

Manitoba Hydro Slave Falls Generating Station Licence Implementation Guide

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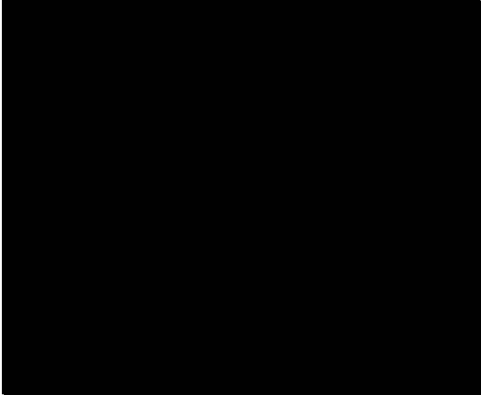
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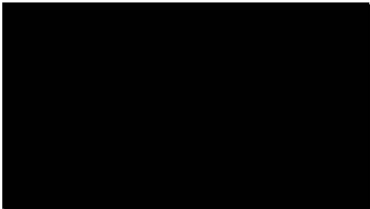
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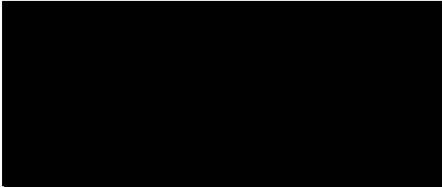
Manitoba Hydro
Slave Falls Generating Station
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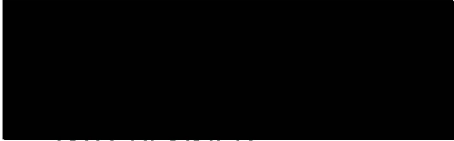
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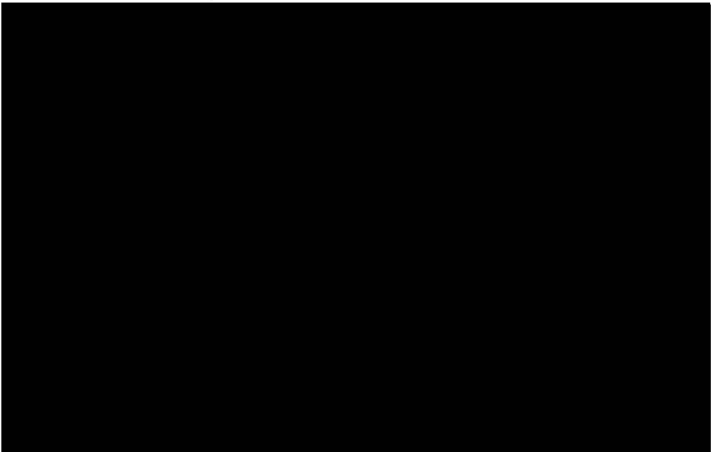
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Executive Summary

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

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

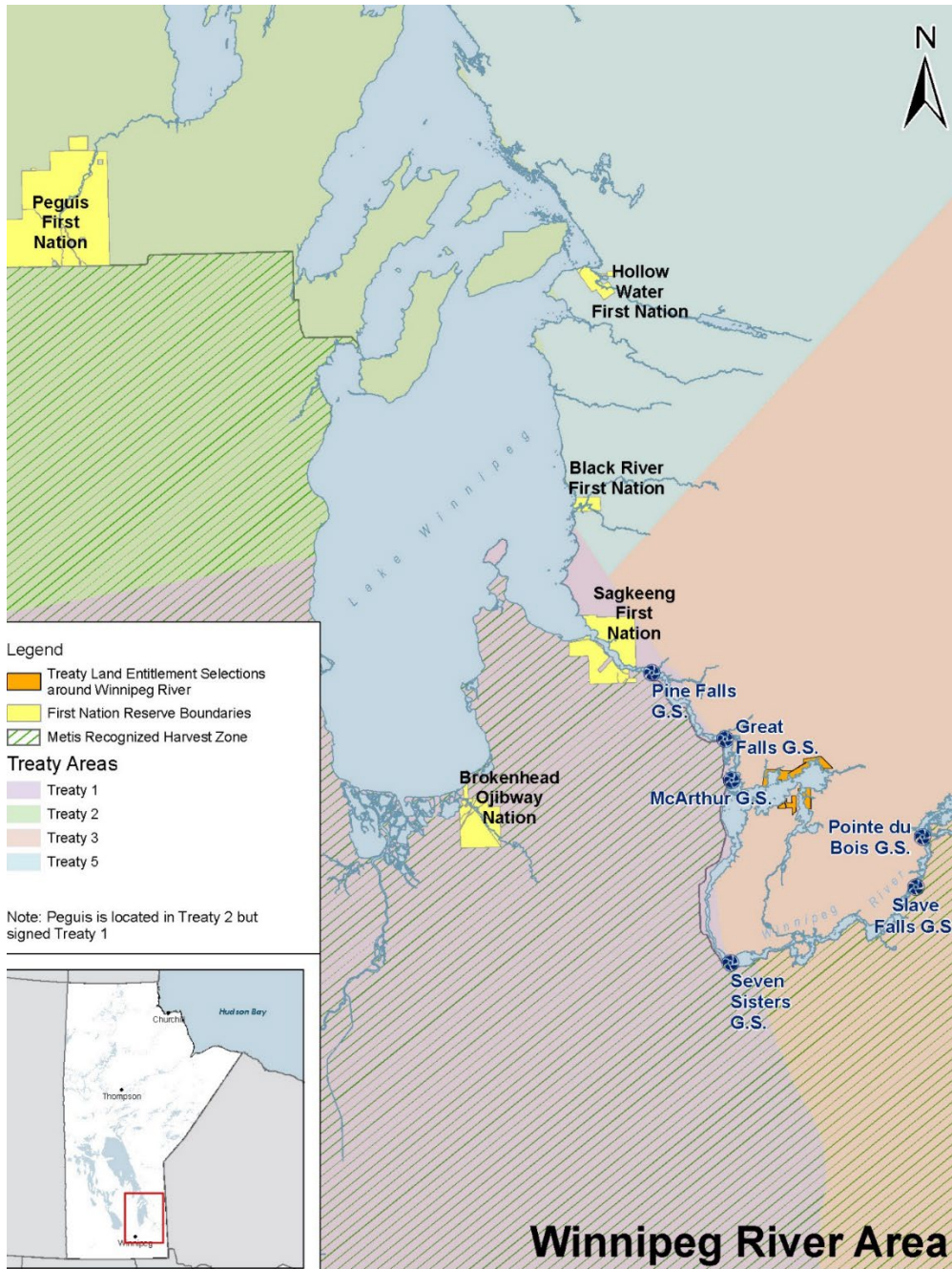
Term 6 of the Water Power Act Short-term Extension Licence stipulates that:

