(ksfd)</b> |              |               |              | <b>(SI)<br/>(hm<sup>3</sup>)</b> |              |               |              |
|--------------|-----------------------------|--------------|---------------|--------------|----------------------------------|--------------|---------------|--------------|
|              | <b>Mica</b>                 | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> | <b>Mica</b>                      | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> |
| August 15    | 3404.0                      | 3178.8       | 579.7         | 7162.5       | 8328.2                           | 7777.3       | 1418.3        | 17523.8      |
| August 31    | 3485.0                      | 3240.0       | 500.7         | 7225.7       | 8526.4                           | 7927.0       | 1225.0        | 17678.4      |
| September    | 3428.8                      | 3239.0       | 486.1         | 7153.9       | 8388.9                           | 7924.5       | 1189.3        | 17502.7      |
| October      | 2956.2                      | 2913.3       | 263.4         | 6132.9       | 7232.6                           | 7127.7       | 644.4         | 15004.8      |
| November     | 2124.2                      | 2720.5       | 139.7         | 4984.4       | 5197.1                           | 6656.0       | 341.8         | 12194.8      |
| December     | 1447.4                      | 1803.7       | 120.9         | 3372.0       | 3541.2                           | 4412.9       | 295.8         | 8249.9       |
| January      | 704.1                       | 610.8        | 103.0         | 1417.9       | 1722.7                           | 1494.4       | 252.0         | 3469.0       |
| February     | 609.4                       | 552.0        | 50.0          | 1211.4       | 1491.0                           | 1350.5       | 122.3         | 2963.8       |
| March        | 348.5                       | 895.1        | 10.0          | 1253.6       | 852.6                            | 2190.0       | 24.5          | 3067.1       |
| April 15     | 0.0                         | 252.1        | 23.2          | 275.3        | 0.0                              | 616.8        | 56.8          | 673.5        |
| April 30     | 0.0                         | 3.3          | 0.0           | 3.3          | 0.0                              | 8.1          | 0.0           | 8.1          |
| May          | 26.2                        | 506.2        | 157.2         | 689.6        | 64.1                             | 1238.5       | 384.6         | 1687.2       |
| June         | 1290.7                      | 1293.2       | 128.0         | 2711.9       | 3157.8                           | 3163.9       | 313.2         | 6634.9       |
| July         | 1511.6                      | 2202.0       | 52.2          | 3765.8       | 3698.3                           | 5387.4       | 127.7         | 9213.4       |

Source: These rule curves are from the 2003-04 third year AOP study.

**Exhibit 11 - Fourth Critical Rule Curves for OY 04-05 (English & SI)**  
 End-of-Month Usable Storage Content

| <b>Month</b> | <b>(English)<br/>(ksfd)</b> |              |               |              | <b>(SI)<br/>(hm<sup>3</sup>)</b> |              |               |              |
|--------------|-----------------------------|--------------|---------------|--------------|----------------------------------|--------------|---------------|--------------|
|              | <b>Mica</b>                 | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> | <b>Mica</b>                      | <b>Arrow</b> | <b>Duncan</b> | <b>Total</b> |
| August 15    | 1893.2                      | 1782.0       | 36.5          | 3711.7       | 4631.9                           | 4359.8       | 89.3          | 9081.0       |
| August 31    | 1800.3                      | 1611.4       | 39.5          | 3451.2       | 4404.6                           | 3942.5       | 96.6          | 8443.7       |
| September    | 1434.0                      | 1482.4       | 29.3          | 2945.7       | 3508.4                           | 3626.8       | 71.7          | 7206.9       |
| October      | 1034.7                      | 1348.1       | 56.5          | 2439.3       | 2531.5                           | 3298.3       | 138.2         | 5968.0       |
| November     | 808.2                       | 807.8        | 52.9          | 1668.9       | 1977.3                           | 1976.4       | 129.4         | 4083.1       |
| December     | 48.5                        | 161.6        | 0.4           | 210.5        | 118.7                            | 395.4        | 1.0           | 515.0        |
| January      | 0.0                         | 13.5         | 0.2           | 13.7         | 0.0                              | 33.0         | 0.5           | 33.5         |
| February     | 0.0                         | 0.0          | 0.0           | 0.0          | 0.0                              | 0.0          | 0.0           | 0.0          |
| March        | 0.0                         | 0.0          | 0.0           | 0.0          | 0.0                              | 0.0          | 0.0           | 0.0          |
| April 15     | 0.0                         | 0.0          | 0.0           | 0.0          | 0.0                              | 0.0          | 0.0           | 0.0          |
| April 30     | 0.0                         | 0.0          | 0.0           | 0.0          | 0.0                              | 0.0          | 0.0           | 0.0          |
| May          | 0.0                         | 0.0          | 0.0           | 0.0          | 0.0                              | 0.0          | 0.0           | 0.0          |
| June         | 0.0                         | 0.0          | 0.0           | 0.0          | 0.0                              | 0.0          | 0.0           | 0.0          |
| July         | 0.0                         | 0.0          | 0.0           | 0.0          | 0.0                              | 0.0          | 0.0           | 0.0          |

