

2025 05 06

Ms. Agnes Wittmann
Director, Environmental Approvals Branch
Manitoba Environment and Climate Change
EABDirector@gov.mb.ca

Dear Ms. Wittmann:

**RE: SLAVE FALLS GENERATING STATION
RENEWAL LICENCE UNDER THE WATER POWER ACT – SUPPORT REPORT AND LICENCE
DRAWING SUBMISSION**

Manitoba Hydro is submitting the report entitled “Slave Falls Generating Station Report in Support of a Request for a Second Renewal Licence under The Water Power Act and Regulations”, as supporting documentation in the Slave Falls Renewal Licence process. This report provides details regarding compliance with all terms and conditions of the 1982 Renewal Licence, Second Short Term Extension Licence and selected Regulations pursuant to The Water Power Act.

Included in the submission is a new licence drawing showing the proposed severance line and lands of the Province required for the continued operation of the Slave Falls Generating Station. The drawing is provided to fulfill the requirement of Section 44(g) of the Regulation and has been sealed and signed by a professional engineer. Report and drawing provided are in electronic (Adobe pdf) formats.

Please confirm your receipt of this documentation and advise me on any issues relating to obtaining a Renewal Licence for Slave Falls Generating Station. Should you have any inquires on this matter or additional process requirements, please call me at 204-360-3018.

Yours truly,



W.V. Penner, P. Eng.
Manager
Waterway Approvals and Monitoring Department

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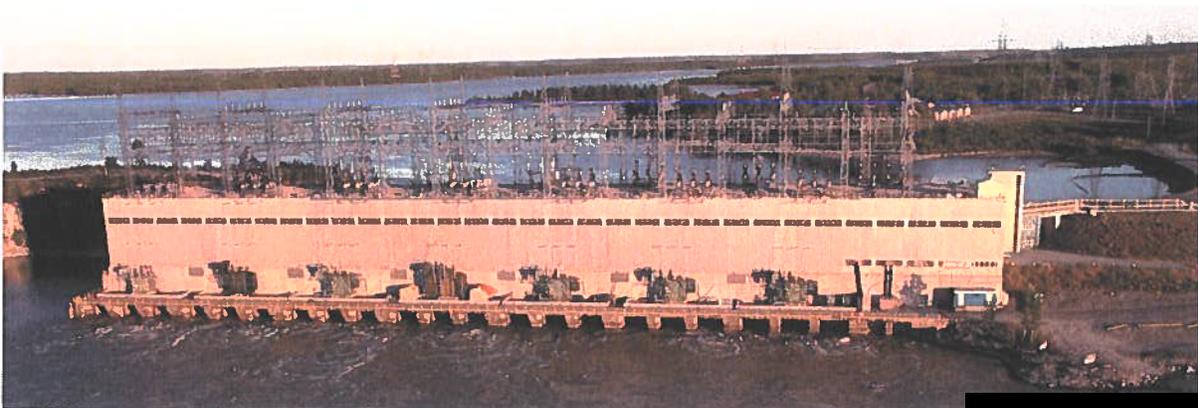
WATERWAY APPROVALS AND MONITORING DEPARTMENT
ASSET MANAGEMENT DIVISION
ASSET PLANNING AND DELIVERY

SLAVE FALLS GENERATING STATION

Report in Support of a Request for a

RENEWAL LICENCE

Under The Water Power Act and Regulations



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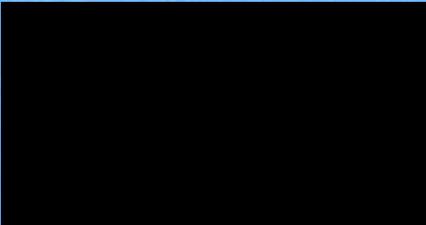
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W.V. PENNER

DATE:

2025-04-30



Executive Summary

The purpose of this document is to demonstrate that Manitoba Hydro has fulfilled all obligations required to obtain a Second Renewal Licence under The Water Power Act C.C.S.M. c. W60 (The Water Power Act) for the Slave Falls Generating Station (GS). The document provides details on the observances of all the terms and conditions under the 1982 Renewal Licence, Second STEL and applicable sections of Manitoba Regulation 25/88R pursuant to The Water Power Act (the Regulation). Manitoba Hydro is providing this documentation to assist the Minister responsible for The Water Power Act in the decision to issue a Second Renewal Licence for the Slave Falls GS.

Slave Falls GS has an installed capacity of 71.6 MW and is located approximately 160 km northeast of Winnipeg by road and 10 km down river from Pointe du Bois. The Slave Falls Generating Station was constructed between 1928 and 1948. The plant was built by City Hydro, later known as Winnipeg Hydro. Manitoba Hydro acquired Slave Falls in 2002.

Manitoba Hydro operates the Slave Falls GS under the authority of a Renewal Water Power Act Licence and in accordance with a Second Short-Term Extension Licence (STEL). Manitoba Hydro operated Slave Falls in accordance with the Renewal Licence that was valid for a term of 40 years ending January 1, 2022. Manitoba Hydro requested a Second Renewal Licence on September 12, 2017. Manitoba Hydro requested a STEL to allow the licence renewal to occur at a later date. The First STEL covered the period from January 1, 2022 to January 1, 2025. The Second STEL covers the period from January 1, 2025 to December 31, 2025.

Division 1 of this document provides an overview of the project, its history and operation. Division 2 provides context for the decision to renew the licence for another 50 years. Division 3 demonstrates how Manitoba Hydro has fulfilled terms of the Short-term Extension and Renewal Licences and shows compliance with pertinent articles of the Regulation. Division 4 concludes the report highlighting Manitoba Hydro's commitment to the ongoing safe operation of Slave Falls GS and its request for a Second Renewal Licence under The Water Power Act.

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Division 1 – Introduction and Background

Purpose

The purpose of this document is to demonstrate that Manitoba Hydro has fulfilled all obligations required to obtain a Renewal Licence under The Water Power Act C.C.S.M. c. W60 (The Water Power Act) for the Slave Falls Generating Station (GS). The document provides details on the observances of all the terms and conditions under the 1982 Renewal Licence and applicable sections of the Manitoba Regulation 25/88R pursuant to The Water Power Act (the Regulation). Manitoba Hydro is providing this documentation to assist the Minister responsible for The Water Power Act in the decision to issue a Second Renewal Licence for the Slave Falls GS.

Report Overview

Division 1 of this document provides background information including an overview of the project, its history and operation, and highlights Manitoba Hydro's commitment to dam safety and the project's significance in the overall system. Division 2 summarizes the key aspects of the Renewal Licence requiring provincial decision and approval. Division 3 demonstrates how Manitoba Hydro has fulfilled terms of the Short-term Extension and Renewal Licences and shows compliance with pertinent articles of the Regulation. Manitoba Environment and Climate Change (MECC) agreed to the selection of pertinent articles of the Regulation. This document references previous names of MECC. Division 4 concludes the report highlighting Manitoba Hydro's commitment to the ongoing safe operation of Slave Falls GS and its request for a Second Renewal Licence under The Water Power Act.

The Water Power Act

Manitoba grants the right to develop water power under the authority of The Water Power Act and the Regulation. The Water Power Act is part of a suite of natural resource allocation acts through which the province allows various entities to develop Crown resources for the benefit of all Manitobans. It is broad in its application in that it provides authority for Manitoba to; allocate provincial water powers and Crown lands required for the development of water power, expropriate private lands, authorize the construction of all undertakings with respect to the water power development, regulate all power and energy produced, and to authorize all incidental matters.

The Water Power Act allows for a licence to take on one of three main types: Interim, Final and Renewal, depending on the stage of development. Manitoba issues an Interim Licence prior to initiating construction subject to certain terms and conditions. Upon successful completion of the development and satisfaction of the Interim Licence terms and conditions and the Regulation, the licensee is entitled to receive a Final Licence. When granted, a Final Licence will expire in no more than fifty years from the date the project

went into service. Between four and six years before expiry, the licensee is expected to apply for a Renewal Licence.

Since 2009, Manitoba's regulations include a provision for Short Term Extension Licences (STELs). STELs can add a term up to five years to a Final Licence or a Renewal Licence and can also retroactively apply to an expired Final Licence. STELs must include the terms and conditions in the Final or Renewal Licence.

More information on Water Power Act Licensing is available on the provincial web site at: <https://www.gov.mb.ca/sd/water/water-power/index.html>.

Licensing Background

Manitoba Hydro currently operates the Slave Falls GS in accordance with a Second STEL for the development of water power at the Slave Falls Site on the Winnipeg River. The Second STEL was issued December 23, 2024 and is in effect until December 31, 2025.

Slave Falls GS was originally owned and operated by City Hydro, later known as Winnipeg Hydro. Manitoba Hydro acquired the Slave Falls GS on September 3, 2002 from Winnipeg Hydro. The following outlines the generating station's licensing background.

Winnipeg Hydro operated Slave Falls GS with a Final Licence issued May 18, 1934 in accordance with the provisions of the Water Power Act for a term of 50 years from January 1, 1932 to December 31, 1982. City Hydro became Winnipeg Hydro in 1964 and a Renewal Licence was granted to Winnipeg Hydro for a term of 40 years from January 1, 1982 to January 1, 2022.

Manitoba Hydro took over operation of the Slave Falls GS in 2002 and requested a Second Renewal Licence on September 12, 2017 in accordance with Section 46 of the Regulation. In accordance with section 92(6) of the Water Power Regulation, Manitoba Hydro was issued a STEL on December 31, 2021 covering the period from January 1, 2022 to January 1, 2025. A Second STEL was issued on December 23, 2024 covering the period from January 1, 2025 to and including December 31, 2025.

Copies of all licences are included in [Appendix B](#).

Renewal Licence Area

Manitoba drawing number 21-11-7013 (Manitoba Hydro file number 00104-DC-07331-0002 0001) shows the Renewal Licence area (land within the severance line) which includes lands impacted by raised water levels along the Winnipeg River from Slave Falls forebay upstream to just downstream of Pointe du Bois GS.

Project Description

The Slave Falls GS is a run-of-river hydroelectric generating facility consisting of an 8-unit close-coupled intake/powerhouse with a generating capacity of 71.6 MW. The station was constructed in stages from 1928 to 1948 by City Hydro, later known as Winnipeg Hydro.

As shown in [Figure 1](#), the project is located on the Winnipeg River in the Whiteshell Provincial Park, approximately 160 km northeast of Winnipeg by road and 10 km down river from Pointe du Bois. The station is accessible by private road from Pointe du Bois and is in Treaty 3 territory and in the homeland of the Red River Metis. [Figure 2](#) shows a photograph of the Slave Falls GS powerhouse and spillway, while [Figure 3](#) shows an overall site map of the major project components. [Figure 4](#) shows a cross section of the powerhouse while [Figure 5](#) shows a profile and sections of the rockfill dam. [Figure 6](#) provides the sluiceway and spillway plan and sections.

The Winnipeg River drainage basin is an approximately 150,000 km² area that lies mostly in northwestern Ontario but also includes the south east portion of Manitoba and northern Minnesota in the United States. Most of the basin is located within the Canadian Shield and is scattered with many lakes and rivers including the Winnipeg, Bird, Lee, Whitemouth and English Rivers. The basin is mainly forested and rocky.

Although the Winnipeg River system is approximately 765 km in length, running from a few kilometres west of Lake Superior to Lake Winnipeg, the Winnipeg River is approximately 260 km long from Lake of the Woods in a north-westerly direction, draining into Lake Winnipeg. Due to the multi-purpose nature of the Winnipeg River drainage basin, Lake of the Woods Control Board (LWCB) manages outflows from Lake of the Woods in Ontario which affects timing of flow on the Winnipeg River. The International Rainy-Lake of the Woods Watershed Board also monitors the ecological health of the Lake of the Woods and Rainy Lake boundary waters.

Manitoba Hydro owns and operates six hydraulic generating stations on the Winnipeg River listed below from east to west:

1. Pointe Du Bois Generating Station
2. Slave Falls Generating Station
3. Seven Sisters Generating Station
4. McArthur Falls Generating Station
5. Great Falls Generating Station
6. Pine Falls Generating Station

Physical Structures

The station components include an 8-unit powerhouse, a 28-bay north spillway, 7-bay north **sluiceway**, 3-bay ice sluiceway, 2-bay regulating sluiceway, concrete non-overflow

dams, and earthfill dikes. [Figure 3 to 6](#) show the general arrangement and cross sections of the concrete and earth structures. [Table 1](#) and [Table 2](#) summarize major characteristics of the station and project components.

Table 1: Slave Falls GS Major Characteristics

Construction Period	1928 to 1948
Nameplate Capacity	71.6 MW (96,000 horsepower)
Average Annual Generation (2007-2023)	412 million kW-h
Waterfall Drop (head)	9.75 m
Maximum Operating Forebay Elevation	284.62 m (933.8 ft)

Table 2: Principal Structures of the Slave Falls GS

<i>Powerhouse</i>	Number of Units	8 vertical propeller type turbines
	Length	180 m
	Discharge Capacity (at full gate)	962.8 m ³ /s
	Unit Power Production	8 Units @ 8.94 MW/unit = 71.6 MW
<i>Spillways</i>	Number of Bays	North spillway - 28 North sluiceway - 7 Ice sluiceway - 3 Regulating sluiceway - 2
	Discharge Capacity (at maximum operating forebay elevation)	4,454 m ³ /s
<i>Rockfill Dam</i>	Material	Granite rockfill
	Crest Elevation	287.9 m
	Available Freeboard	3.28 m
South Non-Overflow Dam	Material	Concrete
	Crest Elevation	286.7 m
	Available Freeboard	2.08 m

Project Upgrades

[Appendix C](#) shows the 2008 to 2023 maintenance and construction record information.

Some major upgrades made to the Slave Falls GS physical structures are highlighted below:

- In 2016 and 2017, Manitoba Hydro performed work on the **Slave Falls Creek Spillway Rehabilitation Project**. The creek spillway located to the south of the generating station was converted into a non-overflow dam. This project was approved by Manitoba Conservation and Water Stewardship in an April 19, 2016 letter. A copy of the letter is included in [Appendix D](#).

- In 2018, investigation of pier 1 of the Slave Falls 7-bay **sluiceway** revealed that the concrete in one of the station's sluiceway piers was in poor condition after over 90 years of exposure to water flow, ice and annual freeze/thaw cycles. To mitigate the risk of failure, Manitoba Hydro temporarily reduced the forebay elevation by 1 metre from October 2018 to April 2019 for pier stabilization work. Manitoba Hydro notified Manitoba Sustainable Development on October 18, 2018. A copy of the letter is included in [Appendix D](#).
- In winter 2023, construction commenced on the **Slave Falls 7-Bay Sluiceway Concrete Restoration Project** by repairing concrete along the rollways, piers and walkways. The project aims to stabilize, reinforce, and strengthen the overall structure to allow for its continued safe operation until at least 2040. Water levels are not expected to be lowered to complete this repair work that is scheduled between 2024-2026.

Operational Description

Manitoba Hydro currently operates the Slave Falls GS under a Second Short-Term Extension Licence (STEL) issued in accordance with the provisions of The Water Power Act. The STEL covers the period from January 1, 2025 to and including December 31, 2025. The operating terms of the STEL are identical to those of the Renewal Licence that was issued on June 30, 1982.

The Slave Falls generating units are remotely controlled from the Pointe du Bois GS control room. Maintenance and emergency staff are stationed at both generating stations. Manitoba Hydro operates the generating station in a run-of-river mode with a forebay (upstream) having an area of about 6.5 sq. km. Flow releases in Ontario and local watershed runoff affect Winnipeg River inflows.

The flow on the Winnipeg River as it enters Manitoba is regulated in Ontario upstream of Manitoba Hydro's generating stations. The Lake of the Woods Control Board (LWCB) is a Canadian board which manages the water levels of Lake of the Woods and Lac Seul, and the flows in the Winnipeg River and English River downstream of these lakes to their junction. The LWCB consists of four members: one representing Federal interests, two representing Ontario and one representing Manitoba. Manitoba Hydro represents its views as one of many interested parties in meetings with the LWCB to provide input into LWCB's regulation strategy based on current and projected water conditions in Manitoba.

Slave Falls GS is typically operated to maintain a stable forebay level just below the upper licence limit of 284.62 m (933.8 ft). A chart of daily forebay levels is shown in [Figure 7](#).

Historic Power Generation

Slave Falls GS started producing power in 1931 with two generating units. Additional units were added until the eighth and final unit was installed in 1948.

Manitoba Hydro acquired the Slave Falls GS from Winnipeg Hydro in 2002. The station includes 8 vertical 8.94 MW (12,000 horsepower) turbines for a total station capacity of 71.6 MW (96,000 horsepower). [Figure 8](#) shows the monthly power generation and the Slave Falls powerhouse capacity from 2002 to 2023. The primary factors responsible for the gap between the capacity limit and actual generation include local transmission limitations, flow conditions and unit outages for maintenance and upgrades. [Figure 9 to 14](#) show the nameplates for units 1, 2, 3, 5, 7, and 8. The nameplates for units 4 and 6 have been removed and cannot be located, however, their capacities are the same.

Manitoba Hydro's objective is to plan for the secure and economic operation of Manitoba Hydro's system of reservoirs and generating stations while considering the effects on stakeholders and the environment. Manitoba Hydro optimizes energy generation across the overall system through the development and implementation of modern technology and computer programs. A computer-based control system installed in 1984 in the System Control Centre in Winnipeg enables operators to monitor Manitoba Hydro's generating stations, transmission lines and exports. The computer systems are able to automatically adjust electricity generation to correspond with customers' needs. The Market Optimized Short Term (MOST) computer model enables operators to make optimal decisions based on real time inputs.

Existing Project Significance in Manitoba Hydro System

Currently, Slave Falls GS provides about 1% of the hydro-electric generating capacity in the Manitoba Hydro system, with the Winnipeg River stations providing about 11% of the total hydro-electric capacity in the Manitoba Hydro system in 2022/23. (In 1977, the Winnipeg River Stations supplied approximately 36% of the total Manitoba load). Even though the Slave Falls GS is relatively small, the Winnipeg River generating stations make efficient use of the water resource as the water travels from the Manitoba-Ontario border to Lake Winnipeg.

The natural falls and the river's relative proximity to Winnipeg made the Winnipeg River an excellent prospect for hydroelectric development. As the electricity demand increased for industrial, agricultural and domestic needs, seven generating stations were built on the Winnipeg River between 1902 and 1955.

Manitoba Hydro completed the **Farm Electrification Program** in 1954 and with the construction of Winnipeg River plants, electricity became more available and affordable to people across the province. By that time, Manitoba had the distinction of being western Canada's most electrified province (75% of all farms in Manitoba had electrical service).

Finally, Slave Falls GS is an integral part of an overall hydro system which generates renewable energy as it helps to reduce carbon emissions. By doing so, it supports the Manitoba Clean Energy Strategy which focuses on protecting the environment while promoting a prosperous and environmentally conscious economy.

