

WATER POWER ACT LICENCES

KELSEY GENERATING STATION THIRD AMENDMENT REQUEST

SUPPORTING DOCUMENTATION

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Manitoba Water Stewardship

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HYDRAULIC OPERATIONS DEPARTMENT
POWER SALES & OPERATIONS DIVISION
POWER SUPPLY

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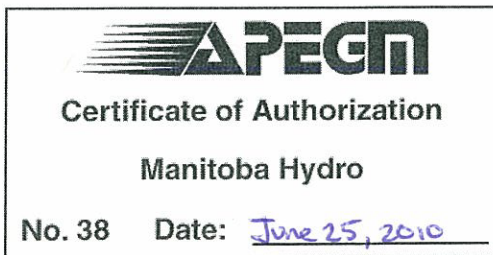
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1.0 INTRODUCTION - LICENCE BACKGROUND

This report is provided at the request of Manitoba Water Stewardship to provide information in support of the application for a Third Amending Licence.

Manitoba Hydro has operated the Kelsey Generating Station in accordance with the Final Licence and the First and Second Amending Licences for the Development of Water Power at the Kelsey Site on the Nelson River. Construction was completed in 1961 and initially involved construction of 5 units, with room for expansion. The Final Licence was issued in accordance with the provisions of The Water Power Act on March 10, 1966. The licence was issued for a term of 50 years from January 1, 1965.

A subsequent Interim Licence was issued on March 26, 1969 to construct, operate and maintain a sixth turbine and to construct a headblock and enclosure for a seventh unit at the Kelsey site. Construction of the sixth turbine was completed on June 29, 1969. This was then finalized in the first amending licence that was issued on April 29, 1971.

The second amending licence was issued to include a seventh turbine on April 8, 1983.

2.0 PROJECT COMPONENTS

The Kelsey Generating Station is located approximately 680 km by air from Winnipeg, on the upper Nelson River between Sipiwesk Lake and Split Lake, as shown in Figure 1. Figure 2 is an overall site map that shows the layout of the major project components. Photograph 1 shows the Kelsey Generating Station powerhouse and spillway.

Kelsey Generating Station was originally built to supply power to the International Nickel Company's (INCO) mining and smelting operations in the Moak and Mystery lake areas and to the City of Thompson. Six years after completion, the generating station was linked to Manitoba Hydro's provincial electrical system grid.

The Kelsey Generating Station consists of a powerhouse, spillway and dykes. The initial installed generating capacity of all seven units was 294,000 horsepower (42,500 per unit). The station components include a seven unit powerhouse, nine spillway gates and a number of auxiliary dykes. Table 1 provides a summary of the Kelsey Generating Station's major characteristics.

Table 1: Kelsey G.S. Major Characteristics

Construction Period	1957-1961
Initial Capability (nameplate rating)	219 MW (294,000 horsepower)
Average annual generation	1800 million kW-h
Design head	17.1 m (56 feet)
Average head	16.0 m (52.6 feet)
Maximum licence forebay elevation	184.404 m (605 feet)
Maximum operating forebay elevation	184.404 m (605 feet)

Table 2 summarizes major characteristics of the Kelsey powerhouse and spillway.

Table 2: Kelsey G.S. Component Characteristics (as of June 2010)

Powerhouse	Number of Units	7
	Length including Service Bay	Approx. 194 m (636.5 feet)
	Deck Elevation	185.9 m (610 feet)
	Discharge Capability	1712 cms (60,500 cfs)
	Power Production Unit 1 Unit 2 Unit 3 Unit 4 Unit 5 Unit 6 Unit 7	60,500 horsepower 60,500 horsepower Currently being rerunnered 42,000 horsepower 60,500 horsepower 42,000 horsepower 42,000 horsepower
Spillway	Number of Bays	9
	Length	Approx. 175 m (575 feet)
	Deck Elevation	186.2 m (611 feet)
	Discharge Capability (at maximum operating forebay level)	8495 cms (300,000 cfs)

3.0 PROJECT UPGRADES, STUDIES AND AGREEMENTS

3.1 System Upgrades

3.1.1 Scope

The ReRunning Project includes the following scope of work:

- Installation of more efficient turbine runners
- Replacement of steel liners
- Replacement of generator stator windings
- Replacement of generator rotor windings
- Refurbish or replace worn out components
- Replacement of transformers
- New control and monitoring systems

Units 5, 2, 1 and 3 were refurbished between 2006 and 2010 with increased capacity to 60,500 horsepower with further information outlined in Table 3.

