



(AUTHENTICATED COPY)

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

In reply refer to: PCH

April 26, 1978

Contract No. EW-78-Y-83-0069

Mr. W. E. Kenny
Manager, Operations Control Department
British Columbia Hydro and Power Authority
970 Burrard Street
Vancouver, B.C., Canada V6Z 1Y3

Dear Mr. Kenny:

Forecasts of inflow to McNaughton Lake (Mica Reservoir) during the April through July 1978 period indicate that the Mica Reservoir has substantially less probability of refilling during the summer of 1978 than do other reservoirs affecting the Federal Columbia River Power System. Refill of the Mica Reservoir would be advantageous to both the Bonneville Power Administration (Bonneville) and to the British Columbia Hydro and Power Authority (B.C. Hydro). The probability of refilling Mica Reservoir can be enhanced by permitting Bonneville to deliver electric energy to B.C. Hydro for storage in Mica Reservoir.

In addition to Mica refill consideration, B.C. Hydro can gain flexibility in the operation of its system by delivering electric energy to Bonneville for storage in the Mica and Arrow Lakes Reservoirs.

Discussions between representatives of Bonneville and B.C. Hydro have resulted in the development of a mutually beneficial proposal whereby each party may deliver energy to the other for storage in reservoirs. This letter constitutes the Mica Storage Arrangement referred to in the Agreement to Enhance Filling of Mica Reservoir between the Canadian and the United States entities. Accordingly, the parties hereby agree to the following terms and conditions:

1. Term. This agreement shall become effective on the date of execution by the parties, subject to ratification by an enabling agreement between the United States and Canadian Entities. This agreement shall continue in effect until 2400 hours on July 31, 1979.

2. Storage of United States Energy in Mica.

(a) Supply of Energy. At times when Bonneville determines that Federal or non-Federal energy is available for storage hereunder, and B.C. Hydro determines that it is able to accept such energy by reducing

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the discharge at the Mica Project below the levels specified in the applicable Detailed Operating Plan, Bonneville will schedule such energy to B.C. Hydro at delivery rates, times and in amounts agreed upon in advance by the parties. Such energy (BPA Mica Storage Energy) will be used in lieu of generation at the Mica Project and will be considered stored in Mica Reservoir. Prior to scheduling energy hereunder, Bonneville will give B.C. Hydro as much notice as is practicable of the amounts of energy that it expects to have available for the following day or days, and B.C. Hydro will give Bonneville similar notice of the amounts of energy that it expects to be able to accept.

(b) Storage Return. At times when Bonneville requests return of energy stored under subsection (a) above, and B.C. Hydro determines that it is able to provide energy for return by increasing the discharge at the Mica Project above the level specified in the applicable Detailed Operating Plan, B.C. Hydro will schedule the energy which can be produced at Mica by the release of any balance in the BPA Mica Storage Account to Bonneville at delivery rates, times and in amounts agreed upon in advance by the parties. B.C. Hydro shall not be obligated to return BPA Mica Storage Energy at a rate of delivery in excess of the generating capacity of its system which it determines is available for that purpose, or to operate its system in such a manner as to adversely affect its sales to utilities or service to its customers.

(c) BPA Mica Storage Account. Energy stored or returned under subsections (a) and (b) above shall be accounted for in a special storage account (BPA Mica Storage Account). The BPA Mica Storage Account shall be kept in units of water stored in Mica Reservoir and conversions between energy and stored water will be based on the daily average water-to-energy conversion factor at the Mica Project on the day of the delivery or return. BPA Mica Storage Energy shall be located in the top portion of the Mica Reservoir and, subject to the provisions of section 5, any water that spills at the Mica Project because the reservoir is full or because vacant reservoir space must be maintained in the Mica Reservoir shall be deducted from the balance in the BPA Mica Storage Account. B.C. Hydro will make reasonable efforts to avoid spill of storage and will notify Bonneville with as much notice as practicable if it appears likely that water will be spilled from the BPA Mica Storage Account. Any balance remaining in the BPA Mica Storage Account on July 31, 1979, shall be deemed to be Treaty storage. B.C. Hydro shall have no obligation to return to Bonneville energy which can be generated at Mica from release of such storage after July 31, 1979.