Dam Safety Summary

Manitoba Hydro's **Dam Safety Program** is based on the Canadian Dam Association (CDA, 2007) Guidelines and operates in accordance with two key CDA principles:

Principle 1a

The public and the environment shall be protected from the effects of dam failure, as well as release of any or all retained fluids behind a dam, such that the risks are kept as low as reasonably practicable.

Principle 2d

Documented surveillance procedures shall be followed to provide early identification and to allow for timely mitigation of conditions that might affect dam safety.

Manitoba Hydro's program objectives aim to detect changes in the condition of dams and to initiate timely remedial measures when necessary. The program includes visual inspections, instrument data analysis, engineering analysis, testing, evaluations, and reporting. Manitoba Hydro follows inspection guidelines for surveillance of concrete and embankment dams based on the dam classification, condition and professional judgment.

Concrete and embankment dams continue to be inspected at regular intervals for any anomalies or deficiencies. Manitoba Hydro staff perform routine inspections once per month for the embankment dams and bi-monthly for the concrete dams, including the spillway. Specialists from Manitoba Hydro's Asset Management Division perform additional inspections of all dams annually.

Dam Safety Reviews (DSR) of generating stations and water control structures are undertaken on an intermittent schedule. This type of review is a systematic evaluation of dam safety through a comprehensive performance assessment of the structures and review of original design, construction, operation and maintenance records to ensure that the generating station meets current industry standards. The CDA Guidelines are the applicable standard. Qualified external consulting engineering firms carry out DSRs and typically include a site inspection of the station, dams, and spillway gates, including mechanical and electrical aspects of gate operation. A comprehensive DSR report includes observed deficiencies and recommendations for follow-up. SNC Lavalin performed a DSR at Slave Falls in 2010. Several deficiency investigations are now complete, while the remaining items are prioritized within the appropriate work management system.

Slave Falls GS also underwent a **Failure Modes and Effects Analysis (FMEA)** in 2008. A FMEA is a method or process of risk analysis used by the Dam Safety industry to better assess and understand the condition and performance of dams and the effects or consequences of possible failures. The method involves identifying individual component or structural failure modes, assuming a set of faults or initiating conditions, that can lead to a dam failure (an uncontrolled release of the reservoir) or other adverse consequences. The FMEA then involves classifying these failure modes into one of four categories according to an understanding of the significance of that failure mode on the system, the potential for occurrence, the magnitude of the consequence and the likelihood of an adverse response. The process also helps to identify and prioritize appropriate risk reduction measures.

Manitoba Hydro maintains **Dam Safety Emergency Plans** for all of its generating stations. These plans are consistent with the CDA's Dam Safety Guidelines and bulletins and are issued to local authorities and emergency response agencies to assist in responding to an emergency situation. The emergency plans for Slave Falls are combined with Pointe du Bois in the **Pointe du Bois and Slave Falls Dam Safety Emergency Plan**. This plan contains detailed information regarding the verification and classification of the emergency, and contains communication notification and reporting procedures, as well as guidance for emergency response.

Manitoba Hydro updates notification charts in the emergency plans annually to reflect ongoing personnel and content change.

Annual Reporting

Prior to 2007, Manitoba Hydro regularly provided Manitoba with raw data records from its generating stations. Since 2007, Manitoba Hydro has submitted an **Annual Water Levels and Flows Compliance Report** to the Province. The report contains information on data collection, verification and reporting related to Water Power Act licences, as well as a summary of deviations from licence conditions during the year. Manitoba Hydro and Manitoba Environment and Climate Change (MECC) use the information in this report as a framework for monitoring and reporting licence compliance.

MECC publishes the **Annual Water Levels and Flows Compliance Reports** on its website at https://www.gov.mb.ca/sd/about/articles-and-publications/index.html?wg=water_power_licensing.

The **Slave Falls Licence Implementation Guide (LIG)** defines the methodology for evaluating, notification of, and reporting non-compliance with respect to critical water levels. Manitoba Hydro prepared this guide to document a common understanding with the regulator of compliance with the water regime terms of the Slave Falls Water Power Act Licence. In October 2017 MH prepared the Slave Falls LIG and it was approved and published by MECC on its website at <https://www.gov.mb.ca/sd/water/water-power/slave-falls-generating-station/index.html>. A revised Slave Falls LIG was prepared in December 2022 to

include terms and conditions found in the Slave Falls Water Power Act Short-term Extension Licence and its cover letter.

A copy of the revised implementation guide can be found in [Appendix E](#).

Community Involvement

One of Manitoba Hydro's foundational principles is respectful engagement with the public, Indigenous communities and groups affected by its hydro system and operations with a priority to respect and support Indigenous peoples in all aspects of its business. In addition to having a business unit dedicated to External & Indigenous Relations and Communications, Manitoba Hydro has a section within the Waterway Approvals and Monitoring Department tasked with community and interested party engagement on hydro system waterways (Waterway Community Engagement Section).

Manitoba Hydro's Waterway Community Engagement Section strives to be inclusive with everyone having an interest in waterways affected by Manitoba Hydro. The staff in this section identified and reached out to over 20 municipalities, Indigenous communities and non-government organizations along the Winnipeg River, including those in the vicinity of the Slave Falls Generating Station. Manitoba Hydro staff has had discussions with individuals, groups and communities that have raised concerns or interest in learning about Manitoba Hydro's operations. Manitoba Hydro engages with Indigenous communities with an interest in Winnipeg River operations, including the Slave Falls Generating Station, on an ongoing basis.

The **Slave Falls Creek Spillway Conversion Project** was completed in 2017. The engagement process included notifications and feedback mechanisms with interested parties and Indigenous interests, and specific involvement of an Indigenous Nation in a heritage assessment of the quarry used for the rehabilitation work.

Over 2018–19 winter season, Manitoba Hydro lowered the upstream water level by 1 metre to allow for concrete repairs on one of the station's sluiceway piers. MH engaged with municipal officials, Indigenous communities, cottage owners, and other interested parties who may have been impacted by the work.

More testing revealed more concrete repairs were required on the Slave Falls 7 bay sluiceway to stabilize, reinforce, and strengthen the overall structure. The **Slave Falls 7-Bay Sluiceway Concrete Restoration Project** commenced in 2023. Manitoba Hydro continues the engagement process for this work and information can be found on MH website at <https://www.hydro.mb.ca/corporate/operations/system-renewal/slave-falls/>

Following a Public Water Safety Around Dams safety review at Slave Falls Generating Station, the existing safety boom and portage route around the station had to be moved,

warning buoys, fencing and signage were installed. Through the project engagement plan, Manitoba Hydro reached out to local residents, Indigenous and surrounding communities, and recreational waterway users to collect feedback, understand concerns, and assess potential impacts related to the proposed new portage route. This input helped inform our final routing and design of the new portage.

The 2021 Pointe du Bois and Slave Falls Short-Term Extension Licences included a requirement for Manitoba Hydro to report annually on Indigenous engagement about the ongoing operation of these generating stations. The **Winnipeg River Indigenous Engagement Report** describes engagement activities undertaken with respect to all plants on the Winnipeg River, as dialogue with Indigenous communities is not generally specific to an individual generating station. Manitoba Hydro engages with Black River First Nation, Brokenhead Ojibway Nation, Hollow Water First Nation, Peguis First Nation, Sagkeeng First Nation, the Manitoba Metis Federation, Aghaming Community Council, Manigotagan Community Council and Seymourville Community Council about Winnipeg River operations.

On June 27, 2024, Manitoba Hydro submitted the annual **Winnipeg River Indigenous Engagement Report** to Manitoba Environment and Climate (MECC) that covered activities from June 16, 2023 to June 15, 2024. The report is published on the MECC website at <https://www.gov.mb.ca/sd/about/articles-and-publications/index.html?wg=ier>

The Heritage Resources Management Program

Manitoba Hydro is committed to safeguarding cultural and heritage resources through its **Heritage Resource Management Program (HRMP)**. The HRMP is designed to aid in heritage resource planning, management, training, and mitigation. The HRMP also undertakes annual archaeological monitoring, throughout Manitoba Hydro's hydraulic system, related to registered heritage sites at potential risk due to Manitoba Hydro's operations. This work includes notification and collaboration with local communities on a rotational basis depending on annual field work requirements.

Coordinated Aquatic Monitoring Program

Manitoba Hydro and the Province of Manitoba jointly manage the **Coordinated Aquatic Monitoring Program (CAMP)** through a partnership. This long-term program studies and monitors the health of water bodies affected by Manitoba Hydro's generating system. The geographic scale of CAMP makes it the largest holistic ecosystem-based aquatic monitoring program in Manitoba. The purpose of CAMP is to strengthen the understanding of the effects of hydroelectric activity on the aquatic ecosystem and support more informed decision making when it comes to water management.

CAMP has established annual monitoring sites in the Pointe du Bois forebay and at Lac du Bonnet. Monitoring at these sites has helped characterize the fish species composition, water quality, and other aquatic ecosystem conditions along the Winnipeg River. More information about CAMP is available at www.campmb.ca.

The provincial website has additional information on water quality at <https://www.gov.mb.ca/sd/water/lakes-beaches-rivers/index.html>.

As noted in the recently issued Churchill River Diversion, Lake Winnipeg Regulation and Jenpeg Final Water Power Act Licence cover letters, CAMP will be expanding in the future to include “shoreline erosion, shoreline wetland issues and monitoring of terrestrial and riparian components and shoreline health with the inclusion of Indigenous community participation and Indigenous traditional knowledge.”

Environment Act Licensing

The intent of Environment Act (EA) Licensing is to develop and maintain an environmental protection and management system in Manitoba which will ensure that the environment is protected and maintained to sustain a high quality of life, including social and economic development, recreation and leisure for present and future generations. The EA been in effect in Manitoba since March 31, 1988. Manitoba Hydro is not required to obtain EA licences for any of its legacy projects including Slave Falls as these projects predate the legislation.

Manitoba Hydro is still required to obtain EA licences and permits for the addition of supporting infrastructure associated with generating stations such as water distribution and wastewater treatment plants, lagoons and landfills.

In the event that Slave Falls would undergo major changes to the existing project configuration, Manitoba Hydro would be required to seek an EA Licence. The **Pointe Du Bois Spillway Replacement Project** is a recent example of Manitoba Hydro requiring an Environmental Impact Statement (EIS) for new works on the Winnipeg River.

Manitoba Hydro maintains compliance with its EA licences and manages other environmental risks through Manitoba Hydro’s **Environmental Management System** described below.

The Provincial website has more information on Environment Act Licensing. https://www.gov.mb.ca/sd/permits_licenses_approvals/eal/index.html.

Environmental Management System at Manitoba Hydro

Manitoba Hydro has an **Environmental Management System (EMS)** in place that aligns with the ISO 14001 Standard requirements. The EMS is a set of tools and processes a

company uses to realize its environmental goals. Having a good EMS enables a company to identify its environmental impacts, set goals to manage them, implement plans to meet those objectives, evaluate performance, and make continual improvements to the system.

We are a member of the Canadian Electricity Association (CEA) and an active participant in the Sustainable Electricity Program. Sustainable electricity is an industry-wide sustainability initiative developed and implemented by CEA and its utility members. Sustainable electricity is our response to the challenge of creating a sustainable tomorrow.

Manitoba Hydro's EMS information can be found at the corporate website:

https://www.hydro.mb.ca/environment/env_management/

Public Safety

In 2009 Manitoba Hydro introduced a **Public Water Safety Around Dams (PWSD)** program. As part of the program, Manitoba Hydro develops a site specific PWSD Site Management Plan for each of its generating stations and control structures. These Site Management Plans address public water safety issues by identifying hazards to the public created by the presence and operation of the Manitoba Hydro facility/structure and then implementing the safety Control Measures required in response. Implementation of these Control Measures occurred from 2012 to 2023 based on the priority of the identified risks. Also part of the PWSD Program, these individual Site Management Plans and implemented Control Measures are reviewed on a planned 5 year frequency.

Manitoba Hydro maintains a **PWSD Site Management Plan** for the Slave Falls GS that was developed by KGS ACRES. The identified Control Measures included signage, fencing, a seasonal boom, and a dedicated Portage.

Due to challenging spring water conditions, the existing seasonal boom was upgraded to an all-season boom in 2021 that crosses the entire Winnipeg River further upstream. The new safety boom permanently blocked access to the existing portage route, so a new portage route was constructed in 2021 to provide safe passage around the generating station and enable access to the waterway downstream of Slave Falls. Warning buoys were also installed on the downstream side of the generating station to alert boaters to the dangerous waterway zone in this area.

Manitoba Hydro places reminders regarding the federal prohibition against fishing within 23 metres of a dam in multiple public areas and in publications

The public can review safety information around our facilities on Manitoba Hydro's website https://www.hydro.mb.ca/safety/around_our_facilities/.

PUBLIC WATER SAFETY AROUND DAMS PROGRAM

Manitoba Hydro developed the Public Water Safety Around Dams program to address potential public safety hazards around hydroelectric facilities and water control structures.

WHY DO WE NEED THIS PROGRAM?

Due to frequent and unpredictable changes in water levels and flow conditions, the waterways near hydroelectric facilities and water control structures can be dangerous to the public. This is especially true in the areas immediately upstream and downstream of the facilities and control structures. These potential hazards are not always well-known to the public.

Beginning in 2013, Manitoba Hydro conducted a risk analysis at each hydroelectric facility and water control structure to identify high, medium and low priority hazards. Safety measures were then selected based on the frequency of public exposure and the probability of an accident. These include the installation of signage, fencing, booms, and audible and visual warning devices such as sirens, strobe lights, and cameras.

Safety measures for high priority hazards were installed immediately following the risk analysis. Manitoba Hydro continues to move forward with the installation of safety measures for medium and low priority hazards.

The Public Water Safety around Dams Program maintains site management plans for each hydroelectric facility and water control structure. Site management plans are reviewed every five years, or sooner if conditions change, to determine if additional safety measures are required to address potential hazards.

WHERE WILL SAFETY MEASURES BE INSTALLED?

The installation of new safety measures began in 2017 and has continued each following year. Installation work will continue throughout 2023.

LOCATION	SAFETY MEASURES			
	Signage	Fencing	Booms/Buoys	Warning Systems
Bandon Generating Station (G.S.)	✓	✓		X
Churchill Weir ¹	X		X	
Cross Lake Weir	✓			
Egger Lake Dam	✓	X		
Grand Rapids G.S.	✓	✓		
Great Falls G.S.	✓	✓	✓	
Jungo G.S.	✓	✓	✓	
Keeyask G.S. ²	X	X	X	
Kelley G.S.	✓	✓	X	
Kettle G.S.	✓	✓	✓	✓
Laurie River 1 G.S.	✓	X		
Laurie River 2 G.S.	✓	X		
Limestone G.S.	✓	✓		✓
Long Spruce G.S.	✓	✓	✓	✓
Manitou Control Structure (C.S.)	✓	✓	✓	
Hudson G.S.	✓	✓	✓	
Moss Falls C.S.	✓	X	✓	
Notog C.S. ³	✓	✓	X	
Pointe du Bois G.S.	✓	✓	✓	
Pointe du Bois G.S.	✓	✓	✓	✓
Rat River Boom #4	✓			
Russell Lake Dam	✓			
Selkirk G.S.	✓	✓		
Seven Sisters G.S.	✓	✓	✓	
Steep Falls G.S.	✓	✓	✓	
Thompson Ice Boom	✓			

¹ The construction of a boat channel is also planned at the Churchill Weir to provide safe access to the recreational area on the west side of the weir.
² The Keeyask G.S. is being developed by the Keeyask Hydro-power Limited Partnership.
³ The safety boom has been installed upstream of the Notog C.S. and new safety booms are planned to be installed downstream.
 ✓ Indicates work that has been completed.
 X Indicates work is ongoing or planned.



Sign installed at Wadsworth Generating Station



Fencing and gate installed at Grand Rapids Generating Station



Safety boom at Kettle Generating Station

WHAT DOES THE WORK INVOLVE?

Signage:
Installation of new sign plates and sign support structures to notify the public of hazardous areas.

Fencing:
Installation of chain link fencing, person and vehicle gates, handrails, kickplates and vehicle guardrails at or near hazardous locations.

Booms/Buoys:
Installation of safety booms and/or buoys in open water of hazardous areas.

Warning Systems:
Installation of audible and visual warning devices at Limestone and Long Spruce Generating Stations to alert the public of upcoming changes in water flow or water levels prior to opening the spillway.

Installation of a camera system at Kettle Generating Station to assist staff with visual checks prior to opening the spillway.

ARE THERE ANY EMPLOYMENT OR BUSINESS OPPORTUNITIES?

Manitoba Hydro has publicly tendered the fencing, sirens/cameras and boom/buoy work through the MERX electronic bid submission system. The fencing installation work was split into regional work packages that included the evaluation of Indigenous content.

ARE REGULATORY REVIEWS OR PERMITS REQUIRED?

Manitoba Hydro is working to ensure that the Public Water Safety Around Dams Program is in compliance with all environmental regulations. All required authorizations will be obtained to address federal and provincial legislation, including the Canadian Fisheries Act, Heritage Resources Act, Migratory Birds Convention Act, Navigation Protection Program and the Provincial Parks and Wildfires Act.

FOR MORE INFORMATION CONTACT:

Gary Bishop
 Public Water Safety around Dams Program
 Phone: (204) 470-3992
 Email: gbishop@hydro.mb.ca
 Available in accessible formats upon request
 May 2023



Division 2 – Renewal Licence Request

Renewal Licence Term

Manitoba Hydro is committed to the safe and productive long-term operation of the Slave Falls GS and requests a 50 year term for this Second Renewal Licence. Section 45(1) of the Regulation limits the term of a Final Licence to no more than 50 years from the completion of the initial development. It is up to the Minister to determine the duration of the Renewal Licence term.

Second Renewal Licence Capacity

The 1982 Renewal Licence provides for an installed capacity of 96,000 horsepower (71.6 MW) through 8 vertical turbine units. Manitoba Hydro is requesting no change to the licence capacity.

Renewal Licence Area

The proposed Second Renewal Licence area (land within the severance line) is similar to the existing Renewal Licence area. The main change is a reduction in required land made possible by better mapping technology and higher resolution aerial imagery.

The Water Power Act allocates Crown lands required in connection with the development of water power. A Second Renewal Licence implies a renewal of the decision to allocate Crown lands for another set term of time as defined by the Minister and specified by the Second Renewal Licence. A new severance line drawing that reflects all approved changes to the licence area as defined by a severance line will be submitted separately from this report under Manitoba Hydro drawing file 1-00104-PE-07311-0001 and Manitoba file number WPL-1-00104-PE-07311-0001.

The Second Renewal Licence area is a combination of lands required for the project and impacted by the project. It is based on the area defined by the Renewal Licence. The Second Renewal Licence area includes lands required for project structures, site access, and present and future maintenance activities. It also includes lands impacted by project operations including;

- lands which could be unsafe to the public,
- lands which experience a modified water regime due to project operations, and
- lands which could prove to be geotechnically unstable as a result of project operations.

