Question 1:

Cover Letter

In the covering letter dated 2012 07 06, which accompanied the filing of the EIS for the Project, it is stated, in part, "Finally, we note that the Manitoba Statute makes no reference to determinations of the significance of an adverse effect and accordingly, we will make no such determinations; ..."

- This seems to be contrary to normal practice, as well as ignoring the requirements of the Principles of Sustainable Development (*The Sustainable Development Act*, Schedule A).
- Please explain the meaning of this letter, and confirm that the Partnership agrees that the determination of significant adverse effects is a relevant factor in the CEC's review of the Project and is clearly within the Commission's jurisdiction to do so.

Response:

The wording in the covering letter dated 2012 07 06 transmitting the Environmental Impact Statement (EIS) to Canada and Manitoba referred to in Question 1 is an attempt to point out the differences in the regulatory constructs of Canada and Manitoba and reflects one of the compromises reached in applying the "two-track approach." It is also meant to remind the reader of one of the difficulties in preparing an assessment for two different parties with differing requirements, responsibilities and emphasis.

On the one hand, in the worldview of the Keeyask Cree Nations, *all* adverse effects on the environment are significant. On the other hand, environmental impact assessment in accordance with Federal technical guidance applying the wording of the *Canadian Environmental Assessment Act* requires a determination by the Federal regulator of the "significance" of *residual adverse* effects. Such finding has the effect of staying the hand of individual authorizing Federal departments and can lead to further consideration by the Governor in Council.

The Environment Act contains no similar requirement. Instead, the Manitoba statute focuses on sound environmental management and provides for the "environmental assessment of projects which are likely to have significant effects on the environment." In that respect, the approach inherent in *The Environment Act* accords more naturally with the views of the Keeyask Cree Nations. The regulatory submissions of the Partnership, however, had to be crafted to meet the requirements of the Federal as well as the Provincial statute.

The compromise reflected in the Response to EIS Guidelines was to include all of the information and technical analyses required for the Federal regulator to reach a conclusion concerning the significance of each *residual adverse effect*, but to leave it to the Federal regulator to draw the technical conclusions for each Valued Environmental Component. The wording of the letter reflects the difference between Federal and Manitoba regulatory requirements as well as an attempt to display respect for the worldview of the Keeyask Cree Nations in the face of technical Federal regulatory requirements which do not fit well with that worldview.

Since the filing of the EIS, the Partnership has responded to the further needs of the Federal and Manitoba regulatory processes, including responding to questions asked by the TAC and by the Clean Environment Commission. The response to CEC Rd 1 CEC-0020 states *conclusions on the significance* of each *residual adverse* effect. Thus, the technical reasons why the Keeyask Generation Project will not result in any *significant residual adverse environmental* effect have been explained. Completing this IR required additional compromise on the part of the Keeyask Cree Nations over and above that agreed to in applying the two-track process.

On the other hand, the approach to "significance" inherent in the Principles of Sustainable Development does fit well with the worldview of the Keeyask Cree Nations. Principle 4 states that Manitobans should "*anticipate, and prevent or mitigate, significant adverse* economic, environmental, human health and social effects of decisions and actions, having particular careful regard to decisions whose impacts are not entirely certain but which, on reasonable and well-informed grounds, appear to pose serious threats to the economy, the environment, human health and social well-being."

Principle 4 represents exactly the environmental planning process followed by the Partnership in planning the Keeyask Generation Project. As explained in the conclusion to the Response to EIS Guidelines, the "Keeyask Generation Project will cause numerous and widespread environmental and social effects, some of which *would have had* the *potential* to be significant. However, using past experience, Aboriginal traditional and leading scientific and engineering techniques, the Keeyask Hydropower Limited Partnership has *mitigated, remediated and/or compensated* for these effects, such that the Partnership is confident the Project should proceed."

As well, the Principles of Sustainable Development require consideration not only of adverse environmental effects, but also of environmental, economic and social benefits. The conclusion of the Response to EIS Guidelines finishes by observing that the "Project will also produce substantial environmental, social and economic benefits, all of which are consistent with the principles of sustainability established by the Governments of Canada and Manitoba. The Project will contribute to reductions in greenhouse gases and increases in lake sturgeon populations; it will provide training and employment for hundreds of Aboriginal and northern workers; it will enable the Keeyask Cree Nations Partners to build capacity and profit from construction contracts and their investment as equity partners; and it will provide clean renewable energy for Manitobans and export markets. As such, the Partnership believes the Project should be granted regulatory approval to proceed."

In terms of the CEC's jurisdiction and duty, as set out in the Terms of Reference issued by the Minister, the CEC must recommend whether or not an *Environment Act* license should be issued and any conditions that it feels should be included in that license. The Partnership expects that, in completing its Terms of Reference, the CEC will take into account the EIS and further submissions by the Partnership, including the technical assessment and the reports of each of the Keeyask Cree Nations, as well as the whole of the evidence given by the Partnership and others in the course of this hearing.

In coming to its conclusions regarding the project the CEC is not explicitly required to make findings of significance in the technical sense and can explain its rationale for its recommendations as it deems

appropriate. Whether it chooses to use the term as it would be used in common parlance, or as the Cree have described it, or not at all is a matter for the CEC to determine. The letter was merely an attempt to point out the differences in the regimes of Canada and Manitoba and alert the readers to nuances of wording with the hope that confusion between the outcomes of the two processes might be avoided.

Question 2:

Regional Cumulative Effects

In its report on the Bipole lll Project, the Commission recommended that a regional cumulative effects assessment should be conducted in the Nelson River sub-watershed before any further licences are issued for hydro development. The Minister of Conservation and Water Stewardship in a letter dated August 14, 2013, agreed with that recommendation. In paragraph 17 of the Proponent's Reply to a motion filed September 9, 2013 by Peguis First Nation, it is stated: "Manitoba Hydro has already engaged with Manitoba to begin implementation of a regional cumulative effects assessment."

- Please provide a status report on the progress of this assessment, together with an anticipated completion date.

Response:

A draft Terms of Reference to meet the intent of Bipole III Recommendation 13.2 is currently under review with the Minister of Conservation and Water Stewardship.

It is proposed that the work be accomplished using a phased approach, an interim product will be ready in mid-2014.

Question 3:

Manitoba Hydro System

The Partnership and Manitoba Hydro have consistently stated that Keeyask is part of the Manitoba Hydro system. Please describe more fully what the Manitoba Hydro system is and what being "part of the Manitoba Hydro system" means for Keeyask. What influences how it is managed?

Response:

The Manitoba Hydro system is defined as the system of facilities owned and operated or operated by Manitoba Hydro that comprise the "Integrated Power System". The Integrated Power System was defined in the Joint Keeyask Development Agreement (JKDA) as follows:

> " ***"Integrated Power System"*** *means the system of hydraulic, thermal and other electric generation and power transmission facilities in the Province of Manitoba owned and operated or operated by* ***Hydro*** *or from which* ***Hydro*** *purchases the energy generated by that facility, which system is interconnected with other power systems, which for greater certainty does not include the* ***Tie-Lines*** *interconnecting such system with those other power systems.*"

Being part of the Integrated Power System means Keeyask will be connected to the transmission system that connects generating stations to electrical load (i.e. energy demands) in Manitoba. The Integrated Power System is connected to neighbouring power systems through tie lines. The system is managed (i.e., planned and operated) to reliably and economically supply electrical load which in general terms means to economically balance supply (generation) and demand (electrical load). What influences how the system is operated are changes to supply and demand. An example change in supply could be a loss of generation due to a forced outage. An example of change in demand could be an increase in heating load due to seasonal weather changes.

Section 1.3 of the Project Description Supporting Volume, "Project Purpose", outlined:

> *"The Partnership will sell all of the energy produced from the Project to Manitoba Hydro. Manitoba Hydro will use the power in its integrated system for export or domestic purposes."*

Section 4.1 of the Project Description Supporting Volume provides an overview of the Manitoba Hydro hydraulic system operation and, with respect to the Keeyask Generation Project specifically, Section 4.2 indicated:

> "*The Project will operate as a* ***modified peaking plant****, meaning that it will operate either, in a* ***peaking mode of operation*** *or a base loaded mode of operation. The extent of peaking or base loaded mode of operation will be determined by the flows in the Nelson River at the time and the requirements of the Integrated Power System to meet the power demands at that time.*"

Article 9, Section 9.2, of the JKDA, "O&M Services and System Operations Services", outlines how Keeyask is to be operated as part of the Integrated Power System. A few key definitions used in Article 9 are as follows:

> **" "*Interconnection and Operating Agreement"*** *means an agreement or agreements including any study agreements or letter agreements and any amendments to such agreements to be entered into between* ***Hydro*** *(Power Supply Business Unit) and* ***Hydro*** *(Transmission and Distribution Business Unit) and assigned to the* ***Limited Partnership*** *on* ***Initial Closing*** *whereby the* ***Keeyask Generation Project*** *will be interconnected with the* ***Integrated Power System****, which agreement shall be in the form published for use under the* ***Open Access Tariff*** *at the time the same is to be entered into, and any amendments thereto*.
>
> ***"Operating Plan"*** *means the annual plan prepared by* ***Hydro*** *for the* ***O & M Services*** *to be performed in the year.*
>
> ***"System Operations Services"*** *means all services related to the control and operation of the* ***Keeyask Generating Station****, including the dispatch of the* ***Keeyask Generating Station****, not including* ***O & M Services****.*
>
> *"****System Operations Service Parameters****" means that the* ***System Operations Services*** *will be performed:*
>
> a. *in a manner that is integrated with the control and operation and dispatch of the* ***Integrated Power System*** *and is reasonably consistent with the system operation services* ***Hydro*** *performs in respect of other facilities that are also components of the* ***Integrated Power System*** *but are wholly owned by* ***Hydro****; and*
>
> b. *in a manner that is not materially prejudicial to the reliability of, or to the economic benefits to be derived from, the* ***Keeyask Generation Project****, except to the extent such services are performed in a manner that is reasonably intended to benefit the reliability of, or the economic benefits to be obtained from, the* ***Integrated Power System*** *as a whole and is reasonably consistent with system operation services that* ***Hydro*** *would have performed had the* ***Keeyask Generation Project*** *been wholly owned by* ***Hydro****.*"

Section 9.2 clearly outlines how operation of Keeyask is to be integrated into planning and operation of the Integrated Power System, as follows:

> **"*O & M Services***
>
> *9.2.1* ***Hydro*** *will have, and the* ***Limited Partnership*** *will agree and will grant to* ***Hydro****, the right and authority to provide, and* ***Hydro*** *will provide, the* ***O & M Services*** *to the* ***Limited Partnership*** *in accordance with such guidelines, procedures, decisions, practices and policies, as may be made or established and as may be amended by* ***Hydro*** *from time to time as* ***Hydro****, in its sole discretion deems appropriate, to achieve the objectives set out in the annual* ***Operating Plan****.*

System Operations Services

*9.2.2 For so long as the **Keeyask Generating Station** is operational, it will be controlled, operated and dispatched by **Hydro** as a component of the **Integrated Power System** and **Hydro** will have, and the **Limited Partnership** will agree and will grant to **Hydro,** the right and authority to do such things as may be necessary or desirable in order to control, operate and dispatch the **Keeyask Generating Station** as a component of the **Integrated Power System**. **Hydro** will provide the **System Operations Services** in accordance with such guidelines, procedures, decisions, practices and policies, as may be made or established and as may be amended by **Hydro** from time to time as **Hydro**, in its sole discretion deems appropriate.*

Acknowledgments

It is acknowledged and agreed that:

a. *subject to the **System Operations Service Parameters**, **Hydro** shall operate and maintain the **Keeyask Generation Project** as a component of the **Integrated Power System** and will operate the **Integrated Power System** in a manner that **Hydro** considers beneficial to the **Integrated Power System**;*
b. ***Hydro** retains the right and authority to operate and maintain other facilities that also are components of the **Integrated Power System,** as **Hydro** in its sole discretion deems appropriate;*
c. *in doing what **Hydro** considers to be beneficial for the **Integrated Power System**, the benefits which might otherwise be available to the **Limited Partnership** from the **Keeyask Generation Project**, were it not operated as a component of the **Integrated Power System**, may not be maximized;*
d. *under no circumstances can the **Limited Partnership**, the **General Partner** or any other person or party on the **Limited Partnership's** behalf, direct or constrain in any manner whatsoever **Hydro's** sole ability and authority to control, operate and dispatch the **Integrated Power System**, including the **Keeyask Generation Project** as part of that system, in such manner as **Hydro** in its sole discretion deems appropriate;*
e. *without limiting the generality of (d), above, under no circumstances can the **Limited Partnership**, the **General Partner** or any other person or party on the **Limited Partnership's** behalf take any action that will adversely impact on safety, licensing, and environmental considerations in respect of the operation of the **Integrated Power System,** including the **Keeyask Generation Project** as part of that system;*
f. *the right and authority granted to **Hydro** to perform the **O & M Services** and **System Operations Services** are in addition to the right and authority granted to **Hydro** to control, operate and dispatch the **Keeyask Generation Project** pursuant to the provisions of the **Interconnection and Operating Agreement**; …"*

Manitoba Hydro's system operation was explained in the response to TAC Public Rd 1 NCN-0001:

"*Manitoba Hydro operates its system as an integrated system in order to meet Manitoba Hydro's load commitments in a secure, reliable and economic manner. The largest factor influencing system*

> *operations is the amount of water inflow from the large overall watershed into the hydroelectric system. … Manitoba Hydro has some limited ability to manage system flows and water levels primarily through the Churchill River Diversion (CRD), Grand Rapids (GR), and Lake Winnipeg Regulation (LWR) projects. Other factors that can impact system operations (system effects) include increased load demand as a result of growth of Manitoba's domestic demands and/or changes in export sales, change in export transmission capability, and the addition of supply such as Keeyask.*"

The Partnership further explained Manitoba Hydro's system operation, and the integration of Keeyask in that operation, in its response to CEC Rd 1 PFN-0032. In response to the question about the operation of LWR and/or CRD effects on the Keeyask reservoir:

> *"The* [Keeyask] *reservoir would not deviate outside of the 1 m operating range because of LWR and CRD operations. LWR and CRD establish the monthly inflow pattern to Keeyask and make up the majority of the inflows to the Project, as compared to the relatively smaller local tributary inflows from downstream of LWR and CRD."*

Later in CEC Rd 1 PFN-0032, the Partnership explained how the integration of Keeyask into Manitoba Hydro's integrated system will not impact the licences and agreements that govern system operations:

> "*No changes to the operating licences /conditions of LWR are anticipated either to support flows for Wuskwatim, Keeyask and Conawapa, or for other reasons. Lake Winnipeg Regulation water levels are influenced by factors including water inflows, energy supply and energy demand. In accordance with existing licences/conditions, Lake Winnipeg Regulation (LWR) is used by Manitoba Hydro to balance seasonal/monthly supply and demand of energy. The Wuskwatim, Keeyask and Conawapa generation projects will be operated as part of Manitoba Hydro's integrated system within the constraints of licences granted for its facilities, including the Lake Winnipeg Regulation licence.*"

Mr. St. Laurent provided testimony on behalf of the Partnership where he described the Integrated Power System on pages 498 through 501 of the transcripts; this testimony covered slides 27 through 32 of the Project Description presentation. Mr. St. Laurent later provided testimony where he described the Keeyask operation phase on pages 527 through 532 of the transcripts; this testimony covered slides 71 through 78 of the Project Description presentation.

Also note that under Sections 72 through 75 of the Water Power Regulation, the Minister has the power to regulate waters for multiple developments to ensure the "maximum advantageous development of the power and other resources of the stream upon which the works are located".

Question 4:

Racism

The Panel have heard testimony from a number of participants attesting to racism in Manitoba Hydro workplaces. Please provide detail as to what Manitoba Hydro is doing to address racism and overall Aboriginal cultural awareness within the company and to ensure its contractors are in compliance?

Response:

Note: Given this question specifically asks "what Manitoba Hydro is doing", the response has been prepared from Manitoba Hydro's perspective.

Manitoba Hydro's Operations

Manitoba Hydro has a Discrimination and Harassment Free Workplace policy which outlines Manitoba Hydro's commitment to providing a respectful workplace for its employees, the responsibility of each employee to address concerns of discrimination and harassment as well as the steps for initiating and investigating complaints. A full time human rights and respectful workplace advisor is employed by Manitoba Hydro who is responsible for providing educational presentations to employees regarding their rights and obligations pursuant to The Human Rights Code and the Workplace Safety and Health Regulation, facilitating resolutions to workplace conflicts, investigating complaints of harassment or discrimination and making recommendations for remedial and corrective action when non-compliance is established.