3. Storage of Canadian Energy in Canadian Treaty Reservoirs.

(a) Supply of Energy. At times when B.C. Hydro determines that it has energy available for storage in Treaty or non-Treaty space in Arrow Lakes or Mica Reservoirs (Canadian Treaty Reservoirs), and Bonneville

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determines that it is able to accept such energy by effectively reducing the discharge at hydroelectric plants in the United States by reducing its request for release of water from Canadian Treaty Reservoirs below that which it would otherwise have requested, and B.C. Hydro determines that it can make such reduction in release of water from Canadian Treaty Reservoirs, B.C. Hydro will schedule such energy to Bonneville at delivery rates, times and in amounts agreed upon in advance by the parties. Such energy (B.C. Hydro Storage Transfer Energy) will be considered stored in Treaty or non-Treaty space in Arrow Lakes or Mica Reservoir as designated at the time of delivery by B.C. Hydro; provided, however, that B.C. Hydro may designate such energy as being stored in Mica Reservoir only to the extent that B.C. Hydro reduces the discharge from Mica Reservoir below the discharge levels specified in the applicable Detailed Operating Plan. Treaty space shall mean the 7.1 million acre-feet of space in the Arrow Lakes Reservoir and the 7.0 million acre-feet of space in the Mica Reservoir which are operated pursuant to the Columbia River Treaty. Non-Treaty space shall mean any other space in the Arrow Lakes Reservoir or in the Mica Reservoir which B.C. Hydro deems is operable for the purposes of this agreement. Prior to scheduling energy hereunder, B.C. Hydro will give Bonneville as much notice as is practicable of the amounts of energy that it expects to have available for the following day or days, and Bonneville will give B.C. Hydro similar notice of the amounts of energy that it expects to be able to accept.

(b) Storage Return. At times when B.C. Hydro requests return of energy stored under subsection (a) above, and Bonneville determines that it is able to provide energy for return by effectively increasing the discharge at hydroelectric plants in the United States by increasing its request for release of water from Canadian Treaty Reservoirs above that which it would otherwise have requested, and B.C. Hydro determines that it can make such increase in release of water from Canadian Treaty Reservoirs, Bonneville will schedule to B.C. Hydro the energy which can be produced at hydroelectric plants downstream in the United States by the release of any balance in the B.C. Hydro Storage Transfer Account at times, rates and in amounts agreed upon in advance by the parties; provided, however, that return of energy produced at non-Federal hydroelectric plants downstream in the United States will be subject to the ability of Bonneville to obtain such energy from the owners of such plants. During times of return of B.C. Hydro Storage Transfer Energy, B.C. Hydro shall designate the type of space and the reservoir from which the water is being released; provided, however, that B.C. Hydro may designate such release as being from Mica Reservoir only to the extent that B.C. Hydro increases the discharge from Mica Reservoir above the discharge levels specified in the applicable Detailed Operating Plan. Bonneville shall not be obligated to return B.C. Hydro Storage Transfer Energy at a rate in excess of the generating capacity of its system which it determines is available for such purpose, or to operate

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its system in such a manner as to adversely affect its sales to utilities or service to its customers. B.C. Hydro intends to use the return of B.C. Hydro Storage Transfer Energy which can be generated from release of the initial 500,000 acre-feet of the B.C. Hydro Storage Transfer Account for the purpose of moving water now stored in its non-Treaty storage space in Mica Reservoir to its non-Treaty system reservoirs. Bonneville shall not be obligated to return B.C. Hydro Storage Transfer Energy which would be generated from release of the initial 500,000 acre-feet of the B.C. Hydro Storage Transfer Account if such energy would be used for sale in the United States.

