TATASKWEYAK CREE NATION

Submission by Tataskweyak Cree Nation (TCN) to the Manitoba Clean Environment Commission Public Hearing on the Bipole III Transmission Project

OUTLINE

September 17, 2012

I. <u>Outline of Topics and Issues to be Addressed</u>

A. TCN's Expression of the Cree World View and Hydro Development

<u>Issues</u>

- TCN's Mother Earth Model and the Interrelatedness of all Things;
- Assessment of Stresses on the TCN Homeland Ecosystem Caused by Hydro Development using TCN's Mother Earth Model; and
- Achieving Harmony and Balance in the TCN Homeland Ecosystem.

B. The History and Extent of Hydro Development in the TCN Resource Area

<u>Issues</u>

- Lands and waters affected or occupied in the TCN Resource Area for Hydro Development; and
- Attendant Impacts.

C. The Disturbance within the TCN Resource Area Caused by the Bipole III Transmission Project

<u>Issues</u>

- The Nature and Extent of the Bipole III Transmission Project in the Split Lake Resource Area; and
- Attendant Impacts.

D. Negotiations with Manitoba Hydro to Address Attendant Impacts of the Bipole III Transmission Project on TCN

<u>Issues</u>

- Overview of Bilateral TCN - Hydro Process to Address Attendant Impacts of Bipole III;

  - Relationship of the TCN – Hydro Process to the Crown's Duties Arising Under s. 35 of the Constitution Act (1982)
  - Relationship of the TCN – Hydro Process to Past Agreements Made between TCN and Hydro, particularly the:
    - 1977 Northern Flood Agreement [NFA] and;
    - 1992 Agreement

  as presented by legal counsel in a memo to be prepared and submitted seven (7) days in advance of the TCN submission
- The Current Status of the TCN – Hydro Process; and
- TCN Conditions for Support of the Bipole III Transmission Project.

E. TCN's Perspectives on the Bipole III Transmission Project EIS

<u>Issues</u>

- TCN Perspectives on the EIS including:
  - Baseline data;
  - Recognition of documented TCN ATK;
  - Determination of significance of adverse effects;
  - Assessment of the impacts of fragmentation;
  - Determination of cumulative effects;
  - Compensation and training, employment and business, and related development measures; and
  - Environmental Protection Plan.

F. TCN Requirement of Harmony and Balance in Respect of the Bipole III Transmission Project

<u>Issues</u>

- Overview of Requirements for Achieving Harmony and Balance; and
- TCN Conditions for Support of the Bipole III Transmission Project.

II. Documents

1. Northern Flood Agreement between the Northern Flood Committee, Canada, Manitoba and Manitoba Hydro, December 16th, 1977 available at http://www.hydro.mb.ca/community/agreements/nfa/t_of_c.htm
2. The Agreement among Split Lake Cree First Nation, Canada, Manitoba, and Manitoba Hydro, 1992, available at http://www.hydro.mb.ca/community/agreements/sla/t_of_c.htm
3. Analysis of Change: Manitoba Hydro Projects and Related Activities in the Split Lake Cree Study Area: Split Lake Cree Post Project Environmental Review, Volume 1 of 5, 1996, available at http://www.tataskweyak.mb.ca/HISTORY/analysispdf/analysiscomplete.pdf
4. History and First Order Effects: Manitoba Hydro Projects and Related Activities in the Split Lake Cree Study Area: Split Lake Cree Post Project Environmental Review, Volume 2 of 5, 1996, pages 45-64 attached (1)
5. Keeyask Generating Station - Tataskweyak Cree Nation - Overview of Water and Land, June 2002, available at http://www.tataskweyak.mb.ca/LANDS/OWL-cree-engl.pdf
6. Bipole III – Preferred Route Selection June 2010, prepared by Tataskweyak Cree Nation, Appendix H of Aboriginal Traditional Knowledge Report # 2 in the Bipole III Environmental Impact Statement, available at http://www.hydro.mb.ca/projects/bipoleIII/eis/BPIII_Aboriginal_Traditional_Knowledge_Technical_%20Report%202_November%202011_Appendix_H.pdf
7. Report on Bipole III Right-of-Way and Expected Impacts, March 2011, Appendix I of Aboriginal Traditional Knowledge Technical Report #2 in the Bipole III Environmental Impact Statement, available at http://www.hydro.mb.ca/projects/bipoleIII/eis/BPIII_Aboriginal_Traditional_Knowledge_Technical_%20Report%202_November%202011_Appendix_I.pdf
8. Bipole III Environment Impact Statement, filed December 5, 2011, available at http://www.hydro.mb.ca/projects/bipoleIII/eis.shtml
9. Keeyask Environmental Evaluation: A Report on the Environmental Effects of the Proposed Keeyask Project on Tataskweyak Cree Nation and War Lake First Nation, Prepared by Cree Nation Partners, January 2012, available at http://keeyask.com/wp/wp-content/uploads/2012/07/CNP-Keeyask-Environmental-Evaluation-Web-Jan2012.pdf

10. Letter of June 6, 2012 from Victor Spence, Manager of Future Development, Tataskweyak Cree Nation to Terry Sargeant, Chair, Clean Environment Commission, attached (2); and
11. Bipole III Environmental Impact Statement, Supplemental Material, July 2012, available at http://www.hydro.mb.ca/projects/bipoleIII/bpIII_supplemental_materials_july_31_12.pdf
12. Bipole III Environmental Impact Statement, Supplemental Caribou Technical Report, August 2012, available at http://www.hydro.mb.ca/projects/bipoleIII/BPIII_CaribouSupplementalReport_August2012.pdf
13. Memorandum from legal counsel concerning the relationship of the Bipole III bilateral TCN – Hydro process to the Crown's obligations arising from s.35 of the Constitution Act (1982) and to past Agreements made between TCN and Hydro to be prepared and submitted seven (7) days in advance of TCN presentation of submission.

Attachment 1

3.0 First Order Effects on Land and Waterways

3.1 INTRODUCTION

FIRST ORDER EFFECTS WERE INTRODUCED IN SECTION 1.2.2.

Physical impacts upon lands and waters are a consequence of the operation of the hydroelectric power facilities in the study area, which account for almost three quarters of Manitoba's generating capacity. Land must be flooded as a result of the construction of generating stations, dams and control structures, or taken and cleared for transmission lines, converter stations and roads. Water flows and levels are altered for the production of electricity. These first order physical impacts are important because they cause higher order changes to vegetation, water quality, fish and wildlife, and transportation patterns, which in turn impact upon the economic, social and cultural activities of the Split Lake Cree.

The following sections describe, both qualitatively and quantitatively, the effects of Manitoba Hydro and related activities on the land and water. It is intended to provide:

- an appreciation of the first order environmental effects on the Split Lake Cree Study Area of hydro development and electrical service to Split Lake, and
- basic information that will be useful in building an understanding of higher order effects on the resources and people of the study area.

3.2 LAND EFFECTS

ALL 35 MANITOBA HYDRO AND RELATED PROJECTS DEVELOPED IN THE STUDY AREA since 1957 have affected its land resources in some manner:

- areas have been inundated by waters created by generating station forebays
- portions of the Churchill River have been dewatered by reduced flows as a result of the CRD, exposing land that has previously been under water
- rights-of-way have been occupied and, for the most part, cleared and maintained for transmission lines, temporary and permanent access roads, and rail spur lines
- sites have been cleared and developed for converter stations, telecommunication towers, townsite creation and expansion, construction camps and work areas, and a diesel generating station
- sites have been cleared and materials removed from borrow areas. Some of these borrow areas have been rehabilitated.