Manitoba Hydro conducted a site visit to view project components and corresponded with site staff regarding present and future land use, to confirm the proposed severance line location. Manitoba Environment and Climate Change must review and agree to the proposed Renewal Licence area as part of the Renewal Licence process.

The Water Power Act Regulations require that the severance line that delineates a licence area is legally definable. Therefore, the severance line must be based on legal survey plans on record in the provincial land titles system or on the Dominion Government Survey System, or on a combination of both.

The proposed licence area for the Renewal Licence is based on the licence area defined in the Final Licence and up to date information derived from:

- computer based hydraulic and geotechnical reviews,
- a site visit to view existing project components and to interview site staff regarding present and future land use, and
- aerial and topographic imagery (LiDAR 2009)

Division 3 – Compliance with Renewal Licence and Regulations

This division of the report provides detailed supporting information that demonstrates the fulfillment of the requirements of the Renewal Licence, the Short-term Extension Licence (STEL) and Manitoba Regulation 25/88R pursuant to The Water Power Act (the Regulation). Manitoba issued the Renewal Licence in 1982 and it may contain references that are obsolete.

Observance of Renewal Licence Terms

1. The Licensee may divert and use continuously for the development of power at the said Slave Falls Site all the waters of the Winnipeg River which may be flowing at the said site from time to time during the term of this Renewal License, subject, however, to the provisions of Section 72 of the Regulations.

Observance

Manitoba Hydro has and continues to exercise its rights granted under this term of the licence. Regulation 72 states: *“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; (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 (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.”*

Manitoba Hydro owns and operates all plants on the Manitoba portion of the Winnipeg River. Manitoba Hydro operates the Slave Falls GS for reliable power generation while considering social and environmental effects. The Minister or another authorized person has issued no specific orders other than those defined by the Renewal Licence and Short-term Extension Licence. Observance of the maximum operating limit is provided in Term 4 of the Renewal Licence.

2. The undertaking authorized to be maintained by the Licensee under the Renewal Licence shall comprise the following: in the east channel of the Winnipeg River, a powerhouse with eight 12,000 horsepower vertical turbines and two regulating sluices; extending from the ends of the powerhouse northward to the Island and southward and eastward to the east main bank of the River, concrete gravity-type dams with adequate sluice-gate and spillway capacity; in the west channel of the

River, a rock-fill dam; in the main River at the site of the natural fall, a rock-cut channel to increase the discharge capacity; switching station; transmission lines; roads; from the power-house a standard gauge railway about seven miles in length to connect with the existing railway from the Pointe du Bois plant of the Licensee; and all necessary works machinery and equipment for the complete development, generation and transmission of electric power available at the said Slave Falls site, all as shown by plants and description thereof filed in the office of the Director of Winnipeg, as follows:

<u>Manitoba Water Resources Branch File Number</u>	<u>Licensee's File Number</u>	<u>Description</u>
21-11-7013 (Sheet 1)	-	Key Plan
21-11-7001	F.E. 41301	General Plan of Works
21-11-7002	S.D. 48322	Profiles and Cross Sections of Dams
21-11-7003	S.D. 48293	Plan of Rock Fill Dam - West Channel
21-11-7004	S.D. 48294	Profile and Cross Sections for Rock Fill Dams in West Channel
21-11-7006	S.D. 48300	Typical Cross Section through Power House
21-11-7007	S.D. 48323	Cross Section at House Units, looking South
21-11-7008	S.D. 48319	Section through unfinished unit and Section through Regulating Sluice
21-11-7009	S.D. 48303	Longitudinal Section at C.L. of Units, looking east
21-11-7010	S.D. 48301	Longitudinal Section through Transformer Pockets
21-11-7011	S.D. 4806	General Floor Plan of First Development

Observance

Manitoba Hydro acquired the Undertaking in 2002 and it was constructed as described in the plans listed above. In 2016-2017 the creek spillway located to the south of the generating station was converted into a non-overflow dam. This project was approved by Manitoba Conservation and Water Stewardship in an April 19, 2016 letter. A copy of the letter is included in [Appendix D](#).

3. Lands of the Province which may be entered upon, used or occupied for the maintenance and operation of the said undertaking shall be the following:
- (a) Lands of the Province not covered by water required for main diverting works, powerhouses, etc.
 - (i) All those portions of the Northeast quarter of Section thirty-five (35) and of the Northwest quarter of Section thirty-six (36) in Township fourteen (14), Range fourteen (14) East of the Principal Meridian in Manitoba not covered by any of the waters of the Winnipeg River as shown on a map or plan of the said Township approved and confirmed at Ottawa by E. Deville, Surveyor General of Dominion Lands on the 3rd of March, 1909.
 - (ii) All those portions of the South half and of the South half of the North half of Section two (2) in Township fifteen (15), Range fourteen (14), East of the Principal Meridian in Manitoba not covered by any of the waters of the Winnipeg River as shown on a map or plan of the said Township approved and confirmed at Ottawa by E. Deville, Surveyor General of Dominion Lands on the 26th of August, 1914.
 - (b) Lands of the Province covered by water required for main diverting works, powerhouses, etc.
 - (i) All those portions of the Northeast quarter of Section thirty-five (35) and of the Northwest quarter of Section thirty-six (36) in Township fourteen (14), Range fourteen (14) East of the Principal Meridian in Manitoba which are covered by any of the waters of the Winnipeg River as shown on the map or plan firstly above referred to.
 - (ii) All those portions of the South half and of the South half of the North half of Section two (2) in Township fifteen (15), Range fourteen (14) East of the Principal Meridian in Manitoba which are covered by any of the waters of the Winnipeg River as shown on the map or plan secondly above referred to.
 - (c) Lands of the Province required only to be flooded in connection with the storage and ponding of water.
 - (i) All those portions of Township fifteen (15) in Ranges fourteen (14) and fifteen (15) East of the Principal Meridian in Manitoba required for flooding, not including Parcels A and B, as shown outlined in blue color on

a plan filed in the Winnipeg Land Titles Office as No. 3689 excepting thereout all those lands heretofore described as required for works.

Observance

Manitoba Hydro's refinement of the severance line showing the lands required for the project as identified in plans referenced in Term 3 is in progress. This line is legally definable either by Dominion Government Survey System (provincial section grid) or legal survey plans and is being reviewed by Manitoba Conservation and Climate Change (MECC). The drawing showing the refined line, if approved, will form part of the Second Renewal Licence and is shown on Manitoba drawing WPL-1-00104-PE-07311-0001 (Manitoba Hydro drawing No. 1-00104-PE-07311-0001).

4. The Licensee shall not raise the headwater of the development to an elevation higher than 933.8 feet above mean sea level, Canadian Geodetic Datum 1929 Adjustment. A higher elevation may be created only with written permission by the Minister in accordance with Section 72 of the Regulations.

Observance

Manitoba Hydro has always provided operations data to the province in relation to this term. Throughout the project's operation Manitoba Hydro submitted hydraulic and energy generation data to the province in raw form for review and evaluation. The format and frequency of the data changed over time from daily to hourly time step, with submission frequency increasing from an annual to a monthly basis.

In 2005 a compliance monitoring program was implemented which required Manitoba Hydro to report compliance to Manitoba on an annual basis. Manitoba Hydro submitted the first Annual Water Levels and Flows Compliance Report to the province in 2007. Using the criteria of any single hourly water level exceeding an elevation of 933.8 ft, annual compliance from 2007 to 2023 has ranged from 99.84% to 100% (Table 3). MECC publishes all Annual Water Level and Flow Reports at:

https://www.gov.mb.ca/sd/about/articles-and-publications/index.html?wg=water_power_licensing

The **Slave Falls GS Licence Implementation Guide (LIG)** for Water Levels defines the criteria for compliance with this licence term. The guide shows the location of the water level monitoring station, outlines the methodology used to determine water level compliance, and describes reporting procedures that Manitoba Hydro follows. Compliance with the Slave Falls Water Power Act Licence is evaluated against the hourly forebay water level measured at the Slave Falls GS.

MECC approved the current revision of the Slave Falls LIG on January 25, 2023. The letter of approval and LIG are shown in [Appendix E](#).

Table 3: Annual Water Level Compliance Reported in Annual Water Levels and Flows Compliance Reports

Year		Hourly Water Level Readings in Forebay	Number of Times Reading Above Licence Limit	Percentage of Readings Below Licence Limit	Number of Reportable Events*
2023		8760	0	100	0
2022		8760	1	99.99	0
2021		8760	2	99.98	0
2020		8784	14	99.84	0
2019		8760	2	99.98	1
2018		8760	1	99.99	0
2017		8760	4	99.95	0
2016		8784	2	99.98	1
2015		8760	5	99.94	1
2014		8760	2	99.98	0
2013		8760	2	99.98	0
2012		8784	4	99.95	0
2011		8760	2	99.98	1
2010		8760	0	100	0
2009		8760	1	99.99	0
2008		8748	4	99.95	1
2007		8760	5	99.94	5

*Reportable events were defined as those exceeding the Slave Falls forebay gauge equipment accuracy of 0.1 ft and requiring provincial notification and explanation of events leading to the exceedance.

A chart of daily forebay water levels from the time Manitoba Hydro took over operation of Slave Falls in September 2002 through 2023 is provided in [Figure 7](#). As shown, forebay water level compliance on a daily basis is 100% from 2003 to 2023 with 6 days over the licence limit during the first two months of Manitoba Hydro operation in September/October 2002.

- The term of this Renewal Licence shall be forty (40) years from and after the first day of January, A.D. 1982, and the said term shall thereafter be subject to renewal or extension in accordance with the provisions of the laws and regulations relating thereto and then in force.

Observance

This provision requires no observance statement by the licensee.

6. On the second day of January in each and every year of this Renewal Licence the Licensee shall pay an annual rental in advance of eleven thousand dollars (\$11,000.00) for the use and occupation of lands of the Province described in parts (a), (b) and (c) of Article 3 hereof. Such rental shall be reviewed and adjusted if deemed appropriate on or before the first day of January, A.D. 1987 and every five years thereafter during the term of this Renewal Licence.

Observance

Manitoba adjusted land rental rates over time to reflect more up to date land values with changes coming in effect in 1996 and 2011. The Deputy Minister of Natural Resources notified Manitoba Hydro on November 4, 1996 of a change in billing practice from a calendar year to a fiscal year basis beginning with the 1997-1998 fiscal year. Since acquiring the Slave Falls GS in 2002, Manitoba Hydro has made payments on a fiscal year basis in accordance with rates dictated by the Regulation of the day. A copy of the 1996 letter is shown in [Appendix D](#).

7. The Licensee shall also pay an annual rental during the term of this Renewal 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:
 - (a) the horsepower capacity of the licensed installation multiplied by \$1.30; or.
 - (b) the horsepower year output of the licensed installation multiplied by \$3.25; whichever is the greater.

Observance

Manitoba Hydro paid annual water rentals in accordance with the Regulation and provincial direction of the time. The Deputy Minister of Natural Resources notified Manitoba Hydro in a February 29, 1996 letter of a change in billing practice from an annual to a monthly basis beginning in April 1996. Since acquiring the Slave Falls GS in 2002, Manitoba Hydro generation data has been submitted, and invoices and payments generated on a monthly basis. A copy of the 1996 letter is shown in [Appendix D](#).

8. The Licensee shall from the first day of January, A.D. 1982 pay annually the proportionate share chargeable to its development of the annual costs of operating and maintaining water storage in Lake of the Woods and Lac Seul; the first of such annual payments shall be made on the first day of January, A.D. 1983 and subsequent annual payments thereafter shall be made on the first day of January of each and every year until the termination of this Licence, each payment to represent the Licensee's share of the said annual operating costs for the preceding calendar year.

Observance

Since acquiring the Slave Falls GS in 2002, Manitoba Hydro makes annual payments to Ontario Power Generation (previously Ontario Hydro) and Environment Canada (Lake of the Woods Secretariat and Water Survey of Canada Winnipeg).

9. The Severance line as defined in Section 1 of the Regulations shall be as shown on Record Plan No. 21-11-7013 (Sheet 1) filed in the office of the said Director.

Observance

This provision requires no observance statement by the licensee.

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

Observance

This provision requires no observance statement by the licensee.

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

Observance

This provision requires no observance statement by the licensee.

Observance of Second Short-term Extension Licence Terms

1. This Second Short-term Extension Licence shall apply from January 1, 2025 to and including December 31, 2025.

Observance

This provision requires no observance statement by the licensee. [Appendix B](#) shows a copy of the Second Short-term Extension Licence.

2. On or before April 30, 2025, the Licensee shall pay an annual rental in advance for the use and occupation of lands of the Province described in paragraph 4 (a), (b), and (c) of the Renewal Licence at the rates set from time to time by Regulation under The Water Power Act.

Observance

Manitoba Hydro pays land rental rates annually in advance on a fiscal year basis in accordance with the Regulation and Ministerial notification of changes in billing practice. Land rental payments are discussed in the observance of Renewal Licence Term 6.

3. The licensee shall pay an annual rental for the use of water for the development of power at the rates set from time to time by Regulation under The Water Power Act and payable at the times and in the manner provided for by Regulation under The Water Power Act.

Observance

Manitoba Hydro pays water rental rates monthly in arrears in accordance with the Regulation and Ministerial notification of changes in billing practice. Renewal Licence Term 7 outlines water rental payments.

4. The terms and conditions set out in the Renewal Licence apply as if set out specifically in this Second Short-term Extension Licence, except where the terms and conditions of the Renewal Licence are inconsistent with the terms and conditions set out specifically in this document, the terms and conditions set out in this document will apply.

Observance

This provision requires no observance statement by the licensee.

5. The licensee shall participate in future planning, studies, and other initiatives as instructed by the Minister, in areas impacted by the Undertaking along with affected communities and other stakeholders.

Observance

Manitoba Hydro will participate in any future planning, studies, and other initiatives as instructed by Manitoba.

6. The licensee shall continue submitting an annual report to the Director documenting the Licensee's engagement with Indigenous communities on the continued operation of the Undertaking.

Observance

On June 29, 2022, Manitoba Hydro submitted the first annual **Winnipeg River Indigenous Engagement Report** to Manitoba Environment and Climate Change (MECC) that covered

activities from January 1, 2022 to June 15, 2022, Subsequent reports were submitted on June 29, 2023 and June 27, 2024. Information in the report is provided for engagement activities undertaken with respect to all plants on the Winnipeg River, as dialogue with Indigenous communities is not generally specific to an individual generating station. The community specific summaries include Black River First Nation, Brokenhead Ojibway Nation, Hollow Water First Nation, Peguis First Nation, Sagkeeng First Nation, Manitoba Metis Federation, Aghaming Community Council, Manigotagan Community Council and Seymourville Community Council communities. The Winnipeg River Indigenous Engagement Report is published on the MECC website at <https://www.gov.mb.ca/sd/about/articles-and-publications/index.html?wg=ier>

7. The licensee shall comply with The Water Power Act and the Water Power Regulation.

Observance

Manitoba Hydro believes it has fulfilled its obligation under The Regulation as demonstrated through its observances of pertinent articles as follows.

Observance of Pertinent Water Power Act Regulation Articles

This section of the report provides supporting information for pertinent articles of the Regulation that demonstrate the fulfillment of the requirements of the Regulation. Manitoba Environment and Climate Change (MECC) has agreed to the selection of those articles of the Regulation that are pertinent to the Renewal Licence application. Each article is shown in italics followed by a statement how the licensee has fulfilled its obligations.

Renewal or termination

46(1) *Not less than four nor more than six years prior to the termination of any licence, the licensee may apply in writing for an extension of rights held under such licence, and applications may also be filed with the director by any persons looking to the future utilization of the site to which the licence applies. Any application for this purpose including the application for renewal of the licence shall be in such form and contain such statements and information as will satisfy the laws and regulations then in force, and such application for renewal by the licensee shall in every case be accompanied by a suitable undertaking on the part of the licensee that he or she will comply with all the said laws and regulations.*

Observance

Manitoba Hydro applied for a licence renewal on September 12, 2017. The four to six-year window of application as defined by Section 46(1) spanned January 1, 2016 to December 31, 2017. Manitoba Environmental Approvals Branch acknowledged the application on September 20, 2017. Copies of the letters of application and provincial response are attached in [Appendix A](#).

Land use rental rates

48 (3.1) *A licensee shall pay rent for the use of Crown lands occupied for water power purposes under a license issued under the Act or a regulation at the annual rate of \$1.80 per acre.*

Observance

Manitoba Hydro has made annual land rental payments since acquiring Slave Falls GS in 2002. Details are provided in observance of Renewal Licence Term 6 in the **Observance of Renewal Licence Terms** section of this report.

Water use rental rates

48(3.2) *A licensee shall pay rent for the use of water under a licence issued under the Act or a regulation, (a) in the case of a licensee with a total capacity of 268,096 horsepower or more, at an annual rate equal to the greater of (i) the horsepower capacity of the licensed installation during the year, multiplied by \$8.13, or (ii) the horsepower year output of the licensed installation during the year, multiplied by \$20.32; and (b) in the case of a licensee with a total capacity less than 268,096 horsepower, at an annual rate equal to the greater*

of (i) the horsepower capacity of the licensed installation during the year, multiplied by \$3.96, or (ii) the horsepower year output of the licensed installation during the year, multiplied by \$9.90.

Observance

Manitoba Hydro has made water rental payments in accordance with the Licence Term 7 at the rate in effect at the time. Details are provided in observance of Renewal Licence Term 7 in the **Observance of Renewal Licence Terms** section of this report.

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

Manitoba Hydro has submitted all data required by the director for the determination of the annual water use rental in accordance with Section 48(3.4) throughout the duration of the Renewal Licence. The Deputy Minister of Natural Resources notified Manitoba Hydro on February 29, 1996 of a change in billing practice from an annual to a monthly basis beginning in April 1996. Since acquiring the Slave Falls GS in 2002, all data required for the determination of water rentals, has been submitted on a monthly basis. A copy of the 1996 letter is shown in [Appendix D](#).

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.*

Observance

Requisite payments have been provided as follows:

- (a) Manitoba Hydro paid land use rentals on a fiscal year basis during the term of the Renewal Licence since acquiring Slave Falls in 2002. The January 2nd due date was observed from 1991 to 1996. A final change to billing practice included payments being made on a fiscal year beginning with the 1997-1998 fiscal year. Details provided in observance of Renewal Licence Term 6 in the **Observance of Renewal Licence Terms** section of this report.
- (b) Manitoba Hydro paid water use rentals on a fiscal year basis and within 60 days of the director's rental statement. Details provided in observance of Renewal Licence Term 7 in the **Observance of Renewal Licence Terms** section of this report.

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 Slave Falls GS is equipped with meters which continuously measure power at each generator. The meters transmit the power readings to the control room where they are recorded electronically in the station operating records. These records are available to the province.