(c) B.C. Hydro Storage Transfer Account. Energy stored or returned under subsections (a) and (b) above shall be accounted for in a special storage account (B.C. Hydro Storage Transfer Account). Such account shall be established at the beginning of the term of this agreement at 500,000 acre-feet of water designated to be in non-Treaty storage space in the Mica Reservoir. The B.C. Hydro Storage Transfer Account shall be kept in units of water stored in the Arrow Lakes or Mica Reservoirs as designated by B.C. Hydro. Conversion of energy received for storage to stored water will be based on the total daily average water-to-energy conversion factor at all hydroelectric plants in the United States downstream from Canadian Treaty Reservoirs, whether such plants are spilling or not; provided, however, that the use of the water-to-energy conversion factors of non-Federal hydroelectric plants downstream in the United States in such total will be subject to the ability of Bonneville to deliver energy received from B.C. Hydro under this agreement to the owners of such plants. Conversion between stored water released and energy returned to B.C. Hydro will be as provided in subsection (b) above. B.C. Hydro Storage Transfer Energy shall be located in the top portion of the reservoir designated by B.C. Hydro and, subject to the provisions of section 5, any water that, without having been requested by B.C. Hydro pursuant to subsection (b) above, is discharged downstream into the United States because the reservoir in which it was stored is full or because vacant reservoir space must be maintained in such reservoir shall be deducted from the balance in the B.C. Hydro Storage Transfer Account. Both parties will make reasonable efforts to avoid spill of storage and will consult with each other if it appears likely that water will be spilled from the B.C. Hydro Storage Transfer Account. B.C. Hydro is not obligated to transfer storage to other B.C. Hydro reservoirs to avoid spill. B.C. Hydro may transfer stored water between Arrow Lakes and Mica Reservoirs and between Treaty and non-Treaty space by notifying Bonneville of such transfer; provided, however, that transfer of stored water into Mica Reservoir or from Mica Reservoir into Arrow Lakes Reservoir shall be accomplished only to the extent that B.C. Hydro decreases or increases, respectively, the discharge of the Mica Reservoir from the discharge levels specified in the applicable Detailed Operating Plan. Any balance remaining in the B.C. Hydro Storage Transfer Account on

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July 31, 1979, shall be deemed to be storage in the Treaty or non-Treaty space in Arrow Lakes or Mica Reservoir as such storage had been designated by B.C. Hydro prior to such date. Bonneville shall have no obligation to return to B.C. Hydro any energy which can be generated downstream in the United States from release of such storage after July 31, 1979. If such storage is deemed to be in Treaty space, it shall be fully subject to operation pursuant to the applicable Detailed Operating Plan.

4. Scheduling. Schedules for delivery and return of energy hereunder will be effective at the Blaine or Boundary points of interconnection between the parties, with no losses being assessed either party as a result of these storage transactions. Schedules of energy hereunder shall be subject to appropriate terms of the exchange agreement between the parties (Contract No. 14-03-33266, which as the same may be amended or replaced is hereinafter called Exchange Agreement). Notwithstanding the other provisions of this agreement, all schedules for delivery or return of energy hereunder shall be limited to available transmission capacity.

5. Priority on Use of Facilities. The use of Treaty space at the Canadian Treaty Reservoirs and the use of all facilities at the Arrow Lakes and Mica Projects (including the ability of project discharges to be decreased or increased to discharge limits) to obtain operations of those projects pursuant to the Columbia River Treaty shall receive priority over all other uses provided for in this agreement. To the extent that concurrent requests by Bonneville and B.C. Hydro to store energy pursuant to sections 2(a) and 3(a) would result in a reduction of project discharges below minimum discharge limits as defined by B.C. Hydro or would result in fill of vacant Treaty space, such requests will be reduced as necessary to provide for the storage of equal daily amounts of water for each party. If both parties have water stored in Treaty space in Mica Reservoir and stored water is spilled from such reservoir, the last water stored will be the first water spilled. Water stored by B.C. Hydro in non-Treaty space will be spilled only to the extent that such space is full or vacant space must be maintained. To the extent that concurrent requests by Bonneville and B.C. Hydro to return stored energy pursuant to sections 2(b) and 3(b) would result in an increase of project generation in excess of available generating capacity at the Mica Project, such requests will be reduced as necessary to return energy from the release of equal daily amounts of water from the Mica Reservoir for each party.

