HYDRAULIC OPERATIONS DEPARTMENT
POWER SALES & OPERATIONS DIVISION
POWER SUPPLY

LIMESTONE GENERATING STATION
REPORT IN SUPPORT OF A REQUEST FOR A FINAL LICENCE UNDER THE WATER POWER ACT AND REGULATIONS

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EXECUTIVE SUMMARY

This document demonstrates that Manitoba Hydro has fulfilled all of its obligations to obtain a Final Licence for the Limestone Generating Station (GS). The document provides details on the observances of all the terms and conditions under the Interim Licence and its subsequent authorizations as well as Regulation 25/88R pursuant to the Water Power Act. The documentation is provided to assist the minister responsible for the Water Power Act in the issuance of a Final Licence for the Limestone Generating Station.

Limestone GS is Manitoba Hydro's fifth generating station built on the Nelson River in northern Manitoba. It is the largest in the province with an installed capacity of 1340 MW. Limestone GS is located 750 km north of the City of Winnipeg and 260 km south of the northern town of Churchill. On the lower arm of the Nelson River, it is 23 km downstream from the Long Spruce Generating Station. The Limestone Generating Station was constructed under the authority of an Interim Water Power Act Licence issued on July 9, 1976 and Supplementary Interim Water Power Act Licence issued on October 15, 1984. The majority of project construction was completed between 1985 and 1990 with the first unit coming online in September 1990, and the last of 10 units being operational in September 1992. The total project cost is estimated at $1.43 billion.

Throughout its project life, Limestone GS has been operated in accordance with the Interim and Supplementary Interim licences.

Section 1 of this document provides an overview of the project. This includes information about the physical works and the operating conditions. It also summarizes Manitoba Hydro's community involvements in the surrounding area.

Section 2 of this document shows how Manitoba Hydro has fulfilled specific terms of this Interim Licence.

Section 3 of this report demonstrates how Manitoba Hydro has fulfilled the articles of Regulation 25/88R pursuant to the Water Power Act that are pertinent to an Interim Licensee and which require a statement indicating observance. The selection of articles deemed to be pertinent was done by mutual agreement with Manitoba Conservation and Water Stewardship.

Manitoba Hydro continues to maintain and enhance its relationship with First Nations and communities located in the Nelson River basin, and has addressed adverse effects of Limestone Generating Station in various mitigation and compensation agreements.

As demonstrated in this document, Manitoba Hydro has observed and fulfilled all the requirements necessary and therefore qualifies for a Final Licence.

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Section 1 – Introduction

The Limestone Generating Station is located on the Nelson River as shown on Figure 1, page 27. An Interim Water Power Act licence for the project was issued on July 9, 1976. Preliminary construction at the Limestone site occurred between 1976 and 1978 with the construction of roads, camp facilities and the Stage I cofferdam. Construction was suspended in 1978 due to lower than expected electricity demands. Manitoba Hydro applied for an amendment to the Interim licence in 1982 for an extension of time to complete the project. On October 15, 1984 a Supplementary Interim licence was granted by the Province. Construction resumed in January 1985 and the project was completed in 1992.

Physical Works

The principal physical works of the Limestone Generating Station are described below. A photo showing some of the features is shown on Figure 2, page 28. The general arrangement of the station is shown on Figure 3, page 29.

(a) The powerhouse and intake arrangement which includes a service bay is a concrete gravity structure. The powerhouse houses 10 turbines and generators each with a nameplate rating of 125.4 MW at 27.6 metres of head. This provides a total plant capacity of 1,254 MW or approximately 1,680,000 horsepower. The current total generating capability is about 1,347 MW[1] because of the increased head to about 28.8 metres until Conawapa is completed.
(b) The spillway with seven sluiceways, located approximately in the center of the river, is a concrete gravity structure that adjoins the powerhouse.
(c) The north transition section is a concrete gravity structure located between the powerhouse structure at the service bay and the north dam.
(d) The north dam[2] is a zoned embankment structure that extends from the north transition section to the left bank of the river.
(e) The south transition section is a concrete gravity structure located between the spillway and the south dam.
(f) The south dam is a zoned embankment structure that extends from the south transition section to the right bank of the river.

The project was fully operational on September 29, 1992.

[1] An explanation of the generating capacities can be found in a September 18, 1990 letter in Appendix A on page 34.

[2] This structure is also referred to as the west dyke in the May 16, 1975 Interim Licence application and also in the February 9, 2012 Final Licence application. The Interim Licence drawing (drawing number 7001-E-85), indicates this structure as the North Dyke while the Final Licence drawing (drawing number 1-00193-PE-07311-0001) indicates this structure as the North Dam.

Community Involvement

Manitoba Hydro has longstanding working relationships with First Nations, communities and resource user groups along the Nelson River. It has entered into agreements, processes and programming to address adverse effects of Limestone Generating Station and provide mitigation and compensation to those affected directly and indirectly by the project. These arrangements were often established in collaboration with the federal and/or provincial governments in tripartite and four-party agreements. On-going communication and programming is implemented in the Limestone area to address environmental, cultural and heritage concerns via the Coordinated Aquatic Monitoring Program, the Nelson River Sturgeon Board, and archaeological programming.

Report Overview

The remaining part of this document provides details on how Manitoba Hydro fulfilled its obligations with respect to the Interim Licence and Regulation 25/88R pursuant to the Water Power Act.

Section 2 demonstrates how Manitoba Hydro has fulfilled specific terms of this Interim Licence.

Section 3 demonstrates how Manitoba Hydro has fulfilled the articles of Regulation 25/88R pursuant to the Water Power Act that are pertinent to an Interim Licensee and which require a statement indicating observance.

Section 2 – Observance of Licence Conditions

This section of the report provides an evaluation of the observance of the Interim Licence on a term by term basis including the amendment of Term 4 as provided in the Supplementary Interim Licence. The main body of the report addresses observance of these terms according to the currently approved amendments.

1. General Construction Plans

Licence Term

The Licensee shall file the general construction plans of the undertaking authorized hereby with the Director in such form and detail as is required by the Regulations within three (3) months from the date of this Interim Licence.

Observance

Manitoba Hydro indicated in a June 23, 1976 memo to Water Resources Branch that only plans for the Stage I cofferdam could be filed with the Province within the prescribed three month period. The other drawings would not be available within this period as a contract for the major civil works would probably not be awarded until early 1979. Manitoba Hydro does not have a record indicating general construction plans were filed however it can be inferred that the requirements of the day were deemed satisfactory since project construction was allowed to proceed.

2. Construction Period

Licence Term

After the general construction plans have been approved, the Licensee shall begin the construction of the undertaking authorized hereby within the time limit provided in the Regulations, and shall thereafter without interruption, except such as may be occasioned by act of God or other major cause beyond the control of the said Licensee (other than want of funds), carry on and complete the construction of the said undertaking according to the plans so approved or as the same may be amended or modified at the direction and with prior approval of the Minister during the progress of construction, and subject to the terms of this Interim Licence and of the Regulations.

Observance

Construction of the project commenced following the issuance of the Interim Licence for the project on July 9, 1976. Construction was halted in 1978 and then resumed in January 1985 following the granting of the October 15, 1984 Supplementary Interim licence. Work continued until the project was completed.

3. Project Lands

Licence Term

Subject to Article 1 hereof, the Licensee may enter upon, use and occupy for making surveys and investigations and constructing works as may be deemed necessary for the undertaking, such lands of the Province as may reasonably be required for the said purposes and which lie within the Severance Line shown on a plan identified as No. 51-5-1097 (Manitoba Hydro

No. 7001-E-85 (Rev. 1)), and may flood such lands as are designated on the said plan, or as such plan may be amended from time to time by the Minister provided that, when so required in writing in accordance with the Regulations following completion of the initial development the Licensee shall cause a survey to be made and a plan prepared by a Manitoba Land Surveyor showing in detail the lands required to be occupied for the purposes of the power development and the lands required for flooding purposes only. Such survey shall be limited to include only areas approved by the Division for the said purposes and shall be prepared in accordance with Section 24 of the Regulations.

Observance

Manitoba Hydro is in the process of refining the severance line showing the lands required for the project as identified in plan No. 51-5-1097 (Manitoba Hydro No. 7001-E-85 (Rev. 1)). This line is legally definable either by the provincial section grid or legal survey plans and is in the process of being reviewed by Manitoba Conservation and Water Stewardship. The drawing showing the refined line is shown on plan No. 51-5-1104 (Manitoba Hydro No. 1-00193-PE-07311-0001 (Rev. 0)).

4. Construction Completion

Licence Term (Supplementary Interim)

Within seventeen (17) years from the date of this Interim Licence the Licensee shall have installed all the machinery and equipment required for the initial development of one (1) unit of one hundred and forty-eight thousand (148,000) horsepower measured on the turbine shaft and shall be in a position to apply the power to beneficial use. Within nineteen (19) years from the date of this Interim License, the Licensee shall have installed an additional nine (9) units and shall have satisfactorily completed the undertaking consisting of ten (10) units having a total of one million four hundred and eight thousand (1,480,000) horsepower measured on the turbine shaft.

Observance - Completion of Initial Development

Manitoba Hydro (MH) installed all the machinery and equipment required for the initial development of one (1) unit prior to the seventeen (17) years from the date of the Interim Licence.

On September, 18, 1990 MH notified Water Resources Branch (WRB) that the first unit (Unit #1) was released for commercial service on September 8, 1990. This letter also indicated that the November 10, 1982 application was deficient in incorporating MH's 1981 decision to install units of a greater capacity. The installed unit capacity is 168,000 horsepower based on a rated head of 27.64 metres. Until completion of the Conawapa development, the unit capacity is 180,000 horsepower because of the available 28.82 metre head.

A November 9, 1990 letter from WRB established September 8, 1990 as the date for completion of the initial development and acknowledged the increase in capacity.

A copy of the September, 18, 1990 and November 9, 1990 documents can be found in Appendix A, on pages 34 and 37 respectively.

Observance - Completion of Undertaking

The installation of the other nine (9) units and completion of the entire undertaking was concluded within nineteen (19) years from the date of the Interim Licence. The other nine (9) units were released for commercial service between October 26, 1990 and September 29, 1992. On October 2, 1992 MH notified WRB that Unit #10 was commissioned and that this also marked the completion of the undertaking. An October 16, 1992 letter from WRB established September 29, 1992 as the official completion date of the project.

A copy of the October 2, 1992 and October 16, 1992 documents can be found in Appendix A, on pages 47 and 48 respectively.

5. Notification of Completion

Licence Term

The Licensee shall notify the Division in writing of the commissioning date of each unit within 30 days of commissioning, and also when the initial development is completed.

The appropriate officer of the Division shall, in accordance with the provisions of Subsection (4) of Section 42 of the Regulations, determine a date which, for the purpose of the Interim Licence and of the Regulations, shall be the date of completion of the initial development and shall be the earlier of:

(a) the date on which the turbine generator unit comprising the initial development has been commissioned; or
(b) the date fixed in Article 4 hereof as the limiting date by which the initial development is to be completed, whether the same shall have been completed or not.

Observance

Manitoba Hydro submitted the following letters to Water Resources Branch to notify of the completion of each unit as shown on Table 1. Notification of the completion of the initial development was coincident with the completion of Unit #1. Copies of the date of notification letters can be found in Appendix A.

Table 1: Completion of unit notification dates

Unit	Date of completion (year, month, day)	Date of notification	Days from completion to notification
1	1990 09 08	1990 09 18	10
2	1990 10 26	1990 11 14	19
3	1990 12 14	1991 01 15	32
4	1991 03 13	1991 03 19	6
5	1991 06 16	1991 06 19	3
6	1991 09 27	1991 10 08	11
7	1991 12 13	1991 12 30	17
8	1992 03 18	1992 03 25	7
9	1992 06 26	1992 07 02	6
10	1992 09 29	1992 10 02	3

6. Surveys

Licence Term

The Licensee shall also from time to time in accordance with Section 24 of the Regulations cause surveys to be made and plans prepared by a Manitoba Land Surveyor of all other lands required for the purposes of the undertaking as distinct from those purposes described in Article 3 hereof.

Observance

Not all lands required for the project have been surveyed, however Manitoba Hydro has surveyed and registered lands as it has deemed necessary to define the project area. All lands required for the project are legally definable.

7. Licence Execution

Licence Term

The Licensee may divert and use continuously for the development of power at the said Limestone site all the waters of the Nelson River which may be flowing at the said site from time to time during the term of this Interim Licence, subject, however, to the provisions of Section 72 of the Regulations.

Observance

Manitoba Hydro attempts to maximize the use of the water resource for power production purposes. Limestone Generating Station is a run of the river plant so that inflows are dependent on the release of flows from upstream facilities. Manitoba Hydro optimizes the resources of the entire generating system, including the Limestone Generating Station.

8. Maximum Forebay Level

Licence Term

The Licensee shall not raise the headwater of its development to an elevation higher than 280.0 feet above mean sea level, Canadian Geodetic Datum. A higher elevation may be created only with prior written permission by the Minister and in accordance with Section 72 of the Regulations.

Observance

On a daily average basis, water levels have never exceeded the maximum forebay level. On an hourly basis, Manitoba Hydro defines reportable events as those exceeding 0.1 feet (0.03m). From the date of commissioning to the end of 2012, the forebay was at, or exceeded 280.1 feet, less than 0.03% of the time. Since July 2004 forebay levels were always below 280.1 feet. All hourly excursions occurred due to inadequate adjustment of flow release from Limestone GS or spillway, relative to the inflow from Long Spruce GS. Flow adjustments require quick response time due to Limestone's small forebay size. See Appendix B for an explanation of the reportable events as well as the factors affecting gauge accuracy.

9. Land Rentals

Licence Term

From the date of completion of the initial development determined in accordance with Article 5 hereof, and during the remaining term of this Interim Licence, the Licensee shall pay annually, in advance, a rental of $2,175.00 for the use and occupation of those lands of the Province described in Articles 3 and 6 hereof which are situated within the Severance Line designated on a plan identified as No. 51-5-1097 (Manitoba Hydro No. 7001-E-85 (Rev. 1)). The first payment of such rental shall be made on the second day of January following the said date of completion of the initial development. Such first payment shall consist of an amount due for the preceding year, which shall be prorated to cover that portion of the year between the said date of completion of the initial development and the end of the year, together with the amount due in advance for the current year.

Observance

The land rental amount payable was altered after receipt of the first invoice dated February 13, 1991, which was consistent with the amount stated in this licence term. The amount of $2,860.27 included $685.27 prorated for 1990 and $2,175.00 for the 1991 calendar year. The prorated amount was based on (115/365) the completion date of the first unit on September 8, 1990.

On March 1, 1991 Manitoba Hydro proposed that the rental amount should be changed in accordance with 3,558 acres associated with Limestone. This proposed amount was $4,679.01 based on $1,121.01 for 1990 plus $3,558.00 for 1991.

Water Resources Branch replied on March 7, 1991 that it would appreciate receiving payment based on the proposed land rental adjustments. On March 13, 1991 Manitoba Hydro replied that it would pay the revised amount.

From 1992 to 1996, Manitoba Hydro paid $3,558.00 annually for land rentals prior to the January 2 due date. On November 4, 1996 the Deputy Minister of Natural Resources notified MH that land rentals would be payable on a fiscal year basis beginning 1997/1998. The Deputy Minister also advised that a transition invoice would be issued for the months of January to March 1997. MH has paid all invoices as issued by the Province with an additional amount for the first invoice as explained earlier.

