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2009 05 06

Our file #00188-07311-0017_00

Mr. S.D. Topping, P.Eng.
Executive Director
Regulatory & Operational Services
Manitoba Water Stewardship
Box 11, 200 Saulteaux Crescent
Winnipeg, MB R3J 3W3

Dear Mr. Topping:

Re: **CHURCHILL RIVER DIVERSION WATER POWER ACT LICENCE**

Manitoba Hydro hereby requests a Final Licence for the Churchill River Diversion under the provisions of Water Power Regulation being Manitoba Regulation 25/88R. Subsection 43(1) of this Regulation and condition 18 of the Interim Licence provides for the issuance of a Final Licence upon completion of the project and observance of the Interim Licence conditions. This request includes those interim licence terms that have been modified on an annual basis for the Augmented Flow Program (the AFP) since 1986. The particulars of the request are outlined in the attached document entitled "Request for a Final Churchill River Diversion Water Power Act Licence - May 2009".

The Province of Manitoba issued the Interim Licence for the Churchill River Diversion (CRD) in 1973. Manitoba Hydro completed project construction in 1976 and commissioning in 1978. Starting in 1979, Manitoba Hydro began conducting test programs evaluating the actual performance of the diversion compared to the previous predicted performance. This led to the refinement of the operating conditions and ultimately the yearly AFP approval.

Before requesting the final licence, Manitoba Hydro sought to resolve outstanding CRD/AFP issues proactively with First Nations and local communities. Manitoba Hydro has worked on addressing development impacts along the Churchill River Diversion for about 30 years and now has impact management agreements with all affected First Nations and communities. Manitoba is also a party in many of these agreements. The various agreements typically include remediation or mitigation works, ongoing programming and compensation.

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Manitoba Hydro continues its endeavours to maintain and enhance its relationship with the CRD First Nations and communities. Programs, such as the Waterways Management Program, and ongoing communication, through monthly water level forecasts, continue through our Aboriginal Relations Division and the Hydraulic Operations Department. Manitoba Hydro will provide information on CRD directly to First Nation and communities including notification that Manitoba Hydro has requested a final licence, sharing CRD project information and highlighting the final CRD Water Power Act licence process. It is Manitoba Hydro's intention to maintain communication with affected communities throughout this process.

The Churchill River Diversion, including the AFP, is integral to Manitoba Hydro generation and transmission investments. It enhances generation, especially in winter and the watershed diversity increases overall system reliability. This benefits the entire Province of Manitoba.

Should you have any inquires on this matter or additional process requirements, please contact me at 360-3018.

Yours truly,

Original signed by:

Wesley Penner

W.V. Penner, P.Eng.
Manager
Hydraulic Operations Department

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Att.

Copies as per attached list

bc: K.R.F. Adams, Vice President, Power Supply, Manitoba Hydro
A.D. Cormie, Power Sales & Operations Division Manager, Manitoba Hydro
F.P. MacInnes, Generation North Division Manager, Manitoba Hydro
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Ms. Mary Blais
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Mayor Victor Moose
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South Indian Lake, MB ROB 1N0

Mr. Wayne Clarke
Manager, Keenanow Trust Secretariat
Norway House Cree Nation
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Norway House, MB R0B 1B0

Mr. Rod McKenzie
Chief Administrative Officer
Town of Churchill
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Churchill, MB ROB OEO

Mr. Keith Kristofferson
Fisheries and Oceans Canada – Prairies Area
Winnipeg District Freshwater Institute
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Chief Chris Baker
O-Pipon-Na-Piwin Cree Nation
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South Indian Lake MB R0B 1N0

**Request for a Final
Churchill River Diversion
Water Power Act Licence
May 2009**

Submitted To:
Regulatory and Operational Services
Water Stewardship

Manitoba Hydro hereby requests a final licence or the Diversion of Water from the Churchill River to the Nelson River, and the Impoundment of Water on the Rat River and Southern Indian Lake for the development of water power. The principle works are control dams at the natural outlets of Southern Indian Lake at Missi Falls; an excavated diversion channel from South Bay on Southern Indian Lake to Issett Lake; control dams on the Rat River approximately four miles downstream from Notigi Lake; and all necessary machinery and equipment required for controlling the diversion and impoundment of water for the development of water power.

The physical works of the undertaking were completed on September 1, 1976 and is being operated for the development of water power.

