Interim Report on Pimicikamak Community Consultation

CRD/LWR Final Licence Application

Phase 1 Summer/Fall 2013

Elders Meeting Cross Lake, September 2013. Nora McLeod, Dinah Monias, Nick Halcrow, Roy Jones Scott, Mertina McKay, Ettiene North and Katherine Richard

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1. Introduction

This interim report summarizes the findings of the first phase of a Crown/Aboriginal consultation process that is intended to inform Pimicikamak citizens about the final licence applications submitted by Manitoba Hydro (MH) for the Churchill River Diversion (CRD), and the Lake Winnipeg Regulation (LWR), including the Jenpeg Generating Station[1]. This first phase has focused more on discussion of CRD, however it is clear that it is necessary to consider the various elements of the hydroelectric and flood control systems that regulate the Churchill and Nelson Rivers as a whole. The objective of the consultation is to enable Pimicikamak and Manitoba (and Manitoba Hydro) to discuss concerns and questions regarding the operation of this infrastructure and explore options for mitigation of ongoing adverse effects through the licensing process.

A round of small group and individual meetings were conducted with Pimicikamak citizens. More such meetings are required. The main topics of concern that have been raised to date with regards to water licensing and the impacts of the operations of CRD and LWR are listed in this interim report. A sample of comments from participants is included to illustrate the nature of some of the concerns.

These are preliminary comments only. A comprehensive land use and occupancy study has not yet been conducted for Pimicikamak to document its values in, uses of, and connections to its traditional territory. Such a study is due to begin shortly and will take approximately one year to complete. In addition, Pimicikamak contends that a current and comprehensive regional cumulative effects assessment (RCEA) is necessary to investigate and evaluate the impacts of the entire northern hydroelectric system, including CRD and LWR. The progress and effectiveness of existing mitigation measures, as well as opportunities for further improvement in environmental and socioeconomic conditions must also be independently assessed.

Pimicikamak's position is that both the land use study and an RCEA should be done prior to issuing final licences so that additional or altered conditions may be reflect the relevant and necessary knowledge gained from these studies. Alternatively, conditions should be added to the licences that require these studies to be done forthwith in an independent, comprehensive and scientifically sound way and that the licence

[1] In this report, the LWR includes the Jenpeg Generating Station.

conditions may be amended as necessary to reflect the results of these studies. Licence for CRD should not be issued in advance of the completion of full consultation on LWR.

Pimicikamak's traditional territory is by no means confined to its reserve or the designated Cross Lake Resource Area. These latter two areas were created by the Crown and do not reflect the facts about what and where Pimicikamak's traditional territory is. This traditional territory includes but is not necessarily limited to the area noted on the map attached as Appendix B. We will know better how much the traditional territory extends beyond that area when the land use and occupancy study is complete.

Review of each of these final licence applications is being conducted separately by the Manitoba Department of Conservation and Water Stewardship beginning with the CRD licence review. The CRD final licence review has not been made subject to a public process beyond the Crown/Aboriginal consultation, whereas the LWR final licence review has been referred to the Clean Environment Commission (CEC) to undergo panel and public review which will begin in the near future. Pimicikamak believes that all elements of the major infrastructure requiring final licensing should be publically reviewed through the CEC.

These and other preliminary accommodation measures are listed and explained in this interim report.

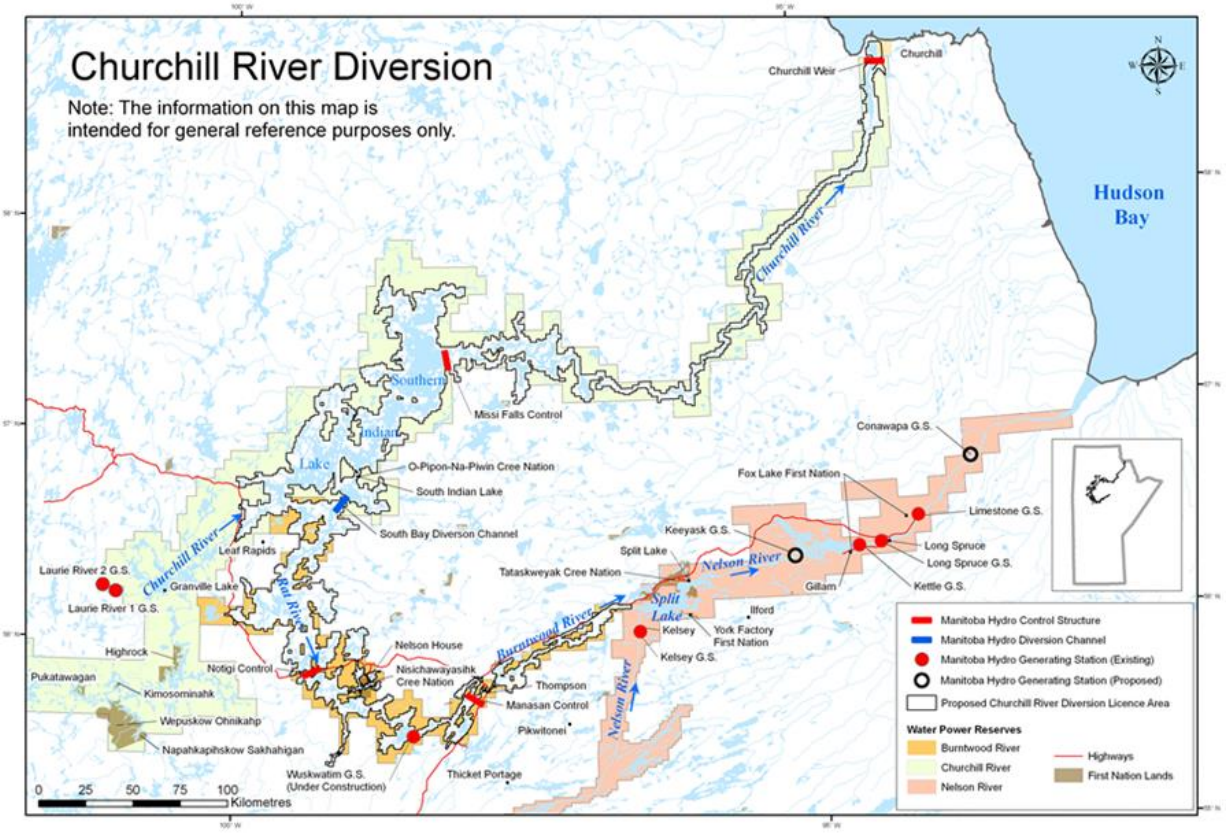
2. Churchill River Diversion (CRD) and Lake Winnipeg Regulation (LWR) Background

2.1 Churchill River Diversion (CRD)

The Churchill River Diversion was constructed under the authority of an interim *Water Power Act* licence issued to Manitoba Hydro in December 1972 by the Water Resources Branch of the Manitoba Department of Mines, Resources and Environmental Management. In 1973 construction contracts were awarded, and the diversion was in operation by 1977.

The CRD infrastructure includes a dam at Missi Falls which controls the natural outflow of Southern Indian Lake, and raises the lake level by 3 m. A new channel was excavated between Southern Indian Lake and Issett Lake to divert the flow of water from the Churchill River into the Rat and Burntwood Rivers and then into the Nelson River.

Another dam at Notigi on the Rat River controls the flow of water into the Burntwood-Nelson system.



The terms of the interim licence permit Manitoba Hydro to divert up to 850 (m^3/s) of the water flow from the Churchill River through the Burntwood River system and into the Nelson River. The diverted water can be used at four generating sites along the Burntwood River and at seven Nelson River sites below Split Lake. The CRD reduced the flow in the Churchill River by about 85%, created impoundments (reservoirs) flooding Southern Indian Lake and the Rat River, and significantly increased the flow of the lower Nelson River. The CRD infrastructure and operating regime have altered the seasonal flow patterns and water levels of all affected lakes and rivers.

In 1986, Manitoba Hydro began operating the CRD Augmented Flow Program to optimize CRD operation. The Augmented Flow Program involves deviating from the range of water levels and flows stipulated in the Interim licence. This deviation has affected the range of lake levels on Southern Indian Lake and the releases from the Notigi Control Structure on the Burntwood River. Hydro has requested and received annual approvals for the Augmented Flow Program from the Minister of Water

Stewardship. Once approved, the Augmented Flow Program forms part of the operating regime set out under the Interim Licence.

Additional background on the CRD is provided in Appendix A.

2.2 Lake Winnipeg Regulation (LWR) and Jenpeg

In 1970, Manitoba Hydro received an interim licence under the *Water Power Act* to regulate the outflow from Lake Winnipeg into the Nelson River. The infrastructure built as part of LWR includes a suite of dykes, a control structure, spillway and generating station called Jenpeg on the outflow of Lake Winnipeg into the Nelson River. (see map p.6)

In order to allow increased flow from Lake Winnipeg, especially in winter, the LWR also involved expansion of existing channels and excavation of new channels (2-Mile Channel, 8-Mile Channel, and the Ominawin Bypass Channel). A dam was constructed at the outlet of Kiskitto Lake to prevent water from backing up into that lake. This has increased the maximum outflow capacity of Lake Winnipeg by up to 50 %, and therefore permits the lake to drain much more quickly than in the past.