Table 3: ReRunning Project - Schedule and Capacity

Power Production	Date of ReRunning	Per ReRunning Project (horsepower)	Post ReRunning Project (horsepower)
Unit 1	2008-10-15 to 2009-07-16	42,000	60,500
Unit 2	2008-01-03 to 2008-08-19	42,000	60,500
Unit 3	2009-10-14 to 2010-07-01	42,000	60,500
Unit 4	2010-08-31 to 2011-05-18	42,000	60,500
Unit 5	2006-11-01 to 2007-09-24	42,000	60,500
Unit 6	2011-07-16 to 2012-03-05	42,000	60,500
Unit 7	2012-04-16 to 2012-11-21	42,000	60,500
Total	2006-2012	294,000	423,500

3.1.2 Correspondence

In 2002, Manitoba Hydro provided a project description and environmental assessment for the Kelsey ReRunning project to Manitoba Water Stewardship. In a follow up letter to Manitoba Water Stewardship in 2004, Manitoba Hydro noted that the Environmental Approvals Branch reviewed the “Kelsey Generating Station, Project Description & Environmental Assessment, ReRunning Project” and indicated that licensing under the Environment Act will not be required.

In 2007, 2008 and 2009, Manitoba Hydro provided a construction update to Manitoba Water Stewardship. In 2008, Manitoba Hydro also provided additional information to Manitoba Water Stewardship as was requested by the Kelsey ReRunning Project Crown Consultation Steering Committee.

Manitoba Hydro has provided information as requested by the Province and Fisheries and

Oceans Canada (DFO) over the same period.

3.2 Studies

Manitoba Hydro completed the following studies for the Kelsey ReRunning Project:

- 2002 - Project Description and Environmental Assessment
- 2003 - Kelsey Generating Station, Project Description & Environmental Assessment, ReRunning Project
- 2005 - Kelsey ReRunning Project Aquatic Assessment - Assessment of the Potential Effects of Kelsey Re-running on Fish and Fish Habitat in the Sipiwesk lake to Split Lake Reach of the Nelson River
- 2007 - Fish Movements and Turbine Passage at Selected Manitoba Hydro Generating Stations
- 2009 - Survival and Movement of Fish Experimentally Passed Through a Re-Runned Turbine at the Kelsey Generating Station, 2008.
- 2010 - Kelsey Generating Station - Quantification of Fish Habitat for the Kelsey Re-Running Project, 2008.