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 considers safety of its staff and the public at Manitoba Hydro facilities important. As such, Manitoba Hydro implements a **Public Water Safety Around Dams Program** at Slave Falls GS. Manitoba Hydro also strives to meet or exceed all provincial regulatory requirements related to workplace health and safety through its regular development and enforcement of safety policies, safe work procedures, communication regarding safety awareness, investigation of incidents and deployment of improvement measures, and employee training.

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.*

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.*

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 for Sections 54(2) to 54(4)

Manitoba Hydro maintains site lands and transmission rights-of-way to reduce the risk of fires and implements Manitoba Hydro's **Corporate Fire Prevention and Protection Program** designed to eliminate risks of fire or explosion.

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 uses Canadian Standards Association clearance standards in the design of its transmission system for safety of staff and the public. Manitoba Hydro further enhances public safety 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

Manitoba Hydro has notified the province of all significant maintenance and rehabilitation of works which would require Manitoba Hydro to erect temporary structures.

58 No roads, trails, telephone lines, buildings or other improvements that are the property of the Crown shall be removed, altered or in any way affected by any interim or final licensee in the construction or operation of his or her works, without the minister's consent in writing having been first obtained, and except upon such conditions as the minister by such writing may impose. The minister, if the minister considers it necessary, may require the licensee to furnish a bond for the satisfactory carrying out of the provisions of this section.

Observance

Since acquiring the Slave Falls GS in 2002 there have been no removals, alterations or other effects to Crown-owned improvements.

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 townsite 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

Manitoba Hydro's First Renewal Licence did not allocate land for a townsite.

61 *Any authority granted under this regulation for entry upon, or for the use or occupation of lands situated within any forest reserve or park shall, notwithstanding any provisions of this regulation, be subject to the careful observance by the interim or final licensee of the provisions of any regulation relating to forest reserves and parks, and also of any conditions which the minister may, from time to time, impose with respect to the care, upkeep and management of such forest reserve or park.*

Observance

Manitoba Hydro complies with all provincial legislation as it relates to forest reserves and parks.

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

The installed equipment, machinery and structural components at Slave Falls GS are designed according to appropriate engineering standards and Manitoba Hydro performs regular maintenance to keep units operating safely and efficiently. It is in Manitoba Hydro's best interest to continuously optimize all components that have a role in producing electricity.

Manitoba Hydro provides an **Annual Water Levels and Flows Compliance Report** to the province which also contains an annual summary of major construction and maintenance activities. [Appendix C](#) provides a summary of activities from 2008-2023.

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

In 2016 and 2017 the creek spillway located to the south of the generating station was converted into a non-overflow dam. This project was approved by Manitoba Conservation and Water Stewardship in an April 19, 2016 letter. A copy of the letter is included in [Appendix D](#).

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.*

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 for subsections 65(1) and 65(2)

Slave Falls GS is equipped with modern instrumentation necessary to adequately report on water usage and energy generation. Manitoba Hydro records water level data, unit discharge, spillway discharge, head, and plant output electronically in the station operating records as a record of station hydraulic activity. Manitoba Hydro maintains records of all gauge readings and submits energy and flow data to the province as part of monthly water rental billing. Manitoba Hydro submits an **Annual Water Levels and Flows Compliance Report** to the province which the province uses for licence compliance monitoring.

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; (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 (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 for subsections 72(a) to 72(c)

Manitoba Hydro optimizes the usage of the available water. Manitoba Hydro maximizes plant operations 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.

To date, the province has not ordered operations respecting the control or regulation of flow at the Slave Falls GS.

Observance of Renewal Licence Term 4 pertaining to a maximum water level limit is addressed in the **Observance of Renewal Licence Terms** section of this report.

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 and 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 the 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 bylaws of the company, showing all amendments thereto during the year covered by that return; (k) such other data as the minister may require.*

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 for subsections 78(1) and 78(2)

Manitoba Hydro tracks financial information for the integrated system as a whole except for projects involving a partnership or separate legal entity. Manitoba Hydro does not submit financial information specific to Slave Falls GS annually with the director on or before March 1. Instead, Manitoba Hydro publishes annual reports on a fiscal year basis

ending on March 31st and makes these annual reports available to all Manitobans. The most current annual report is located at <https://www.hydro.mb.ca/corporate/financial/>.

The annual reports contain financial reviews and consolidated financial statements which reference current system value of property, plant, and equipment. Financial information presented in the annual reports is prepared in accordance with International Financial Reporting Standards (IFRS) and undergoes an independent audit. The independent auditors' report summarized in Manitoba Hydro's 2020-2021 annual report concluded that "the accompanying financial statements present fairly, in all material respects, the consolidated financial position of the Entity as at March 31, 2021, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRS)".

Detailed information pertaining to clauses 1(a) and (b) of Section 78 is available upon request.

Transfers

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

Manitoba Hydro carries out all licence area amendments with the consent of the Minister or delegate.

Miscellaneous provisions

82 *Before executing any licence, the minister shall submit to the prospective licensee a draft of the proposed licence and shall secure from the licensee an acceptance thereof and an undertaking to observe and fulfill all the terms and conditions which under the licence and under this regulation such licensee is required to observe or fulfill, with particular reference to the right of Her Majesty to take over the works, lands and properties held by the licensee in connection with the licence in certain contingencies as this regulation provides. Such acceptance and undertaking shall be made to bind the executors, administrators and assigns, or in the case of a corporation the successors and assigns of the prospective licensee.*

Observance

This provision requires no observance statement by the licensee.

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 Canadian Navigable Waters Act (CNWA) (formerly the Navigable Waters Protection Act (NWPA) and the Navigation Protection Act (NPA)) and all provincial statutes and regulations.

Manitoba Hydro received a NPA licence for Slave Falls on April 13, 2015. Slave Falls GS may have previously been authorized under the NWPA under Winnipeg Hydro however Manitoba Hydro has no record of any authorization.

NPA approval for the installation of a safety boom and buoys was received on April 6, 2017. CNWA approval for a revised safety boom and portage route was received on March 22, 2021.

NPA approvals were received on January 15, 2016 for the **Slave Falls Creek Spillway Rehabilitation Project** and on October 31, 2018 for the Sluiceway Pier 1 repairs.

Minister may issue short-term extension licences

92 (1) Despite section 46, if (a) a final licence has expired; or (b) the licensee has not applied for an extension of the final licence within the period set out in subsection 46 (1); the minister may, upon written application from the licensee in a form satisfactory to the minister and containing any information required by the minister, issue to the licensee a short-term extension licence for a term of not more than five years from the date issued.

Observance

Manitoba Hydro requested to extend the Renewal Licence on June 11, 2021 in accordance with Section 92 of the Water Power Regulation, Manitoba Regulation 25/88R of The Water Power Act. Manitoba Conservation and Climate issued a Short-term Extension Licence (STEL) on December 31, 2021. It applied from January 1, 2022 to and including January 1, 2025.

92 (6) A short-term extension licence may be renewed for one or more terms, provided that the term of any such renewal does not exceed five years. A renewed short-term extension licence must include the terms and conditions contained in the final licence, except where the minister considers it in the public interest to amend any term or condition, and may include such other terms or conditions as the minister may impose.

Observance

Manitoba Hydro requested another extension to the Renewal Licence on December 21, 2023. Manitoba Environment and Climate Change renewed the Slave Falls STEL on

December 23, 2024 for an additional one year. The Second STEL applies from January 1, 2025 to and including December 31, 2025.

Renewal of final licence

93(1) Where a short-term extension licence is issued under subsection 92(1), or authorized under subsection 92(5), the licensee shall be deemed to have applied for an extended final licence, and section 46 applies with necessary changes.

Observance

This provision requires no observance statement by the licensee.

93(2) The minister may (a) conduct any public hearing that the minister considers necessary in accordance with subsection 46(3); and (b) provide for any consultations with First Nations or aboriginal communities about an extended final licence; during the term of the short-term extension licence.

Observance

This provision requires no observance statement by the licensee.

Division 4 – Closure Statement

Manitoba Hydro continues to operate the Slave Falls GS in accordance with the Second Short-term Extension Licence and the terms of the expired Renewal Licence for the development of water power at the Slave Falls Site on the Winnipeg River. Manitoba Hydro operates and maintains the generating station and associated structures based on the Canadian Dam Association Dam Safety Guidelines. Manitoba Hydro maximizes operations of the Slave Falls GS to produce energy for the benefit of all Manitobans. Slave Falls GS continues to be integral to the overall system energy supply. Manitoba Hydro submits this report to Manitoba Environment and Climate Change to provide supporting information in the decision to issue a Second Renewal Licence under the Water Power Act for another set term as specified by the Minister.

Figures

Figure 1: Geographical Location of Slave Falls Generating Station

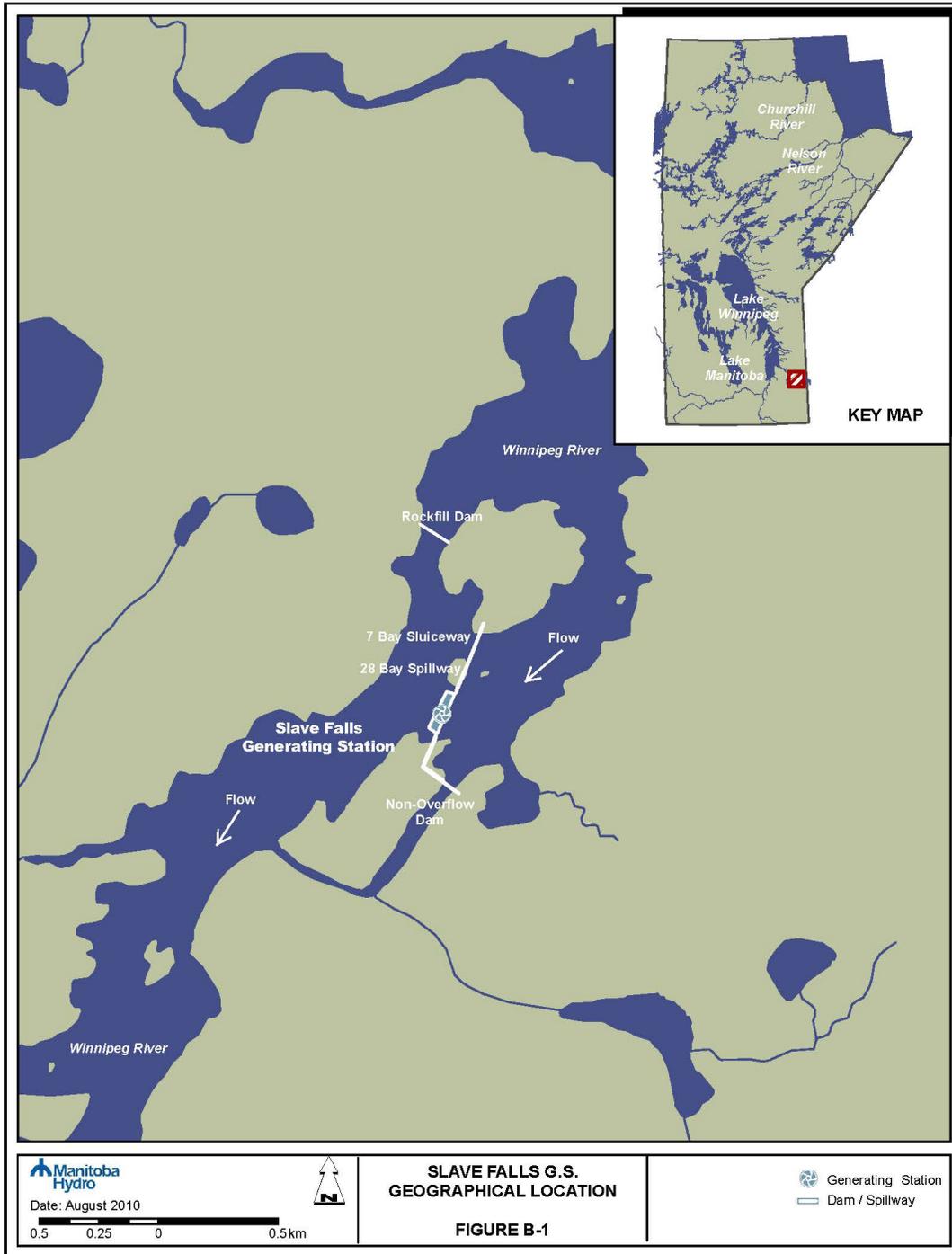


Figure 2: Photograph of Slave Falls GS (view from south of non-overflow dam)



