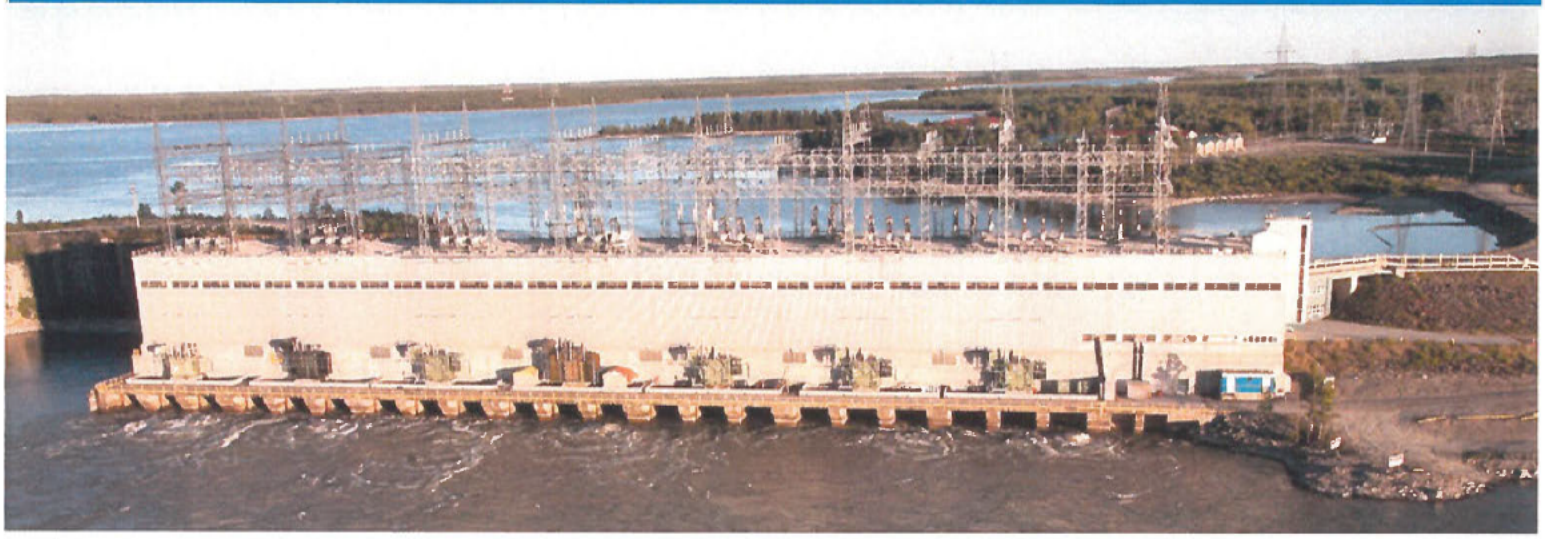
HYDRAULIC OPERATIONS DEPARTMENT
WHOLESALE POWER & OPERATIONS DIVISION
GENERATION & WHOLESALE

KELSEY GENERATING STATION

Report in Support of a Request for a

RENEWAL LICENCE

Under The Water Power Act and Regulations



DISTRIBUTION:
R. MATTHEWS
(MANITOBA CONSERVATION AND CLIMATE)
CORPORATE LIBRARY
LAW DEPARTMENT

PREPARED BY: [redacted]
P.G. Chanel
[redacted]
K.M. Morand

REVIEWED BY: [redacted]
B.W. Giesbrecht

APPROVED BY: [redacted]
W.W. Penner

DATE: 2020-03-12

REPORT NO: WP&O 20/02

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
Manitoba Hydro
No. 38

Manitoba Hydro

Executive Summary

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 Kelsey Generating Station (GS). The document provides details on the observances of all the terms and conditions under the 1966 Final Licence 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 Renewal Licence for the Kelsey GS.

Kelsey GS has an installed capacity of 315.8 MW. Kelsey GS is located on the Nelson River approximately 680 km north of the City of Winnipeg and approximately 89 km northeast of Thompson.

Manitoba Hydro operates the Kelsey GS under the authority of a Final Licence and a Second Short-Term Extension Licence (STEL). Manitoba issued the Final Licence on March 10th, 1966, covering a term of fifty (50) years from January 1, 1965 to December 31, 2014. Manitoba Hydro submitted the application to renew the Final Licence on December 17, 2010. However due to licensing requirements for other projects, Manitoba Hydro requested STELs to allow the licence renewal to occur at a later date. The First STEL covered the period from January 1, 2015 to January 1, 2020. The Second STEL covers the period from January 1, 2020 to January 1, 2025.

Division 1 of this document provides an overview of the project, its history and operation. Division 2 of this document 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 Final 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 Kelsey GS and its request for a Renewal Licence under The Water Power Act.

Table of Contents

List of Figures

List of Tables

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 Kelsey Generating Station (GS). The document provides details on the observances of all the terms and conditions under the 1966 Final Licence and 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 Renewal Licence for the Kelsey 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 Final Licences and shows compliance with pertinent articles of the Regulation. Manitoba Conservation and Climate (MCC) agreed to the selection of pertinent articles of the Regulation. This document references previous names of MCC that include Manitoba Sustainable Development, Manitoba Conservation and Water Stewardship and Manitoba Water Stewardship. Division 4 concludes the report highlighting Manitoba Hydro's commitment to the ongoing safe operation of Kelsey GS and its request for a 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. An Interim Licence is issued 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.

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 operates the Kelsey GS in accordance with the Second Short-Term Extension Licence (STEL) for the development of water power at the Kelsey Site on the Nelson River. The Second STEL was issued December 19, 2019 and is in effect until January 1, 2025. The First STEL covered the period from January 1, 2015 to January 1, 2020.

Manitoba Hydro is the holder of a Final Licence for the development of water power at the Kelsey Site, dated March 10, 1966. Manitoba issued the Final Licence with a term of 50 years from January 1, 1965 to December 31, 2014. This Final Licence was amended on April 29, 1971 and on April 8, 1983 following the addition of units 6 and 7. The Final Licence was also amended by seven Short-Term Amending Licences (STALs) issued between 2010 and 2014 to authorize the increased capacity from the Kelsey re-runnering project to December 31, 2014. Copies of all licences are included in Appendix B.

Manitoba Hydro requested a Renewal Licence on December 17, 2010 in accordance with Section 46 of the Regulation.

Final Licence Area

Manitoba drawing number 51-4-1027 (Manitoba Hydro file number 0111_E-0396) shows the Final Licence area (land within the severance line) which includes lands impacted by raised water levels (Kelsey GS upstream to Sipiwesk Lake). A number of lakes are included in the licence area including Sipiwesk, Hunting, Prud'homme, Cauchon, and Goose Hunting Lakes.

The area was adjusted in 1988 to include land for the existing air strip as well as a proposed new air strip that was never built. The lands that were added to the licence area are described in a February 23, 1988 letter from Manitoba Hydro to the Director of Manitoba Lands Branch. A copy of the letter is included on page 95 in Appendix D.

Project Description

The Kelsey GS consists of a powerhouse, spillway, main dam and dykes and has a name plate capacity of 315.8 MW (423,500 horsepower). The station was constructed from 1957 to 1961 to supply both the City of Thompson and the International Nickel Company's (INCO) mining and smelting operations with electricity. Six years after

completion the generating station was linked to the province's electrical system. Kelsey originally included 5 units with room for expansion. A sixth unit was installed in 1969 and the seventh was added in 1972. The Kelsey re-runnering project was recently completed between 2006 and 2013 and involved the installation of more efficient turbine runners resulting in increased electrical output.

The project is located on the Nelson River approximately 680 km north of the City of Winnipeg and approximately 89 km northeast of Thompson, as shown in Figure 1. It is also located in the Split Lake Resource Management Area and within Treaty 5 territory. Figure 2 shows a photograph of the Kelsey Generating Station 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 cross section of the main dam and centre dyke. Figure 6 shows cross sections of dykes 1E, 1W, 2E and 2W. Figure 7 provides the spillway plan and section.

The Nelson River runs from Lake Winnipeg to Hudson Bay and has a drainage basin of over 1,000,000 square kilometres. The Lake Winnipeg watershed collects water from the Rockies to the west, from the Red River basin to the south, and from slightly west of Lake Superior to the east. Lake Winnipeg is the tenth largest freshwater lake in the world.

There are six hydraulic generating stations on the Nelson River as listed below beginning with the most upstream station:

1. Jenpeg Generating Station
2. Kelsey Generating Station
3. Keeyask Generating Station (under construction)
4. Kettle Generating Station
5. Long Spruce Generating Station
6. Limestone Generating Station

Manitoba Hydro also operates the Lake Winnipeg Regulation (LWR) project which regulates the outflow from Lake Winnipeg and inflow to the Nelson River. LWR was developed in the 1970's to achieve two key objectives: to reduce shoreline flooding on Lake Winnipeg; and to support hydroelectricity generation to meet the growing demand for power in Manitoba.

Physical Structures

The station components include a seven-unit powerhouse, a nine-bay gated sluiceway, a main dam and multiple dykes. Figures 3 to 7 show the general arrangement and cross sections of the concrete and earth structures. Tables 1 and 2 summarize major characteristics of the station and project components.

Table 1 Kelsey GS Major Characteristics

Construction Period*	1957 to 1961
Nameplate Capacity	315.8 MW (423,500 horsepower)
Average Annual Generation (2014-2018**)	2,199 million kW-h
Waterfall Drop (head)	15.2 m
Maximum Operating Forebay Elevation	184.4 m (605.0 ft)

*Units 6 and 7 were added in 1969 and 1972

**Period of record after all 7 units were re-runnered

Table 2 Principal Structures of the Kelsey Generating Station.

Powerhouse	Number of Units	7
	Length	205.5 m
	Discharge Capacity (at full gate)	2,100 m^3/s
	Unit Power Production Unit 1-7	7 units @ 45.11 MW/unit = 315.8 MW
Spillway	Number of Bays	Sluiceway with 9 bays
	Length	142.6 m
	Discharge Capacity (at maximum operating forebay elevation)	8,500 m^3/s
Dykes and Non Overflow Dams	Material	Main Dam: Rockfill Centre Dyke: Rolled earth fill Dykes 2E and 2W: Compacted sand fill Dyke 1E: Impervious fill and sand Dyke 1W: Rolled earth fill and rockfill
	Minimum Required Crest Elevation	Main Dam: 185.7 m Centre Dyke: 185.5 m Dykes 1E and 1W: 185.3 m Dyke 2E: 185.2 m Dyke 2W: 185.1 m
	Available Freeboard	Main Dam: 1.3 m Centre Dyke: 1.1 m Dykes 1E and 1W: 0.9 m Dykes 2E: 0.8 m Dyke 2W: 0.7 m

Project Upgrades

The initial capacity of each of the seven units was 31.32 MW (42,000 horsepower). Manitoba Hydro undertook rehabilitation of the Kelsey Generating Station between 2006 and 2013 by upgrading the units and replacing the turbine runners. This made the generating station more efficient and increased capacity of each unit to 45.11 MW (60,500 horsepower).

Appendix C shows the 2008 to 2018 maintenance and construction record information.

Operational Description

Manitoba Hydro currently operates the Kelsey Generating Station under a Second STEL issued in accordance with the provisions of The Water Power Act on December 19, 2019. The STEL is in effect until January 1, 2025. The operating terms of the Second STEL are identical to those of the Final Licence issued on March 10, 1966.

Due to its remote location, the Kelsey GS is operated locally by staff flown in on a rotational basis. While on rotation, operating as well as maintenance and emergency personnel stay in the 38-room staff house located on site. The generating station is typically operated in a run-of-river mode with the forebay maintained just below its upper licence limit of 184.4 m (605.0 ft). Starting in 1977, Kelsey GS operations became more integrated in the hydroelectric system. Since that time, the forebay is periodically drawn down to supplement flows over a period of about a month and then re-filled at a later date. Inflows are affected by LWR operations at Jenpeg and runoff from the local watershed.

Historic Power Generation

The original turbines were rated at 31.32 MW (42,000 horsepower) at a design head of 15.2 m (50 ft), a total of 156.6 MW (210,000 horsepower) for five units. This became the basis for the licensed capacity in Term 2 of the Final Licence. In 1969, Manitoba Hydro added a sixth unit with the same capacity of the original units, bringing the total station capacity to 187.9 MW (252,000 horsepower). The seventh and final 31.32 MW (42,000 horsepower) unit was added in 1972, increasing the station capacity to 219.2 MW (294,000 horsepower).

Manitoba Hydro rehabilitated the Kelsey GS between 2006 and 2013 by upgrading the units and replacing the turbine runners. This increased the rated capacity of all 7 units to 45.11 MW (60,500 horsepower) at a design head of 15.6 m (51 ft). Based on rated conditions, the new installed capacity is 315.8 MW (423,500 horsepower). Figures 8 to 14 show the current nameplates for all 7 units.

Figure 15 shows the monthly power generation and Kelsey's powerhouse capacity from 1967 to date. As shown, prior to refurbishment, Kelsey GS regularly generated power near the 219.2 MW (294,000 horsepower) capacity from 1972 to 2007. Since refurbishment, power generation has been relatively higher than pre-refurbishment. However, the generation remains consistently below the new capacity limit of 315.8 MW (423,500 horsepower). 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.

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, Kelsey GS provides about 6% of the generating capacity in the Manitoba Hydro system. Kelsey GS, at 315.8 MW of installed capacity, is Manitoba Hydro's second smallest generating station on the Nelson River. Through unit upgrades and turbine runner replacement from 2006 to 2013 Kelsey GS has increased efficiency in producing electricity and can be expected to do so for decades to come.

Kelsey and Jenpeg GS's are unique to other generating stations along the Nelson River in the Manitoba Hydro system in that they supply electricity directly to a number of northern and Indigenous communities including the City of Thompson. The majority of power generated at other generating stations along the Nelson River is converted to direct current (DC) power and transmitted to southern Manitoba via the bi-pole transmission lines. Kelsey GS is also used to balance electrical supply and demand in northern Manitoba's alternating current (AC) system during periods when southern transmission is limited. Kelsey GS is financially viable as it results in a positive rate of return in a hydro system that is known for some of the lowest energy rates in Canada.

Finally, Kelsey 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 ensuring 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 maintains 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 performs routine inspections once per month for the embankment dams and bi-monthly for the concrete dams, including the spillway. Specialists from Manitoba Hydro's Generation Asset Management Division perform additional inspections of all dams annually.

Dam Safety Reviews (DSR) of generating stations and water control structures are undertaken on a prescribed basis. 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.

Hatch Ltd. performed the most recent DSR for Kelsey GS in 2014. Their report listed various recommendations which were assessed to determine an action plan, priority where applicable, and a suitable time frame for implementation. Several deficiency investigations are now complete, while the remaining items are prioritized within the appropriate work management system.

Manitoba Hydro maintains **Dam Safety Emergency Preparedness 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 **Kelsey Dam Safety Emergency Preparedness Plan** contains detailed information regarding the verification and classification of the emergency and contains communication notification and reporting procedures.

Manitoba Hydro updates notification charts in the emergency plans annually to reflect ongoing personnel and content change. Major revisions to the plans are currently underway and will include updated dam breach mapping and a new format that aligns with the latest CDA emergency management guidance.

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 Conservation and Climate (MCC) use the information in this report as a framework for discussions regarding future system operation and monitoring licence compliance.

MCC publishes the Annual Water Levels and Flows Compliance Reports on its website at https://www.gov.mb.ca/sd/water/water-power/index.html.

The **Kelsey 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 Kelsey Water Power Act Licence. MCC has approved this document and publishes it on its website at https://www.gov.mb.ca/sd/water/water-power/kelsey-generating-station/index.html.

A copy of the LIG can be found in Appendix E.

Community Involvement

Manitoba Hydro has a long history of interaction with the people living in the Licence area. Manitoba Hydro has worked with these communities, groups and associations on various adverse effects settlement agreement processes, programs and on-going communications in an effort to address impacts from hydroelectric development and to strengthen working relationships through reconciliation. These agreement processes include the **Northern Flood Agreement** (NFA) and related NFA claims process, **Comprehensive Implementation Agreements**, ongoing NFA implementation at Pimicikamak/Cross Lake Band of Indians (CLBOI), and other settlement agreements. In addition, there have been adverse effects settlement arrangements with trapping and fishing associations as well as individual settlements for personal property loss and damage.

One of Manitoba Hydro's foundational principles is respectful engagement with communities and stakeholders affected by its system and operations with a priority to respect and support Indigenous peoples in all aspects of its business. Manitoba Hydro also has a number of ongoing programs and communication initiatives that involve communities in the Licence area.

Manitoba Hydro works with communities on a variety of archaeological programs to address impacts from past development, including:

- Archaeological mitigation efforts for the Hunting River Burial Site (Nelson River) in collaboration with the Province, Pikwitonei Community Council and Pimicikamak/CLBOI;
- The **Sipiwesk Lake Archaeological Program** funded by Manitoba Hydro through the Cross Lake Action Plan; and
- A **System Wide Archaeological Project** for areas not covered by the other archaeological programs.

There are also programs in place for the re-internment of any exposed human remains and shoreline protection initiatives for a number of sites along developed waterways. As well, there are specific measures in certain settlement agreements to restore, maintain and protect culturally important sites. During 2019, all programs, including the ones mentioned above, will be combined under a **Manitoba Hydro Heritage Resources Management Plan**.

Manitoba Hydro operates a **Waterways Management Program** to support and promote the safety of people traveling on waterways affected by its operations. This includes:

- **Boat Patrol Program**: The program patrols affected waterways during open water season to reduce floating debris making them safer for users. Boat patrol workers are seasonal Manitoba Hydro or contract employees hired from northern communities.
- **Debris Management Program**: The program establishes priorities for debris clearing activities and includes a range of activities to enhance safety on impacted waterways. Annual program implementation is done through collaboration with local communities.
- **Safe Ice Trails Program**: Through this program, safe ice trails are installed and removed by seasonal contract workers, typically resource users hired from local communities.
- **Water Level Forecast Notice Program**: This program informs people living next to waterways affected by Manitoba Hydro's operations of projected water level and flow conditions. Water level forecasts are issued monthly to community leadership, broadcast on local radio in both Cree and English where possible, and updated daily on the Manitoba Hydro website. In addition to the monthly forecasts, spring and fall

water level and flow outlooks are provided to communities on the lower Nelson and lower Churchill rivers.

Manitoba Hydro is working with communities on a number of programs designed to support research and activities towards the recovery of sturgeon populations in the licence area:

- **Nelson River Sturgeon Board**: Funded by the Province of Manitoba and Manitoba Hydro, and including representation from local communities, the mandate of the Board is to provide for the subsistence and cultural needs of the communities and to provide for the preservation of declining Lake Sturgeon stock extending from the outlet of Lake Winnipeg to Kelsey GS.
- ***Kischi Sipi Namao**:* Established in 2013, this Committee includes representation from local communities, Manitoba Hydro and Manitoba Conservation and Climate. The Committee works to implement measures to protect and enhance sturgeon populations in the lower Nelson River from the Kelsey GS to Hudson Bay, as well as the Hayes, Gods and Echoing rivers and tributaries along the Nelson River that are important to these populations.

Manitoba Hydro has a range of programs and policies designed to encourage and enhance Indigenous representation in projects and the operational workforce, and to promote the participation of northern Indigenous business in construction and operations activities. As of December 31, 2018, approximately 49% of Manitoba Hydro workers in northern Manitoba identified as Indigenous. Manitoba Hydro's Northern Purchasing Policy promotes the participation of northern Indigenous businesses through information exchange, scoping initiatives, restricted tendering or negotiation and preferential prioritization of contract award.

To implement the various settlement agreements and ongoing programing, Manitoba Hydro is in regular contact with many of the communities in the Licence area. Upon request, Manitoba Hydro also participated in the Section 35 Crown Consultations, led by the Province of Manitoba, for the Kelsey re-runnering project from 2006 to 2013. Additionally, due to their significant interest in the project, Manitoba Hydro met with York Factory First Nation numerous times to provide updates to the community on the re-runnering project and has provided additional information when requested.

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 monitoring sites upstream and downstream from Kelsey Generating Station including on Sipiwesk Lake, the Nelson River downstream from Sipiwesk Lake and on Split Lake. Monitoring at these sites has helped characterize the fish community composition, water quality, and other aquatic ecosystem conditions along the Nelson River. More information about CAMP is available on the website www.campmb.com.

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 has 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 Kelsey 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 waste water treatment plants, lagoons and landfills.

Manitoba Hydro completed the Kelsey Re-runnering Project between 2006 and 2013. It involved upgrading the units and replacing the turbine runners to make the generating station more efficient and increase the capacity of each unit. The Environmental Approvals Branch reviewed the Kelsey Re-runnering Project and determined that an EA licence was not required. In the event that Kelsey would undergo major changes to the existing project configuration, Manitoba Hydro would be required to seek an EA Licence. The Keeyask Generating Station is a recent example of Manitoba Hydro and its four Manitoba First Nations partners – Tataskweyak Cree Nation and War Lake First Nation (acting as the Cree Nation Partners), York Factory First Nation, and Fox Lake Cree Nation requiring an Environmental Act Licence (No. 3107) for new works on the Nelson 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 conforms to the ISO 14001 Standard requirements. The EMS is a collection of policies, guidelines, and plans that help the Corporation to manage its environmental risks. It is used to identify environmental activities and impacts, set goals to manage them, implement plans and

processes, and evaluate performance. The Manitoba Hydro EMS follows the Plan, Do, Check, Act (PDCA) Model which is intended to drive continual improvement.

The Manitoba Hydro EMS provides value for the environment, the Corporation itself and interested parties. Consistent with the environmental policy, the intended outcomes of the EMS include:

- Enhancement of environmental performance;
- Fulfillment of compliance obligations; and
- Achievement of environmental objectives.

Integrated Watershed Management Plan

The Province of Manitoba defines the Integrated Watershed Management Plan (IWMP) process as a cooperative effort by watershed residents, government and other stakeholders to create a long term plan to manage land, water and related resources on a watershed basis. Manitoba Hydro plans to participate when the Province begins an IWMP process that covers the Nelson River watershed. More information on the IWMP process, and existing planning and progress reports are available at:
https://www.gov.mb.ca/sd/water/watershed/iwmp/index.html

Public Safety

In 2009 Manitoba Hydro introduced a **Public Water Safety Around Dams** (PWSD) program. As part of the program, Manitoba Hydro is developing a site specific PWSD Management Plan for each of its generating stations and control structures. These plans address public water safety issues at the facilities by identifying hazards to the public created by the presence and operation of a Manitoba Hydro facility and documenting the safety measures required in response.