The Jenpeg Generating Station and control structure was constructed and is operated under a separate interim Water Power Act licence issued in 1972. Jenpeg along with the dyke system controls the outflow of Lake Winnipeg, and generates hydroelectric power. Manitoba Hydro has also applied for final licence for Jenpeg.

The LWR has allowed water to be stored in the lake to ensure adequate flow for winter power production downstream at Jenpeg, Kelsey, Kettle, Long Spruce, and Limestone generating stations. This flow, in addition to the increased flows from CDR, have made it possible to design, build and operate these generating stations, as well as proposed additional stations with much higher capacity.

Major Structures of the Lake Winnipeg Regulation (Map: Manitoba Conservation and Water Stewardship)

The licence permits Manitoba Hydro to control outflows to satisfy power production needs as long as the level of Lake Winnipeg remains between 216.7 m (711 ft) and 217.9 m (715 ft) above sea level (ASL). The licence stipulates that when water levels in the lake rise above 217.9 m, Manitoba Hydro must allow the maximum discharge possible, in order help control flooding around the lake. When water levels fall below 216.7 m, the Minister of Water Stewardship has the authority to direct the operation of the Jenpeg control structure, to protect against the consequences of drought on the lake. The interim licence also constrains Manitoba Hydro to a maximum 15,000 cfs change in rate of flow over a 24 hour period, and a minimum total outflow of 25,000 cfs. This minimum corresponds to the historical low flow and is possible at any time of the year. There are no other specific constraints, conditions or obligations defined within the LWR and Jenpeg licences to protect ecological and human use values in the fore bay and reaches downstream of Jenpeg.

The LWR and Jenpeg have reduced extreme high and low water levels in Lake Winnipeg compared to the pre-regulation period. The operation of these structures has also radically altered the seasonal flows in the fore bay and downstream in the Nelson River through to Cross Lake and Sipiwesk Lake. The water levels in these reaches are now quite erratic from season to season, and from year to year.

The Cross Lake outlet control project, including a weir and widened outflow channels, was constructed in 1992 to moderate artificially high and low water conditions in Cross Lake. The effectiveness of this mitigation measure in relation to its objectives has not been adequately assessed to date.

3. CRD/LWR Consultation with Pimicikamak

3.1 Project Description

The primary objectives of the community-based consultation program were developed by Pimicikamak representatives and consultants in response to the Crown/Aboriginal consultation process initiated by Manitoba. These are to:

1. Share information on the process and structure of the final licensing applications for the Churchill River Diversion (CRD) and the Lake Winnipeg Regulation (LWR) of the northern Manitoba hydroelectric generation system with Pimicikamak citizens.
2. Document the questions and concerns of Pimicikamak citizens.
3. Explore feasible options for accommodation for adverse effects to address Pimicikamak concerns.

4. Work towards a more inclusive decision-making process regarding future operation of this significant development in Pimicikamak traditional territory.

Since the entire suite of northern Manitoba hydroelectric generating stations and control structures functions as an integrated system, and since both the LWR and the CRD affect Pimicikamak traditional lands, Pimicikamak believes that it is important to maintain a holistic perspective when discussing the various components of the system, how they have been operated to date, and how they operate in future.

Given that Manitoba is reviewing the CRD at this time and will be undergoing a separate review process for the LWR final licence application, more weight was placed on the CRD during discussions with Pimicikamak citizens over the summer and autumn of 2013. Additional work is anticipated and required in the near future to further address the LWR licence application in more detail.

3.2 Temporal Overlap with other Hydro Project Consultation Processes

Over the past several months, the Keeyask Generation Project has been undergoing review by CEAA and the CEC. The crown consultation processes on CRD, LWR and Keeyask are also concurrent. Some aspects of the issues associated with these processes overlap with concerns related to the CRD and LWR.

Given that human resources are limited, it has been difficult to always hold separate sessions to address each of these topics without a much more intensive program of work. For this reason, some community meetings have included discussion of the final licence application for CRD, the upcoming LWR review and the proposed new Keeyask generating station and transmission line.

The focus of this interim report is on the nature of the water power licences and Pimicikamak questions about how the licensing process can help to support sustainable development. Discussions have primarily centered on more comprehensive regional environmental and socio-cultural planning, impact assessment and mitigation.

Pimicikamak plans to hold additional discussions focused on CRD during spring of 2014, followed by sessions that will explore the LWR in more detail. The results from the additional discussions on CRD will be included in the final report on CRD. Additional work will be required to address the complexities of the operations and effects of LWR.

3.3 Work Conducted to Date

Meetings and interviews with Pimicikamak citizens have been facilitated by the Project Coordinator, Darwin Paupanakis, representing Pimicikamak, and technical advisor, Annette Luttermann, consultant to Pimicikamak.

1. Two meetings were held with Pimicikamak Four Council representatives both before and after the August 2013 elections. The CRD final licence review process was explained by the Coordinator and Technical Consultant, and related issues and questions were raised by Executive Council members.

Ettiene North and Katherine Richard discuss the changes they have observed in the Nelson River due to hydroelectric development. Cross Lake Sept 2013

2. Community members were informed of the final licence applications, and review and consultation processes by the Project Coordinator through radio and television broadcasts over the Cross Lake community stations. Pimicikamak citizens were invited to attend upcoming meetings as well as to contact the project coordinator for individual discussions, or to submit written comments and questions. The project coordinator also contacted potential participants directly, to determine whether individuals were interested and available to discuss their knowledge and perspectives regarding the CRD and the water licensing process. Elders who have observed changes over the period of hydroelectric development, and those who expressed interest in the past in contributing their views on this issue were contacted directly. There are additional people who have expressed interest who have not yet been interviewed, and those who were not able to attend earlier meetings or who missed the meeting notices who would still like to contribute to the process

3. Five small group focus meetings were held in Cross Lake with elders, fishermen and hunters during which the CRD and LWR final licence applications were discussed along with the Keeyask Generation Project to some extent. There were 6 to 14 participants in these groups. Discussions were facilitated by the project coordinator and technical consultant.

4. Fifteen visits were made to Pimicikamak citizens by the Project Coordinator and/or the Technical Consultant in their homes to discuss perspectives and concerns related to CRD and LWR, mitigation for existing river regulation, and proposed future development.

5. Discussions were held with 2 classes of high school students at Otter Nelson River School in the context of science classes. Issues related to the environmental effects and future operation of CRD and LWR were discussed, as well as new project proposals. These classroom visits were attended by the Pimicikamak Youth Council representative, a local fisherman and the technical consultant.

6. The project coordinator held three discussions by phone with trappers and fishers in Thicket Portage. A representative of the Thicket Portage trappers and fishers association visited Cross Lake and participated in two group meetings to discuss concerns related to licensing CRD and LWR.

7. Pimicikamak representatives met with Pimicikamak citizens living in Tataskweyak while in Winnipeg.

Listening to Elders in Cross Lake speak about observed changes in the Nelson River since CRD and LWR (Sept 2013)

Conversations and interviews were documented in the form of written notes and/or video recordings. Participants were asked if they wished to be recorded, and whether they would like to subsequently review recordings to determine if they accurately represented their views.

Informed Consent

Informed consent was obtained by the project coordinator who explained verbally the purpose, objectives and methods of the study. The project coordinator also provided translation for participants when necessary and when requested for all participants requiring further clarification. The project coordinator and technical consultant verbally explained the objectives of the consultation. The

Dion and Danny Halcrow review information on the northern Hydroelectric System, Cross Lake 2013

options for participation, various confidentiality options, methods of documentation, and other conditions of participation were discussed with the participants.

Participants were asked whether they wished to remain anonymous, have their name included in a general list of participants, or have their name associated with their comments in this report or in any publications. All participants wished that their names be associated with their comments. No participants wished to sign a written consent form.

Data Compilation and Analysis

Interview and group discussion notes and recordings where applicable, were reviewed and transcribed into digital form. Copies of original handwritten notes and recordings will be retained in a secure file at the CLFN Office, and at the office of A. Luttermann for a minimum period of 5 years.

Issues of interest, comments, and concerns have been categorized, and organized into topic areas. When the consultation meetings are complete, the information will be analyzed for recurring themes and summarized for the final report. An indication of the relative number of people who made similar comments on each topic will be indicated in the final report. It will be organized and made available for use by the Pimicikamak communities.

Any taped comments considered for inclusion in the final report will be reviewed with the participant.

Record Keeping

All interview notes have been identified with a cover sheet describing the date and location of the interview or discussion, and the researchers involved. These cover sheets document additional basic information about the participant including name, gender, and age, if shared. Only the principal investigator and designates of Pimicikamak Okimawin have direct access to these files. To date, no participants have requested anonymity.

Information will be reviewed with Pimicikamak representatives and decisions will be made together regarding the form in which it can be published for the final report.

Reporting

A final written report will be prepared that will summarize in detail the results of all community meetings, small group discussions and individual interviews conducted when complete. This report will be forwarded digitally in draft form to Michael Morin,

Senior Water Power Licensing Technologist, Manitoba Conservation and Water Stewardship and Rob Matthews, Manager, Water Use Licensing Section, Manitoba Conservation and Water Stewardship for review with regards to any technical errors.