The amount of land affected or occupied is a useful indicator for gauging the absolute and relative effect of different projects on land resources. In general, the greater the amount of land affected or used for project purposes, the greater the effect on the biophysical and human environment, although factors such as location and the resources on the land can also be important determinants of effect. Where there are multiple projects in an area, another useful indicator of environmental effects is the total amount of land affected by all projects. This measure provides a first indication of the cumulative effect of multiple projects.

To find out more about the amount of land affected by individual projects and all projects combined, estimates of the area of land affected or occupied have been produced for each project listed in Table 1 (see Attachment 2 for additional detail). These estimates were calculated using a variety of sources, including water licence drawings and maps, aerial photographs, and project description data, in combination with various estimation procedures, including planimeter measurements and application of standard formulae to calculate the areas.

A project-by-project breakdown of the estimates produced is presented in Table 2. The projects are organized according to the decade in which they came into service to provide an historical perspective. The following qualifications and considerations apply to the estimates:

- they are considered to be accurate to ±15 per cent
- only lands in the study area are included. Several transmission lines, the Kelsey forebay and the road from Thompson to Split Lake were located both within and outside the study area. Adjustments were made to include only the portion of lands affected within the study area

Figure 10

Percentage of Affected Lands By Type of Effect

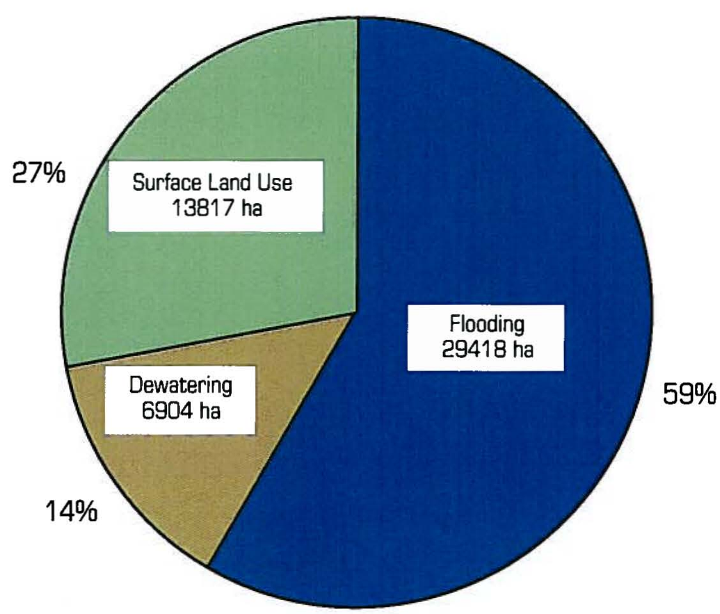


Table 2

Lands Affected by Manitoba Hydro Projects and Related Activities in the Split Lake Cree Study Area by Project

Project	Flooding / Dewatering (hectares)	Flooding / Dewatering (acres)	Surface Land Use (hectares)	Surface Land Use (acres)	Total (hectares)	Total (acres)
1955-59						
Kelsey Rail Spur			184	455	184	455
1960-69						
Kelsey Generating Station	5767	14250	47	117	5814	14367
Kelsey Airstrip			121	300	121	300
Kelsey to Thompson 138 kV Transmission Line			559	1382	559	1382
Kelsey to Radisson 138 kV Transmission Line			594	1469	594	1469
Tap to Gillam, Kettle 138 kV Transmission Line			61	152	61	152
Gillam Townsite Expansion			148	365	148	365
Split Lake Diesel Generating Station			2	5	2	5
1970-79						
Kettle Generating Station (incl. Butnau Diversion)	22066	54526	408	1007	22474	55533
Long Spruce Rail Spur			103	255	103	255
Long Spruce to Gillam Road (1971)			157	388	157	388
Radisson Converter Station			18	45	18	45
Kettle to Radisson 138 kV Transmission Lines (7 lines)			159	394	159	394
HVDC #1&2 +/-500 kV Transmission Line			4079	10080	4079	10080
Kelsey to Mystery Lake 230 kV Transmission Line			37	91	37	91
Ilford to Split Lake Transmission Line			162	400	162	400
Kelsey to Radisson 230 kV Transmission Line			594	1469	594	1469
Sundance Townsite			83	204	83	204
Long Spruce to Sundance Road (1976)			157	388	157	388
Limestone Rail Spur			15	36	15	36
Henday Converter Station			16	39	16	39
Long Spruce to Henday 230 kV T.L. (3 lines)			206	509	206	509
Long Spruce to Radisson 230 kV T.L. (3 lines)			177	436	177	436
Lake Winnipeg Regulation (NFA Easement Land)			790	1952	790	1952
Churchill River Diversion (dewatering)	6904	17060			6904	17060
Long Spruce Generating Station	1376	3401	352	868	1728	4269
Henday to Radisson HVDC #2 +/-500 kV			1594	3939	1594	3939
Thompson to Split Lake Road			608	1503	608	1503
1980-89						
Split Lake to Long Spruce Road			667	1648	667	1648
Radisson to Churchill 138 kV Transmission Line			712	1760	712	1760
Radisson to Limestone 138 kV Transmission Line			366	904	366	904
Henday Collector Lines			60	149	60	149
1990-94						
Limestone Generating Station	209	516	277	684	486	1200
HVDC #2 HVDC backup +/-500 kV Transmission Line			69	170	69	170
Kelsey to Split Lake 138 kV Transmission Line			235	582	235	582
Total	**36322**	**89754**	**13817**	**34145**	**50139**	**123899**

Source: Manitoba Hydro

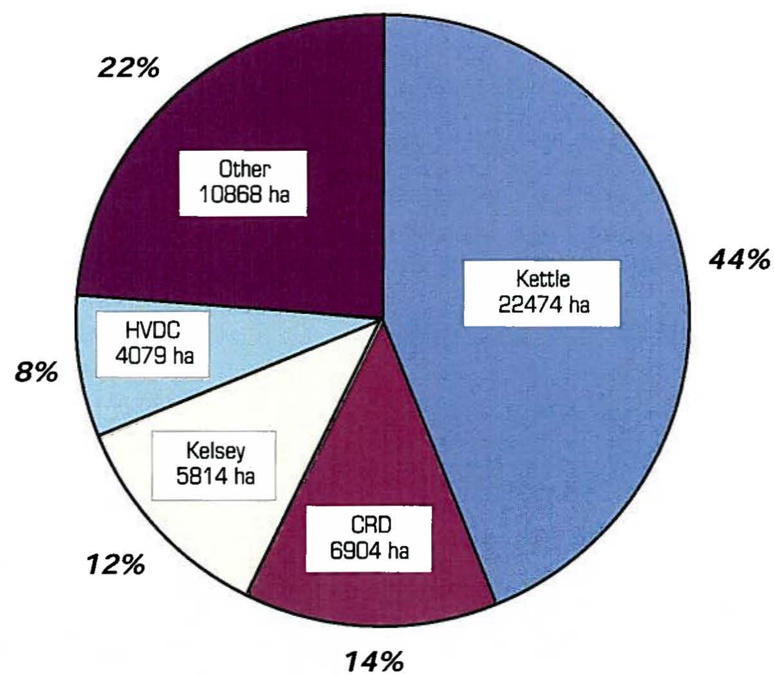
- the area shown for transmission lines includes the entire right-of-way secured by Manitoba Hydro. Development is constrained over this area, however, not all of it is actually disturbed. Typically, 65 to 75 per cent of a transmission line's right-of-way is cleared and maintained, the remainder on the outer edge is left alone. On the other hand, the estimates do not include access trails located off the right-of-way that are used for transmission line maintenance as information about these trails was not readily available
- the area shown for LWR represents the easement lands below the set back line on the Split Lake Reserve required for water storage purposes
- flooded areas consist of inundated lands. This is a measure of net flooded area since the area of the pre-project waterways experiencing high water levels is not included.