Manitoba Hydro maintains a **PWSD Management Plan** for the Kelsey GS. As part of the development of the plan, KGS ACRES completed a public safety audit of the Kelsey site in October 2011.

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

Division 2 – Renewal Licence Request

Renewal Licence Term

Manitoba Hydro is committed to the safe and productive long term operation of the Kelsey GS and requests a 50 year term for this 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.

Renewal Licence Capacity

Manitoba Hydro requests that the Renewal Licence reflects the current installed nameplate capacity of 423,500 horsepower which is equivalent to approximately 315.8 MW.

The 1966 Final Licence provides for an installed capacity of 210,000 horsepower through 5 vertical turbine units. This Final Licence was amended on April 29, 1971 and on April 8, 1983 when units 6 and 7 were added, bringing the total capacity to 294,000 horsepower. The Final Licence was also amended by seven Short-Term Amending Licences issued to authorize the increased capacity from the Kelsey re-runnering project to December 31, 2014.

Renewal Licence Area

The proposed Renewal Licence area (land within the severance line), shown in Figures 16, is similar to the Final Licence area. The main change is a reduction in encumbered land made possible by better mapping technology, higher resolution aerial imagery, availability of post-project water level data and updated National Topographic System (NTS) mapping from Natural Resources Canada.

The Water Power Act allocates Crown lands required in connection with the development of water power. A 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 Renewal Licence. A new severance line drawing that reflects all approved changes to the Final Licence area as defined by a severance line will be submitted separately from this report under Manitoba Hydro drawing file 1-00111-PE-07311-0001 and Manitoba file number WPL-1-00111-PE-07311-0001.

The 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 Final Licence and Short Term Extension Licences. The 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 to interview site staff regarding present and future land use, and to confirm the proposed severance line location. Manitoba Conservation and Climate 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 nearest available legal survey information was chosen to define the Renewal Licence severance line. Where legal survey plans did not exist, the severance line was defined by the nearest legal subdivision line of the Dominion Government Survey System. The resulting severance line is therefore a combination of legal surveys obtained from Land Titles Office and the section grid defined by the Dominion Government Survey System and is entirely legally definable.

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,
- National Topographic System (NTS) mapping from Natural Resources Canada,
- a site visit to view existing project components and to interview site staff regarding present and future land use, and
- aerial imagery from 2011 and satellite imagery where the 2011 aerial imagery was unavailable.

Division 3 – Compliance with Final Licence and Regulations

This division of the report provides detailed supporting information that demonstrates the fulfillment of the requirements of the Final Licence, the Short Term Extension Licence (STEL) and Manitoba Regulation 25/88R pursuant to The Water Power Act (the Regulation). Manitoba issued the Final Licence in 1966 and it may contain references that are obsolete.

Observance of Final Licence Terms

1. The Licensee may divert and use continuously for the development of power at the said Kelsey Site all the water of the Nelson River which may be flowing at the said Site from time to time during the term of this Final 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 operates the Kelsey GS for reliable power generation as part of the integrated power system while considering social and environmental effects. The Minister or other authorized person has issued no specific orders other than those defined by the various licences issued under The Water Power Act. Observance of the maximum operating limit is provided in Term 4 of the Final Licence.

2. The undertaking authorized to be maintained and operated by the Licensee under this Final License shall comprise the following: at the north end of an intake channel cut across neck of land on the west bank of the river, a reinforced concrete powerhouse with five vertical turbines each of 42,000 horsepower capacity (which may ultimately be extended to 10 vertical turbines subject to such extension being authorized by-separate license in accordance with Section 67 of the Regulations) and a concrete structure completed in which a sixth vertical turbine may be installed in the future; at the east end of this powerhouse, timber crib; a concrete dam with

sluicegates on a channel cut across neck of land along the east bank of the river; a rockfill dam across the main river channel; a concrete headblock section and earth and sand dykes; a standard gauge railway connecting the power site with the Hudson Bay Railway at Pitt Siding; a transmission line from the powerhouse to Thompson; and all plant machinery and equipment for the complete development, generation and transmission of the electric power available at the said Kelsey Site, all as shown by plans and descriptions thereof filed, in the office of the Director at Winnipeg, as follows:

Manitoba Water Control and Conservation Branch File Number	Licensee's File Number	Description
51-4-1029	724-D-1003 (Rev. 3)	General Plan of Powerhouse Sluiceway and Dam
51-4-3002	111-R-413 (Rev. 0)	Plan Showing Location of Structures and Cross Sections of Structures
51-4-3003	724-C-2006 (Rev. 2)	Sluiceway and Wingwall Plan Elevation and Sections General Arrangement
51-4-3004	724-C-3211 (Rev. 3)	Powerhouse Plan Above Elevation 586'-6" Units 3, 4, and 5 Architectural Arrangement
51-4-3005	724-C-3213 (Rev. 2)	Powerhouse Plan of Powerhouse Roof Units 3, 4, and 5 Architectural Arrangement
51-4-3009	724-C-3210 (Rev. 1)	Powerhouse Plan Above Elevation 586'6" Service Area and Units 1 and 2 Architectural Arrangement
51-4-3011	724-C-3216 (Rev. 1)	Powerhouse Cross Section at C.L. Of Main Units Architectural Arrangement
51-4-3010	724-C-3212 (Rev. 1)	Powerhouse Plan of Powerhouse Roof Units 1 and 2 Architectural Arrangement
51-4-3012	724-C-3219 (Rev. 2)	Powerhouse Longitudinal Section Units 3, 4, and 5 Architectural Arrangement
51-4-3006	724-C-3215 (Rev. 1)	Powerhouse Cross Section at C.L. of House Units

		Architectural Arrangement
51-4-3007	724-C-3218 (Rev. 1)	Powerhouse Longitudinal Section Service Area and Units 1 and 2 Architectural Arrangement
51-4-3008	724-C-5002 (Rev. 4)	Plan and Typical Section of Dykes No. 2 East and No. 2 West
51-4-3014	0111-E-2009 (Rev. 3)	Powerhouse Roof Plan Units 5, 6, and 7 Architectural Arrangement
51-4-3016	0111-E-1013 (Rev. 2)	Powerhouse Longitudinal Sections Units 5, 6, and 7 Architectural Arrangement
51-4-3015	0111-E-1011 (Rev. 2)	Powerhouse Cross Section of C.L. of Main Units Architectural Arrangement
51-4-3013	0111-E-1006 (Rev. 2)	Powerhouse Plan at Elevation 515' – 0" Units 5, 6, and 7 Architectural Arrangement
51-4-3017 (sht. 1)	0111-E-2223 Sht. 1 (Rev. 4)	Forebay Bulkhead Construction Joints and Pour Quantities
51-4-3017 (Sht. 2)	0111-E-2223 Sht. 2 (Rev. 3)	Forebay Bulkhead Construction Joints and Pour Quantities

*Note: The list of plans includes those from the 1971 Amending Licence

Observance

Manitoba Hydro constructed the Undertaking as described in the plans listed above. The Final Licence was amended on April 29, 1971 and on April 8, 1983 to account for the addition of units 6 and 7 to the powerhouse. The Final Licence was also amended by seven Short-Term Amending Licences issued to authorize the increased capacity from the Kelsey re-runnering project to December 31, 2014. Kelsey GS licences under The Water Power Act are included in Appendix B.

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. - All those parts of the following lands not covered by the waters of the Nelson River as shown outlined in green on Record Plan 51-4-1032

filed in the office of the Director at Winnipeg and which is the Licensee's No. 0111 R-0207 (Rev. 0);

(i) Sections Nine (9), Ten (10), Eleven (11), Thirteen (13) and Twenty Four (24) in Township Eighty-one (81) and Range Six (6) East of the Principal Meridian in Manitoba.

(ii) Sections Eighteen (18) and Nineteen (19) in Township Eighty-one (81) and Range Seven (7) East of the Principal Meridian in Manitoba.

(b) Lands of the Province covered by water required for main diverting works, powerhouses, etc. - All those parts of the North Half of Section Twenty-four (24), in Township Eighty-one (81) and Range Six (6) East of the Principal Meridian in Manitoba covered by the waters of the Nelson River as shown outlined in red on the said Plan No, 51-4-1032.

(c) Lands of the Province required only to be flooded in connection with the storage or pondage of water. - All those portions of the following Townships shown outlined in brown on Record Plan No. 51-4-1033 filed in the office of the Director in Winnipeg and which is the Licensee's No. 0111-E-0206 (Rev.0), excepting thereout all those lands heretofore described as required for works:

(i) Townships Seventy-six (76) and Seventy-seven (77) in Range Nine (9) East of the Principal Meridian in Manitoba.

(ii) Townships Seventy-four (74), Seventy-five (75), Seventy-six (76) and Seventy-seven (77) in Range (8) East of the Principal Meridian in Manitoba.

(iii) Townships Seventy-three (73), Seventy-four (74), Seventy-five (75), Seventy-six (76), Eighty (80) and Eighty-one (81) in Range Seven (7) East of the Principal Meridian in Manitoba.

(iv) Townships Seventy-three (73), Seventy-four (74), Seventy-five (75), Seventy-six (76), Seventy-seven (77), Seventy-eight (78), Seventy-nine (79), Eighty (80) and Eighty-one (81) in Range Six (6) East of the Principal Meridian in Manitoba.

(v) Townships Seventy-two (72), Seventy-three (73), Seventy-four (74), Seventy-five (75), Seventy-six (76), Seventy-seven (77), Seventy-eight (78) and Eighty (80) in Range Five (5) East of the Principal Meridian in Manitoba.

(vi) Townships Seventy-two (72), Seventy-three (73), Seventy-four (74), Seventy-five (75) and Seventy-six (76) in Range Four (4) East of the Principal Meridian in Manitoba.

(vii) Township Seventy-two (72) in Range Three (3) East of the Principal Meridian in Manitoba.

(viii) Townships Sixty-nine (69), Seventy (70), Seventy-one (71), and seventy-two (72) in Range Two (2) East of the Principal Meridian in Manitoba.

(ix) Townships Sixty-nine (69), Seventy (70), Seventy-one (71) and Seventy-two (72) in Range One (1) East of the Principal Meridian in Manitoba.

(x) Townships Sixty-nine (69), Seventy (70), Seventy-one (71) and Seventy-two (72) in Range One (1) West of the Principal Meridian in Manitoba.
(xi) Townships Sixty-nine (69), Seventy (70) and Seventy-one (71) in Range Two (2) West of the Principal Meridian in Manitoba.
(xii) Townships Sixty-eight (68), Sixty-nine (69) and. Seventy (70) in Range Three (3) West of the Principal Meridian in Manitoba.
(xiii) Townships Sixty-eight (68) and Sixty-nine (69) in Range Four (4) West of the Principal Meridian in Manitoba.
(xiv) Townships Sixty-eight (68) and Sixty-nine (69) in Range Five (5) West of the Principal Meridian in Manitoba.
(xv) Townships Sixty-seven (67), Sixty-eight (68) and Sixty-nine (69) in Range Six (6) West of the Principal Meridian in Manitoba.
(xvi) Township Sixty-eight (68) in Range Seven (7) West of the Principal Meridian in Manitoba.

(d) Lands of the Province required only for rights of way for transmission lines and railway - All those portions of the following Townships required as shown on plans entered and filed in the Neepawa Land Titles Office as Nos. 4640, 4643, 4647, and 758, copies of which are filed in the office of the Director at Winnipeg:

(i) Townships Eighty (80) and Eighty-one (81) in Range Eight (8) East of the Principal Meridian in Manitoba.
(ii) Township Eighty-one (81) in Range Seven (7) East of the Principal Meridian in Manitoba.
(iii) Township Eighty-one (81) in Range Six (6) East of the Principal Meridian in Manitoba.
(iv) Township Eighty-one (81) in Range Five (5) East of the Principal Meridian in Manitoba.
(v) Township Eighty-one (81) in Range Four (4) East of the Principal Meridian in Manitoba.
(vi) Townships Eighty (80) and Eighty-one (81) in Range Three (3) East of the Principal Meridian in Manitoba.
(vii) Townships Eighty (80) and Eighty-one (81) in Range Two (2) East of the Principal Meridian in Manitoba.
(viii) Township Eighty (80) in Range One (1) East of the Principal Meridian in Manitoba.
(ix) Townships Seventy-nine (79) and Eighty (80) in Range One (1) West of the Principal Meridian in Manitoba.
(x) Townships Seventy-eight (78) and Seventy-nine (79) in Range Two (2) West of the Principal Meridian in Manitoba.
(xi) Township Seventy-eight (78) in Range Three (3) West of the Principal Meridian in Manitoba.

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. The drawing showing the refined line, if approved, will form part of the Renewal Licence and is shown on Manitoba drawing WPL-1-00111-PE-07311-0001 (Manitoba Hydro drawing No. 1-00111-PE-07311-0001).

4. The Licensee shall not raise the headwater of the development to an elevation higher than 605.0 above mean sea level, Canadian Geodetic Datum, 1929 Adjustment. A higher elevation may be created only with prior written permission by the Director and in accordance with Section 72 of the Regulations.

Observance

The Kelsey 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. Manitoba Hydro reports compliance with Kelsey Water Power Act Licence against the hourly forebay water level measured at the Kelsey Generating Station. Manitoba Conservation and Climate (MCC) approved the Kelsey LIG on August 27, 2018. The letter of approval and LIG are shown in Appendix E which begins on page 106.

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 605.0 ft, annual compliance from 2007 to 2018 has ranged from 91.86% to 99.98% with an average annual compliance of 99.16% of the time (Table 3). MCC publishes all 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

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*
2018	8760	14	99.84	0
2017	8760	4	99.95	0
2016	8784	11	99.87	1
2015	8760	2	99.98	0

2014	8760	11	99.87	1
2013	8760	4	99.95	1
2012	8784	7	99.92	1
2011	8760	2	99.98	1
2010	8760	2	99.98	1
2009	8760	14	99.84	0
2008	8748	103	98.82	1
2007	8760	713	91.86	22

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

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.

Table 4 summarizes forebay water level compliance on a daily basis and shows the relative improvement in compliance by decade since the Final Licence came into effect. A chart of daily forebay water levels for the same time periods is provided in Figure 17. As shown, water level compliance improved in the 1980's and continued to exceed 98% for three decades.

Table 4 Historic Daily Average Forebay Water Level Compliance by Decade

Time Period	Variable	Days Exceeding Limit	Total Number of Days	% Compliance
2010-2019	Mean Daily Water Level	0	3652	100 %
2000-2009	Mean Daily Water Level	7	3653	99.8 %
1990-1999	Mean Daily Water Level	41	3652	98.9 %
1980-1989	Mean Daily Water Level	267	3653	92.7 %
1967-1979	Mean Daily Water Level	1034	4534	77.2 %

Manitoba Hydro's compliance monitoring program and increased operator experience/training contributed to improving performance. Also, modern water level measurements and instrumentation has significantly increased information accuracy and speed. A computer-based control system installed in 1984 in the System Control Centre in Winnipeg enabled operators to monitor generating stations remotely. These programs and technologies have led to improvement of forebay water level compliance.

5. In accordance with Section 4.5 of the Regulations, the term of this Final license shall be fifty (50) years from and after the first day of January, A.D., 1965, 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 each and every year during the term of this final license the licensee shall pay an annual rental in advance of Five Hundred dollars ($500.00) for the use and occupation of lands of the Province described in Article 3, parts (a) to (c) inclusive, hereof. On the second day of January in each and every year during the said term the licensee shall in addition pay an annual rental in advance of One Dollar ($1.00) per acre for the use and occupation of lands of the Province described in Article 3, part (d) hereof and not lying within the Local Government District of Mystery Lake.

Observance
Manitoba Hydro paid land rentals on a fiscal year basis (before April 1 of each year) from 1966 to 1991. This was a result of invoicing being done on a fiscal year basis and an assumption of a 60-day grace period as defined by article 48(3.5)(b) regarding water rentals. In an October 30, 1991 letter, the Director advised Manitoba Hydro that land rentals would be from that time onward invoiced in November for payment on the first normal working day of the following January. Manitoba Hydro has complied with this requirement. Manitoba adjusted land rental rates over time to reflect more up to date land values with changes coming in effect in 1996 and 2011. Manitoba Hydro has made payments in accordance with rates dictated by the Regulation of the day. 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 then land rentals are payable on April 1. Copies of the 1991 and 1996 letters are shown in Appendix D on pages 97 and 99 respectively.

7. The Licensee shall also pay an annual rental during the term of this Final License 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 rentals in the first 20 years of the term of this License shall be the greater of:
        (i) an annual rental of fifty (50) cents per installed horsepower;

(ii) an annual rental of one dollar and twenty-five cents ($1.25) per horsepower year output.

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

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 then 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 on page 98.

8. The Severance line as defined in Section 1 of the Regulations shall be as shown on Record Plan No; 51-4-1027 filed in the office of the Director, and which is the Licensee's Drawing No. 111-E-396 (Rev. 2).

Observance

This provision requires no observance statement by the licensee.

9. All record plans filed with the said Director and referred to in this Final License are incorporated herewith and made a part hereof.

Observance

This provision requires no observance statement by the licensee.

10. This Final License 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 Current Short Term Extension Licence (STEL) Terms

1. This Short-term Extension Licence shall apply from January 1, 2010 to an including January 1, 2025.

Observance
This provision requires no observance statement by the licensee. A copy of the Short-term Extension Licence is provided in Appendix B which begins on page 56.

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 paragraphs 3 (a), (b), (c) and (d) of the Final 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 Final 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. Final Licence Term 7 outlines water rental payments.

4. The terms and conditions set out in the Final Licence dated March 10, 1966 as amended by the First Amending Licence dated April 29, 1971, and the Second Amending Licence dated the April 8, 1983 apply as if set out specifically in this Second Short-Term Extension Licence, except:
   (a) in the Final Licence dated March 10, 1966 under Article 2, "42,000 horsepower capacity" is replaced by "60,500 horsepower capacity"
   (b) in the First Licence Amending the Final Licence dated April 29, 1971 and Second Amending Licence dated April 8, 1983 all instances of "42,000 horsepower capacity" is replaced by "60,500 horsepower capacity" and all instances of "forty-two thousand (42,000) horsepower" is replaced by "sixty thousand five hundred (60,500) horsepower"

Observance
This provision requires no observance statement by the licensee.

5. 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 Conservation and Climate 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 describing 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 submitted the application to renew the Final Licence on December 17th, 2010. The four to six year window of application as defined by Section 46(1) spanned January 1, 2008 to December 31, 2010. Manitoba Water Stewardship responded on January 7, 2011. Copies of the letters of application and provincial response are attached in Appendix A which begins on page 53.

> 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 the beginning of project operation at the rate in effect at the time. Details provided in observance of Final Licence Term 6 on page 22.

> 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, multiplies 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 annual and monthly water rental payments in accordance with the Final Licence Term 7 or at the rate in effect at the time. Details provided in observance of Final Licence Term 7 on page 23.

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 Final 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 then, all data required for the determination of water rentals for the Kelsey GS, has been submitted on a monthly basis. Appendix D provides a copy of the February 29, 1996 letter on page 98.

Time of payment of rentals

48(3.5) *The rent for each rental period is payable*
in the case of land use rental, on January 2 of the rental period; and
in the case of water use rental, within 60 days after receipt of the director's rental statement for the year for the rental period.

M.R. 168/95

Observance

Requisite payments have been provided as follows:

(a) Manitoba Hydro paid land use rentals on a fiscal year basis during the term of the Final Licence. 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 Final Licence Term 6 on page 22.

(b) Manitoba Hydro paid water use rentals in arrears on a fiscal year basis and within 60 days of the director's rental statement. Details provided in observance of Final Licence Term 7 on page 23.

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 Kelsey 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 implements shoreline protection measures for a number of sites along developed waterways as the result of obligations outlined in settlement and easement agreements including specific measures to restore, maintain and protect culturally important sites.

Manitoba Hydro considers safety of its staff and the public at Manitoba Hydro facilities important. As such, Manitoba Hydro implements Manitoba Hydro's Public Water Safety Around Dams Program at Kelsey 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 Manitoba Hydro's 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. A map showing the existing structures currently on site is included on sheet 7 of the severance

line drawing, Manitoba Hydro drawing file 1-00111-PE-07311-0001, that will be submitted separately from this report.

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 the issuance of the Final Licence in 1966, 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 Final 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 Kelsey are technologically modern and designed according to appropriate engineering standards. 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 2008-2018 beginning on page 90.

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

Observance

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

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

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)

Kelsey 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 generating station 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. On an annual basis, Manitoba Hydro submits a water levels and flows report to the province which the province uses for licence compliance monitoring.

Change in undertaking

68 *If a licensee desires to develop, sell, use or dispose of any greater quantity of power than authorized by his or her licence, whether such increased disposal of power does or does not necessitate any addition to or alteration in the works, or desires to use or dispose of any power in connection with his undertaking in a manner or for a purpose other than as provided in such licence, the licensee must first apply for an interim licence authorizing the construction of the works or for a Final Licence authorizing such additional development, sale, use or disposal or authorizing such use or disposal in such other manner or for such other purpose, as the case may be.*

Observance

As described in Division 2, Manitoba Hydro increased the capacity at Kelsey with refurbished units between 2006 and 2013. Manitoba Hydro notified the province about the Kelsey Re-runnering Project in a November 18, 2002 letter and provided further information and a proposed schedule in a subsequent letter on March 25, 2004. Copies of the 2002 and 2004 letters are included in Appendix D on pages 101 and 102. Manitoba Hydro requested a Third Amending Licence in 2010 to authorize the increased capacity from the Kelsey re-runnering project. A copy of the 2010 letter is shown in Appendix D on page 104. Rather than issuing a Third Amending Licence, Manitoba instead opted to issue a series of Short-Term Amending Licences which are included in Appendix B.

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 generating station 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 Kelsey GS.