A copy of the 1991 documents dated February 13, March 1, March 7 and March 13 as well as the one dated November 4, 1996 can be found in Appendix C on pages 63, 66, 70, 71 and 73 respectively.

The land rental rate was amended from $1.00 to $1.80 per acre and came into effect on April 1, 2010. Manitoba Hydro has accordingly increased its annual payment of land rentals to $6,404.40 in compliance with this rate.

10. Water Rentals After Completion of Development

Licence Term

From the date of completion of the initial development determined in accordance with Article 5 hereof, and during the remaining term of this Interim Licence, the Licensee shall pay annually, in arrears, as rental for water used in the development of power, an amount determined in accordance with the principles set out in Section 48 of the Regulations, being whichever is the greater of:

(a) A rental at the rate of fifty (50) cents per installed horsepower of turbine capacity, based on the initial development of 148,000 horsepower or such greater installation as shall be commissioned for the production of power from time to time; or

(b) A rental at the rate of one dollar and twenty-five cents ($1.25) per horsepower-year of output measured on the turbine-shaft, such output to be calculated in the manner provided in Subsection (9) of Section 48 of the Regulations.

The first payment of annual water rental is to be for that part of the year between the said date of completion of the initial development and the end of the then current calendar year. In each case the Licensee shall, on or before the first day of March in each year following any calendar year for which rental is payable, submit all data required by the Division for the determination of its rental for the preceding calendar year. The appropriate officer of the Division shall thereupon prepare and submit to the Licensee a statement of the rental due. Payment shall be made within sixty (60) days of submission of the said statements; otherwise the penalties provided in Subsections (4) and (6) inclusive of Section 48 of the Regulations shall apply.

Observance

Manitoba Hydro paid power rentals commencing from the date of the initial development on September 8, 1990. The amount paid has always been based on the Regulation then in force. The initial rate was based on $9.90 per horsepower year rather than $1.25 per horsepower

year as prescribed under Term 10 (b) of this licence. Since 1991, the greater amount payable has been on a horsepower-year output basis.

From 1990 to 1995 Manitoba Hydro submitted all data required for the determination of its rental for the preceding calendar year prior to the first day of March as prescribed. The Deputy Minister of Natural Resources notified Manitoba Hydro on February 29, 1996 of a change in billing practice. The notification outlined that an invoice would be issued for the months of January to April of 1996 and thereafter billing would be on a monthly basis. Since then, Manitoba Hydro has submitted data and subsequent payments of rentals as required under this billing practice.

A copy of the February 29, 1996 letter can be found on page 72 in Appendix C.

Water rental rates were amended effective April 1, 2001 from $9.90 to $20.32 per horsepower-year of generation. Manitoba Hydro has paid water rentals based on the new rate since then.

11. Water Rentals During Initial Development

Licence Term

Notwithstanding Article 10 hereof, if the Licensee commences the generation and transmission of power prior to the date fixed for completion of the initial development in accordance with Article 5 hereof, by and from any turbine generator unit commissioned prior to the said date, the Licensee shall pay annually, in arrears, for the water used in the development of power prior to the said date a rental at the rate of one dollar and twenty-five cents ($1.25) per horsepower-year of output measured on the turbine shaft, such output to be calculated in the manner provided in Subsection (9) of Section 48 of the Regulations. The first payment of such annual water rental for each turbine generator unit is to be for that part of the year between the date of commissioning of each turbine generator unit, or a date fixed by the Lieutenant Governor in Council, whichever is the earlier, and the end of the then calendar year. Subsequent payments of such annual water rental are to be for each successive calendar year, or part thereof until the said date of completion of the initial development. In each case the Licensee shall, on or before the first day of March in each year following any calendar year for which such annual water rental is payable, submit all data required by the Director for the determination of the rental for the preceding calendar year. The Director shall thereupon prepare and submit to the Licensee a statement of rental due. Payment shall be made within sixty (60) days of submission of the said statements.

Observance

This licence term excludes the higher minimum water rental rate from coming into effect for the year in which a unit is initially commissioned. For 1990, Manitoba Hydro paid rentals under this licence term for the first three units. In 1991 an additional four units were installed and by September 29, 1992 all ten units were in service. Since 1991, the Limestone Generating Station produced sufficient generation so that the minimum water rental rate was not applicable. During the construction period the water rental rate had already increased to $9.90 per horsepower-year. Manitoba Hydro paid water rentals based on this higher rate.

Manitoba Hydro submitted all data required for the determination of its rental for the preceding calendar year prior to the first day of March as prescribed in this licence term.

12. Licence Plans

Licence Term

The plans filed by the Licensee and made a part of this Interim Licence are as follows:

Manitoba Water Resources Branch File Number	Licensee's File Number	Description
51-5-1097	7001-E-85 (Rev. 1)	Location Plan – General Arrangement and Typical Sections

Observance

No statement is required by Manitoba Hydro.

13. Timber Clearing

Licence Term

The Licensee shall, to the satisfaction of the Minister, clear and keep clear from timber, brush and other material, all lands which are to be flooded under Article 3 hereof.

Observance

Manitoba Hydro provided a status of the progress and intended clearing of timber and brush in a November 14, 1990 letter to Water Resources Branch. The extent of clearing was done in consultation with Fisheries Branch. A copy of this letter can be found on page 76 in Appendix D.

14. Fish

Licence Term

If, in the opinion of the Minister, studies indicate that they are required, the Licensee shall, to the satisfaction of the Minister, provide, maintain and operate facilities for the collection and passage or transportation of live fish, unharmed, in either an upstream or downstream direction through, over or around the works authorized to be constructed, maintained and operated under this Interim Licence.

Observance

Fish populations in the vicinity of Limestone Generating Station have been studied since the 1970s with early investigations lead by Manitoba Fisheries Branch. Studies did not indicate that fish passage at generating stations on the lower Nelson River would be beneficial.

Since then, fish species that support the recreational and domestic fisheries have and continue to be monitored under the Coordinated Aquatic Monitoring Program (CAMP). CAMP is a long-term, system-wide partnership program between Manitoba and Manitoba Hydro that monitors the fish community dynamics in the area.

15. Final Licence

Licence Term

Upon the satisfactory completion by the Licensee of the undertaking in accordance with Article 4 hereof and upon the due observance and fulfillment by it of all the terms and conditions required by this Interim Licence and under the Regulations to be by it observed and fulfilled, the Minister shall and will issue in favour of the Licensee a Final Licence for the diversion, storage and use of water, for the development of energy therefrom, for the utilization of such energy, and for the use and occupation of those lands of the Province which, in the Minister's opinion, are required for the proper operation and maintenance of the undertaking. The said Final Licence shall be issued subject to the regulations then in force and shall embody such matters as the Minister may determine in accordance with the Regulations, and the following terms and conditions, namely:

(a) The Licensee may divert, store and use continuously for the development of power at the said Limestone site all the waters of the Nelson River which may be flowing at the said site from time to time during the term of this Final Licence, subject, however, to the provisions of Section 72 of the Regulations.

(b) The Licensee may raise the headwater of its development to elevation 280.0 above mean sea level, Canadian Geodetic Datum, but not higher except with prior permission of the Minister in writing and in accordance with Section 72 of the Regulations.

(c) The Licensee shall, during the term of the Final Licence pay annually in advance on the second day of January in each year an annual rental of $2,175.00 for those lands of the Province to be described in the Final Licence, and situated within the Severance Line and used for the purposes described in Articles 3 and 6 of the Interim Licence.

(d) The Licensee shall also pay an annual rental during the term of the Final Licence for the use of water for the development of power, determined in accordance with the principles set out in Section 48 of the Regulations and payable at the times and in the manner therein provided, and at the following rates:

(i) The rentals in the five-year period directly following the date of completion of the initial development determined in accordance with Article 5 of the Interim Licence shall be the greater of:

(a) An annual rental of fifty (50) cents per installed horsepower; or

(b) An annual rental of one dollar and twenty-five cents ($1.25) per horsepower year.

(ii) The annual rental to be paid after the expiry of the said five-year period shall be determined as provided in the regulations in force at such time.

(e) The undertaking in respect of which the Final Licence is to be issued is to comprise: a reinforced concrete powerhouse and intake structure, with one vertical shaft hydroelectric turbine, and provisions for nine additional turbines, each of 148,000 horsepower capacity; an adjoining reinforced concrete spillway; a main earth dam extending easterly from these concrete structures; an earth fill abutment at the west end of these concrete structures; a dyke extending from the north abutment in an upstream direction parallel to the left bank of the Nelson River; transmission lines; and all plant machinery and equipment requisite for the complete development and utilization of the power economically available at the said Limestone site, together with such other

approved works as have been constructed for purposes of the undertaking for which the Final Licence is to be issued.

(f) In accordance with Section 45 of the Regulations the term of the Final Licence shall be fifty (50) years from and after the date fixed in accordance with Article 5 of the Interim Licence for the completion of the initial development and shall be subject to renewal or extension in accordance with the provisions of the acts and regulations relating thereto and then in force.

(g) The Severance Line as defined in Section 1 of the Regulations shall be as designated upon record plan No. 51-5-1097 (Manitoba Hydro No. 7001-E-85 (Rev. 1)) on file in the office of the Division.

(h) *The Licensee shall, to the satisfaction of the Minister, clear and keep clear from timber, brush and other material, all lands which are flooded.*

(i) *If, in the opinion of the Minister, studies indicate that they are required, the Licensee shall, to the satisfaction of the Minister, provide, maintain and operate facilities for the collection and passage of live fish, unharmed, in either an upstream or downstream direction through, over or around the works authorized to be maintained and operated under the said Final Licence.*

Observance

This report is provided to demonstrate that Manitoba Hydro has observed and fulfilled all the terms and conditions of this Interim and Supplementary Interim Licence. Manitoba Hydro requested a Final Licence on February 9, 2012.

16. Plans Part of the Licence

Licence Term

All record plans filed with the Director and referred to in this Interim Licence are incorporated herewith and made a part hereof.

Observance

No statement is required by Manitoba Hydro.

17. Licence Subject to Regulations

Licence Term

This Interim Licence is issued upon the express condition that it shall be subject to the provisions of the Regulations and all amendments thereto.

Observance

Manitoba Hydro's adherence with the Regulations is addressed in Section 3 of this report.

Section 3 - Observance of Pertinent Water Power Act Regulation Articles

The purpose of this section is to demonstrate that Manitoba Hydro has fulfilled its obligations under Regulation 25/88R pursuant to the Water Power Act. Manitoba Conservation and Water Stewardship and Manitoba Hydro have jointly selected those articles of the Regulation that are pertinent to this Interim Licence. Each of the pertinent articles is shown in italics followed by a statement how Manitoba Hydro has fulfilled its obligations.

4 *All elevations given in connection with the plans or other information filed by the applicant should be referred, if possible, to mean sea level datum.*

Observance
Elevations shown on plans are based on Geodetic Survey of Canada (GS of C) datum, which use mean sea level as a reference. This applies to drawings for Limestone Generating Station even if the datum is not specifically stated.

Final construction plans
35(1) *Within 90 days after the completion of the initial development in accordance with the general construction plans or with any authorized changes therein, and within 90 days after the completion of any additional unit of the power development or of the power system, the interim or final licensee, as the case may be, shall file with the director copies of the final construction plans.*

Observance
Manitoba Hydro transmitted the construction plans on April 11, 2011 in the absence of a record indicating that this had been previously fulfilled.

A copy of the letter of transmittal can be found in Appendix A, page 49.

35(2) *The final construction plans, together with drawings and specifications accompanying them, shall show the works as actually constructed in such detail as would be required to be given to construction contractors for the purpose of constructing the works and shall show the precise areas of lands occupied so as to satisfy the requirements of section 24.*

Observance
A detailed list of the final construction plans can be found in Appendix E, page 79.

35(3) *The said plans shall be on tracing film, and shall conform to the sizes specified in clause 3(l); the said specification shall be either printed or typed, and both plans and specifications shall be signed by a professional engineer of recognized standing in Canada satisfactory to the director, and shall in other respects satisfy the requirements of the director.*

Observance
Drawings have been submitted in more modern media. All drawings submitted under article 35(2) are signed and/or sealed by a professional engineer.

35(4) *In no case shall the interim licensee be entitled to the issue of a final licence until the requirements of this section have been complied with insofar as they relate to the initial development.*

Observance
Manitoba Hydro has provided all the requisite plans under this section.

Fixation of construction costs
36(1) *Upon completion of the initial development and upon the completion of any substantial addition thereto, a sum shall be fixed which shall represent the actual cost of such development or of such addition, or both, and in the event that the minister and the interim or final licensee, as the case may be, cannot agree upon the sum within 90 days after the completion of the development or of additions, or both, or within 90 days after the purchase of any lands or rights of way within the severance line, the minister shall refer the matter to the court for determination.*

Observance
Manitoba Hydro has determined that the capital cost of the project is $1,437.3 million dollars. In the absence of a record indicating that this had been previously communicated to the Province, a letter was written on April 12, 2011 to ensure that Manitoba Hydro complied with this Article.

A copy of the April 12, 2011 letter can be found in Appendix A, page 52.

36(2) *In no case shall a final licence be issued to the interim licensee until such licensee has fully complied with the provisions of this section insofar as they relate to the completion of the initial development.*

Observance
Manitoba Hydro has determined the capital cost of the project.

Operation under Interim Licence
37(1) *In the event that the works are put into operation before the issuance of the final licence, the interim licensee shall, pending the issuance of such final licence and until otherwise agreed upon, maintain and operate the same to the satisfaction of the director and shall at no time raise the level of the waters of any river, lake or other body of water or permit such level to be raised higher than the elevation which shall be fixed from time to time by the director and shall abide by all reasonable regulations which may from time to time be promulgated by the minister for the control of the flow of any waters for general conservation purposes.*

Observance
Manitoba Hydro assumes that the director is satisfied with the maintenance and operation of the project as it has not been notified otherwise. The minister has not requested that the project be operated beyond the conditions stated in the Interim Licence or Supplementary Interim Licence. Observation of this Article was addressed in Condition 8, Section 2, page 7, of this report.

37(2) *The interim licensee shall in such case pay for any water used in the development of power prior to the issuance of the said final licence, such sum or such rate per horsepower as the minister may determine.*

Observance
Observation of this Article was addressed in Condition 10, Section 2, page 8, of this report.

38 *In addition to any obligations specially imposed upon interim licensees in this part of this regulation, every interim licensee shall, insofar as his or her position with respect to the use and occupancy of lands and waters of the province, or the maintenance and operation of his or her works or the carrying on of his or her undertaking for the time being is similar to that of a final licensee, and subject to section 37, observe and comply with all the provisions of this regulation applicable to final licensees.*

Observance
Manitoba Hydro has observed and complied with all the provisions of this regulation as would be applicable to final licensees.

Amending Interim Licence
39 *Subject to this regulation the terms of any interim licence may be amended by a supplementary licence entered into between the minister and the interim licensee, and plans and specifications previously approved may be amended with the consent in writing of the minister, but any such amendment shall affect only the portion specifically covered in such supplementary licence or writing, and shall in no case operate to alter or amend or in any way whatsoever be a waiver of any other part, condition or provision of the original interim licence.*

Observance
Manitoba Hydro requested and was granted a Supplementary Interim licence from the Minister of Natural Resources on October 15, 1984. This licence granted an extension of time for the construction of the Limestone project. This allowed for the initial development to be completed in 17 years rather than eight years from the date of the Interim licence and the remaining nine units to be installed within 19 years rather than 10 years.