A total of 50,139 hectares (123,899 acres) of land in the study area are estimated to have been affected by Manitoba Hydro projects and related activities. This is equivalent to about 11 times the area of the original Split Lake reserve or 1/100 of the area of the Split Lake Resource Management Area.

The affected lands are located in two bands that extend in a general east/west direction across the study area. A wide band in the southern part of the study area that generally follows the Nelson River contains 86 per cent of the lands involved, i.e., 43,235 hectares (106,836 acres).

Figure 11

Four Largest Contributors to Lands Affected

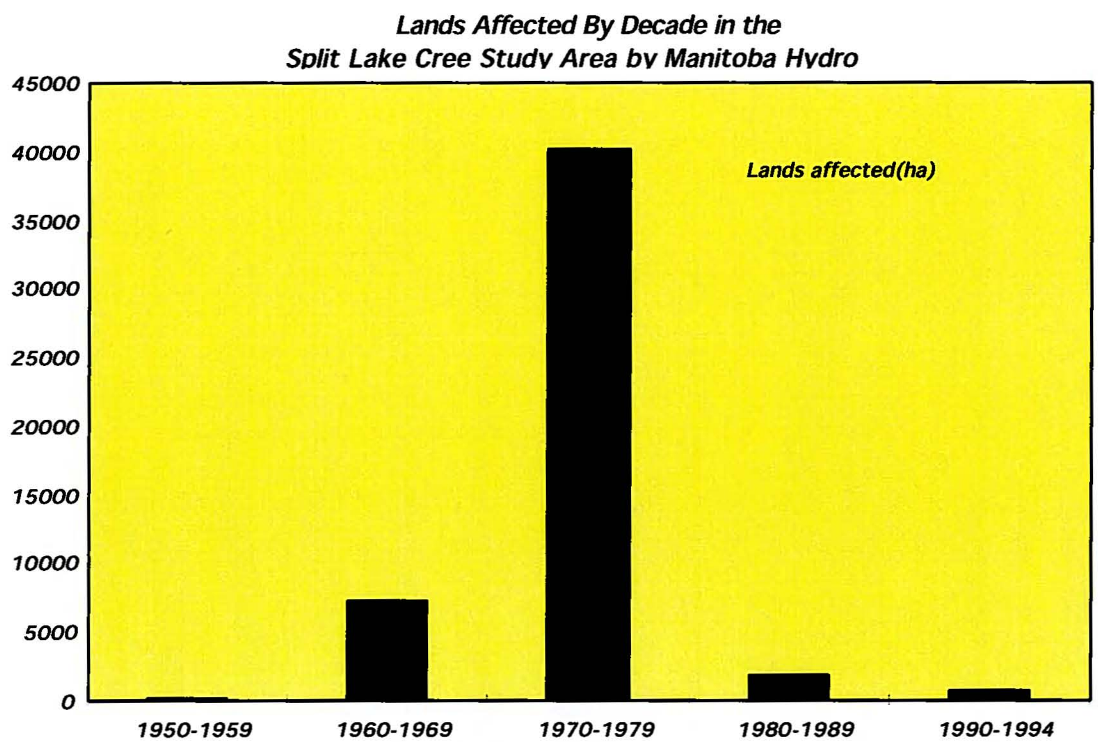


Thirty-two projects contribute flooding and surface land-use effects in this southern band. Historically, the Nelson River area, including its tributaries, has been the most heavily occupied and used part of the study area by its aboriginal inhabitants. The remaining 14 per cent of land affected, i.e., 6,904 hectares (17,060 acres), is located on a narrow band along the Churchill River. This area consists entirely of dewatered land from CRD.

About 73 per cent of lands affected have been changed by flooding and dewatering, with flooding accounting for 29,418 hectares (72,694 acres) and dewatering for 6,904 hectares (17,060 acres) (see Figure 10). These water related effects arise from five projects: the four generating stations and CRD. Surface land uses account for the remaining approximately 27 per cent, i.e., 13,817 hectares (34,143 acres). This area is roughly half of that affected by flooding. In contrast to flooding/dewatering which results from a small number of projects, 33 projects contribute to changes in surface land use. The scope of uses is highly varied and includes rights-of-way for transmission lines, roads and rail spurs, as well as sites for construction camps, construction work areas, townsite expansion, telecommunication towers, and removal of granular materials.

The projects requiring the most land are the Kettle Generating Station, CRD, Kelsey Generating Station, and the HVDC 1&2 ±500 kV transmission line from Radisson to the boundary of the study area. As shown in Figure 11, the 39,271 hectares

Figure 12

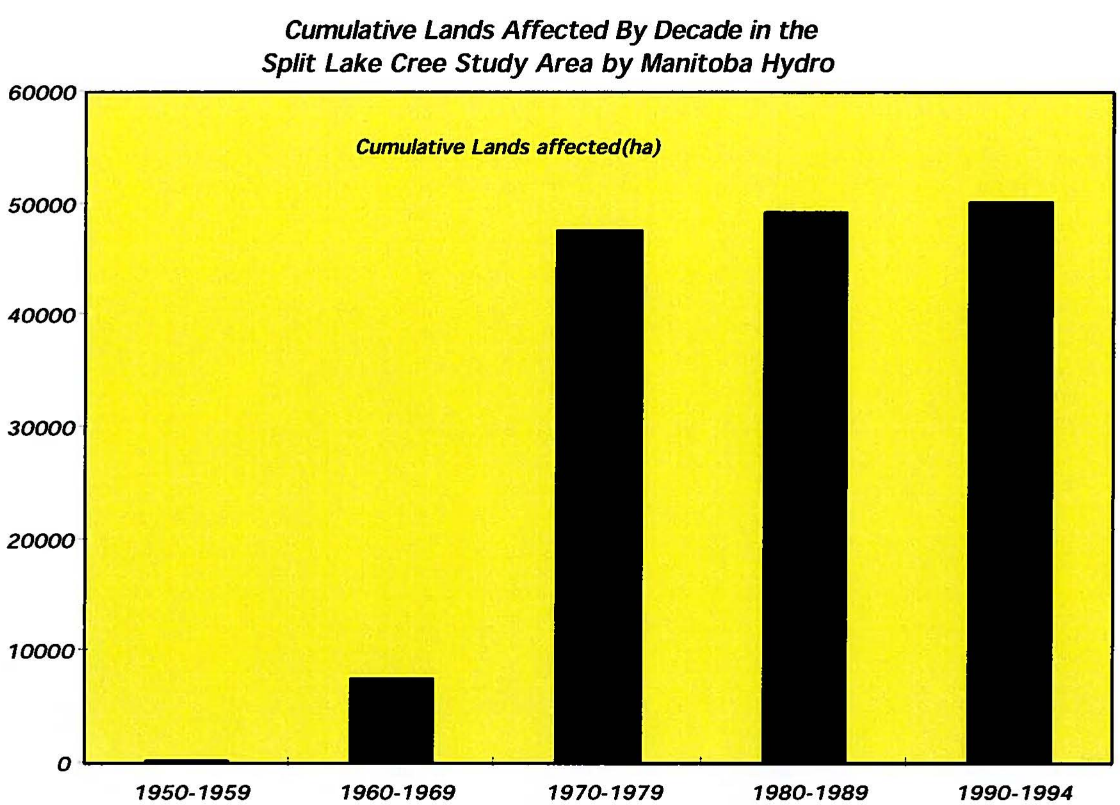


(97,041 acres) of land affected by these projects represents approximately 78 per cent of total affected acreage.