Manitoba Hydro takes any concerns regarding the treatment of staff very seriously. Specific concerns have been raised by Fox Lake Cree Nation about the treatment of its members in Manitoba Hydro's workplace. In this case, Manitoba Hydro has retained an external mediator and conflict resolution specialist to assist in addressing the issues. The Fox Lake leadership has been involved in this process and in ongoing dialogue with Manitoba Hydro about the issues.

Within the corporation itself, Manitoba Hydro has a number of initiatives intended to promote cultural awareness among its employees. These include:

- A two day Aboriginal Cultural Awareness workshop designed to increase knowledge and understanding of Aboriginal culture. Since 2005, Manitoba Hydro has run 110 sessions of the workshop in various locations in Manitoba with a total of 1953 employees participating. Prior to 2005, Manitoba Hydro offered a variety of Aboriginal Cultural Awareness programs to employees in many locations in Manitoba.
- Since 2006, Manitoba Hydro has been celebrating National Aboriginal Awareness Week though a series of "Lunch and Learn" sessions and cultural events and displays. Lunch and Learn topics have included information on Aboriginal culture, teachings, identity, and spirituality.

- Earlier this year, the corporation approved the formation of an Aboriginal Employee Sharing Circle. The circle is led by an Aboriginal Employee Relations Specialist from the Recruitment & Diversity Department and is available to Aboriginal employees who are interested in participating.

Manitoba Hydro's Aboriginal workforce has increased substantially over the past 10 years. With this increase, Manitoba Hydro has worked to develop a climate that is inclusive and accommodating to our Aboriginal employees.

Contractors

With respect to contractors, numerous measures are put in place on Manitoba Hydro's major northern projects to support the retention of northern and Aboriginal employees at the job site, and to ensure that sensitivity and respect for local culture is established throughout the construction project.

For the Keeyask Generation Project, contractors may be retained by Manitoba Hydro on behalf of the Partnership through Direct Negotiated Contracts or through open competitive tenders. To date, for the Keeyask Infrastructure Project (KIP), the majority of the contracts have been directly negotiated with the First Nation Partners' joint ventures. One of these contracts, Employee Retention and Support (ERS) services is provided under a Direct Negotiated Contract with a Fox Lake Cree Nation and York Factory First Nation joint venture, which will also provide these services for the construction of the Keeyask Generation Project. The ERS contract provides for various on-site measures, including the provision of on-site counseling to employees, development and implementation of Aboriginal awareness training for employees, site orientation for Partner Cree Nation members, and arranging for cultural ceremonies at important project milestones. (See also response to Question 26 re On-Site Support)

This approach is similar to that taken on the Wuskwatim Project, where Nisichawayasihk Cree Nation provided similar services under contract to the Wuskwatim Power Limited Partnership. The purpose of cultural awareness training is to address the challenges that may arise from cultural differences experienced on the job site and as a result of interactions between employees and nearby communities. Training sessions consist of facilitated face-to-face cultural awareness workshops delivered by a qualified trainer.

In the case of KIP, Aboriginal awareness training sessions have already started and will continue throughout the construction of the Keeyask Generation Project. Sessions are currently held weekly and will continue throughout the project, adjusting frequency depending on the need.

In addition, through the contract specifications, contractors are required to have a discrimination and harassment free workplace policy. Clause #5 of Letter of Agreement No. 23 to the Burntwood Nelson Agreement also contains provisions in that regard, including a process to be followed. This clause is attached.

As well, under Article 18 of the Burntwood Nelson Agreement itself (also attached), a Project Safety Committee must be established for this project and it has responsibility to ensure that the Workplace Safety and Health Regulations are adhered to. Those Regulations require the creation of a harassment

prevention policy developed by this Committee. The Committee reports to the Manitoba Department of Labour on a regular basis and is tasked with ensuring that all parties on site follow proper safety protocols. It is within the Committee's jurisdiction to request documentation to demonstrate that a group is abiding by the appropriate regulations. Contractors manage their own safety programs with oversight from the Project Safety Committee.

The Partnership is committed to a safe and respectful workplace for all employees. Any allegations of harassment or discrimination are investigated by the Project Manager (Manitoba Hydro) and the contractor's management and a finding of discriminatory behavior could result in termination of employment on the Keeyask Generation Project.

Depending on the size and nature of the work, Manitoba Hydro has periodically provided cultural awareness training to other contractors in the Gillam area in relation to work on existing Hydro facilities. Employee Retention and Support services will also be provided at the Keewatinoow Converter Station project and Manitoba Hydro is exploring options for providing cultural awareness training to contractors in the Gillam area associated with the Gillam Redevelopment and Expansion Program.

Attachments

Burntwood Nelson Agreement Excerpts:

Letter of Agreement No. 23 (page 3):

5. The parties agree that no person covered by the BNA shall be subject to discrimination or harassment on the basis of any characteristic referred to in subsection 9(2) of the Human Rights Code of the Province of Manitoba.

The following procedure shall apply regarding claims of discrimination or harassment:

(a) The complainant shall contact the site representative of the Council (Allied Hydro Council) or the Council's Aboriginal representative with the particulars of the complaint. The appropriate Council representative shall forthwith speak to the appropriate representative of the contractor to resolve the complaint;

(b) If the complaint is not resolved to the satisfaction of the complainant, the site representative of the Council shall forthwith contact the site representative of the Association, in writing, outlining the particulars of the complaint. The two site representatives shall then jointly investigate the complaint, utilizing the assistance of anyone they deem appropriate. Once the investigation is complete, each site representative shall issue a report containing their respective findings and recommendations for actions by the contractor. If the findings and recommendations are the same, they may issue the report jointly;

(c) Discrimination and harassment complaints shall be governed solely by the above procedures and shall not be subject to Grievance/Arbitration. If the above procedures do not resolve the complaint to the satisfaction of the complainant, his/her recourse shall be to the Human Rights Commission under the Human Rights Code.

ARTICLE 18 - SAFETY

18.1 All Regulations of the Workplace Safety and Health Act and all safety regulations established by the Contractor shall be complied with at all times.

18.2 Each Contractor shall establish a safety committee to consist of representatives of the Contractor and an employee designated from each trade in his employ.

18.3 To promote, co ordinate and facilitate the implementation of safety initiatives on a Project basis, a Project Safety Committee shall be established. This Committee shall consist of not less than four (4) or more than twelve (12) persons, of whom half shall include the Site Representative of the Council and employees of the Contractors.

18.3.1 The Site Representative of the Council shall co ordinate and assist in the selection of employee representatives.

18.3.2 The Management members shall consist of representatives of prime Contractors (those Contractors with direct contractual arrangements with Manitoba Hydro), a representative from Manitoba Hydro, and the Site Representative of the Association. The Council shall appoint its Chairperson from the employee representatives serving on the Committee, and the Management members shall appoint their Chairperson. The respective Chairpersons shall chair alternate meetings.

18.3.3 The Committee shall meet at least every two (2) months, however, if conditions warrant, a meeting may be convened at any time, at the request of either Chairperson, or the Site Representative of either the Council or the Association. Minutes of each meeting shall be prepared which shall record in appropriate detail:
a) The issues discussed;
b) Any recommendations of the Committee;
c) Whether or not the issues have been resolved to the satisfaction of the Committee.

18.3.4 Unless otherwise agreed to by the Chairpersons, minutes of meetings shall be prepared, on an alternate basis, by the Site Representative of the Council and Association, respectively. Copies of the minutes shall be posted and appropriately distributed.

18.4 To benefit the overall program of accident control any unsafe conditions, unsafe acts and violations of safety regulations, shall be reported as follows for immediate corrective action:
a) In the case of employees, directly to the Contractor's Foreman;
b) In the case of Job Stewards functioning for each Union, directly to the Contractor's Foreman and/or Safety Officer.

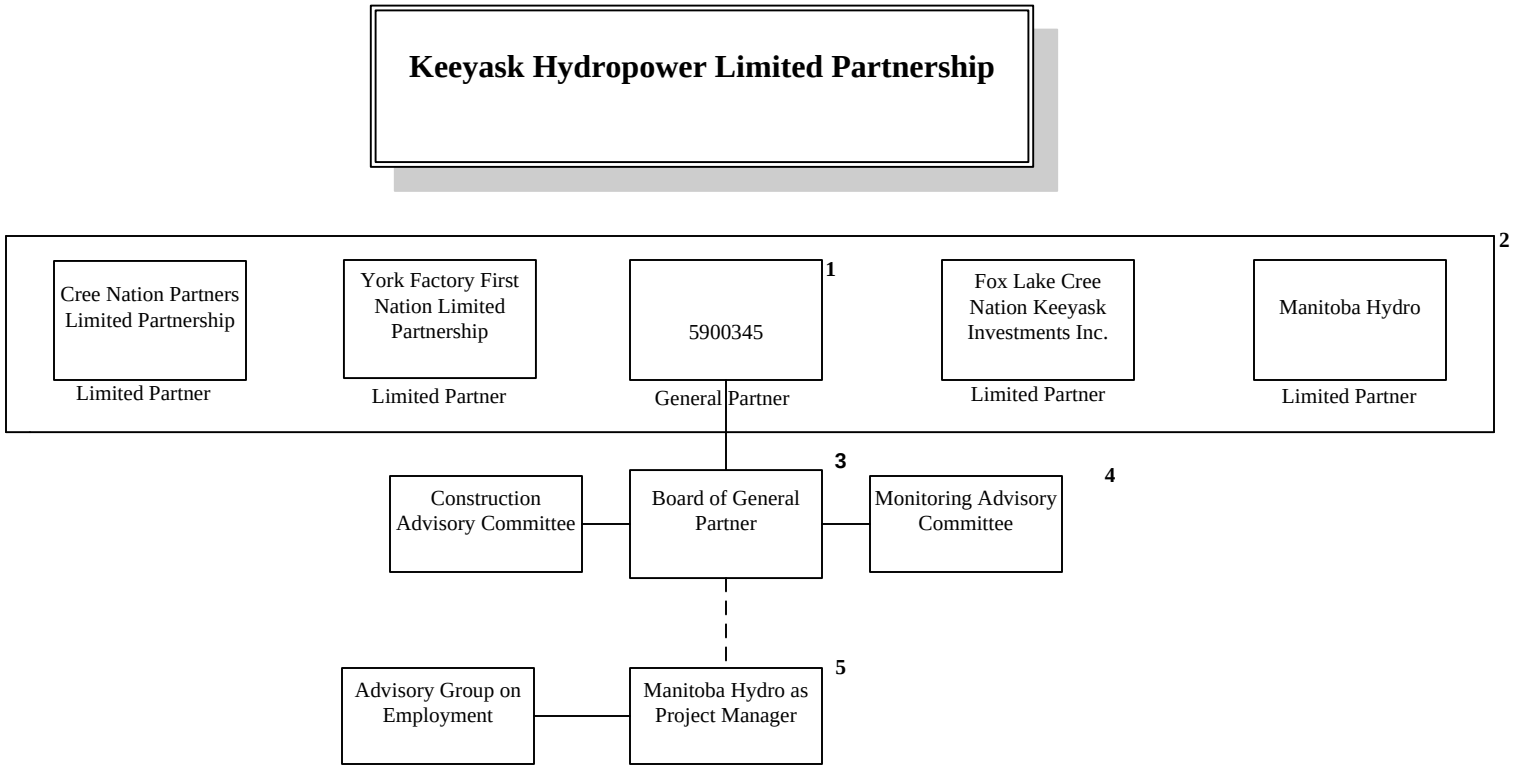
Question 5:

Keeyask Partnership

Please provide an organizational chart showing the governance structure of the Partnership. Include a description of the various boards, committees and advisory panels providing their composition, mandate and function.

Response:

Please see attached chart and description of KHLP boards and committees.



1. General Partner is fully liable for all debt and responsible for running the business of the Partnership.
2. There will be annual meetings of all Partners, the four Limited Partners and the General Partner.
3. Pursuant to the Joint Keeyask Development Agreement, Hydro agrees to appoint qualified nominees of Tataskweyak Cree Nation, War Lake First Nation, York Factory First Nation and Fox Lake Cree Nation to the Board. The ultimate legal liability for decisions made by the General Partner lies with the Directors of this Board.
4. The Monitoring and Construction Advisory Committees are advisory to the Board of the General Partner. These committees will include representatives from Tataskweyak Cree Nation, War Lake First Nation, York Factory First Nation and Fox Lake Cree Nation.
5. Pursuant to the Joint Keeyask Development Agreement, Hydro is responsible for the construction of the Keeyask Project. The Advisory Group on Employment is an advisory committee to Hydro in its capacity as Project Manager.

KHLP Board & Committees

Function & Composition

Board of 5900345

The General Partner is fully liable for all debt and responsible for running the business of the Partnership. Decisions of the General Partner are decisions taken by its Board (5900345).

Manitoba Hydro Nominees – 7

Keeyask Cree Nations Nominees – 5 (2 TCN, 1 War Lake, 1 Fox Lake and 1 York Factory)

Monitoring Advisory Committee

The MAC is an advisory committee to the KHLP. It is consultative and advisory only and has no decision making authority.

Manitoba Hydro Representatives – 5

Keeyask Cree Nations Representatives – 5 (2 TCN, 1 War Lake, 1 Fox Lake and 1 York Factory)

Keeyask Cree Nations Advisors – (2 CNP and 1 each for Fox Lake and York Factory assuming corresponding KCN Representatives are in attendance)

Construction Advisory Committee

The CAC is an advisory committee to the KHLP. It is consultative and advisory only and has no decision making authority.

Manitoba Hydro Representatives – 2 (Employees of MH in its capacity as Project Manager)

Keeyask Cree Nations Representatives – 5 (2 TCN, 1 War Lake, 1 Fox Lake and 1 York Factory)

Advisory Group on Employment

The AGE is an advisory group to the Project Manager. The AGE is a forum for addressing employment-related issues, in particular Aboriginal employment, related to construction of the Keeyask Project.

The AGE will be comprised of the following representatives:

(a) Voting Representatives:

(i) four (4) Keeyask Cree Nation representatives (one (1) Member from each of TCN, War Lake, York Factory and Fox Lake);

(ii) six (6) Hydro representatives;

(iii) one (1) Manitoba – CTT (Competitiveness, Training and Trade, formerly MAET) representative;

(iv) one (1) HPMA (Hydro Project Management Association) representative; and

(v) one (1) AHC (Allied Hydro Council) representative.

(b) Non-voting Representatives:

(i) one (1) representative appointed by each contractor on the Keeyask Project, including the Employment Retention Contract contractor. The AGE will determine which contractors are required to attend the meetings; and

(ii) the Allied Hydro Council's Aboriginal union representative for the Keeyask Project.

Additionally, several on-site Committees (e.: Project Safety and Health and Camp) will be established with representatives from all site staff, including KCN members.

As per the October 17 letter from Manitoba Hydro regarding KCN involvement in the Environmental Protection Program, a commitment has also been made to provide resources for a KCN collaborative ATK forum.

Question 6:

Off-Setting Programs

How do the KCNs plan to harvest most of the fish in the offsetting lakes – via floatplanes or trails?

Response:

This would vary depending on the location of the offset lakes and the time of travel. Lakes located closer to the communities would likely be accessed by surface transportation; those further afield would likely be accessed by air. The Tataskweyak Cree Nation and War Lake First Nation Adverse Effects Agreements include funding for air travel for certain offsetting programs, as set out in the agreements. Fox Lake Cree Nation and York Factory First Nation also contemplated that travel costs would be covered in the funding provided for their Alternative Resource Use/Resource Access and Use Program described in their Keeyask Adverse Effects Agreements. In addition, some programs include the purchase of snowmobiles for winter travel.

Question 7:

Off-Setting Programs

The Consumers Association of Canada raised the points that the human health risk assessment and mercury exposure to fish in Gull and Stephens Lakes may be overly cautious. Do the Keeyask Cree Nations think their members will consider eating fish in these lakes? What influenced the differing conclusions?

Response:

The AEA programs were designed by the Partner First Nations in recognition that mercury levels in fish in Gull and Stephens lakes will increase post-Project and that Members of the Partner First Nations should not, and would not want to, eat fish with elevated mercury levels. Each of the Partner First Nations negotiated an adverse effects agreement with opportunities to harvest fish from areas unaffected by the Project. In the case of TCN and WLFN, their AEAs included healthy food fish programs which were intended to bring healthy fish from off-system lakes to the communities.