Completion of works by Interim Licensee
42(1) *As soon as the interim licensee has completed the initial development and otherwise fulfilled the terms of the interim licence, he or she shall file in the office of the director written notice of such completion and fulfillment in the form supplied by the director.*

Observance
On September 18, 1990 Manitoba Hydro provided notification that the initial development was completed on September 8, 1990. This was also observed under Article 5, Section 2 of this report. A copy of this letter can be found in Appendix A, page 34.

42(4) *Upon compliance on the part of the licensee with subsections (1) to (3), the director shall determine a date which, for the purposes of this regulation, shall be the date of completion of the initial development.*

Observance
In a November 9, 1990 letter, the director of Water Resources Branch agreed with Manitoba Hydro that September 8, 1990 was the date for completion of the initial development. A copy of this letter can be found in Appendix A, page 37.

Issuance of final licence
43(1) *Upon the completion of the initial development according to the plans previously approved, and upon fulfillment and compliance otherwise with all the terms and conditions of his or her interim licence and of this regulation, the interim licensee shall be entitled to a final licence authorizing one or more of diversion, use, or storage of water at the site in question, for the development of energy therefrom, for the utilization of such energy, for the occupation or use of the lands of the province or whichever one or more of these is, in the minister's opinion, required for the proper maintenance and operation of the works.*

Observance
Manitoba Hydro has taken the necessary steps to fulfill all the terms and conditions required to obtain the final licence. This applies to the Interim as well as the Supplementary Interim Licence. Section 2 and Section 3 of this document describe how Manitoba Hydro has undertaken to fulfill all the requirements of the licence conditions and relevant articles of the Regulation. Manitoba Hydro and Manitoba Conservation and Water Stewardship are working cooperatively, pursuant to Article 44(g), to establish a suitable severance line for the project.

Licence rentals
48(1) *Subject to subsection (2), rentals are payable under this section from the date fixed in the original interim licence for the completion of the initial development, whether or not it is completed.*

Observance
Manitoba Hydro has paid land and water rentals in accordance with Interim Licence terms 9 and 10. The Supplementary Interim Licence extended the date shown on the original Interim Licence. See Articles 9 and 10 of Section 2 for an explanation of observance.

Water use rental statement

48(3.4) *A licensee shall, on or before March 1 following each rental period, submit all data required by the director for the determination of the annual water use rental for the rental period. On receipt of the required data, the director shall without delay prepare and provide to the licensee a statement of the water use rent payable by the licensee for the rental period.*

Observance

From 1992 to 1995 Manitoba Hydro submitted all data required for the determination of its rental for the preceding calendar year prior to the first day of March as prescribed. The Deputy Minister of Natural Resources notified Manitoba Hydro on February 29, 1996 that water rentals would be applied on a monthly basis. Manitoba Hydro has submitted this data on a monthly basis.

A copy of the February 29, 1996 letter can be found on page 72 in Appendix C.

Time of payment of rentals

48(3.5) *The rent for each rental period is payable*

(a) in the case of land use rental, on January 2 of the rental period; and

(b) in the case of water use rental, within 60 days after receipt of the director's rental statement for the year for the rental period.

M.R. 168/95

Observance

Manitoba Hydro has provided the payments as required as follows:

(a) From 1992 to 1996, Manitoba Hydro paid for land use rentals prior to the January 2 due date. On November 4, 1996 the Deputy Minister of Natural Resources notified MH that land use rentals would be payable on a fiscal year basis beginning 1997/1998. The Deputy Minister also advised that a transition invoice would be issued for the months of January to March 1997. MH has made payments since then to reflect the fiscal year billing practice. A copy of the November 4, 1996 document can be found in Appendix C on page 73.

(b) Manitoba Hydro paid water use rentals within 60 days of the director's rental statement.

48(11) *Every licensee generating electrical energy, unless excused by the director in writing from compliance with this subsection, shall install an approved curve drawing recording wattmeter and shall preserve and produce for inspection all records made by such wattmeter.*

Observance

The Limestone Generating Station is equipped with an analog chart recorder to continuously record the megawatt output of the station. The record length of a chart is approximately one month and is kept for at least five years. One hour spot readings for megawatt output are also recorded and permanently retained. A photo of the chart recorder is shown on Figure 4 on page 30.

Records of hourly data are recorded and provided to the province. A sample for March 31, 2011 can be found in Figure 5 on page 31.

51(4) *Every licensee shall, to the satisfaction of the minister, clear and keep clear, from timber, brush and other material, all lands which are to be flooded.*

Observance
The observation of this article is explained in Section 2, Article 13 of this report on page 10.

51(5) *Lands flooded or to be flooded in connection with any undertaking shall not be fenced or otherwise enclosed unless and until the minister's consent in writing has been obtained.*

Observance
Manitoba Hydro has not fenced or enclosed flooded lands.

Care of lands
54(1) *The interim or final licensee shall at all times maintain the lands, works and property held or used by the licensee in respect of his or her licence in a manner satisfactory to the minister, including the maintenance of all flooded or other areas in a sanitary condition and the improvement of the lands from the point of view of landscape architecture, and shall do all in his or her power to protect the lands and the interest of the Crown therein against injury by anyone engaged on or about the works, or by any other person.*

Observance
Manitoba Hydro's number one priority is safety of its staff and the public at Manitoba Hydro facilities. As such Manitoba Hydro implements a Public Water Safety Around Dams Program at all generating stations and control structures including Limestone GS. This program includes site specific public water safety management plans and maintenance programs to ensure the program objectives are met.

54(2) *Every interim or final licensee shall do everything reasonable within his or her power, both independently and on request of the minister to prevent and suppress fires on or near the lands to be occupied under the licence.*

Observance
Manitoba Hydro has properly maintained site lands to reduce the risk of fires. Manitoba Hydro has a corporate fire prevention and protection program designed to eliminate risks of fire or explosion involving corporate property.

54(3) *For the purpose of limiting the spread of fires or for other reasonable purposes, every interim or final licensee shall clear and keep clear the lands of the province along his or her transmission lines for such width and in such manner as the minister may direct.*

Observance
Manitoba Hydro undertakes tree clearing and maintenance of its transmission rights-of-ways throughout the province via a Transmission Line Vegetation Management Program that integrates environmentally responsible practices.

54(4) *Every interim or final licensee shall, to the satisfaction of the minister, dispose of all brush, refuse or unused timber on lands of the province resulting from the construction and maintenance of the works, and shall keep the lands covered by his or her licence clear of unnecessary combustible material at all times.*

Observance
Manitoba Hydro has disposed of brush, refuse and unused timber resulting from the construction and maintenance of the Limestone project.

56 *Every interim or final licensee shall protect all telephone, telegraph and power transmission lines in existence prior to the construction of his or her own lines where crossed by or in close proximity thereto to the satisfaction of the director or competent provincial authority if any, and shall operate, maintain and render safe to the public his or her own transmission, telephone and other lines to the satisfaction of the director or the said authority if any.*

Observance
Manitoba Hydro's number one priority is safety of its staff and the public at Manitoba Hydro facilities. The Limestone GS transmission system was designed to meet CSA clearance standards ensuring all required safety standards were incorporated at the design stage. Public safety is further enhanced through regular maintenance, signage, and public safety education campaigns.

57(1) *Except as expressly provided in this regulation, the interim or final licensee shall not erect any buildings or structures whatever upon any lands of the province without first submitting plans thereof to the director and securing the director's approval for such building or structure and the site thereof.*

Observance

Key structures such as the powerhouse and spillway locations were included in the project plans. The plans drawn in about 1975 when the approval for the project was requested show areas in which certain types of buildings or structures were to be located. The general areas listed were the construction camp, construction power, Manitoba Hydro offices, aggregate storage, Manitoba Hydro storage and contractor work area.

59 *Any lands desired by an interim or final licensee for subdivision for townsite or other purposes shall be set out in the application, interim or final licence separately from lands required for other purposes connected with the undertaking, and the promotion of any such town site shall be subject to the approval of the minister and to such conditions with respect to town planning, landscape architecture and sanitation as the minister may impose.*

Observance

The Sundance townsite and construction camp associated with Limestone have been dismantled. These areas were temporary sites and were not formally indicated in the application or interim licence except by virtue of the townsite location as shown on licence drawing 7001-E-85. Manitoba Hydro has rehabilitated these lands and has no requirement for a townsite to continue the operation and maintenance of the Limestone project. Manitoba Hydro's request for a Final licence did not include a provision for a townsite.

60 *Every interim or final licensee shall pay stumpage and royalty for any merchantable timber cut or removed from any forest reserve in the amount as may be fixed by the regulation governing the administration of forest reserves, and for any such timber cut or removed from any lands of the province other than forest reserves, as may be fixed by the regulation governing the granting of yearly licences and permits to cut timber on the lands, but the minister may remit the fees in respect of timber required to be removed from any water power site or lands to be flooded.*

Observance

According to the Lower Nelson Overview Study (1975), no merchantable timber would be flooded by the Limestone dam.

Works, maintenance, and operation

62(1) *The licensee shall at all times install and use first class, modern, standard works, plant, and equipment, giving consideration to their requisite suitability of design, safety, strength, durability, efficiency, and all other relevant factors whatsoever, and shall maintain the same in good repair and condition, and shall exercise all due skill and diligence so as to secure satisfactory operation thereof.*

Observance

Manitoba Hydro has installed and uses state-of-the-art equipment where required. It is in the corporation's best interest to continuously optimize all components that have a role in producing electricity.

Manitoba Hydro's Dam Safety Program is designed to protect the public, the environment, our employees, and the Corporation from the effects of an uncontrolled release of the reservoir behind a dam. The program is based on the Canadian Dam Association "Dam Safety Guidelines 2007". Manitoba Hydro applies the principles of dam safety during all stages of the life cycle of a dam, including: planning, design, construction, operation and decommissioning. Both concrete and earth structures continue to be inspected at regular intervals for any anomalies or deficiencies. Routine inspections of Limestone's dams by Manitoba Hydro staff are performed monthly for the earth structures and bi-monthly for the concrete structures, including the spillway. Intermediate inspections of all water retaining structures are performed by specialists from Manitoba Hydro's Engineering Services Division annually. Data from inspections, engineering analysis and instrumentation readings are used to perform a condition assessment of the structures annually.

A Dam Safety Review (DSR) inspection of all the structures at Limestone GS was performed by SNC Lavalin in 2003. They found Limestone to be "well maintained and operated". Manitoba Hydro has completed a significant amount of work addressing any deficiencies and non-conformances identified in this DSR and continues to address any new or outstanding issues through ongoing dam safety program activities.

Manitoba Hydro provides an annual report to the province on major construction and maintenance activities.

64 *The licensee, before making any material change in any existing works or in their location, shall submit a complete and satisfactory statement and plans of such proposed change to the director, and shall not proceed to carry out the same until such proposed change has been authorized.*

Observance

There have been no material changes to the structures listed in the Interim Licence.

65(1) *The director may require any licensee to install and maintain in good operating condition at such places and in such manner as the director shall approve, accurate meters, measuring weirs, gauges or other approved devices which shall be adequate for determining the amount of water used or power developed in the operation of the works, for determining the flow of the stream or streams from which water is or will be diverted, and for determining the amount of water held in or drawn from storage.*

Observance

Instrumentation required at Limestone to ensure licence compliance is for energy reporting and to demonstrate that water levels are within the maximum allowable forebay (headwater).

Energy production is tracked with an analog chart recorder that continuously records the megawatt output of the station. A photo of the chart recorder is shown on Figure 4 on page 30. The forebay water level gauge consists of a float attached to a steel tape that is draped over a pulley connected to a Selsyn (self-synchronous) system. This system electronically transmits the angular position of the pulley to a receiving device in the control room. The position information is converted to a water level, indicated on a display and also output to the Remote Transmittal Unit for transmission to the System Control Centre. The station operators at Limestone check the calibration of the gauge by comparing manual measurements with electronic readings in the control room once a month or as required. A map showing the location of the gauge is shown on Figure 3. The gauge is located in a still-well located on the sixth floor at the Unit #1 intake gate.

Manitoba Hydro has other gauges for the operation of the station. Some examples include gauges for tailwater levels and spillway gate positions. To date the director has not required Manitoba Hydro to install additional gauges.

65(2) *The licensee shall keep accurate and satisfactory records of the determinations referred to in subsection (1) and shall from time to time make such returns, supported if necessary by statutory declaration, as the director may require.*

Observance

Manitoba Hydro has kept records of all gauge readings and has submitted these to the Province on a regular basis.

Stream regulation and control

72 *Every licence shall be deemed to have been executed on the express condition that the licensee shall*

(a) *divert, use, or store the water authorized to be diverted, used, or stored by him in such a manner as not to interfere, in the opinion of the minister, with the maximum advantageous development of the power and other resources of the river or stream upon which the works are located;*

Observance

Manitoba Hydro optimizes the usage of the available water. Plant operations are maximized by operating when possible at the most efficient head and wicket gate opening based on periodic field tests. Manitoba Hydro also attempts to optimize the use of available stream flows on a system wide basis using computer models.

(b) *conform to and comply with any orders in respect of the control or regulation of the flow of the waters of such river or stream as may be made from time to time by the minister or any person authorized by the minister in that behalf; and*

Observance

Manitoba Hydro would conform to orders made by the minister. To date, the province has not ordered operations respecting the control or regulation of flow at the Limestone Generating Station.

(c) *at no time cause or permit the surface level of the waters of such river or stream or of any storage reservoir operated by the licensee to be raised or lowered beyond the limits which shall be fixed from time to time by the minister or by a person authorized by the minister in that behalf.*

Observance

Section 2 of this report has addressed the observance of the specific terms of the Interim Licence including those pertaining to water level limits.

Accounting

78(1) *Every licensee shall keep a true and detailed account of all expenditures made in each calendar year in respect of the works, lands and properties and such other information as follows:*

(a) respecting the works:
- *(i) the actual cost thereof, giving separately each class of expenditures as indicated in the definition of "actual cost",*
- *(ii) amounts expended in that year for enlargements and permanent improvements authorized by the minister, and*
- *(iii) depreciation in value from any and all causes for that year;*

(b) respecting lands, tenements and appurtenances not included in clause (a), a statement setting out, in each case, the actual cost thereof in accordance with the provisions of section 36;

(c) respecting capital stock:

(i) the amount authorized and the number of shares into which it is divided,
(ii) the number of shares subscribed for and allotted, the number of shares forfeited to date, and the owners, for the time being, of all outstanding shares,
(iii) the amount of calls made on each share, and the total amount received from shareholders in cash on account of stock,
(iv) the number of shares, if any, issued as fully paid up shares as consideration for any service rendered or otherwise, specifying in each case for what consideration such shares were issued, and
(v) the amounts of dividends declared and paid;

(d) respecting bonds or debentures:
(i) the amount authorized, and the period of redemption,
(ii) the amount sold (face value) and the rate of interest,
(iii) the amount realized from sales,
(iv) the annual amount set aside as sinking fund to meet bonded indebtedness, and date of commencement;

(e) the indebtedness other than stock and bonds, specifying the nature and amounts, and the rate of interest such indebtedness is bearing;
(f) a statement showing the total revenues of the undertaking, specifying the amount received from each and every source;
(g) the maintenance and operation expenditures, separating those expenditures which are incurred at or near the works from head office and other expenditures relating to general administration;
(h) the names of officers and the classification of employees, with salaries, expenses, or other remuneration paid or allowed;
(i) the proposed extensions during ensuing years;
(j) if a company, such annual return shall have attached thereto a copy of the bylaws of the company, showing all amendments thereto during the year covered by that return;
(k) *such other data as the minister may require.*

Observance
Manitoba Hydro's Annual Report includes each of the above items on a corporate wide basis. Details of the accounting for individual projects are available upon request.