The Kettle Generating Station, with its sizeable associated flooding, is by far the largest single contributor, accounting for 44 per cent of the total.[13] Dewatering of the Churchill River by CRD is the second largest contributor while Kelsey flooding is the third largest contributor. Flooding from Kettle and Kelsey combined accounts for over half, i.e., 56 per cent, of the total lands affected. Fourth ranked HVDC transmission line from Radisson to the study area boundary is the only project in the top four where effects from surface land use predominate.

The total area of land affected is a combined amount extending over 35 projects. As noted in the history section above, these projects were developed and came into operation over 38 years, starting in 1957. During this time, the study area experienced progressive increases in the amount of land affected by Manitoba Hydro and related projects. The progression by decade is shown in Figures 12 and 13. Almost 80 per cent of the affected lands, i.e., 40,061 hectares (98,993 acres), were added during the 1970s when three of the four largest contributors - Kettle Generating Station,

Figure 13



[13] Kettle ranks third in the amount of flooding produced by a hydro-electric development in Manitoba. The Grand Rapids Generating Station and the Churchill River Diversion's flooding of Southern Indian Lake and the Notigi Forebay have respectively produced approximately five and three times more flooding than Kettle.

CRD, and the HVDC 1&2 ± 500 kV transmission line came on stream. Other notable contributors during this period were the Kelsey to Radisson 230 kV transmission line, the Long Spruce Generating Station, and the Thompson to Split Lake road. More than three-quarters of the remainder, i.e., 7,299 hectares (18,036 acres) was added during the decade of the sixties. Flooding from the Kelsey Generating Station accounted for most of this increment with the Kelsey to Thompson 138 kV transmission line and the Kelsey to Radisson 138 kV transmission line being other notable contributors. Less than 5 per cent of the affected lands were added during the decades of the 50s, 80s and 90s. The effects on land during these decades were almost entirely related to surface land use with the Gillam to Churchill 138 kV transmission line, the Gillam to Thompson road, and construction sites for the Limestone Generating Station being the largest contributor. The Limestone Generating Station's minimal flooding was the only water related effect. The slowdown in new development that has occurred in recent years is expected to continue for the remainder of the 1990s. Additions to affected lands during the rest of the decade are expected to be small. If this occurs, the 1990s would be the least active decade since 1950s.

The findings in this section are useful in understanding the effects of Manitoba Hydro projects and related activities on the study area. At the same time, it must be remembered that the area of land is the most basic measure of the characteristics of land resources and that direct changes to land represent the first step in a chain of effects that works its way through the biophysical and socio-economic environment. The real impacts of hydroelectric development on affected lands depend on the location of the land, the resource on and around the lands, the importance of these resources to ecosystem sustainability and resource users, and the severity of the impairment by the development on the lands.

The findings illustrate the combined effects of Manitoba Hydro activity in the Split Lake Cree Study Area. They show that the effects of Manitoba Hydro projects on study area land have been diverse with the following notable characteristics:

- 50,139 hectares (123,899 acres) affected
- contributed by 35 different projects developed progressively over a period of 38 years
- predominantly water related effects, particularly flooding, but with a significant contribution from surface land use effects
- heavily concentrated in the southern part of the study area
- dominated by four projects - Kettle and Kelsey flooding, CRD dewatering, and the HVDC ± 500 kv transmission line
- largely associated with projects developed in the 1960s and 1970s.

Further implications of these affects are addressed in Phase 2 of this PPER study.

3.3 WATERWAY EFFECTS

BY ITS VERY NATURE, HYDROELECTRIC DEVELOPMENT AFFECTS WATERWAYS. THE four generating stations and two water management projects occurring in or affecting the study area have produced first order effects on waterways in the study area by altering flows and/or water levels. As a result of these projects, the water regime along the Burntwood, Nelson and Churchill Rivers has been modified from its natural state. This section discusses and illustrates how Manitoba Hydro projects have affected flows and water levels on the seven waterway reaches (Figure 14) in the study area listed below.

For each waterway reach, a given location was selected that was judged to be typical and representative of the changes that have occurred through the reach. Actual and simulated flow and water level data was obtained/produced for each location specifically for analysis in this study (see Attachment 4). The given locations are indicated in parentheses and are also shown in Figure 14:

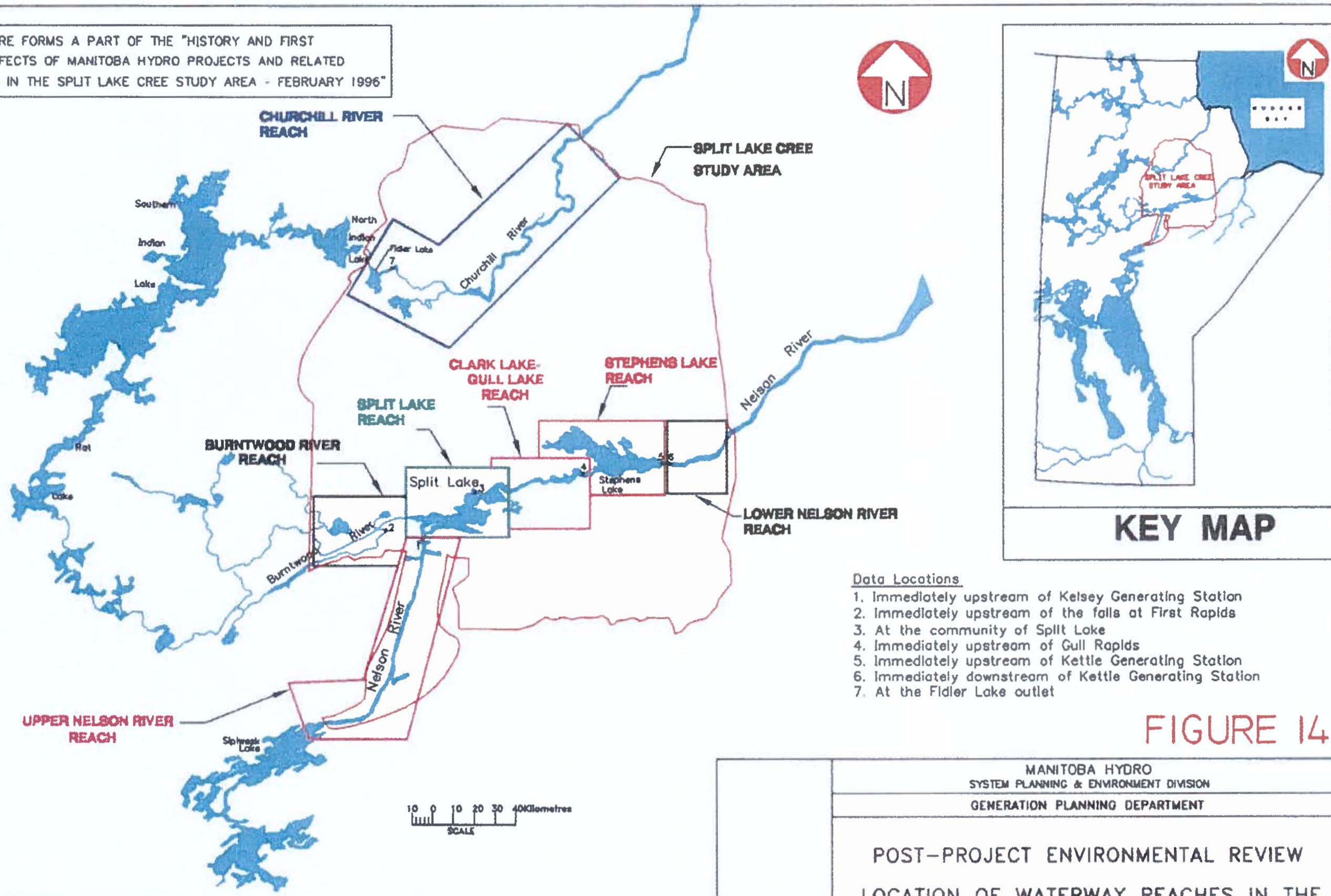
- Upper Nelson River Reach (upstream of Kelsey Generating Station)
- Burntwood River Reach (upstream of First Rapids)
- Split Lake Reach (at community of Split Lake)
- Clark Lake to Gull Lake Reach (upstream of Gull Rapids)
- Stephens Lake Reach (upstream of Kettle Generating Station)
- Lower Nelson River Reach (downstream of Kettle Generating Station)
- Churchill River Reach (at Fidler Lake outlet).