6. Inclusion of Non-Federal Plants. Immediately following the effective date of this agreement, Bonneville will endeavor to enter into an agreement between Bonneville and each utility owning or participating in any non-Federal plant in the United States downstream from Canadian Treaty Reservoirs which will provide for the inclusion of such plants in the provisions of section 3 hereof.

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7. Payments. Bonneville will credit B.C. Hydro in the exchange account established under the Exchange Agreement (Exchange Account) with 1.5 mills (U.S. Currency) for each kilowatthour of BPA Mica Storage Energy returned pursuant to section 2(b), and will credit Bonneville in the Exchange Account with 1.5 mills (U.S. Currency) for each kilowatthour of B.C. Hydro Storage Transfer Energy returned pursuant to section 3(b). The amount of such credits in the Exchange Account shall be equal to the number of kilowatthours computed by multiplying the number of kilowatt-hours so returned by 1.5 mills, and dividing the product so obtained by 2.5 mills.

8. Effect on Future Agreements. Nothing in this agreement shall be a precedent for future agreements relating to the storage in, or withdrawal of water or energy from, Treaty or non-Treaty space in Canadian Treaty Reservoirs.

If the above terms and conditions are satisfactory to B.C. Hydro, please arrange to have one copy of this letter signed and returned to this office.

Sincerely,

S/ LAWRENCE A. DEAN

L. A. Dean
Chief, Branch of Power Supply

ACCEPTED:

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

By S/ W. E. KENNY

Title Manager, Operations Control Dept.

AGREEMENT

TO

ENHANCE FILLING OF MICA RESERVOIR

Criteria have been developed in the 1977-78 and 1978-79 Columbia River Treaty Hydroelectric Operating Plans for the operation of Canadian Treaty storage in accordance with Annex A, paragraph 7, of the Treaty to provide optimum generation in both Canada and the United States. These criteria were subsequently incorporated in the 1977-78 Detailed Operating Plan and include specified discharge requirements at Mica Project that are expected to draft Mica Reservoir substantially below elevations that would assure refill with 95 percent confidence during the summer of 1977-78. The Entities agree that a storage arrangement between B.C. Hydro and Power Authority (B.C. Hydro) and Bonneville Power Administration (BPA), in accordance with normal practices of the Pacific Northwest coordinated utilities would be beneficial to both Entities. The arrangement would enable BPA to deliver Federal and non-Federal energy that may become available to B.C. Hydro in lieu of water release at Mica. The arrangement would also provide B.C. Hydro flexibility in the operation of its system through the delivery of energy to BPA for storage in Mica. Such an arrangement would provide B.C. Hydro with the power and energy

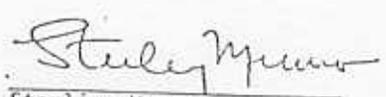
AGREEMENT TO ENHANCE FILLING OF MICA RESERVOIR

otherwise available wholly from Mica generation and enhance the refill of Mica Reservoir making additional storage available for future power requirements in both Canada and the United States.

The Entities hereby agree that in accordance with Article XIV,2.,(k), of the Columbia River Treaty, the 1977-78 Hydroelectric Operating Plan shall be further amended by inclusion of this agreement, hereinafter called the Mica Storage Arrangement, which permits implementation of the attached Mica Storage Arrangement between B.C. Hydro and Power Authority and Bonneville Power Administration. Neither Entity shall be liable to the other for any claim by the other Entity arising out of changed operations relating to discharges at the Mica Project resulting from compliance with the terms of the attached Mica Storage Arrangement.

It is further agreed that the 1978-79 Detailed Operating Plan, which is now in its initial stage of preparation, shall contain a similar provision to permit implementation of this Mica Storage Arrangement. By copy hereof, the Operating Committee is directed to assure that transactions under the Mica Storage Arrangement do not conflict with other provisions of the operating plan.


R. W. Bonner
Chairman
Canadian Entity


Sterling Munro
Chairman
United States Entity

2 MAY 1978
Date