78(2) *Every licensee shall file annually with the director on or before March 1 by a return for the year ending December 31 preceding a detailed summary of all information included under clauses 1(a) and (b).*

Observance
Manitoba Hydro provides an Annual Report to the minister to which the director is responsible.

80(1) *Lands inside the severance line used or occupied for the purposes of the undertaking shall not be alienated, sold, or disposed of by the licensee without either*

(a) the consent of the minister; or

(b) failing such consent, an order of the court;

and subject to such terms as the minister or the court may lay down for the protection of the undertaking.

Observance

Any changes made to the licence area have been done by amendment to the licence area.

87 *Notwithstanding any rights granted or approval given by any licence, every licensee shall comply fully with the provisions of the Navigable Waters Protection Act (Canada) and any rules and regulations promulgated thereunder, and shall also comply fully with the provisions of any provincial statutes or regulations governing the preservation of the purity of waters or governing logging, forestry, fishing, wildlife or other interests present or future which might be affected by any operations conducted under the licence and shall also observe and carry out any instructions of the minister concerning any of those matters not inconsistent with the said statutes and regulations.*

Observance

Manitoba Hydro is committed to and continues to observe the provisions of the Navigable Waters Protection Act and all provincial statutes and regulations.

FIGURES

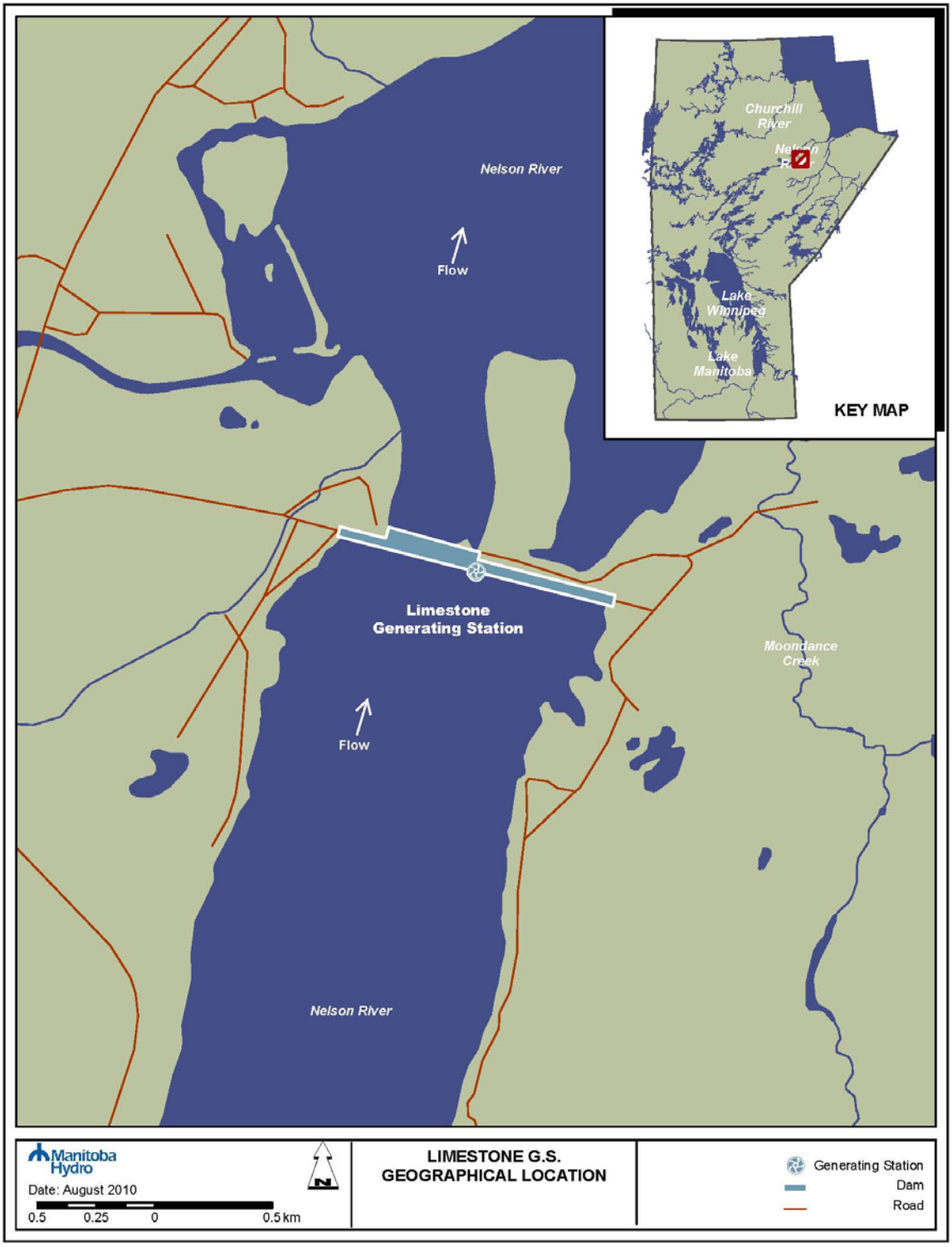


Figure 1: Geographical Location of Limestone Generating Station

Figure 2: Photograph of Limestone Generating Station

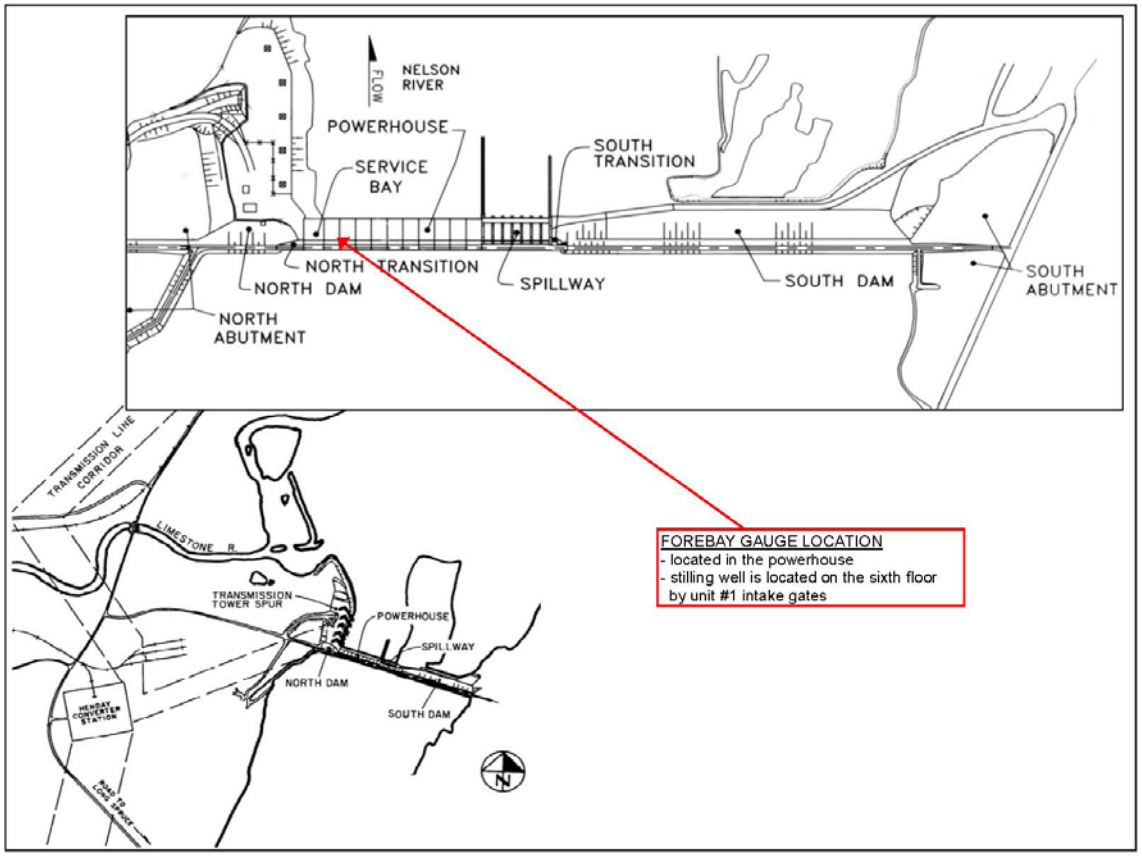
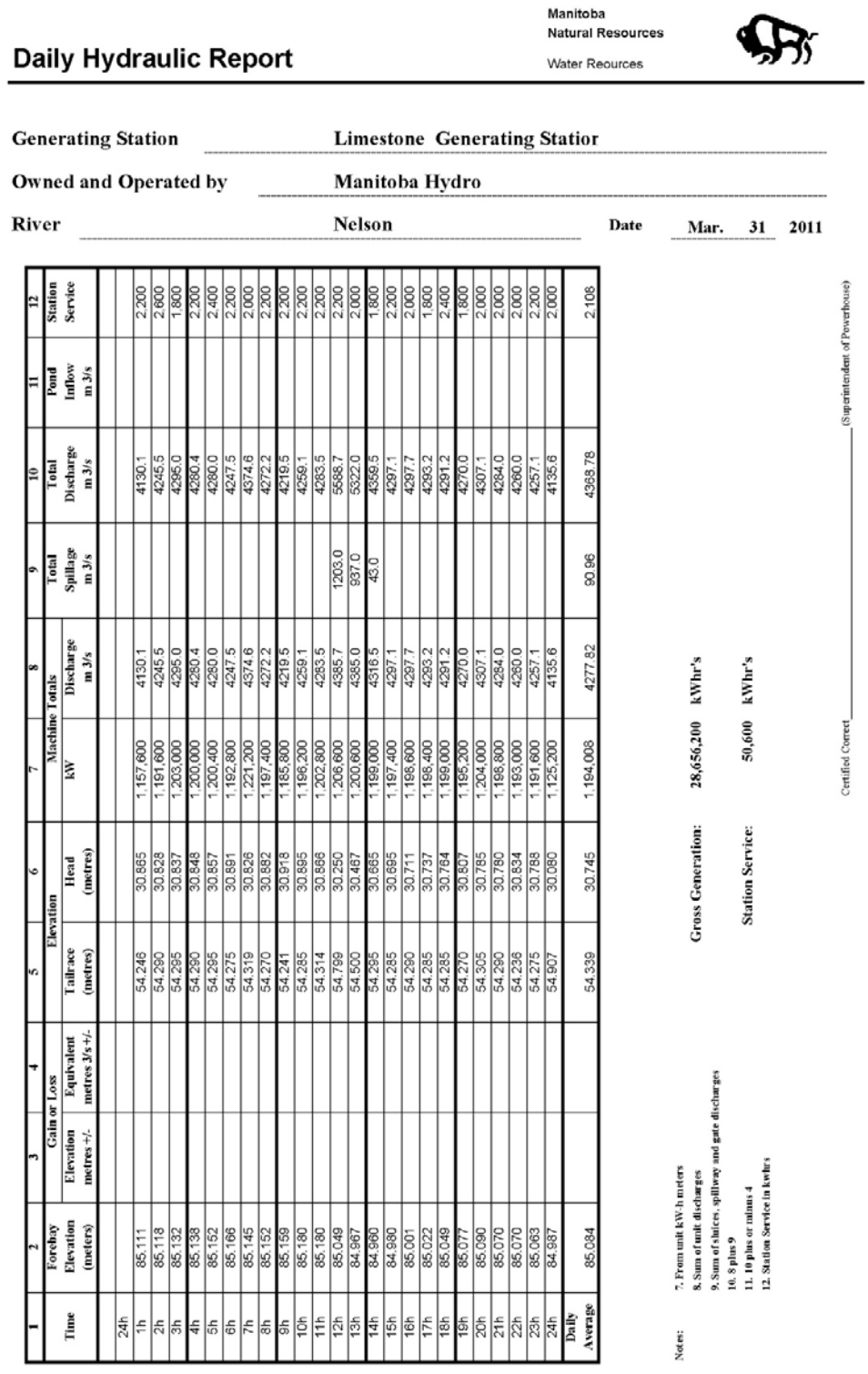


Figure 3: General Arrangement of Limestone Generating Station and Gauge Location

Figure 4: Photograph of Chart Recorder

The chart recorder above plots power in megawatts (MW) and reactive power in megavars (MVAr). Megawatts (red line) are the basis on which water rental payments are determined under licence Term 11 and in accordance with Article 48(3.4) of the Regulation. The MW portion of this device is installed as a requirement of Article 48(11) of the Regulation. Megavar (blue line) stands for Mega Volt-Amperes reactive and is a measure of reactive power. This information is used by plant staff and is not required for licensing purposes.



Manitoba
Natural Resources
Water Reources

Daily Hydraulic Report

Generating Station Limestone Generating Statior

Owned and Operated by Manitoba Hydro

River Nelson **Date** Mar. 31 2011

1	2	3	4	5	6	7		8	9	10	11	12
Time	Forebay Elevation (meters)	Gain or Loss		Elevation		Machine Totals			Total Spillage m 3/s	Total Discharge m 3/s	Pond Inflow m 3/s	Station Service
		Elevation metres +/-	Equivalent metres 3/s +/-	Tailrace (metres)	Head (metres)	kW		Discharge m 3/s				
24h												
1h	85.111			54.246	30.865	1,157,600		4130.1		4130.1		2.200
2h	85.118			54.290	30.828	1,191,600		4245.5		4245.5		2.600
3h	85.132			54.295	30.837	1,203,000		4295.0		4295.0		1.800
4h	85.138			54.290	30.848	1,200,000		4280.4		4280.4		2.200
5h	85.152			54.295	30.857	1,200,400		4280.0		4280.0		2.400
6h	85.166			54.275	30.891	1,192,800		4247.5		4247.5		2.200
7h	85.145			54.319	30.826	1,221,200		4374.6		4374.6		2.000
8h	85.152			54.270	30.882	1,197,400		4272.2		4272.2		2.200
9h	85.159			54.241	30.918	1,185,800		4219.5		4219.5		2.200
10h	85.180			54.285	30.895	1,196,200		4259.1		4259.1		2.200
11h	85.180			54.314	30.866	1,202,800		4283.5		4283.5		2.200
12h	85.049			54.799	30.250	1,206,600		4385.7	1203.0	5588.7		2.200
13h	84.967			54.500	30.467	1,200,600		4385.0	937.0	5322.0		2.000
14h	84.960			54.295	30.665	1,199,000		4316.5	43.0	4359.5		1.800
15h	84.980			54.285	30.685	1,197,400		4297.1		4297.1		2.200
16h	85.001			54.290	30.711	1,196,600		4297.7		4297.7		2.000
17h	85.022			54.285	30.737	1,196,400		4293.2		4293.2		1.800
18h	85.049			54.285	30.764	1,199,000		4291.2		4291.2		2.400
19h	85.077			54.270	30.807	1,195,200		4270.0		4270.0		1.800
20h	85.090			54.305	30.785	1,204,000		4307.1		4307.1		2.000
21h	85.070			54.290	30.780	1,196,800		4284.0		4284.0		2.000
22h	85.070			54.236	30.834	1,193,000		4260.0		4260.0		2.000
23h	85.063			54.275	30.788	1,191,600		4257.1		4257.1		2.200
24h	84.987			54.907	30.080	1,125,200		4135.6		4135.6		2.000
Daily Average	85.084			54.339	30.745	1,194,008		4277.82	90.96	4368.78		2.106

Notes:
7. From unit kW-h meters
8. Sum of unit discharges
9. Sum of sluices, spillway and gate discharges
10. 8 plus 9
11. 10 plus or minus 4
12. Station Service in kwhrs

Gross Generation: 28,656,200 kWhr's

Station Service: 50,600 kWhr's

Certified Correct _____ (Superintendent of Powerhouse)

Figure 5: Sample of Hourly Data

Appendix A: Notifications and Determination of Project Completion Documents Including Records of Transmittal

APPENDIX A

Notification and Determination of Project Completion Documents Including Records of Transmittal

The appendix contains a copy of the reference documents that provided notification on unit completion as well as project completion. The following is a list of all relevant documents along with the page number location:

APPENDIX A - continued (September 18, 1990 memorandum)

B1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM P. M. Abel
Manager
Reservoir and Energy Resources
System Operating Division

TO Mr. L. J. Whitney
Executive Director
Water Resources Branch

DATE 1990 09 18

FILE NO.