Following any revisions, which will be made by Pimicikamak as appropriate, digital and paper copies of a final report will be forwarded to Manitoba.

3.4 Summary of Concerns Expressed to Date

Discussions to date with Pimicikamak citizens reveal that there is a high level of concern with regards to the following issues:

1. The long-term environmental effects of the CRD and LWR have not been adequately assessed or addressed, and there are no conditions in the licences to require a comprehensive long-term program of environmental research.

2. The possible adverse cumulative environmental and cultural effects of the CRD and LWR, combined with one another and with other aspects of the hydro project on the northern river systems and surrounding region have not been adequately assessed or addressed.

3. The ecological changes in shorelines, especially with regards to ongoing erosion, loss of vegetation communities, and suitability of the shorelines for wildlife habitat have not been adequately assessed or addressed. There are no provisions in the water licences to apply sufficient resources to attempt to better understand and mitigate these effects.

4. Historical knowledge of the pre-industrial environmental characteristics of the lands and waters affected by the hydro project is at risk of being permanently lost and needs to be captured before it is lost.

5. The effects of Lake Winnipeg reservoir development and its use and the downstream effects on Pimicikamak, including its land use, have not been adequately assessed or addressed. There has been no comprehensive land use and occupancy study conducted for Pimicikamak, and therefore the full range of effects of existing and future projects that rely on CRD and LWR are not well understood. Historical knowledge about the degradation of Pimicikamak's culture is at risk of being permanently lost and needs to be captured before it is lost.

6. The operation of the hydro project and the LWR and CRD licences do not reflect an adequate balance between the needs of power production, and other values of the affected lands and waters such as biodiversity and traditional uses of the land.

7. There has been insufficient investigation and analysis into how the flow regime under LWR and CRD can be managed to mitigate the environmental and socio-cultural effects, and therefore options to change the flow regime have not been adequately assessed or addressed.

8. The NFA is not being implemented as it should be so as to remediate, mitigate, and compensate for impacts from the hydro project (including LWR and CRD) to the extent possible. It is essential to Pimicikamak that constructive progress be made on NFA implementation.

9. Manitoba Hydro has a very high level of control over the lives of Pimicikamak and Pimicikamak traditional lands, and whether and how compensation for impacts of river regulation is decided. The water licences should provide some options for broader collaboration in decision making and involvement in developing environmental and socio-cultural monitoring and mitigation programs.

3.5 Discussion of Initial Concerns and Questions

The discussion below is a more detailed summary of the questions and concerns that have been raised by Pimicikamak citizens during the meetings and interviews held to date. Since the concerns are interrelated in many ways, there is some overlap in the presentation of issues in this interim report.

As explained above, although the LWR has been discussed to some extent, the focus of the meetings has been more on the CRD so far. Additional meetings are required to address many of the specific concerns with regards to CRD and include those Pimicikamak citizens who have not yet had the opportunity to contribute.

There also remains substantial information to be shared and discussed with regards to LWR. For example, the anticipated report from Manitoba Hydro responding to the Clean Environment Commission's request for additional information to support the final licence application for LWR should be helpful and remains to be reviewed.

1. **The long-term environmental effects of the CRD and LWR have not been adequately assessed or addressed, and there are no conditions in the licences to require adequate long-term environmental research.**

Specifically Pimicikamak citizens have referred to concerns about observed declines in water quality (especially increased turbidity), reductions in populations of aquatic species, changes in aquatic community composition, continual erosion of shorelines, loss and degradation of shoreline plant communities, reductions in terrestrial wildlife populations, and reductions in populations of waterfowl and song birds. The Churchill River, Southern Indian Lake, the Rat and Burntwood Rivers and the lower Nelson River are all directly affected by the CRD.

The degradation of the environment throughout the region affected by CRD and LWR has severely impeded the use and enjoyment of Pimicikamak traditional territory in numerous ways. It has also had a demoralizing effect on Pimicikamak, as people see the degradation as long term and out of their control.

The interim water power licences have given the hydro industry the ability to build infrastructure that will be in place for a very long time. Any changes that can be made in future to attempt to mitigate the effects of the CRD and other parts of the system, will be limited by the economic and political interests that are now in place.

There were many comments and questions during the discussions with Pimicikamak citizens about what is perceived as a weak research effort on environmental effects and possible mitigation. For example, Raymond Robinson asked:

> *"Has anyone been doing any studies on the populations of muskrats in the Rat and Burntwood Rivers since the CRD? There used to be lots of good muskrat territory there but a lot of it has been wiped out. What is being done to try to fix that? Will it be like that forever? (Kenny Halcrow, Cross Lake)*
>
> *"You can never, never recreate what you have destroyed to its original condition." (*Raymond Robinson, Cross Lake)

To Pimicikamak, the water licences provide rights to permanently alter and degrade the river systems for a very long period of time, with relatively "minimal obligations" to improve environmental health and the lives of the people most directly affected. These obligations involve keeping water levels and flows within certain ranges along some reaches of the rivers affected by CRD and LWR.

Predetermined financial compensation has been negotiated with some communities when water levels exceed these ranges due to operations for the life of the hydroelectric projects. However, there are no conditions on the *Water Power Act* licences that compel Manitoba Hydro to commit sufficient resources to environmental

research, working effectively together with affected Aboriginal Peoples, implementing mitigation works and monitoring over the long term.

2. **The possible cumulative environmental and cultural adverse effects of the CRD and LWR combined on the northern river systems and surrounding region are not being studied.**

A presentation given to Pimicikamak by Manitoba Hydro in June of 2013 on the CRD includes a map with the CRD licence boundaries and the Cross Lake resource management area. There was the implication that the CRD has minimal effect of Pimicikamak territory.

It is important to recognize that Pimicikamak citizens use a much larger area than that bounded by the designated resource management area. It is also important to understand that Pimicikamak citizens are concerned with potential long-term cumulative environmental effects associated with incremental habitat loss throughout these river systems that may contribute to regional reductions in wildlife populations. Many Pimicikamak citizens have raised concerns about the long-term persistence of wildlife in northern Manitoba, given the observed loss of healthy river shorelines and aquatic habitats in large areas of adjacent river systems (Churchill and Nelson). There is the feeling that the effects of the multiple components of the northern hydroelectric system are not well understood in aggregate, and that a fragmented approach to research does not lead to an understanding of cumulative effects.

Pimicikamak have expressed concern that the degradation of such large areas of the northern river systems is not well appreciated by people in the south consuming most of the energy because of the way the energy is marketed.

> *"People say that hydroelectricity is "clean and renewable". But to people who live here, it is not viewed as clean at all. The water quality here has declined steadily. There is increased cloudiness, and increased algae. Before the hydro projects the fish were very plentiful. There were caribou here on the ice in the winter. We could go down to the water with a bucket and fill it up. They have never done an environmental assessment with us here – with the people who live here."*
>
> *(*Lydia Thomas, Cross Lake)

The fact that water power licences are issued separately for parts of the same system of river regulation is also a concern. The operation of the CRD has a direct influence on the operation of existing facilities, and on the economics of proposed new projects on the lower Nelson River. The CRD also has an indirect influence on the operation of the

LWR infrastructure in the upper Nelson River. Water flow is controlled to maximize power production downstream. Both sets of infrastructure are operated in a coordinated fashion to supply water to the downstream hydroelectric generating stations. For example, if there is ample flow available from Lake Winnipeg in summer, less flow from the diversion of the Churchill River may be needed during that period of time. Any regulated changes in flow can affect the condition of the aquatic and riparian environments, and the human use of these places.

For these reasons, Pimicikamak feels that licensing conditions should include some explicit provisions for monitoring and reporting on environmental conditions throughout the Churchill and Nelson River systems, using a pre-hydroelectric development historical baseline. A regional cumulative environmental assessment could bring together the various types of information that exist, including local ecological knowledge and values, identify where additional research and monitoring should be done, and plan for the future.

There should be a mechanism incorporated into the licence conditions to support research on the potential for mitigation measures to address cumulative environmental effects and Pimicikamak's concerns regarding these. This mechanism must consider the whole system as any hydrological changes in one portion of the system will potentially affect operation and economics of other parts. Investment in environmental research and mitigation efforts for the whole system must also be considered as part of a transparent planning process where priorities should be developed in direct and ongoing consultation with affected communities.

3. **The ecological changes in shorelines, especially with regards to ongoing erosion, loss of vegetation communities, and suitability of the shorelines for wildlife habitat have not been adequately assessed or addressed. There are no provisions in the water licences to apply adequate resources to attempt to better understand and mitigate these effects.**

It is obvious that shorelines are affected along all the rivers and lakes in the CRD and LWR areas. Pimicikamak citizens have expressed concern that the plants, animals and erosion rates do not seem to be getting very much attention in the environmental monitoring programs. For example, the following comments were made:

> *"The shoreline is very important. People don't realize that. Lots of small fish used to gather together on the shoreline. They are not there anymore. Crayfish have disappeared. All I see now are gulls and sandpipers. There aren't any frogs."* (Jackson Osborne, Cross Lake Sept 2013)

> *"Studies should be done here where the wetlands have been affected already. There are not many ducks in our marshlands compared to before. There are few water creatures compared to before like water striders and crayfish and caddis flies even."*
>
> (Danny Halcrow, Cross Lake Sept 2013)

In the presentation about the operation of the CRD made by Manitoba Hydro representatives to Pimicikamak on June 14, 2013, the information provided did not focus at all on the environmental effects of the CRD on the regional ecosystems.