“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

- 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:

“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

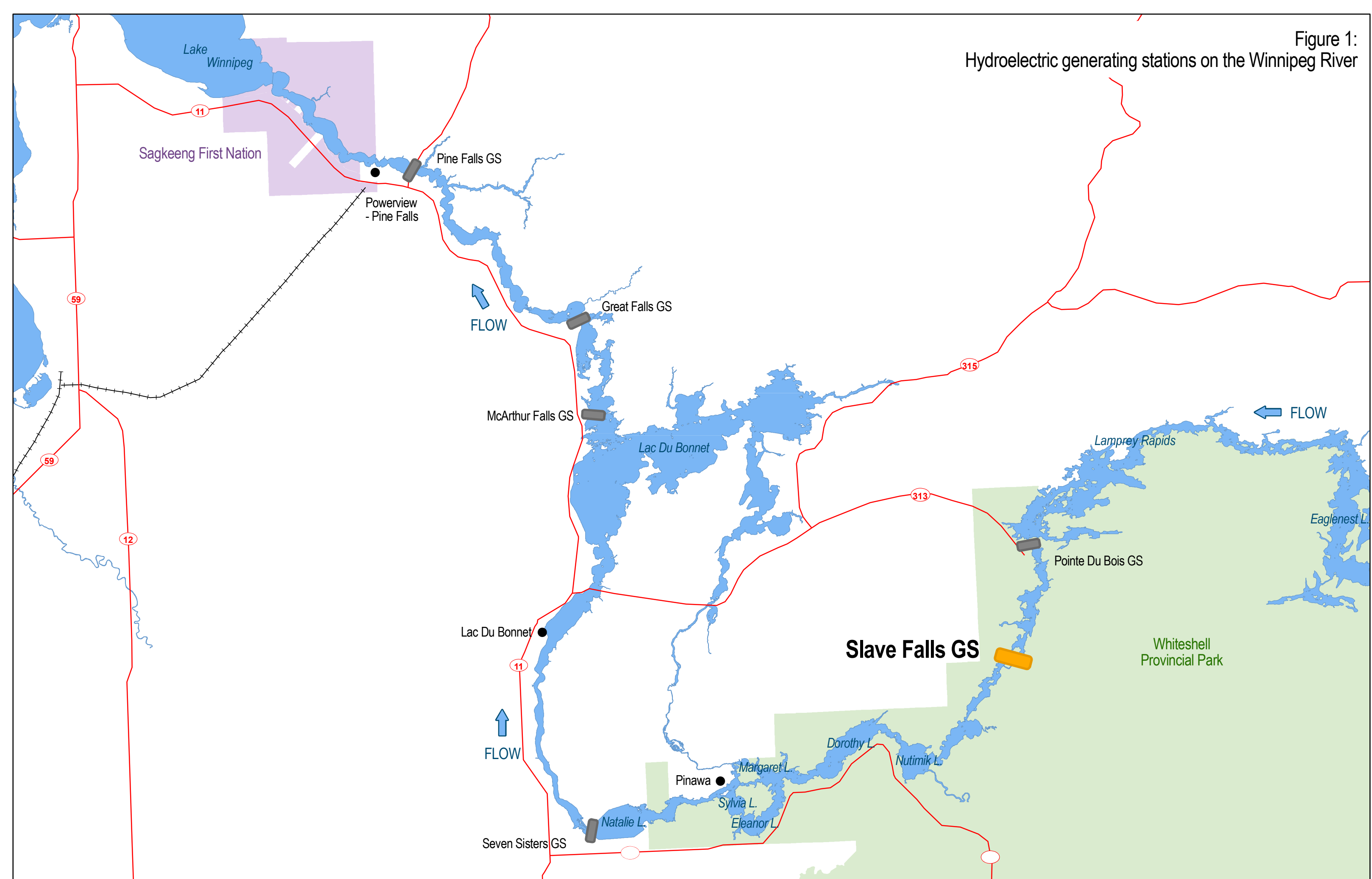
5.1 Regular Updates