The Partner First Nations were aware of past mercury effects. For example, TCN members have been aware of the potential effects of mercury in fish since the early 1970s when its Split Lake fishery was closed as a result of mercury from upstream Chlor-Alkali plants and pulp mills. In 1994, TCN's environmental monitoring committee worked with Health Canada, Manitoba and Manitoba Hydro to prepare placemats for each household, to caution people about mercury and to encourage them to eat smaller pickerel and jackfish. As stated in the SE SV, pg. 5-109, "due to perceived risk/fears and lack of information from trusted sources, many KCNs Members indicated that they had either stopped, or decreased, the level of eating fish and other traditional foods." In addition, they indicated that the fish quality had declined (see Response to EIS Guidelines, Sec. 6.2.3.3.6, pg. 6-77; KIPEKISKWAYWINN, pg. 78; FLCN Environment Evaluation Report, pg. 46).

Concern by the Partner First Nations about the issue of mercury was the fundamental reason for establishing the Mercury and Human Health Technical Working Group (the TWG), described in detail in the Socio-Economic Supporting Volume (SE SV) Sec. 5.3.3. From 2007 to 2012, representatives of the Partner First Nations, Manitoba Hydro and the EA Team worked together to oversee the preparation of the Human Health Risk Assessment (HHRA), which assessed the risks of eating fish from Gull Lake and Stephens Lake, as well as other country foods from the area. In addition, the TWG worked to develop information and communications materials to inform members about the mercury risks in Gull Lake and Stephens Lake and to encourage them to eat low-mercury fish and other country foods.

In the preamble to the question, it was noted that the CAC analysis indicated that the human health risk assessment (HHRA) may be overly cautious. The Partnership has taken the CEC's question to inquire about the differing conclusions between the HHRA undertaken by the Partnership and the analysis provided by the CAC.

First, it should be noted that the CAC's witness (G. Brown) confirmed that the Partnership's HHRA methodology was state-of-the-art (CEC Transcript p. 3638, line 11 – 17) and that the key differences focuses on assumptions for the analysis.

As described in the response to IR CEC Rd 1 CAC 0021, the Partnership's HHRA was based on information from the Partner First Nations regarding the type of country food consumed (including fish species), portion size and frequency of use. As noted in the HHRA, the risk estimates are very sensitive to portion size; and the Keeyask HHRA used much larger portions sizes as compared to either the Manitoba Water Stewardship Guidelines or the CAC analysis. The CAC report used generic consumption data that are not consistent with information coming from the communities.

- The Partner First Nations have indicated that adult portion sizes of fish are much larger than typically assumed by health agencies (see Table 4-1 of Wilson Scientific HHRA, page 5C-30).
- We acknowledge these are larger sizes than either the Chan study referenced by the CAC (see G&P Resource Service Inc.) or Health Canada guidelines; however, the Partner First Nation Members on the TWG repeatedly confirmed the portion sizes.
- The Partnership determined, and Dr. Laurie Chan agreed during his peer review, that community-specific data are appropriate to use when conducting a HHRA.

Question 8:

Off-Setting Programs

Is there a sunset date on when the Adverse Effects Agreements expire? For example, once mercury levels in fish have returned to background levels?

Response:

There is no sunset date on which the Adverse Effects Agreements expire; they are intended to be in effect for the life of the project. As noted in CAC-0121:"Article 11 ("Termination") in the TCN, WLFN, and FLCN agreements (Article 9 in YFFN) describes the process that would be followed with respect to the funding of the offsetting programs in the event that the Joint Keeyask Development Agreement is terminated. In the event that the KHLP is dissolved after the Keeyask Generation Project is completed and the closing licenses have been issued, Manitoba Hydro will assume all rights and benefits under the Agreements and be bound by all undertakings and obligations of the Agreements."

The TCN Adverse Effect Agreement includes a provision (Article 6.1.2) which specifies that, in the event the methyl-mercury in fish returns to pre-Keeyask Generation Project levels, TCN will provide Hydro with written reason for continuing that program or requesting a program change. The decision by TCN to continue the Healthy Food Fish Program is entirely within TCN's discretion and is not open to dispute by Hydro.

The Keeyask Adverse Effects Agreements include timeframes for specific offsetting programs, which are reviewed annually through the development and community review of workplans and budgets, which can be adjusted (Program Change) based on the priorities of the community.

Question 9:

Off-Setting Programs

The Panel heard testimony that the Fox Lake Adverse Effects Agreement includes provisions for an Alternative Resource Use Plan to provide opportunities for local harvesters, whose "resource use area" had experienced adverse effects due to the Keeyask Generation Project. The cost for the ARUP amounts to $100,000 per year but only runs for three years. The program will ostensibly end after three years, although mercury levels in wildlife that will require the implementation of the ARUP are expected to peak in the first 10 years. Can the Partnership provide a response to this statement? How will the alternate use plan be managed?

Response:

Through the development of the Keeyask Adverse Effects Agreement, Fox Lake identified their principal area of concern as being socio-economic impacts, including the influx of workers into the Gillam area. As such, many of their offsetting programs are directed at those kinds of impacts. Article 5.2 (Program Changes) provides Fox Lake with the ability to submit proposals to Fox Lake Citizens and Manitoba Hydro in the event the priorities of the community change and they feel it appropriate to discontinue an existing program or implement a new program. Fox Lake has significant autonomy in implementing and managing the offsetting programs, which includes the Alternate Resource Use Program. In addition, a risk communication plan will be in place to alert all who use fish from Gull and Stephens lakes about the risks of consumption when mercury levels are high.

Question 10:

Off-Setting Programs

More generally on the question of offsetting programs in the AEAs, it has been suggested that hunting and gathering areas are often traditionally used by specific families. Programs that facilitate resource users to harvest in alternative locations may then lead to conflict between new users and the users who have been harvesting in a particular location. What steps will be taken to prevent conflict and/or overharvest in such situations?

Response:

The suggestion that areas are used by specific families is correct. KCNs members are also aware that their individual Treaty and Aboriginal rights are widespread over large areas of Manitoba. The offsetting programs have been negotiated by and for the communities based on their understanding of potential Project effects and what the communities considers to be most appropriate for its members. Similarly, management of the programs is being done at the community level so that conflicts among community users can be identified and readily resolved as they emerge.

In the case of TCN, its Access Program (which given the community's population size is the most extensive of all the KCNs offsetting programs) began as a pilot program in 2004 and has been operating continuously since that time. There have been few, if any, conflicts. TCN and WLFN members share their resources among themselves and with others, as they have done for centuries. "Respect for others" is a guiding principle of both TCN's and WLFN's access programs, which operate entirely within the Split Lake Resource Management Area (SLRMA), an area bigger than Denmark. Preventing overharvest is one of the many practices inherent in stewardship of the lands and waters. The spring harvest is targeted to waterfowl, the fall harvest to moose. There are no programs that specifically target caribou, although caribou are taken opportunistically if they present themselves.

By way of example, the Split Lake Resource Management Board developed a moose conservation strategy in 1994. At that time there were an estimated 1,600 moose in the SLRMA. More recently CNP developed a moose sustainability plan, including an ongoing monitoring program. The recent moose count of 2010, identified an estimated 2,600 moose in the SLRMA.

Many of the offset lakes are further away, and are not as heavily used as those closer to the communities. The Access Program is aimed at families, and, in some instances, the Access Program, is providing funding for families to become reacquainted with their traditional family areas.

Question 11:

Trapping

In a presentation, the Partnership stated that the trapline compensation program differs from that used for Bipole III. Please describe the elements of the trapline/traditional area compensation program, and how it is applied for the Keeyask Generation Project.

- The Panel heard testimony that the trapline of Noah Massan will be significantly affected – perhaps, rendered useless. Can the Partnership comment on whether in its opinion this trapline will be rendered unusable by the Project? If so, what type of compensation – or alternatives – has he been offered?

Response:

Trappers Notification and Compensation Policy for Transmission Lines

Manitoba Hydro's Trappers Notification and Compensation Policy was developed in the 1980's for the construction of new transmission lines over 115 kV. This policy was created to compensate registered trapline holders for loss of production (commercial and domestic) over a five year period (one year to clear the right-of-way, one year to construct the transmission line with an additional three years for wildlife adaptation). The two major factors used in determining the compensation amount are the percentage of trapline impacted, calculated using a prescribed area of impact in relation to the transmission line, and past fur production. The policy also covers trapping equipment replacement and possible employment/business opportunities.

Disturbance Agreements for Generation projects – Pre-Licencing

The approach differs somewhat for new generation projects. As the Keeyask Hydropower Limited Partnership outlined in its testimony (e.g. November 6, page 2255, lines 16-20) and in its submission (in particular, the *Socio-Economic, Resource Use and Heritage Resources Supporting Volume*, e.g. 3.4.2.5.1; 3.4.1.6.2; and 6.6.3.5.2 in the *Response to the EIS Guidelines*), Manitoba Hydro provides compensation to registered trappers for disturbances (noise, aircraft and ground activities) during exploration, environmental investigations and other ongoing Keeyask activities in the area. The factors that are considered in arriving at these payments include past fur production on the trapline and the estimated amount of disturbance over the time period in question typically on an annual basis. This measure is more qualitative in nature than the formula used for transmission lines and considers the extent and frequency of the anticipated disturbances during the period. As the past fur production on the trapline would include the production records of any trapper helpers, it is expected that the trapline holder would address the concerns of his or her helpers, as required.

Manitoba Hydro has disturbance agreements in place on Traplines 9 and 15. The Trapline 15 disturbance agreement expired on December 31, 2013 and it is anticipated a new disturbance agreement for the coming year will be signed shortly. These agreements address disturbances of the Project to the

trappers' commercial fur harvest production and lost incidental domestic production (including, but not limited to, country foods, crafts, baiting, etc.). These agreements are negotiated with trappers; provisions of the agreements may include trapline improvements (trail cutting), employment opportunities with Manitoba Hydro, equipment replacement and/or monetary settlement.

Construction Phase

Once there is greater certainty that the Keeyask Generation Project will proceed, Manitoba Hydro, on behalf of the partnership, will provide an offer of compensation to any Member, who is a licensed trapper, to enter into an agreement over a longer term to address any existing or anticipated loss of net revenue from commercial trapping, and for any anticipated direct loss or damage to any buildings, structures or other infrastructure located on a Registered Trapline used by the member, resulting from the construction and operation of the Keeyask Generation Project, as per the processes in the AEA (see, for example, Article 10 "Members' Claims in the TCN AEA).

Discussions with respect to traplines 7 and 25 will be initiated at this point (they are not affected by pre-licencing activities). As Trapline 25 is a community trapline, the approach in this case will be somewhat different and will involve discussions with the local fur council or other representative body, rather than individual trappers.

Manitoba Hydro will also operate an ongoing claims process to facilitate the resolution of claims by members of the four First Nations for loss or damage resulting from Keeyask adverse effects to personal property (e.g. section 10.1.3 in the TCN AEA).

- *The Panel heard testimony that the trapline of Noah Massan will be significantly affected – perhaps, rendered useless. Can the Partnership comment on whether in its opinion this trapline will be rendered unusable by the Project? If so, what type of compensation – or alternatives – has he been offered?*

The Partnership does not agree with Mr. Massan's assessment of the potential impacts of the Keeyask Project on Split Lake Trapline #9. As outlined in the Socio-Economic, Resource Use and Heritage Resources Supporting Volume (e.g. 3.4.2.5.1 "Commercial Resource Economy"): "In the case of Trapline 15, approximately 4.5% (or 42 km^2) of the total area of 950 km^2 will be flooded. This will increase to just over 5% due to reservoir expansion over 30 years. Trapline 9 will not be affected by flooding, but will contain about 12 km of the new south access road; it will also include construction power line and generation outlet transmission lines. Trapline 7 is expected to experience just over 1% flooding (or just under 2 km^2). Trapline 25 is expected to experience flooding to less than 1% of its land. During operation, the north and south access roads are expected to form part of the provincial highway system. Increased traffic associated with the highway could potentially lead to wildlife disturbance on Traplines 15 and 9." **Based on the Partnership's assessment, Trapline 9 will not be rendered useless.**

Manitoba Hydro currently has a disturbance agreement in place with Mr. Massan on Trapline 9. This agreement was negotiated for the 2010 – 2015 timeframe and includes a monetary settlement as well

as an offer of employment with Manitoba Hydro. Manitoba Hydro covered Mr. Massan's expenses to participate in discussions related to this agreement.

Prior to the 2010 disturbance agreement, in 2009, Manitoba Hydro provided Mr. Massan with compensation for past effects to Trapline 9 related to the Keeyask Project. Manitoba Hydro reimbursed Mr. Massan's expenses related to these discussions. It should be noted that the general approach to discussions with trappers is for a staff member from Manitoba Hydro's Aboriginal Relations Division to meet directly with trappers. In the case of the Keeyask Project, the staff leading discussions with trappers hail from the north and have personal experience as trappers themselves.

Once there is greater certainty that the Keeyask Generation Project is going forward, the Partnership will seek to enter into an agreement with Mr. Massan for project effects on Trapline 9, as per the process described above. Manitoba Hydro will also seek agreement with Mr. Massan with respect to Keeyask transmission issues in accordance with the transmission Trappers Notification and Compensation Policy.

On December 11, the following exchange took place between Ms. Aimee Craft (CAC) and Mr. Noah Massan (CFLGC):

> MS. CRAFT: If you were to move to a
> 16 different area, and I understand that's part of
> 17 what is proposed in relation to how the Keeyask
> 18 adverse effect agreements were negotiated, moving
> 19 trapping, fishing and hunting to different areas,
> 20 if the areas are affected or if the animals are
> 21 affected. Do you think that that's possible for
> 22 you to go to a different area to hunt and trap and
> 23 fish?
>
> MR. MASSAN: That's a good question.
> 25 Because when I pick my trappers licence, beginning
> 1 of October, I brought that issue up, because
> 2 Manitoba Hydro, when I was dealing with them, they
> 3 told me your trapline is going to be affected.
> 4 But I have got -- how do you say that word, I
> 5 can't say that word.
>
> 6 MS. CRAFT: Conservation officer is
> 7 that what you mean?
>
> 8 MR. MASSAN: Yes. When I went and got
> 9 my licence there, I asked, I told them what Hydro
> 10 is trying to do. And that guy said, and that
> 11 lady, they have no right to say that to you. You
> 12 have to see us, not Manitoba Hydro. But I told
> 13 them I thought you guys were all together. The

14 Province of Manitoba is not he said, they have no
15 right to tell you they can move you some place
16 else.

17 MS. CRAFT: And why wouldn't you want
18 to go some place else?

19 MR. MASSAN: I like that area...

This exchange may have given the impression that Mr. Massan will be required to move or relocate from his existing trapline (Split Lake Trapline 9) to a different trapline as a result of the Keeyask Generation Project. This is not the case. The Keeyask Adverse Effects Agreements (AEA), referenced by Ms. Craft, do not include relocation of commercial activities or reallocation of registered traplines, which, as Mr. Massan noted, is well beyond the authority of Manitoba Hydro, or the KHLP.

The AEAs include a series of agreed upon mitigation measures, the purpose of which is to address and resolve the present and future adverse effects of the Keeyask Generation Project on members of the four First Nations, including impacts of the Project on their collective rights and interests and impacts of the Project on the exercise of Aboriginal and Treaty rights (e.g. Section 3.1.1 of the AEAs, “Purpose”). While the AEA offsetting programs provide an opportunity for members to undertake traditional activities in alternative areas, they are not intended to address project effects on commercial activities. As set out in the AEAs, Manitoba Hydro remains liable to compensate licensed trappers for any loss of net revenue from commercial trapping and for any direct loss or damage to any buildings, structures or other infrastructure which results from the construction and operation of the Keeyask Generation Project (see Article 10 “Citizens’ Claims, in the Fox Lake Cree Nation AEA as an example).

Question 12:

AEA – Shamattawa Questions

Will any of the Offsetting Areas or Lakes be in trapline areas assigned to members of the Shamattawa First Nation? If so, will Shamattawa be involved in setting the conditions in the AEA and in management of the resources? How have they been consulted and/or involved? How, specifically?

Response:

Will any of the Offsetting Areas or Lakes be in trapline areas assigned to members of the Shamattawa First Nation?

York Factory First Nation Offsetting Programs under the YFFN Keeyask Adverse Effects Agreement can be carried out in a wide variety of areas, including anywhere in the YFFN Resource Management Area (RMA), as set out in the 1995 Comprehensive Implementation Agreement (1995 CIA) between YFFN, Canada, Manitoba and Manitoba Hydro. There are Shamattawa First Nation members who currently hold trapping licences for commercial purposes in the YFFN RMA and so there is the potential for Offsetting Programs to be carried out in those trapline areas.