For example, the presentation provided figures on the water regime on Southern Indian Lake before and after the CRD by presenting maximum, average and minimum water levels over several years. The presenter stated that the water levels are higher on average by about 9 feet, but that the range had been reduced from about a 9 foot range to a 4.5 foot range. This information does not make clear that the water levels did not fluctuate 9 feet over a typical year before regulation, but rather the 9 foot range is the difference observed over the entire period of record prior to regulation. More important to understand is that from an environmental point of view and human use perspective, an average reduction in water level change is not necessarily a good thing. Natural seasonal fluctuations are important for the ecosystem, and for human uses.

For the Notigi outflows, the presentation reports only that on average, flows have increased about 7 times and that the Rat/Burntwood River water levels have therefore increased year round as well. Discussion of changes in seasonal flow patterns in different parts of the river system and how this has affected wildlife habitat through effects on erosion, vegetation growth and direct effects of water levels on habitat suitability are all important factors to consider in the effects of the water regime on the rivers.

In general, people question why the water licences do not specify a range of obligations for more comprehensive environmental monitoring and mitigation, including effects on their shorelines and habitats. Therefore, a condition should be incorporated into the licences that commits adequate resources to the development and implementation of a comprehensive research and mitigation program.

4. **Historical knowledge of the pre-industrial environmental characteristics of the lands and waters affected by the hydro project is at risk of being permanently lost and needs to be captured before it is lost.**

Many Pimicikamak feel that while the hydro project as a whole continues to operate and create significant changes across the landscape, the knowledge of what the affected environments used to be like is being lost. People have commented that it is very disconcerting because the young people and visitors just accept that the current state of the environment is the norm.

There is concern that this loss of a pre-hydro perspective will have an effect on the understanding of the capability of the natural environment to cope with the impacts of the hydro project, and also has an effect on the effort being put into mitigating adverse effects and understanding whether those mitigation measures will work. Some comments on observed changes over time include the following:

> *"Uapineau (ptarmigan) are much scarcer than they used to be. There are fewer scoters, black scoters than before. Skunks declined for a while after the dams, but seem to be coming back. Bear dens are flooded in the river banks."*
>
> (Darrell Settee, Cross Lake, Oct 2013)

> *"I used to see lots of cedar waxwings around, but don't see too many now. Usually see them on Saskatoon bushes. We don't even see many Pikwishu (grey jays) around now. I only see caribou ever near No.6 highway and never on the Nelson River like in the past."*
>
> *(Ed McKay, Cross Lake Sept 2013)*

> *"There are not many Asageo (crayfish), or freshwater clams. Mimisu (fish flies) - there used to be lots of them a long time ago. That is what the whitefish eat. They are a good source of food for gulls and ducklings. There were so many on the surface of the water. It was like a big island floating on the water. But you don't see many like that now. Even the sturgeon eat those ones. They used to pop up from the water to eat them – but today – nothing. Even the little water beetles, munshosuk. You used to see lots of them, but today you see very few."*
>
> *(Dion Halcrow, Cross Lake, Oct 2013)*

There have also been many questions posed about the cumulative effects of various other large-scale industrial activities on the land together with the hydro project. Such other activities include forestry, roads, mines and transmission lines.

The fact that licences are issued for many different resource developments separately with apparently minimal understanding of cumulative effects is of concern. Final licences that give authorization for CRD and LWR for many more years, should consider more clearly the aggregate of regional effects. Despite the fact that there was not environmental assessment legislation at the time the CRD and LWR were completed, the licences should compel the proponent, which is a public corporation, to conduct environmental assessment and planning to the best possible standard.

5. **The effects of Lake Winnipeg reservoir development and its use and the downstream effects on Pimicikamak, including its land use, have not been adequately assessed or addressed. There has been no comprehensive land use and occupancy study conducted for Pimicikamak, and therefore the full range of effects of existing and future projects that rely on CRD and LWR are not well understood.**

   Historical knowledge about the degradation of Pimicikamak's culture and the cultural landscape is at risk of being permanently lost and needs to be captured before it is lost.

There have been so many changes on the landscape caused by CRD and LWR across a very large area, and with more projects proposed, the lack of understanding of how important the cumulative loss of cultural areas, sites (such as sacred, ceremonial, burial, and archeological sites), practices, customs, values and heritage are to Pimicikamak and others is of great concern. Much more information on all of this will be gathered in the planned land use and occupancy study.

> *"It is not a small area that is being affected. It is large. There is a multiplication of all the areas already affected with the new places that will be destroyed. There are all kinds of tributaries connected to the main rivers that are also affected. These places were once good fishing or camping spots, places that people knew. They are trying to show a picture to the public down south that don't have a chance to see. They have convinced people to look at the benefits and not look seriously at the effects."*
>
> (Darrell Settee, Cross Lake, Oct 2013)

"With the very best programs, they cannot put those islands back; they cannot put *those bones back in there. Hydro is non-renewable."*

(John Spence, Cross Lake, Sept 2013)

"Sipiwesk was a rich country. I grew up there. But everything is spoiled. The island where my sister in law was born is gone – eroded away. Who gave Manitoba the authority to destroy Sipiwesk so completely and the place where I was born and grew up?"

(Violet Mackay, Cross Lake, Sept 2013)

"In the 1960s at Sipiwesk Lake the berries were plentiful, the fish were plentiful. There are a lot of burial grounds of Pimicikamak people there. It was always really great camping there. These places are now gone. They will not come back. Those beautiful places that were put there by the Creator, are all gone.

The bitterness that we carry continues to haunt us."

(Dinah Monias, Cross Lake, Sept 2013)

Pimicikamak request final licences not be issued prior to the completion of the Pimicikamak land use and occupancy study. Furthermore, licence conditions should incorporate provisions to support the development of a more comprehensive documentation of the changes in the cultural landscape and communication of these costs of hydroelectric development to the broader Manitoban public. This would also assist in teaching consumers that hydro-electricity has long-term costs and that conservation should be a priority to try to decrease demand and the necessity to build more dams.

6. **The operation of the hydro project and the LWR and CRD licences do not reflect an adequate balance between the needs of power production, and other values of the affected lands and waters such as biodiversity and traditional uses of the land.**

The water power licence requires only minimal environmental consideration, and no specific provisions for adaptive management. The licences define only maximum and minimum water level and flow release ranges that take some basic environmental needs into consideration. For example, minimum flows that must be released into the lower Churchill River and the weir near the mouth of the river help to maintain water

levels higher than without these provisions. However, they do not address the needs of riparian habitats for even periodic seasonal floods, or consider the potential need for fish passage.

Further alterations in flow patterns may be desirable to Pimicikamak and others for mitigation of adverse environmental effects of the CRD and LWR. If these agreements do impose firm restrictions on flow regimes long into the future, they may limit adaptive management options as well as the interests of others in the watershed, including Pimicikamak.

Water power licence conditions in Manitoba state in part that:

> *Every licence shall be deemed to have been executed on the express condition that the licencee shall 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;*

To explain how Manitoba Hydro has observed interim licence conditions to date, supporting documentation submitted with the application for final licence for CRD states that:

Manitoba Hydro optimizes the usage of the available water while taking into consideration other waterway users. For example, prior to a major increase in outflow from Missi, a reconnaissance of the area downstream is carried out to ensure the safety of waterway users. In other cases, with the concurrence of the director, the rate of flow increase at Missi will be moderated in consideration of other interests.

Pimicikamak does not feel that an adequate range of interests has been fully taken into account in setting operating regimes under the water licences, or in entering into long-term agreements with parties that such agreements purport to constrain operating conditions. The licence conditions are vague when it comes to defining other interests.

7. **There has been inadequate work on what can be done to further mitigate the effects of flow regulation throughout the CRD and LWR affected water bodies. For example, there has been insufficient investigation and analysis into how the flow regime under LWR and CRD can be managed to mitigate the environmental and socio-cultural effects, and therefore options to change the flow regime have not been adequately assessed or addressed.**

During consultation discussions regarding the final licences, Pimicikamak citizens frequently raised questions about what can be done to further mitigate the negative effects of the CRD and LWR. Many questions were asked about whether the water licences can be changed to include better provisions for environmental protection.

> *"Our people are so conditioned to think that all they can ask for is money. There are still hard-core, land-based people. There has to be more discussion about the condition of the land and natural resources.*
>
> (David Lee Roy Muswaggon, Cross Lake, Sept 2013)

In 1986 an environmental impact assessment study was conducted in response to the Northern Flood Agreement Arbitrator's Interim Order (11-2) issued in March 1982. Several recommendations were made that were intended to attempt to mitigate the environmental effects of flow regulation.