Key features of the first order effects of Manitoba Hydro projects on the above waterways are summarized in Table 3 and noted below:

- the projects produce a variety of effects on water flows and levels; increased water levels, increased flows, seasonal reversal of flows and levels, decreased flows, decreased water levels, altered daily, weekly and seasonal flows, frequent drawdown, and ponding
- the principle sources of effects are creation of generating station forebays, diversion of waterways, and regulation of flows
- the projects affecting flows and levels differ among waterways:
  - five of the waterways have been affected by more than one project and have post-project water regimes that include combination of effects
  - Kelsey's increased water levels and the seasonal reversal of flows from LWR have affected the Upper Nelson River
  - increased flows from CRD and seasonal reversal of flows from LWR have affected Split Lake and the Clark Lake to Gull Lake reach of the Nelson River. Because Kelsey operates as a run-of-river plant, it generally does not modify the flows passing by and therefore does not affect these waterways
  - Stephens Lake has been affected by LWR, CRD, and the Kettle Generating Station's forebay and operating regime
  - the Lower Nelson River downstream of Kettle has been affected by Kettle's discharges and the high water levels of the Long Spruce and Limestone forebays

B SIZE - 279 x 394

THIS FIGURE FORMS A PART OF THE "HISTORY AND FIRST ORDER EFFECTS OF MANITOBA HYDRO PROJECTS AND RELATED ACTIVITIES IN THE SPLIT LAKE CREE STUDY AREA - FEBRUARY 1996"



Data Locations

1. Immediately upstream of Kelsey Generating Station
2. Immediately upstream of the falls at First Rapids
3. At the community of Split Lake
4. Immediately upstream of Gull Rapids
5. Immediately upstream of Kettle Generating Station
6. Immediately downstream of Kettle Generating Station
7. At the Fidler Lake outlet

FIGURE 14

MANITOBA HYDRO - SPLIT LAKE CREE JOINT STUDIES

manitoba hydro

MANITOBA HYDRO
SYSTEM PLANNING & ENVIRONMENT DIVISION
GENERATION PLANNING DEPARTMENT

POST-PROJECT ENVIRONMENTAL REVIEW
LOCATION OF WATERWAY REACHES IN THE SPLIT LAKE CREE STUDY AREA

DRAWN	M.R./DGM
CHECK	G.N.C.
SCALE	AS SHOWN
DATE	96 03 19

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TABLE 3
FIRST ORDER EFFECTS OF MANITOBA HYDRO PROJECTS ON WATERWAYS IN THE SPLIT LAKE CREE STUDY AREA

Hydro Projects / Affected Waterways	**Kelsey Generating Station**	**Kettle Generating Station**	**Churchill River Diversion**	**Lake Winnipeg Regulation**	**Long Spruce Generating Station**	**Limestone Generating Station**
Upper Nelson River Reach (Upstream of Kelsey)	Increased Water Levels from Forebay			Seasonal Reveral of Flows		
Burntwood River Reach (Upstream of First Rapids)			Increased Flows / Levels			
Split Lake Reach (at community of Split Lake)			Increased Flows / Levels	Seasonal Reversal of Flows / Levels		
Clark Lake to Gull Lake Reach (Upstream of Gull Rapids)			Increased Flows/Levels	Seasonal Reversal of Flows/Levels		
Stephens Lake Reach (Upstream of Kettle)		Increased Water Levels From Forebay Frequent Drawdown & Ponding	Increased Flows	Seasonal Reversal of Flows/Levels		
Lower Nelson River Reach (Downstream of Kettle)		Daily, Weekly, Seasonally Controled Flows	Increased Flows		Increased Water Levels from Forebay	Increased Water Levels from Forebay
Churchill River Reach (at Fidler Lake outlet)			Decreased Flows/Levels			

Source: Manitoba Hydro

- only the Churchill River and Burntwood River were affected by one project. CRD decreased the flows and levels of the Churchill River and increased flows and levels on the Burntwood River.

As noted above, all of the waterways except the Churchill and Burntwood Rivers have been affected by more than one project. Table 4 compares average pre- and post-project seasonal flows and levels for each waterway, taking into account the effects of all projects that may have affected the waterway. For the purpose of this review, 'summer' has been defined as April to October and 'winter' has been defined as November to March. The evidence presented in the table must be interpreted with care, however, for the following reasons:

- being seasonal averages, the values presented exclude important nuances associated with hourly, daily, weekly or even monthly variations in flows and levels
- the period since the mid-1970s, when LWR and CRD began operating, has been much drier than the immediate period preceding these projects. This means changes to waterways affected by these projects represent both project and climatic effects. The drier climatic conditions have moderated the effects of these projects on the flows and levels in some areas, like the Nelson River, while worsening the effects in others, like the Churchill River.

Analysis of the Lower Nelson River Reach has not been analyzed because the developments in the reach would show similar water level and flow impacts as Kettle, except the flooded area would be nowhere near the magnitude as Kettle. As shown in Table 5, the time frames used in Table 4 for each waterways' pre- and post-project period vary according to the timing of projects that influenced the waterway. For several waterways, the time frame for the post-project period differs for the flows and levels. This seemingly incongruous situation occurs because some projects affect water levels but not flows or vise versa. An example is the Kelsey Generating Station that operates as a run-of-river plant creating effects on upstream water levels but not typically altering upstream or downstream flows. Because of this, the Upper Nelson River upstream of Kelsey started experiencing water level effects when Kelsey started operating, but only experienced effects on flows once the operation of LWR began in 1976 and the operations of Kelsey were modified beginning in 1977. Consequently, the appropriate time frames for the Upper Nelson River's post-project periods are 1960 to 1994 for water levels and 1977 to 1994 for flows. Adopting this approach allows as much data as possible to be grouped in a similar category providing a higher degree of confidence in the summarized results.

To elaborate on and better visualize the changes in flows and levels occurring on affected waterways, bar charts, except for the Nelson River downstream of Kettle, have been produced for each waterway by year from 1951 to 1994 (see Figures 15-20), showing seasonal water flows and levels. A time line indicating when

TABLE 4
EFFECTS OF HYDROELECTRIC DEVELOPMENT ON AVERAGE FLOWS AND LEVELS OF WATERBODIES IN THE SPLIT LAKE CREE STUDY AREA