Figure 3: General Arrangement Plan of Slave Falls GS

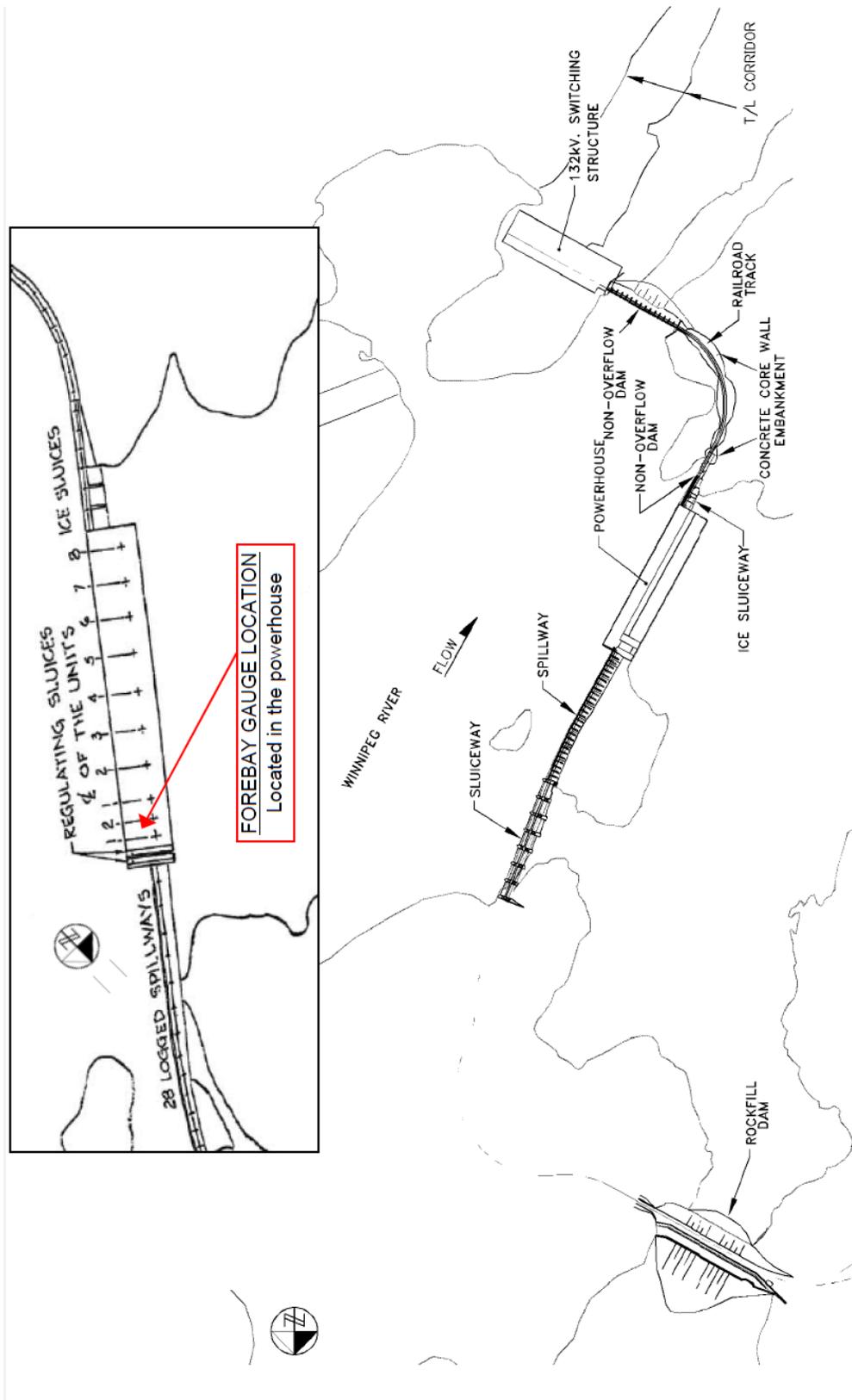


Figure 4: Slave Falls Powerhouse Cross Section

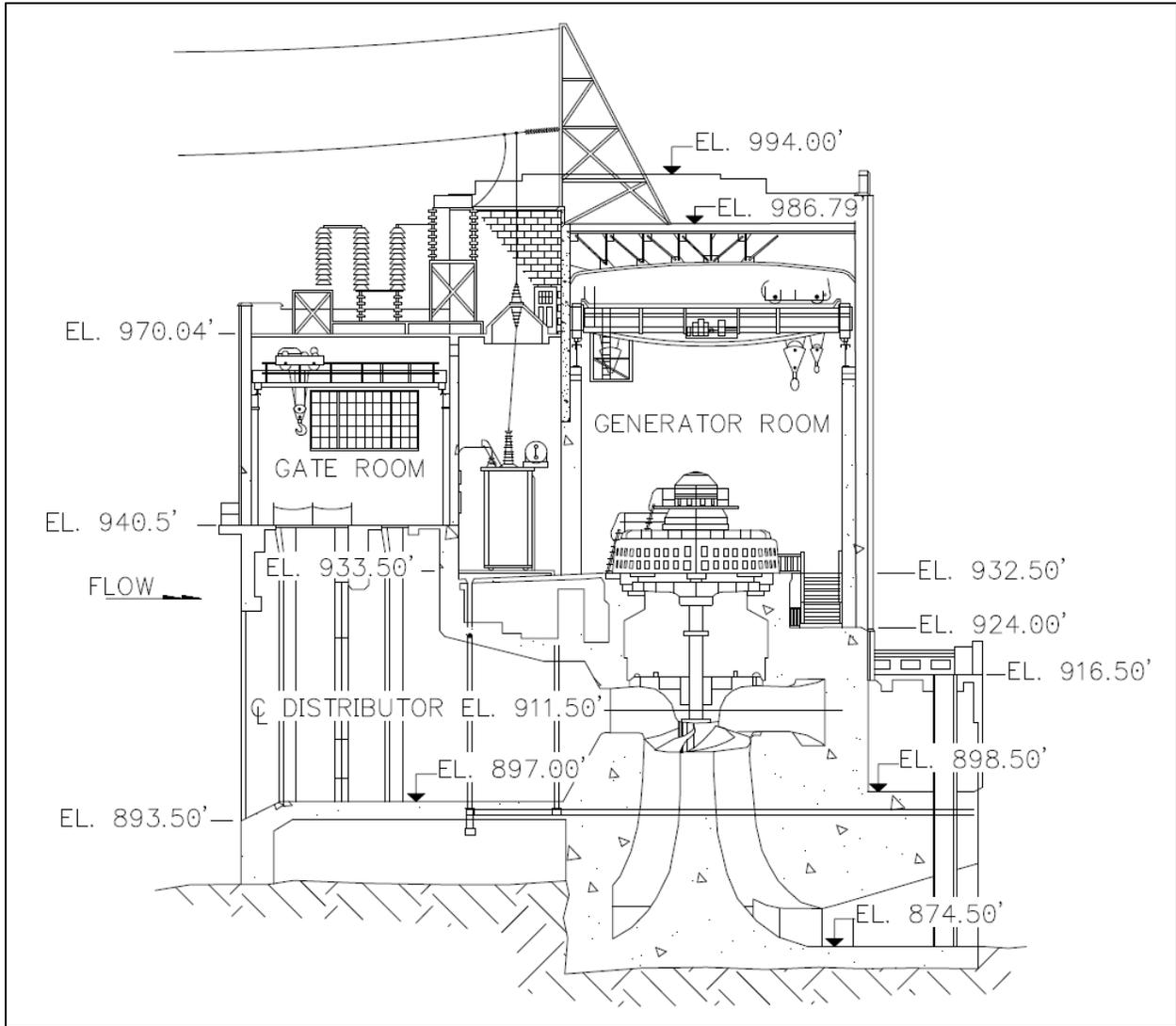


Figure 6: Slave Falls Spillway Plan and Sections

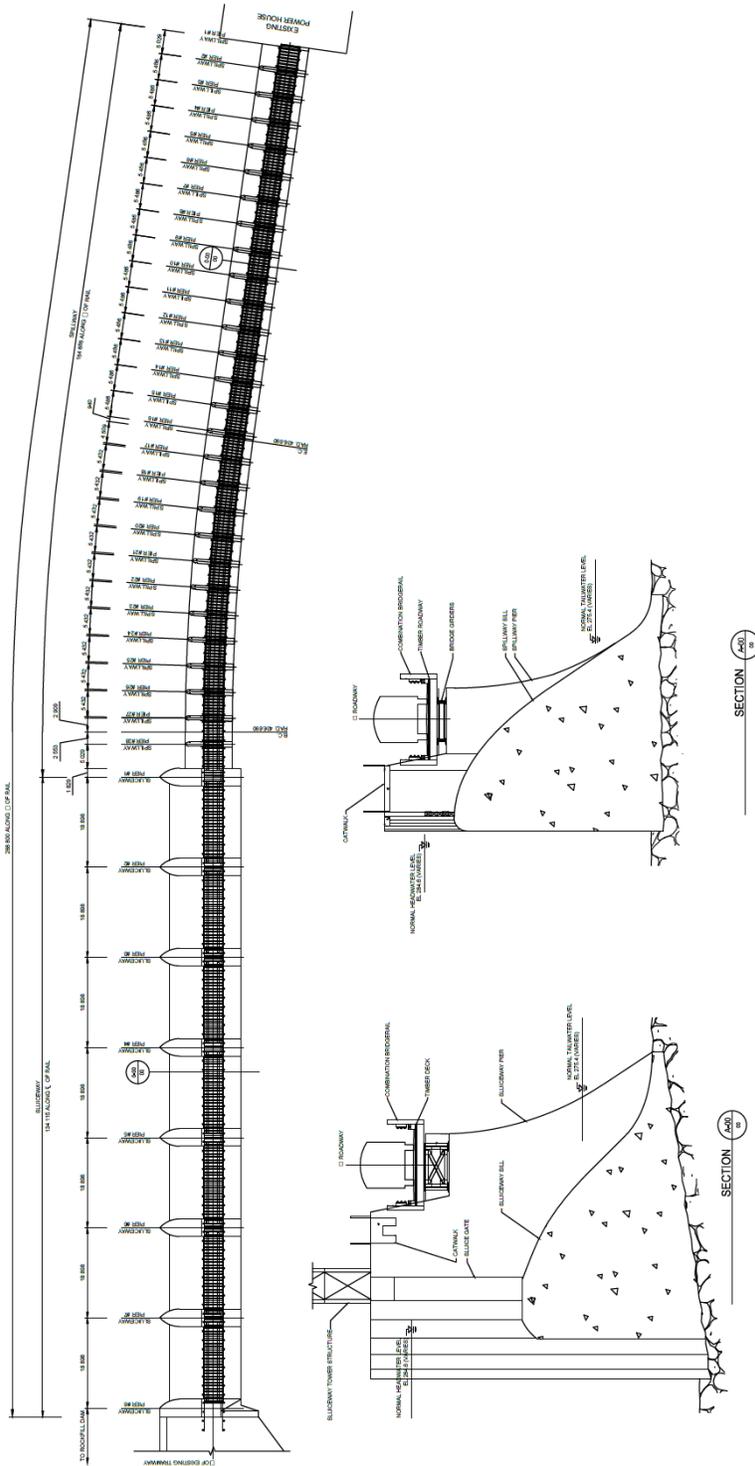


Figure 7: Slave Falls GS Historic Water Level Compliance

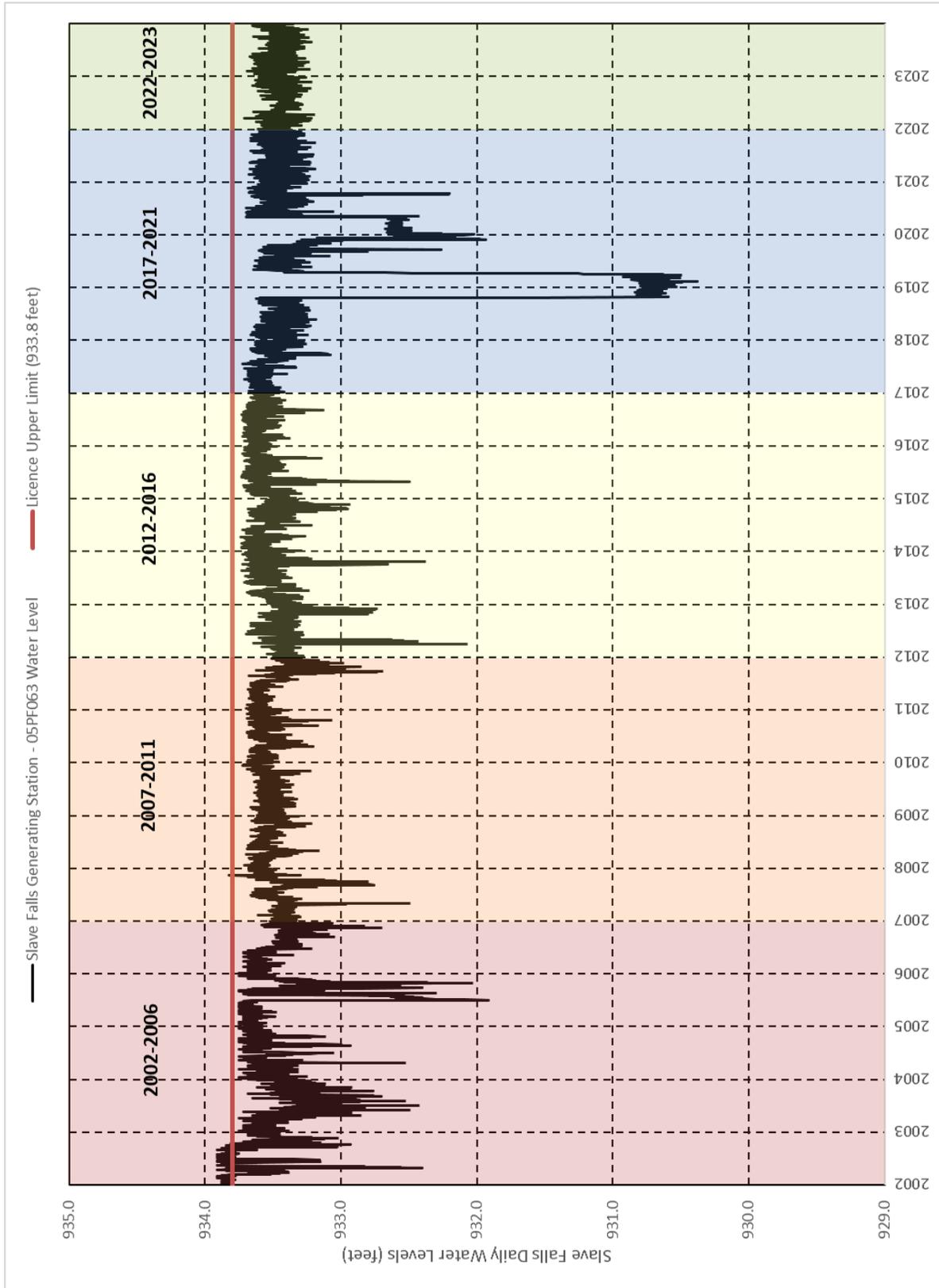


Figure 8: Slave Falls GS Historic Power Generation (horsepower)

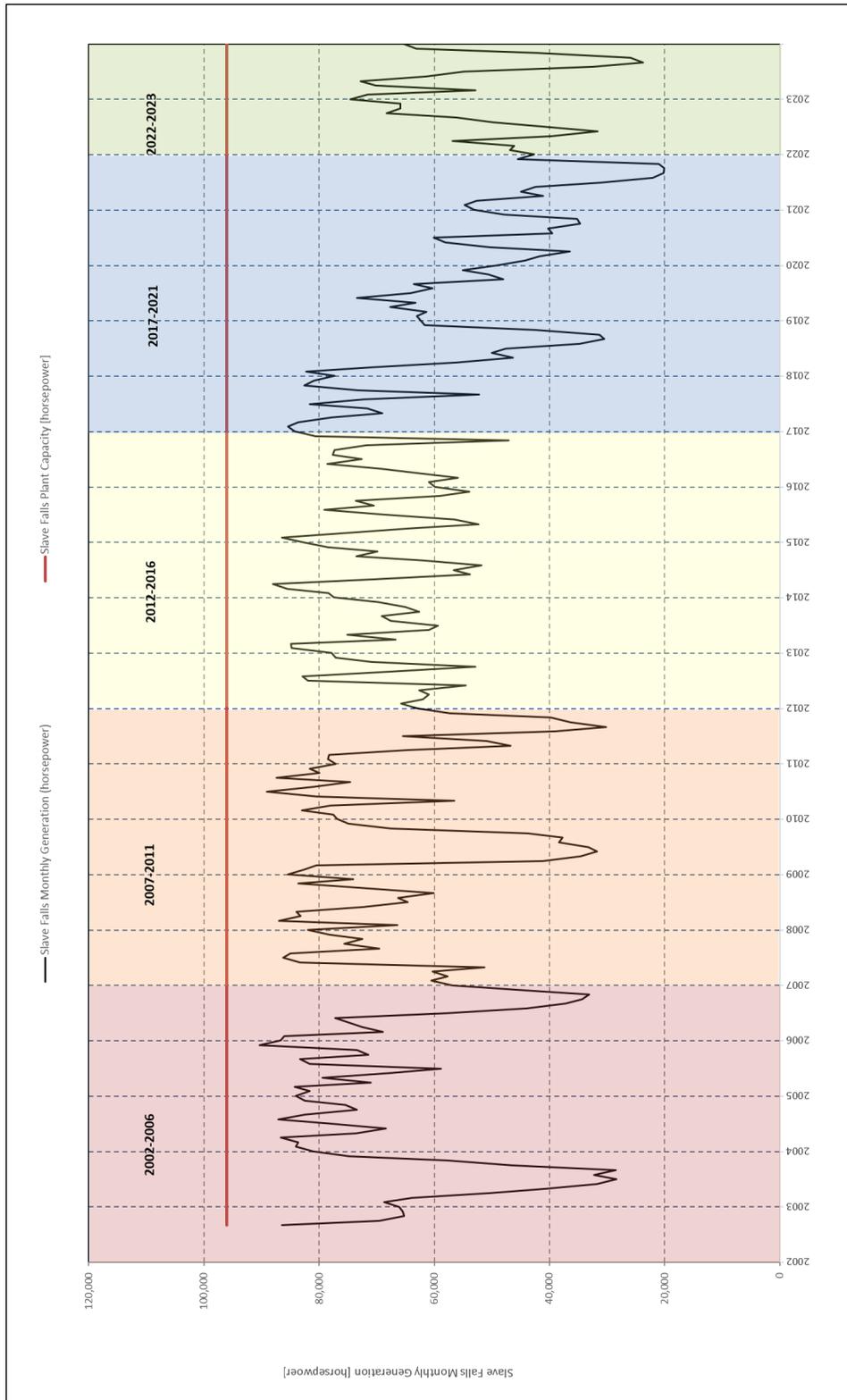


Figure 9: Slave Falls Unit No.1 Nameplate

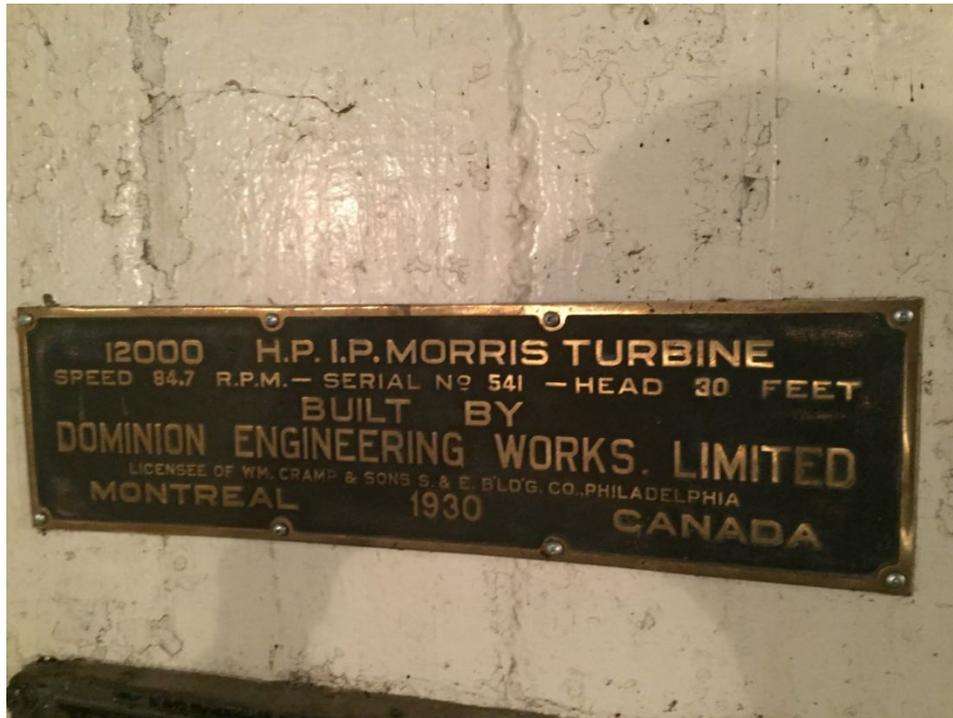


Figure 10: Slave Falls Unit No.2 Nameplate



Figure 11: Slave Falls Unit No.3 Nameplate



Figure 12: Slave Falls Unit No.5 Nameplate



Figure 13: Slave Falls Unit No.7 Nameplate



Figure 14: Slave Falls Unit No.8 Nameplate



Appendix A: Renewal Licence Request

Appendix A: Renewal Licence Request (September 12, 2017)



360 Portage Ave (16) • Winnipeg Manitoba Canada • R3C 0G8
Telephone / N° de téléphone : 204-360-3018 • Fax / N° de télécopieur : 204-360-6135
wvpenner@hydro.mb.ca

2017 09 12

R. Matthews, P. Geo.
Manager, Water Power Licensing
Manitoba Sustainable Development
200 Saulteaux Crescent
Winnipeg MB R3J 3W3

Dear Mr Matthews:

SLAVE FALLS GENERATING STATION RENEWAL APPLICATION

Manitoba Hydro hereby applies for the renewal of the Slave Falls Renewal Licence under the provisions set out in subsection 46(1) of *The Water Power Act* and Manitoba Regulation 25/88R. This renewal application falls within the specified two year period of “not less than four nor more than six years prior to the termination” of the licence on 2022 01 01.

To our knowledge, Manitoba Hydro has met all the requirements of the existing licence and complied with all laws, regulations and special requests from the Director or Minister. Manitoba Hydro intends to continue these practices at the Slave Falls site.

Should you have any inquiries on this matter or additional process requirements, please contact me at 204-360-3018.

Yours truly,

Original signed by, *Wesley Penner*

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

PGC/sl/00104-07311-0009_00

Appendix A: Province's Renewal Licence Acknowledgement (September 20, 2017)



Environmental Stewardship Division
Environmental Approvals Branch
Water Power Act Licensing Section
Box 16, 200 Saulteaux Crescent, Winnipeg MB R3J 3W1
T: 204-945-6118 F: 204-948-2357

September 20, 2017

File: 21.11

Mr. W. V. Penner, P. Eng.
Manager, Hydraulic Operations Department
Manitoba Hydro
16-360 Portage Avenue
Winnipeg, MB R3C 0G8

Dear Mr. Penner:

Re: Slave Falls Generating Station Renewal Application

This correspondence acknowledges receipt of your September 12, 2017 letter requesting the renewal of the Renewal Licence for The Slave Falls Generating Station under the provisions set out in subsection 46(1) of the *Water Power Act* and Regulation 25/88R.

It is understood that Manitoba Hydro has applied for the renewal as the current Renewal Licence will expire on January 1, 2022. It is noted that Manitoba Hydro continues to operate the Slave Falls GS in compliance with the terms and conditions of the existing Licence.

It is also understood that Manitoba hydro will prepare licensing renewal supporting documents in consultation with Manitoba as part of the renewal licensing process.

Should you have any questions regarding the contents of this letter please feel free to contact the undersigned at (204) 945-6118.

Yours truly,



Rob Matthews
Manager,
Water Power Act Licensing Section

cc. Tracey Braun, Director, EAB

RM/PS/SA/sa

Appendix B: Slave Falls GS Water Power Act Renewal and Short-term
Extension Licences

Appendix B: Renewal Licence (June 30, 1982)

PROVINCE OF MANITOBA
DEPARTMENT OF NATURAL RESOURCES

RENEWAL LICENCE FOR THE DEVELOPMENT OF WATER POWER
Slave Falls Site, Winnipeg River

Issued in accordance with the provisions of the Water Power Act, Chapter W70 of the Continuing Consolidation of the Statutes of Manitoba, and of the Regulations in force thereunder to govern the mode of granting and administering Provincial water power rights.