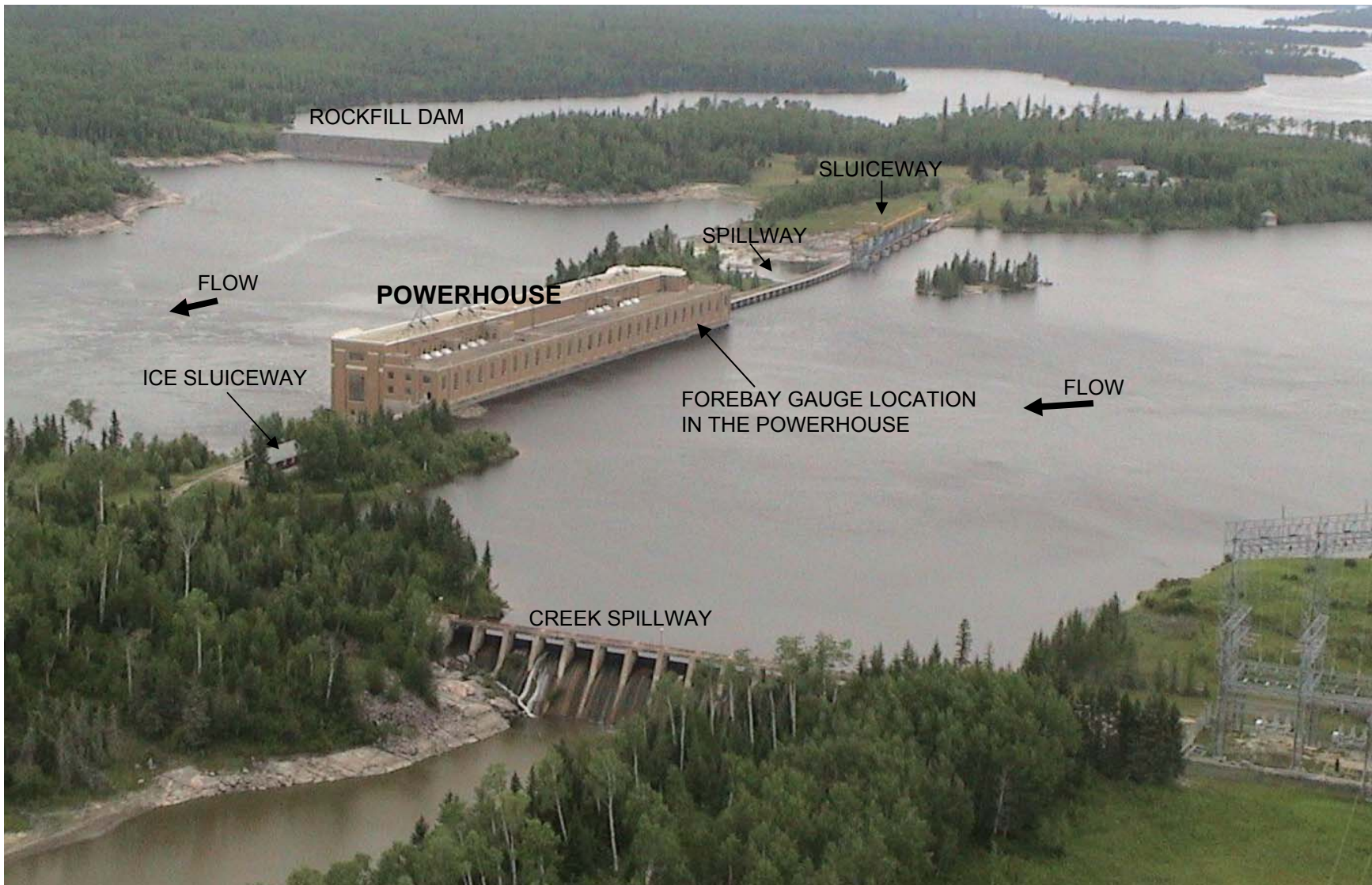
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Appendix A

Forebay Water Level Gauge Location

Figure 1:
Hydroelectric generating stations on the Winnipeg River





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