The following is requested under the provisions of Sections 44 and 45 of the Water Power Regulation 25/88R.

a. Applicant:

Manitoba Hydro

b. Address:

360 Portage Avenue
P.O. Box 815 Stn Main
Winnipeg, Manitoba
R3C 2P4

Occupation:

Electric and Gas Utility

c. Name of undertaking:

The name of the undertaking is known as the Churchill River Diversion. The project diverts a portion of the waters of the Churchill River into Rat and Burntwood Rivers which drain into the Nelson River.

d. Interim Licence authorizing the undertaking and subsequent authorizations:

The interim licence authorizing the existing works is dated 1973 05 11. The description of that licence is INTERIM LICENSE FOR THE DIVERSION OF WATER FROM THE CHURCHILL RIVER TO THE NELSON RIVER, AND THE IMPOUNDMENT OF WATER ON THE RAT RIVER AND SOUTHERN INDIAN LAKE. Authorizations granting temporary amendments to this licence first began for the 1979/1980 winter operating season. Variations to these amendments occurred until 1986. Every year since then, these amendments have been unchanged and have been referred to as the Augmented Flow Program (the AFP).

A separate approval for the construction of the Churchill Weir and associated structures was granted by letter dated 1998 03 31 and the Final Licence for Missi Falls was granted on 1987 02 05.

e. Observance of conditions:

Manitoba Hydro submits that it has observed and fulfilled all the requirements necessary for the issuance of a Final Licence. Upon the direction of Water Stewardship, a report can be prepared to support this statement.

f. Rivers:

The diversion of the Churchill River takes place at the South Bay Diversion Channel. It affects the Churchill River from Leaf Rapids to Churchill and the Rat and Burntwood Rivers downstream of the South Bay Diversion Channel.

g. Place:

The project diverts water from South Bay on Southern Indian Lake to Issett Lake and to the headwaters of the Rat River, then into the Burntwood River at Threepoint Lake. This water flows into the Nelson River at Split Lake, and then empties into Hudson Bay at the mouth of the Nelson River.

h. Requested Final Licence Operating Conditions:

- 1) The Missi Falls and Notigi Control Structures may be operated to allow the water level of Southern Indian Lake to be raised to an elevation of 847.5 feet. If this elevation is exceeded, maximum possible flows will be discharged under the circumstances then prevailing until the water level of the said lake recedes to elevation 847.5 feet.
- 2) Southern Indian Lake water levels will be regulated so as to prevent it from receding below elevation 843.0 feet.
- 3) Flows from Notigi control structure are limited as follows:
 - (i) Between May 16th and October 31st the maximum average weekly flow is 35 000 cubic feet per second. This flow will be reduced during times when the flow in the Burntwood River causes the water level measured at the Thompson Sea Plane Base to rise above 619.0 feet.
 - (ii) Between November 1st and May 15th the maximum average weekly flow is 34 000 cubic feet per second. This flow will be reduced during times when the flow in the Burntwood River causes the water level measured at the Thompson Pumphouse to rise above 623.0 feet.
- 4) Missi Falls control structure flow releases will not be less than 500 cubic feet per second during the open water period and 1500 cubic feet per second during the ice cover period.
- 5) Subject to the operating constraints on Southern Indian Lake, but not withstanding any other terms or conditions of this licence, the Missi Falls and Notigi Control Structures will be operated in such a manner that:
 - (i) Any increase or decrease in the rate of outflow through either structure during any 24 hour period will not exceed 10 000 cubic feet per second.
 - (ii) The water level immediately upstream of the Notigi Control Structure will not decline to less than elevation 834.0 feet.

i. Datum:

References to water surface elevations at Southern Indian Lake and at Notigi are based on Churchill River Diversion (CRD) Construction Datum, 1973 Revision. The reference Bench Mark for this datum is Bench Mark L30-1, which is a brass cap in bedrock 20 metres North-west of the recorder shelter at gauging station 06EC001. This Bench Mark has a defined elevation of 260.433 m (854.440 ft). Bench Mark L30-1 was established from the Inland Waters Branch Bench Mark, a brass cap set in bed rock 5 feet north and 11 feet west of the northwest corner of the Manitoba Government Air, Radio and Technical Services Division dock at the South Indian Lake Settlement, commonly referred to as Bench Mark No. 2, because Bench Mark No. 2 is now under water.