Observance of Final Licence Term 4 pertaining to a maximum water level limit is addressed on page 20.

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. It does not submit financial information specific to Kelsey 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/ar/

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 2018-2019 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, 2019, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards".

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 (formerly the Navigation Protection Act (NPA) and the Navigable Waters Protection Act (NWPA)), as well as all provincial statutes and regulations.

Kelsey received a NWPA licence on September 4, 1957.

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 Final Licence on October 30, 2014 in accordance with Section 92 of the Water Power Regulation, Manitoba Regulation 25/88R of The Water Power Act. Manitoba Conservation and Water Stewardship issued a Short Term Extension Licence on December 12, 2014. It applied from January 1, 2015 to and including January 1, 2020. Manitoba Hydro then requested to extend the Final Licence for a second time on June 19, 2019. Manitoba Conservation and Climate issued a Second Short Term Extension Licence on December 19, 2019 for five years. It applies from January 1, 2020 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 Conservation and Climate renewed the Kelsey Falls Short-Term Extension Licence on December 19, 2019 for five years. The Second Short-Term Extension Licence applies from January 1, 2020 to and including January 1, 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 Kelsey GS in accordance with the Second Short Term Extension Licence and the terms of the expired Final Licence (1966) for the development of water power at the Kelsey Site on the Nelson River. Manitoba Hydro operates and maintains the generating station and associated structures based on the Canadian Dam Association Dam Safety Guidelines. Manitoba Hydro optimizes operation of the Kelsey GS to produce energy for the benefit of all Manitobans. Kelsey GS continues to be integral to the overall system energy supply. Manitoba Hydro submits this report to Manitoba Conservation and Climate to provide supporting information in the decision to issue a Renewal Licence under the Water Power Act for another set term as specified by the Minister.