WHEREAS the Corporation of the City of Winnipeg (hereinafter called "the Licensee") in the Province of Manitoba, was granted by a Final Licence dated May 18, 1934 for a term of fifty (50) years computed from the first day of January, A.D., 1932, the right to divert and use continuously for the development of electrical power or energy the entire flowage of the Winnipeg River at and near the site known as Slave Falls, and to use and occupy such lands of the Province as may be required for the proper maintenance and operation of the works of the Licensee at the said site;

AND WHEREAS the Licensee, by letter of February 27, 1978 has applied to the Department of Natural Resources for a Renewal Licence for the Slave Falls development and has done all things which in the opinion of the Director of the Water Resources Branch (hereinafter called "the Director") are required to be done prior to the issuance of the said Renewal Licence;

AND WHEREAS the Licensee has executed under the hands of its proper Officers in that behalf an acceptance of the terms and conditions of this Renewal Licence and has undertaken to observe and fulfil all the terms and conditions which under this Renewal Licence and under the Water Power Act, Chapter W70 of the Continuing Consolidation of the Statutes of Manitoba (hereinafter called "the Act") and the Manitoba Water Power Regulations being Manitoba Regulation 95/45 and all amendments thereto (hereinafter called "the Regulations"), the Licensee is required to observe and fulfil;

NOW THEREFORE, under authority of and subject to the provisions of the Act and Regulations thereunder this Renewal Licence is issued granting to the Licensee:

- (a) The right to impound, divert and use waters of the Winnipeg River at and near the Slave Falls site,
- (b) The right to develop electric power and energy from the said waters,
- (c) The right to generate, transmit, distribute, sell and deliver the said electric power and energy and for that purpose to use and occupy the lands of the Province hereinafter described, and
- (d) The right to maintain and operate the undertaking, the location and description of which is shown upon record plans numbered and filed in the office of the Director at Winnipeg.

Subject, nevertheless, to the provisions of the Regulations and any other regulations now or hereafter in force governing the granting and administering of Provincial water powers and the lands required in connection with the development and use thereof, and to the following special terms and conditions, namely:

1. The Licensee may divert and use continuously for the development of power at the said Slave Falls site all the waters of the Winnipeg River which may be flowing at the said site from time to time during the term of this Renewal Licence, subject, however, to the provisions of Section 72 of the Regulations.
2. The undertaking authorized to be maintained by the Licensee under the Renewal Licence shall comprise the following: in the east channel of the Winnipeg River, a powerhouse with eight 12,000-horsepower vertical type main turbines, two service turbines and two regulating sluices; extending from the ends of the powerhouse northward to the Island and southward and eastward to the east main bank of the River, concrete gravity-type dams with adequate sluice-gate and spillway capacity; in the west channel of the River, a rock-fill dam; in the main River at the site of the natural fall,

a rock-cut channel to increase the discharging capacity; switching station; transmission lines; roads; from the power-house a standard gauge railway about seven miles in length to connect with the existing railway from the Pointe du Bois plant of the Licensee; and all necessary works, machinery and equipment for the complete development, generation and transmission of electric power available at the said Slave Falls site, all as shown by plans and descriptions thereof filed in the office of the Director at Winnipeg, as follows:

Manitoba Water Resources Branch File Number	Licensee's File number	Description
21-11-7013 (Sheet 1)	-	Key Plan
21-11-7001	F.E. 41301	General Plan of Works
21-11-7002	S.D. 48322	Profiles and Cross Sections of Dams
21-11-7003	S.D. 48293	Plan of Rock Fill Dam - West Channel
21-11-7004	S.D. 48294	Profile and Cross Sections for Rock Fill Dams in West Channel
21-11-7006	S.D. 48300	Typical Cross Section through Power House
21-11-7007	S.D. 48323	Cross Section at House Units, looking South
21-11-7008	S.D. 48319	Section through unfinished unit and Section through Regulating Sluice
21-11-7009	S.D. 48303	Longitudinal Section at C.L. of Units, looking east
21-11-7010	S.D. 48301	Longitudinal Section through Transformer Pockets
21-11-7011	S.D. 4806	General Floor Plan of First Development

3. Lands of the Province which may be entered upon, used or occupied for the maintenance and operation of the said undertaking shall be the following:

(a) Lands of the Province not covered by water required for diverting works, powerhouses, etc.

(1) All those portions of the Northeast quarter of Section thirty-five (35) and of the Northwest quarter of Section thirty-six (36) in Township fourteen (14), Range fourteen (14) East of the Principal Meridian in Manitoba not covered by any of the waters of the Winnipeg River as shown on a map or plan of the said Township approved and confirmed at Ottawa by E. Deville, Surveyor General of Dominion Lands on the 3rd of March, 1909.

- (ii) All those portions of the South half and of the South half of the North half of Section two (2) in Township fifteen (15), Range fourteen (14), East of the Principal Meridian in Manitoba not covered by any of the waters of the Winnipeg River as shown on a map or plan of the said Township approved and confirmed at Ottawa by E. Deville, Surveyor General of Dominion Lands on the 26th of August, 1914.
- (b) Lands of the Province covered by water required for main diverting works, powerhouses, etc.
- (i) All those portions of the Northeast quarter of Section thirty-five (35) and of the Northwest quarter of Section thirty-six (36) in Township fourteen (14), Range fourteen (14) East of the Principal Meridian in Manitoba which are covered by any of the waters of the Winnipeg River as shown on the map or plan firstly above referred to.
- (ii) All those portions of the South half and of the South half of the North half of Section two (2) in Township fifteen (15), Range fourteen (14) East of the Principal Meridian in Manitoba which are covered by any of the waters of the Winnipeg River as shown on the map or plan secondly above referred to.
- (c) Lands of the Province required only to be flooded in connection with the storage or pondage of water.
- All those portions of Township fifteen (15) in Ranges fourteen (14) and fifteen (15) East of the Principal Meridian in Manitoba required for flooding, not including Parcels A and B, as shown outlined in blue color on a plan filed in the Winnipeg Land Titles Office as No. 3689 excepting thereout all those lands heretofore described as required for works.
4. The Licensee shall not raise the headwater of its development to an elevation higher than 933.8 feet above mean sea level, Canadian Geodetic Datum 1929 Adjustment. A higher elevation may be created only with written permission by the Minister in accordance with Section 72 of the Regulations.

5. The term of this Renewal Licence shall be forty (40) years from and after the first day of January, A.D. 1982, and the said term shall thereafter be subject to renewal or extension in accordance with the provisions of the laws and regulations relating thereto and then in force.
6. On the second day of January in each and every year of this Renewal Licence the Licensee shall pay an annual rental in advance of eleven thousand dollars (\$11,000.00) for the use and occupation of lands of the Province described in parts (a), (b) and (c) of Article 3 hereof. Such rental shall be reviewed and adjusted if deemed appropriate on or before the first day of January, A.D. 1987 and every five years thereafter during the term of this Renewal Licence.
7. The Licensee shall also pay an annual rental during the term of this Renewal 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:
 - (a) the horsepower capacity of the licensed installation multiplied by \$1.30; or
 - (b) the horsepower year output of the licensed installation multiplied by \$3.25;whichever is the greater.
8. The Licensee shall from the first day of January, A.D. 1982 pay annually the proportionate share chargeable to its development of the annual costs of operating and maintaining water storage in Lake of the Woods and Lac Seul; the first of such annual payments shall be made on the first day of January, A.D. 1983 and subsequent annual payments thereafter shall be made on the first day of January of each and every year until the termination of this Licence, each payment to represent the Licensee's share of the said annual operating costs for the preceding calendar year.
9. The Severance Line as defined in Section 1 of the Regulations shall be as shown on Record Plan No. 21-11-7013 (Sheet 1) filed in the office of the said Director.

10. All record plans filed with the said Director and referred to in this Renewal Licence are incorporated herewith and made a part hereof.
11. This Renewal Licence is issued upon the express condition that it shall be subject to the provisions of the Regulations and all subsequent amendments thereto.

ISSUED at Winnipeg this *30th* day of *June* A.D. *1982* ,
at the direction of the Honourable the Minister of Natural Resources.

Original Signed By:
Minister of Natural Resources

Appendix B: Short Term Extension Licence (December 31, 2021)



Issue Date / Date de délivrance: December 31, 2021

In accordance with The Water Power Act (C.C.S.M. c. W60) /
Conformément à la LOI sur l'énergie hydraulique (c. W60 de la C.P.L.M.)

Pursuant to Section 92 of the Water Power Regulation (M.R. 25/88R) of The Water Power
Act (C.C.S.M. c. W60) /
Conformément à l'article 92 du Règlement sur l'énergie hydraulique (R.M. 25/88R) de la Loi
sur l'énergie hydraulique (c. W60 de la C.P.L.M.)

THIS SHORT TERM EXTENSION LICENCE IS ISSUED TO:

MANITOBA HYDRO, "the Licensee"

being duly incorporated by an Act of the Legislature of the Province of Manitoba
whose head office address is at 360 Portage Avenue,
Winnipeg, Manitoba, R3C 2P4,

for the development of water power at Slave Falls Site on Winnipeg River,.

WHEREAS:

- A. The Licensee is the holder of a Renewal Licence for the Slave Falls Site, a licence issued under The Water Power Act, dated the 30th day of June, 1982 for a term of forty (40 years) from the 1st day of January, 1982, as a renewal of the previously issued final licence (a copy of the Renewal Licence is attached as Schedule "A" of this Short-term Extension Licence);
- B. The Licensee by letter dated September 12, 2017, signed by Wes Penner, Manager, Hydraulic Operations Department, applied for a renewal of the Slave Falls First Renewal Licence;
- C. The Second Renewal Licence has not yet been renewed, and the Licensee has applied by a letter dated June 11, 2021, signed by W. V. Penner, Manager, Waterway Approvals and Monitoring Department, to the Director of Environmental Approvals Branch of Manitoba Conservation and Climate for a Short-term Extension Licence for the Slave Falls development in accordance with section 92(6) of the Water Power Regulation and has done all things which, in the opinion of the Director, are required to be done by the Licensee prior to the issuance of this Short-term Extension Licence;
- D. It is contemplated that decisions will be made about the application for a Second Renewal Licence during the term of this Short-term Extension Licence;
- E. The Licensee has duly executed an acceptance of the terms and conditions of this Short-term Extension Licence and has undertaken to observe and fulfill all the terms and conditions which the Licensee is required to observe and fulfill under this Short-term Extension Licence:

This Short-term Extension Licence is issued, granting to the Licensee:

- (a) the right to impound, divert, and use water of the Winnipeg River at and near the Slave Falls Site;
- (b) the right to develop electric power and energy from the said waters;
- (c) the right to generate, transmit, distribute, sell, and deliver the said electric power and energy and for that purpose to use and occupy the lands of the Province described in the Renewal Licence; and

- (d) the right to operate and maintain the undertaking, the location and description of which is shown upon the record plans numbered and filed in the office of the Director at Winnipeg (the "Undertaking").

on the same terms and conditions as set out in the Renewal Licence dated the 30th day of June, 1982, subject to the following specific terms and conditions:

1. This Short-term Extension Licence shall apply from January 1, 2022 to and including January 1, 2025.
2. On the second day of January in each year the Licensee shall pay an annual rental in advance for the use and occupation of lands of the Province described in paragraph 3 (a), (b) and (c) of the Renewal Licence at the rates set from time to time by Regulation under The Water Power Act.¹
3. The Licensee shall pay an annual rental for the use of water for the development of power at the rates set from time to time by Regulation under The Water Power Act and payable at the times and in the manner provided for by Regulation under The Water Power Act.²
4. The terms and conditions set out in the Renewal Licence apply as if set out specifically in this Short-term Extension Licence, except where the terms and conditions of the Renewal Licence are inconsistent with the terms and conditions set out specifically in this document, the terms and conditions set out in this document will apply.
5. The Licensee shall participate in future planning, studies, and other initiatives as instructed by the Minister, in areas impacted by the Undertaking along with affected communities and other stakeholders.
6. The Licensee shall within 6 months of the issuance of this Short-term Extension Licence, and annually thereafter submit a report to the Director documenting the Licensee's engagement with Indigenous communities on the continued operation of the Undertaking.
7. The Licensee shall comply with The Water Power Act and the Water Power Regulation.


Jan Forster
Deputy Minister of Conservation and Climate

¹ Rental rates for land use are currently set out in s. 48(3.1) of the Water Power Regulation.

² Rental rates for the use of water for the development of power are currently set out in s. 48(3.2) of the Water Power Regulation.

Appendix B: Second Short Term Extension Licence (December 30, 2011)

Manitoba 
Environment and Climate Change
Deputy Minister
Room 350 Legislative Building
Winnipeg Manitoba R3C 0V8
T 204-945-3785
dmecc@manitoba.ca

W V Penner P Eng
Manager Manitoba Hydro
360 Portage Ave (16)
Box 815 Stn Main
Winnipeg MB R3C 0G8
wvpenner@hydro.mb.ca

December 23, 2024

Dear Wes Penner:

Thank you for your request dated December 21, 2023, for the renewal of the Short-Term Extension Licence (STEL) for the Slave Falls Generating Station under the provisions of The Water Power Act and the Water Power Regulation.

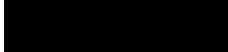
Enclosed is the Second STEL for the Slave Falls Generating Station. This STEL applies for a twelve month period, and expires on December 31, 2025. Crown-Indigenous consultation with respect of the Second Renewal Licence for this generating station will also be undertaken with affected Indigenous communities during this period.

In addition to the enclosed Licence requirements, and in accordance with Section 87 of the Water Power Regulation, the Licensee is instructed to:

- Participate in the future licence modernization processes as directed by Manitoba.

If you have any questions regarding this matter, please contact Agnes Wittmann, Director, Environmental Approvals Branch, at ABdirector@gov.mb.ca or 204-945-8321.

Sincerely,



✓ Joelynn Baker
Deputy Minister

Enclosures

- c. Honourable Tracy Schmidt
Agnes Wittmann

SHORT-TERM EXTENSION LICENCE

Issue Date / Date de délivrance: December 23, 2024

In accordance with The Water Power Act (C.C.S.M. c. W60) /
Conformément à la LOI sur l'énergie hydraulique (c. W60 de la C.P.L.M.)

Pursuant to Section 92 of the Water Power Regulation (M.R. 25/88R) of The Water Power Act (C.C.S.M. c. W60) /
Conformément à l'article 92 du Règlement sur l'énergie hydraulique (R.M. 25/88R) de la Loi sur l'énergie hydraulique (c. W60 de la C.P.L.M.)

THIS SECOND SHORT-TERM EXTENSION LICENCE IS ISSUED TO:

MANITOBA HYDRO, "the licensee"

being duly incorporated by an Act of the Legislature of the Province of Manitoba
whose head office address is at 360 Portage Avenue,
Winnipeg, Manitoba, R3C 0G8,

for the development of water power at Slave Falls Site on Winnipeg River.

WHEREAS:

- A. The licensee is the holder of a First Short-Term Extension Licence for the Slave Falls Site, a licence issued under The Water Power Act, dated December 31, 2021, for a term of three (3) years effective from January 1, 2022, as the extension of the previously issued Renewal Licence. A copy of the Renewal Licence is attached as Schedule A to this Second Short-term Extension Licence;
- B. The licensee by letter dated September 12, 2017, signed by W.V. Penner, Manager, Manitoba Hydro, applied for a renewal of the Slave Falls Renewal Licence;
- C. The Second Renewal Licence has not yet been renewed, and the licensee has applied by letter dated December 21, 2023, signed by W. V. Penner, Manager, Waterway Approvals and Monitoring Department, to the Director of Environmental Approvals Branch of Manitoba, Environment and Climate Change for a Second Short-Term Extension Licence Renewal for the Slave Falls development in accordance with section 92(6) of the Water Power Regulation and has done all things which, in the opinion of the Director, are required to be done by the licensee prior to the issuance of this Second Short-Term Extension Licence;
- D. It is contemplated that Crown-Indigenous Consultations will be continued to inform decisions associated with the application for a Second Renewal Licence during the term of this Second Short-Term Extension Licence;
- E. The licensee has duly executed an acceptance of the terms and conditions of this Second Short-Term Extension Licence and has undertaken to observe and fulfill all the terms and conditions which the licensee is required to observe and fulfill under this Second Short-Term Extension Licence:

This Second Short-Term Extension Licence is granting to the licensee:

- (a) the right to impound, divert, and use water of the Winnipeg River at and near the Slave Falls Site;
- (b) the right to develop electric power and energy from the said waters;
- (c) the right to generate, transmit, distribute, sell, and deliver the said electric

- power and energy and for that purpose to use and occupy the lands of the Province described in the Renewal Licence; and
- (d) the right to operate and maintain the undertaking, the location and description of which is shown upon the record plans numbered and filed in the office of the Director at Winnipeg (the "Undertaking").

This Second Short-Term Extension Licence is issued on the same terms and conditions as set out in the Renewal Licence dated June 30, 1982, subject to the following specific terms and conditions:

1. This Second Short-Term Extension Licence shall apply from January 1, 2025, to and including December 31, 2025.
2. On or before April 30, 2025, the licensee shall pay an annual rental in advance for the use and occupation of lands of the Province described in article 4 (a), (b), and (c) of the Renewal Licence at the rates set from time to time by the Water Power Regulation under The Water Power Act.¹
3. The licensee shall pay an annual rental for the use of water for the development of power at the rates set from time to time by Regulation under The Water Power Act and payable at the times and in the manner provided for by Regulation under The Water Power Act.²
4. The terms and conditions set out in the Renewal Licence apply as if set out specifically in this Second Short-term Extension Licence, except where the terms and conditions of the Renewal Licence are inconsistent with the terms and conditions set out specifically in this document, the terms and conditions set out in this document will apply.
5. The licensee shall participate in future planning, studies, and other initiatives as instructed by the Minister, in areas impacted by the Undertaking along with affected communities and other stakeholders.
6. The licensee shall continue submitting an annual report to the Director documenting the licensee's engagement with Indigenous communities on the continued operation of the Undertaking.
7. The licensee shall comply with The Water Power Act and the Water Power Regulation.



Joëlynn Baker
Deputy Minister

¹ Rental rates for land use are currently set out in s. 48(3.1) of the Water Power Regulation.

² Rental rates for the use of water for the development of power are currently set out in s. 48(3.2) of the Water Power Regulation.

Appendix C: Maintenance and Construction Record

Appendix C: Maintenance and Construction Record

The major maintenance and construction activities that occurred between 2008-2023 calendar years are summarized for the Slave Falls Water Power Act licence area:

2008

- Station service was upgraded to 240 volts.
- Upgrades on the station fire protection system were completed.
- The generator PVC cooling water headers and branch lines were replaced.

2009

- Units #1 and #2 - Partial stator rewinding was completed.
- Unit #1 to #4 - New 6.9kV switchgear was installed and commissioned.
- New 100 PSI station service air compressor was installed.
- The roller trains were replaced on several spill gates at the 7-bay sluiceway.
- Brush clearing work was completed to make way for the current construction of the new all-weather gravel access road from Pointe du Bois to Slave Falls.

2010

- Tramway realignment and repairs were made to keep it operational during the construction of the new all-weather gravel access road from Pointe du Bois to Slave Falls.