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 1

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, it gives me great pleasure to advise you that turbine-generator unit no. 1 completed its commissioning runs and was released for commercial service at 09:58 on September 8, 1990 and Manitoba Hydro is now able to apply the power to beneficial use.

Article 4 of the Supplementary Interim Licence, which replaced Article 4 of the Interim Licence, requires "Within seventeen (17) years from the date of this Interim Licence the Licensee shall have installed all the machinery and equipment required for the initial development of one (1) unit of one hundred and forty-eight thousand (148 000) horsepower measured on the turbine shaft and shall be in a position to apply the power to beneficial use." The date of the Interim Licence is July 9, 1976, a little over fourteen years ago. The initial development is therefore completed, and it is completed within the stipulated time. I therefore recommend that September 8, 1990 be selected as the date for the purposes of Articles 4, 5 and 15(f).

Article 5 of the Interim Licence requires the Licensee to notify the "Division" (Water Resources Branch) in writing of the commissioning date of each unit within thirty days of commissioning, and also when the initial development is completed. This memorandum fulfills this requirement.

Article 3 of the Interim Licence stipulates that, following completion of the initial development, the Licensee shall cause a survey to be made and a plan prepared by a Manitoba Land Surveyor showing in detail the lands required to be occupied for the purposes of the power development and the lands required for flooding purposes only. I would advise you that the first steps have been taken toward the completion of this requirement, so that an accurate determination can be made of Crown land acreage for land rental purposes. In the meantime, we will pay the land rental of $2 175 as stipulated in Article 9. Based on September 8, 1990, $685.27 will be payable for 1990, plus a further $2 175 for

APPENDIX A - continued (September 18, 1990 memorandum)

1991, for a total of $2 860.27, which will become payable on January 2, 1991.

Returning to Article 4 as amended, reference is made to units as having 148 000 horsepower each, and a plant total installation of 1 480 000 horsepower, as had been stated in the original Application dated May 16, 1975. Subsequent to the issue of the Interim Licence, I made a proposal to the Corporation for a significantly higher capacity installation, to keep it in proper relationship to Long Spruce and Kettle Rapids upstream, and successfully defended my proposal at a series of Technical Review Committee meetings. As a result, the nameplate capacity of each turbine at a design head of 27.64 metres is 125.4 MW; using the conventional relationship of .746 MW = 1000 hp, 125.4 MW translates into 168 000 horsepower. The nameplate capacity of the plant is therefore 1 680 000 horsepower, an increase of 200 000 hp or 13.5%. The design head of 27.6 metres is the expected head with a full forebay of 85.3 metres (280.0 feet), ten units on full load, and a tailrace affected by the full development at Conawapa. Prior to the development of Conawapa, the tailwater will be lower and will permit a gross head of about 28.82 metres with a full plant output of 1347 MW, or 134.7 MW per unit, which translates to 180 000 horsepower.

The formal Corporate decision to increase the installed capacity at Limestone was made in 1981. In view of the provisions of Article 68 of the Water Power Regulations, which covers the development of a greater quantity of power than authorized by licence, and Article 39 which provides for amendments to interim licences, the need for a formal application for a supplementary interim licence was evident. However, the application which was forwarded at the time (November 10, 1982) was limited to an application under the provisions of Article 40(6) for an extension of time for the completion of the project, and was deficient in omitting the enlarged development.

With regard to the raising of the forebay, I would advise you that in accordance with Article 13, all land subject to flooding was cleared of timber and brush. Phase One cofferdamming was breached and the immediate forebay was flooded on June 10, 1989. Closure for the main dam was effected on July 20, 1989, and Phase Two commenced with all flow directed through the new spillway. The forebay was gradually raised from that time until October 27, when the main dam was completed, and the forebay about half full. With completion of the main dam, the forebay was raised to 76.0 metres and held constant throughout the winter and until June 4, 1990. Summer construction schedules required a number of elevation changes, with further ponding in late August to its present level of about 81.0 metres. At the present time, Limestone is not being operated at a full forebay, so as to minimize tailrace losses at Long Spruce

APPENDIX A - continued (September 18, 1990 memorandum)

while Limestone has an insufficient number of units to recover such losses.

In view of the increased unit and plant capacity, I therefore propose that a second Supplementary Interim Licence be prepared to amend the number 148 000 and 1 480 000 wherever they appear, to read 168 000 and 1 680 000 respectively. This would affect article 4 (as amended by the first Supplementary Interim Licence), article 10(a), and article 15(e). I would also draw your attention to the stipulation in articles 10(a), 10(b), 11 and 15(d) of water rental rates based on those that were in force in 1976, namely $0.50 per installed horsepower or $1.25 per horsepower-year generated. These rates have been amended five times since then and are currently $3.96 and $9.90 respectively, as per your letter of October 10, 1989, File 3.3.2. A second Supplementary Interim Licence could also amend these rates.

ORIGINAL SIGNED BY
P. M. ABEL

PMA/eeh
xc: K. D. Munro
M. J. Minor
L. J. Holden
H. A. Salewski
B. J. Osiowy

PMA90-45.doc

APPENDIX A - continued (November 9, 1990 letter)

Manitoba

Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

Tel: (204) 945-6395
Fax: (204) 945-7419

November 9, 1990

File: 51.1.12

Mr. P. M. Abel, P. Eng.
Manager, Reservoir & Energy Resources
System Operating Division
Manitoba Hydro
P.O. Box 815,
Winnipeg, Manitoba
R3C 2P4

Dear Mr. Abel:

This is in response to your memorandum dated September 18, 1990 concerning Commissioning of Unit No. 1 at the Limestone Generating Station. This Branch is in agreement with your recommendation to use September 8, 1990 as the date for completion of the initial development for the Limestone site.

I also note your request to amend the existing Interim and Supplementary Interim Licences to incorporate the increase from 148,000 HP units to 168,000 HP units. I suggest that an "Amended Interim Licence" be issued incorporating the increased capacity and the completion of the initial development.

I await your confirmation of this proposal.

Yours truly,

Original signed L.J. Whitney

L. J. Whitney, P. Eng.
Executive Director

cc. V.M. Austford
C. Crust

RECEIVED
System Operating Division
NOV 15 1990

Manitoba
Natural Resources
1930 60 1990

APPENDIX A - continued (November 14, 1990 memorandum)

B1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM	P. M. Abel Manager Reservoir and Energy Resources System Operating Division	TO	Mr. L. J. Whitney Executive Director Water Resources Branch 1577 Dublin Avenue

DATE 1990 11 14

FILE NO.

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 2

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 2 completed its commissioning runs and was released for commercial service at 18:19 o'clock, Friday, October 26, 1990 and Manitoba Hydro is now able to apply the power to beneficial use.

I wish to correct an error I made in my memo to you dated September 18 concerning the commissioning of unit no. 1. On page 2 of that memo, last paragraph, I advised you that in accordance with Article 13 of the Licence, "all land subject to flooding was cleared of timber and brush." I was subsequently advised that this was not the case. Much of the natural banks of the Nelson are steep in the Limestone reach and have little timber on them, due largely to the natural scouring of ice. The areas with the most significant timber and brush are in the valleys of the small tributary creeks. The largest of these valleys to be affected by raising the Limestone forebay are Leslie Creek on the north and Brooks Creek on the south.

In discussions between our environmental people and the provincial Fisheries Branch (the only other party to indicate an interest in the question), the Fisheries Branch requested there be no clearing of any kind as they felt the inundated trees (chiefly black spruce) and brush (chiefly willow) would provide valuable protection for the fingerlings against larger predator fish. Manitoba Hydro felt that it was desirable at least to remove the trunks of the black spruce to minimize the clogging of trashracks and subsequent clamming, but to leave the butts to help against any possible soil erosion.

In the end, hand clearing of spruce but not willow, was carried out in three locations. In that portion of Leslie Creek that will be flooded, a distance of nearly 1.5 km from its mouth, an area of 28.5 acres was cleared. In a short unnamed creek on the left bank right at the AC-DC transmission line corridor crossing, for a distance of nearly .5 km from its mouth, an area of 8.0 acres was cleared. A mile downstream, also on the left bank, a second unnamed creek valley was cleared for 6.0

APPENDIX A - continued (November 14, 1990 memorandum)

acres for a distance of about .25 km. In all, 42.5 acres have been cleared to date by Manitoba Hydro.

I am advised by our environmental people that it is proposed to carry out clearing in the Brooks Creek valley this coming winter, when the site will be accessible over the frozen forebay. The forebay will still be about two metres below the ultimate full supply level of 85.3 metres. All black spruce will be cut at ice level and burned on site. We estimate an area of up to 83 acres. However, recently a trapper located in the mouth of the Brooks Creek valley and built himself a log cabin at an elevation sufficiently high that it will not be flooded. In doing so most of the sizable black spruce in the mouth of the valley has already been cut down. Once the remainder of the black spruce has been removed for a distance of about 2 km up Brooks Creek and its chief tributary, this will complete all proposed clearing.

PMA/eeh
cc: K. D. Munro, General Counsel and Secretary
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
W. A. R. Whitcomb, Limestone site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services
G. B. Porter, Limestone site

PMA90-60.doc

APPENDIX A - continued (January 15, 1991 memorandum)

B1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM	P. M. Abel Department Manager Reservoir and Energy Resources Department System Operating Division	TO	Mr. L. J. Whitney Executive Director Water Resources Branch 1577 Dublin Avenue

DATE 1991 01 15

FILE NO.

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. ~~2~~ 3

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 3 underwent its mechanical runs for a few hours each respectively on November 17, November 19, November 29 and December 3 and its energized commissioning runs on December 9, 11, 12 and 14. It was released for commercial service at 21:46 o'clock, Friday, December 14, 1990, and Manitoba Hydro is now able to apply the power to beneficial use.

ORIGINAL SIGNED BY
P. M. ABEL

PMA/eeh
cc: K. D. Munro, General Counsel and Secretary
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
W. A. R. Whitcomb, Limestone site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services
G. B. Porter, Limestone site

PMA90-60.doc

APPENDIX A - continued (March 19, 1991 memorandum)

1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM	P. M. Abel Department Manager Reservoir and Energy Resources Department System Operating Division	TO	Mr. L. J. Whitney Executive Director Water Resources Branch 1577 Dublin Avenue

DATE 1991 03 19

FILE NO.

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 4

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 4 underwent its mechanical runs in February and was first energized and synchronized to the system on March 1. It underwent an extensive series of special tests by the contractor, G.E. Canada, during the week of March 4 to 8, during which time it was energized no less than 36 times. It was released for commercial service at 17:09 o'clock, Wednesday, March 13, 1991, and Manitoba Hydro is now able to apply the power to beneficial use.

ORIGINAL SIGNED BY
P. M. ABEL

PMA/eeh
cc: K. D. Munro, General Counsel and Secretary
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
W. A. R. Whitcomb, Limestone site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services
G. B. Porter, Limestone site
B. S. Sandhu, Limestone site
E. T. Floyde, System Control Department

PMA91-9.doc

APPENDIX A - continued (June 19, 1991 memorandum)

F1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM	P. M. Abel Department Manager Reservoir and Energy Resources Department System Operating Division	**TO**	Mr. L. J. Whitney Executive Director Water Resources Branch 1577 Dublin Avenue Winnipeg, Manitoba

DATE 1991 06 19

FILE

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 5

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 5 underwent its mechanical runs for a few hours each respectively on May 8, 9 and 10, with electrical tests commencing on May 18. Energized commissioning runs took place on May 29, May 31 and June 1 and consisted primarily of fifteen load rejection tests. Unwatering at this time with inspections revealed the loss of the nose cone from the runner. The entire plant was shut down for six hours on Sunday June 9 and with divers the nose cone was successfully retrieved from the tailrace. Its re-installation caused an additional delay in the final commissioning of the unit. It was released for commercial service at 14:05 o'clock, Sunday, June 16, 1991 and Manitoba Hydro is now able to apply the power to beneficial use.

ORIGINAL SIGNED BY
P. M. ABEL

PMA/eeh
c: K. D. Munro, General Counsel and Secretary
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
D. N. Matthews, Limestone site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services
G. B. Porter, Limestone site

PMA91-28

APPENDIX A - continued (October 8, 1991 memorandum)

F1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM	P. M. Abel Department Manager Reservoir and Energy Resources Department System Operating Division	**TO**	Mr. L. J. Whitney Executive Director Water Resources Branch 1577 Dublin Avenue Winnipeg, Manitoba

DATE 1991 10 08

FILE

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 6

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 6 underwent its mechanical runs during the latter part of August, with electrical tests following shortly after. Energized commissioning runs took place on September 4, 5, 6, 9, 10, 11 and 22 and consisted primarily of a series of load rejection tests. It was released for commercial service at 14:12 o'clock, Friday, September 27, 1991 and Manitoba Hydro is now able to apply the power to beneficial use.

ORIGINAL SIGNED BY
P. M. ABEL

PMA/eeh
c: K. D. Munro, General Counsel and Secretary
H. J. Clouston, Division Manager, Production North
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
D. N. Matthews, Limestone site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services
G. B. Porter, Limestone site

PMA91-39.mem

APPENDIX A - continued (December 30, 1991 memorandum)

F1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM P. M. Abel
Department Manager
Reservoir and Energy
Resources Department
System Operating Division

TO Mr. L. J. Whitney
Executive Director
Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba

DATE 1991 12 30

FILE

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 7

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 7 underwent its mechanical runs during the week of November 18, with electrical tests following shortly after. Energized commissioning runs took place on December 9, 10, 11 and 12 and consisted primarily of a series of load rejection tests. It was released for commercial service at 00:01 o'clock, Friday, December 13, 1991 and Manitoba Hydro is now able to apply the power to beneficial use.