Source: These rule curves are from the 2004-05 fourth year AOP study.

**Exhibit 12 – Duncan Reservoir Capacity Table (English)**

ksfd

| ELEVATION<br>IN<br>FEET | .0    | .1    | .2    | .3    | .4    | .5    | .6    | .7    | .8    | .9    | AVERAGE<br>DIFFERENCE<br>PER TENTH<br>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 12 – Duncan Reservoir Capacity Table (English)**  
ksfd

| ELEVATION<br>IN<br>FEET | .0    | .1    | .2    | .3    | .4    | .5    | .6    | .7    | .8    | .9    | AVERAGE<br>DIFFERENCE<br>PER TENTH<br>FT |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 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 12 – Duncan Reservoir Capacity Table (English)**

ksfd

| ELEVATION<br>IN<br>FEET | .0   | .1   | .2   | .3   | .4   | .5   | .6   | .7   | .8   | .9   | AVERAGE<br>DIFFERENCE<br>PER TENTH<br>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 12M– Duncan Reservoir Capacity Table (SI)**hm<sup>3</sup>

| ELEVATION<br>IN<br>METERS | .00    | .03    | .06    | .09    | .12    | .15    | .18    | .21    | .24    | .27    | AVERAGE<br>DIFFERENCE<br>PER<br>3/100 M |
|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
| 576.68                    | 1726.8 |        |        |        |        |        |        |        |        |        |   |
| 576.38                    | 1705.0 | 1707.2 | 1709.4 | 1711.6 | 1713.8 | 1715.8 | 1718.0 | 1720.2 | 1722.4 | 1724.6 | 2.18                                    |
| 576.07                    | 1683.3 | 1685.5 | 1687.7 | 1689.9 | 1692.1 | 1694.0 | 1696.2 | 1698.4 | 1700.6 | 1702.8 | 2.18                                    |
| 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 | 2.15                                    |
| 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 | 2.10                                    |
| 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 | 2.01                                    |
| 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 12M– Duncan Reservoir Capacity Table (SI)**  
hm<sup>3</sup>

| ELEVATION<br>IN<br>METERS |       |       |       |       |       |       |       |       |       |       | AVERAGE<br>DIFFERENCE<br>PER<br>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 12M– Duncan Reservoir Capacity Table (SI)**hm<sup>3</sup>

| ELEVATION<br>IN<br>METERS | .00   | .03   | .06   | .09   | .12   | .15   | .18   | .21   | .24   | .27   | AVERAGE<br>DIFFERENCE PER<br>3/100 M |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------------------|
| 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 13 – Arrow Reservoir Capacity Table (English)**  
ksfd