8. **The Northern Flood Agreement (NFA) is not being implemented as it should be so as to remediate, mitigate, and compensate for impacts from the hydro project (including LWR and CRD) to the extent possible. It is essential to Pimicikamak that constructive progress be made on NFA implementation.**

During the consultation process, considerable discussion has centered on the fact that Pimicikamak has been forced to litigate many aspects of NFA implementation. There is a clear and demonstrated lack of will on the part of Manitoba Hydro, Manitoba and Canada to implement the provisions and intent of the original NFA. Rather, efforts have been directed at resisting implementation and attempting to replace the NFA with "Comprehensive Implementation Agreements" that erode the obligations under the original agreement.

> *"One Minister once said – "The NFA is too rich to implement – Just pay them off – they are poor – they will accept it." My father and brothers were commercial fishermen. When the Jenpeg project started, I had to walk to the welfare office with him. He had to sell his nets and his boats to feed his family. This province has no feelings for people. They just want money and power, and they are getting power from our lands.*
>
> *"What are they doing for us? They are destroying our lakes, our lands, our waters – destroying our spirit. I believe we all feel this."*
>
> (Tommy Monias, Cross Lake, March 2014)

Pimicikamak remains a signatory to the NFA and expects a renewed effort to honour the commitments made in good faith under that agreement. Pimicikamak wants the Crown parties to implement the NFA to the fullest extent possible, through annual action plans developed jointly between Pimicikamak and Manitoba Hydro (and where necessary Manitoba and Canada). Such implementation must be carried out, where possible, by Pimicikamak citizens under the direction of Pimicikamak and funded by Manitoba Hydro (and where necessary Manitoba and Canada). Manitoba Hydro must not be permitted to unilaterally set arbitrary funding caps on the costs of NFA implementation, as they have been doing.

Meeting with Trappers to discuss experience with mitigation measures and concerns with CRD and LWR

In NFA mitigation programs for hunters, trappers and fishermen Pimicikamak citizens perceive that Manitoba Hydro, in general, distrusts them and does not understand the additional challenges faced by Pimicikamak when travelling and using the river systems affected by flow regulation.

> *"If you make a claim under the NFA we always have to argue. They don't treat anyone with respect or courtesy. You always feel like they don't trust us. They think we are lying all the time. It is hard, and very stressful."*
>
> (Danny Halcrow, Cross Lake, Sept 2013)

> *"They tell us not to go out in all weather and then you don't have any problems and don't have to make a claim. But trappers have to go out in all weather. They tell us not to put our traps too close to the water so they don't*

get damaged or frozen into the ice when the water comes up and down in the winter because of the dams. But that is where the animals usually are, close to the water. They think we are stupid.

It seems like Hydro has a hand on everything we do in our lives. It is making the men weak. Hydro always finds some way to trip us up. They only accept claims for things that are underwater at the time they investigate. But it takes months for a claim to be looked at. If you hit a reef in your boat because the water is so low, they say show us this reef on a map. But it might not be on a map, because the water has gone up again. The water levels are always changing unnaturally. They always find loopholes. We always have to argue, when the river everywhere is being controlled by them."

(Dion Halcrow, Cross Lake, Sept 2013)

9. **Manitoba Hydro has a very high level of control over the lives of Pimicikamak and Pimicikamak traditional lands, and whether and how compensation for impacts of river regulation is decided. The water licences should provide some options for broader collaboration in decision making and involvement in developing environmental and socio-cultural monitoring and mitigation programs.**

Under the water licences, Manitoba Hydro has almost complete control over the river systems and decision making with respect to environmental monitoring and mitigation.

The fact that the hydroelectric dams have so much control over the flow in the river systems that so strongly affects people's use of the rivers is a source of contention. It is perceived that the water licences give Manitoba Hydro ultimate authority, with little compromise necessary for other uses and values in the rivers.

"Whenever they want to let the water go, they just do it. They are the boss of the water."

(Danny Halcrow, Cross Lake, Sept 2013)

"Because of the hydro, when you see all these animals that have drowned, that's how we lost our trapping privileges, not all of them, but most. I started trapping back in the 1960's. I was 15 or 16 years old. I wish I had taken pictures all those years, of all those animals I have seen drowned. Right now, you hardly see any muskrats around. We should have more say in how these dams are operated because we feel the impacts every day.

> *Whatever Hydro does* [to mitigate] *they always have negative thoughts, because they want to save money. We are the people who are suffering right now. We have been trying to get some compensation. Usually Hydro just wants to cut in half what we need to support trapping. We used to have a lot of aquatic animals.*
>
> *In the long-term, how are they going to sustain these programs into the future when the land is degraded?"*
>
> (Terry Ross, Cross Lake, Sept 2013)

Although there are limitations on flow control in the water licences that to a certain extent constrain minimum and maximum reservoir levels, downstream releases and rates of change, these do not take into account the full range of ecological and land use values. Of course regulation for power production must necessarily change the patterns of flow to which ecosystems and other types of human land use are adapted.

Nevertheless, Pimicikamak would like to see the water licences incorporate greater and more explicit obligations to pursue collaborative research, consultation and decision making processes to continually address measures to mitigate environmental degradation more equal to the scale of effects.

A concern was also strongly expressed about the level to which Pimicikamak can actually influence the operation of the hydroelectric project and whether consultation will be considered seriously.

4. Accommodation Measures Discussed to Date

Below are the accommodation measures being proposed, with the understanding that there may be further clarification or additions to these proposals as we move through the consultation and accommodation process.

4.1 Final Licences for CRD and LWR issued concurrently

No final licence for CRD should be issued prior to the conclusion of the CEC review of the LWR, and determination of conditions for LWR

The Chair of the Clean Environment Commission made a request on November 2, 2011 for more information about the LWR from Manitoba Hydro to be submitted prior to the CEC review. This report has not yet been released for public review. The request for information clearly acknowledges the importance of understanding the relationship between the CRD and LWR, as two elements of one integrated northern hydroelectric system. The more detailed analysis and public review of LWR is also important in building an understanding of the contribution of CRD. Since both sets of infrastructure control the supply of water to the downstream generating stations, operation decisions at one may affect decisions to be made at the other.

The issuance of a final licence for CRD before the full understanding of the issues surrounding LWR and Jenpeg examined may constrain the flexibility for improvements in operations of LWR and vice versa. Therefore it is inappropriate to finalize a licence for CRD prior to full review of the LWR and Jenpeg, if Aboriginal consultation is to be meaningful.

Pimicikamak has concerns about why the CRD final licence is not subject to a review by the CEC. Licence conditions for LWR have to take into consideration the provisions under the CRD. The province is making it more difficult to conduct a regional strategic environmental assessment with public input by subjecting the CRD to less scrutiny.

4.2 Need for Pimicikamak Land Use and Occupancy Study

No final Licences for CRD, LWR or Jenpeg should be issued until the Pimicikamak Land Use and Occupancy Study is complete

To date the majority of studies that focus on elements of Pimicikamak land and resource use have been confined to the registered trapline area (RTA). During the consultation discussion, Pimicikamak citizens have described traditional and current land use outside of the RTA. Concerns have also been raised about the potential regional effects of incremental degradation and fragmentation of the Churchill and Nelson River basins and how this has affected land use patterns in the past and may further affect them into the future.

Pimicikamak is concerned about the long-term operations of CRD and LWR and Jenpeg due to the direct impacts on the Nelson, Churchill, Rat and Burntwood Rivers, as well as the potential indirect effects of declines in regional fish and wildlife, including migratory species. Pimicikamak is also concerned about the long-term economic effect of the regional dominance of the hydroelectric industry.

Pimicikamak's position is that the land use and occupancy study should be done prior to issuing final licences so that full consideration can be taken of the relevant and necessary knowledge gained from these studies in designing any changes in licence conditions.

Alternatively, conditions should be added to the licences that require these studies to be done forthwith in an independent, comprehensive and scientifically sound way, and that the licence conditions may be amended as necessary to reflect the results of these studies.

4.3 Potential for Additional Conditions on Final Licences

Serious study must be made of additional conditions on final licences to address outstanding concerns about the impacts of CRD and LWR

It is understood that in its application for a final licence for the CRD, Manitoba Hydro is requesting that all operations and conditions in the final licence remain that same as they have been during the interim licence period, including the augmented flow program.

However, section 44 of the Manitoba *Water Power Act* Regulations states:

> *"The final licence shall embody the terms which were set out in the interim licence for incorporation into such final licence, and such other terms and conditions, as the minister may impose…"*

Furthermore, it was anticipated in past studies of the predicted and observed environmental impacts of the CRD and LWR, that changes in flow regime for example should be considered in future as effects on wildlife and wildlife habitat were monitored. Recommendations in the Lake Winnipeg, Churchill and Nelson Rivers Study Board technical report on wildlife studies suggest that ongoing monitoring and review of the impacts of the operational flow regime on wildlife and wildlife habitat is an important component of adaptive management of the CRD and LWR. For the Churchill River the report recommended that:

> *A system of monitoring effects of regulation on the wildlife along the river, at the estuary should be established among all provincial, federal and private organizations concerned. On-going modifications in regimes could be suggested. (Part 1, p.2)*[2]

With reference to the Rat-Burntwood diversion, the report states that due to predicted…

> *loss of riparian shoreline habitat used by moose, furbearers, waterfowl and other species for food and cover…*
>
> *consideration should be given to diking certain areas for maintenance of presently productive habitat. The large area west of Issett Lake would be a prime consideration for such mitigation measures. (Part 1, p.3)*[3]

The Cross Lake Environmental Impact Assessment Study completed in 1986 quoted the cover letter from the Premier of the province that accompanied the 1970 interim licence for the LWR. The letter stated:

> *"It is an interim licence and the pattern of regulation is subject to further deliberation prior to the granting of a permanent licence."* (1986, p.8)[4]

It is clear that the Minister has the authority to impose additional licence conditions for CRD and LWR, and that licence conditions such as changes in the operational flow regime to mitigate for environmental impacts were contemplated when interim licences were issued. Therefore Pimicikamak is seeking as accommodation measures, additional licence conditions to further mitigate the adverse effects of the CRD and LWR.