	Average Inflows				Average Levels			
	Pre - Project		Post - Project		Pre - Project		Post - Project	
Affected Waterbody	Open Water (Apr-Oct)	Ice Conditions (Nov-Mar)	Open Water (Apr-Oct)	Ice Conditions (Nov-Mar)	Open Water (Apr-Oct)	Ice Conditions (Nov-Mar)	Open Water (Apr-Oct)	Ice Conditions (Nov-Mar)
Upper Nelson River Reach	2,793 cms	2,074 cms	1,640 cms	2,049 cms	174.90 m	174.52 m	184.16 m	184.18 m
(Upstream of Kelsey)	98,617 cfs	73,228 cfs	57,923 cfs	72,360 cfs	573.81 ft	572.57 ft	604.18 ft	604.25 ft
Burntwood River Reach	152 cms	54 cms	845 cms	852 cms	170.83 m	170.34 m	173.47 m	173.50 m
(Upstream of First Rapids)	5378 cfs	1895 cfs	29851 cfs	30101 cfs	560.46 ft	558.87 ft	569.13 ft	569.22 ft
Split Lake Reach	3,016 cms	2,138 cms	2,682 cms	2,976 cms	166.88 m	166.52 m	166.69 m	167.35 m
(at community of Split Lake)	106,493 cfs	75,486 cfs	94,710 cfs	105,091 cfs	547.51 ft	546.32 ft	546.89 ft	549.05 ft
Clark Lake to Gull Lake Reach	3,100 cms	2,208 cms	2,812 cms	3,006 cms	N/A	N/A	139.99 m	140.34 m
(Upstream of Gull Rapids)	109,466 cfs	77,957 cfs	99,309 cfs	106,148 cfs	N/A	N/A	459.29 ft	460.42 ft
Stephens Lake Reach	3,139 cms	2,220 cms	2,823 cms	2,998 cms	109.17 m	108.31 m	140.01 m	140.44 m
(Upstream of Kettle)	110,839 cfs	78,385 cfs	99,710 cfs	105,867 cfs	358.17 ft	355.34 ft	459.35 ft	460.77 ft
Lower Nelson River Reach (Downstream of Kettle)	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED
Churchill River Reach	1,152 cms	972 cms	250 cms	163 cms	28.58 m	28.13 m	23.55 m	23.12 m
(at Fidler Lake outlet)	40,669 cfs	34,312 cfs	8,817 cfs	5,764 cfs	93.75 ft	92.27 ft	77.27 ft	75.84 ft

Source: Manitoba Hydro, Attachment 4
See Description of Time Frames in Table 5.

TABLE 5
TIME FRAMES USED FOR PRE- AND POST-PROJECT PERIODS IN FLOW AND LEVEL ANALYSIS

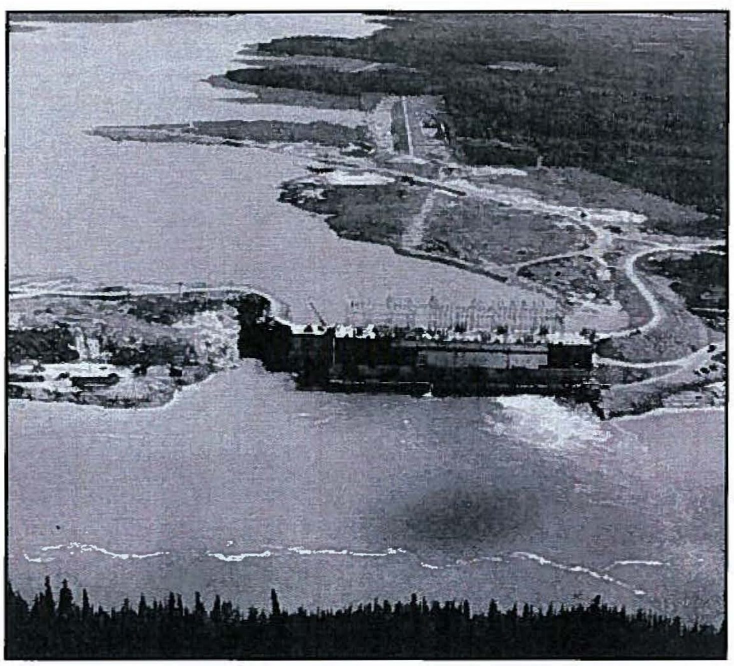
	Average Inflows				Average Levels			
	Pre - Project		Post - Project		Pre - Project		Post - Project	
Affected Waterbody	Open Water (Apr-Oct)	Ice Conditions (Nov-Mar)	Open Water (Apr-Oct)	Ice Conditions (Nov-Mar)	Open Water (Apr-Oct)	Ice Conditions (Nov-Mar)	Open Water (Apr-Oct)	Ice Conditions (Nov-Mar)
Upper Nelson River Reach (Upstream of Kelsey)	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1977 Summer to 1994 Summer	77/78 Winter to 94/95 Winter	1951 Summer to 1959 Summer	51/52 Winter to 59/60 Winter	1961 Summer to 1994 Summer	60/61 Winter to 94/95 Winter
Burntwood River Reach (Upstream of First Rapids)	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1978 Summer to 1994 Summer	77/78 Winter to 94/95 Winter	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1978 Summer to 1994 Summer	77/78 Winter to 94/95 Winter
Split Lake Reach (at community of Split Lake)	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1978 Summer to 1994 Summer	77/78 Winter to 94/95 Winter	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1978 Summer to 1994 Summer	77/78Winter to 94/95 Winter
Clark Lake to Gull Lake Reach (Upstream of Gull Rapids)	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1978 Summer to 1994 Summer	77/78 Winter to 93/94 Winter	N/A	N/A	1972 Summer to 1994 Summer	71/72 Winter to 93/94 Winter
Stephens Lake Reach (Upstream of Kettle)	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1978 Summer to 1994 Summer	77/78 Winter to 94/95 Winter	1951 Summer to 1970 Summer	51/52 Winter to 69/70 Winter	1972 Summer to 1994 Summer	71/72 Winter to 94/95 Winter
Lower Nelson River Reach (Downstream of Kettle)	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED	NOT ANALYZED
Churchill River Reach (at Fidler Lake outlet)	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1978 Summer to 1994 Summer	77/78 Winter to 94/95 Winter	1951 Summer to 1975 Summer	51/52 Winter to 74/75 Winter	1978 Summer to 1994 Summer	77/78 Winter to 94/95 Winter

Source: Manitoba Hydro, Attachment 4

the four generating stations and the two water management projects began operating illustrates which projects may have affected changes in flows and levels that appear on the charts. Also shown are a series of miniature maps that illustrate how Manitoba Hydro projects have contributed to flooding and dewatering of the waterways.

Figures 15 to 20, along with Tables 4 and 5, illustrate the effects of hydroelectric development on each waterway's flows and levels, and are further discussed below.

Upper Nelson River Reach - Figure 15 (upstream of Kelsey Generating Station) - Affected by Kelsey Generating Station from 1960 onward and LWR from 1976 onward. Kelsey's forebay raised water levels from the generating station to Sipiwesk Lake but had no effect on flows because the first 17 years of Kelsey operation, up to and including 1976, was as a run-of-river plant. A run-of-river plant uses the flow of the river as it occurs. The average annual water level at Kelsey was increased to around 184.2 m above sea level (ASL) (604.2 ft), a level that has been consistently maintained on a seasonal basis since 1961. This new higher water level raised the water level immediately upstream of the generating station by 9.3 m (30.4 ft) during the open water season and 9.7 m (31.7 ft) during the winter season. LWR changed the timing of flows coming out of Lake Winnipeg, but did not significantly alter the range of water levels. Seasonal flows were altered, with typically higher flows occurring in the winter instead of the summer and lower flows occurring in summer instead of winter. Average annual flows have declined by over 597 cms (21,100 cfs) following LWR, most likely because of generally drier conditions since LWR itself should not have altered average annual flows. The change in flow patterns lead to a tendency for winter water levels on the Upper Nelson River to be slightly higher than summer levels. Beginning about the same time (1977), as other components of Manitoba Hydro's system continued to evolve, Kelsey operations became more integrated in the whole hydroelectric system. Kelsey operations were modified to more effectively utilize the pondage (reservoir storage of limited capacity) of Kelsey's forebay on an infrequent basis to supplement flows over periods of a month or so, or to increase the gradient out of Sipiwesk Lake to alleviate winter hydraulic restrictions. The effects of these operations do not show up in the presentation of the seasonal water levels and flows.