Figures

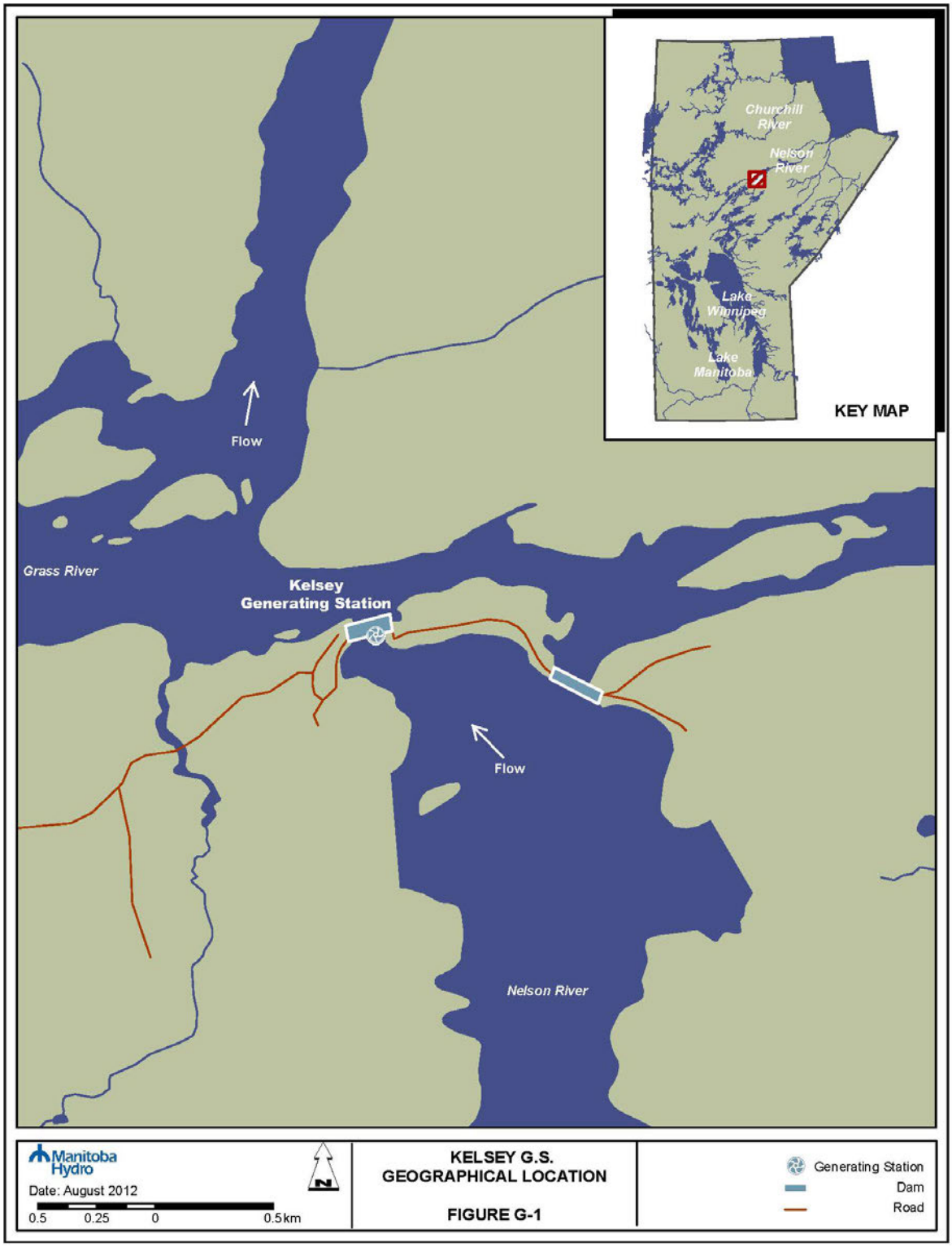


Figure 1 Geographical Location of Kelsey GS

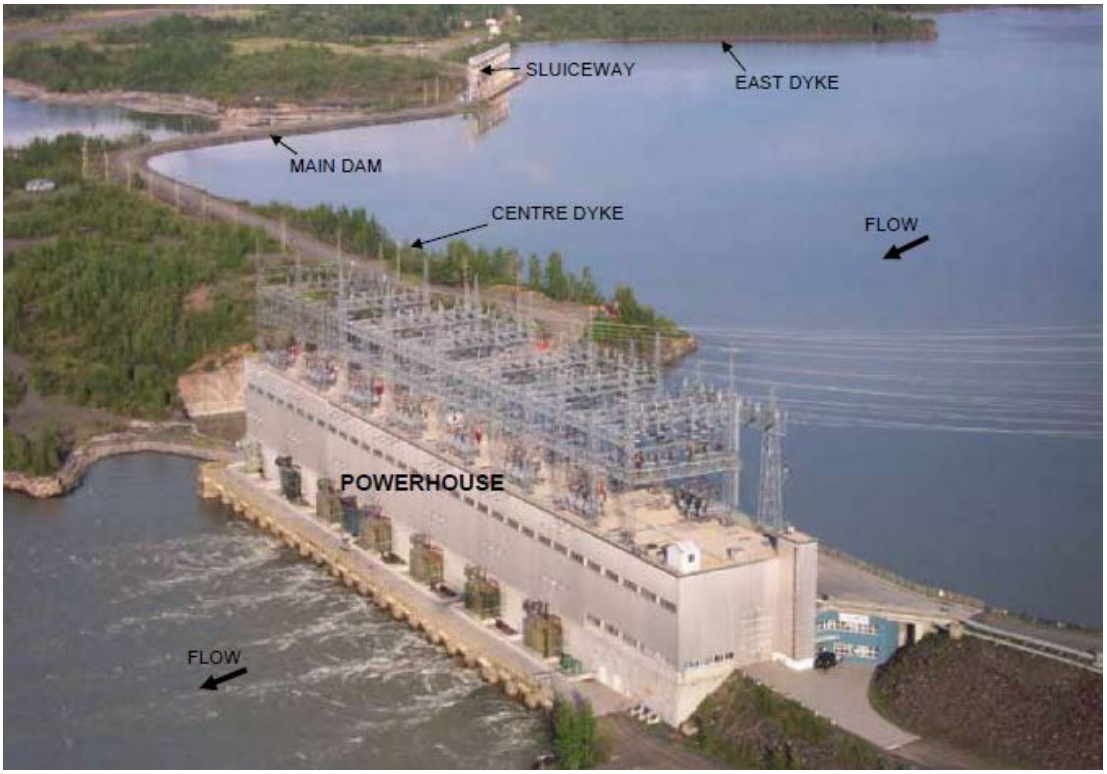


Figure 2 Photograph of Kelsey GS

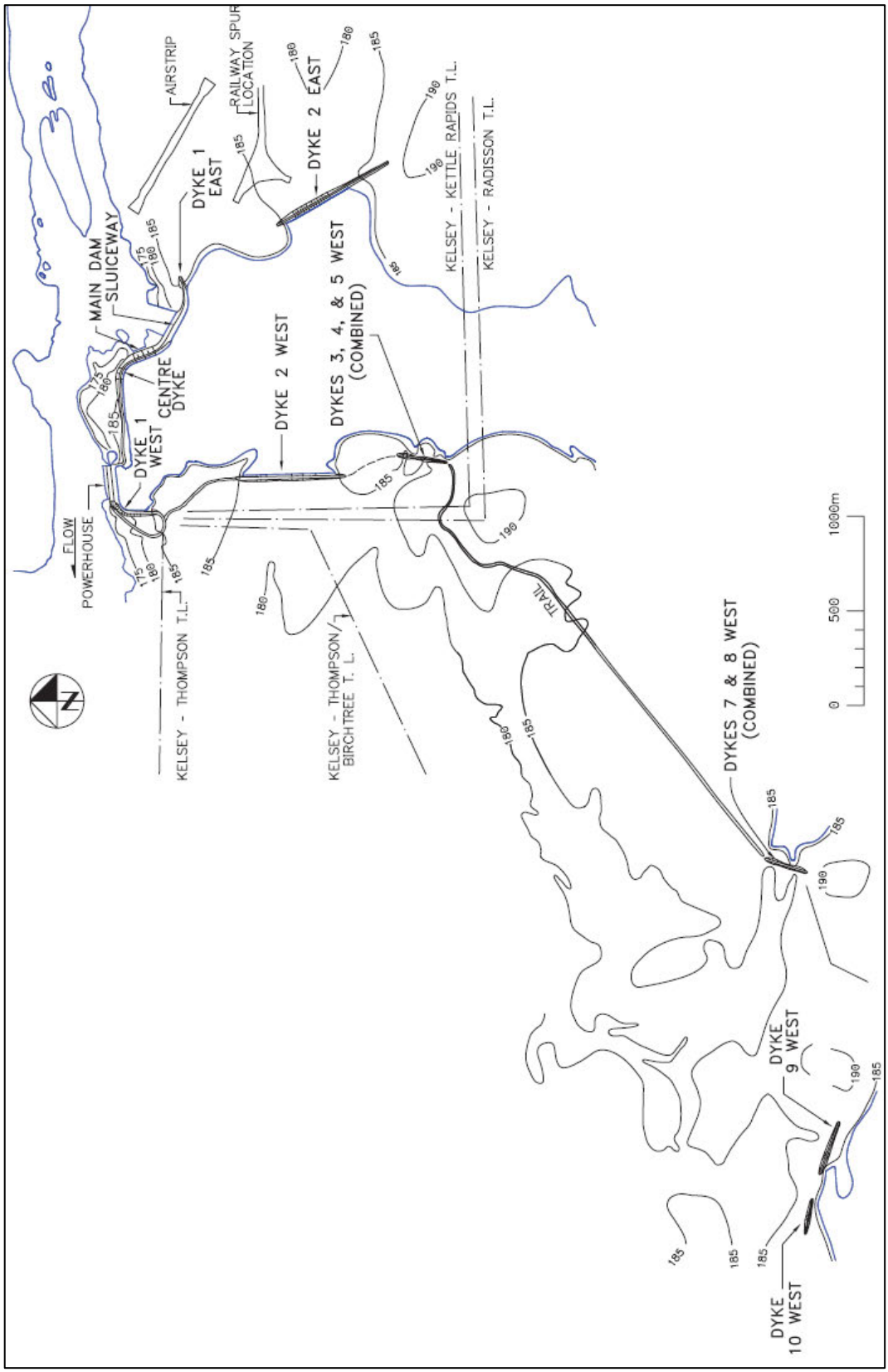


Figure 3 General Arrangement of Kelsey GS

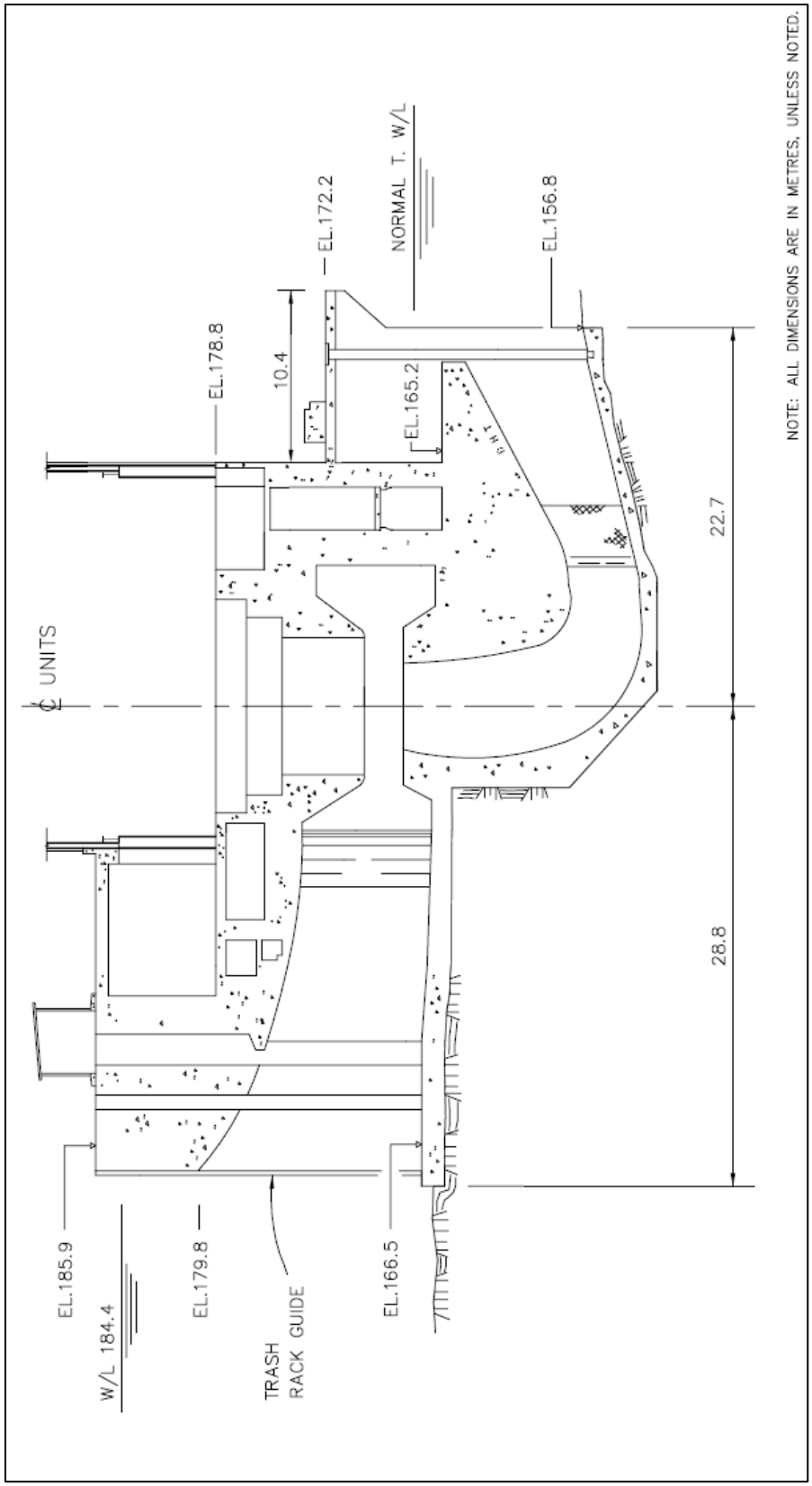


Figure 4 Kelsey GS Powerhouse Cross Section

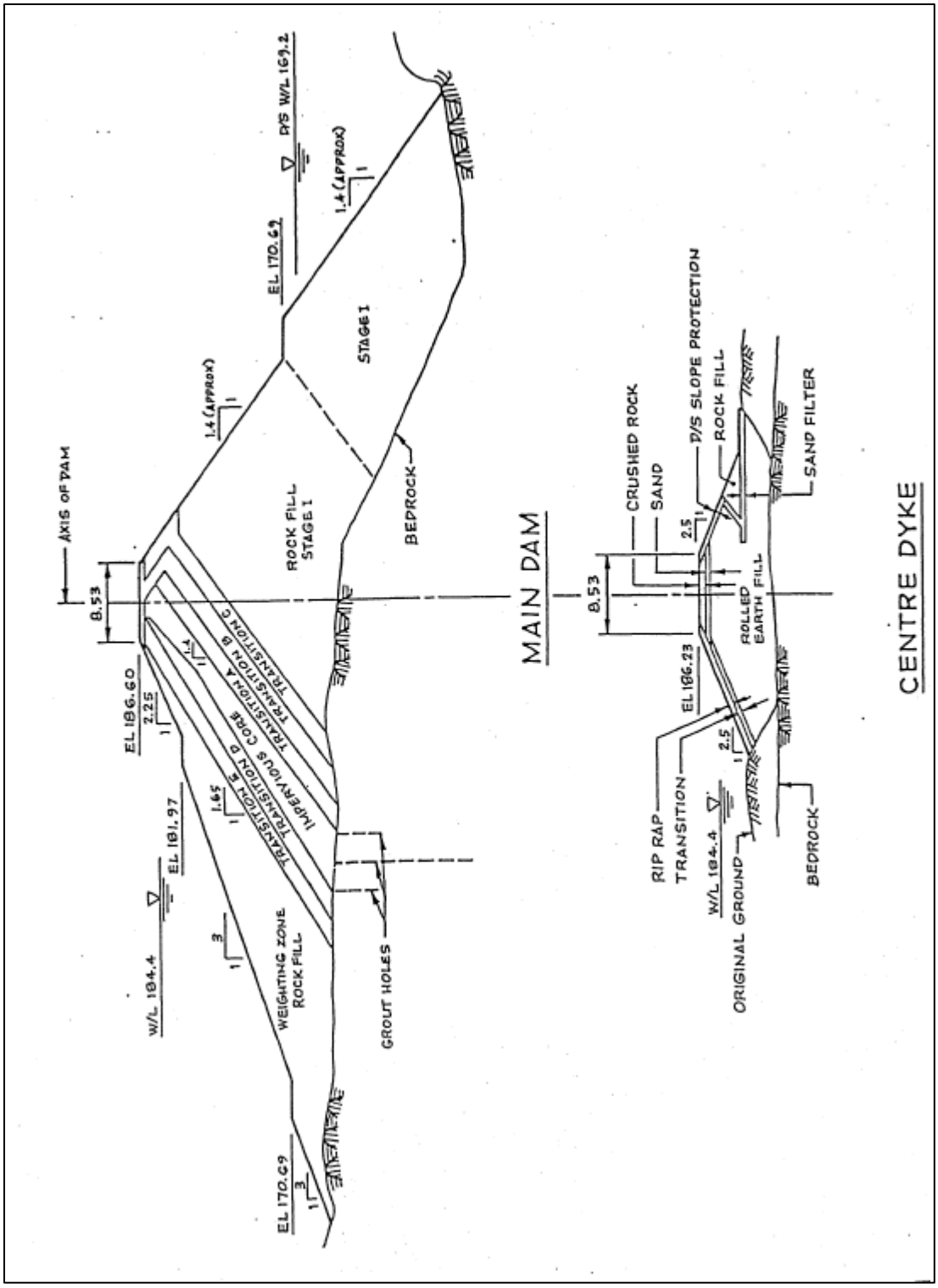


Figure 5 Kelsey GS Cross Section of Main Dam and Centre Dyke

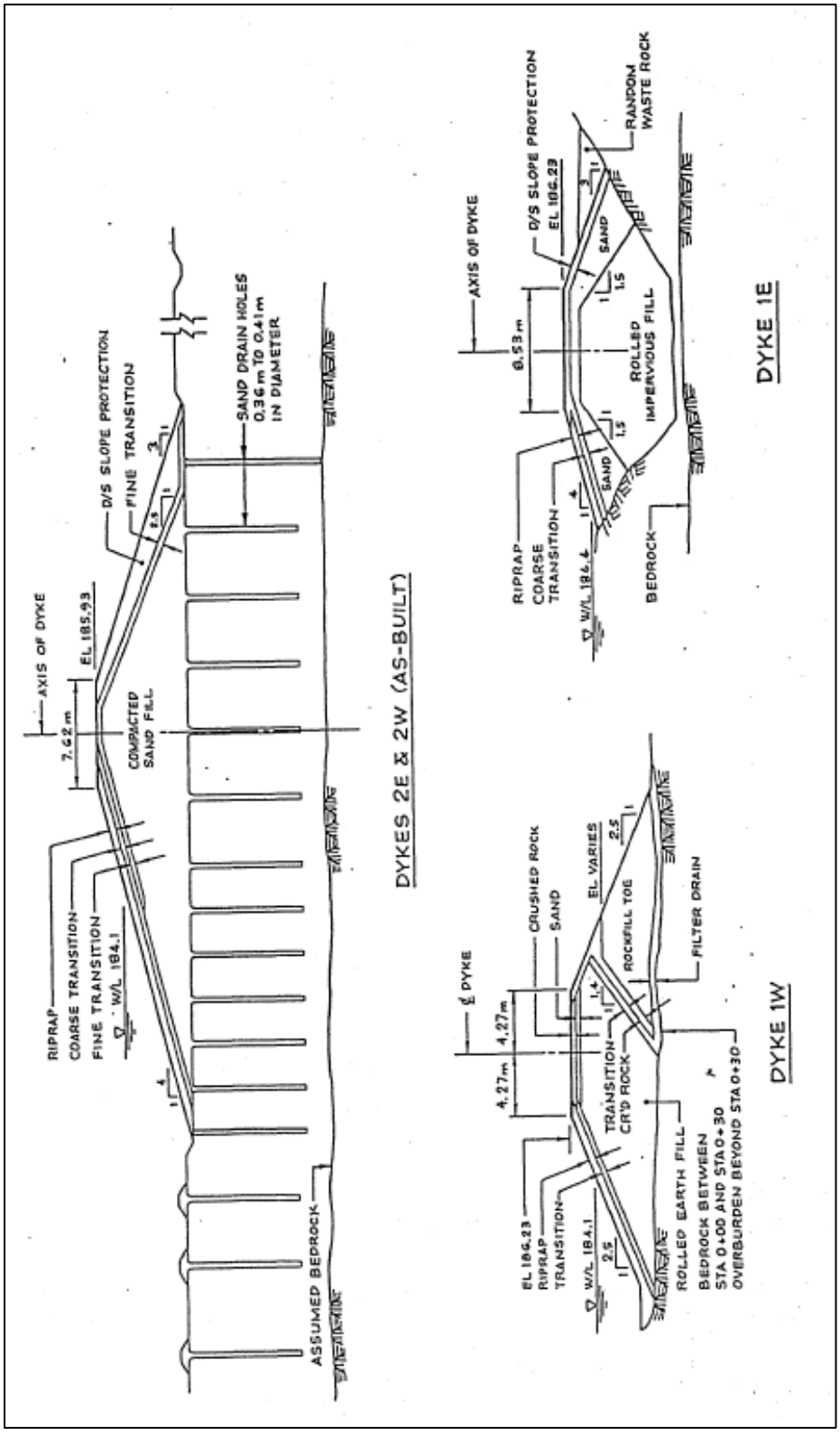


Figure 6 Kelsey GS Cross Section of Dykes 1E, 1W, 2E, and 2W

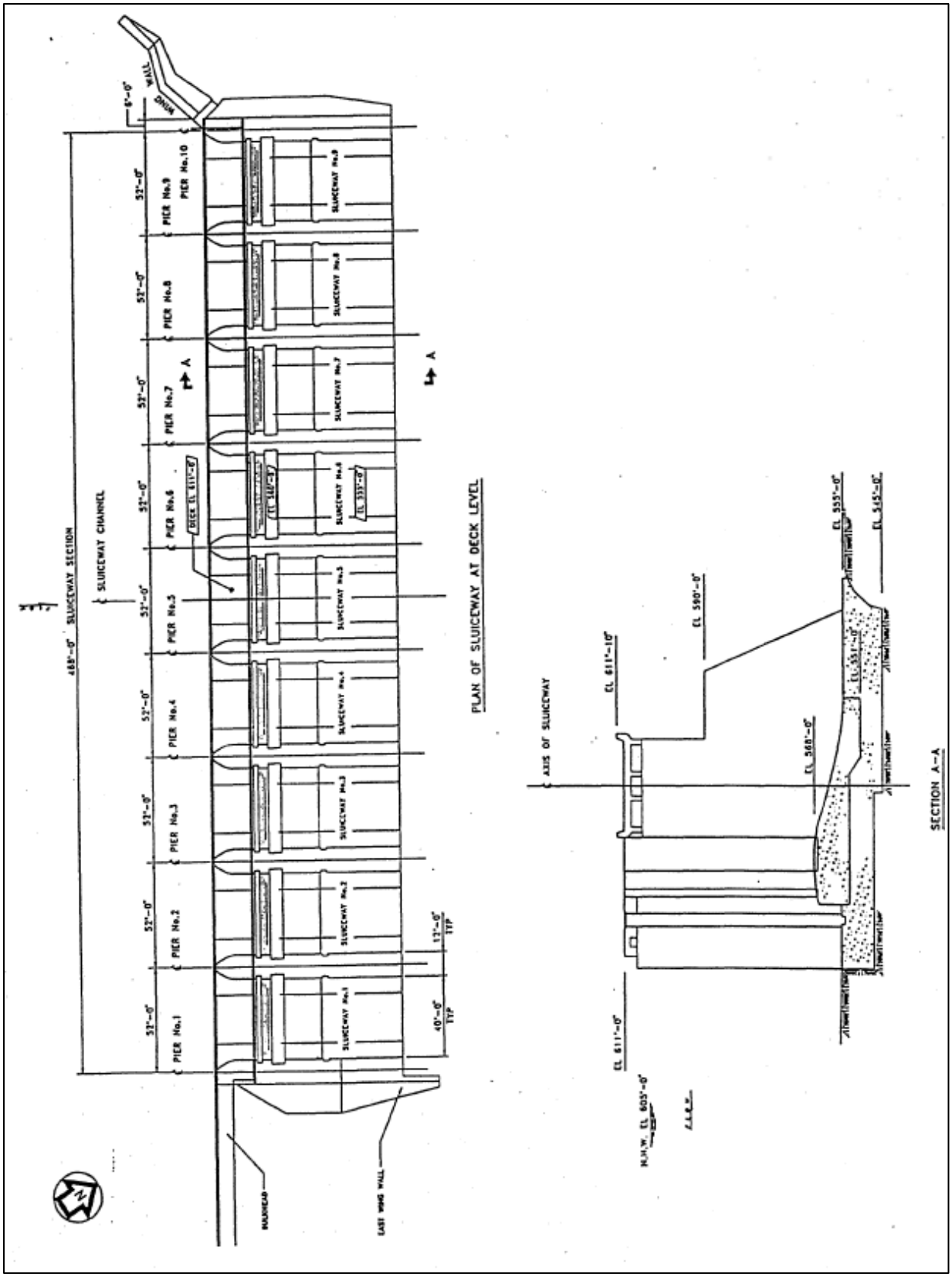


Figure 7 Kelsey GS Spillway Plan and Section

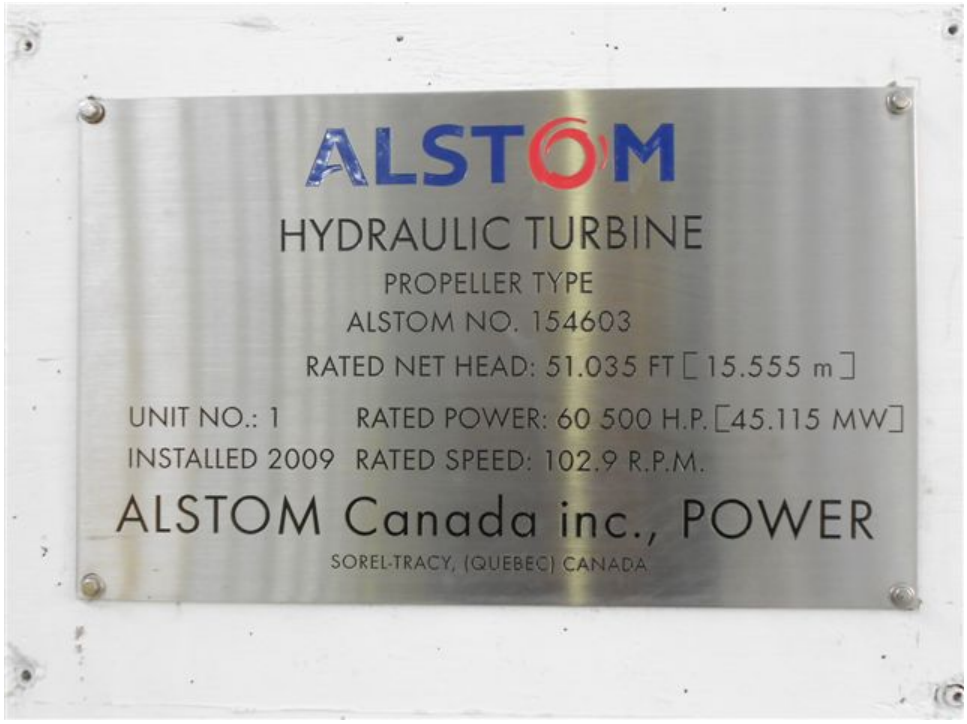


Figure 8 Unit No. 1 Nameplate Post Refurbishment, 2009

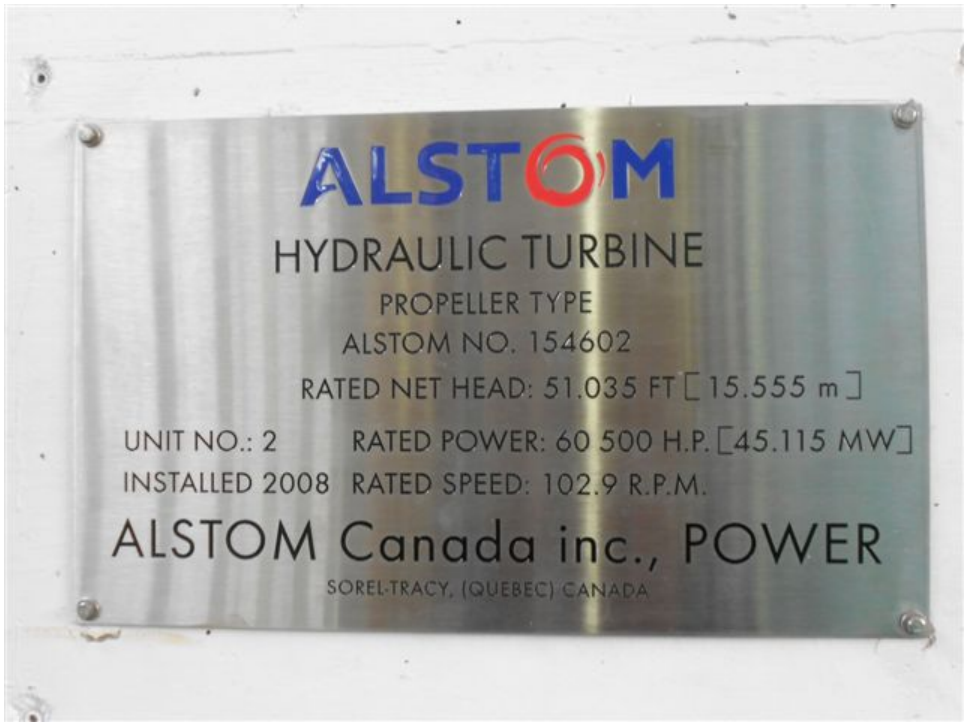


Figure 9 Unit No. 2 Nameplate Post Refurbishment, 2008

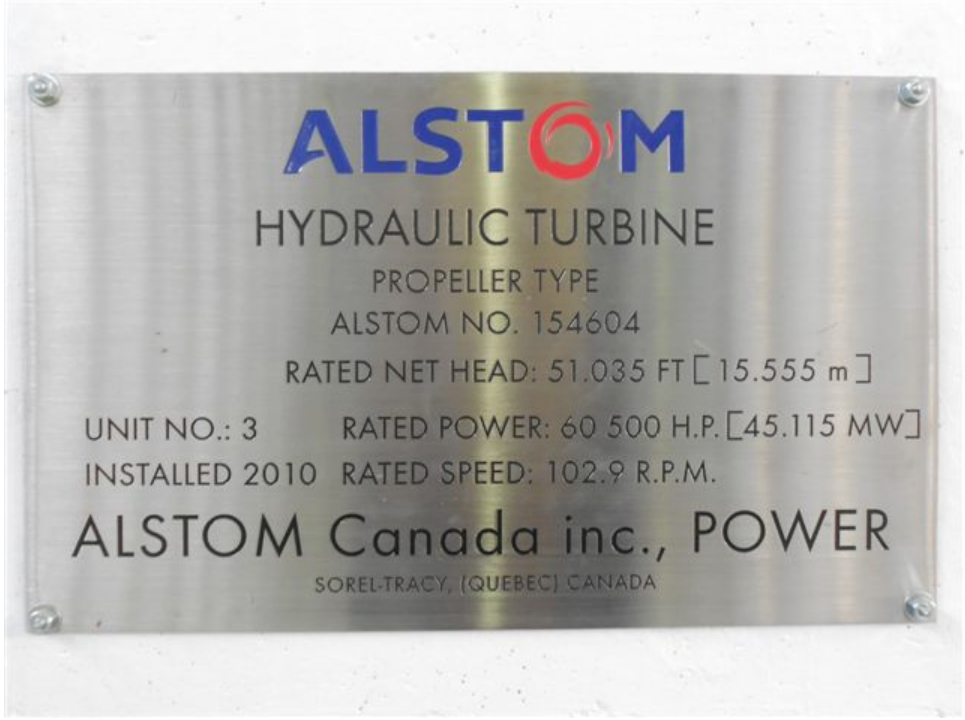


Figure 10 Unit No. 3 Nameplate Post Refurbishment, 2010

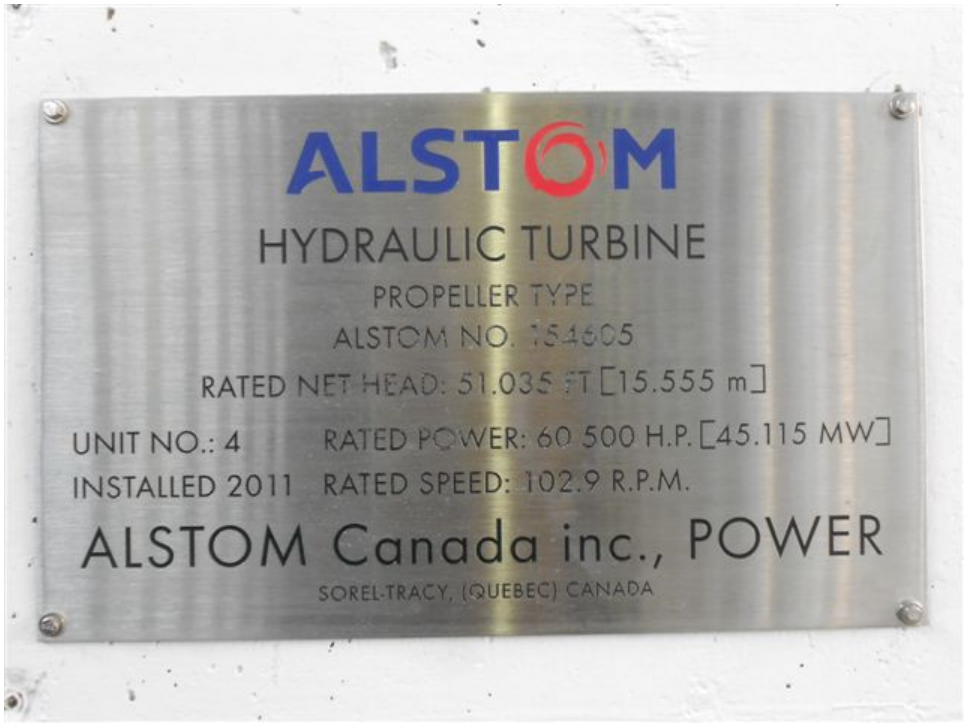


Figure 11 Unit No. 4 Nameplate Post Refurbishment, 2011

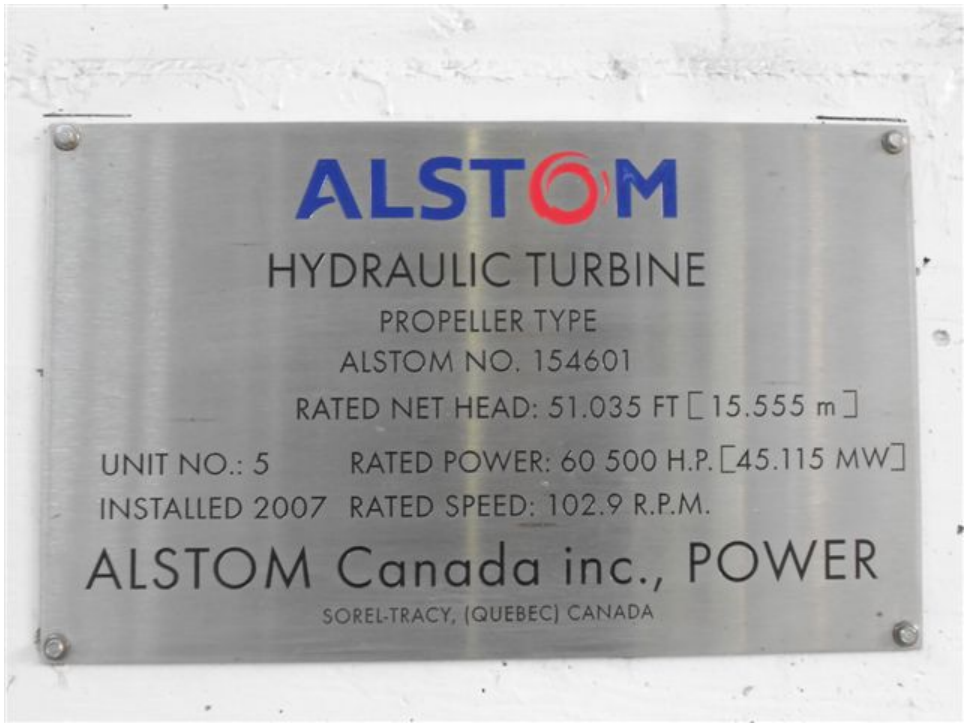


Figure 12 Unit No. 5 Nameplate Post Refurbishment, 2007

Figure 13 Unit No. 6 Nameplate Post Refurbishment, 2012

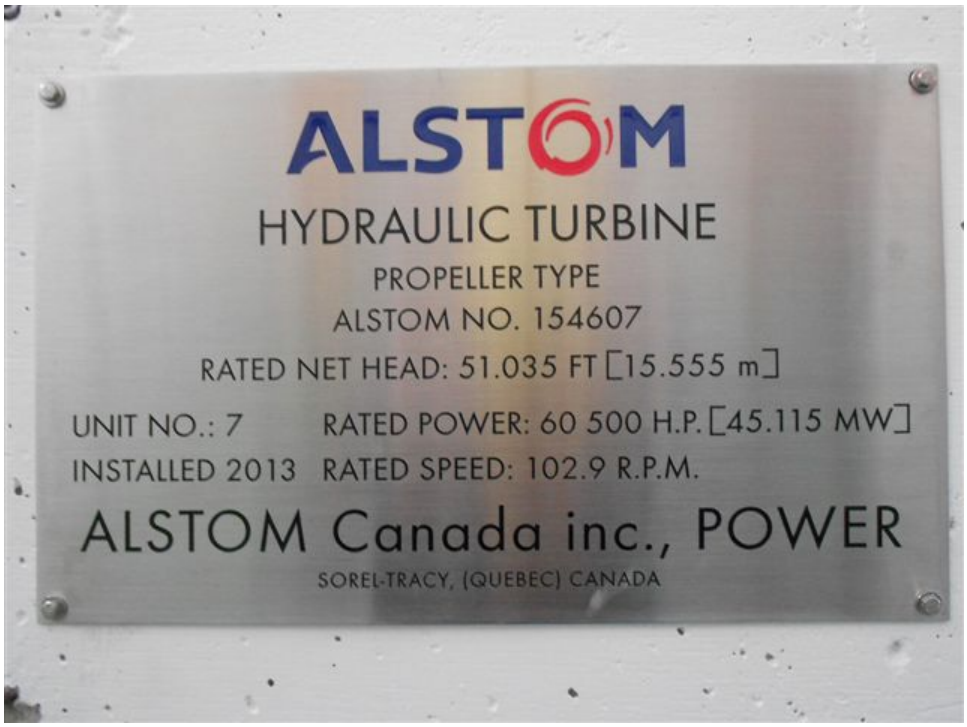


Figure 14 Unit No. 7 Nameplate Post Refurbishment, 2013

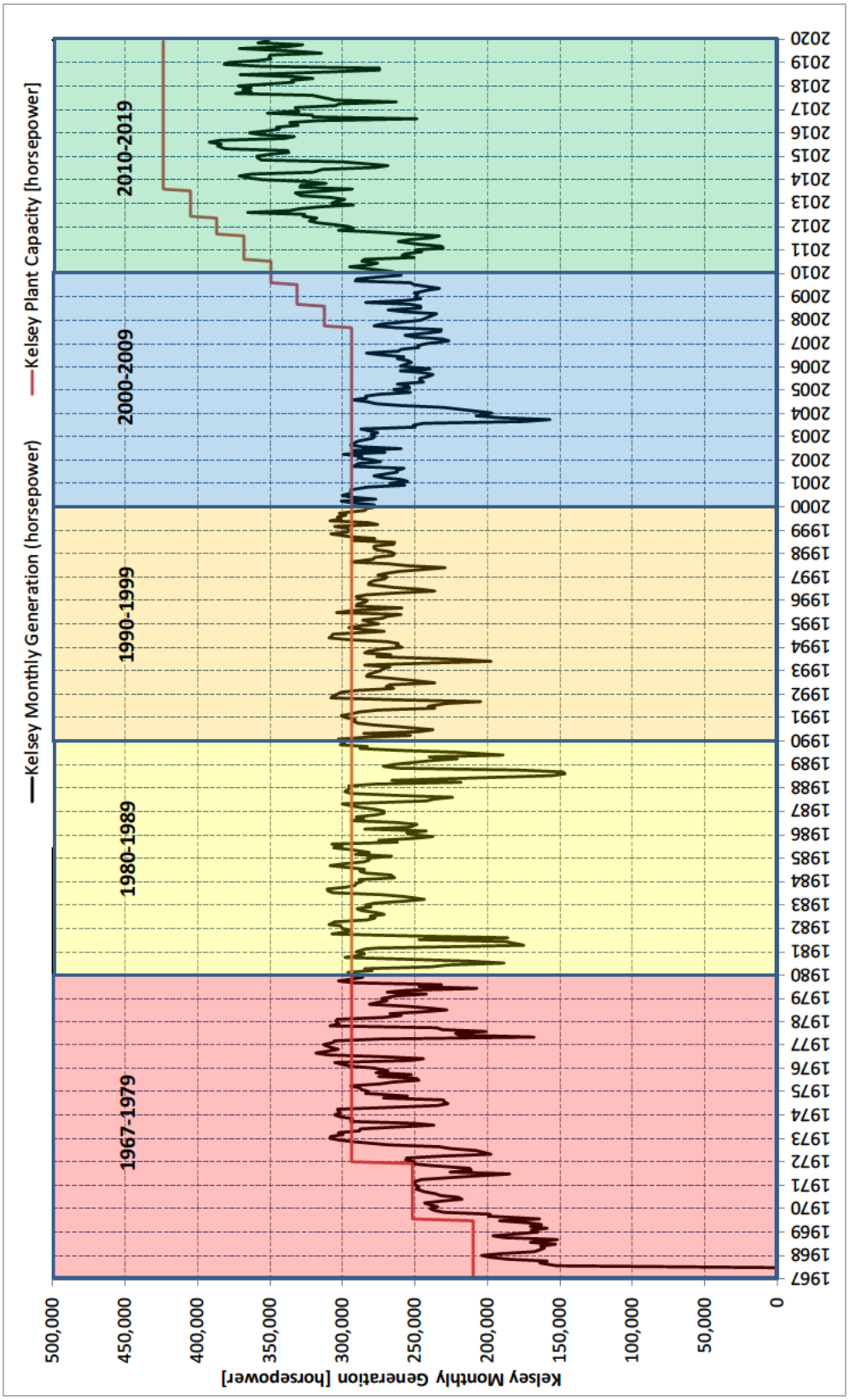


Figure 15 Kelsey GS Historic Power Generation (horsepower)