It should be noted that Trapline 22, where Ten Shilling Creek is located and currently is the primary destination of the currently YFFN Resource Access and Use Program (see the YFFN Environmental Evaluation Report – Kipekiskwaywinan (Our Voices)), is a trapline held by a YFFN member with helper permits issued to other YFFN members.

It should be noted that there is a very lengthy historical and contemporary use of the coastal YFFN RMA by YFFN which was extensively documented in the YFFN Environmental Evaluation Report – Kipekiskwaywinan (Our Voices) from pages 40-63. YFFN has camps at both York Factory and Ten Shilling Creek which are used regularly by YFFN members.

It should also be noted that YFFN has experienced a history of its members traplines being impacted by the relocation of YFFN from York Factory to York Landing. The original York Factory trapline district was split by Manitoba into the York Factory and Kaska districts, with some of the YFFN original traplines being moved into the Limestone district. Then in the 1970s, the York and Kaska districts were amalgamated into the Shamattawa trapline district. The unilateral changes to the YFFN traplines remains an outstanding grievance for YFFN with the Province of Manitoba. What has been viewed as a loss for YFFN resulted in a gain for Shamattawa First Nation. While the presentation made on November 7, 2013 by Shamattawa First Nation left the impression that Shamattawa First Nation was experiencing numerous impacts, that presentation left out significant historical facts (and cross-examination was not permitted).

If so, will Shamattawa be involved in setting the conditions in the AEA and in management of the resources?

A response to the rights of trapline holders has been provided in Section 1.4.3 of the Socio-Economic Supporting Volume:

“The registered trapline (RTL) system was designed in the 1940’s to reduce conflict between trappers, improve management and reduce depletion of fur resources. Manitoba Conservation and Water Stewardship allocates an RTL permit for $10.00 on an annual basis to individuals, who in exchange, are granted the exclusive individual right to harvest (fur) resources.”

Section 1.4.4 of the Socio-Economic Supporting Volume states:

“Traplines may be visited by people other than the licensee or helpers more frequently due to the offsetting programs. This is not expected to cause a substantive effect on trapping due to the timing of offsetting programs (spring and fall) which do not coincide with peak trapping activity (winter months). Within communities, licensed trappers are recognized and respected as stewards of the furbearer resources. Harvest of furbearers is not expected to occur as part of the offsetting programs without the permission of the trapline holder.”

The Response to IR TAC Public Rd 2 CEAA-0014 states at page 4-1 of the “Shamattawa First Nation: A Review of Available Information on the Current Use of Lands and Resources for Traditional Purposes in the Keeyask Resource Use Regional Study Area and Potential Effects of the Keeyask Generation Project on Those Uses” Section the following:

“4.0 EFFECTS ASSESSMENT CONCLUSIONS

4.1.1 Conclusions

Land and resource use for traditional purposes by Shamattawa First Nation members has not been documented in the Keeyask Resource Use Local Study Area. Therefore traditional land and resource use undertaken by SFN Members is not expected to be directly affected by the Project.

Based on available information, land and resource use for traditional purposes has occurred and is occurring in the Keeyask Resource Use Regional Study Area. It is not expected that this use and associated travel and navigation will be affected in any noticeable way. No significant adverse effects are expected.

Manitoba Hydro, on behalf of the Partnership, remains committed to consider any additional information provided on the use of lands and resources for traditional purposes by Shamattawa First Nation. Upon review of any information provided, Manitoba Hydro (on behalf of the Partnership) will consider the need to develop appropriate or alternate mitigation strategies, if necessary.”

It is for these reasons that the commercial interests of Shamattawa First Nations members who hold trapline permits are not expected to be affected. Therefore, there is no rationale for Shamattawa First Nation involvement in setting conditions for the YFFN Offsetting Programs and management of resources in the YFFN RMA. In addition, trapline allocations by the Province of Manitoba make the trapline holder the furbearer manager.

How have they been consulted and/or involved? How, specifically?

Negotiations on the YFFN Keeyask Adverse Effects Agreement were done bilaterally between YFFN and Manitoba Hydro. Under Article 9 of the 1995 CIA, a process is set out on how Manitoba Hydro and YFFN will interact with regard to any future hydro projects which may impact a waterbody within the RMA of YFFN. This includes reaching agreement on dealing with any adverse impacts. This is an exclusive, bilateral process between Manitoba Hydro and YFFN. It was one of the many provisions negotiated and bargained for between the parties to the 1995 CIA.

It should also be noted that the YFFN RMA consists of two regions: the larger coastal RMA and the much smaller Trapline 13 area around York Landing. The 1995 CIA also provides for a Resource Management Board with representatives from YFFN and the Province of Manitoba. The Resource Management Board may develop land use plans and/or resource management plans for the YFFN RMA. However, the Resource Management Board must hold at least one public meeting on any such plan and must also give notice to Manitoba Hydro, Shamattawa First Nation and Fox Lake First Nation of such a meeting and provide a copy of any proposed plan. While YFFN is in the very early stages of such planning, YFFN has already initiated contact with Shamattawa First Nation. While the impression was left during the November 7, 2013 presentation by Shamattawa First Nation that "correspondence" had been sent to an unidentified party, there had been no contact initiated by Shamattawa First Nation with YFFN with regard to any issues related to the Keeyask Generation Project or the YFFN RMA.

Even with the above processes, consultation on potential impacts on aboriginal and treaty rights are the exclusive responsibility of the Government of Canada and the Province of Manitoba (and are currently ongoing between the Crown parties and aboriginal groups with regard to the Keeyask Generation Project). This is as a result of the operation of s. 35 of the *Constitution Act, 1982*.

Shamattawa First Nation has had the opportunity to participate in both the Partnership's Public Involvement Program and in federal and provincial consultations undertaken by the Crown to meet their obligations under section 35 of the Constitution Act.

Targeted audiences for the KHLP Public Involvement Program included potentially affected Aboriginal and other northern Manitoba communities and groups, other interested organizations and the general public. This included Shamattawa First Nation. In terms of its participation in the PIP, Shamattawa First Nation was:

- Invited to participate in the Round One PIP, but declined the invitation;
- Participated in a PIP Round Two community meeting; and
- Participated in a PIP Round Three Chief and Council meeting and community meeting.

Meeting notes from all of these meetings are documented and included in the PIP Supporting Volume and in Supplemental Filing #3. Meeting notes were reviewed by community representatives for comment before being finalized.

Potential effects of Keeyask to Shamattawa First Nation's collectively held Aboriginal and Treaty Rights are being assessed through the Crowns' section 35 consultation processes. The Partnership is not involved in this consultation process.

In addition to the processes noted above, Shamattawa was provided the opportunity to review and comment on the response to the Request for Additional Information, TAC Public Rd 2 CEAA-0014. This response documented potential effects of Keeyask on resource use activities undertaken by Shamattawa First Nation. (referred to as CEA 11-03-64144 in the November 7, 2013 SFN presentation to the CEC).

Question 13:

Terrestrial

The EIS predicts the displacement of 45,000 songbirds (TE SV pp. 6-88) via nest destruction or "incidental take". This is the result of forest clearing and grubbing. Clearing outside the main breeding season is proposed as mitigation "where practicable"; however, this is not defined. Please elaborate.

Response:

While the EIS predicts the displacement of a significant number of songbirds, it does not anticipate that this will result in widespread nest destruction or “incidental take”. Displacement of songbirds will primarily occur in response to habitat loss or alteration resulting from winter land clearing and grubbing, which will take place in areas of the future reservoir or Project infrastructure. On returning from migration, songbirds that would have normally nested in these areas will seek, and potentially compete for, alternate habitats for breeding. Incidental take, which is defined as the inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs (Environment Canada 2013), will be minimized by clearing and grubbing outside of the sensitive breeding period for most birds in northern Manitoba (April 1 – August 31).

The Project has been designed, in terms of the scheduling of certain construction activities, to avoid clearing and grubbing during the breeding bird period (Response to EIS Guidelines Chapter 4). The vast majority of clearing will follow that pattern, with clearing occurring during the fall and winter period when birds are not nesting and migratory birds are absent. In this instance, that forms the working definition of “where practicable”.

However, the Partnership recognizes that unforeseen circumstances may require limited amounts of clearing during the sensitive breeding bird period. In an effort to minimize or avoid potential effects on birds, the Partnership has developed a Preliminary Construction Avian Management Plan (Avian Management Plan) as an appendix to the two Environmental Protection Plans (Preliminary Generating Station Construction Environmental Protection Plan and Preliminary South Access Road Environmental Protection Plan). The Avian Management Plan includes measures to minimize incidental take under the *Migratory Birds Convention Act* (MBCA). A preliminary Avian Management Plan was reviewed was reviewed with regulators this past fall, and has since been revised and released for public review on the Keeyask Partnership website. The Partnership anticipates that further revisions to the Avian Management Plan will be required in 2014 before it is finalized.

Recognizing that the Project will cause disturbance to birds, the objectives of the Avian Management Plan include:

- limiting the risk of the occurrence of incidental take;
- managing and mitigating avian issues arising from Project construction; and

- developing an educated workforce that has the information to identify and initiate action on potential avian issues.

For instance, where a situation arises that land clearing and grubbing is deemed necessary during the breeding period, procedures and protocols for pre-clearing nest searches will be implemented as described in the Avian Management Plan. If active nests are found, appropriate buffers will be retained to minimize disturbance to the nesting bird(s). In circumstances where the Partnership will have difficulty meeting the terms of the MBCA, appropriate action will be taken in consultation with regulatory authorities.

General educational materials such as lists and photos of the common and rare birds known to nest in the project area, timing of nesting for the various bird groups, nest types and habitat preference will also be included in the Avian Management Plan. Programs and training to increase both the awareness and the understanding of Project workers will be implemented so that all workers on the Project will be familiar with the Avian Management Plan materials. Project workers will be required to remain vigilant in the construction zone, and report any findings related to bird nesting to the site Environmental Officer or designate. The plan also covers both general and species-specific mitigation measures for birds. In addition, it outlines additional measures for discussion of avian issues at construction meetings as they arise; for undertaking blasting and clearing in accordance with required work permits and the procedures outlined in the plan; and for rehabilitating work areas and access roads no longer required for the Project.

For more information on how the Partnership is committed to protecting songbirds please see the response to IR CEC Rd 1 CEC-0039 and TAC Public Rd 2 EC-0026, which describes the Partnership's commitment to minimize or avoid potential effects, including incidental take, on songbirds.

In summary then, displacement of birds due to the Project will generally not result in 'incidental take' of birds, since all scheduled clearing activity will take place outside the migratory breeding bird season. Where clearing and construction activity is necessary during the breeding season, the Partnership has put in place a comprehensive Avian Management Plan to manage those activities with birds in mind and to mitigate the effects of such activities, and will do so in conjunction with the regulatory authorities. While displacement of birds is inevitable due to loss of habitat from the Project, 'incidental take' will be minimized, and represent a small fraction of the number of birds displaced.

References:

Environment Canada, 2013. Incidental Take of Migratory Birds in Canada. http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=C51C415F-1

Question 14:

Terrestrial

What mitigation measures does the Partnership propose to reduce bird-strike on the transmission lines across the Nelson River?

Response:

Manitoba Hydro will install bird diverters and/or aerial marker buoys (used for aviation safety purposes) on the Unit and Construction Power transmission lines that cross the Nelson River. A primary cause of bird-wire collision is low visibility of transmission line conductors, and these devices effectively increase the visibility of the transmission line conductors to birds and aviators. These methods have been shown effective through four years of monitoring of bird-wire collisions on the Wuskwatim Transmission Project.

Question 15:

Terrestrial

Will the Partnership be developing a specific plan which will address how and where blasting is to occur during the caribou calving season? If so, please provide details of the plan even if they are preliminary at this time.

Response:

As outlined in the response to interrogatory CEC Rd 1 CEC-0042, disturbance to caribou from blasting is only one factor among other Project-related disturbances (e.g., vibrations, smells, movement, presence of humans, dust) and specific effects of disturbance from blasting are not clearly separable from these other factors. Caribou will respond to the combined effects of these various disturbances. Therefore, the caribou assessment considered the expected overall effects of Project-related disturbances in addition to habitat and access changes, and the effects assessment prediction of 4 km for loss of effective habitat took these factors into account.

An overall Project blasting plan will be developed. As described in the response to interrogatory TAC Public Rd 2 – EC-0027, the general plans for blasting will be worked out with the General Civil Contractor (GCC) for project construction (still to be contracted). The plans will give consideration to timing of blasting, number of blasts and maximum charge sizes per delay, drill and blast pattern and any new blasting technologies that may become available prior to project construction. As noted in the PD SV, blasting will be avoided during the calving season (May 15 – June 30) to the extent feasible (PD SV p. 2-42). The blasting plan will also seek to reduce blasting during the caribou calving season, where practicable.

Question 16:

Aquatic - Impingement/Entrainment of Fish

In the event that impingement on trash racks or injuries caused by passing through the turbines are determined to be harmful to fish populations (especially sturgeon), what could feasibly be added to an already built Keeyask generating station?

Response:

Considerable efforts have been made in the design of turbines to minimize effects to fish passing through them (i.e., target of 90% survival noted above) and only a few extremely large sturgeon will be physically excluded from passing downstream, with these fish likely being strong enough swimmers to avoid impingement. Given this, the assessment concluded that impingement and turbine mortality should not affect the long term sustainability of fish populations upstream and downstream of the generating station. Using a precautionary approach, fish impingement and turbine mortality will be monitored and adaptive measures implemented if these factors are found to affect the sustainability of fish populations beyond what was predicted in the assessment. These measures include examining fish population or habitat enhancements to further offset losses, but also examining research on exclusion technology such as strobe lights, electric fields, etc., with a focus on mechanical exclusion – primarily modified trash rack designs.

Preliminary studies undertaken by the Partnership have developed concepts to address both fish impingement and turbine mortality. To reduce injury and mortality due to the turbines the clear bar spacing of the trash racks could be reduced from the current 16.75 cm to exclude a greater proportion of fish from entering the trash racks. As a reduction in clear spacing could increase the risk of fish becoming impinged on the trash racks the Partnership has also developed preliminary concepts to retrofit the trash racks to reduce impingement of fish on the trash racks. The results of monitoring during the operation phase would be used to advance the design concepts if they are deemed necessary.

As indicated, in the event that fish mortality as a result of either impingement at the trash racks or by passage via the turbines or spillway is sufficient to adversely affect the sustainability of either upstream or downstream populations, other methods of enhancing populations (e.g., increased stocking, habitat improvements to increase recruitment) would also be considered if mitigation measures at the generating station itself are not feasible and/or effective.

Sections 6.7.4 and 6.7.5 of the EIS Project Description Supporting Volume are provided to explain how the project has been designed to minimize the risk of injury and mortality due to impingement at the trash racks and turbines. Section 6.7.5 explains why the Partnership believes the current design of the trash rack balances the need for fish passage with the risk of mortality and injury to fish at the trash racks and turbines.

6.7.4 Design of Generating Units to Reduce Fish Injury and Mortality

Due to the potential for injury and mortality of fish as they pass downstream through turbines, a number of variables were considered in the selection and development of turbines for the Keeyask GS to minimize the risk of injury and mortality. These variables include the number, alignment, and shape of stay vanes and wicket gates, clearance at the wicket gates and runners, wicket gate overhang, number of blades, blade leading edge thickness, blade trailing edge (related to turbulence), rotation rate, runner diameter, blade speed, and absolute lowest pressure.

The use of a fixed-blade, vertical-shaft turbine design for Keeyask results in several advantages for fish passage survivability compared with other turbine types:

- *The fixed-blade pitch of the vertical shaft units allows for the gap between the runner blades and the discharge ring to be minimized, reducing the likelihood of fish impingement and injury.*
- *The relatively-low rotational speeds associated with large-diameter, vertical-shaft turbines also result in greater fish survivability.*

Other features designed to reduce the risk of striking or impingement injuries include: runner blades that incorporate a thicker rounder leading edge; the gaps between wicket gates and both the bottom ring and head cover are minimized; and the wicket gate overhang is also minimized. Features designed to reduce turbulence levels experienced by fish passing through the turbines include: the runner blades incorporate a thinner trailing edge; units will operate at best gate whenever possible; and the shape of the draft tubes incorporate large sweeping radii. These are all known to improve the probability of a fish passing through a turbine without incurring significant injury or mortality.