Panoramic view of the newly created Kelsey Forebay - July 1960

Burntwood River Reach - Figure 16 (upstream of First Rapids) - Affected by CRD from 1976 onward. CRD increased flows an average of approximately 745 cms (26,307 cfs), equivalent to over an eight-fold increase in average flows. The increased flows resulted in an average increase in water elevations of 2.7 m (8.7 ft) in summer and 3.2 m (10.4 ft) in winter at First Rapids. Average seasonal water levels changed from being higher in summer than winter to the present condition where the average seasonal water levels are quite similar in the summer and winter, with the winter typically being slightly higher than the summer.

First Rapids on the Burntwood River looking downstream towards Split Lake - September 1977

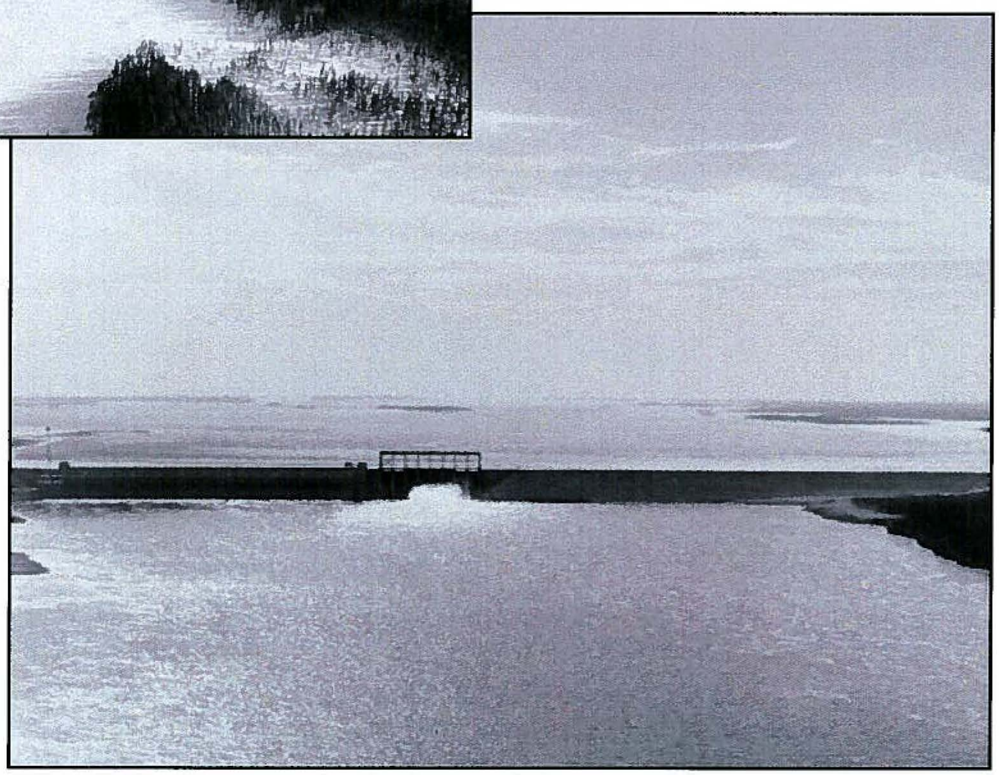
Split Lake Reach - Figure 17 (at community of Split Lake) - Not affected significantly by Kelsey generating station because Kelsey run-of-river operation did not materially alter flows from the Upper Nelson River until the operations were modified beginning in 1977. There were a couple of isolated incidents when the Kelsey forebay had to be drawn down causing increased flows to the normal Nelson River flows for periods of several months due to a fire during construction and due to a fire at the plant in December 1968, but these incidents do not show up in the presentation of the seasonal water levels and flows. From 1976 onward, LWR resulted in a seasonal reversal of flows and levels on Split Lake, while CRD increased the flows entering from the Burntwood River and thus the levels of Split Lake. In 1977, Kelsey operations became more integrated in the whole hydroelectric system with modifications to the operation of Kelsey which would have short duration affects on Split Lake water levels and flows. Most of the affects can be seen in Figure 14, except the modifications to the Kelsey operations. Pre-project water levels were higher in summer than winter; post-project winter water levels are an average of 0.7 m (2.2 ft) higher than the summer levels. During the post-project period, Split Lake's water levels decreased an average of 0.2 m (0.6 ft) during the summer and increased an average of 0.8 m (2.7 ft) during the winter while average annual flows only rose by about 167 cms (5,900 cfs). Average summer flows pre project were 878 cms (31,000 cfs) larger than average winter flows; during the post-project period the flows are much closer during the two seasons with winter flows averaging about 294 cms (10,400 cfs) more. The range of water levels did not change noticeably post project.

Clark Lake to Gull Lake Reach - Figure 18 (upstream of Gull Rapids) - Water levels at Gull Rapids were affected by the backwater effects of the Kettle Generating Station forebay that typically ranges between 141.1 m ASL (463.0 ft) in winter to 139.2 m ASL (456.6 ft) in summer from 1970 onward while water levels and flows throughout the reach were affected by CRD and LWR from 1976 onward. No rating curve (relationship between flow and water level) was available for Gull Rapids to allow estimates to be made about Gull Rapids water levels prior to Kettle, and, therefore, no estimate of the amount of change in water level at Gull Rapids (known as axis GR-3) due to Kettle is therefore possible at this time. LWR changed the seasonal pattern of flows coming from Split Lake, and CRD contributed additional flows through Split Lake. Average summer flows pre project were 892 cms (31,500 cfs) larger than average winter flows; during the post-project period the flows are much closer during the two seasons with winter flows averaging about 194 cms (6,850 cfs) more. The average flow past Gull Rapids has increased 246 cms (8,700 cfs) since LWR and CRD.

Satellite image of the Nelson River from Kelsey to Kettle showing open water sections in the Clark Lake and Gull Lake areas - January 1974

Stephens Lake Reach - Figure 19 (upstream of Kettle Generating Station) - Affected by Kettle Generating Station from 1970 onward and by LWR and CRD from 1976 onward, the area upstream of Kettle Generating Station has experienced the most pronounced changes of any waterway in the study area. Kettle's forebay increased upstream water levels from the generating station into Gull Rapids. Immediately upstream of the generating station, the average water level increased approximately 31.5 m (103.3 ft) to a forebay level of 140.2 m ASL (460.1 ft). LWR changed the seasonal pattern of flows coming through Stephens Lake, and CRD contributed additional flows into Stephens Lake. Because there are no wind set-up requirements in winter, the forebay is operated at a slightly higher level in winter than in summer, the average winter forebay is approximately 0.4 m (1.4 ft) higher than the average summer forebay level, whereas pre-project summer water levels were typically 0.9 m (2.8 ft) higher than winter levels. A simi-

Raising of Kettle Forebay suspended at elevation 443.0 ft ASL due to problems at the Butnau Dam in December of 1970



Panoramic view of the Kettle Forebay

lar pattern emerges for winter and summer flows; average summer flows pre project were 919 cms (32,450 cfs) larger than average winter flows; during the post-project period the flows are much closer during the two seasons with winter flows averaging about 175 cms (6,180 cfs) more. The average flow out of Stephens Lake has increased 227 cms (8,000 cfs) since LWR and CRD.

Not visible in the seasonal average data is the operating regime of the Kettle generating station which can noticeably affect short-term lake levels. Because the inflows into Stephens Lake are generally steady, and because of highly varying hourly and daily outflows to match the pattern of electrical demand in the province, Stephens Lake is typically drawn down over a week, and has been drawn by as much as 2.4 m (8.0 ft) in a one-month period.