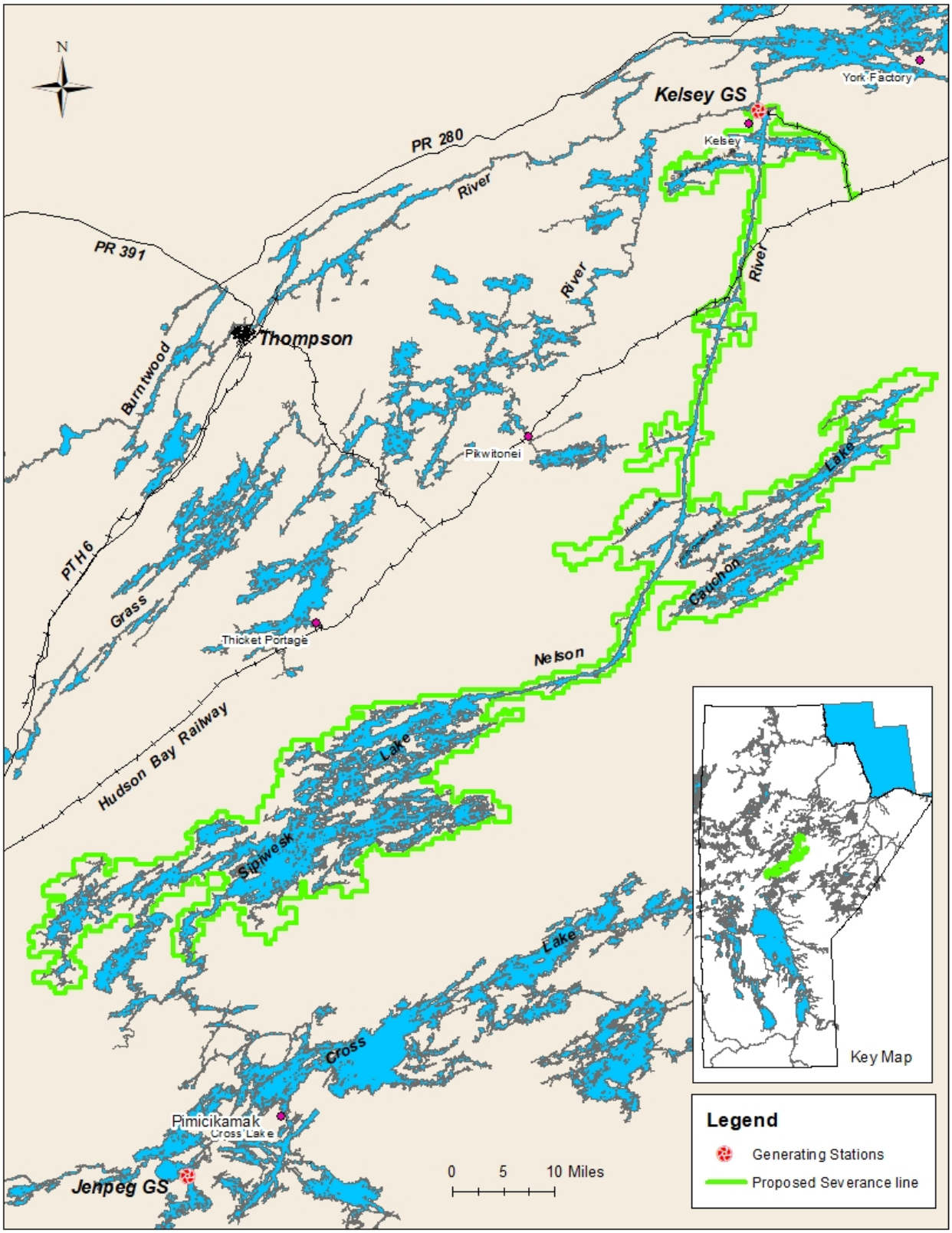


Figure 16 Kelsey GS Proposed Severance Line

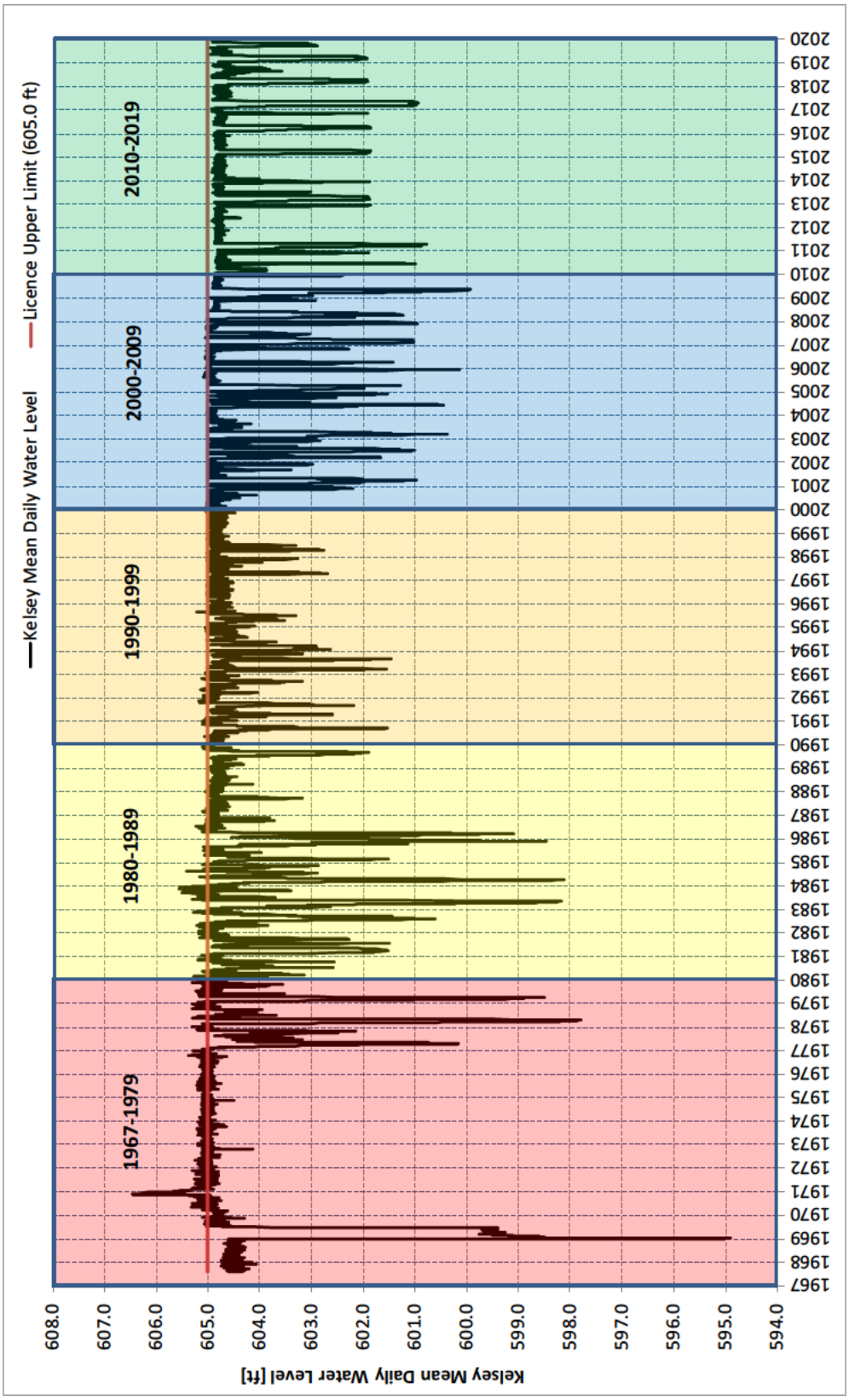


Figure 17 Kelsey GS Historic Water Level Compliance

Appendix A: Renewal Licence Request

Appendix A: Renewal Licence Request (December 17, 2010)

Manitoba Hydro

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

2010 12 17

Our file: 00111-07311-0013_00

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

Dear Mr. Topping:

Re: **KELSEY GENERATING STATION RENEWAL APPLICATION**

Manitoba Hydro hereby applies for the renewal of the Final Licence for the Kelsey Site under the provisions set out in subsection 46(1) of the Water Power Act Regulations. 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 2015 01 01.

A licence amending the final licence dated 1971 04 29, a second amending licence dated 1983 04 08 and a short-term amending licence dated 2010 07 16 modify certain terms of the Final Licence. The short-term amending licence expires on 2010 12 31.

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 practises at the Kelsey site.

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

Yours truly,

Original signed by: *Wesley Penner*

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

HJE/ljm/00111-07311-0013_00.doc

Appendix A: Province's Renewal Licence Acknowledgement (January 7, 2011)

Manitoba

Water Stewardship
Executive Director
Regulatory and Operational Services
Box 11, 200 Saulteaux Crescent
Winnipeg, Manitoba, Canada R3J 3W3
T 204-945-7488 F 204-945-7419
Steve.Topping@gov.mb.ca

January 7, 2011

FILE: 51.2.3/ED-11-16

W. V. Penner, P. Eng.
Manager
Hydraulic Operations Department
Manitoba Hydro
P.O. Box 815
Winnipeg MB R3C 2P4

Dear Mr. Penner:

Re: Kelsey Generating Station - Water Power Act Renewal Licence

Your letter of December 17, 2010 will constitute Manitoba Hydro's formal application to renew the Kelsey Generating Station Final Licence. I note that this application falls within the two year period stated in Section 46(1) of the Water Power Regulation 28/88R.

I trust that Manitoba Hydro will continue to maintain and operate Kelsey Generating Station in accordance with the terms and conditions of the recently issued Short-Term Amending Licence.

Should you have any questions, please feel free to contact Mr. Puru Singh, P. Eng., Head of Water Power Licensing at (204) 945-3613.

Yours truly,

Original Signed by Steve Topping

Steven D. Topping, P. Eng.
Executive Director

Appendix B: Kelsey GS Water Power Act Licences

APPENDIX B

This appendix contains copies of various licences under The Water Power Act for the Kelsey Generating Station.

- Final Licence – March 10, 1966
- Amending Licence - April 29, 1971
- Second Amending Licence - April 8, 1983
- Short Term Amending Licence - July 16, 2010
- 2nd Short Term Amending Licence - December 29, 2010
- 3rd Short Term Amending Licence - March 31, 2011
- 4th Short Term Amending Licence - February 29, 2012
- 5th Short Term Amending Licence - August 28, 2012
- 6th Short Term Amending Licence - April 23, 2013
- 7th Short Term Amending Licence - December 27, 2013
- Short Term Extension Licence - December 12, 2014
- Second Short Term Extension Licence – December 19, 2019

SCHEDULE "A"

PROVINCE OF MANITOBA

DEPARTMENT OF AGRICULTURE AND CONSERVATION

WATER CONTROL AND CONSERVATION BRANCH

FINAL LICENSE FOR THE DEVELOPMENT OF WATER POWER

Kelsey Site, Nelson River

Issued in accordance with the provisions of the Water Power Act, Chapter 288, Revised Statutes of Manitoba, 1954, and amendments, and of the Regulations in force thereunder to govern the mode of granting and administering Provincial water-power rights.

WHEREAS Manitoba Hydro, a corporation duly incorporated by Act of the Legislature of the Province of Manitoba, and whose head office address is 820 Taylor Avenue in the City of Winnipeg, (hereinafter called "the Licensee") has completed and is operating a hydro-electric development at the Kelsey Site (formerly known as the Grand Rapid Site) on the Nelson River, in the Province of Manitoba;

AND WHEREAS the said development has been constructed in accordance with plans filed with and approved by the Director of Provincial Water Powers at Winnipeg, (hereinafter called "the Director") but without the issue to the Licensee of an Interim License under the provisions of the Water Power Act, R.S.M. 1954, Cap. 288 (hereinafter called "the Act"), and the Manitoba Water Power Regulations being Manitoba Regulation 95/45 and all amendments thereto (hereinafter called "the Regulations");

AND WHEREAS it is considered desirable to issue a Final License for the said development, and the Licensee has done all those things which in the opinion of the Director are required to be done prior to the issue of the said Final License;

AND WHEREAS the Licensee has duly executed an acceptance of the terms and conditions of this Final License and has undertaken to observe and fulfill all the terms and conditions which under this Final License and under the Act and Regulations thereunder the Licensee is required to observe and fulfill;

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

(a) The right to impound, divert and use waters of the Nelson River at and near the Kelsey Site (formerly known as the Grand Rapid 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 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.

Subject, nevertheless, to the provisions of the Regulations and any other regulations now or hereafter in force governing the granting or 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 Kelsey Site all the water of the Nelson River which may be flowing at the said Site from time to time during the term of this Final License, subject, however, to the provisions of Section 72 of the Regulations.

2. The undertaking authorized to be maintained and operated by the Licensee under this Final License shall comprise the following: at the north end of an intake channel cut across neck of land on the west bank of the river, a reinforced concrete powerhouse with five vertical turbines each of 42,000 horsepower capacity (which may ultimately be extended to 10 vertical turbines subject to such extension being authorized by separate license in accordance with Section 67 of the Regulations) and a concrete structure completed in which a sixth

vertical turbine may be installed in the future; at the east end of this powerhouse, a timber crib; a concrete dam with sluicegates on a channel cut across neck of land on the east bank of the river; a rockfill dam across the main river channel; a concrete headblock section and earth and sand dykes; a standard gauge railway connecting the power site with the Hudson Bay Railway at Pitt Siding; a transmission line from the powerhouse to Thompson; and all plant machinery and equipment for the complete development, generation and transmission of the electric power available at the said Kelsey Site, all as shown by plans and descriptions thereof filed in the office of the Director at Winnipeg, as follows:

Manitoba Water Control and Conservation Branch File Number	Licensee's File Number	Description
51-4-1029	724-D-1003 (Rev. 3)	General Plan of Powerhouse Sluiceway and Dam
51-4-3002	111-R-413 (Rev.0)	Plan Showing Location of Structures and Cross Sections of Structures
51-4-3003	724-C-2006 (Rev. 2)	Sluiceway and Wingwall Plan Elevation and Sections General Arrangement
51-4-3004	724-C-3211 (Rev. 2)	Powerhouse Plan Above Elevation 586'-6" Units 3, 4 and 5 Architectural Arrangement
51-4-3005	724-C-3213 (Rev. 1)	Powerhouse Plan of Powerhouse Roof Units 3, 4, and 5 Architectural Arrangement
51-4-3009	724-C-3210 (Rev. 1)	Powerhouse Plan Above Elevation 586'-6" Service Area and Units 1 and 2 Architectural Arrangement
51-4-3011	724-C-3216 (Rev. 1)	Powerhouse Cross Section at ℄ of Main Units Architectural Arrangement
51-4-3010	724-C-3212 (Rev. 1)	Powerhouse Plan of Powerhouse Roof Service Area and Units 1 and 2 Architectural Arrangement
51-4-3012	724-C-3219 (Rev. 1)	Powerhouse Longitudinal Section Units 3, 4 and 5 Architectural Arrangement
51-4-3006	724-C-3215 (Rev. 1)	Powerhouse Cross Section at C.L. of House Units Architectural Arrangement

Manitoba Water Control and Conservation Branch File Number	Licensee's File Number	Description
51-4-3007	724-C-3218 (Rev. 1)	Powerhouse Longitudinal Section Service Area and Units 1 and 2 Architectural Arrangement
51-4-3008	724-C-5002 (Rev. 4)	Plans and Typical Section of Dykes No. 2 East and No. 2 West

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.

All those parts of the following lands not covered by the waters of the Nelson River as shown outlined in green on Record Plan 51-4-1032 filed in the office of the Director at Winnipeg and which is the Licensee's No. 0111 R-0207 (Rev. 0):

(i) Sections Nine (9), Ten (10), Eleven (11), Thirteen (13) and Twenty-four (24) in Township Eighty-one (81) and Range Six (6) East of the Principal Meridian in Manitoba.

(ii) Sections Eighteen (18) and Nineteen (19) in Township Eighty-one (81) and Range Seven (7) East of the Principal Meridian in Manitoba.

(b) Lands of the Province covered by water required for main diverting works, powerhouses, etc.

All those parts of the North Half of Section Twenty-four (24) in Township Eighty-one (81) and Range Six (6) East of the Principal Meridian in Manitoba covered by the waters of the Nelson River as shown outlined in red on the said Plan No. 51-4-1032.

(c) Lands of the Province required only to be flooded in connection with the storage or pondage of water

All those portions of the following Townships shown outlined in brown on Record Plan No. 51-4-1033 filed in the office of the Director at Winnipeg and which is the Licensee's No. 0111-E-0206 (Rev.0), excepting thereout all those lands heretofore described as required for works:

(i) Townships Seventy-six (76) and Seventy-seven (77) in Range Nine (9) East of the Principal Meridian in Manitoba.

(ii) Townships Seventy-four (74), Seventy-five (75), Seventy-six (76) and Seventy-seven (77) in Range Eight (8) East of the Principal Meridian in Manitoba.

(iii) Townships Seventy-three (73), Seventy-four (74), Seventy-five (75), Seventy-six (76), Eighty (80) and Eighty-one (81) in Range Seven (7) East of the Principal Meridian in Manitoba.

(iv) Townships Seventy-three (73), Seventy-four (74), Seventy-five (75), Seventy-six (76), Seventy-seven (77), Seventy-eight (78), Seventy-nine (79), Eighty (80) and Eighty-one (81) in Range Six (6) East of the Principal Meridian in Manitoba.

(v) Townships Seventy-two (72), Seventy-three (73), Seventy-four (74), Seventy-five (75), Seventy-six (76), Seventy-seven (77), Seventy-eight (78) and Eighty (80) in Range Five (5) East of the Principal Meridian in Manitoba.

(vi) Townships Seventy-two (72), Seventy-three (73), Seventy-four (74), Seventy-five (75) and Seventy-six (76) in Range Four (4) East of the Principal Meridian in Manitoba.

(vii) Township Seventy-two (72) in Range Three (3) East of the Principal Meridian in Manitoba.

(viii) Townships Sixty-nine (69), Seventy (70), Seventy-one (71), and Seventy-two (72) in Range Two (2) East of the Principal Meridian in Manitoba.

(ix) Townships Sixty-nine (69), Seventy (70), Seventy-one (71) and Seventy-two (72) in Range One (1) East of the Principal Meridian in Manitoba.

(x) Townships Sixty-nine (69), Seventy (70), Seventy-one (71) and Seventy-two (72) in Range One (1) West of the Principal Meridian in Manitoba.

(xi) Townships Sixty-nine (69), Seventy (70) and Seventy-one (71) in Range Two (2) West of the Principal Meridian in Manitoba.

(xii) Townships Sixty-eight (68), Sixty-nine (69) and Seventy (70) in Range Three (3) West of the Principal Meridian in Manitoba.

(xiii) Townships Sixty-eight (68) and Sixty-nine (69) in Range Four (4) West of the Principal Meridian in Manitoba.

(xiv) Townships Sixty-eight (68) and Sixty-nine (69) in Range Five (5) West of the Principal Meridian in Manitoba.

(xv) Townships Sixty-seven (67), Sixty-eight (68) and Sixty-nine (69) in Range Six (6) West of the Principal Meridian in Manitoba.

(xvi) Township Sixty-eight (68) in Range Seven (7) West of the Principal Meridian in Manitoba.

(d) Lands of the Province required only for rights-of-way for transmission lines and railway

All those portions of the following Townships required as shown on plans entered and filed in the Neepawa Land Titles Office as Nos. 4640, 4643, 4647 and 758, copies of which are filed in the office of the Director at Winnipeg:

(i) Townships Eighty (80) and Eighty-one (81) in Range Eight (8) East of the Principal Meridian in Manitoba.

(ii) Township Eighty-one (81) in Range Seven (7) East of the Principal Meridian in Manitoba.

(iii) Township Eighty-one (81) in Range Six (6) East of the Principal Meridian in Manitoba.

(iv) Township Eighty-one (81) in Range Five (5) East of the Principal Meridian in Manitoba.

(v) Township Eighty-one (81) in Range Four (4) East of the Principal Meridian in Manitoba.

(vi) Townships Eighty (80) and Eighty-one (81) in Range Three (3) East of the Principal Meridian in Manitoba.

(vii) Townships Eighty (80) and Eighty-one (81) in Range Two (2) East of the Principal Meridian in Manitoba.

(viii) Township Eighty (80) in Range One (1) East of the Principal Meridian in Manitoba.

(ix) Townships Seventy-nine (79) and Eighty (80) in Range One (1) West of the Principal Meridian in Manitoba.

(x) Townships Seventy-eight (78) and Seventy-nine (79) in Range Two (2) West of the Principal Meridian in Manitoba.

(xi) Township Seventy-eight (78) in Range Three (3) West of the Principal Meridian in Manitoba.

4. The Licensee shall not raise the headwater of its development to an elevation higher than 605.0 above mean sea level, Canadian Geodetic Datum, 1929 Adjustment. A higher elevation may be created only with prior written permission by the Director and in accordance with Section 72 of the Regulations.

5. In accordance with Section 45 of the Regulations, the term of this Final License shall be fifty (50) years from and after the first day of January, A.D., 1965, 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 each and every year during the term of this Final License the Licensee shall pay an annual rental in advance of Five Hundred dollars ($500.00) for the use and occupation of lands of the Province described in Article 3, parts (a) to (c) inclusive, hereof. On the second day of January in each and every year during the said term the Licensee shall in addition pay an annual rental in advance of One Dollar ($1.00) per acre for the use and occupation of lands of the Province described in Article 3, part (d) hereof and not lying within the Local Government District of Mystery Lake.