| ELEVATION<br>IN<br>FEET | .0     | .1     | .2     | .3     | .4     | .5     | .6     | .7     | .8     | .9     | AVERAGE<br>DIFFERENCE<br>PER TENTH<br>FT |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| 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 13 – Arrow Reservoir Capacity Table (English)**

ksfd

| ELEVATION<br>IN<br>FEET | .0     | .1     | .2     | .3     | .4     | .5     | .6     | .7     | .8     | .9     | AVERAGE<br>DIFFERENCE<br>PER TENTH<br>FT |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| 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 13M – Arrow Reservoir Capacity Table (SI)

hm<sup>3</sup>

| ELEVATION<br>IN.<br>METERS |        |        |        |        |        |        |        |        |        |        | AVERAGE<br>DIFFERENCE<br>PER<br>3/100 M |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
|                            | .00    | .03    | .06    | .09    | .12    | .15    | .18    | .21    | .24    | .27    |   |
| 440.13                     | 8757.8 |        |        |        |        |        |        |        |        |        |   |
| 439.83                     | 8597.6 | 8613.5 | 8629.6 | 8645.6 | 8661.7 | 8677.6 | 8693.7 | 8709.7 | 8725.8 | 8741.7 | 16.03                                   |
| 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 13M– Arrow Reservoir Capacity Table (SI)**hm<sup>3</sup>

| ELEVATION<br>IN<br>METERS |        |        |        |        |        |        |        |        |        |        | AVERAGE<br>DIFFERENCE<br>PER<br>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 14 – Mica Reservoir Capacity Table (English)**

ksfd

| ELEVATION<br>IN<br>FEET | .0      | .1      | .2      | .3      | .4      | .5      | .6      | .7      | .8      | .9      | AVERAGE<br>DIFFERENCE<br>PER TENTH<br>FT |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| 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 14 – Mica Reservoir Capacity Table (English)**

ksfd

| EL E V A T I O N<br>IN<br>F E E T | .0     | .1     | .2     | .3     | .4     | .5     | .6     | .7     | .8     | .9     | AVERAGE<br>D I F F E R E N C E<br>P E R T E N T H<br>F T |
|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| 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 14 – Mica Reservoir Capacity Table (English)**  
ksfd

| ELEVATION<br>IN<br>FEET |        |        |        |        |        |        |        |        |        |        | AVERAGE<br>DIFFERENCE<br>PER TENTH<br>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 14 – Mica Reservoir Capacity Table (English)**  
ksfd

| ELEVATION<br>IN<br>FEET |        |        |        |        |        |        |        |        |        |        | AVERAGE<br>DIFFERENCE<br>PER TENTH<br>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 14M– Mica Reservoir Capacity Table (SI)**hm<sup>3</sup>

| ELEVATION<br>IN<br>METERS | .00     |         |         |         |         |         |         |         |         |         |  | AVERAGE<br>DIFFERENCE<br>PER<br>3/100 M |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|---|
|                           |         | .03     | .06     | .09     | .12     | .15     | .18     | .21     | .24     | .27     |  |   |
| 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 14M– Mica Reservoir Capacity Table (SI)**hm<sup>3</sup>

| ELEVATION<br>IN<br>METERS | .00     | .03     | .06     | .09     | .12     | .15     | .18     | .21     | .24     | .27     | AVERAGE<br>DIFFERENCE<br>PER<br>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 14M– Mica Reservoir Capacity Table (SI)**  
**hm<sup>3</sup>**

| ELEVATION<br>IN<br>METERS |         |         |         |         |         |         |         |         |         |         |      | AVERAGE<br>DIFFERENCE<br>PER<br>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 14M– Mica Reservoir Capacity Table (SI)**  
hm<sup>3</sup>

| ELEVATION<br>IN<br>METERS | .00     | .03     | .06     | .09     | .12     | .15     | .18     | .21     | .24     | .27     | AVERAGE<br>DIFFERENCE<br>PER<br>3/100 M |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|
| 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                                    |