In keeping with the Partnerships commitment to honour Sustainable Development and stewardship, the Partnership has included these variables relevant to fish survival as part of its evaluation in the turbine design selection process, and as a priority for further turbine design development. Although there are many variables to consider beyond those relevant to fish survival (particularly efficiency and cost), the objective for the Keeyask turbines is to achieve a minimum survival rate of 90%. Based upon the Franke formula for estimating the probability of survival of fish passing through turbines, it is estimated that fish up to 500 mm in length passing through the Keeyask turbines will have a survival rate of over 90%.

Section 6.7.5 Trash Racks

The Project reservoir is expected to generate woody debris due to shoreline erosion. A Waterways Management Program has been developed to prevent the majority of debris from reaching the powerhouse, however it is likely that some woody debris will reach the intake of the powerhouse. The main purpose of the trash rack is to protect the wicket gates and turbines from larger debris that could cause very costly damage or interrupt power generation. A key

consideration when designing the intake for low head hydro-power stations is the minimization of energy losses at the entrance, which includes the intake gates, bulkheads and trash racks.

While the main purpose of the trash racks is to prevent debris from passing through the powerhouse they can also affect the movement of fish downstream through the turbines. Trash racks will be installed on the upstream face of each intake to the powerhouse and will be approximately 22.7 m tall and 6.4 m wide. The trash racks for Keeyask will be comprised of vertically oriented rectangular shaped steel bars with a clear bar spacing of 16.75 cm. The spacing between the horizontal support bars will be 50 cm. As discussed in the AE SV Appendix 1-1, only a few extremely large sturgeon (greater than 1.4 m in fork length) will be physically excluded from passing downstream. Based on the estimated velocities at the intake (which would range from 1 m/s to 1.2 m/s) it is unlikely that more than a few large bodied fish will become permanently impinged on the trash racks each year. Smaller fish that are moving downstream would move past the trash racks and the turbines. As discussed in Section 6.7.4, the design of the turbines includes features to reduce the risk of injury and mortality to these fish, with the goal of greater than 90% survival for fish up to 0.5 m in length.

An analysis of reducing the spacing of trash racks to exclude more fish indicated that the velocity at the trash rack could result in the permanent impingement of smaller fish than the trash rack was designed to exclude (AE SV Appendix 1-1). Given that permanent impingement would result in 100% mortality, it was concluded that fish passage through the turbines was a better option than reducing the bar spacing.

Question 17:

Water Quality

With the increase in nutrients entering Lake Winnipeg and eventually the Nelson River, with the number of reservoirs and the slowing of the river flow due to hydroelectric generating facilities, what level and trend in eutrophication has been observed historically, currently and what can be expected at Keeyask? What is projected with climate change? Both in the short and long-term?

Response:

Overview

The question is based on the premise that there will be a continued increase in nutrients entering Lake Winnipeg and eventually the Nelson River. However, the current understanding of nutrients in Lake Winnipeg is that there was a marked increase in the 1990s but that concentrations have not notably changed in the north basin of the lake in recent years, as discussed in McCullough et al. (2012) and Manitoba Water Stewardship (2011). McCullough et al. (2012) related the abrupt increase in phosphorus in Lake Winnipeg in the mid 1990s to high inflows from the Red River and noted that total phosphorus has remained relatively consistent (between 0.04 and 0.05 mg/L) in the lake since the mid-1990s:

"*The increase apparently occurred rather abruptly in the 1990s. In 1992 and 1994, measured TP was lower than it had been in 1969 (Table 1). The model indicates a general decline in TP from the early 1970s to a minimum in 1991, followed by a sharp rise to a peak of over 50 mgm^{-3} in 1997 (Fig. 4A). It has since remained generally in the range 40–50 mgm^{-3}.*"

Similarly, Environment Canada and Manitoba Water Stewardship (2011) reported that increases in phosphorus were observed in the south basin but not the north basin:

"*The average annual total phosphorous concentrations for the south basin and narrows of Lake Winnipeg exceeded 0.1 mg/L in most years. Average total phosphorous concentrations in the south basin and narrows appeared higher from 2005 to 2007 relative to concentrations from 1999 to 2004. However, this pattern was not apparent in the north basin (Figure 6.1).*"

In the future, nutrient concentrations in the Nelson River as it leaves Lake Winnipeg may also not increase, as it is anticipated that Manitoba's nutrient reduction strategy will serve to maintain or reduce current levels of nutrient inputs to the lake and thus, ultimately, the outputs in the Nelson River.

The following sections provide a brief summary of the requested information on historic and current trends, effects at Keeyask, and projected changes including effects of climate change.

Historic Conditions

As noted in the Aquatic Environment Supporting Volume (AE SV), there is no technical information that pre-dates hydroelectric development at Kelsey Rapids immediately upstream of Split Lake. As discussed in the AE SV, traditional knowledge provided in the Split Lake Post Project Environmental Report (PPER) indicated the effects of hydroelectric development included:

- decreased water clarity and more common occurrences of algae following construction of the Kelsey GS;
- the Split Lake Cree felt that they could no longer drink the water in the lake and river without feeling they were getting sick following Churchill River Diversion (CRD) and Lake Winnipeg Regulation (LWR); and
- "*flooded shorelines along the diversion route introduced mud, silt, vegetation and wood debris into the waterways and made the water dirtier*" (Split Lake Cree - Manitoba Hydro Joint Study Group 1996a).

However, it should be noted that water in the Nelson River was frequently described as being dirty, with conditions difficult or unsuitable for netting, prior to any hydroelectric development. The following points were noted by MacDonell (1997) in a report on the history of the Lake Sturgeon fishery on the upper Nelson River:

- "*In this northern area of the river, sturgeon seem to be fairly plentiful, and in any favourable years the full limit should be easily obtained. Some summers, however, conditions do not lend themselves to successful operation in the river. When the flood waters of its various large tributaries start to pour in, the water becomes so dirty and so filled with debris of all kinds it makes the handling of nets impossible, so at times it is necessary to quite fishing in July.*" (Skaptason (1926) quoted in MacDonell (1997, p. 45);
- Other reports also referenced the advent of the dirty water in July (e.g., interview with Alex Brightnose p. 53);
- "*Much of their time was spent cleaning nets by drying and rubbing them."* (John Mecredi, p. 58, referencing fishing camps in the Landing River area along the upper Nelson River in the 1940s);
- J. Heard (Inspector of Northern Fisheries in The Pas) summarized the 1953 fishery and suggested that the season be moved forward to June 10 to avoid "*the green slime problem in the Nelson River*", p. 64; and
- "*In 1958, the green slime problem had become so bad by July 14 that a fall fishery was requested.*" (p. 73).

The AE SV (p. 2-11 to 2-15) provided information on water quality conditions following hydroelectric development. In general, available water quality data indicates that increases in nutrient concentrations following CRD/LWR and the construction of generating stations on the lower Nelson River generating stations were temporary, and in the long term no marked differences in reservoirs compared to unimpounded mainstem sites were observed.

Current Conditions and Trends

Current conditions in water quality are provided in the AE SV Section 2.4.2 and reproduced in Attachment 1 to this submission. Key points are as follows:

- Water quality is relatively similar across the mainstem of the study area (i.e., along the main flow of the lower Nelson River to the estuary);
- The Burntwood River is typically more turbid and contains lower fractions of phosphorus in dissolved form (i.e., less available to algae) than the Nelson River or Split Lake proper (i.e., lake outflow);
- Water quality in Stephens Lake varies spatially. Conditions at the south end of Stephens Lake resemble those observed on the main flow of the Nelson River upstream and downstream of the lake. This area is more nutrient-rich, more turbid, does not stratify, and is more oxygenated over winter than the north arm of the lake. Like turbidity, TSS concentrations decrease in the southern area of the lake from west to east. Dissolved oxygen is lower in the north arm in winter, most notably at depth and in flooded backbays;
- Changes in some water quality conditions are also evident from Stephens Lake to the estuary. Specifically, TSS, total phosphorus and turbidity decrease along the flow of the Nelson River in Stephens Lake and downstream, increasing again on average at the lower end of the Nelson River (downstream of the Angling River); and
- Dissolved oxygen was consistently within water quality objectives for the protection of aquatic life along the mainstem of the lower Nelson River in the open-water and ice-cover seasons. Conversely, Manitoba water quality objectives and Canadian Council for Ministers of the Environment (CCME) guidelines were not always met at off-current locations.

In summary, there is no indication of a progressive increase in nutrient concentrations or decrease in dissolved oxygen through the existing series of reservoirs on the lower Nelson River, as would be expected in a system exhibiting increasing levels of eutrophication through a series of hydroelectric reservoirs.

Similarly, there is no indication of a progressive increase in trophic status as indicated by the amount of phytoplankton (measured as the photosynthetic pigment, chlorophyll *a*) through the reservoirs along the Nelson River. The AE SV (p. 2-18) provides the following information:

"Concentrations of TP averaged between 0.03 and 0.04 mg/L at sites located on the mainstem of the Nelson River (Figure 2-1). However, TP declined in Stephens Lake but increased again at the lower end of the Nelson River….

On the basis of TP, the mainstem of the study area would be classified as meso-eutrophic to eutrophic, using the CCME phosphorus guidance framework (Table 2-5; CCME 1999; updated to 2012). However, application of trophic categorizations suggested in the scientific literature indicates that on the basis of chlorophyll a, the mainstem lakes would be considered mesotrophic. This suggests that factors other than phosphorus (e.g., light) limit algal growth in the area and/or that the bioavailability of phosphorus may be limited. Regression analysis further reveals a weak relationship between chlorophyll a and TP concentrations in the study area as a whole (Figure 2H-9)."

The AE SV (p. 4-6 to 4-7) provides the following information on phytoplankton, indicating that growth is limited by factors other than nutrients, and that conditions, even in lakes, are not generally suitable for the extensive growth of algae.

"Chlorophyll a concentrations varied during the open water season. Seasonal mean chlorophyll a concentrations were generally similar among years for all sites. Typically, chlorophyll a concentrations were lowest in spring. Mean chlorophyll a concentrations at sites located off the mainstem of the Burntwood/Nelson River system, such as Assean Lake, and the Gull Lake tributary sites were low relative to those recorded on the mainstem. The absence of consistent differences in chlorophyll a concentrations among sites over a considerable area of study suggests that the presence of lakes does not result in an overall increase in phytoplankton as water moves through the study area. Primary production is typically limited under ice-cover due to low temperatures and reduced light levels and, as expected, chlorophyll a was consistently lower and often undetectable in samples collected under the ice. The range of chlorophyll a concentrations observed in study area waterbodies was indicative of oligo- to mesotrophic conditions. Seasonal variations in the phytoplankton community and chlorophyll a concentrations are typical of north temperate ecosystems where light and temperature vary considerably over the year.

Suitable growing conditions for phytoplankton are strongly influenced by the stability of the water column. Studies in several northern Manitoba lakes and reservoirs have indicated that the available phosphorus does not limit phytoplankton growth (e.g., Southern Indian Lake, Hecky and Kilham 1988). Rather, phytoplankton growth is limited by wind-induced turbulence in combination with turbid water. It is unlikely that phytoplankton are a major source of production in most regions in the study area given that the water is turbid, wind-induced wave action causes considerable mixing, and retention time of water is relatively short.

The range of chlorophyll a concentrations observed in Keeyask waterbodies was indicative of low to moderate levels of primary productivity (oligo- to mesotrophic conditions). Overall, there is poor correlation between phosphorus and chlorophyll a in the study area, which indicates that factors other than nutrients limit algal growth (Section 2.4.2.1.5). This is further supported by concentrations of phosphorus and the low phytoplankton biomass observed in the study area. A higher trophic status would be assigned to the study area on the basis of phosphorus concentrations than on the basis of chlorophyll a concentrations. Phosphorus concentrations in the study area reflect meso-eutrophic to eutrophic conditions based on the Canadian Council of Ministers of the Environment categorization schemes (CCME 2004)."

As noted in the "Overview" section at the beginning of this response, the Keeyask environmental assessment did not conduct a statistical comparative analysis of water quality at locations along the upper and lower Nelson River. However, available information from the Coordinated Aquatic Monitoring Program (CAMP) is provided in Attachment 2. This information indicates that phytoplankton abundance does not increase progressively along the lakes and reservoirs of the Nelson River.

The AE SV provided the following information with respect to trends in water quality and phytoplankton biomass.

Temporal trends in water quality were summarized in the AE SV (p. 2-40); certain water quality parameters varied over time depending on the relative inflow from the Nelson and Burntwood rivers, but water quality conditions were generally stable over the last several decades.

"There is an indication that some water quality variables (true colour, hardness, specific conductance, and alkalinity) have increased in the study area (based on analysis of data collected in Split Lake) between the two periods analysed (1987–1996 vs. 1997–2006) as a result of differences in flows — in particular, the relative contribution of the Burntwood and Nelson rivers to overall discharge. Additionally, there is some indication that several parameters may have changed over the last 20 years in the study area (e.g., TSS and turbidity increased) independent of changes in flows.

A 30-year trend analysis of nutrients in the Burntwood and Nelson rivers indicates that TP and TN are either decreasing in concentration or unchanged, although reasons for these trends are unknown. However, it should be noted that the trend analysis was based on a long period of record and may not reflect more recent trends in nutrients.

Information gathered for an assessment of temporal water quality changes in Stephens Lake indicates that water quality along the mainstem of the Nelson River and in southern Stephens Lake has generally remained consistent over the last several decades. The flooded, north arm of the lake experienced large changes in water quality following impoundment but conditions appear to have been relatively stable since the 1980s.

Overall, the trend analysis information indicates that water quality may vary in the study area in the future in relation to discharges, in particular the relative contribution of the Nelson River versus the Burntwood River to discharge, and that TSS and turbidity may be increasing over time - at least in Split Lake. However, the reasons for these observed increases are not known, making predictions of future conditions difficult. Water quality has been generally stable along the mainstem of the Nelson River in the Keeyask and Stephens Lake areas over the last several decades and conditions appear to have been stable in the north arm of Stephens Lake since the 1980s. Most notably, the occurrence of Manitoba water quality PAL guideline exceedances has been consistent over the last 20 years, indicating that water quality has not notably changed in terms of its suitability to support aquatic life. Based on this information, water quality conditions have been generally stable over the last several decades in the study area, although year-to-year changes may occur in relation to changes in river discharges."

As discussed in the AE SV (p. 4-11 to 4-12), there is no clear indication of an existing trend to increasing amounts of phytoplankton over time:

"*Generally, mean phytoplankton biomass appears to have increased in Split Lake, but not in Stephens Lake, since the early 1970s. However, phytoplankton biomass in the current study area remained at the lower (oligotrophic-mesotrophic) end of the general range reported for temperate zone waterbodies… Throughout the environmental studies, chlorophyll a concentrations for Split and Stephens lakes were all within the ranges observed at similar locations sampled between 1986 and 1989 (Green 1990; Ramsey 1991). From 2002 to 2004, the range of chlorophyll a concentrations measured in Split Lake was similar to samples collected near the community of Split Lake between 1980 and 2001 (Manitoba Water*

Stewardship 2002). However, in 2001, the range of chlorophyll a concentrations measured in Split Lake in this study exceeded the range reported by Manitoba Conservation.

Parameters that appear to have changed notably (temporal trend) in the north arm of Stephens Lake since the 1970s include chlorophyll a (Appendix 2E); mean chlorophyll a concentration measured in 2004 was lower than in the 1970s and 80s in the north arm of Stephens Lake and concentrations were also lower in 2004 in the north arm relative to the southern mainstem portion of the lake. …Generally, the data indicate a fair amount of variability within a given sampling year and there are no temporal trends immediately evident from this information."

Conditions with Keeyask

During the initial years of Project operation, water quality in nearshore areas of the reservoir, in particular in sheltered backbays, will be characterized by elevated levels of TSS, nutrients, metals and other parameters, and periodic dissolved oxygen depletion (in particular in winter under ice). Effects will diminish over ten to fifteen years. Water quality in the mainstem of the Nelson River is not expected to be measurably changed, with the exception of a permanent decrease in TSS concentration in the downstream section of the reservoir and the southwestern portion of Stephens Lake.