7. The Licensee shall also pay an annual rental during the term of the Final License 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 rentals in the first 20 years of the term of this License shall be the greater of:

      (i) an annual rental of fifty (50) cents per installed horsepower;

      (ii) an annual rental of one dollar and twenty-five cents ($1.25) per horsepower year output.

   (b) The annual rental to be paid after the expiry of the said twenty (20) year period shall be determined as provided in the regulations in force at such time.

8. The Severance Line as defined in Section 1 of the Regulations shall be as shown on Record Plan No. 51-4-1027 filed in the office of the

Director, and which is the Licensee's Drawing No. 111-E-396 (Rev. 2).

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

10. This Final License 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 10th day of March A.D., 1966 ,
at the direction of the Honourable the Minister of Agriculture and Conservation

Original Signed by George Hutton

Minister of Agriculture and Conservation

DEPARTMENT OF MINES, RESOURCES AND ENVIRONMENTAL MANAGEMENT
WATER RESOURCES BRANCH

LICENSE AMENDING FINAL LICENSE

DATED MARCH 10, 1966 FOR THE DEVELOPMENT OF WATER POWER

Kelsey Site, Nelson River

Issued in accordance with the provisions of the Water Power Act, Chapter W70, Revised Statutes of Manitoba, 1970, and amendments, and of the Regulations in force thereunder to govern the mode of granting and administering Provincial water-power rights.

WHEREAS Manitoba Hydro, a corporation duly incorporated by Act of the Legislature of the Province of Manitoba and whose head office address is 820 Taylor Avenue in the City of Winnipeg, (hereinafter called "the Licensee") by Final License dated March 10, 1966, issued in accordance with the provisions of the Water Power Act, R.S.M. 1954, Cap. 288 (hereinafter called "the Act"), was granted the right to impound, divert and use waters of the Nelson River at and near the Kelsey site; to develop electric power and energy from the said waters; to generate, transmit, distribute, sell and deliver the said electric power and energy and for that purpose to use and occupy certain lands of the Province; and to operate and maintain the undertaking, the location and description of which are shown upon certain record plans filed in the office of the Director of the Water Resources Branch (hereinafter called "the Director"), at Winnipeg; and,

WHEREAS the development authorized to be maintained and operated by the Licensee by the said Final License includes five vertical turbines each of 42,000 horsepower capacity, and all plant machinery and equipment for the complete development, generation and transmission of the electric power available at the said Kelsey site, all as shown by plans and descriptions thereof filed in the office of the Director at Winnipeg; and,

WHEREAS the Licensee, by Interim License dated January 4, 1968 issued in accordance with the provisions of the Act and Section 68 of the Manitoba Water Power Regulations, being Manitoba Regulation 95/45 and all amendments thereto (hereinafter called "the Regulations") was granted the right to construct, operate and maintain a sixth turbine at the Kelsey site to supplement the then existing five turbines, along with other machinery required for the development,

generation, transformation and transmission of additional electric power amounting to forty-two thousand (42,000) horsepower measured on the turbine shaft, and to construct a headblock, draft tube and tailrace deck in which a seventh vertical turbine may be installed in the future, and to construct a protective concrete bulkhead at the east end of thie seventh unit, all as shown by plans and descriptions thereof filed in the office of the Director at Winnipeg; and,

WHEREAS under the authority of the said Interim License the Licensee has completed construction of the sixth turbine at the Kelsey Site as of June 27, 1969, along with the machinery required for the development, generation, transformation and transmission of additional electric power amounting to forty-two thousand (42,000) horsepower, measured on the turbine shaft, and other works so authorized to be constructed by the said Interim License; and,

WHEREAS the Licensee by letter dated August 6, 1969, signed by J.F. Funnell, Secretary and Legal Officer, has filed with the Director an application for a License amending the said Final License; and,

WHEREAS the Licensee has fully complied with the requirements of the Regulations insofar as it is required for the issue to the Licensee of this License amending the said Final License; and,

WHEREAS the Licensee has duly executed an acceptance of the terms and conditions of this License amending the said Final License and has undertaken to observe and fulfil all the terms and conditions which under this License and under the Regulations the Licensee is required to observe or fulfil; and,

WHEREAS it is deemed expedient and advisable to issue a License amending Final License dated March 10, 1966;

NOW THEREFORE, under authority of and subject to the provisions of the Water Power Act, R.S.M. 1970, Cap. W70, and the Regulations, this License is issued amending Article 2 of Final License dated March 10, 1966 by deleting said Article and substituting therefor the following:

2. The undertaking authorized to be maintained and operated by the Licensee under this Final License shall comprise the following: at the north end of an intake channel cut across neck of land on the west bank of the river, a reinforced concrete powerhouse with six vertical turbines each of 42,000 horsepower capacity (which may ultimately be extended to 10 vertical turbines or such other number as may be determined by the Licensee, subject to such extension being authorized by separate license in accordance with Section 68 of the

Regulations) and a concrete structure partially completed in which a seventh vertical turbine may be installed in the future; at the east end of this powerhouse, a concrete bulkhead; a concrete spillway structure with sluice-gates on a channel cut across neck of land on the east bank of the river; a rockfill dam across the main river channel; earth and sand dykes; an aircraft landing strip located east of the spillway structure and oriented in a northwest-southeast direction; a standard gauge railway connecting the power site with the Hudson Bay Railway at Pitt Siding; various transmission lines from the powerhouse to Thompson and elsewhere; and all plant machinery and equipment for the complete development, generation and transmission of the electric power available at the said Kelsey 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
51-4-1029	724-D-1003 (Rev. 3)	General Plan of Powerhouse Sluiceway and Dam
51-4-3002	111-R-0225 (Rev. 0)	Plan Showing Location of Structures and Cross Sections of Structures
51-4-3003	724-C-2006 (Rev. 2)	Sluiceway and Wingwall Plan Elevation and Sections General Arrangement
51-4-3004	724-C-3211 (Rev. 3)	Powerhouse Plan Above Elevation 586' - 6" Units 3, 4, and 5 Architectural Arrangement
51-4-3005	724-C-3213 (Rev. 2)	Powerhouse Plan of Powerhouse Roof Units 3, 4, and 5 Architectural Arrangement
51-4-3009	724-C-3210 (Rev. 1)	Powerhouse Plan Above Elevation 586' - 6" Service Area and Units 1 and 2 Architectural Arrangement
51-4-3011	724-C-3216 (Rev. 1)	Powerhouse Cross Section at C.L. of Main Units Architectural Arrangement
51-4-3010	724-C-3212 (Rev. 1)	Powerhouse Plan of Powerhouse Roof Service Area and Units 1 and 2 Architectural Arrangement

Manitoba Water Resources Branch File Number	Licensee's File Number	Description
51-4-3012	724-C-3219 (Rev. 2)	Powerhouse Longitudinal Section Units 3, 4, and 5 Architectural Arrangement
51-4-3006	724-C-3215 (Rev. 1)	Powerhouse Cross Section at C.L. of House Units Architectural Arrangement
51-4-3007	724-C-3216 (Rev. 1)	Powerhouse Longitudinal Section Service Area and Units 1 and 2 Architectural Arrangement
51-4-3008	724-C-5002 (Rev. 4)	Plans and Typical Section of Dykes No. 2 East and No. 2 West
51-4-3014	0111-E-2009 (Rev. 3)	Powerhouse Roof Plan Units 5, 6, and 7 Architectural Arrangement
51-4-3016	0111-E-1013 (Rev. 2)	Powerhouse Longitudinal Sections Units 5, 6, and 7 Architectural Arrangement
51-4-3015	0111-E-1011 (Rev. 2)	Powerhouse Cross Section at C.L. of Main Units Architectural Arrangement
51-4-3013	0111-E-1006 (Rev. 2)	Powerhouse Plan at Elevation 515' - 0" Units 5, 6, and 7 Architectural Arrangement
51-4-3017 (Sht. 1)	0111-E-2223 Sht. 1 (Rev. 4)	Forebay Bulkhead Construction Joints and Pour Quantities
51-4-3017 (Sht. 2)	0111-E-2223 Sht. 2 (Rev. 3)	Forebay Bulkhead Construction Joints and Pour Quantities

All other terms and conditions of said Final License shall otherwise remain unaltered.

Issued at Winnipeg this 29 day of April A.D. 1971 at the direction of the Honourable the Minister of Mines, Resources and Environmental Management.

MINISTER OF MINES, RESOURCES AND ENVIRONMENTAL MANAGEMENT

DEPARTMENT OF NATURAL RESOURCES
WATER RESOURCES BRANCH

SECOND AMENDING LICENCE, AMENDING FINAL LICENCE DATED MAR. 10, 1966 AS AMENDED BY FIRST AMENDING LICENCE DATED APRIL 29, 1971 FOR THE DEVELOPMENT OF WATER POWER

Kelsey Site, Nelson River

Issued in accordance with the provisions of the Water Power Act, being Chapter W7D 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 Manitoba Hydro, a corporation duly incorporated by Act of the Legislature of the Province of Manitoba and whose head office address is Box 815, Winnipeg, Manitoba, (hereinafter called "the Licensee") by Final Licence dated March 10, 1966, issued in accordance with the provisions of the Water Power Act, R.S.M. 1954, Cap. 288, was granted the right to impound, divert and use waters of the Nelson River at and near the Kelsey site; to develop electric power and energy from the said waters; to generate, transmit, distribute, sell and deliver the said electric power and energy and for that purpose to use and occupy certain lands of the Province; and to operate and maintain the undertaking, the location and description of which are shown upon certain record plans filed in the office of the Director of the Water Resources Branch (hereinafter called "the Director"), at Winnipeg; and,

WHEREAS the development authorized to be maintained and operated by the Licensee by the said Final Licence includes five vertical turbines each of 42,000 horsepower capacity, and all plant machinery and equipment for the complete development, generation and transmission of the electric power available at the said Kelsey site, all as shown by plans and descriptions thereof filed in the office of the Director at Winnipeg; and,

WHEREAS the Licensee, by Interim Licence dated January 4, 1968 issued in accordance with the provisions of the said Act and Section 68 of the Regulations, was granted the right to construct, operate and maintain a sixth turbine at the Kelsey site to supplement the then existing five turbines, along with other machinery required for the development, generation, transformation and transmission of additional electric power amounting to forty-two thousand (42,000) horsepower measured on the turbine shaft, and to construct a headblock, draft tube and tailrace deck in which a seventh vertical turbine may be installed in the future, and to construct a protective concrete bulkhead at the east end of this seventh unit, all as shown by plans and descriptions thereof filed in the office of the Director at Winnipeg; and,

WHEREAS under the authority of the said Interim Licence the Licensee has completed construction of the sixth turbine at the Kelsey Site as of June 27, 1969, along with the machinery required for the development, generation, transformation and transmission of additional electric power amounting to forty-two thousand (42,000) horsepower, measured on the turbine shaft, and other works so authorized to be constructed by the said Interim Licence; and,

WHEREAS the Licensee, by Licence dated April 29, 1971 amending the said Final Licence, issued in accordance with the Water Power Act, being Chapter W70 of the Continuing Consolidation of the Statutes of Manitoba (hereinafter called "the Act") and the Regulations was granted the right to operate and maintain a sixth turbine at the Kelsey site, along with other machinery required for the development, generation, transformation and transmission of additional electric power amounting to forty-two thousand (42,000) horsepower measured on the turbine shaft; and,

WHEREAS the Licensee has constructed a seventh turbine at the Kelsey site, along with other machinery required for the development, generation, transformation and transmission of additional electric power

amounting to forty-two thousand (42,000) horsepower measured on the turbine shaft, but without the issuance to the Licensee of an Interim Licence authorizing such construction under the provisions of the Act and Regulations; and

WHEREAS the Licensee by memorandum dated January 27, 1981 signed by J. F. Funnell, General Counsel, has filed with the Director an application for a Second Licence amending the said Final Licence; and,

WHEREAS the Licensee has fully complied with the requirements of the Regulations insofar as it is required for the issue to the Licensee of this Second Amending Licence; and,

WHEREAS the Licensee has duly executed an acceptance of the terms and conditions of this Second Amending Licence and has undertaken to observe and fulfil all the terms and conditions which under this Licence and under the Regulations the Licensee is required to observe or fulfil; and,

WHEREAS it is deemed expedient and advisable to issue a Second Licence amending the said Final Licence;

NOW THEREFORE, under authority of and subject to the provisions of the Act and the Regulations, this Second Amending Licence is issued amending Article 2 of the Final Licence dated March 10, 1966 as amended by First Amending Licence dated April 29, 1971, in the following manner:

(a) In line 4 of the said Article 2 the word "six" is deleted and replaced by the word "seven".

(b) In lines 8 and 9 of the said Article 2 the following is deleted:

"and a concrete structure partially completed in which a seventh vertical turbine may be installed in the future".

All other terms and conditions of the said Final Licence, as amended by the said First Amending Licence, shall otherwise remain unaltered.

Issued at Winnipeg this 8th day of April , A.D. 1983
at the direction of the Honourable the Minister of Natural Resources.

Minister of Natural Resources

PROVINCE OF MANITOBA
MANITOBA WATER STEWARDSHIP

SHORT-TERM AMENDING LICENCE
FOR THE DEVELOPMENT OF WATER POWER
Kelsey Site, Winnipeg River

Issued to Manitoba Hydro, being a duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4
Issued in accordance with The Water Power Act (C.C.S.M. c. W60),
and the Water Power Regulation (M.R. 25/88R).

WHEREAS:

A. Manitoba Hydro is the holder of a Final Licence for the development of water power at the Kelsey Site, dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971 and by a Second Amending Licence dated April 8, 1983;

B. Manitoba Hydro has applied for a Third Amending Licence for the purpose of authorizing the increased generating capacity for the undertaking as a result of the redevelopment of the turbines of the Generating Station, called the "Kelsey Re-runnering project" and Manitoba Hydro has filed with the Director plans and descriptions of the elements of the Kelsey Re-runnering project;

C. The Licensee has duly executed an acceptance of the terms and conditions of this Short-Term Amending 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 Amending Licence.

This Short-Term Amending Licence is issued to the Licensee:

1. This Short-Term Amending Licence is effective from July 15, 2010 to and including December 31, 2010.

2. The Final Licence (as previously amended) is further amended by replacing in Article 2 the words "seven vertical turbines each of 42,000 horsepower" with the words "seven vertical turbines, four of which with a generating capacity of 45.1 megawatts[1] and three of which with a generating capacity of 31.32 megawatts[2]".

3. The Final Licence (as previously amended) is further amended by adding the following paragraph between paragraph 2 and paragraph 3 in Article 2 of the Final Licence:

[1] 45.1 megawatts equals approximately 60,500 horsepower.
[2] 31.32 megawatts equals approximately 42,000 horsepower.

APPENDIX B – Short Term Amending Licence dated July 16, 2010

2.1 The plans and descriptions of the undertaking set out in paragraph 2 are modified to the extent of any plans and descriptions of the Kelsey Re-runnering Project filed with the Director either before or after the date of the Short-Term Amending Licence effective July 15, 2010.

4. Except as set out in paragraphs 2 and 3 of this Short-Term Amending Licence, all terms of the Final Licence (as previously amended) remain unaltered.

5. Upon the expiry of this Short-Term Amending Licence the terms and conditions of the Final Licence (as previously amended) shall apply without the amendments set out in this Short-Term Amending Licence, except to the extent that the Final Licence is amended further before that time.

ISSUED at Winnipeg this 16th day of July, 2010.

Original Signed by:
Minister Christine Melnick

Minister of Water Stewardship

PROVINCE OF MANITOBA
MANITOBA WATER STEWARDSHIP

SECOND SHORT-TERM AMENDING LICENCE
FOR THE DEVELOPMENT OF WATER POWER
Kelsey Site, Nelson River

Issued to Manitoba Hydro, being a duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4
Issued in accordance with The Water Power Act (C.C.S.M. c. W60)
and the Water Power Regulation (M.R. 25/88R).

WHEREAS:

A. Manitoba Hydro is the holder of a Final Licence for the development of water power at the Kelsey Site, dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971, by a Second Amending Licence dated April 8, 1983;

B. Manitoba Hydro has applied for a Third Amending Licence for the purpose of authorizing the increased generating capacity for the undertaking as a result of upgrading the turbines of the Generating Station, called the "Kelsey Re-runnering project" and Manitoba Hydro has filed with the Director plans and descriptions of the elements of the Kelsey Re-runnering project;

C. The Final Licence was also amended by a Short-Term Amending Licence, dated July 16, 2010 to address the effect of the Kelsey Re-runnering project to December 31, 2010;

D. The Licensee has duly executed an acceptance of the terms and conditions of this Second Short-Term Amending 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 Amending Licence.

This Second Short-Term Amending Licence is issued to the Licensee:

1. This Second Short-Term Amending Licence is effective from January 1, 2011 to and including March 31, 2011.

2. The Final Licence (as previously amended) is further amended by replacing in Article 2 the words "seven vertical turbines each of 42,000 horsepower" with the words "seven vertical turbines, four of which with a generating capacity of 45.1 megawatts[1] and three of which with a generating capacity of 31.32 megawatts[2]"

[1] 45.1 megawatts equals approximately 60,500 horsepower.
[2] 31.32 megawatts equals approximately 42,000 horsepower.

3. The Final Licence (as previously amended) is further amended by adding the following paragraph between paragraph 2 and paragraph 3 in Article 2 of the Final Licence:

   2.1 The plans and descriptions of the undertaking set out in paragraph 2 are modified to the extent of any plans and descriptions of the Kelsey Re-runnering Project filed with the Director either before or after the date of this Second Short-Term Amending Licence.

4. Except as set out in paragraphs 2 and 3 of this Second Short-Term Amending Licence, all terms of the Final Licence (as previously amended) remain unaltered.

5. Upon the expiry of this Second Short-Term Amending Licence the terms and conditions of the Final Licence (as previously amended) shall apply without the amendments set out in this Second Short-Term Amending Licence, except to the extent that the Final Licence is amended further before that time.

ISSUED at Winnipeg this 29th day of December, 2010.

Original Signed by:
Minister Christine Melnick

Minister of Water Stewardship

PROVINCE OF MANITOBA
MANITOBA WATER STEWARDSHIP

THIRD SHORT-TERM AMENDING LICENCE
FOR THE DEVELOPMENT OF WATER POWER
Kelsey Site, Nelson River

Issued to Manitoba Hydro, being a duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4
Issued in accordance with The Water Power Act (C.C.S.M. c. W60)
and the Water Power Regulation (M.R. 25/88R).

WHEREAS:

A. Manitoba Hydro is the holder of a Final Licence for the development of water power at the Kelsey Site, dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971, by a Second Amending Licence dated April 8, 1983;

B. Manitoba Hydro has applied for a Third Amending Licence for the purpose of authorizing the increased generating capacity for the undertaking as a result of upgrading the turbines of the Generating Station, called the "Kelsey Re-runnering project" and Manitoba Hydro has filed with the Director plans and descriptions of the elements of the Kelsey Re-runnering project;

C. The Final Licence was also amended by a Short-Term Amending Licence, dated July 16, 2010 and a Second Short-Term Amending Licence, dated December 29, 2010 to address the effect of the Kelsey Re-runnering project to March 31, 2011;

D. The Licensee has duly executed an acceptance of the terms and conditions of this Third Short-Term Amending Licence and has undertaken to observe and fulfill all the terms and conditions which the Licensee is required to observe and fulfill under this Third Short-Term Amending Licence.

This Third Short-Term Amending Licence is issued to the Licensee:

1. This Third Short-Term Amending Licence is effective from April 1, 2011 to and including February 29, 2012.

2. The Final Licence (as previously amended) is further amended by replacing in Article 2 the words "seven vertical turbines each of 42,000 horsepower" with the words "seven vertical turbines, five of which with a generating capacity of 45.1 megawatts[1] and two of which with a generating capacity of 31.32 megawatts[2]"

[1] 45.1 megawatts equals approximately 60,500 horsepower.
[2] 31.32 megawatts equals approximately 42,000 horsepower.

3. The Final Licence (as previously amended) is further amended by adding the following paragraph between paragraph 2 and paragraph 3 in Article 2 of the Final Licence:

   2.1 The plans and descriptions of the undertaking set out in paragraph 2 are modified to the extent of any plans and descriptions of the Kelsey Re-runnering Project filed with the Director either before or after the date of this Third Short-Term Amending Licence.

4. Except as set out in paragraphs 2 and 3 of this Third Short-Term Amending Licence, all terms of the Final Licence (as previously amended) remain unaltered.

5. Upon the expiry of this Third Short-Term Amending Licence the terms and conditions of the Final Licence (as previously amended) shall apply without the amendments set out in this Third Short-Term Amending Licence, except to the extent that the Final Licence is amended further before that time.

ISSUED at Winnipeg this 31st day of March , 2011.

Original Signed by:
Minister Christine Melnick

Minister of Water Stewardship

PROVINCE OF MANITOBA
MANITOBA WATER STEWARDSHIP

FOURTH SHORT-TERM AMENDING LICENCE
FOR THE DEVELOPMENT OF WATER POWER

Kelsey Site, Nelson River

Issued to Manitoba Hydro, being a duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4
Issued in accordance with The Water Power Act (C.C.S.M. c. W60)
and the Water Power Regulation (M.R. 25/88R).

WHEREAS:

A. Manitoba Hydro is the holder of a Final Licence for the development of water power at the Kelsey Site, dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971, by a Second Amending Licence dated April 8, 1983;

B. Manitoba Hydro has applied for a Third Amending Licence for the purpose of authorizing the increased generating capacity for the undertaking as a result of upgrading the turbines of the Generating Station, called the "Kelsey Re-runnering project" and Manitoba Hydro has filed with the Director plans and descriptions of the elements of the Kelsey Re-runnering project;

C. The Final Licence was also amended by a Short-Term Amending Licence, dated July 16, 2010; Second Short-Term Amending Licence, dated December 29, 2010; and a Third Short-Term Amending Licence, dated March 31, 2011 to address the effect of the Kelsey Re-runnering project to February 29, 2012;

D. The Licensee has accepted the terms and conditions of this Fourth Short-Term Amending Licence and has undertaken to observe and fulfill all the terms and conditions which the Licensee is required to observe and fulfill under this Fourth Short-Term Amending Licence.