Licensing processes and conditions for large hydroelectric projects in some other Canadian jurisdictions have incorporated a number of approaches intended to

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[2] Webb, R. 1974. *Wildlife resource impact assessment. Lake Winnipeg, Churchill and Nelson Rivers hydroelectric projects. No. 3 Lake Winnipeg, Lower Churchill River, Rat-Burntwood Diversion*. Appendix 6-C. Prepared for the Lake Winnipeg, Churchill and Nelson Rivers Study Board.
[3] *Ibid*.
[4] The Nelson River Group Environmental Consultants. 1986. *Cross Lake environmental impact study. Vol.3 Environmental impact statement*.

coordinate basin-wide environmental assessment, mitigation efforts and longer-term environmental, economic and social planning and monitoring. These are attempts to balance water management decisions among the various competing human interests and ecological needs along river corridors.

4.4 Pimicikamak's Preliminary Proposals for Additional Licence Conditions

4.4.1 Need for Regional Cumulative Effects Assessment

A requirement for a regional cumulative effects assessment should be incorporated into final licence conditions for both CRD and LWR. This should be implemented before any additional hydro development is licenced. The study must establish a set of feasible objectives through a collaborative approach among Aboriginal Peoples and scientists. The study must utilize the existing relevant information available, and determine what additional research can be conducted within a reasonable time frame. Requirements for a comprehensive ongoing environmental monitoring program should be established.

One of the concerns most frequently expressed by Pimicikamak citizens is Manitoba and Hydro's overall weak understanding of cumulative effects of the multiple hydroelectric developments throughout the northern river basins. Although it is recognized that this is a complex question, there is much that could be done to begin to gain a better understanding, communicate the knowledge we do have to the broader public, and plan for future mitigation.

There appears to be a lack of coordination among the various jurisdictions in assessing the effects of the multiple components of the hydroelectric system as a whole. New projects are licenced by Manitoba without a thorough understanding of the effects throughout the whole river system, and existing projects are re-licenced by Manitoba separately without a coordinated assessment of the cumulative effects in the broader river system. This is despite the fact that these components, including transmission lines, are all part of a single integrated system, and are operated as such.

The CEC has been tasked with reviewing the LWR and Jenpeg but not the CRD. The list of questions submitted by the CEC Chair to Manitoba Hydro to provide additional background information to inform the review of the LWR appears to give much less weight to downstream effects. Pimicikamak wishes to ensure that the final licences for

all of these components of the hydroelectric system are reviewed thoroughly and equally with sufficient understanding of the implications of the extent of landscape level effects, and the degree to which changes in operations in one part of the system may change options in another.

Pimicikamak citizens state that the existing infrastructure associated with CRD and LWR has been in place for a very long time, whereas Manitoba and Hydro's commitment to environmental research does not seem to reflect the temporal and geographic scope of many of the obvious effects. For example, wildlife populations may respond only over a period of many years to changes in habitat. Therefore, additional habitat degradation in the region may contribute to gradual population decline over a wider area. The effects on land use by local people are slowly manifest over time as well. For that reason environmental research and monitoring programs should continue for a meaningful length of time.

During the consultation discussions to date, many Pimicikamak citizens described their observations of environmental change and effects on land use. For example, Floyd Ross stated:

> *"I stopped trapping about ten years go. The water keeps going up and down – the slush comes. So many snowmobiles have broken down because of this. It costs too much for what you can get. There are hardly any muskrat on the river. There are some beavers – there used to be lots. Even on the trapline there is nothing. There used to be lots of geese, but over the past five years, there are not enough."*
>
> (Floyd Ross, Cross Lake Sept 17, 2013)

There has been more monitoring work done on fish and water quality than on wildlife such as muskrats and waterfowl. Even the results of the fish population monitoring to date to not appear to be incorporated into a comprehensive or ongoing assessment of habitat change and further mitigation options.

The Clean Environment Commission's report on its review of the Bipole III Transmission Line suggests that additional mitigation and/or changes to the infrastructure and operations of the existing hydroelectric system in northern Manitoba may be found to be warranted following a regional cumulative effects assessment. It stated:

> *… in order to fully understand the impact of proposed future projects, it will be necessary to understand the impact of past and current projects in addition to new impacts. A regional cumulative effects assessment is needed for all Manitoba Hydro projects and associated infrastructure in the Nelson River sub-watershed. The result of such an assessment would be a greater understanding of the impacts of the individual projects, as well as the cumulative impacts of all projects together. Understanding these impacts*

> *may lead to the use of current mitigation measures being applied to past impacts, resulting in some remediation. Greater understanding may also lead to alterations in the structure or operation of existing projects, and may offset impacts from new projects. (CEC 2013 sect 13.4 p. 126)*[5]

Currently, Manitoba's environmental assessment processes for new projects does not attempt to conduct regional cumulative effects assessments prior to approval. This deficiency has been recognized for some time by the CEC.

The CRD and LWR were not subject to the same level of environmental assessment as new projects currently undergo. However there was some early pre-project assessment done through the Lake Winnipeg, Churchill and Nelson Rivers Study Board, as well as post-project work done for example, through the Cross Lake Environmental Assessment Study. Baseline data were collected, impact predictions were made, mitigation and monitoring recommendations were made, and changes in licence conditions were suggested.

Although past research for environmental assessment was not as comprehensive as it could have been, there is nevertheless a good deal of useful documentation that can be followed up on and used in a Regional Cumulative Effects Assessment. The Nelson River Study Board Report, for example, includes mapping for moose habitat, waterfowl use, wetland quality in areas affected by CRD and LWR. The Cross Lake Environmental Assessment makes predictions about the expected results of the construction of the outlet control scheme on population recovery of fish and aquatic mammals in Cross Lake.

There is a base of reliable information that can be used to form a series of reasonable questions and develop a process for a coordinated research plan for regional cumulative effects assessment. A regional cumulative effects assessment could assess all available data sources for useful information including qualitative description and historical imagery, oral history, review and follow-up on previous analyses such as the NRSB Report, and clearly qualify any conclusions. This would contribute to the development of a pre-hydroelectric development historical baseline.

This is something that Pimicikamak citizens feel is an essential effort that should be made for an energy production system with such wide-ranging and long-term effects on the natural environment, that claims to be "green".

> *Studies should be done here and all the places where the wetlands have been affected already. There are not many ducks in our marshlands*

[5] Manitoba Clean Environment Commission. 2013. Bipole III Report on Public Hearing. June 2013.

> *compared to before. There are few water creatures compared to before, like water striders, crayfish and even caddis flies. The animals move around and there are large areas on the Nelson, Churchill and Burntwood Rivers where the marshlands are not like they were.*
>
> (Danny Halcrow, Cross Lake, Sept 14, 2013)

It is understood that research and monitoring is expensive. However, the priorities must be explored and options reasonably considered in partnership with Aboriginal Peoples.

Regional Cumulative Effects Assessment Example

Although not focused on a river system, The Great Sand Hills, Saskatchewan is one example that offers an idea of some of the elements that should be involved in a regional cumulative effects assessment.

The Great Sand Hills regional environmental study (RES) was commissioned in 2004 to provide a strategic assessment of human activities that cumulatively affect the long term ecological integrity and sustainability of the region and to provide recommendations, in the form of a management plan, to guide future land use activities. The RES was completed in May 2007. Although the RES did not occur under any formal regulatory requirement for RSEA, as no such requirement exists in the province of Saskatchewan, the assessment was based explicitly on the principles and framework of RSEA — making it the first of its kind in the province and a step forward in regional CEA in Canada. Some of its characteristics include:

- The assessment was guided by the 1996 Bellagio Principles of sustainability and also by a number of additional underlying objectives important to good practice regional CEA, including:

a. integration of socioeconomic and cultural values as part of the assessment process;
b. use of multiple assessment scales, including coarse or landscape scale as the basis for ecological assessment;
c. consideration of the cumulative ecological impacts of human activities to date as the basis for considering the type and extent of future activities;
d. minimizing human footprint in the short term, while focusing also on emerging techniques for longer-term solutions;
e. protection of sensitive areas from development, including areas of cultural significance, and restoration of already disturbed areas to their original plant communities; and

f. facilitating short- and long-term monitoring of human impacts and restoration areas based on clear objectives, targets, and early warning indicators of undesirable change.