Increases in nutrient concentrations will be transient and have limited potential to contribute to long term eutrophication. Effects of reservoir creation and changes in water quality are not expected to result in a marked increase in phytoplankton though periodic blooms may occur, as discussed in the AE SV (p. 4-15 to 4-16):

"*Impoundment of rivers is generally associated with a large increase in phytoplankton biomass due to nutrient enrichment and increased water retention time (Henriques 1987). However, detectable changes in mean phytoplankton biomass along the mainstem are not expected as increased water residence time will remain too short to permit a measurable increase in phytoplankton biomass; although total biomass ('standing stock') would increase with the predicted increase in reservoir volume (approximate doubling in comparison to the existing environment) (Section 3.4.2.2). The lack of detectable effects may be attributed to high water flushing rates through the mainstem portion of the reservoir (i.e., post-Project water residence time will be in the order of 15–30 hours, depending on flow; Section 3.4.2.2). Short retention times are often associated with high turbulence and a lack of thermal stratification; phytoplankton require a minimum retention time to allow development (McCartney et al. 2000). If rates of water movement through a reservoir exceed a few millimetres per second, little plankton will develop (Hynes 1970).*

Off-current areas could experience periodic phytoplankton blooms (i.e., small to moderate increases in biomass), depending on the balance between the positive effect of increased nutrients and the negative effect of light depletion, as water residence time in bays is estimated to be substantially longer than in the mainstem and could be up to one month long (Section 3.4.2.2). Reduced light transmission may moderate the effect of nutrient loading. High dissolved organic carbon (DOC) concentrations can affect primary productivity by influencing light penetration and adding carbon for processing. For example, benthic diatoms and total diatom concentrations increased significantly during conditions of high DOC

concentrations and low water transparency, whereas planktonic forms decreased , in subarctic lakes (Pienitz and Vincent 2000). In Southern Indian Lake, northern Manitoba, high DOC concentrations decreased light penetration sufficiently to cause a switch from nutrient to light limitation of primary production (Hecky and Guildford 1984). Initial post impoundment conditions may favour bacteria over phytoplankton (Paterson et al. 1997). The addition of large amounts of newly flooded terrestrial organic matter may stimulate bacterial activity (increase the flow of carbon to higher trophic levels through the detrital pathway) and increase bacterial biomass (post-flooding food resource for zooplankton) in the medium term (5–10 years post-impoundment) instead of phytoplankton. Large increases in methane and CO_2 production following flooding would provide an indication of increased bacterial production.

Information from Other Reservoirs

The growth of phytoplankton tends to be limited in the riverine portions of the lower Nelson River system as the water is turbid (reduced light availability), wind-induced wave action causes considerable mixing, and retention time of water is relatively short. Because phytoplankton have relatively high growth rates they are less susceptible to downstream loss in short water residence systems in comparison to larger organisms, such as zooplankton. Therefore, phytoplankton in the Nelson River may be more limited by the other factors noted above, such as reduced light availability (i.e., water is turbid and well mixed), in addition to the relatively short water residence times experienced.

Presently, mean chlorophyll a concentration and phytoplankton biomass observed at mainstem sites in the Keeyask area and Stephens Lake during the open water period (2001 and 2002) were comparable. Phytoplankton biomass from each area was within the range observed at Long Spruce and Limestone reservoirs, and downstream Nelson River mainstem sites in 1992. Diatoms dominated the community at all sites, despite differences in surface water quality (TSS and turbidity decrease along the flow of the Nelson River in Stephens Lake and downstream, increasing again at the lower end of the Nelson River) and water ***residence times*** *(NSC 2012). Results of chlorophyll a analyses (1990–2004) indicate no consistent temporal or spatial differences among the Long Spruce and Limestone reservoirs and the Nelson River mainstem, suggesting that impoundment had little, if any, effect on phytoplankton biomass. Chlorophyll a data suggest that the area can be classified as oligotrophic based on trophic classification information presented in Dodds et al. (1998). The absence of a marked increase in phytoplankton biomass is likely due to the short water residence time within the Long Spruce and Limestone reservoirs, which, although longer than the unimpounded river, is still too short to allow substantial growth of phytoplankton (NSC 2012).*

As was observed in the early 1970s in Stephens Lake, phytoplankton biomass and composition varied considerably between provincial EMP study years (1987 and 1988) and among areas of the lake (Ramsey et al. 1989), but no consistent differences were noted between backwater and mainstem sampling locations even though flushing rates on the mainstem locations were greater. Mean chlorophyll a concentration measured in 2004 was lower than in the 1970s and 80s in the north arm of Stephens Lake and concentrations were also lower in 2004 in the north arm relative to the mainstem portion of the lake (Appendix 2E).

Sensitivity of Effects Assessment to Climate Change

Section 8 of the AE SV provides an assessment of the sensitivity of the predicted effects of the Keeyask Generation Project to climate change.

With respect to water quality, the duration of predicted increases in nutrient and metal concentrations in nearshore areas of the reservoir will persist for approximately 10–15 years and would be greatest during the initial years post-impoundment. Because the largest effects occur in the first few years of operation and are lower in later years, climate change is not expected to substantively change the residual effects assessment.

In general, a trend to a longer ice-free period and warmer waters will result in an increase in productivity in the ecosystem. Lower trophic level biomass is expected to increase with rising average water temperatures. As discussed in the preceding section, the reservoir could experience periodic phytoplankton blooms due to the effects of the Project. Higher water temperature may cause larger increases in these groups. The greatest Project-related effects are expected in the first 5–10 years with the addition of large amounts of newly flooded terrestrial organic matter, but climate-related increases in water temperature during this time will have little effect on the biota.

Attachment 1 (AE SV p. 2-11 to 2-15)

Pre-1997 Conditions

Split Lake Area

Prior to CRD/LWR, water quality surveys were conducted in the Split Lake area in 1966 by Schlick (1968), in 1972 by Crowe (1973), and in 1972 and 1973 by Cleugh (1974). Additionally, TSS data collected prior to 1997 were described by UMA (1973). As part of the Lake Winnipeg, Churchill and Nelson Rivers Study Board (LWCNRSB) studies, Cleugh (1974) described pre-CRD/LWR water quality conditions (1972-1973) in Split Lake and provided predictions of potential effects of the Project.

Several studies have compared water quality data for Split Lake collected prior to and following CRD/LWR (Vitkin and Penner 1979; Playle and Williamson 1986; Northwest Hydraulic Consultants Ltd. [NHC] 1988; Duncan and Williamson 1988; Playle *et al.* 1988; Ralley and Williamson 1990; Ramsey *et al.* 1989; Ramsey 1991a; Williamson and Ralley 1993). Some of the studies involved statistical analysis (Playle and Williamson 1986; Duncan and Williamson 1988; Playle *et al.* 1988; Ramsey 1991a; Williamson and Ralley 1993), while others qualitatively compared the conditions pre- and post-CRD/LWR (Vitkin and Penner 1979; NHC 1987 and 1988; Ramsey *et al.* 1989; Split Lake Cree - Manitoba Hydro Joint Study Group 1996a, b, c). The results of the individual studies depended largely on the dataset used and how pre- and post-CRD/LWR were defined (*i.e.*, timeline).

Overall, the loading of TSS supplied to Split Lake by the Burntwood River increased post-CRD, although the increases were less than predicted in the LWCNRSB reports. Vitkin and Penner (1979) and NHC (1988) both found that the annual tonnage of sediment delivered to Split Lake increased by a factor of

approximately 10 under regulated conditions. However, NHC (1987, 1988) described the effects of CRD on suspended sediments and sedimentation and concluded that: “Sediment concentrations along the CRD [were] not substantially different from pre-diversion concentrations in the Burntwood River…”

Depending on the study, TSS and turbidity in Split Lake have been variously described as increased by CRD/LWR, decreased by CRD/LWR, and unaffected by CRD/LWR. Playle and Williamson (1986) and Playle *et al.* (1988) reported a statistically significant increase in turbidity in Split Lake following CRD/LWR. The analysis was based on a pre- (before mid-1976) and post-CRD/LWR (after mid-1976) comparison of available data collected at a site near the community of Split Lake. Conversely, Williamson and Ralley (1993) reported that turbidity was not statistically different between pre- and several post-CRD/LWR periods evaluated. Ramsey *et al.* (1989) conducted a qualitative comparison of pre-CRD/LWR (1972–73) data to data collected under the MEMP (1986–1987) and concluded that turbidity decreased and transparency increased post-CRD/LWR relative to pre-CRD/LWR conditions. Conversely, based on the results of the FEMP studies, Ramsey (1991a) stated that turbidity, TSS, and transparency did not change in Split Lake after CRD; this was despite the increase in sediment being delivered to the lake. Ramsey (1991a) reported that the lack of increased turbidity in Split Lake could be attributed to significant sediment deposition that was occurring at the mouth of the Burntwood River where it enters Split Lake.

Other changes reported in Split Lake with CRD/LWR include a reduction in colour, major ions, alkalinity, hardness, nitrogen, organic carbon (OC), and conductivity. An initial increase in TP was also observed; however, it was followed by a decline to pre-CRD/LWR levels during the most recent study period evaluated (1987–1992; Williamson and Ralley 1993). Williamson and Ralley (1993) indicated that this may be evidence that the effects of CRD/LWR in Split Lake were stabilizing at that time.

Playle and Williamson (1986) and Playle *et al.* (1988) compared pre- (before mid-1976) and post-Project (after mid-1976) data from a site near the community of Split Lake, and reported significant decreases in conductivity, alkalinity, hardness, calcium, magnesium, sulphate, and total Kjeldahl nitrogen (TKN), and significant increases in total organic carbon (TOC). More recently, Williamson and Ralley (1993) reported similar effects at this site with an expanded dataset (addition of data collected from 1987–1992) and a re-grouping of time periods (1972–75, 1977–84, and 1987–92). The authors of the study also noted a statistically significant reduction in colour, which had not been previously reported.

At the outlet of Split Lake (at a site in Clark Lake) from 1972-73 to 1987, Ramsey (1991a) observed similar changes from 1972–73 to 1987 near the outlet of Split Lake including decreases in: pH; conductivity; hardness; alkalinity; calcium; magnesium; potassium; sodium; chloride; and sulphate. Ramsey (1991a) also reported that extractable iron concentrations in Split Lake increased significantly following CRD/LWR. He attributed this increase to the relatively high concentration of extractable iron in the Burntwood River relative to the Nelson River, combined with the increased contribution of Burntwood River water to Split Lake post-CRD. Ramsey (1991a) concluded that this increase in extractable iron was the only “adverse effect” of CRD/LWR on water chemistry in Split Lake.

The effects of past hydroelectric developments on water quality in the Split Lake Resource Management Area (RMA) were assessed as part of the Split Lake post project evaluation report (PPER) studies on the basis of traditional knowledge and scientific studies (Split Lake Cree - Manitoba Hydro Joint Study Group 1996a, b, c). The document (Split Lake Cree - Manitoba Hydro Joint Study Group 1996a, b, c) stated that: "There is sufficient pre- and post-diversion data on sediment with respect to Split Lake, which generally concludes that the west and north basins of Split Lake and mouth of the Burntwood River are major areas affected by increases in turbidity and sediment deposition". Traditional knowledge provided in the Split Lake PPER indicated the effects of hydroelectric development included: decreased water clarity and more common occurrences of algae following construction of the Kelsey GS; the Split Lake Cree felt that they could no longer drink the water in the lake and river without feeling they were getting sick following CRD/LWR; and the "flooded shorelines along the diversion route introduced mud, silt, vegetation and wood debris into the waterways and made the water dirtier" (Split Lake Cree - Manitoba Hydro Joint Study Group 1996a).

Keeyask Area

No data or assessment of the effects of hydroelectric development on water quality conditions prior to 1997 in the reach of the Nelson River between Clark Lake and Stephens Lake were located in the published literature.

Stephens Lake Area

Prior to CRD/LWR, Crowe (1973) conducted a water chemistry and limnology survey in the Nelson River upstream of the Kelsey GS and in Stephens Lake (Kettle reservoir) in August 1972. Comparing conditions in the 'newly formed' Kettle reservoir to the older Kelsey reservoir, Crowe (1973) reported that the Kettle reservoir was not stratified and there was evidence of a gradient of DO depletion along flooded areas at depth. As part of the LWCNRSB, Cleugh (1974) described the water quality conditions (1972–73) within the Stephens Lake reach and found that water quality in the north arm of Stephens Lake differed from the mainstem of the Nelson River. Specifically, he reported that dissolved phosphorus (DP), TP, and transparency were higher in the north arm than the mainstem of the lake, and there was DO depletion in the north arm. In addition, while not measured, Cleugh (1974) indicated that the north arm was "highly coloured and dark brown", despite the higher Secchi disk depths observed in this area. Cleugh (1974) attributed the spatial differences to flooding associated with the construction of the Kettle GS and indicated that these "water quality changes are probably typical of what may be expected in inundated areas of most northern reservoirs."

Following CRD/LWR, water quality was evaluated at three sites in Stephens Lake in 1986 and 1987 under the MEMP and the results were qualitatively compared to the pre-CRD/LWR (1972–74) data collected at similar sites in Stephens Lake by the LWCNRSB (Ramsey *et al.* 1989). In the north arm of Stephens Lake, water quality was similar to the main stem in the 1980s (*i.e.*, water transparency and nutrients were lower and total dissolved solids [TDS] were higher than prior to CRD/LWR). These changes were attributed to the evolution of limnological conditions associated with the flooding of the Kettle GS

reservoir. The sites compared on the main stem indicated that nutrients, TDS, turbidity, transparency, TSS, conductivity, and colour were in the same range in 1972–74 and 1986–87.

The effects of past hydroelectric developments on water quality in the Split Lake RMA were assessed as part of the Split Lake PPER studies on the basis of local knowledge and scientific studies (Split Lake Cree - Manitoba Hydro Joint Study Group 1996a, b, c). Elders and resource harvesters have stated that water quality in Stephens Lake changed as a result of CRD/LWR and that water quality appeared to further deteriorate around 1984 or 1985. As reported in the Split Lake Cree PPER, Split Lake Cree indicated that turbidity, sediment, and algae were observed to increase in Stephens Lake following CRD and flooding associated with the Kettle GS (Split Lake Cree - Manitoba Hydro Joint Study Group 1996a).

Downstream Area

Pre-CRD/LWR, Cleugh (1974) described water quality conditions (1972–73) in the reservoir of the Long Spruce GS and indicated that the Nelson River was "substantially more concentrated…for most chemical constituents" and that "transparency was significantly lower than for the Churchill system".

Within this reach, a number of water quality studies have focused on the effects of GSs such as the Limestone GS or Long Spruce GS. Penner *et al.* (1975) described sediment loads on the lower Nelson River in 1974 (pre-Limestone and Long Spruce GSs) and a limited amount of water quality data were generated by a series of fisheries studies conducted on the lower Nelson River from 1985–89 by Manitoba Fisheries Branch, during construction of the Limestone GS (Swanson 1986; Swanson and Kansas 1987; Swanson *et al.* 1988, 1990, 1991).

Water quality data were also collected from the Long Spruce and Limestone reservoirs and the lower Nelson River as a component of the Limestone Generating Station Monitoring Program in 1989-1994, 1996, and 1999. A synthesis of the effects of the Limestone GS on the aquatic environment by North/South Consultants Inc. (2012) indicated that in general, water quality was fairly consistent between the reservoirs and the downstream sites. Due to the lack of pre-Project data, absolute changes in water quality may have occurred within the Project zone of influence that would not be discernible without baseline data. In addition, some temporary effects may have occurred during and/or immediately following impoundment that were not captured by the program. However, the available information collected post-impoundment in the Limestone reservoir indicates that nutrients were relatively similar to the upstream Long Spruce reservoir and to the downstream environment after impoundment, although interpretation of conditions downstream are more complex due to sampling site relocation and local influences. Similarly, there was no indication that DO was reduced to levels unsuitable for aquatic life in the Limestone reservoir.

Collectively, the post-Project Limestone GS monitoring data, in conjunction with knowledge of the magnitude of flooding and changes in hydrology associated with the Limestone Generation Project indicate that the Project did not result in dramatic nutrient enrichment if at all. Consequently, biotic changes that occurred in the Limestone reservoir were more likely related to changes in water depth and velocity than they were to changes in water quality.

Attachment 2: Information Collected under the Coordinated Aquatic Monitoring Program (CAMP)

Water quality monitoring has been conducted under CAMP since 2008, including monitoring of nutrients and chlorophyll *a* at multiple sites in the Upper and Lower Nelson River Regions (Figure 1). This program has included sampling at sites located along Manitoba Hydro's hydraulic system as well as off-system waterbodies; monitoring consists of annual monitoring at some sites and monitoring on a three-year rotation at additional sites. The following provides a brief summary of TP and chlorophyll *a* monitoring results for the 2008-2012 open-water seasons in these two regions, with specific consideration of potential changes in chlorophyll *a* along the Nelson River (Figures 2-5).