This Fourth Short-Term Amending Licence is issued to the Licensee:

1. This Fourth Short-Term Amending Licence is effective from March 1, 2012 to and including August 31, 2012.

2. The Final Licence (as previously amended) is further amended by replacing in Article 2 the words "seven vertical turbines each of 42,000 horsepower" with the words "seven vertical turbines, six of which with a generating capacity of 45.1 megawatts and one with a generating capacity of 31.32 megawatts" (45.1 megawatts equals approximately 60,500 horsepower and 31.32 megawatts equals approximately 42,000 horsepower).

3. The Final Licence (as previously amended) is further amended by adding the following paragraph between paragraph 2 and paragraph 3 in Article 2 of the Final Licence:

   2.1 The plans and descriptions of the undertaking set out in paragraph 2 are modified to the extent of any plans and descriptions of the Kelsey Re-runnering Project filed with the Director either before or after the date of this Fourth Short-Term Amending Licence.

4. Except as set out in paragraphs 2 and 3 of this Fourth Short-Term Amending Licence, all terms of the Final Licence (as previously amended) remain unaltered.

5. Upon the expiry of this Fourth Short-Term Amending Licence the terms and conditions of the Final Licence (as previously amended) shall apply without the amendments set out in this Fourth Short-Term Amending Licence, except to the extent that the Final Licence is amended further before that time.

ISSUED at Winnipeg this 29 day of February , 2012.

Original Signed by:
Gord Mackintosh
Minister of Conservation and Water Stewardship

APPENDIX B – Fifth Short Term Amending Licence dated August 28, 2012

PROVINCE OF MANITOBA
MANITOBA CONSERVATION AND WATER STEWARDSHIP

FIFTH SHORT-TERM AMENDING LICENCE
FOR THE DEVELOPMENT OF WATER POWER

Kelsey Site, Nelson River

Issued to Manitoba Hydro, being duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4
Issued in accordance with *The Water Power Act* (C.C.S.M. c. W60)
and the Water Power Regulation (M.R. 25/88R).

WHEREAS:

A. Manitoba Hydro is the holder of a Final Licence for the development of water power at the Kelsey Site, dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971, by a Second Amending Licence dated April 8, 1983;

B. Manitoba Hydro has applied for a Third Amending Licence for the purpose of authorizing the increased generating capacity for the undertaking as a result of upgrading the turbines of the Generating Station, called the "Kelsey Re-runnering project" and Manitoba Hydro has filed with the Director plans and descriptions of the elements of the Kelsey Re-runnering project;

C. The Final Licence was also amended by a Short-Term Amending Licence, dated July 15, 2010; Second Short-Term Amending Licence, dated December 29, 2010; Third Short-Term Amending Licence, dated March 31, 2011; and a Fourth Short-Term Amending Licence, dated February 29, 2012 to address the effect of the Kelsey Re-runnering project to August 31, 2012;

D. The Licensee has accepted the terms and conditions of this Fifth Short-Term Amending Licence and has undertaken to observe and fulfill all the terms and conditions which the Licensee is required to observe and fulfill under this Fifth Short-Term Amending Licence.

This Fifth Short-Term Amending Licence is issued to the Licensee:

1. This Fifth Short-Term Amending Licence is effective from September 1, 2012 to and including April 30, 2013.

2. The Final Licence (as previously amended) is further amended by replacing in Article 2 the words "seven vertical turbines each of 42,000 horsepower" with the words "seven vertical turbines each with a generating capacity of 45.1 megawatts" (45.1 megawatts equals approximately 60,500 horsepower).

3. The Final Licence (as previously amended) is further amended by adding the following paragraph between paragraph 2 and paragraph 3 in Article 2 of the Final Licence:

   2.1 The plans and descriptions of the undertaking set out in paragraph 2 are modified to the extent of any plans and descriptions of the Kelsey Re-runnering Project filed with the Director either before or after the date of this Fifth Short-Term Amending Licence.

4. Except as set out in paragraphs 2 and 3 of this Fifth Short-Term Amending Licence, all terms of the Final Licence (as previously amended) remain unaltered.

5. Upon the expiry of this Fifth Short-Term Amending Licence the terms and conditions of the Final Licence (as previously amended) shall apply without the amendments set out in this Fifth Short-Term Amending Licence, except to the extent that the Final Licence is amended further before that time.

Dated at the City of Winnipeg, in the Province of Manitoba this 28th day of August A.D. 2012.

Issued on behalf of the Minister of Conservation and Water Stewardship for the Province of Manitoba, pursuant to the authority vested in me:

Witness

Signature

Fred Meier, Deputy Minister
Conservation and Water Stewardship

Original Signed by: Fred Meier

Signature

APPENDIX B – Sixth Short Term Amending Licence dated April 23, 2013

PROVINCE OF MANITOBA
MANITOBA CONSERVATION AND WATER STEWARDSHIP

SIXTH SHORT-TERM AMENDING LICENCE
FOR THE DEVELOPMENT OF WATER POWER

Kelsey Site, Nelson River

Issued to Manitoba Hydro, being duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4
Issued in accordance with *The Water Power Act* (C.C.S.M. c. W60)
and *The Water Power Regulation* (M.R. 25/88R).

WHEREAS:

A. Manitoba Hydro is the holder of a Final Licence for the development of water power at the Kelsey Site, dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971, by a Second Amending Licence dated April 8, 1983;

B. Manitoba Hydro has applied for a Third Amending Licence for the purpose of authorizing the increased generating capacity for the undertaking as a result of upgrading the turbines of the Generating Station, called the "Kelsey Re-runnering project" and Manitoba Hydro has filed with the Director plans and descriptions of the elements of the Kelsey Re-runnering project;

C. The Final Licence was also amended by a Short-Term Amending Licence, dated July 16, 2010; Second Short-Term Amending Licence, dated December 29, 2010; Third Short-Term Amending Licence, dated March 31, 2011; Fourth Short-Term Amending Licence, dated February 29, 2012; and a Fifth Short-Term Amending Licence, dated August 28, 2012 to address the effect of the Kelsey Re-runnering project to April 30, 2013;

D. The Licensee has accepted the terms and conditions of this Sixth Short-Term Amending Licence and has undertaken to observe and fulfill all the terms and conditions which the Licensee is required to observe and fulfill under this Sixth Short-Term Amending Licence.

This Sixth Short-Term Amending Licence is issued to the Licensee:

1. This Sixth Short-Term Amending Licence is effective from May 1, 2013 to and including December 31, 2013.

2. The Final Licence (as previously amended) is further amended by replacing in Article 2 the words "seven vertical turbines each of 42,000 horsepower" with the words "seven vertical turbines each with a generating capacity of 45.1 megawatts" (45.1 megawatts equals approximately 60,500 horsepower).

3. The Final Licence (as previously amended) is further amended by adding the following paragraph between paragraph 2 and paragraph 3 in Article 2 of the Final Licence:

   2.1 The plans and descriptions of the undertaking set out in paragraph 2 are modified to the extent of any plans and descriptions of the Kelsey Re-runnering Project filed with the Director either before or after the date of this Sixth Short-Term Amending Licence.

4. Except as set out in paragraphs 2 and 3 of this Sixth Short-Term Amending Licence, all terms of the Final Licence (as previously amended) remain unaltered.

5. Upon the expiry of this Sixth Short-Term Amending Licence the terms and conditions of the Final Licence (as previously amended) shall apply without the amendments set out in this Sixth Short-Term Amending Licence, except to the extent that the Final Licence is amended further before that time.

Dated at the City of Winnipeg, in the Province of Manitoba this 23rd day of April A.D. 2013.

Issued on behalf of the Minister of Conservation and Water Stewardship for the Province of Manitoba, pursuant to the authority vested in me:

Witness

Signature

Fred Meier, Deputy Minister,
Conservation and Water Stewardship

Original Signed by: Fred Meier

Signature

APPENDIX B – Seventh Short Term Amending Licence dated December 27, 2013

PROVINCE OF MANITOBA
MANITOBA CONSERVATION AND WATER STEWARDSHIP

SEVENTH SHORT-TERM AMENDING LICENCE
FOR THE DEVELOPMENT OF WATER POWER

Kelsey Site, Nelson River

Issued to Manitoba Hydro, being duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4
Issued in accordance with *The Water Power Act* (C.C.S.M. c. W60) and *The Water Power Regulation* (M.R. 25/88R).

WHEREAS:

A. Manitoba Hydro is the holder of a Final Licence for the development of water power at the Kelsey Site, dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971, by a Second Amending Licence dated April 8, 1983;

B. Manitoba Hydro has applied for a Third Amending Licence for the purpose of authorizing the increased generating capacity for the undertaking as a result of upgrading the turbines of the Generating Station, called the "Kelsey Re-runnering project" and Manitoba Hydro has filed with the Director plans and descriptions of the elements of the Kelsey Re-runnering project;

C. The Final Licence was also amended by a Short-Term Amending Licence, dated July 16, 2010; Second Short-Term Amending Licence, dated December 29, 2010; Third Short-Term Amending Licence, dated March 31, 2011; Fourth Short-Term Amending Licence, dated February 29, 2012; Fifth Short-Term Amending Licence, dated August 28, 2012 to address the effect of the Kelsey Re-runnering project to April 30, 2013; and a Sixth Short-Term Amending Licence, dated April 23, 2013 to address the effect of the Kelsey Re-runnering project to December 13, 2013.

D. The Licensee has accepted the terms and conditions of this Seventh Short-Term Amending Licence and has undertaken to observe and fulfill all the terms and conditions which the Licensee is required to observe and fulfill under this Seventh Short-Term Amending Licence.

This Seventh Short-Term Amending Licence is issued to the Licensee:

1. This ~~Sixth~~ seventh Short-Term Amending Licence is effective from January 1, 2014 to and including December 31, 2014

2. The Final Licence (as previously amended) is further amended by replacing in Article 2 the words "seven vertical turbines each of 42,000 horsepower" with the words "seven vertical turbines each with a generating capacity of 45.1 megawatts" (45.1 megawatts equals approximately 60,500 horsepower).

3. The Final Licence (as previously amended) is further amended by adding the following paragraph between paragraph 2 and paragraph 3 in Article 2 of the Final Licence:

   2.1 The plans and descriptions of the undertaking set out in paragraph 2 are modified to the extent of any plans and descriptions of the Kelsey Re-runnering Project filed with the Director either before or after the date of this Seventh Short-Term Amending Licence.

4. Except as set out in paragraphs 2 and 3 of this Seventh Short-Term Amending Licence, all terms of the Final Licence (as previously amended) remain unaltered.

5. Upon the expiry of this Seventh Short-Term Amending Licence the terms and conditions of the Final Licence (as previously amended) shall apply without the amendments set out in this Seventh Short-Term Amending Licence, except to the extent that the Final Licence is amended further before that time.

Dated at the City of Winnipeg, in the Province of Manitoba this ____ day of December A.D. 2013.

Issued on behalf of the Minister of Conservation and Water Stewardship for the Province of Manitoba, pursuant to the authority vested in me:

Witness

Grant Doak, Deputy Minister,
Conservation and Water Stewardship

Original Signed by: Grant Doak

Signature

Signature

PROVINCE OF MANITOBA
MANITOBA CONSERVATION AND WATER STEWARDSHIP

SHORT-TERM EXTENSION LICENCE
FOR THE DEVELOPMENT OF WATER POWER
Kelsey Site, Nelson River

Issued to Manitoba Hydro ("the Licensee"), being a duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4, issued in accordance with The Water Power Act (C.C.S.M. c. W60), and the Water Power Regulation (M.R. 25/88R).

WHEREAS:

A. The Licensee is the holder of a Final Licence for the development of water power at the Kelsey Site, a licence under *The Water Power Act*, dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971, by a Second Amending Licence dated April 8, 1983 (a copy of that Final Licence, First Amending Licence and Second Amending Licence are attached as Schedule "A" of this Short-Term Extension Licence);

B. The Licensee by letter dated December 17, 2010, signed by W.V. Penner, Manager, Hydraulic Operations Department, applied for a renewal of the Final Licence for the Kelsey Site in accordance with subsection 46(1) of the Water Power Regulation.

C. The Final Licence has not yet been renewed, and the Licensee has applied by letter dated October 30, 2014 signed by W. V. Penner, Manager, Hydraulic Operations Department, to the Manager of Water Use Licensing of Manitoba Conservation and Water Stewardship for a Short-Term Extension Licence for the Kelsey development in accordance with section 92 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 a Short-Term Extension Licence;

D. It is contemplated that decisions will be made about the application for a Renewal of the Final 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 Nelson River at and near the Kelsey 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 Final Licence; and

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

on the same terms and conditions as set out in the Final Licence dated March 10, 1966, as amended by the First Amending Licence dated April 29, 1971 and the Second Amending Licence dated April 8, 1983 subject to the following specific terms and conditions:

1. This Short-Term Extension Licence shall apply from January 1, 2015 to and including January 1, 2020.

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 paragraphs 3 (a), (b), (c) and (d) of the Final 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 Final Licence dated March 10, 1966 as amended by the First Amending Licence dated April 29, 1971, and the Second Amending Licence dated the April 8, 1983 apply as if set out specifically in this Short-Term Extension Licence, except:

(a) in the Final Licence dated March 10, 1966 under Article 2, "42,000 horsepower capacity' is replaced by "60,500 horsepower capacity"

(b) in the First Licence Amending the Final Licence dated April 29, 1971 and Second Amending Licence dated April 8, 1983 all instances of "42,000 horsepower capacity" is replaced by "60,500 horsepower capacity" and all instances of "forty-two thousand (42,000) horsepower" is replaced by "sixty thousand five hundred (60,500) horsepower"

[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 – Short Term Extension Licence dated December 12, 2014

5. The Licensee shall comply with *The Water Power Act* and the Water Power Regulation.

ISSUED at Winnipeg this 12th day of December, 2014.

Original Signed by: Gord Mackintosh

Minister of Conservation and
Water Stewardship

PROVINCE OF MANITOBA
MANITOBA CONSERVATION AND CLIMATE

SECOND SHORT-TERM EXTENSION LICENCE
FOR THE DEVELOPMENT OF WATER POWER
Kelsey Site, Nelson River

Issued to Manitoba Hydro ("the Licensee"), being a duly incorporated by Act of the Legislature of the Province of Manitoba whose head office address is at 360 Portage Avenue, Winnipeg, Manitoba, R3C 2P4, issued in accordance with The Water Power Act (C.C.S.M. c. W60), and the Water Power Regulation (M.R. 25/88R).

WHEREAS:

A. The Licensee is the holder of a Short-Term Extension Licence for the Kelsey Site, a licence under The Water Power Act, dated December 12, 2014 for a term of five (5) years from January 1, 2015, as the extension of the previously issued Final Licence dated March 10, 1966 and which has been amended by a First Amending Licence dated April 29, 1971, by a Second Amending Licence dated April 8, 1983 (a copy of that Final Licence, First Amending Licence and Second Amending Licence are attached as Schedule "A" of this Second Short-Term Extension Licence);

B. The Licensee by letter dated December 17, 2010, signed by W.V. Penner, Manager, Hydraulic Operations Department, applied for a renewal of the Final Licence for the Kelsey Site in accordance with subsection 46(1) of the Water Power Regulation.

C. The Final Licence has not yet been renewed, and the Licensee has applied by letter dated June 19, 2019 signed by W. V. Penner, Manager, Hydraulic Operations Department, to the Manager of the Water Power Act Licensing Section of the Department of Conservation and Climate for a Second Short-Term Extension Licence for the Kelsey 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 a Second Short-Term Extension Licence;

D. It is contemplated that decisions will be made about the application for a Renewal of the Final 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 issued, granting to the Licensee:

(a) the right to impound divert and use water of the Nelson River at and near the Kelsey 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 Final Licence; and

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

on the same terms and conditions as set out in the Final Licence dated March 10, 1966, as amended by the First Amending Licence dated April 29, 1971 and the Second Amending Licence dated April 8, 1983 subject to the following specific terms and conditions:

1. This Second Short-Term Extension Licence shall apply from January 1, 2020 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 paragraphs 3 (a), (b), (c) and (d) of the Final 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 Final Licence dated March 10, 1966 as amended by the First Amending Licence dated April 29, 1971, and the Second Amending Licence dated the April 8, 1983 apply as if set out specifically in this Second Short-Term Extension Licence, except:

(a) in the Final Licence dated March 10, 1966 under Article 2, "42,000 horsepower capacity' is replaced by "60,500 horsepower capacity"

(b) in the First Licence Amending the Final Licence dated April 29, 1971 and Second Amending Licence dated April 8, 1983 all instances of "42,000 horsepower capacity" is replaced by "60,500 horsepower capacity" and all instances of "forty-two thousand (42,000) horsepower" is replaced by "sixty thousand five hundred (60,500) horsepower"

[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.

5. The Licensee shall comply with The Water Power Act and The Water Power Regulation.

ISSUED at Winnipeg this 19th day of December, 2019.

Original Signed By: Sarah Guillemard

Minister of Conservation and Climate

Appendix C: Maintenance and Construction Record

The major maintenance and construction activities that occurred between 2008-2018 calendar years are summarized for the Kelsey Water Power Act licence area:

2008

- Unit #2 - A major overhaul was completed August 15th. The nameplate rating was increased from 31.3 MW to 45.1 MW.
- The powerhouse overhead crane was upgraded.
- The spillway gate motors and hydraulic drive system are being upgraded as part of the Dam Safety Program.
- A cold storage building was built for refurbishing intake gates during unit overhauls.
- Staffhouse 2 was demolished and removed.

2009

- Unit #1 - was retired on 2008 10 17 and re-commissioned on 2009 07 15 after rewinding, modifications to the draft tube and installation of a new turbine with a name plate rating of 45.1 MW at 51.0 feet of head
- Unit #1 - Intake gates were overhauled including the guides and gate rollers
- Spillway anchoring project was completed as part of the Dam Safety Program
- As part of the Dam Safety Program, new upgraded motors were installed and commissioned for four heated spillway gate hydraulic emergency hoists along with the associated hydraulic drive systems

2010

- Unit #3 - was retired on 2009 10 14 and re-commissioned on 2010 07 03 after rewinding, modifications to the draft tube and installation of a new turbine with a name plate rating of 45.1 MW at 51.0 feet of head.
- Unit #3 - Intake gates were overhauled including the guides and gate rollers.
- The metal waste disposal area was cleaned up.
- The airport runway extension was completed.

2011

- Unit #4 was removed from service on August 31, 2010 and returned to service on August 23, 2011 after rewinding, modifications to the draft tube, installation of new intake gate roller paths, wheels, recoating the three gates, and installation of new turbine with a name plate rating of 45.115 MW at 51 feet of head.
- Unit #6 was removed from service on September 6, 2011 for re-runnering.

2012

- The old landfill was remediated and decommissioned, and a new landfill site was constructed.
- Unit #6 was retired on 2011 09 06 and recommissioned on 2012 05 27 after rewinding, modifications to the draft tube and installation of a new turbine with a nameplate rating of 45.1 MW at 51.0 feet of head.
- Unit #6 roof and drain were repaired.
- The electrical bus was reconfigured as a split-bus to increase system reliability for customers.

2013

- Unit #7 rehabilitation work was completed and was returned to service on July 10, 2013 with a new nameplate rating of 45.1 MW at 51.0 feet of head.
- Unit #2 head gate was refurbished
- Unit #1 exciter power supply was replaced
- Unit #1 head cover air admission port plate was installed
- Kelsey water sewage treatment system was commissioned
- Kelsey spur line maintenance was completed

2014

- Unit 5 draft tube modification and intake gate rehabilitation completed
- Kelsey wastewater piping upgrade and manhole repairs completed

2015

- Completed Unit 3 and 4 headcover cavitation repairs

2016

- Completed headcover cavitation repairs for Units 1, 2, 5, 6 and 7
- Completed intake gate hoist modifications for Units 1, 2, 3 and 4

2017

- No major events to report

2018

- Kelsey lagoon & lift station constructed (commissioned in April 2019)

Appendix D: Reference Documents

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 relevant documents along with the page number location:

- February 23, 1988 letter from Manitoba Hydro to the Director of the Manitoba Lands Branch adding lands for the air strip to the licence area, page 95.
- October 30, 1991 letter from the Minister notifying of change in billing of land rentals to calendar year, page 97.
- February 29, 1996 letter from the Deputy Minister notifying of change in billing of water rentals from annual to monthly, page 98.
- 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, page 99.
- November 18, 2002 letter from Manitoba Hydro to the Director of the Water Branch of Manitoba Conservation providing notification of and information about the Kelsey Re-runnering Project, page 101.
- March 25, 2004 letter from Manitoba Hydro to the Director of the Water Branch of Manitoba Water Stewardship providing information and a proposed schedule for the Kelsey Re-runnering Project, page 102.
- June 23, 2010 letter from Manitoba Hydro to the Executive Director of the Regulatory and Operational Services Branch of Manitoba Water Stewardship requesting a Third Amending Licence, page 104.

J. F. Funnell

General Counsel and

Corporate Secretary

Mr. R. W. Winstone
Director of Lands Branch
Box 2
1495 St. James Street
Winnipeg, MB R3H 0W9

1988 02 23

KELSEY GENERATING STATION, PROPOSED LICENCE AREA CHANGE

There has been a recent exchange of correspondence with Mr. T.E. Weber, Director of Water Resources, concerning the addition of certain lands of the Province to the severance lands covered by the Kelsey Final Licence so as to include a proposed new airstrip.

I am attaching a copy of Mr. Weber's most recent memo, and would advise you that we concur with his proposal. In this memo he has requested us to provide a legal description and the area of the requested lands to the Lands Branch. The following is a description of the lands by legal subdivision and section. For area, we have assumed 40 acres for each legal subdivision, and 640 acres for each section.