2011

- The all-weather gravel access road from Pointe du Bois to Slave Falls was completed. This project also included the removal of the old tramway line between these two plants. The tramway's rails, ties and supporting timbers on the spillway piers were removed and replaced with a reconfigured timber subdeck and new wooden road deck covered with asphalt, and new guardrail system providing road access directly to the power house.
- A new roof system was installed on the stations control house building.
- Concrete repairs were made to the Unit #1 scroll case.
- Electrical condition assessment and significant life extension repairs to the generators, including partial re-wedge to re-lashing of the circuit ring bus.
- All Units and spare rotating exciters were rewound and replaced on a planned asset renewal program during the generator cleaning project.
- House Unit #1 stator was rewound.

2012

- Upgrades on the oil containment system were completed.

- The Slave Falls roadway extension was completed.
- The concrete deck was reinforced at the piers in the last bay of the north spillway, immediately next to the powerhouse.

2013

- Fire protection system was upgraded.
- Upgrades to the 7-bay sluiceway gate/stoplog hoisting equipment, gate hoist structural steel, gate access safety, electrical power and gate/gate heating are ongoing.
- A major built-up roof removal and replacement project is ongoing.
- Unit #6 was removed from service on March 14 for shaft repair, unit alignment, and shaft seal refurbishment. Unit #6 was returned to service on November 13, 2013.

2014

- Boat boom installation was completed.
- Roof membrane on the entire powerhouse was replaced.
- Upgrades to the 7-bay sluiceway gate/stoplog hoisting equipment, structural steel gate access and gate heating are near completion.

2015

- The 7-bay sluiceway gate/stoplog hoisting equipment was upgraded.

2016

- Crack repairs and anchoring on Unit 2 draft tube liner was completed.

2017

- 129V-DC battery bank upgrade was completed.
- Installation of spillway gate heating was completed.
- Tailrace crane and stoplog follower refurbishment complete.
- Slave Falls Creek Spillway Rehabilitation Project was completed.

2018

- Powerhouse crane was modernized and commissioned.
- Project was initiated to stabilize a pier on bay 1 of the 7 bay sluiceway.
- 129V-DC distribution was successfully transferred to new panels.
- Units 3-6 excitation repairs.
- Local service #2 bearing failure repairs and unit re-alignment.

2019

- Completed installation of a concrete containment wall on pier 1 of the 7 bay sluiceway.

- Installed remote operating system on the 7 bay sluiceway.
- Completed gate room crane refurbishment.
- Completed concrete coring investigations for all non-powerhouse structures.
- Unit 2 generator coil bypass.

2020

- Replaced transformer bank.
- Installed second hoist on seven bay sluiceway.
- Installed gate room fall protection.
- Repaired the Unit 3 Automatic Voltage Regulator.
- Instrumented and surveyed tramway deck for movement.
- Sprayed herbicide to clear vegetation on embankment dams.
- Safety / fall protection issues related to stairs, handrails and ladders addressed.

2021

- Upstream safety boom, downstream buoys and new portage installed.
- Replaced transformer bank 2.
- Installed second hoist on seven bay sluiceway.
- Installed gate room fall protection.
- Repaired the Unit 3 Automatic Voltage Regulator.
- Instrumented and surveyed tramway deck for movement.
- Safety / fall protection issues related to stairs, handrails and ladders addressed.
- Replaced roller trains on Sluiceway Gate 7 and performed dry and wet testing.

2022

- Replaced transformer bank 4.
- Commissioned Sluiceway Gate 7.
- Remedial Action Scheme installed and commissioned.
- Anchoring of 7 Bay Sluiceway.
- Pier Strengthening of 7 Bay Sluiceway.
- PSWD fencing installed.

2023

- Anchoring of 7 Bay Sluiceway.
- Pier Strengthening of 7 Bay Sluiceway.

Appendix D: Correspondence

Appendix D

This appendix contains copies of key documents referenced previously in this report related to the licence renewal process. The following is a list of all relevant documents included:

- February 29, 1996, letter from the Deputy Minister notifying of change in billing of water rentals from annual to monthly
- November 4, 1996, letter from the Deputy Minister notifying of change in billing of land rentals from calendar year to fiscal year beginning April 1
- April 19, 2016, letter from Manitoba Conservation and Water Stewardship approving the conversion of the creek spillway into a non-overflow dam
- October 18, 2018, letter from Manitoba Hydro to Manitoba Conservation and Climate providing notification of temporary forebay reduction for pier stabilization work

Manitoba



RECEIVED

Deputy Minister of
Natural Resources

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

FEB 29 1996

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,



David Tomasson
Deputy Minister

CIRCULATE

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ETF	
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GRN	
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RECEIVED
FEB 29 1996
DIVISION MANAGER
SYSTEM OPERATING DIVISION

Manitoba



Deputy Minister of
Natural Resources

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

NOV - 4 1996

35C11

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.



- 2 -

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,

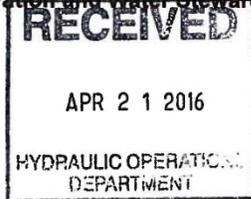


David Tomasson
Deputy Minister

Appendix D: April 19, 2016 letter



Conservation and Water Stewardship



Water Stewardship and Biodiversity Division
Water Use Licensing Section
Box 16 – 200 Saulteaux Crescent
Winnipeg MB R3J 3W3
T 204-945-6118 F 204-945-2357

April 19, 2016
File: 21.11

Mr. W.V. Penner, P. Eng.
Manager
Hydraulic Operations Department
Manitoba Hydro
P.O.Box 815
Winnipeg, MB R3C 0G8

Dear Mr. Penner:

RE: Slave Falls Creek Spillway Rehabilitation Project - Request For Authorization

This is in regards to your January 14, 2016 letter and your request for authorization to proceed with the conversion of the creek spillway at the Slave Falls Generating Station into a non-over-flow dam. The information you submitted, in support of Section 64 of the *Water Power Regulation*, describes the works that will upgrade the existing spillway and associated structures at the Slave Falls GS.

Water Power Licensing section (WPL) staff have reviewed the information you have submitted. In addition, the meeting between WPL and Manitoba Hydro staff that took place on April 14, 2016 was very helpful in the understanding of the project that supports the safety of the dam as per the Dam Safety Guidelines of the Canadian Dam Association.

WPL staff have indicated that the request for authorization filed with the Department provides a good understanding of the project and that it fulfills the requirements of Section 64 of the *Water Power Regulation*. I note that Manitoba Hydro is in the process of receiving any other applicable approvals from Manitoba and Canada before the proposed project work begins. As a result, as the director under the *Water Power Regulation*, I hereby authorize to proceed with the Slave Falls Creek Rehabilitation Project as described in the engineering drawings submitted with your January 14, 2016 letter and I now confirm that the requirements of Section 64 of the *Water Power Regulation* have been satisfactorily met.

Please feel free to contact me at any time at the above address, at 204-945-6118, or by email at Rob.Matthews@gov.mb.ca.

Sincerely,



Rob Matthews
Manager, Water Use Licensing
Manitoba Conservation & Water Stewardship

cc: Puru Singh

Appendix D: October 18, 2018 letter



2018 10 18

Mr. R. Matthews, P. Geo.
Manager, Water Power Act Licensing
Manitoba Sustainable Development
1007 Century Street
Winnipeg, MB R3M 0W4

Dear Mr. Matthews:

SLAVE FALLS GENERATING STATION – TEMPORARY REDUCTION OF FOREBAY ELEVATION

A recent investigation of pier 1 of the Slave Falls 7-bay sluiceway has revealed a greater than anticipated extent of poor quality concrete and the pier is at an elevated risk of failure. To mitigate the risk, Manitoba Hydro plans to temporarily reduce the forebay elevation by 3 feet starting on October 24. It is estimated that the forebay will be returned to normal operating levels within about 6 months following pier stabilization.

The impacts of the reduced forebay elevation include lost generation revenue, effects to recreation and cottagers, and potential environmental impacts. As described in the attached public information bulletin, Manitoba Hydro has engaged with municipal officials, Indigenous communities, cottage owners, and other stakeholders who may be impacted by this work. The potential impacts to fish and wildlife have also been considered and discussed with provincial regulators and Fisheries and Oceans Canada (DFO).

The consequences of a pier failure would be significant and would include an uncontrolled reduction in forebay elevation, temporary loss of access to the powerhouse, higher repair costs, higher levels of reduced output for a longer duration, severe environmental impacts, and loss of recreation.

If you have any questions about this matter, please call me at (204) 360-3018.

Yours truly,

Original signed by: *Wes Penner*

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

PGC/00104-07311-0013_00.docx

360 Portage Ave (16) • Winnipeg Manitoba Canada • R3C 0G8
Telephone / N° de téléphone : 204-360-3018 • Fax / N° de télécopieur : 204-360-6135
wvpenner@hydro.mb.ca

Appendix E: Slave Falls GS Licence Implementation Guide

Appendix E: Slave Falls GS Licence Implementation Guide (2022)

Manitoba 
Environment, Climate and Parks
Environmental Approvals Branch
1007 Century Street, Winnipeg MB R3H 0W4
T 204-945-5321 F 204-945-5229
www.manitoba.ca

File No.: 21.11

January 25, 2023

W. V. Penner, P. Eng.
Manager
Waterway Approvals & Monitoring
Manitoba Hydro
16-360 Portage Avenue, Winnipeg MB R3C 0G8
wvpenner@hydro.mb.ca

Dear W. V. Penner:

Thank you for your request dated December 8, 2022. I approve the revised Licence Implementation Guide for Slave Falls Generating Station.

If you have questions, please contact Asit Dey, Acting Engineering Manager, Environmental Approvals Branch at Asit.Dey@gov.mb.ca or 204-794-3389.

Sincerely,



James Capotosto
Director

c. Brian Giesbrecht
Asit Dey



2022 12 08

Mr. James Capotosto
Director, Environmental Approvals Branch
Manitoba Environment, Climate and Parks
EABDirector@gov.mb.ca

Dear Mr. Capotosto:

SLAVE FALLS GENERATING STATION – LICENCE IMPLEMENTATION GUIDE

Enclosed for your approval is a revised Licence Implementation Guide for Slave Falls Generating Station. Manitoba Hydro prepared this revision to include terms and conditions found in the Slave Falls Water Power Act Short-term Extension Licence and its cover letter. The Water Power Act licence and cover letter specify operating limits and other requirements that must be met for compliance with the licence. As such, this document sets out the:

1. Methodology to be used for determining critical water levels;
2. Definition of licence compliance; and
3. Protocol for reporting.

Please contact me at 204-360-3018 if you have any questions or require additional information.

Yours truly,



W.V. Penner, P. Eng.
Manager
Waterway Approvals and Monitoring

BWG/00104-07311-0020_00.docx
Att.

c: D. Bjornson

Manitoba Hydro Slave Falls Generating Station Licence Implementation Guide

Prepared for:

Environmental Approvals Branch
Manitoba Environment, Climate and Parks
1007 Century Street
Winnipeg, Manitoba R3H 0W4

Prepared by:

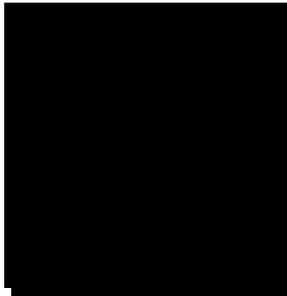
Waterway Approvals and Monitoring Department
Manitoba Hydro
360 Portage Avenue
Winnipeg, Manitoba R3C 0G8

December 2022

Version History

Version	Description	Date
Rev_0	Issued to Manitoba Sustainable Development for Approval	2017-10-31
Rev_1	Additional conditions from STEL	2022-12-08

Manitoba Hydro
Slave Falls Generating Station
Licence Implementation Guide

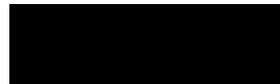


PREPARED BY:



B.W. GIESBRECHT

REVIEWED BY:



B.W. GIESBRECHT

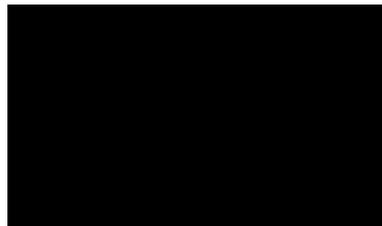
NOTED BY:



W.V. PENNER

DATE:

2022-12-08



Executive Summary

Introduction

Manitoba Hydro prepared this guide to document a common understanding of compliance with the water regime terms of the Slave Falls Water Power Act Licence. This document sets out the mutually understood and agreed to:

- 1) Methodology to be used for determining critical water levels;
- 2) Definition of licence compliance; and
- 3) Protocol for reporting.

Slave Falls Forebay Water Level

The **Slave Falls Forebay Water Level** is directly measured at the beginning of each hour at the generating station.

Compliance

Compliance with the Slave Falls Water Power Act Licence will be measured against the **Slave Falls Forebay Water Level**.

Reporting

In the event that the **Slave Falls Forebay Water Level** is not in compliance with the licence limit, Manitoba Hydro will notify Manitoba Environment, Climate and Parks within one week of the incident. A follow-up report on causes contributing to the event and changes to operations, if any are needed to prevent such an event in the future, will be provided to Manitoba Environment, Climate and Parks. A record of water levels and licence compliance will also be provided in an annual report.

Ongoing and Other Requirements

The Water Power Act Short-term Extension Licence and the associated cover letter from Manitoba specify a number of ongoing and other requirements that are not directly related to the day to day operation of the Slave Falls Generating Station. Manitoba Hydro will participate in and report on these additional requirements as directed.

Change Management

Proposed revisions to this guide will be drafted by Manitoba Hydro as required or directed by Manitoba Environment, Climate and Parks. Following review and approval of revisions by Manitoba Environment, Climate and Parks, a revised copy of this guide will be produced and distributed by Manitoba Hydro.

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1. Introduction

Slave Falls Generating Station is located on the Winnipeg River, approximately 160 km northeast of Winnipeg by road and 10 km down river from Pointe du Bois. The station is accessible by private road from Pointe du Bois.

The Slave Falls Generating Station was constructed between 1928 and 1948. The plant was built by City Hydro, later known as Winnipeg Hydro. Manitoba Hydro acquired Slave Falls in 2002.

Manitoba Hydro currently operates the Slave Falls Generating Station under a Short-term Extension Licence (STEL) issued in accordance with the provisions of The Water Power Act on December 31, 2021. The STEL is in effect until January 1, 2025. The operating terms of the STEL are identical to those of the final licence. Slave Falls Generating Station has a licenced capacity of 72 MW (96,000 horsepower).

The licence history of this generating includes a final licence and one renewal licence. The final licence was issued for a term of 50 years from January 1, 1932. Subsequently, a renewal licence was issued under The Water Power Act for a further term of 40 years effective from January 1, 1982.

1.1 Definitions

For the purposes of this guide, unless the context otherwise requires, the following terms shall have the respective meanings set out below and grammatical variations of such terms shall have corresponding meanings:

ASL means above sea level

Controlling Benchmark means Geological Survey of Canada (GS of C) benchmark 17K. Benchmark 17K is a brass shank in bedrock located on the right bank about 250 feet downstream from the rockfill dam at Slave Falls.

Slave Falls Gauge refers to a transducer in a stilling well located in the powerhouse and connected to the forebay with a pipe.

Slave Falls Forebay Water Level means the hourly water level as measured by the Slave Falls Gauge.

1.2 Datum

In accordance with Article 4 of the Slave Falls First Renewal Water Power Act Licence, water level information for the operation of the Slave Falls Project is measured in terms of elevations ASL, GS of C, Canadian Government Vertical Datum (CGVD) 1928, 1929 Local Adjustment.

1.3 Quality Control

1.3.1 Benchmarks

Vertical control surveys have been performed to establish appropriate local benchmarks at the Slave Falls Generating Station.

Slave Falls benchmarks were established by level transfer from **Controlling Benchmarks** using spirit levelling methods.

1.3.2 Direct Water Level Measurements

Staff monitor the **Slave Falls Gauge** equipment as required to maintain gauge performance. Direct water level measurements are taken during these checks and compared to the level indicated by the water level gauge. Direct water level measurements that differ by more than 0.1 feet are reported and repaired.

1.3.3 Gauge Readings

The forebay gauge is located in the powerhouse and consists of a transducer that is submerged at a depth of 2 m inside of a stilling well which is connected to the forebay by a 6 to 8 inches wide pipe. The transducer is ultrasonic and reports back to a data logger.

1.4 Quality Assurance Procedure for Water Level Data

Slave Falls Plant Data

Data is collected on site and signed off by the operating supervisor. Data is then sent to the Energy Operations Planning Department of Manitoba Hydro, uploaded into a database and checked for errors. Data errors are then corrected or verified by plant operating staff with technical assistance from Energy Operations Planning staff as needed. Once data has been verified, it may be used for operations planning, studies, model development and reporting.

2. Slave Falls Forebay Water Level

Article 4 of the Slave Falls Water Power Act Licence places a limit on the **Slave Falls Forebay Water Level**. A map showing the location of the **Slave Falls Gauge** is provided in Appendix A. Water levels are largely influenced by the operation of the Slave Falls Generating Station and local meteorological events. Due to the size of the forebay and location of the **Slave Falls Gauge**, wind effects on the **Slave Falls Forebay Water Level** are negligible.

Slave Falls Forebay Water Level measurements are taken continuously and recorded at the beginning of each hour and reported to Manitoba Hydro's System Control Centre.

3. Compliance

3.1 Slave Falls Water Power Act Licensing Requirement

Maximum Water Level

Article 4 of the licence stipulates that:

“The Licensee shall not raise the headwater of its development to an elevation higher than 933.8 feet above mean sea level, Canadian Geodetic Datum 1929 Adjustment. A higher elevation may be created only with written permission by the Minister in accordance with Section 72 of the Regulations.”

The forebay water level shall be in compliance with the limit described above if the hourly **Slave Falls Forebay Water Level**:

- a) does not exceed 933.8 feet by more than 0.1 feet; and
- b) does not exceed 933.8 feet more than two times or for more than two consecutive hours in any 24-hour period.

Based on the accuracy and location of the **Slave Falls Gauge**, Manitoba Hydro defines instances where the licence limit is exceeded by 0.1 feet as reportable events.

3.2 Reporting

3.2.1 Compliance Reporting

In the event that the **Slave Falls Forebay Water Level** is not in compliance with the licence limit as described in Section 3.1, notification shall be made to Manitoba Environment, Climate and Parks within one week of the incident. A follow-up report on causes contributing to the event and changes to operations, if any are required to prevent such an event in the future, will be provided to Manitoba Environment, Climate and Parks.

3.2.2 Maintenance and Emergencies

During maintenance and emergencies there may be times when Manitoba Hydro is required to deviate from a licence condition for safety or other purposes. Manitoba Hydro will be considered compliant with the licence as long as:

1. Advanced notification is provided to Manitoba Environment, Climate and Parks of the upcoming licence deviation together with the reason. This will include a description of the operating plan, details of the expected licence deviation, a

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summary of anticipated impacts to stakeholders, and confirmation that stakeholders will also be notified; and

2. Advanced notification is provided to stakeholders of pertinent impacts to flow and water levels; and
3. Following the deviation, notification by letter is provided to Manitoba Environment, Climate and Parks on the details of the operation(s).