- Temporally, the RES considered the cumulative effects of human activities and natural change from the 1950's, the beginnings of gas development in the region, and projected forward to 2020, at which time gas reserves would be fully tapped.

- The assessment framework consisted of three main phases:

I. a baseline that characterized the current and cumulative biophysical, economic, and social conditions of the region;
II. the identification of historic trends in land use and associated cumulative change; and
III. development, projection, and assessment of alternative land use scenarios together with recommendation of a preferred scenario and guidelines for implementation, mitigation, and monitoring.[6]

State of the Environment Reporting

The Saint John River State of the Environment Report is an example of an effort to develop a synthesis of historical and recent data, information and studies regarding common indicators of environmental quality in a freshwater system and describes trends in the condition of these indicators along the Saint John River.[7] The report includes river habitats, socioeconomic conditions and incorporates traditional ecological knowledge.

The report discusses the idea of producing a watershed "report card" every 1 or 2 years. The report card would assess the state of various indicators in a watershed and present these in clear and simple manner. River communities and stakeholders are closely involved in developing indicators which assess environmental, social, cultural, and economic indicators of the things they value.

One area of future study refers to the effects of dams. Recommendations include developing studies to:

[6] Noble, B. 2008. Strategic approaches to regional cumulative effects assessment: a case study of the Great Sand Hills, Canada. Impact Assessment and Project Appraisal 26(2).
[7] Kidd, S. D., Curry, R. A. and Munkittrick, K. R. 2011. The Saint John River: A State of the Environment Report. Canadian River Institute. University of New Brunswick. Fredericton.

> *Improve our understanding of the effect of dams on the ecosystem, e.g., fish passage success for all species, the seasonal minimum flow requirements to protect the ecosystem, and the impacts of the headpond reservoirs on the ecosystem. (Kidd et al. 2011:163)*

A comprehensive and up to date state of the environment report could be the first step in a RCEA of the Churchill and Nelson River basins.

4.4.2 An Operational Review Incorporating "Ecohydrological" Questions

> **Investigate the options for an operational review of the entire northern Manitoba hydroelectric system using an ecohydrological perspective.**

A field of study called "ecohydraulics" or "ecohydrology" is addressing some of the complex questions related to how changes in river flow regime and channel morphology can affect ecosystems and what can be done to manipulate regulated systems to work towards river restoration and potentially better balance the uses and values of rivers with hydroelectric production.

In general it is thought that the closer you can get to natural seasonal flow patterns, the higher biodiversity and productivity across the landscape will result. Unfortunately, northern hydroelectric systems are specifically designed to alter the natural seasonal flow, since flow patterns do not support the level or periods of demand for electricity.

The northern Manitoban hydroelectric systems are operated primarily to maximize revenue. They do operate within some constraints under the existing water licences and agreements with other communities, such as not altering the water regime in Split Lake from current conditions under the Tataskweyak CIA.

A review of operations that includes options to explore support of other ecological values would be complex for a number of reasons. Altering operations in a way that would realize significant environmental benefit without having an impact on power production will be challenging. Year to year variations of inflows from the watershed have been substantial. Nevertheless, the questions need to be asked.

The effect of operating alternatives on ecological systems has been considered to some extent separately for various parts of the system in Lake Winnipeg, and along the Nelson and Churchill Rivers. However, it does not appear that a comprehensive review of the entire system from an ecohydrological perspective has been attempted. Careful

planning and discussion would have to be pursued to determine what could realistically be achieved.

4.4.3 Expanded Wildlife Population and Habitat Research and Monitoring

An expanded commitment to fish and wildlife research and monitoring with committed resources and increased Aboriginal participation should be included in the final licences.

The water power licences for large hydroelectric projects in British Columbia include committed funds for fish and wildlife compensation boards. These have multi-stakeholder representation and are responsible for developing and implementing substantial research, monitoring and mitigation programs.

For example, the Fish & Wildlife Compensation Program (FWCP) for the Columbia Basin works with BC Hydro, the B.C. Ministry of Environment and Fisheries and Oceans Canada, to conserve and enhance fish and wildlife in the Canadian portion of the Columbia River Basin and offset the impacts resulting from construction of BC Hydro dams in the Columbia Basin. Since 1995 the FWCP has invested more than $55 million in fish and wildlife projects. The projects are delivered by FWCP, Ministry of Environment, and BC Hydro staff. The FWCP also works with a wide range of partners including First Nations, local community and environmental groups, as well as industrial partners. The FWCP has initiated studies on the cumulative effects of multiple hydroelectric facilities on this river basin.

In Manitoba, the Coordinated Aquatic Monitoring Program (CAMP) has been under development by Manitoba Hydro and the province of Manitoba since 1998.[8] This pilot regional aquatic monitoring program has completed some assessment of the quality and compatibility of data collected under past research projects for several parameters of aquatic systems in the river and lake systems of Manitoba.

One objective of CAMP is to establish standard protocols for future data collection and analysis to increase the comparability of results of monitoring across the province and contribute to an improved understanding of the effects of hydroelectric development on aquatic ecosystems. From a scientific perspective, this is an important step towards improved research capability.

However, there are several limitations to this program. For example, the program will not attempt to conduct analysis on data collected prior to 1998. Despite the fact that there

[8] Coordinated Aquatic Monitoring Program (CAMP) website http://campmb.com/

are certainly flaws in the existing data, including the data collected prior to 1998, a characterization of the environmental conditions prior to the first hydroelectric developments and the changes brought by each successive hydroelectric development are crucial to understanding the impacts of the hydro project on Pimicikamak and others living along the Nelson and Churchill River systems.

In addition, Manitoba and Manitoba Hydro apparently have no plans to include riparian zones, including parameters such as shoreline vegetation structure and species richness, or wildlife use in regional monitoring programs. Since shoreline habitats are directly affected in all the regulated river systems, Pimicikamak wants regional monitoring developed to include these important ecosystems, and to use an historical baseline to the extent possible.

Licence conditions should also include a commitment to substantially increase experimental work in the Churchill and Nelson River systems that may contribute to aquatic and riparian habitat mitigation measures. This would also provide stronger evidence in support of the potential efficacy of proposed experimental mitigation measures for new projects which will destroy existing habitats.

4.4.4 Full Implementation of the NFA

A comprehensive plan and structure for implementing the Northern Flood Agreement must be made a licence condition for both CRD and LWR. This plan must be developed with the full participation of the Crown Parties, without pressure to extinguish existing rights under the NFA or Treaty 5.

The NFA is not being implemented as it should be so as to remediate, mitigate, and compensate for impacts from the hydro project (including LWR and CRD) to the extent possible. It is essential to Pimicikamak that constructive progress be made on NFA implementation.

For example, Article 10 of the Northern Flood Agreement speaks to minimization of damage resulting from the hydroelectric projects. Article 10.1 states:

> *Manitoba shall have regard to minimizing the destruction of wildlife by controlling the water levels and flows to the extent that it is practical to do so.*

Pimicikamak's experience is that the approach to this commitment has been piece meal and that arbitrary caps are made on the level of resources that are dedicated to this objective without a realistic analysis of need.

There is a severe and ongoing problem with a lack of administrative capacity in Pimicikamak communities to deal with NFA matters and hydro matters in general. There is currently no office space, no administrative equipment, and no salaried staff funded through the NFA.

There must be a commitment to adequate funding for administrative facilities and staff in Cross Lake to work on the assessment and monitoring, and long-term management of processes related to the existing and proposed hydroelectric developments. Licence conditions could be developed to require that Manitoba Hydro's NFA commitments be honoured through fair negotiation.

5. Additional Consultation Funding for CRD and LWR Final Licences

Following submission of expenses incurred to date, a new budget proposal will be submitted to continue consultation with Pimicikamak to address issues to complete related to the Lake Winnipeg Regulation in more detail.

Budget items that will need to be considered for further support include:

- Travel to other Pimicikamak communities to conduct meetings with citizens in person for CRD and LWR. Pimicikamak communities where more direct consultation is needed include Thicket Portage, Pikwitonei, and Wabowden.
- Additional community consultation meetings to address LWR in more detail.
- Additional legal support for discussions related to CRD and LWR
- Resources to conduct some field trips with technical advisors to key areas of the Nelson River related to the CRD.
- The assistance of an independent aquatic biologist who will work together with our environmental advisor.
- Preparation of Final Report

6. References

Kidd, S. D., Curry, R. A. and Munkittrick, K. R. 2011. The Saint John River: A State of the Environment Report. Canadian River Institute. University of New Brunswick. Fredericton. http://www.unb.ca/research/institutes/cri/_resources/pdfs/criday2011/cri_sjr_soe_final.pdf

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7. Appendices

Appendix A Summary of the Churchill River Diversion (CRD)

Text excerpted and adapted from the Manitoba Water Stewardship web site: http://www.gov.mb.ca/waterstewardship/licensing/churchill_river_diversion.html (accessed August 2013), and the Manitoba Hydro web site: https://www.hydro.mb.ca/corporate/water_regimes/churchill_river_diversion.shtml (accessed July 2013).

In February 1966, Manitoba Hydro announced its intention to divert the Churchill River as part of an overall plan of northern hydro development. In December 1972, an interim licence to proceed with the diversion was issued to Manitoba Hydro by the Water Resources Branch of the Manitoba Department of Mines, Resources and Environmental Management. Construction contracts were awarded in 1973, and the diversion was in operation in 1977.