ORIGINAL SIGNED BY
D. W. GUNTER

PMA/eeh
c: K. D. Munro, General Counsel and Secretary
H. J. Clouston, Division Manager, Production North
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
D. N. Matthews, Limestone site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services

GRN91-57.mem

APPENDIX A - continued (March 25, 1992 memorandum)

E1910

MANITOBA HYDRO

INTEROFFICE MEMORANDUM

FROM P. M. Abel
Department Manager
Reservoir and Energy Resources Department
System Operating Division

TO Mr. L. J. Whitney
Executive Director
Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba

DATE 1992 03 25

FILE

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 8

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 8 underwent its mechanical runs on February 21 and 22, 1992 with electrical tests following between February 29 and March 13. Energized commissioning runs took place March 14 and 15 and consisted primarily of a series of load rejection tests. It was released for commercial service at 16:41 o'clock, Wednesday, March 18, 1992 and Manitoba Hydro is now able to apply the power to beneficial use. However, this will not initially create a new increment of capacity, as we are currently limited by transmission line capacity to seven unit output from Limestone. This is due to maintenance outages on two valve groups, one on each of the two DC bipoles. Manitoba Hydro is using this opportunity to rectify the deficiencies on the first seven units, which were rushed into production to maximize generation benefits, even though it was known some future clean-up work would be required. These seven units will be taken out of service in sequence so as to have seven units available at all times for commercial production.

PMA/eeh
c: K. D. Munro, General Counsel and Secretary
H. J. Clouston, Division Manager, Production North
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
D. N. Matthews, Limestone Site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services

PMA92-6.mem

APPENDIX A - continued (July 2, 1992 memorandum)

E1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM	P. M. Abel Department Manager Reservoir and Energy Resources Department System Operating Division	TO	Mr. L. J. Whitney Executive Director Water Resources Branch 1577 Dublin Avenue Winnipeg, Manitoba

DATE 1992 07 02

FILE

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 9

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 9 underwent its mechanical runs on May 28, 1992 with current and voltage build-up tests on the generator and transformer following on June 5, 8, 9 and 10. Energized commissioning runs took place June 19 and 20 and consisted of a series of twenty load rejection tests over the two-day period. Additional loading tests and gate-load determination took place on June 22. The unit was released for commercial service at 9:10 o'clock, Friday, June 26, 1992 and Manitoba Hydro is now able to apply the power to beneficial use.

ORIGINAL SIGNED BY
P. M. ABEL

PMA/eeh
c: K. D. Munro, General Counsel and Secretary
H. J. Clouston, Division Manager, Production North
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
D. N. Matthews, Limestone Site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services

PMA92-25.mem

APPENDIX A - continued (October 2, 1992 memorandum)

E1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM	P. M. Abel Department Manager Reservoir and Energy Resources Department System Operating Division	TO	Mr. L. J. Whitney Executive Director Water Resources Branch 1577 Dublin Avenue Winnipeg, Manitoba

DATE 1992 10 02

FILE

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 10

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 10 underwent its mechanical runs on September 8, 1992 with current and voltage build-up tests on the generator and transformer following on September 14, 16 and 18. First test of the synchronizing system was carried out September 23. Energized commissioning runs took place September 24 and 25 and consisted of a series of fifteen load rejection tests over the two-day period. Additional loading tests and gate-load determination took place on September 26. The unit was released for commercial service at 9:43 o'clock, Tuesday, September 29, 1992 and Manitoba Hydro is now able to apply the power to beneficial use.

With the commissioning of the last unit, Manitoba Hydro has now completed all the works for which the Interim Licence and the Supplementary Interim Licence were issued for the Limestone site. We believe we have fulfilled all the requirements of the Interim Licence, and that the time has come to commence preparation of the Final Licence. Toward this end, we will send to you, or directly to your staff if you so direct, white prints of all the drawings which we believe will be required for licence purposes. This will include the proposed severance line, and a plan of "Lands of the Province required for flooding and other purposes." I propose that after you have had an opportunity to review these plans, we arrange a meeting with your staff to discuss further requirements.

ORIGINAL SIGNED BY
P. M. ABEL

PMA/eeh
c: K. D. Munro, General Counsel and Secretary
I. W. Dickson, Vice-President, Environmental Affairs
H. J. Clouston, Division Manager, Production North
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
D. N. Matthews, Limestone Site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services
W. B. MacFarlane, Property Department
W. A. R. Whitcomb, Limestone/Conawapa Project
J. A. Beck, Property Department
A. J. Carriere, Geotechnical, Generation Engineering

PMA92-37.mem

APPENDIX A - continued (October 16, 1992 letter)

Manitoba

Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5
Tel: (204) 945-6398
Fax: (204) 945-7419

16 October 1992

File: 51.1.12

Mr P M Abel, P Eng
Manager
Reservoir & Energy Resources
System Operating division
Manitoba Hydro
P O Box 815
Winnipeg MB R3C 2P4

Dear Mr Abel:

Thank you for your memorandum dated October 2, 1992 concerning commissioning of Unit No. 10 at Limestone Generating Station on September 29, 1992. This date will be used for administrative purposes under The Water Power Act and the Interim Licences.

Please forward the prints of the Limestone Development directly to Jim McConkey. Upon review of these prints, we will contact you to discuss further requirements/action towards issuance of the Final Licence.

Yours truly,

Original signed L.J. Whitney

L J Whitney, P Eng
Director

cc. J Stefanson

RECEIVED
System Operating Division
OCT 20 1992
RESERVOIR & ENERGY
RESOURCES SEC.

APPENDIX A - continued (April 11, 2011 letter)

Manitoba Hydro

P.O. Box 815 Stn Main • Winnipeg Manitoba Canada • R3C 2P4
Telephone / *N° de téléphone :* (204) 360-3018 • Fax / *N° de télécopieur :* (204) 360-6136
wvpenner@hydro.mb.ca

2011 04 11

Our file: 00193-07311-0005_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: **LIMESTONE GENERATING STATION - CONSTRUCTION PLANS**

Manitoba Hydro can not locate a record of having transmitted final construction plans to the director as required under Article 35(1) of the Regulation. To ensure that this has been fulfilled, we are providing the drawings listed in the attached Appendix A. The drawings are considered to be "as-built" plans.

Plans showing the severance line and lands of the province required for the project will be prepared in consultation with your staff.

If you have any questions related to this matter, please call me at 360-3018.

Yours truly,

Original signed by:

Wesley Penner

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

HJE/ljm/00193-07311-0005_00.doc
Att.

APPENDIX A - continued (April 11, 2011 letter)

Appendix A
Limestone Generating Station "As-Built" Plans

Licensee's drawing number	Description
1-00193-DE-07331-0001-001 Rev.0	Map showing the severance line for Limestone power development
1-00193-DE-07331-0002-001 & -002 (Rev.0)	Map showing lands required for flooding and other purposes for Limestone power development
1-00193-DE-07331-0002-003 (Rev.0)	Map showing lands of the province covered by water required for main diverting works, Powerhouses, etc.
00194-E-00208 (Sheets 1 & 2) Rev.0	Map showing lands required for rights-of-way and terminal stations for Limestone power development
1-00193-DE-20000-0096 (Sheet 1 of 1) Rev. 0	Location of Project (Plate C-1)
1-00193-DE-20000-0097 (Sheet 1 of 1) Rev.0	General Arrangement of Project (Plate C-2)
1-00193-DE-20000-0098 (Sheet 1 of 1) Rev.0	General Arrangement (Plate C-3)
1-00193-DE-20000-0101 (Sheets 1 to 3) Rev.0	Earth Fill Structures Plan & Sections (Plates C-4A, C-4B, and C-4C)
1-00193-DE-20000-0102 (Sheet 1 of 1) Rev.0	Retaining and Training Walls Key Plan & Sections (Plate C-5)
1-00193-DE-20000-0103 (Sheet 1 of 1) Rev.0	South Transition Plan & Sections (Plate C-6)
1-00193-DE-20000-0104 (Sheet 1 of 1) Rev.0	Spillway & Stilling Basin Plan (Plate C-7)
1-00193-DE-20000-0105 (Sheet 1 of 1) Rev.0	Spillway, Stilling Basin & Retaining Walls Elevations (Plate C-8)
1-00193-DE-20000-0106 (Sheet 1 of 1) Rev.0	Spillway Plans, Elevations & Sections (Plate C-9)
1-00193-DE-20000-0107 (Sheet 1 of 1) Rev.0	Spillway & South Transition Drainage Galleries - Plan (Plate C-10)
1-00193-DE-20000-0108 (Sheet 1 of 1) Rev.0	Powerhouse Cross-Section (Plate C-11)
1-00193-DE-20000-0109 (Sheet 1 of 1) Rev.0	Powerhouse Plan at Draft Tube (Plate C-12)
1-00193-DE-20000-0110 (Sheets 1 & 2) Rev.0	Powerhouse Plan at Dewatering Gallery (Plates C-13A and C13-B)
1-00193-DE-20000-0111 (Sheets 1 & 2) Rev.0	Powerhouse Plan at Centre Line Distributor (Plates C-14A and C-14B)
1-00193-DE-20000-0112 (Sheets 1 & 2) Rev.0	Powerhouse Plan at Generator Floor (Plates C-15A and C-15B)

APPENDIX A - continued (April 11, 2011 letter)

Appendix A (continued)
Limestone Generating Station "As-Built" Plans

Licensee's drawing number	Description
1-00193-DE-20000-0113 (Sheets 1 & 2) Rev.0	Powerhouse Plan at Tailrace Deck (Plates C-16A and C-16B)
1-00193-DE-20000-0114 (Sheet 1 of 1) Rev.0	Intake & Service Bay Air Supply Gallery (Plate C-17)
1-00193-DE-20000-0115 (Sheet 1 of 1) Rev.0	Intake Deck & Gate Hoist Housing (Plate C-18)
1-00193-DE-20000-0116 (Sheet 1 of 1) Rev.0	Intake & Service Bay Longtitudinal Sections (Plate C-19)
1-00193-DE-20000-0117 (Sheet 1 of 1) Rev.0	Powerhouse & Service Bay Longitudinal Section at Centre Line Units (Plate C-20)
1-00193-DE-20000-0118 (Sheet 1 of 1) Rev.0	Powerhouse Longitudinal Section at Galleries (Plate C-21)
1-00193-DE-20000-0119 (Sheet 1 of 1) Rev.0	Powerhouse End Wall Unit 10 (Plate C-22)
1-00193-DE-20000-0120 (Sheet 1 of 1) Rev.0	Powerhouse Access Shafts & Elevator (Plate C-23)
1-00193-DE-20000-0121 (Sheets 1 & 2) Rev.0	Service Bay Sections (Plates C-24A and C-24B)
1-00193-DE-20000-0122 (Sheet 1 of 1) Rev.0	Powerhouse, Service Bay & North Transition Elevations (Plate C-25)
1-00193-DE-20000-0123 (Sheet 1 of 1) Rev.0	North Transition & Parking Lot Plan & Sections (Plate C-26)

APPENDIX A - continued (April 12, 2011 letter)

Manitoba Hydro

P.O. Box 815 Stn Main • Winnipeg Manitoba Canada • R3C 2P4
Telephone / *N° de téléphone :* (204) 360-3018 • Fax / *N° de télécopieur :* (204) 360-6136
wvpenner@hydro.mb.ca

2011 04 12

Our file: 00193-07311-0006_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: **LIMESTONE GENERATING STATION - CAPITAL COSTS**

Manitoba Hydro can not locate a record of having formally transmitted the capital cost of the Limestone project as required under Article 36(1) of the Water Power Regulation. The cost of the project was $1.437 billion.

If you have any questions related to this matter, please call me at 360-3018.

Yours truly,

Original signed by:

Wesley Penner

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

HJE/ljm/00193-07311-0006_00.doc

bc: R.D. Bettner

Appendix B: Maximum Forebay Level Excursions – Licence Term #8

APPENDIX B

Events Exceeding Licence Term #8 - Maximum Forebay Level

On a daily average basis there were no excursions of the maximum forebay level of 280 feet. Hourly excursions occurred between 1990 and 1997, in 2001 and in 2004. Although these were reported by virtue of the hourly data provided to the province, they were not formally flagged.

For purposes of this report, only water levels exceeding the maximum forebay level by more than 0.1 feet are discussed. Manitoba Hydro considers water levels less than 280.1 feet on an hourly basis, to be within acceptable operating tolerances. The primary reason for events exceeding the licence limit is rapid water level variations due to sudden inflow changes from Long Spruce Generating Station. Rapid water level variations occur because the inflow lag-time is less than one hour and because the Limestone forebay has a relatively small storage capacity. Operators have not always been able to respond in time to keep the forebay level under 280.0 feet on an hourly basis.

From the date of commissioning to the end of 2012, the amount of time that the forebay was at or exceeded 280.1 feet was less than 0.03% of the time.

The following pages provide a review of the hourly excursions exceeding 280.1 feet.

In 1990 there were six excursion events all occurring between December 12 and 18. These occurred within days of the initial impoundment on December 8. In all cases the Limestone outflows were not coordinated sufficiently in response to the upstream flow increases at Long Spruce. This period would have been a time of discovering the actual relationship between Long Spruce outflow and Limestone forebay water level response time. Operation of Limestone at this time was based on discharge through three units as well as the spillway with the objective to maximize the forebay level without exceeding the licence limit.

Table 2: 1990 Maximum Forebay Level Excursions

Month -Day	**Hours > 280.1 ft.**	**Max. level**	**Operating Conditions**
12-12	2	280.31	The flow increase response time was too slow relative to Long Spruce flow increase. Unit #3 commission testing may or may not have played a role in this event. Time was between 17:00 and 18:00 hours.
12-13	2	280.27	Although plant flow was reduced in the preceding hour, the spill was constant. Unit #3 commission testing may or may not have played a role in this event. The flow reduction prior to the one at Long Spruce resulted in the forebay of 280.3 feet. Time was between 18:00 and 19:00 hours.
12-14	3	280.34	The flow increase response time was too slow relative to the Long Spruce flow increase. Time was between 19:00 and 21:00 hours. Unit #3 was deemed to be commissioned on this day.
12-15	4	280.37	The spill at Limestone was not increased sufficiently in response to the Long Spruce flow increase. Time was between 17:00 and 20:00 hours.
12-18	1	280.27	The flow increase response time was too slow relative to Long Spruce flow increase. Time was 8:00 hours.
12-18	5	280.56	Unit #1 was forced out of service while spill was increased. The flow changes prior to this period do not appear to be co-ordinated with the changes at Long Spruce. Time was between 18:00 and 22:00 hours.

In 1991 there were five events when the forebay level was 280.1 feet or higher. Although speculative, the occurrences appear to be related to operator error amidst learning the dynamics of flow relationships and lag times between Limestone and Long Spruce. New experiences occurred on or before March 13, June 16, September 27 and December 13 as the Units #4, #5, #6 and #7 were commissioned respectively. Testing of the units prior to commissioning would have introduced variable Limestone outflows.

Table 3: 1991 Maximum Forebay Level Excursions

Month -Day	**Hours > 280.1 ft.**	**Max. level**	**Operating Conditions**
03-06	2	280.16	The event occurred after forebay ponding starting at 5:00 hours from a forebay level of 275.5 feet. Limestone outflow was held relatively constant while Long Spruce flows were increased until 10:00 hours and then reduced. The Limestone flows were increased too late in response. Time of forebay exceedance was between 14:00 and 15:00 hours.
07-06	1	280.11	A slight increase in Limestone flows in response to Long Spruce outflow would have prevented this event. The increase in Long Spruce outflow at this time of day may not have been anticipated. Time was 00:00 hours.
09-06	4	280.39	Limestone spillage was not started soon enough to match upstream inflows. Time was between 13:00 and 16:00.
09-13	2	280.14	The increase in Limestone spillage was not set high enough to match upstream inflows. Time was between 16:00 and 17:00 hours.
09-23	2	280.17	Limestone flows were held relatively constant, but they were less than upstream inflows that were being decreased at Long Spruce. Spillage at Limestone would have prevented the forebay from rising above 280 feet. Time was between 18:00 and 19:00 hours.