3.2.3 Regular Annual Reporting

Water levels and licence compliance will be reported annually to Manitoba Environment, Climate and Parks.

4. Ongoing and Other Requirements

4.1 Large Area Planning, Studies, and other Initiatives

The Water Power Act Short-term Extension Licence cover letter from the Province of Manitoba instructs Manitoba Hydro to:

“Participate in any future large area planning initiative that may include studies in areas impacted by hydroelectric development, along with affected communities with other stakeholders.”

Term 5 of the Water Power Act Short-term Extension Licence stipulates that:

“The Licensee shall participate in future planning, studies and other initiatives as instructed by the Minister, in areas impacted by the Undertaking along with affected communities and other stakeholders.”

Manitoba Hydro will participate in any future large area planning or other studies and initiatives as directed by the Minister. Progress updates will be provided as required in the Annual Water Levels and Flows Compliance Report.

4.2 Indigenous Engagement Report

Term 6 of the Water Power Act Short-term Extension Licence stipulates that:

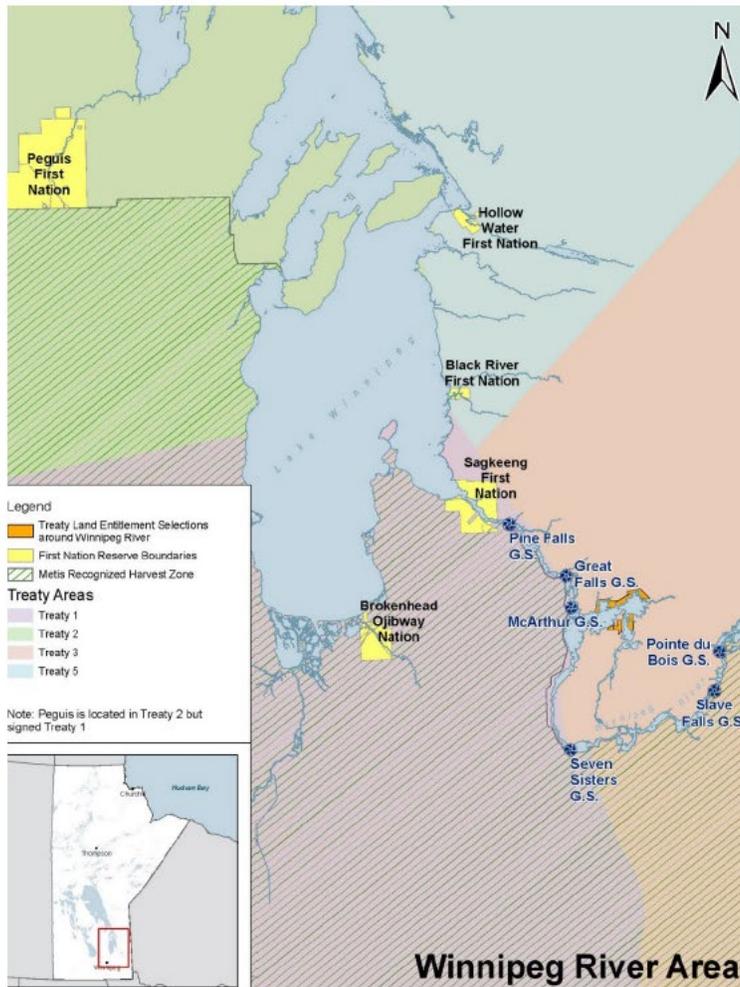
“The Licensee shall within 6 months of the issuance of this Short-term Extension Licence, and annually thereafter submit a report to the Director documenting the Licensee’s engagement with Indigenous communities on the continued operation of the Undertaking.”

Manitoba Hydro will submit an annual report by June 30 each year that provides an overview of the forums, programs, and activities through which it has engaged with Indigenous communities on the continued operation of generating stations on the Winnipeg River, including the Slave Falls Generating Station. Map 1 shows the location of First Nations, Treaty Land Entitlement selections and the Métis Recognized Harvest Zone in the Winnipeg River Region. The annual report will identify engagement activities with:

- Black River First Nation
- Brokenhead Ojibway Nation
- Hollow Water First Nation
- Peguis First Nation

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- Sagkeeng First Nation
- The Manitoba Métis Federation



Map 1: Community Interests in the Winnipeg River Region

4.3 Licence Modernization Processes

The Water Power Act Short-term Extension Licence cover letter from the Province of Manitoba instructs Manitoba Hydro to:

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“Participate in the future licence modernization processes directed by the Province of Manitoba. The Province intends to evaluate the Water Power Act and Regulation to determine what amendments may be required for modernization”

Manitoba Hydro will participate in any future licence modernization processes as directed by Manitoba. Progress updates will be provided as required in the Annual Water Levels and Flows Compliance Report.

5. Change Management

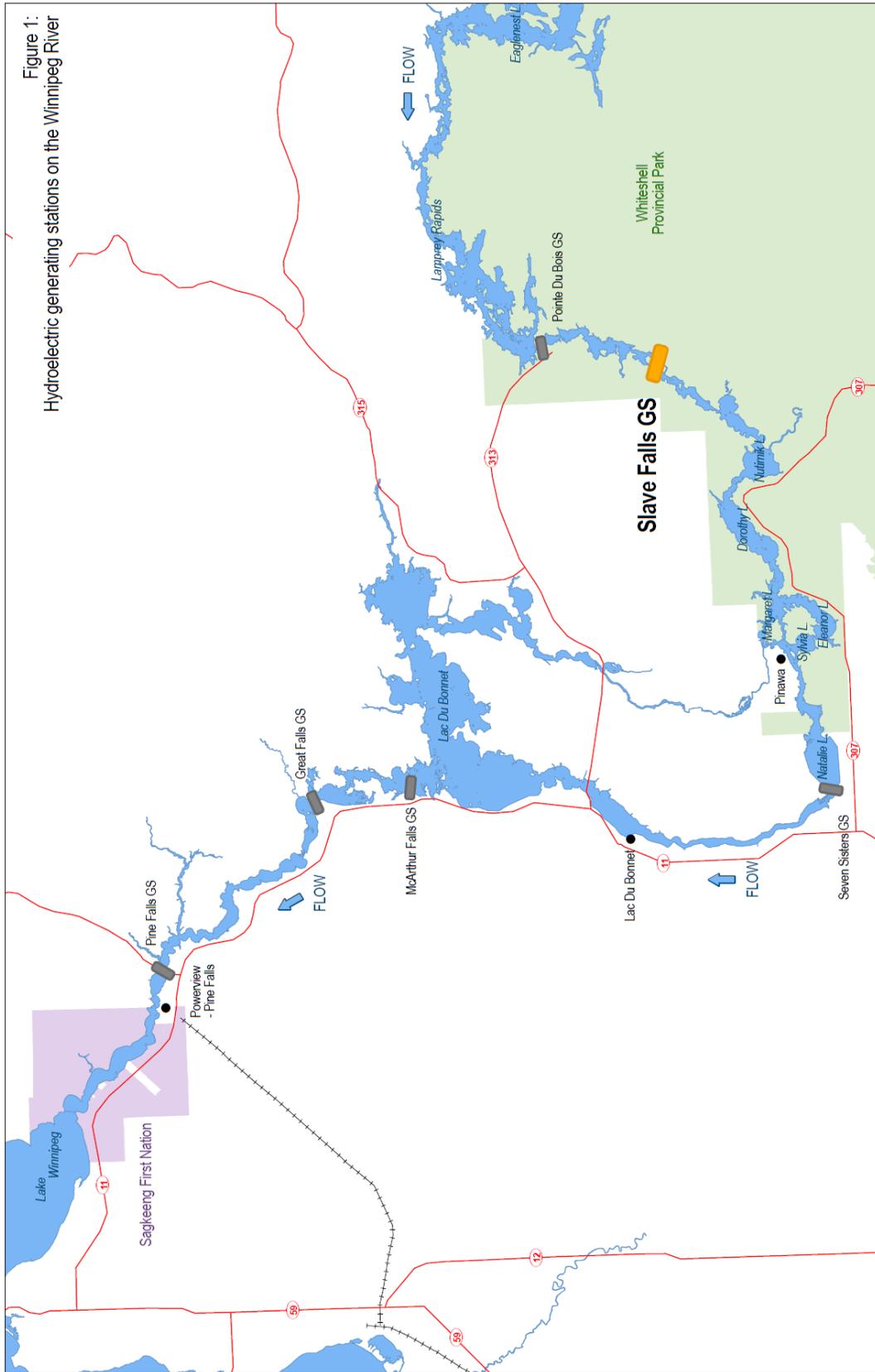
5.1 Regular Updates

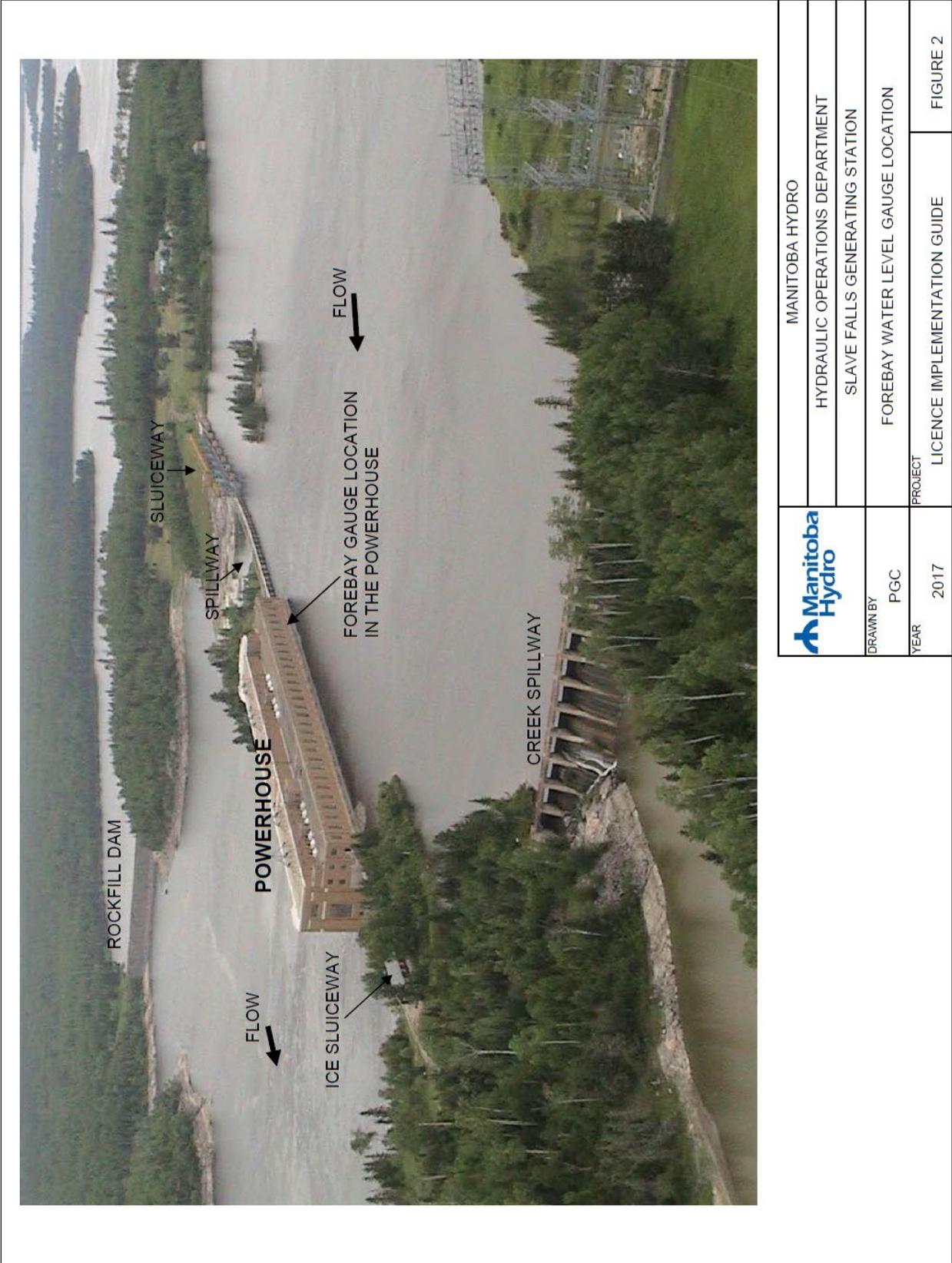
Proposed revisions to this Guide will be drafted by Manitoba Hydro as required or directed by Manitoba Environment, Climate and Parks. Following review and approval of revisions by Manitoba Environment, Climate and Parks, a revised copy of this Guide will be produced and distributed by Manitoba Hydro.

Appendix A

Forebay Water Level Gauge Location

Figure 1:
Hydroelectric generating stations on the Winnipeg River





	MANITOBA HYDRO
	HYDRAULIC OPERATIONS DEPARTMENT
DRAWN BY PGC	SLAVE FALLS GENERATING STATION
YEAR 2017	FOREBAY WATER LEVEL GAUGE LOCATION
PROJECT LICENCE IMPLEMENTATION GUIDE	FIGURE 2

Appendix F: Glossary

Glossary

Canadian Dam Association Guidelines: The guidelines were published in 2007 and revised in 2013. “The guidelines consist of principles that are applicable to all dams, and an outline of processes and criteria for management of dam safety in accordance with the principles.”

Community: In ecology, a community is an ecological unit composed of a group of organisms or a population of different species occupying a particular area, usually interacting with each other and their environment. For people, a community is a social group of any size, whose members reside in a specific locality.

Control structure: A type of structure designed to control the outflow from a waterbody.

Cubic metres per second (cms or m³/s): is a flow rate that quantifies the number of cubic metres of water flowing in one second.

Dam: A barrier built to hold back water.

Dam Safety Emergency Plans: The Canadian Dam Association (CDA) Guidelines specify that “all dams should have emergency response procedures and emergency preparedness plans in place if lives are at risk or if implementation of emergency procedures could reduce the potential consequences of failure”. The purpose of the emergency preparedness plan (EPP) is to provide contingency plans for a dam safety emergency, to ensure that all foreseeable eventualities have been thoroughly studied and to provide an appropriate, workable response plan to ensure safety of the public.

Dam Safety Reviews (DSRs): A Dam Safety Review is a systematic evaluation of the safety of a dam by means of comprehensive inspection of the structures, assessment of performance and review of the original design and construction records to ensure that they meet current criteria.

Discharge: Flow rate often measured in cubic metres per second or cubic feet per second.

Drainage Basin: A large area of land that collects water and then drains into a body of water. (used synonymously with Watershed).

Dike: An earth embankment constructed to contain the water in the reservoir and limit the extent of flooding.

Ecosystem: A dynamic complex of plant, animal and micro-organism communities and

their non-living components of the environment interacting as a functional unit.
(Canadian Environmental Assessment Agency)

Environment: The components of the Earth, including a) land, water and air, including all layers of the atmosphere, b) all organic and inorganic matter and living organisms, and c) the interacting natural systems that include components referred to in a) and b).
(Canadian Environmental Assessment Agency)

Environmental effect: In respect of a project, any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the Species At Risk Act.

Farm Electrification Program: Starting in 1942, Manitoba Power Commission started the Farm Electrification Program due to farmers petitioning the provincial government to provide electrical service. By 1954, the Farm Electrification program was virtually completed, with about 75 per cent of all farms in Manitoba having electrical service.

Flooding: The rising of a body of water so that it overflows its natural or artificial boundaries and covers adjoining land that is not usually underwater.

Flow: Motion characteristic of fluids (liquids or gases); any uninterrupted stream or discharge.

Forebay: Impoundment area immediately upstream from a dam or hydroelectric plant intake structure that forms the downstream portion of the reservoir.

Full Supply Level: The normal maximum water level of the forebay.

Generating Station (GS): A structure that produces electricity. Its motive force can be provided in a variety of ways, including burning of coal or natural gas, or by using water (hydro) power. Hydroelectric generating stations normally include a complex of powerhouse, spillway, dam(s) and transition structures; electrical energy is generated by using the flow of water to drive turbines.

Hydroelectric: Electricity produced by converting the energy of falling water into electrical energy.

Impoundment: The containment of a body of water by a dam, dike, powerhouse, spillway or other artificial barrier.

Kilovolt (kV): The unit of electromotive force or electrical pressure equivalent to 1,000

volts (V).

Landscape: The ecological landscape as consisting of a mosaic of natural communities; associations of plants and animals and their related processes and interactions.

Licence Area: All lands that are considered essential to a Water Power project.

LiDAR: LiDAR is a remote sensing technology that measures distance by illuminating a target with a laser and analyzing the reflected light. It is used to make high-resolution maps.

Megawatt (MW): The unit of electrical power equivalent to 1,000,000 watts.

Mitigation: A means of reducing adverse effects. Under the *Canadian Environmental Assessment Act*, and in relation to a project, mitigation is the elimination, reduction or control of the adverse environmental effects of a project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.

Model: A description or analogy used to help visualize something that cannot be directly observed. Model types range from a simple set of linkage statements or a conceptual diagram to complex mathematical and/or computer model.

Monitoring: Measurement or collection of data.

Outflow: The water flowing out of a water body (lake, reservoir, etc.).

Parameter: Characteristics or factor; aspect; element; a variable given a specific value.

Power: The instantaneous amount of electrical energy generated at a hydroelectric generating station, usually expressed in megawatts.

Powerhouse: Structure that houses turbines, generators, and associated control equipment, including the intake, scroll case and draft tube.

Reservoir: A body of water impounded by a dam and in which water can be stored for later use. The reservoir includes the forebay.

Severance Line: The severance line encompasses all lands that are considered essential to a Water Power project.

Shoreline: The narrow strip of land in immediate contact with a lake.

Sluiceway: A type of spillway equipped with gates to control the flow of water.

Spillway: A concrete structure that is used to pass excess flow so that the dam, dikes, and the powerhouse are protected from overtopping and failure when inflows exceed the discharge capacity of the powerhouse.

Species: A group of organisms that can interbreed to produce fertile offspring.

Topography: General configuration of a land surface, including its relief and the position of its natural and manmade features.

Transmission Line: A linear arrangement of towers and conductors which carries electricity from generating stations and transmission stations to load centres like communities and industries to meet electrical needs.

Tributary(ies): A river or stream flowing into a lake or a larger river or stream.

Velocity: A measurement of speed.

Water quality: Measures of substances in the water such as nitrogen, phosphorus, oxygen and carbon.

Water regime: A description of water body (i.e. lake or river) with respect to water levels, flow rate, velocity, daily fluctuations, seasonal variations, etc.

Watershed: A large area of land that collects water and then drains into a body of water. (used synonymously with Drainage Basin)

Weir: A low dam built across a river to raise the level of water upstream or regulate its flow.