All of the following lands are within Township 81, Range 7 East of the Principal Meridian:

1. All of sections 15, 16, 20 and 21. (Sections 20 and 21 contain the proposed new airstrip; sections 15 and 16 contain part of the Kelsey spur railway, and would provide for any future extension of the runway)..... 2,560 acres

2. Legal subdivisions 9, 10, 11, 14, 15 and 16, section 19. (These contain the old airstrip as well as the potential quarry; note that legal subdivisions 12 and 13 are already within the severance line as well as the south half of section 19)..... 240 acres

3. Legal subdivisions 1, 2, 3 and 4, section 29. (These contain part of the Kelsey tailrace whose water level is affected by the daily operation of the generating station)..... 160 acres

4. Legal subdivisions 1, 2 and 3, section 30. (Note that legal subdivision 4 is already within the Kelsey severance line; legal subdivisions 1, 2, 3 and 4 all contain parts of the Kelsey tailrace, with water levels affected by plant operation)..... 120 acres

TOTAL 3,080 acres

Attached are two prints of Manitoba Hydro Drawing No. 00111-E-00233, entitled "Map Showing Proposed Severance Line Change - Kelsey Generating Station".

PHA/jms
Attach.

c: Mr. T. E. Weber
Director of Water Resources Branch

Minister of
Natural Resources

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

RECEIVED
NOV 4 1991
EXECUTIVE VICE-PRESIDENT

October 30, 1991

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

Dear Mr. Lambert:

Pursuant to Section 85 of the Water Power Regulation, you are hereby notified that the time of payment of rentals on Crown land required for water power purposes will be changed starting with the rentals due for 1992.

Currently, the annual land rentals (payable in advance) and the water power rentals (payable in arrears) for all the hydro-electric generating stations are invoiced for payment by the end of the fiscal year. Land rentals for Churchill River Diversion and Lake Winnipeg Regulation are invoiced individually.

Effective immediately, all land rentals associated with water power developments, due to this department by Manitoba Hydro, will be invoiced during November for payment by the first normal working day of the following January.

Your cooperation in providing payment of the account by the due date would be appreciated.

Yours truly,

Original signed by:
Harry Enns

Harry J. Enns
Minister

cc. L.J. Whitney
V.M. Austford

Manitoba

Deputy Minister of
Natural Resources

RECEIVED
FEB 29 1996
EXECUTIVE VICE-PRESIDENT
ENGINEERING AND ENVIRONMENT

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

FEB 29 1996

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

Dear Mr. Lambert:

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

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

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

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

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

Yours truly,

Original signed by:
David Tomasson

David Tomasson
Deputy Minister

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

Manitoba

Deputy Minister of
Natural Resources

Legislative Building
Winnipeg, Manitoba, CANADA
R3C 0V8

NOV - 4 1996

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

Dear Mr. Cormie:

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

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

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

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

JEUX DU CANADA GAMES BRANDON 97

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

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

Yours truly,

Original signed by:
David Tomasson

David Tomasson
Deputy Minister

Manitoba Hydro

PO Box 815 • Winnipeg Manitoba Canada • R3C 2P4
Telephone / N° de téléphone : (204) 474-3018 • Fax / N° de télécopieur : (204) 452-5639
hszbigniewicz@hydro.mb.ca

2002 11 18

Mr. S.D. Topping, Director
Water Branch
Manitoba Conservation
Box 11, 200 Saulteaux Cresc.
Winnipeg MB R3J 3W3

Dear Mr. Topping:

Re: **KELSEY G.S. RE-RUNNERING**

Attached for your information, please find a Project Description and Environmental Assessment for Re-runnering of the Kelsey Generating Station.

If you have any question or you need more information, please call me.

Yours truly,

Original signed by:

Halina Zbigniewicz

H.S. Zbigniewicz, P. Eng.
Manager
Hydraulic Engineering & Operations

ET/lm/021118-2.wpd
Att.

Manitoba Hydro

PO Box 815 • Winnipeg Manitoba Canada • R3C 2P4
Telephone / N° de téléphone : (204) 474-3018 • Fax / N° de télécopieur : (204) 452-5639
tmmiles@hydro.mb.ca

2004 03 25

Mr. S.D. Topping, P.Eng.
Director, Water Branch
Manitoba Water Stewardship
Box 11, 200 Saulteaux Crescent
Winnipeg, MB R3J 3W3

Dear Mr. Topping:

Re: **MAINTENANCE AND REHABILITATION WORK - KELSEY G.S.**

Manitoba Hydro is planning maintenance and rehabilitation work including replacement of turbines and generators on the existing units at Kelsey Generating Station. Model studies and engineering design are under way, with installation planned for the first unit during spring/summer 2005. Work on subsequent units is expected to proceed on a unit by unit basis following the successful completion of the first unit. However a definite schedule has not been established.

The report "Kelsey Generating Station, Project Description & Environmental Assessment, Re-Runnering Project" forwarded to you in August 2003 provides additional information related to the planned work. The Environmental Approvals Branch reviewed this report and indicated that licencing under the Environment Act will not be required.

The attached Project presentation was made to representatives of the northern aboriginal communities of Tataskweyak Cree Nation, York Factory First Nation, War Lake First Nation, Ilford, Pikwitonei, Cross Lake First Nation, Thicket Portage and Wabowden.

I will keep you updated on any further changes in schedule and will report any recognized increase in unit generating capacity.

Please call me if you have questions.

Yours truly,

Original signed by:

Terry Miles

T.M. Miles, P.Eng.
Manager
Hydraulic Engineering & Operations

TMM/ljm/040325-1.doc
Att.

Manitoba Hydro

16-360 Portage Avenue • Winnipeg Manitoba Canada • R3C 0G8
Telephone / *N° de téléphone :* (204) 360-3018 • Fax / *N° de télécopieur :* (204) 360-6136
wvpenner@hydro.mb.ca

2010 06 23

Our file: 00111-07311-0008_00

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

Dear Mr. Topping:

Re: **Kelsey Water Power Act Licence - Proposed Amendment**

Manitoba Hydro hereby requests a Third Amending Licence for Kelsey Generating Station under the provisions of the Water Power Regulation being Manitoba Regulation 25/88R. This request includes amendments to the Final Licence, the Licence Amending the Final Licence and Second Amending Licence. The particulars of the request are outlined in the attached document entitled "Application by Manitoba Hydro for a Third Amending Licence for Kelsey Site, Nelson River - June 2010".

The Province of Manitoba issued the Final Licence for the Kelsey site in 1966. The First Amending Licence was issued in 1971 and the Second Amending Licence was issued in 1983.

The purpose of this amendment is to include the additional capacity from the ReRunnering Project in the licence as per Section 68 of the Water Power Regulation. The licence requires renewal in the next five years. During the upcoming renewal licensing process Manitoba Hydro intends to address the licence area, monitoring, dam safety and licence compliance.

Manitoba Hydro has corresponded with the Province since 2002 on the planned maintenance and rehabilitation work that included the replacement of turbines and generators. Manitoba Hydro has worked on addressing informational requests from the Province and Fisheries and Oceans Canada (DFO) since that time.

The Kelsey ReRunnering project is important to Manitoba Hydro generation and transmission investments. It provides significant additional generation within the confines of an existing hydropower station.

A Supporting Document is enclosed providing information on licence background, project components, system upgrades, studies and agreements.

S.D. Topping
2010 06 23
Page 2

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

Yours truly,

Original signed by:

Wesley Penner

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

GKDN/ljm/00111-07311-0008_00.doc
Encl.

Appendix E: Kelsey Generating Station Licence Implementation Guide for Water Levels

Manitoba
Sustainable Development

Water Power Act Licensing Section
Environmental Approvals Branch
1007 Century Street, Winnipeg, Manitoba R3H 0W4
T: 204-945-6118 F: 204-945-5229

August 27, 2018

File: 51.2.3

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

Dear Mr. Penner:

Re: Kelsey Generating Station – Licence Implementation Guide

This correspondence acknowledges receipt and acceptance of the 'Kelsey Generating Station – Licence Implementation Guide for Water Levels' dated July 2018. This report has been prepared to document a common understanding of compliance with the water regime terms of the Kelsey Water Power Act Licence.

Should you have any questions regarding the contents of this letter please feel free to contact Mr. Puru Singh, P. Eng. at 204-945-3613 or the undersigned at 204-945-6118.

Sincerely,

Original signed by:
Rob Matthews

Rob Matthews,
Manager,
Water Power Act Licensing Section,
Sustainable Development

cc. Puru Singh

Manitoba Hydro

2018 07 11

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

Dear Mr Matthews:

KELSEY GENERATING STATION – LICENCE IMPLEMENTATION GUIDE

Enclosed for your approval is a Licence Implementation Guide for the Kelsey Generating Station. This Licence Implementation Guide documents a common understanding of the water regime terms of the Kelsey Water Power Act Licence. The Water Power Act Licence specifies operating limits that must be met for compliance with the licence. As such, 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

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

Yours truly,

Original signed by, *Wesley Penner*

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

PGC/00111-07311-0041_00.docx
Att.

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

Manitoba Hydro
Kelsey Generating Station
Licence Implementation Guide for Water Levels

Prepared for:
Water Power Act Licensing Section
Manitoba Sustainable Development
1007 Century Street
Winnipeg, Manitoba R3M 0W4

Prepared by:
Hydraulic Operations Department
Manitoba Hydro
360 Portage Avenue
Winnipeg, Manitoba R3C 0G8

July 2018
Report No. PS&O 18/05

Version History

Version	Description	Date
Rev_0	Issued to Manitoba Sustainable Development for approval	2018-07-11

Manitoba Hydro
Kelsey Generating Station
Licence Implementation Guide for Water Levels

PREPARED BY:	Original signed by: Paul Chanel P.G. CHANEL
REVIEWED BY:	Original signed by: Brian Giesbrecht B.W. GIESBRECHT
NOTED BY:	Original signed by: Wes Penner W.V. PENNER
DATE:	2018-07-11
REPORT NO:	PS&O 18/05

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
Manitoba Hydro
No. 38

Executive Summary

Introduction

Manitoba Hydro prepared this guide to document a common understanding of compliance with the water regime terms of the Kelsey 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.

Kelsey Forebay Water Level

The **Kelsey Forebay Water Level** is directly measured at the beginning of each hour.

Compliance

The forebay water level shall be in compliance if the hourly **Kelsey Forebay Water Level**:

a) does not exceed 605.0 feet (184.4 m) by more than 0.1 feet (0.03 m); and
b) does not exceed 605.0 feet (184.4 m) more than two times in any 24-hour period

Reporting

In the event that the **Kelsey Forebay Water Level** is not in compliance with the licence limit, Manitoba Hydro will notify Manitoba Sustainable Development 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 Sustainable Development. A record of water levels and licence compliance will also be provided in an annual report.

Change Management

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

Table of Contents

1. Introduction

Kelsey Generating Station is located on the Nelson River approximately 680 km north of the City of Winnipeg and approximately 137 km upstream of the Kettle Generating Station. The site can be accessed by air or by rail from Thompson.

The Kelsey Generating Station was built between 1957 and 1961 making it the first generating station to be built by Manitoba Hydro on the Nelson River. The station was originally built to supply both the City of Thompson and the International Nickel Company's (INCO) mining and smelting operations in the Moak Lake and Mystery Lake areas with electricity. Six years after completion the generating station was linked to the Province's electrical system. Kelsey currently has a total licensed capacity of 423,500 horsepower (315.8 MW) through seven vertical turbine units each with a generating capacity of 60,500 horsepower (45.1 MW).

Manitoba Hydro currently operates the Kelsey Generating Station with a Short-Term Extension of the Final Licence. The Short-Term Extension Licence (STEL) was issued in accordance with the provisions of The Water Power Act on December 12, 2014. The STEL is in effect from January 1, 2015 to and including January 1, 2020.

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 69M540. This benchmark is a brass cap in concrete at the west side of the powerhouse.

Kelsey Gauge refers to a float attached to a steel tape that is draped over a pulley connected to a Selsyn (self-synchronous) system that measures the forebay water level.

Kelsey Forebay Water Level means the hourly water level as measured by the **Kelsey Gauge**.

1.2 Datum

In accordance with Article 4 of the Kelsey Final Water Power Act Licence, water level information for the operation of the Kelsey 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 around the Kelsey Generating Station.

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

1.3.2 Direct Water Level Measurements

Staff monitor the **Kelsey Gauge** equipment and take direct water level measurements to maintain gauge performance. If the direct measurements differ by more than 0.02 m from the gauge reading, staff will take corrective action including re-calibrating the gauge if required.

1.3.3 Gauge Readings

The forebay gauge consists of a float attached to a steel tape that is draped over a pulley connected to a Selsyn (self-synchronous) system. This system electronically transmits the angular position of the pulley to a receiving device in the control room. The position information is converted to a water level, indicated on a display and also output to the Remote Transmittal Unit for transmission to the System Control Centre. The system is generally capable of measuring water levels accurate to about 0.01 m.

1.4 Quality Assurance Procedure for Water Level Data

Plant Data

Data is collected on site and signed off by the operating supervisor. Data is then sent to the Energy Operations Planning & Technology 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 & Technology staff as needed. Once data has been verified, it may be used for operations planning, studies, model development and reporting.

2. Kelsey Forebay Water Level

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

Kelsey 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 Kelsey 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 605.0 feet above mean sea level, Canadian Geodetic Datum, 1929 Adjustment. A higher elevation may be created only with prior written permission by the Director and in accordance with Section 72 of the Regulations."*

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

a) does not exceed 605.0 feet (184.4 m) by more than 0.1 feet (0.03 m); and
b) does not exceed 605.0 feet (184.4 m) more than two times in any 24-hour period

Based on the accuracy and location of the **Kelsey Gauge**, Manitoba Hydro defines instances where the licence limit is exceeded by 0.1 feet (0.03 m) as reportable events.

3.2 Reporting

3.2.1 Compliance Reporting

In the event that the **Kelsey Forebay Water Level** is not in compliance with the licence limit as described in Section 3.1, notification shall be made to Manitoba Sustainable Development 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 Sustainable Development.

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 Sustainable Development 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 Sustainable Development on the details of the operation(s).

3.2.3 Regular Annual Reporting

Water levels and licence compliance will be reported annually to Manitoba Sustainable Development.

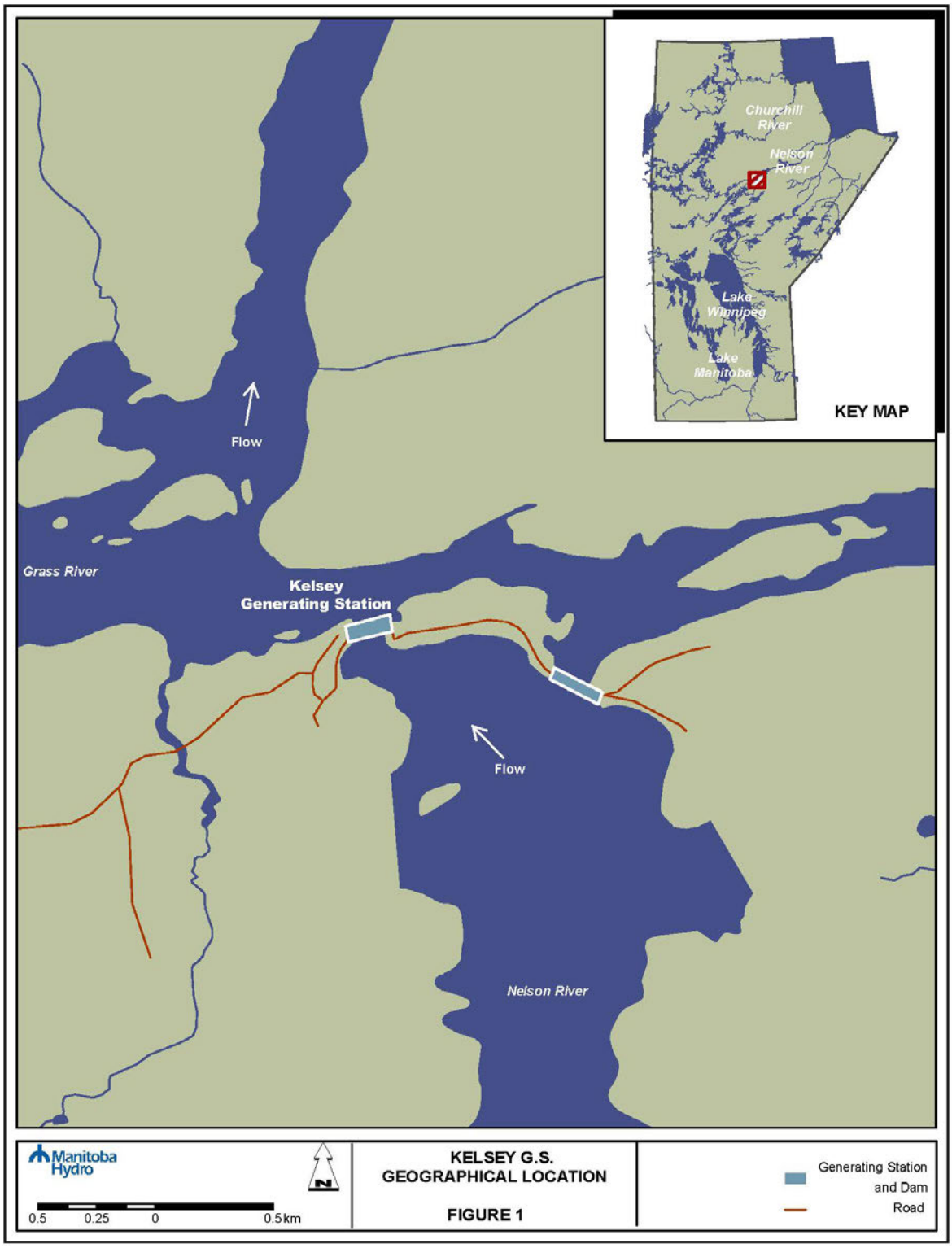
4. Change Management

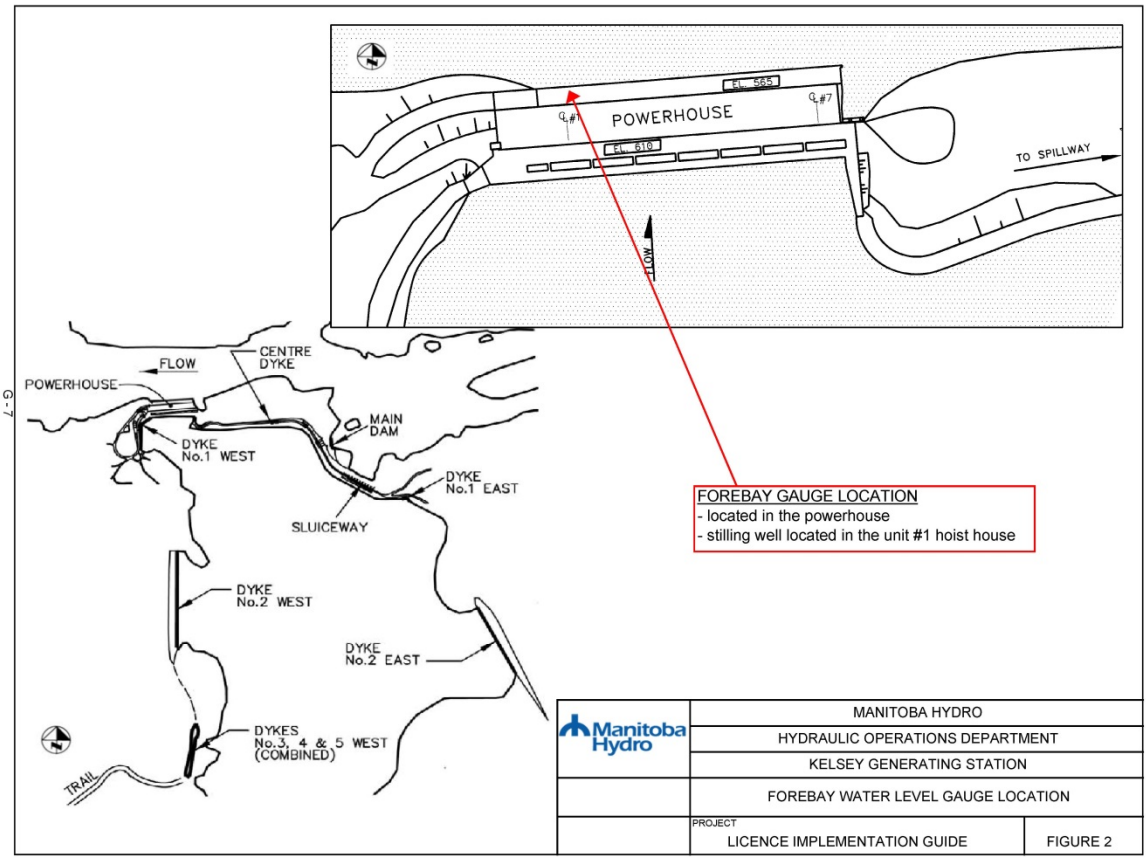
4.1 Regular Updates

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

Appendix A

Site Map and Forebay Water Level Gauge Location


Churchill River
Nelson River
Lake Winnipeg
Lake Manitoba
KEY MAP
Flow
Grass River
Kelsey Generating Station
Flow
Nelson River
Manitoba Hydro
0.5 0.25 0 0.5km
KELSEY G.S.
GEOGRAPHICAL LOCATION
FIGURE 1
Generating Station and Dam
Road


EL. 585
POWERHOUSE
#1
#7
EL. 519
TO SPILLWAY
FLOW
POWERHOUSE
CENTRE DYKE
MAIN DAM
DYKE No.1 WEST
DYKE No.1 EAST
SLUICEWAY
DYKE No.2 WEST
DYKE No.2 EAST
DYKES No.3, 4 & 5 WEST (COMBINED)
TRAIL
FOREBAY GAUGE LOCATION
- located in the powerhouse
- stilling well located in the unit #1 hoist house
Manitoba Hydro
MANITOBA HYDRO
HYDRAULIC OPERATIONS DEPARTMENT
KELSEY GENERATING STATION
FOREBAY WATER LEVEL GAUGE LOCATION
PROJECT
LICENCE IMPLEMENTATION GUIDE
FIGURE 2

Appendix F: Glossary

Glossary

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.

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: is another word for 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).

Dyke: 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.

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).

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.

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.

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, dyke, 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.

Spillway: A concrete structure that is used to pass excess flow so that the dam, dykes, 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.

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.