In 1992 there were two events when the maximum forebay reached or exceeded 280.1 feet. Generator Units #8, #9 and #10 were commissioned on March 18, June 26 and September 29 respectively.

Table 4: 1992 Maximum Forebay Level Excursions

Month -Day	**Hours > 280.1 ft.**	**Max. level**	**Operating Conditions**
06-29	1	280.11	The Limestone forebay was being raised to full supply level. The operation was a combination of reducing spill and increasing the number of generating units. An error was made at Limestone one hour prior to this event by reducing the spill by more than the flow that the units provided. Time was 10:00 hours.
11-11	1	280.12	Limestone flow adjustments in response to releases at Long Spruce appear appropriate to keep the forebay level within the licence limit. Available meteorological data indicates that neither wind nor ice would likely have contributed to this water level anomaly. Time was 4:00 hours.

In 1993 forebay levels were all below 280.1 feet.

In 1994 there were four events were the maximum forebay reached or exceeded 280.1 feet.

Table 5: 1994 Maximum Forebay Level Excursions

Month -Day	**Hours > 280.1 ft.**	**Max. level**	**Operating Conditions**
04-21	1	280.11	The Limestone forebay was being raised with outflow regulated by unit generation. Not enough units were put on line to match the increase in Long Spruce flow. Time was 3:00 hours.
05-26	1	280.20	The explanation is the same as for 04-21 above. Time was 6:00 hours.
05-27	1	280.25	The explanation is the same as for 04-21 above. Time was 5:00 hours.
06-20	1	280.11	The explanation is the same as for 04-21 above. Time was 7:00 hours.

In 1995 there were four events were the maximum forebay exceeded 280.1 feet.

Table 6: 1995 Maximum Forebay Level Excursions

Month -Day	**Hours > 280.1 ft.**	**Max. level**	**Operating Conditions**
02-03	2	280.20	The Limestone forebay was being raised with outflow regulated by unit generation. Not enough units were put on line to match the increase in Long Spruce flow. Time was between 6:00 and 7:00 hours.
08-14 (am)	2	280.20	The explanation is the same as for 02-03 above. Time was between 5:00 and 6:00 hours.
08-14 (pm)	2	280.23	This event occurred around the 18:00 hour load peak. Between 15:00 and 18:00 the Limestone forebay was being raised by progressively taking units off line to reduce Limestone outflow while Long Spruce inflows were increasing. The following hour flows were reduced at Long Spruce, but not raised sufficiently at Limestone to keep the forebay from exceeding 280 feet. Time was between 19:00 and 20:00 hours.
08-22	1	280.34	The forebay was at near full supply level when the increase in Limestone outflows did not match the increase in Long Spruce outflows. During the event two units were put on line and spill was introduced. Time was 8:00 hours.

In 1996 there were two events were the maximum forebay exceeded 280.1 feet.

Table 7: 1996 Maximum Forebay Level Excursions

Month -Day	**Hours > 280.1 ft.**	**Max. level**	**Operating Conditions**
09-05	4	280.36	Flow was regulated almost entirely by spill during this event. The flow was lower than incoming flows to increase the forebay level. At 7:00 hours the incoming flow was 60 kcfs greater than the outflow, causing a rapid rise in the forebay. Spill was increased sharply at 8:00 with subsequent increases. The forebay level did not start to decline until 10:00. Time was between 9:00 and 12:00 hours.
09-16	1	280.14	The forebay was being raised during the early morning by releasing less flow than was flowing into the forebay. Adjustments to increase the flow as the forebay approached 280.0 feet were not done soon enough. Time was 8:00 hours.

In 1997 there was one event were the maximum forebay exceeded 280.1 feet.

Table 8: 1997 Maximum Forebay Level Excursions

Month -Day	**Hours > 280.1 ft.**	**Max. level**	**Operating Conditions**
06-23	1	280.16	The Limestone forebay was being raised, but the increase in outflow during the previous hour to match the upstream inflow was insufficient. Time was 15:00 hours.

In 1998, 1999 and 2000 forebay levels were all below 280.1 feet.

In 2001 there were three events were the maximum forebay exceeded 280.1 feet.

Table 9: 2001 Maximum Forebay Level Excursions

Month -Day	**Hours > 280.1 ft.**	**Max. level**	**Operating Conditions**
05-19	2	280.30	The Limestone forebay was being raised, but the flow increase was delayed too long to match the upstream inflow. Three units were taken off line about this time without enough spill added to compensate for the reduced flow. Time was between 1:00 and 2:00 hours.
05-20	1	280.18	Ice or some other temporary blockage may have been a factor in the forebay gauge reading previous to this event. During that hour, the water level decreased even though Limestone flow was reduced more than the forebay inflow. The expected result would have been an increase in forebay level rather than a decrease. The release of this possible blockage may have had an effect on the forebay level reading for this event (subsequent hour) or may have been a factor in plant operations. Leading up to this, the Limestone forebay was being raised in conjunction with several units coming off line. The result was an insufficient outflow increase to match the upstream inflow. Time of this event was 3:00 hours.
05-23	2	280.20	The Limestone outflow was not increased sufficiently to match the upstream inflow increases from Long Spruce. Time was between 4:00 and 5:00 hours.

In 2002 and 2003 forebay levels were all below 280.1 feet.

In 2004 there was one event were the maximum forebay exceeded 280.1 feet.

Table 10: 2004 Maximum Forebay Level Excursions

Month -Day	**Hrs > 280.1 ft**	**Max. level**	**Operating Conditions**
07-02	1	280.14	Two units were running previous to this event. The additional four units at about 6:00 hours reduced the forebay level below 280.0 feet. Time was 6:00 hours.

Since and including 2005, forebay levels were all below 280.1 feet.

Appendix C: Land and Water Rentals Supporting Documentation

Appendix C
Land and Water Rentals Supporting Documentation

The appendix contains a copy of the supporting documents relevant to the articles on land and water rentals for Limestone Generating Station. The following is a list of all relevant documents along with the page number location:

Land Rentals
- February 13, 1991 letter, page 63.
- March 1, 1991 memorandum, page 66.
- March 7, 1991 letter, page 70.
- March 13, 1991 letter, page 71.
- November 4, 1996 letter, page 73.

Water Rentals
- February 29, 1996 letter, page 72.

APPENDIX C - continued (February 13, 1991 letter and invoice)

Manitoba

Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5
Tel: (204) 945-6395
Fax: (204) 945-7419

RECEIVED
FEB 18 1991
EXECUTIVE VICE-PRESIDENT

February 13, 1991

File: 3.3.2 51.1.10
3.3.3 51.1.11
51.1.9 51.1.12
51.2.3

Mr. Ralph O. Lambert, P. Eng.
Executive Vice President
Manitoba Hydro
P. O. Box 815
WINNIPEG, Manitoba
R3C 2P4

Dear Mr. Lambert:

I enclose, in duplicate, Invoice No. 88330 indicating $23,753,127.01 for land rentals and power rentals now due to this Department by Manitoba Hydro for the Jenpeg, Kelsey, Kettle, Long Spruce and Limestone Generating Stations on the Nelson River.

As our fiscal year ends March 31, 1991, we would appreciate receiving payment of the account before that date.

Yours truly,

Original signed L.J. Whitney

cc: B. Dahl
P. J. Lockett

Enclosures

APPENDIX C - continued (February 13, 1991 letter and invoice)

ORIGINAL

Manitoba
Natural Resources

88330

TO
ADDRESS
Manitoba Hydro
Box 815
Winnipeg, Manitoba
R3C 2P4

DATE February 13, 1991
ISSUING OFFICE Water Resources Branch
1577 Dublin Avenue
Wpg., Mb. R3E 3J5
Attn: C. Crust

INVOICE

DATE	PARTICULARS	FEE	GST	AMOUNT
	Re: Jenpeg, Kelsey, Kettle, Long Spruce and Limestone Generating Stations as per attached statement.			
	Land Rentals	$70,499.14	$4,886.97	$75,386.11
	Power Rentals	$23,677,740.90		$23,677,740.90
	Total			$23,753,127.01

Peter McAthel
1991-03-01

GST Registration #R107863847

CREDIT 6-11

MAKE REMITTANCE PAYABLE TO:

MG-774

AND MAIL TO: MINISTER OF FINANCE OF MANITOBA
~~CASHIER OFFICE~~
~~BOX 42, 1495 ST. JAMES STREET~~, WINNIPEG, MANITOBA ~~R3H 0W9~~
500-191 Broadway R3C 4B2

APPENDIX C - continued (February 13, 1991 letter and invoice)

February 13, 1991

MANITOBA HYDRO
in account with
DEPARTMENT OF NATURAL RESOURCES
WATER RESOURCES BRANCH

Re: Jenpeg, Kelsey, Kettle, Long Spruce and Limestone Generating Stations

LAND RENTALS JANUARY 1, 1991 TO DECEMBER 31, 1991	FEE	GST	TOTAL
Power Site Lands, Jenpeg	$ 500.00	$ 35.00	
Power Site Lands, Kelsey	500.00	35.00	
Transmission Line Lands, Kelsey	944.87	66.14	
Power Site Lands, Kettle	56,832.00	3,978.24	
Power Site Lands, Long Spruce	8,862.00	620.34	REVISED
Power Site Lands, Limestone	2,860.27*	152.25	
Total Land Rentals	**$70,499.14**	**$4,886.97**	**$75,386.11**
POWER RENTALS - JAN. 1, 1990 TO DEC. 31, 1990 @ $9.90 PER HP. YR			
Jenpeg - 147,563 hp. yr	$1,460,873.70		
Kelsey - 296,837 hp. yr	2,938,686.30		
Kettle - 984,574 hp. yr	9,747,282.60		
Long Spruce - 873,175 hp. yr	8,644,432.50		
POWER RENTALS - SEPT. 8, 1990 TO DEC. 31, 1990 @ $ 9.90 PER HP. YR			
Limestone - 89,542 hp. yr	55.90 $ 886,465.80		
Total Power Rentals 89541. 49579	**$23,677,740.90**		**$23,677,740.90**
TOTAL NOW DUE			**$23,753,127.01**

*$2,860.27 made up of $685.27 land rentals prorated from the date of completion of initial development, September 8, 1990, to December 31, 1990, and from $2,175.00 land rentals for 1991 payable in advance. GST applicable to 1991 rental.

HVE 91-03-01

fr

APPENDIX C - continued (March 1, 1991 memorandum)

01910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM P. M. Abel
Department Manager
Reservoir & Energy Resources
System Operating Division

TO Mr. L. J. Whitney
Executive Director
Water Resources Branch

DATE 1991 03 01

FILE NO.

SUBJECT LIMESTONE GENERATING STATION - LAND RENTALS UNDER INTERIM LICENCE AND ADJUSTMENT TO LONG SPRUCE LAND RENTALS

With the successful commissioning of the initial development at Limestone, land rentals have become due and payable to cover the portion of the year from September 8, 1990 to December 31, 1990 in arrears, and for calendar year 1991 in advance. The Interim Licence for Limestone under article 10 gives an estimated acreage of 2 175 acres. Using this estimate, I had discussed the amount which would be due and payable on January 2, 1991 in the fourth paragraph of my memorandum to you dated September 18, 1990 and had quoted the value of $2 860.27.

We acknowledge receipt of invoice no. 88330 dated 1991 02 13 which covers water and land rentals for Jenpeg, Kelsey, Kettle, Long Spruce and Limestone. Contained in this is a land rental for Long Spruce listed at $8 862 (plus $620.34 G.S.T.) and land rental for Limestone at $2 860.27 (plus $152.25 G.S.T.). The value for Long Spruce agrees with the value given in the Final Licence and the value shown for Limestone agrees with the value discussed in my memo to you dated September 18, 1990. The G.S.T. of $152.25 charged against Limestone is based on only the 1991 rentals and is not applied to the 1990 rentals paid in arrears.

We cannot now identify how the estimated acreage for Limestone was determined to be 2175 acres. The Application specifically listed 650 acres for the constructor's area, 200 acres for Sundance townsite and an unstated amount for the transmission line right-of-way back to Long Spruce as shown on drawing number 7001-E-85. It may be pure coincidence, but 2175 acres is very nearly identical to the AC/DC transmission line corridor contained within the Limestone severance area, which has been determined by survey to be 2174.6 acres.

This AC/DC corridor within the Limestone severance area has been in existence since the commissioning of Long Spruce. It has been employed for transmitting approximately half of the output of the Long Spruce plant by AC to the Henday Converter Station and back again on its way to Winnipeg by DC. For the purpose of the issue of the Final Licence it had been decided in 1986 that it was expedient on a temporary basis to include

APPENDIX C - continued (March 1, 1991 memorandum)

the Limestone portion initially with the Long Spruce licence. The Long Spruce Final Licence was not actually issued until July 19, 1990. Rental on this 2174.6 acres is included in the current amount of $8 862.00 which has been invoiced for Long Spruce.

It was also recognized that in due time this portion of the right-of-way would be contained within the future Limestone severance area and would be carrying the entire output of the Limestone plant. It was agreed in an exchange of correspondence with Mr. N. Mudry, formerly with your Branch, dated October 3, 1986, that the 2213.2 acres contained within the Limestone severance line (AC-DC corridor - 2174.6 acres and Henday Station grounds - 38.6 acres) should be transferred from the Long Spruce licence to the Limestone licence upon completion of the initial development at Limestone. If land rentals are taken at $1.00 per acre per year, then Long Spruce will be relieved of $2 213.20.

It would now appear that the estimated land area listed under Article 10 of the Limestone Interim Licence, shown as 2175 acres, contained only the Limestone portion of the AC/DC corridor but not Henday converter station and contained no amount for powerhouse, spillway, main dam, dyke, construction area, campsite, Sundance townsite, sewage lagoon, borrow pits, quarries, flooded forebay lands, Limestone-Henday transmission line and all other miscellaneous rights-of-way such as roads, railway spurs, drainage ditches and potable water pipelines.

We have just recently completed a careful estimate to cover all these items, as follows:

Estimated Lands of the Province Occupied by Limestone Generating Station

i) Lands of the province not covered by water required for main diverting works, powerhouse, etc. These lands include: the west dyke, the landward end of the main dam, part of the gravel quarry, the general contractor's work area, Manitoba Hydro stores and offices, the construction camp, the Sundance townsite, the sewage lagoon, and all the rockfill stockpiles.

520 acres

ii) Lands of the province covered by water required for the said purposes. These lands include: the powerhouse, the spillway, the main rockfill dam, the tailrace channel excavation, the rest of the gravel quarry and cofferdams.

164 acres

iii) Lands of the province required only to be flooded in connection with the storage or pondage of water. These lands were required

APPENDIX C - continued (March 1, 1991 memorandum)

because Limestone forebay was raised from a pre-development elevation as low as 181.43 feet (55.3 m) to a maximum elevation of 279.86 feet (85.3 m).

517 acres

iv) Lands of the province required only for rights-of-way for water conduits, transmission lines, and similar works. These lands include: 1) all access roads within the Limestone site excluding those portions that traverse the transmission corridor; 2) all access roads to the borrow pit and quarry areas, the construction camp and the sewage lagoon; 3) 2174.6 acres of transmission right- of-way that are in the process of being transferred from the Long Spruce Final Licence to the Limestone Interim Licence. This transfer is retroactive to September 8, 1990 by written agreement with the Water Resources Branch dated October 3, 1986. September 8, 1990 is the date when Limestone unit no. 1 was successfully commissioned and released for commercial service; and 4) the Henday-Limestone transmission corridor.