Chlorophyll *a* concentrations were generally similar along the upper and lower Nelson rivers, though higher measurements have been periodically measured in lakes downstream of Lake Winnipeg during CAMP (Figures 2-3). Chlorophyll *a* was not statistically different between two on-system waterbodies (Cross and Split lakes) located in the Upper and Lower Nelson River Regions or between the on-system waterbodies and the off-system Setting Lake (Figure 4). This information indicates that phytoplankton abundance does not successively increase in lakes and reservoirs along the upper and lower Nelson rivers. The similar levels of chlorophyll *a* observed between the on-system waterbodies and the off-system Setting Lake indicates that primary productivity is not notably higher in lakes located downstream of Lake Winnipeg than a nearby waterbody outside of the Lake Winnipeg drainage and unaffected by Manitoba Hydro's hydraulic system. Further, that TP concentrations are actually significantly lower in Setting Lake than Cross or Split lakes (Figure 6) suggests that algal growth is limited by factors other than phosphorus in on-system lakes and reservoirs.

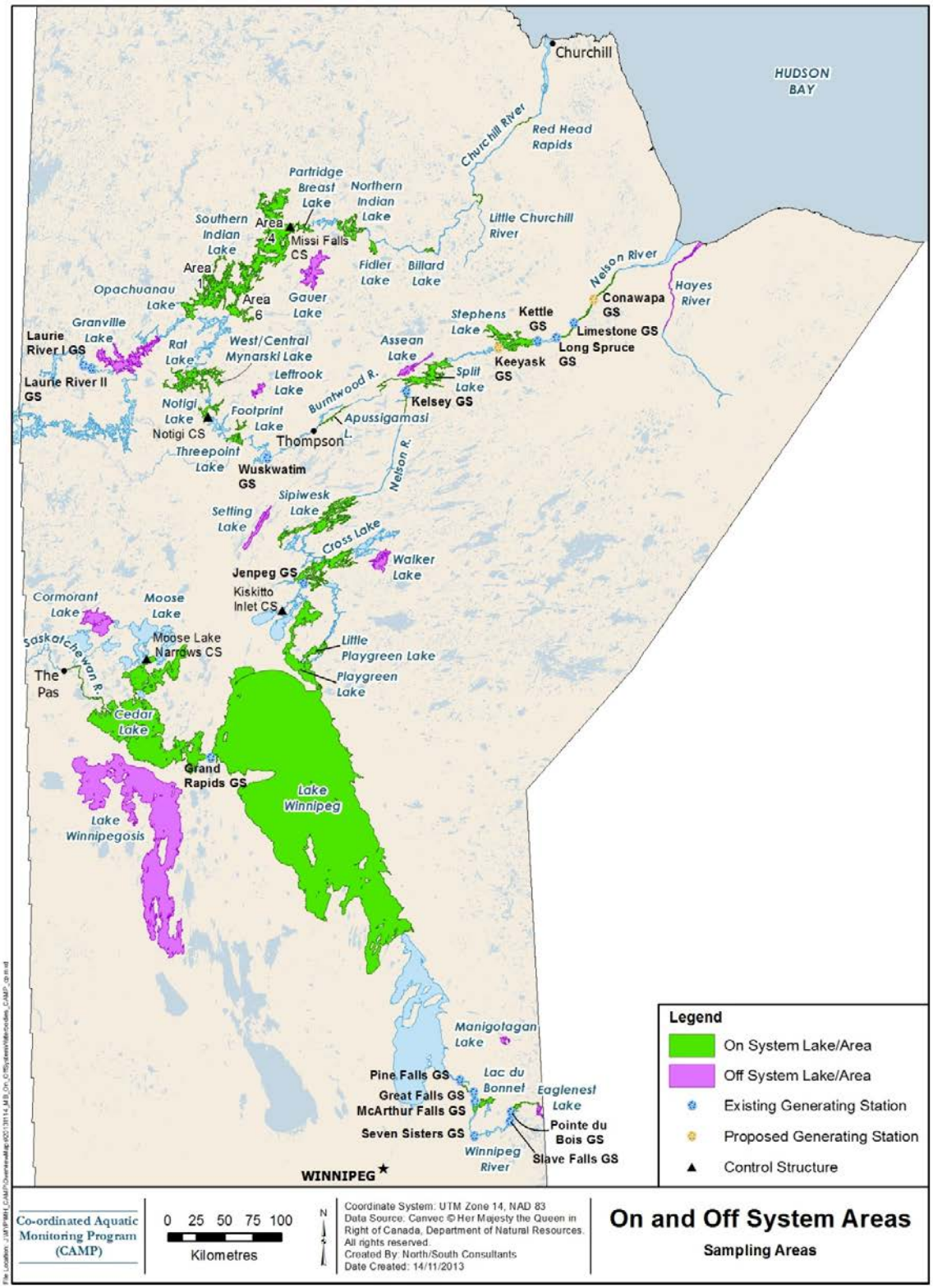


Figure 1. On-system and off-system waterbodies sampled under CAMP.

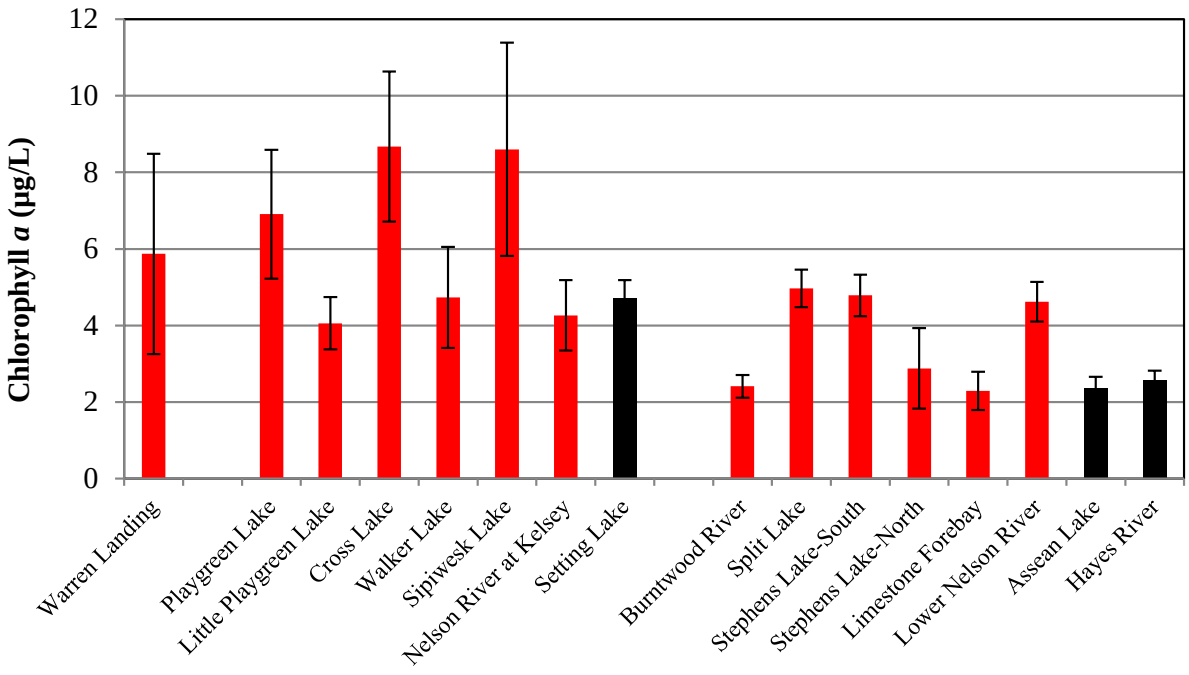
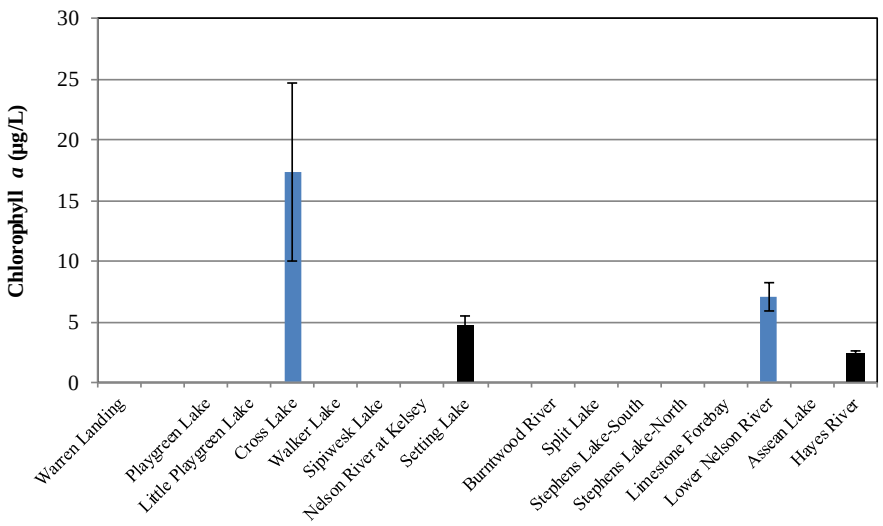
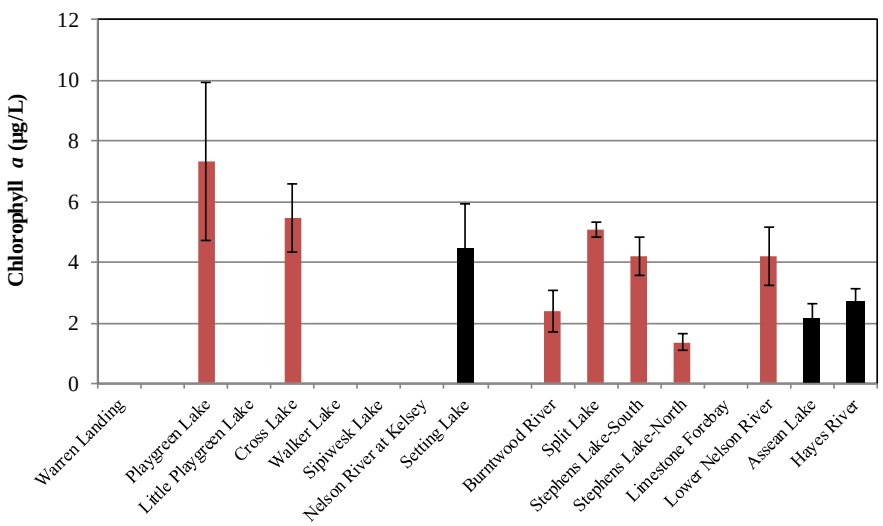


Figure 2. **Mean±standard error chlorophyll *a* concentrations measured in waterbodies in the Upper and Lower Nelson River Regions: open-water seasons 2008-2012. Sites in black are off-system sites.**

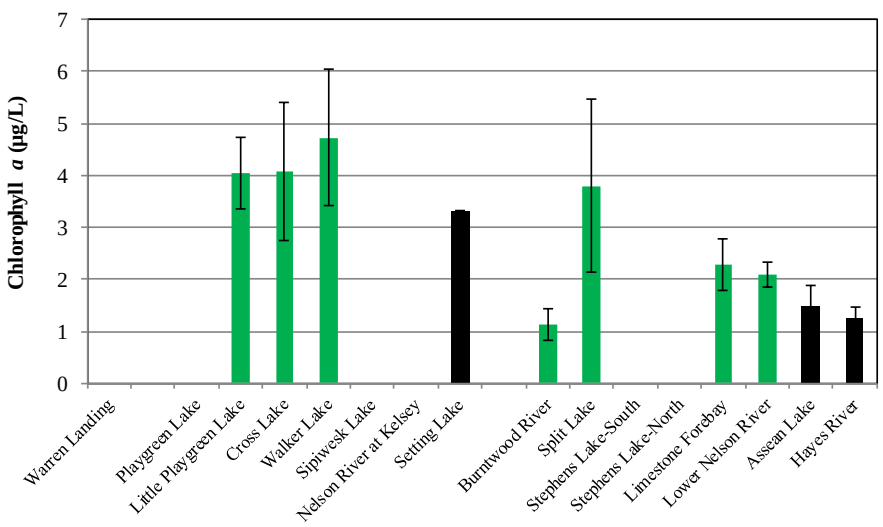
(A)


Chlorophyll a (µg/L)
30
25
20
15
10
5
0
Warren Landing
Playgreen Lake
Little Playgreen Lake
Cross Lake
Walker Lake
Sipiwesk Lake
Nelson River at Kelsey
Setting Lake
Burntwood River
Split Lake
Stephens Lake-South
Stephens Lake-North
Limestone Forebay
Lower Nelson River
Assean Lake
Hayes River

(B)


Chlorophyll a (µg/L)
12
10
8
6
4
2
0
Warren Landing
Playgreen Lake
Little Playgreen Lake
Cross Lake
Walker Lake
Sipiwesk Lake
Nelson River at Kelsey
Setting Lake
Burntwood River
Split Lake
Stephens Lake-South
Stephens Lake-North
Limestone Forebay
Lower Nelson River
Assean Lake
Hayes River

(C)


Chlorophyll a (µg/L)
7
6
5
4
3
2
1
0
Warren Landing
Playgreen Lake
Little Playgreen Lake
Cross Lake
Walker Lake
Sipiwesk Lake
Nelson River at Kelsey
Setting Lake
Burntwood River
Split Lake
Stephens Lake-South
Stephens Lake-North
Limestone Forebay
Lower Nelson River
Assean Lake
Hayes River

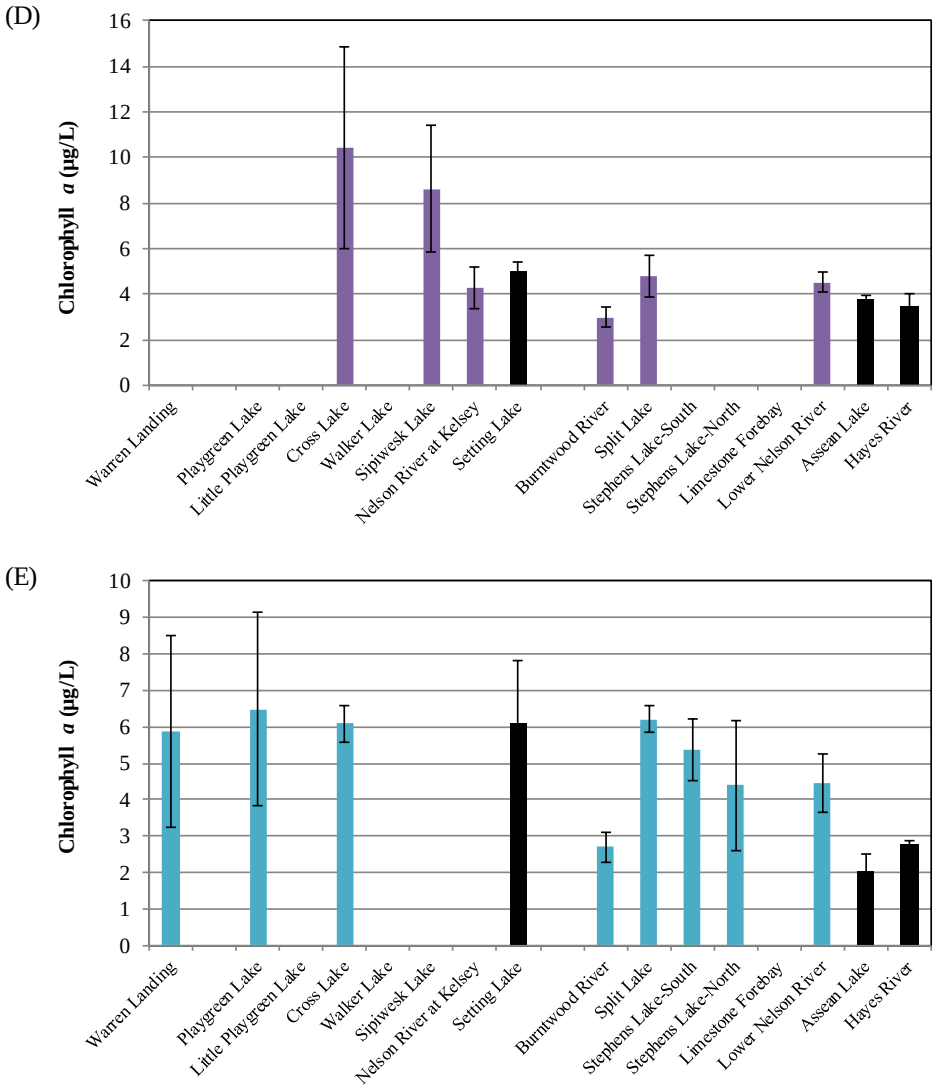


Figure 3. Annual mean±standard error chlorophyll *a* concentrations measured in waterbodies in the Upper and Lower Nelson River Regions: open-water season (A) 2008, (B) 2009, (C) 2010, (D) 2011, and (E) 2012. Sites in black are off-system sites.