3.3 Agreements

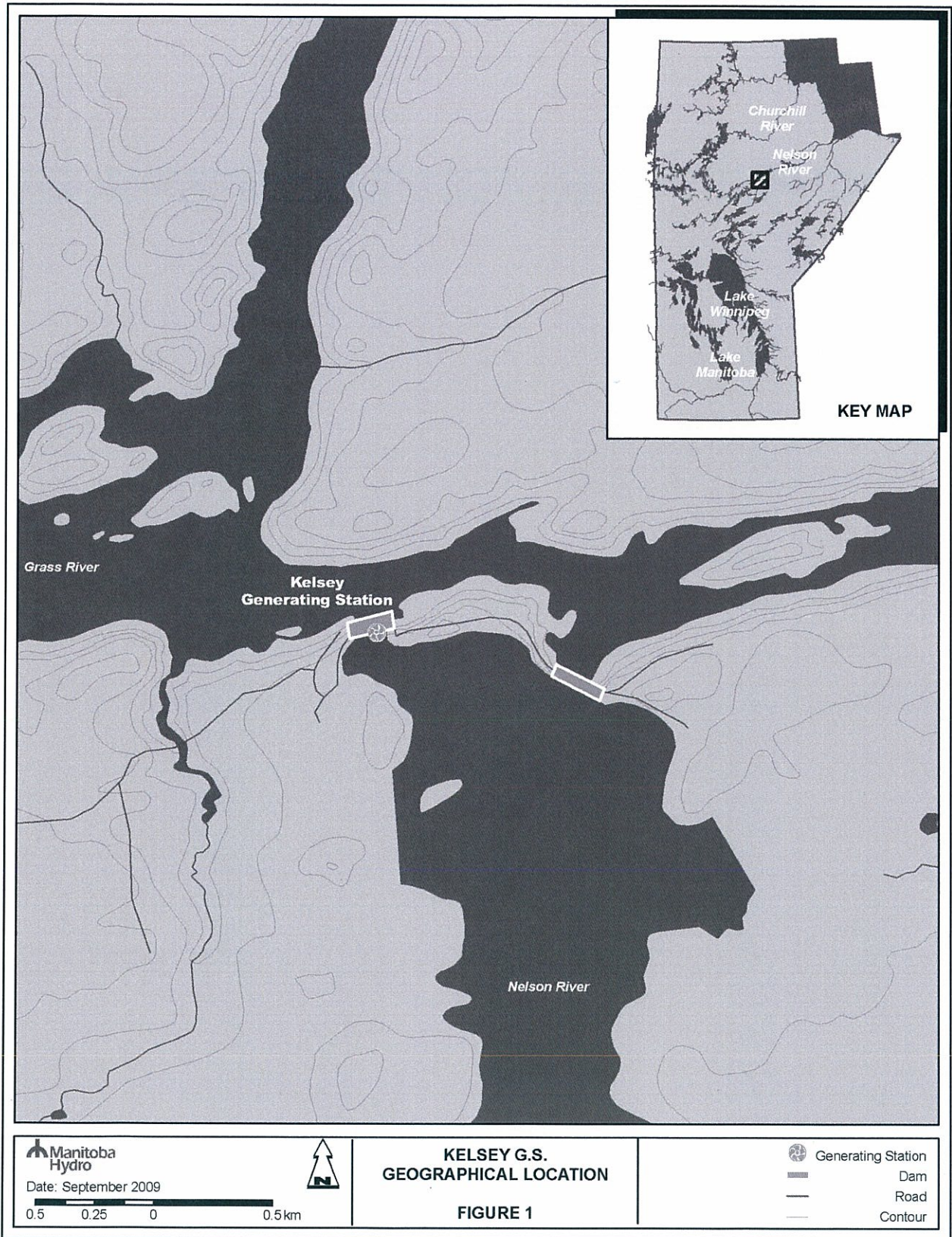
The Tataskweyak Cree Nation has provisions for compensation resulting from the forebay operations of the Kelsey Generating Station in agreements dated 1996 and 2008. In the 1980's agreements were reached with several private fishing interests on Sipiwesk Lake and Cauchon/Archibald Lakes.

4.0 CLOSURE STATEMENT

Manitoba Hydro continues to operate the Kelsey Generating Station in accordance with the Final Licence and the two subsequent amending licences for the Development of Water Power at the Kelsey site on the Nelson River. Canadian Dam Association Guidelines are used in the operation and maintenance of the generating station and associated structures.

Manitoba Hydro plans to apply for a renewal licence prior to the 2015 expiry of the final licence. A formal notification of Manitoba Hydro's intent to renew this licence will be sent to Manitoba Water Stewardship later this year. During the renewal process Manitoba Hydro intends to review the licence area, monitoring, dam safety and work together with Water Stewardship to develop a licence compliance standard for this project.