Horseshoe Bay on the Lower Nelson River at the future location of Conawapa Generating Station with the Conawapa Exploration test pit just visible along the river and the Conawapa camp in the immediate foreground - September 1989.

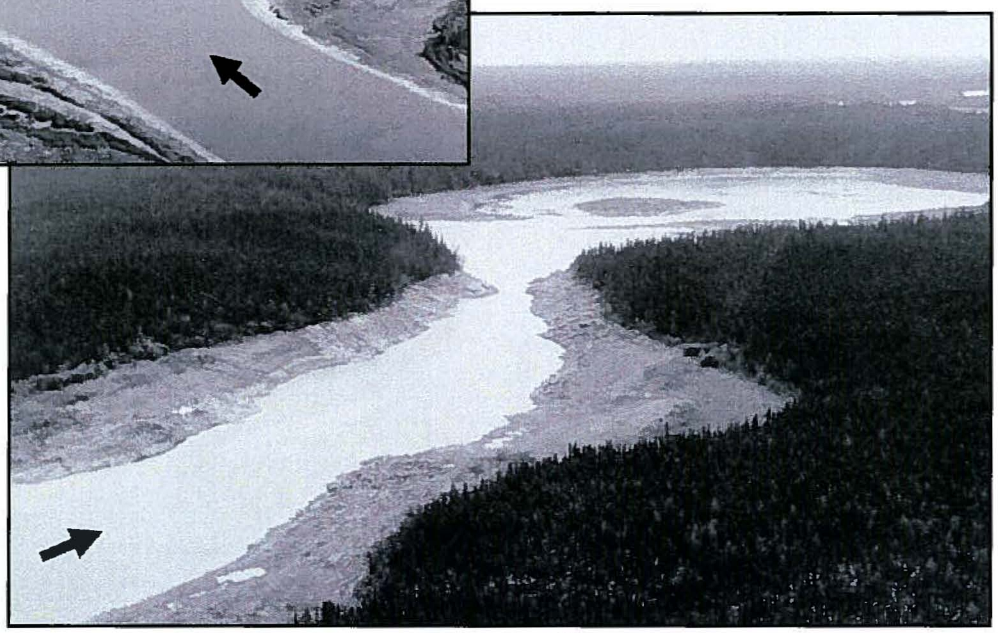
Lower Nelson River Reach - no figure (downstream of Kettle Generation Station) - While analysis of flows and levels for this reach has not been analyzed, the following observations apply:

- the reach has been affected by three generating stations; Kettle beginning in 1970, Long Spruce beginning in 1977, and Limestone beginning in 1990
- the main effects of these generating stations are the creation of forebays and the variation of outflows on a daily basis
- all the plants work more or less in unison with the operation of Kettle as a peaking plant
- tailwater levels at the plants vary as the outflows vary
- average winter flows are typically higher than average summer flows which is a reversal of the natural conditions that occurred prior to these developments
- because the river water levels are contained within the banks of the Nelson River, Long Spruce and Limestone have created much less flooding than Kettle.

Churchill River Reach - Figure 20 (at Fidler Lake outlet) - Affected by CRD from 1976 onward. CRD decreased average annual flows through Missi Falls Control Structure by approximately 735 cms (25,950 cfs), an amount equal to that diverted through to the Burntwood River at the Notigi Control Structure. The observed decrease in average annual flows at Fidler Lake is 858 cms (30,300 cfs). The decreased flows resulted in a decrease in average water levels of 5.0 m (16.4 ft) at the location of the Fidler Lake gauging station. The average summer water levels remain higher than the average winter water levels.

The preceding illustrates the varied way in which the four generating stations and two water management projects have affected the levels and flows of waterways in the study area. It is important to note that this analysis provides a somewhat coarse examination of changes to water arising from hydroelectric development in the region.

Churchill River downstream of Billard Lake - August 1992



Churchill River downstream of Fidler Lake - August 1992

Attachment 2

Tataskweyak Cree Nation

P.O. Box 250 Split Lake, Manitoba R0B 1P0
Telephone: (204) 342-2045 Fax: (204) 342-2270

June 6, 2012

Terry Sargeant, Chair
Clean Environment Commission
305-155 Carlton Street
Winnipeg, MB
R3C 3H8

Dear Mr. Sargeant,

I would like to thank the Clean Environmental Commission for supporting the application by Tataskweyak Cree Nation (TCN) for participant funding under the CEC Participant Assistance Funding Program.

As stated in our application, TCN is interested in the Bipole III CEC hearings because the Bipole III Transmission Project is proposed to be constructed and operated within our Split Lake Resource Management Area (SLRMA) and the overlapping Split Lake Resource Area. Within these territories, the Bipole III Project will include:

- An HVdc transmission line (SLRMA – 220 km; Split Lake Resource Area – additional 16.6 km);
- A network of collector lines (SLRMA - 84.5 km; Split Lake Resource Area – additional 116 km); and
- The Keewatinoow Converter Station and a ground electrode installation (both located in the Split Lake Resource Area).

It is the opinion of our Members that this project is going to have adverse impacts on the landscape, the animals and the ecology of the region. Beyond this, Members believe that Bipole III construction and operation will impact our ability to pursue our traditional practices and will cause damage to the vital relationships that are at the heart of our Cree identity. TCN Members are not convinced that the monitoring and mitigation strategies proposed by Manitoba Hydro are appropriate and/or sufficient to address the impacts of this project. Nor are the opportunities that have been proposed by Hydro to date sufficient to offset the expected unmitigated impacts.

While Manitoba Hydro has proposed significant monitoring and mitigation strategies for the biophysical aspects of this project, it has not adequately described plans to address the socioeconomic and cultural impacts that the project is expected to have on our Members. In fact, Hydro has yet to provide a draft socio-economic monitoring plan in the environmental impact statement or environmental protection plan. Without these plans it is difficult to determine what socioeconomic or cultural indicators Hydro intends to monitor, how they plan to do it, and/or how they plan to mitigate the adverse impacts this project may have on these indicators and the peoples living in close proximity to this project.

Furthermore, substantial hydroelectric development has occurred within the SLRMA. TCN is at the heart of the Manitoba Hydro integrated hydroelectric system. Existing generating stations within the SLRMA produce over 75% of the system's output. Existing hydroelectric development includes 35 major projects which cover a footprint of 124,000 acres of land – an area comparable to the City of Winnipeg. It is TCN's position that Manitoba Hydro has not fully considered the cumulative effects of this development in the environmental impact statement. By limiting the spatial and temporal scale of their assessment, the Bipole III EIS fails to consider the impacts of past, existing, and future projects in their cumulative effects assessment, particularly those within the SLRMA and our Resource Area. Failure to consider these existing projects is failure to consider or fully understand the impacts on TCN and its Members. Furthermore, without a thorough understanding of the cumulative effects, it is difficult to identify and develop appropriate biophysical and socioeconomic mitigation strategies.

On the matter of compensation, TCN has reviewed the proposed Community Development Initiative and discussed its concerns with Manitoba Hydro. TCN has made it clear that the amount proposed is inadequate with respect to both the quantum and term. Consistent with the principles of sustainable development, TCN's view is that the impacts will last as long as the line is in place, not for the 10 years that Hydro proposes to provide CDI payments.

Our relationship with Hydro goes back many years and has been sufficiently cooperative and respectful to have resolved many contentious issues and allowed an enormous amount of development to proceed. We intend to continue working with Hydro towards an agreement to address our concerns with the Bipole III Project and are hopeful that this can be accomplished.

Sincerely,

Victor Spence
Manager of Future Development
Tataskweyak Cree Nation

c.c. Elissa Neville, Manager of Aboriginal Relations Division, Manitoba Hydro
Douglas Mackenzie, Campbell Marr LLP
Ron Lowe, Hobbs and Associates