Missi Falls Control Structure – Dam and spillway control structure which holds water in Southern Indian Lake and regulates the volume of water passing down the lower Churchill River.

The basin drained by the Churchill River has an area of approximately 283,350 square kilometres (km^2). It lies to the north of the Nelson and Saskatchewan River basins, with its headwaters in east-central Alberta adjoining the Athabasca River drainage basin on the north and west. The river flows across Saskatchewan in an easterly direction, about 240 km north of the Saskatchewan River. In its lower reaches through Manitoba, it runs in a north-easterly direction, approximately 160 km north of the Nelson River.

The Manitoba portion of the Churchill River had an estimated hydroelectric potential of more than 3 million kilowatts. Instead of harnessing the potential by building dams and reservoirs on the Churchill River itself, a large part of the natural flow was diverted into the Burntwood and Nelson River system to use at the generating stations on the lower Nelson River.

The Churchill River Diversion Plan

There are three main components of the diversion plan that are concentrated around Southern Indian Lake, a widening in the Churchill River. These include:

1. Missi Falls Control Structure
2. South Bay Diversion Channel
3. Notigi Control Structure

Notigi Control Structure – Dam and spillway control structure which regulates the volume of water released into the Burntwood River system.

The dam at Missi Falls, controls the natural outflow of Southern Indian Lake, and raises the lake level 3 m. An excavated channel from South Bay of Southern Indian Lake to Issett Lake creates a new outlet to allow Churchill water to flow into the Rat River-Burntwood River-Nelson River system. The control dam at Notigi on the Rat River regulates the flow into the Burntwood-Nelson system.

Under the terms of the interim licence, Manitoba Hydro is permitted to divert up to 850 cubic metres per second (m^3/s) from the Churchill River into the Nelson River. The licence also stipulates that the outflow from the control dam at Missi Falls must be at least 14 m^3/s during the open water period, and 43 m^3/s during the ice covered period.

Prior to development, outflows from Southern Indian Lake varied from about 566 m^3/s to 1,982 m^3/s with a long term average of 991 m^3/s. Below the Missi Falls, tributaries increase natural flow of the Churchill River to an average of 1,274 m^3/s emptying into Hudson Bay. With the diversion system in operation, the Churchill flow into Hudson Bay is reduced to an average of 510 m^3/s.

South Bay Diversion Channel – A 9.3 kilometre (5.8 mile) long, 60 metre (200 foot) wide excavated channel which diverts water from Southern Indian Lake to the Rat Lake system.

The licence allows for diverted Churchill water to be used at four generating sites along the Burntwood River (with a total potential of more than 700,000 kilowatts) and at seven Nelson River sites below Split Lake (adding nearly 2,000,000 kilowatts of dependable capacity to the Lower Nelson).

Interim Licences and Augmented Flow Program

The Churchill River Diversion Project (CRD) began operation in 1977 under an interim water power licence. The Interim Licence allowed Manitoba Hydro to divert waters of the Churchill River into the Burntwood/Nelson Rivers system and allowed for impoundment of waters on Southern Indian Lake and the Rat River. CRD has changed the flow and water level regimes of the affected areas and lakes. CRD is used for the generating stations on the Nelson River, which account for about 75% of power generation in Manitoba.

In 1986, Manitoba Hydro began operating the CRD Augmented Flow Program to optimize CRD operation. The Augmented Flow Program involves deviating from the range of water levels and flows stipulated in the Interim licence. This deviation has affected the range of lake levels on Southern Indian Lake and the releases from the Notigi Control Structure on the Burntwood River. Hydro has requested and received annual approvals for the Augmented Flow Program from the Minister of Water Stewardship. Once approved, the Augmented Flow Program forms part of the operating regime set out under the Interim Licence.

Environmental effects

Due to the changes in natural seasonal patterns of river flow, the CRD has altered the shorelines of Southern Indian Lake and of all areas above and below the Notigi control structure. The principal effects of flooding are the loss of forested area and marshes (wild animal habitat and trapping grounds), melting of permafrost, and changes in the fish communities and ability to fish.

Environmental monitoring throughout the waterways affected by CRD continues to today.

To ensure that sociological, economic and environmental interests would be fully explored, the governments of Canada and Manitoba in 1971 initiated a $2 million Lake Winnipeg, Churchill and Nelson Rivers Study to look at every aspect of northern resources development and to recommend modifications, remedial measures, and mitigating works. The monumental 13-volume Study Board Report was released on June 30, 1975 and Manitoba Hydro has implemented a number of its recommendations.

Several of the recommendations were, because of their urgency, implemented earlier before the Study Board had concluded its three-year investigation.

Among the areas of concern investigated by the Study Board were the effects at Thompson, Churchill and Nelson House. At Thompson, because of increased flows in the Burntwood River, it was necessary to modify the city's water intake system and to rebuild the floatplane base. At Churchill, the lessened flows required modifications to the water supply works (and may, on the other hand, have the beneficial effect of extending the port's ice-free period by 15 days). In Nelson House, flooding of some 809 hectares of Indian Reserve land required remedial works and other mitigation.

Additional Background Documents:

CRD Interim Licences

- Interim Licence, May 1973
- Augmented Flow Program 2013

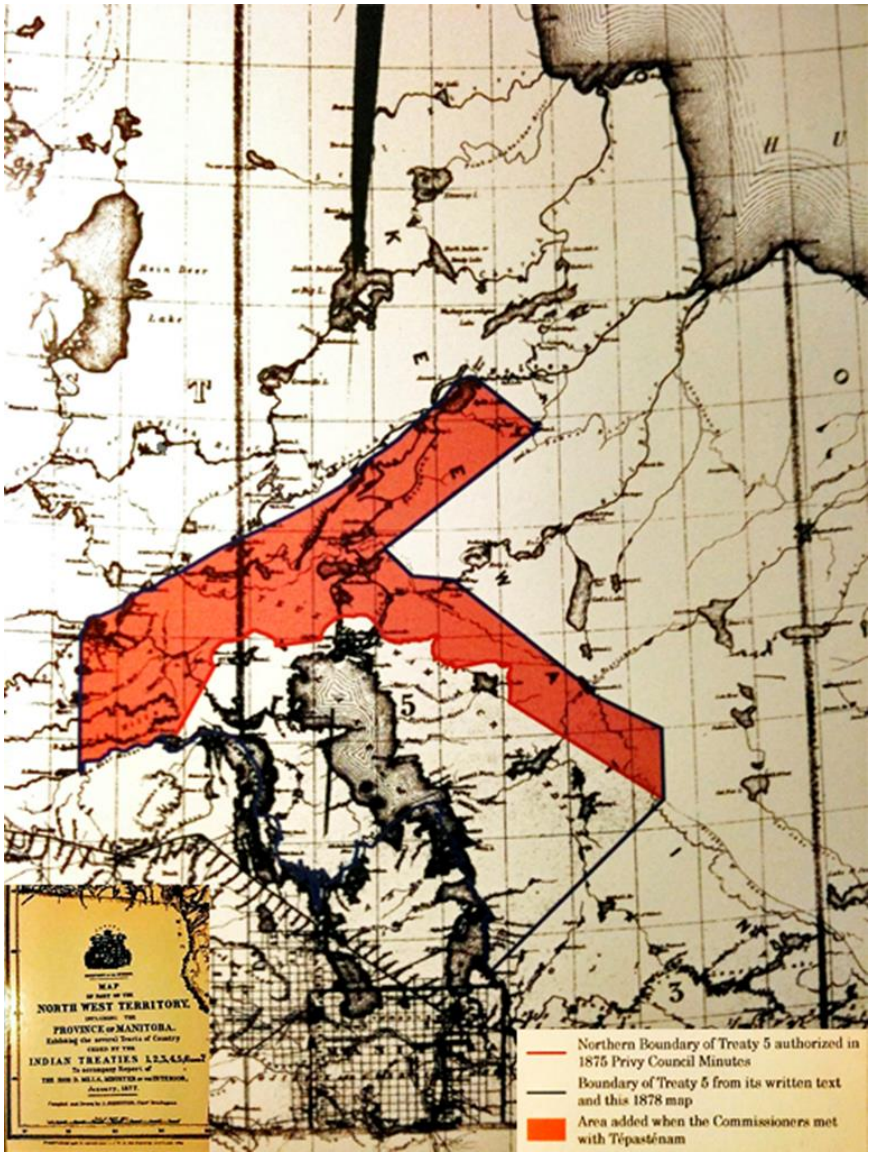
Request for Final Licence

- Manitoba Hydro's Request for Final Licence
- Water Stewardship Response for Final Licence

Historical Reports

- Summary Report - Lake Winnipeg, Churchill and Nelson Rivers Study Board Canada, Manitoba / April, 1975

Appendix B Treaty 5 Map



Portion of an 1877 map of the North West Territories depicting the boundaries of Treaty 5 in 1875. Additional lands and waters (in red) were adhered to the Treaty after negotiations with Tepastenam who represented Pimicikamak. These lands are described in the written text of Treaty 5 in 1876.