Figure 1: Kelsey Generating Station Location



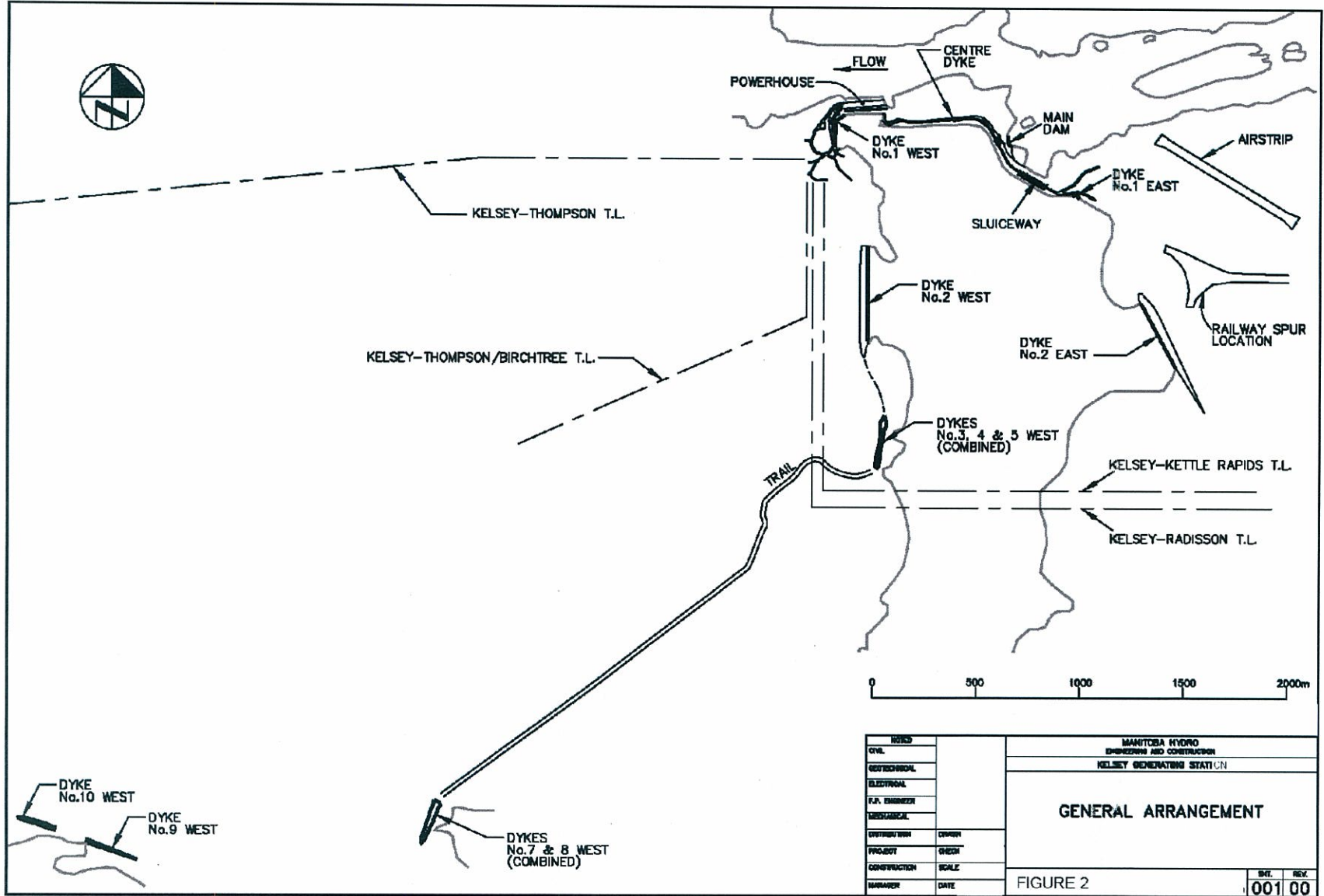


Figure 2: Kelsey Generating Station Overall Site Map

Photograph 1: Kelsey Generating Station Powerhouse and Spillway