2315 acres

v) Lands of the province required only for substations, distributing stations, terminal stations and similar stations. These lands include: the construction power substation and 38.6 acres for the Henday Converter Station grounds. These station grounds are also in the process of being transferred from the Long Spruce Licence to the Limestone Licence under the same agreement as described in classification iv. above.

42 acres

Total Crown Land affected: 3558 acres

If the total acreage of the lands of the province of 3558 acres have land rental set at $1.00 per acre per year, the annual land rental will be $3 558.00. This amount is now payable by Manitoba Hydro for calendar year 1991 and subsequent years. In addition to this, the same amount pro-rated for the period September 8, 1990 to December 31, 1990 inclusive is 115/365 x $3 558 = $1 121.01. The total land rental now payable for Limestone as of January 2, 1991 is $4 679.01.

Since two classifications of land (parts iv) and v) mentioned earlier) have been or are being transferred from Long Spruce to Limestone, charges for these areas will also require transfer to avoid double counting. The prorated charges to Limestone for 1990 include an area of (2174.6 + 38.6) 2213.2 acres, which were charged to Long Spruce in 1990. The July

APPENDIX C - continued (March 1, 1991 memorandum)

1990 Long Spruce invoice no. 88326 was based on making up the difference of the old 5380 acres to the new 8862 acres for the period July 10 to December 31, which included the 2213.2 acres now charged to Limestone. Therefore the 2213.2 acre area prorated from September 8, 1990 to December 31, 1990 at $1.00 per acre is a land rental which has already been paid and charged against Long Spruce. As it is now chargeable against Limestone, it should be removed from the present invoice charged to Long Spruce (115/365 * -2213.2 = -$697.31). Since the Long Spruce licence is now permanently smaller by the transferred acreage, the amount payable at $1.00 per acre in the future will therefore be 8862 - 2213.2 - $6648.80. The invoice to the 1991 Long Spruce rental should be adjusted to 6648.80 - 697.31 = $5951.49.

In view of all of the above, we propose to make a payment for these land rentals which reduces the payment in respect to Long Spruce from $8 862 to $5 951.49 (plus $465.42 G.S.T. based on the 1991 land rental portion) and to increase the payment for Limestone from $2 860.27 to $4 679.01 (plus $249.06 G.S.T. also based on the 1991 land rental portion). The increase in Limestone therefore includes not only the reduction in respect of Long Spruce but includes land rentals for those lands that have not been provided for in the Limestone Interim Licence. These adjustments are reflected in the attached table. We trust this will meet with your approval.

When the Conawapa plant is completed, two new transmission rights-of-way will have been added. The first is to carry construction power into the Conawapa site. Later a separate right-of-way will be created to carry Conawapa generation back to the Bipole 3 converter, presently assumed to be added to Henday. Our proposal for treatment will be to add the rights-of-way within the Limestone severance area to the Limestone licence for rental payment purposes and to assign the rights-of-way within the Conawapa severance area to that licence.

ORIGINAL SIGNED BY
P. M. ABEL

PMA/GRN/eeh

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APPENDIX C - continued (March 7, 1991 letter)

Manitoba

Natural Resources

Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5
Tel: (204) 945-6395
Fax: (204) 945-7419

March 7, 1991

File: 3.3.3 51.1.10
3.3.2 51.1.12

Mr. Ralph O. Lambert, P. Eng.
Executive Vice President
Manitoba Hydro
P.O. Box 815
Winnipeg, Manitoba
R3C 2P4

Dear Mr. Lambert:

This is in response to Mr. P. M. Abel's memo dated March 1, 1991 regarding adjustments to the land rentals for the Limestone and Long Spruce Generating Stations.

At this time we would appreciate receiving the payment of $23,751,967.23, in lieu of the amount shown on Invoice No. 88330, by March 31, 1991. This amount includes the proposed land rentals adjustments along with the water power rentals for Limestone based on 89541 hp. yr generated in 1990.

We would contact you further upon completion of our assessment of all the items noted in Mr. Abel's memo.

Original signed L.J. Whitney

60 [illegible]

c.c. P. Hailley
B. Dahl
P. Lockett

APPENDIX C - continued (March 13, 1991 letter)

1991 03 13

Mr. L. J. Whitney
Chief of Water Management
Water Resources Branch
1577 Dublin Avenue
Winnipeg, Manitoba
R3E 3J5

Dear Larry:

Re: 1991 Nelson River Water Power Act invoice no. 88330

We acknowledge receipt of your letter dated March 7, 1991.

The adjustment for payment to the amount of $23 751 967.23, is in lieu of the amount shown on invoice no. 88330. The invoice has been processed with the noted change and the cheque will be delivered on March 28, 1991.

Yours very truly,

ORIGINAL SIGNED BY
P. M. ABEL

P. M. Abel, P. Eng.
Department Manager
Reservoir and Energy Resources
System Operating Division

HJE/eeh
xc: Mr. R. O. Lambert, Executive Vice-President
Mr. D. W. Gunter, Division Manager, System Operating

HJE91-8.doc

APPENDIX C - continued (February 29, 1996 letter)

Manitoba

Deputy Minister of
Natural Resources

RECEIVED
FEB 29 1996

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

EXECUTIVE VICE-PRESIDENT
ENGINEERING AND ENVIRONMENT

FEB 29 1996

Mr. Ralph O. Lambert
Executive Vice President
Manitoba Hydro
P.O. Box 815
Winnipeg, Manitoba
R3C 2P4

Dear Mr. Lambert:

The purpose of this letter is to notify Manitoba Hydro of a change in billing practice for water use rental as provided in The Water Power Act and Regulations.

Heretofore charges for water power rental have been applied at the end of each calendar year based on the actual usage for that year. Beginning with the month of May 1996, water power rental charges will be applied monthly. The methodology of doing so will be decided after consultation with Manitoba Hydro staff.

Early in May, an invoice will be issued for the months of January, February, March, and April of 1996 to bring the water use rental charges up to date for the start of monthly billing.

The details of the monthly billing procedure will be communicated to you after the above noted consultations have taken place.

Staff look forward to working cooperatively with Manitoba Hydro in the implementation of this revised billing practice.

Yours truly,

Original signed Davied Tomasson

Deputy Minister

CIRCULATE

	ROL	
	EAZ	
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FEB 29 1996
DIVISION MANAGER
SYSTEM OPERATING DIVISION

1996 02 29
xc: E.A. Zaleski
"ROL"

APPENDIX C - continued (November 4, 1996 letter)

Manitoba

Deputy Minister of
Natural Resources

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

NOV - 4 1996

Mr. A.D. Cormie, P. Eng.
Manager
Energy, Security & Sales
Power Supply
Manitoba Hydro
820 Taylor Avenue
Winnipeg, Manitoba
R3M 3T1

Dear Mr. Cormie:

The purpose of this letter is to notify Manitoba Hydro of a change in billing practice for land use rentals as provided in The Water Power Act and Regulation.

Heretofore, land use rentals have been payable at the beginning of each calendar year, on January 2. Beginning with the 1997-1998 fiscal year, land use rentals will be payable at the beginning of the fiscal year, on April 1.

The purpose of this change is to eliminate the need to accrue the revenue received to the proper fiscal year as required under the accounting procedure recently adopted by the department.

Early in February of each year, an invoice will be issued for the annual land use rentals for the ensuing fiscal year. Payment of this amount will be required on April 1. Early in November, 1996, an invoice will be issued for January, February, and March of 1997. The payment of this amount, which is 90/365 of the annual rentals, will be required on January 2, 1997.

JEUX DU CANADA GAMES BRANDON '97

APPENDIX C - continued (November 4, 1996 letter)

This payment will bring the land use rentals up-to-date for the start of the fiscal year billing interval.

My staff looks forward to working cooperatively with Manitoba Hydro in the implementation of this revised billing practice.

Yours truly,

Original signed Davied Tomasson

David Tomasson
Deputy Minister

Appendix D: Timber Clearing Background Documentation

Appendix D
Timber Clearing Background Documentation
(November 14, 1990 memorandum)

B1910

MANITOBA HYDRO
INTEROFFICE MEMORANDUM

FROM	P. M. Abel Manager Reservoir and Energy Resources System Operating Division	TO	Mr. L. J. Whitney Executive Director Water Resources Branch 1577 Dublin Avenue

DATE 1990 11 14

FILE NO.

SUBJECT LIMESTONE GENERATING STATION - COMMISSIONING OF UNIT NO. 2

In accordance with the provisions of the Interim Licence and the Supplementary Interim Licence for the development of water power at the Limestone site, I am pleased to advise you that unit no. 2 completed its commissioning runs and was released for commercial service at 18:19 o'clock, Friday, October 26, 1990 and Manitoba Hydro is now able to apply the power to beneficial use.

I wish to correct an error I made in my memo to you dated September 18 concerning the commissioning of unit no. 1. On page 2 of that memo, last paragraph, I advised you that in accordance with Article 13 of the Licence, "all land subject to flooding was cleared of timber and brush." I was subsequently advised that this was not the case. Much of the natural banks of the Nelson are steep in the Limestone reach and have little timber on them, due largely to the natural scouring of ice. The areas with the most significant timber and brush are in the valleys of the small tributary creeks. The largest of these valleys to be affected by raising the Limestone forebay are Leslie Creek on the north and Brooks Creek on the south.

In discussions between our environmental people and the provincial Fisheries Branch (the only other party to indicate an interest in the question), the Fisheries Branch requested there be no clearing of any kind as they felt the inundated trees (chiefly black spruce) and brush (chiefly willow) would provide valuable protection for the fingerlings against larger predator fish. Manitoba Hydro felt that it was desirable at least to remove the trunks of the black spruce to minimize the clogging of trashracks and subsequent clamming, but to leave the butts to help against any possible soil erosion.

In the end, hand clearing of spruce but not willow, was carried out in three locations. In that portion of Leslie Creek that will be flooded, a distance of nearly 1.5 km from its mouth, an area of 28.5 acres was cleared. In a short unnamed creek on the left bank right at the AC-DC transmission line corridor crossing, for a distance of nearly .5 km from its mouth, an area of 8.0 acres was cleared. A mile downstream, also on the left bank, a second unnamed creek valley was cleared for 6.0

Appendix D - continued (November 14, 1990 memorandum)

acres for a distance of about .25 km. In all, 42.5 acres have been cleared to date by Manitoba Hydro.

I am advised by our environmental people that it is proposed to carry out clearing in the Brooks Creek valley this coming winter, when the site will be accessible over the frozen forebay. The forebay will still be about two metres below the ultimate full supply level of 85.3 metres. All black spruce will be cut at ice level and burned on site. We estimate an area of up to 83 acres. However, recently a trapper located in the mouth of the Brooks Creek valley and built himself a log cabin at an elevation sufficiently high that it will not be flooded. In doing so most of the sizable black spruce in the mouth of the valley has already been cut down. Once the remainder of the black spruce has been removed for a distance of about 2 km up Brooks Creek and its chief tributary, this will complete all proposed clearing.

PMA/eeh
cc: K. D. Munro, General Counsel and Secretary
M. J. Minor, Production
L. J. Holden, Construction, 1100 Waverley
W. A. R. Whitcomb, Limestone site
H. A. Salewski, Kettle
B. J. Osiowy, Generation Planning
D. C. Windsor, Environmental Services
G. B. Porter, Limestone site

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Appendix E: List of Final Construction and Licence Plans

Appendix E
List of Final Construction and Licence Plans

Licensee's drawing number	Description
1-00193-PE-07331-0001-001 Rev.0	Map showing the severance line for Limestone power development
1-00193-DF-20000-0096 (Sheet 1 of 1) Rev. 0	Location of Project (Plate C-1)
1-00193-DF-20000-0097 (Sheet 1 of 1) Rev.0	General Arrangement of Project (Plate C-2)
1-00193-DF-20000-0098 (Sheet 1 of 1) Rev.0	General Arrangement (Plate C-3)
1-00193-DF-20000-0101 (Sheets 1 to 3) Rev.0	Earth Fill Structures Plan & Sections (Plates C-4A, C-4B, and C-4C)
1-00193-DF-20000-0102 (Sheet 1 of 1) Rev.0	Retaining and Training Walls Key Plan & Sections (Plate C-5)
1-00193-DF-20000-0103 (Sheet 1 of 1) Rev.0	South Transition Plan & Sections (Plate C-6)
1-00193-DF-20000-0104 (Sheet 1 of 1) Rev.0	Spillway & Stilling Basin Plan (Plate C-7)
1-00193-DF-20000-0105 (Sheet 1 of 1) Rev.0	Spillway, Stilling Basin & Retaining Walls Elevations (Plate C-8)
1-00193-DF-20000-0106 (Sheet 1 of 1) Rev.0	Spillway Plans, Elevations & Sections (Plate C-9)
1-00193-DF-20000-0107 (Sheet 1 of 1) Rev.0	Spillway & South Transition Drainage Galleries - Plan (Plate C-10)
1-00193-DF-20000-0108 (Sheet 1 of 1) Rev.0	Powerhouse Cross-Section (Plate C-11)
1-00193-DF-20000-0109 (Sheet 1 of 1) Rev.0	Powerhouse Plan at Draft Tube (Plate C-12)
1-00193-DF-20000-0110 (Sheets 1 & 2) Rev.0	Powerhouse Plan at Dewatering Gallery (Plates C-13A and C13-B)
1-00193-DF-20000-0111 (Sheets 1 & 2) Rev.0	Powerhouse Plan at Centre Line Distributor (Plates C-14A and C-14B)

Appendix E - continued (List of Final Construction and Licence Plans)

Licensee's drawing number	Description
1-00193-DF-20000-0112 (Sheets 1 & 2) Rev.0	Powerhouse Plan at Generator Floor (Plates C-15A and C-15B)
1-00193-DF-20000-0113 (Sheets 1 & 2) Rev.0	Powerhouse Plan at Tailrace Deck (Plates C-16A and C-16B)
1-00193-DF-20000-0114 (Sheet 1 of 1) Rev.0	Intake & Service Bay Air Supply Gallery (Plate C-17)
1-00193-DF-20000-0115 (Sheet 1 of 1) Rev.0	Intake Deck & Gate Hoist Housing (Plate C-18)
1-00193-DF-20000-0116 (Sheet 1 of 1) Rev.0	Intake & Service Bay Longitudinal Sections (Plate C-19)
1-00193-DF-20000-0117 (Sheet 1 of 1) Rev.0	Powerhouse & Service Bay Longitudinal Section at Centre Line Units (Plate C-20)
1-00193-DF-20000-0118 (Sheet 1 of 1) Rev.0	Powerhouse Longitudinal Section at Galleries (Plate C-21)
1-00193-DF-20000-0119 (Sheet 1 of 1) Rev.0	Powerhouse End Wall Unit 10 (Plate C-22)
1-00193-DF-20000-0120 (Sheet 1 of 1) Rev.0	Powerhouse Access Shafts & Elevator (Plate C-23)
1-00193-DF-20000-0121 (Sheets 1 & 2) Rev.0	Service Bay Sections (Plates C-24A and C-24B)
1-00193-DF-20000-0122 (Sheet 1 of 1) Rev.0	Powerhouse, Service Bay & North Transition Elevations (Plate C-25)
1-00193-DF-20000-0123 (Sheet 1 of 1) Rev.0	North Transition & Parking Lot Plan & Sections (Plate C-26)