Water surface elevations on the Burntwood River are based on Geodetic Survey of Canada (GS of C), Canadian Geodetic Vertical Datum (CGVD) 1928, 1971 Local Adjustment, which also has been referred to as GS of C, CGVD28, 1969 Local Adjustment. The reference Bench Mark for this datum is Bench Mark L22-1, which is a brass cap on the top of the upstream retaining wall 0.2 meters from the Northwest corner of the Thompson pumphouse. This Bench Mark has a defined elevation of 191.408 m (627.979 ft).

j. Principal Works:

- 1) The Missi Falls Control structure regulates the amount of water allowed to pass down the Churchill River and consists of six spillway bays as well as earth dams and dykes. The control structure is capable of discharging 113 000 cubic feet of water per second at a forebay level of 847.5 feet above mean sea level. Major components include the Spillway Control Structure, South Channel Dam, North Channel Dam, Main Dam and South Dyke. The site is located in 13-96-5 W.P.M. on Southern Indian Lake at the outlet of the Churchill River. Electrical power required for the operation of this control structure is supplied by the Missi House Unit authorized under the Missi Falls Site Water Power licence,
- 2) The South Bay Diversion Channel diverts water from the South Bay of Southern Indian Lake to Issett Lake. The channel is nominally 200 feet wide at its base and is approximately 5.8 miles long.
- 3) The Notigi Control Structure regulates the amount of water diverted to the Nelson River. Major components consist of the Spillway with three spillway bays, an adjacent electrical service substation building, Main Dam and a Saddle Dam. The control structure is capable of discharging 66 000 cubic feet of water per second at a forebay elevation of 847.5 feet above mean sea level. The structure is located on the Rat River between Notigi Lake and Wapisu Lake in 19-79-12 W.
- 4) The Manasan Falls Ice Control Structure is a passive control structure designed to reduce the risk of inundation due to ice in the City of Thomson. The project consists of an ice boom across the river upstream of a groin/gap structure, a by-pass channel with a concrete overflow weir and a flood channel protected with a fuse plug dyke. The project is located in 36-77-4 W.P.M. on the Burntwood River was constructed in three stages between 1975 and 1988.

- 5) The Churchill Weir is a mitigatory structure designed to increase water levels on the Churchill River to ensure a potable water source and to enhance recreation and aquatic habitat. The structure was built 10 km south of the Town of Churchill, just upstream of Mosquito Point. The structure consists of an overflow section and two dyke sections. The overflow section is 7500 feet (2300 metres) long with a 1000 foot (300 metre) fishway segment at the lowest point of the weir. The west dyke is 450 feet (140 metres) long and the east dyke section is 3850 feet (1170 metres) long. Incorporated into the east dyke are the Goose Creek fishway and an emergency flood relief section.

k. Description of Lands Required:

Lands of the Province required for entering, occupation, maintenance and operation of the undertaking are broadly described as located; along the Churchill River from just below the Town of Leaf Rapids to Southern Indian Lake to just above the Town of Churchill; and from Southern Indian Lake via the South Bay Channel to the Rat and Burntwood Rivers to the mouth of Split Lake. These lands are indicated on Plan Nos. 60-1-1009 (Sheets 1 to 31) and comprise 189 888.8 acres as follows:

- (i) Lands of the province not covered by water required for main diverting works, powerhouse, etc., comprise 1802.3 acres.
- (ii) Lands of the province covered by water required for main diverting works, powerhouse, etc., comprise 155.7 acres.
- (iii) Lands of the province required only to be flooded in connection with the storage or pondage of water, comprise 187 694.8 acres.
- (iv) Lands of the province required only for transmission line right-of-ways, comprise 236.0 acres.
- (v) Lands of the province required only for other right-of-ways, comprise 0.0 acres.

l. Undertaking:

The purpose of the diversion project is to increase the flow of water at existing and future generating stations on the Rat, Burntwood and Nelson rivers. This increase in flow will result in additional dependable and surplus power and energy used to satisfy the licensee's obligations under the Manitoba Hydro Act, including both those in Manitoba and in the electricity export markets.

m. Land Rentals and request for adjustment:

Manitoba Hydro requests that the land rentals payable are adjusted to reflect the assessment of 189 888.8 acres required for the project. Land rentals for the initial development have been paid pursuant to Order-In-Council 699/1979 fixing same at \$285 000 per annum.

n. Severance line:

The severance line is indicated on Plan Nos. 60-1-1009 (Sheets 1 to 31).

o. Term of Licence:

Manitoba Hydro requests the terms of this Final Licence to be 50 years as permitted under Section 45 of the Regulation resulting in an expiration date of 2023 05 11 .