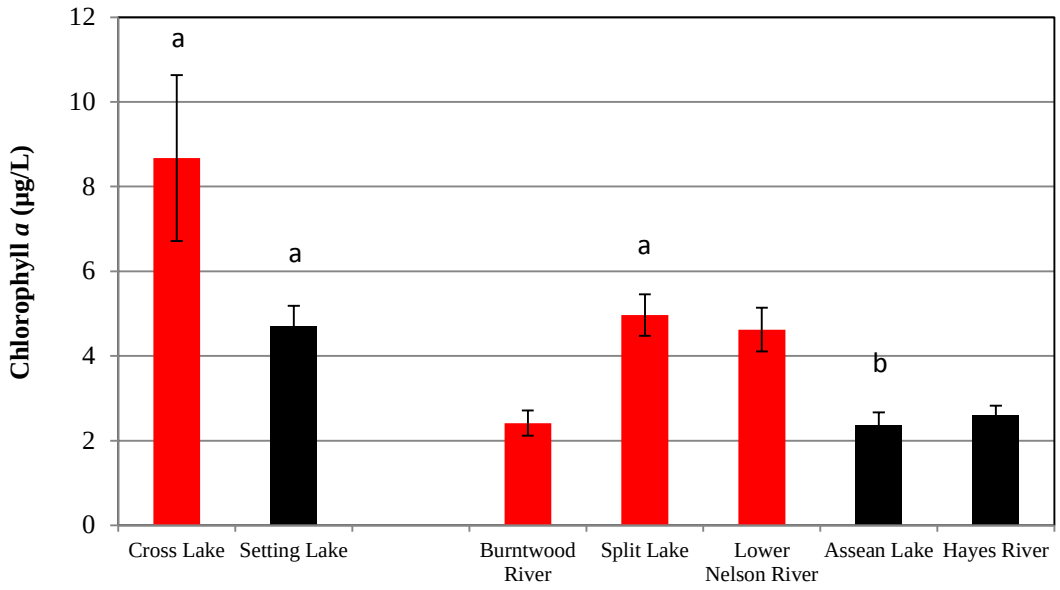
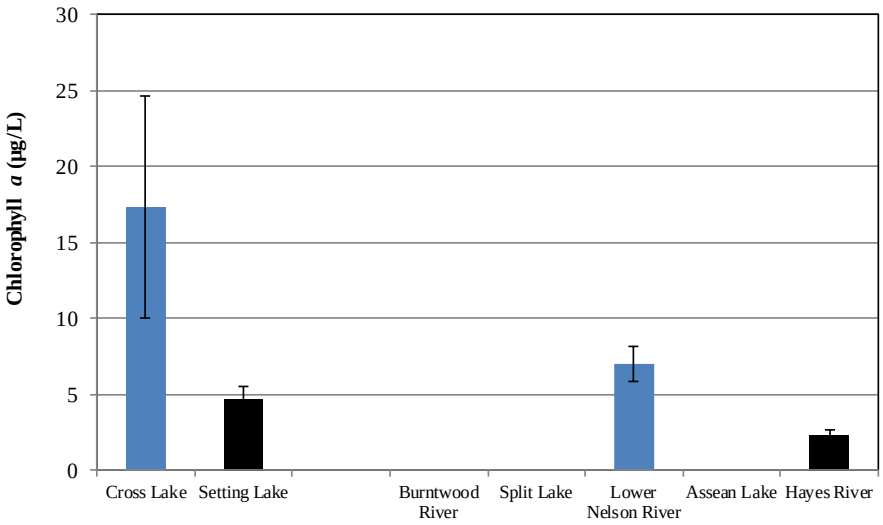
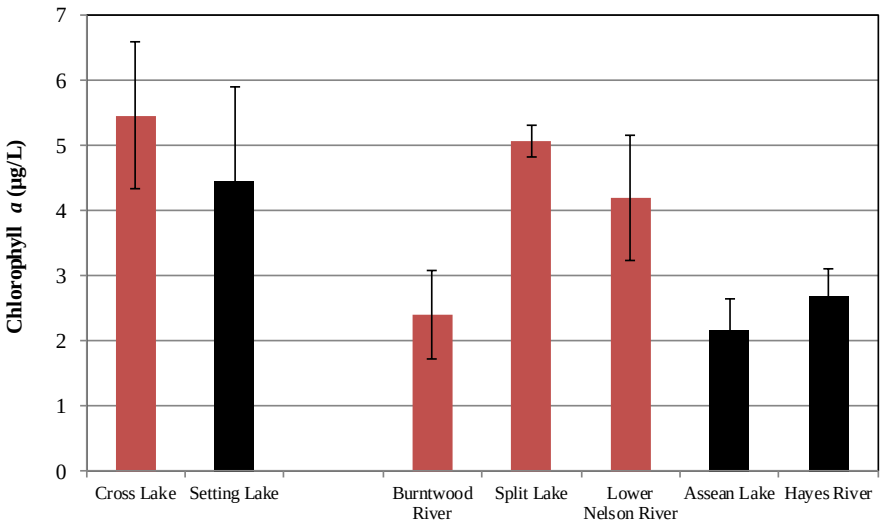


Figure 4. **Mean±standard error chlorophyll *a* concentrations measured in annual waterbodies in the Upper and Lower Nelson River Regions: open-water seasons 2008-2012. Sites in black are off-system sites. Superscripts depict results of statistical comparisons between annual lakes and reservoirs; different superscripts indicate significant differences.**

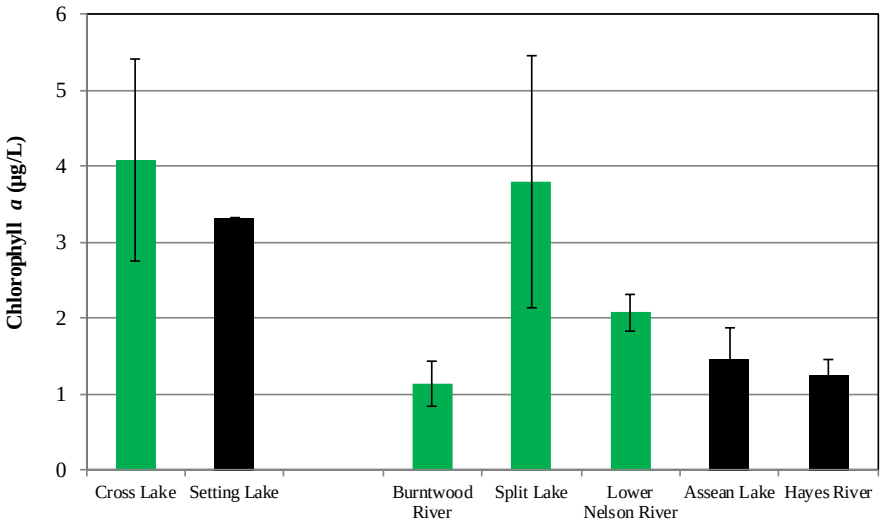
(A)


Chlorophyll a (µg/L)
30
25
20
15
10
5
0
Cross Lake
Setting Lake
Burntwood River
Split Lake
Lower Nelson River
Assean Lake
Hayes River

(B)


Chlorophyll a (µg/L)
7
6
5
4
3
2
1
0
Cross Lake
Setting Lake
Burntwood River
Split Lake
Lower Nelson River
Assean Lake
Hayes River

(C)


Chlorophyll a (µg/L)
6
5
4
3
2
1
0
Cross Lake
Setting Lake
Burntwood River
Split Lake
Lower Nelson River
Assean Lake
Hayes River

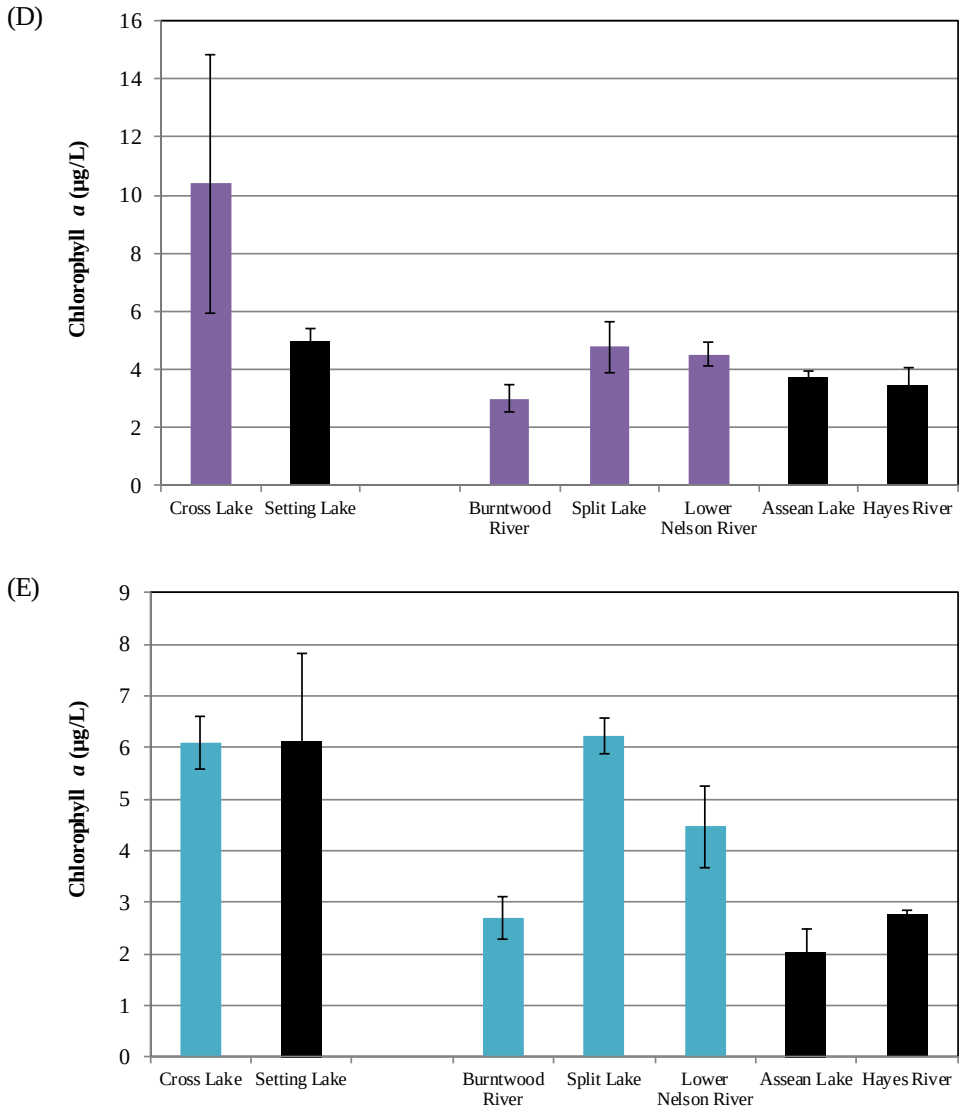


Figure 5. **Mean ± standard error chlorophyll *a* concentrations measured in annual waterbodies in the Upper and Lower Nelson River Regions: open-water season (A) 2008, (B) 2009, (C) 2010, (D) 2011, and (E) 2012. Sites in black are off-system sites.**

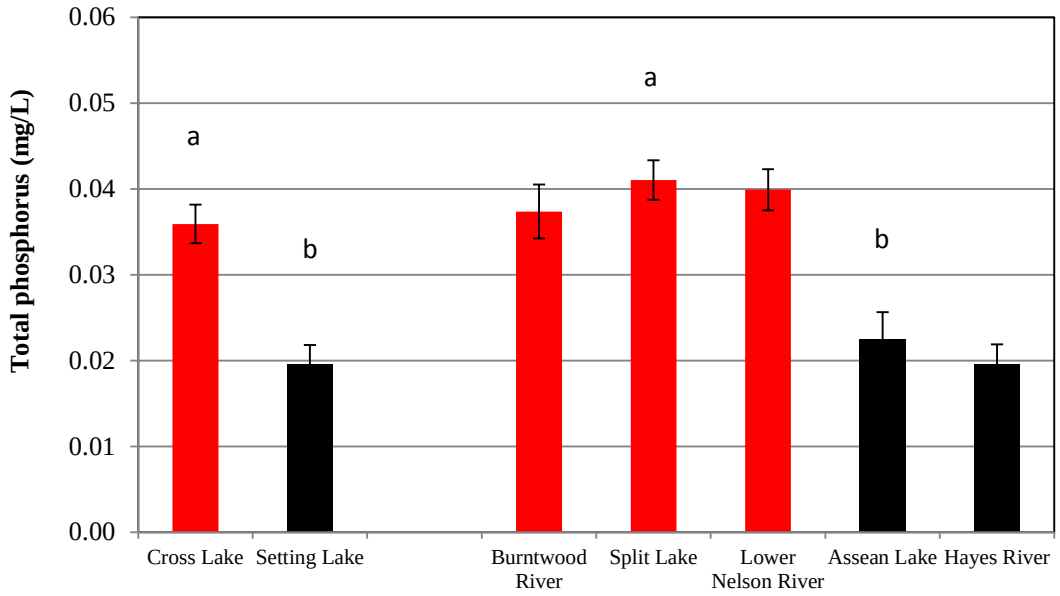


Figure 6. **Mean ± standard error TP concentrations measured in annual waterbodies in the Upper and Lower Nelson River Regions: open-water seasons 2008-2012. Sites in black are off-system sites. Superscripts depict results of statistical comparisons between annual lakes and reservoirs; different superscripts indicate significant differences.**

Question 18:

System Operation, Hydrology and Erosion

Is there extra water storage required on Lake Winnipeg or at Kelsey to facilitate the operation of the Keeyask Project?

Response:

No extra water storage is required on Lake Winnipeg or the Kelsey Generating Station reservoir in order to facilitate the operation of Keeyask.

The Partnership responded to a similar request in the interrogatory CEC Rd 1 PFN-0032 Part 3:

> "*Confirm that there will be no increase to LWR water levels in order to support seasonal flows for Wuskwatim, Keeyask and Conawapa.*
>
> *No changes to the operating licences /conditions of LWR are anticipated either to support flows for Wuskwatim, Keeyask and Conawapa, or for other reasons. Lake Winnipeg Regulation water levels are influenced by factors including water inflows, energy supply and energy demand. In accordance with existing licences/conditions, Lake Winnipeg Regulation (LWR) is used by Manitoba Hydro to balance seasonal/monthly supply and demand of energy. The Wuskwatim, Keeyask and Conawapa generation projects will be operated as part of Manitoba Hydro's integrated system within the constraints of licences granted for its facilities, including the Lake Winnipeg Regulation licence."*

Question 19:

Ice Regime

How will the Partnership communicate the changed ice regime associated with the completed Project?

Response:

The draft Physical Environment Monitoring Plan discusses planned ice-regime monitoring during the Project's operation phase to verify EIS predictions. This monitoring is proposed for the first 3 years of operation, which is expected to be adequate to characterize the altered ice conditions for different flow conditions. Results from the proposed monitoring would be reported at meetings of the Monitoring Advisory Committee, in the annual monitoring report to the regulator, the annual monitoring overview report, and at community meetings that will be held to present environmental monitoring results.

Separate from the monitoring program and on behalf of the Partnership, Manitoba Hydro will implement a Waterways Management Program during the construction and operation phases that includes "installing and monitoring regularly the condition of safe ice trails and the nature and extent of their use" (JKDA, Schedule 11-2, 4.1g and 4.2g). To support safe travel on affected waterways, Manitoba Hydro works with a number of communities in northern Manitoba to develop and maintain safe trails programs. Program implementation varies depending on arrangements with different communities. In most cases, the safe ice trails are installed by seasonal contract workers, typically the trap line holder whose trap line will be intersected by the safe ice trail and the local fisherman. Working with local trappers and fishermen is preferred since they have extensive local knowledge of their respective areas.

Trails are typically inspected and maintained once or twice per week by Manitoba Hydro employees and/or local contractors, depending on the arrangement with the community. Work involved includes removing obstructions, marking hazards, measuring ice thickness and communicating with or assisting people on the trails as necessary. Trail markers are used to indicate whether or not a trail is open or closed. Within the communities, local trail conditions are typically communicated by word of mouth. The local contractors are well known throughout their communities and people will contact them to find out about the most recent trail conditions or advise them of issues they may have encountered while out on the land. In addition, Manitoba Hydro may also provide general notifications on an ad-hoc basis when warranted. For example, Hydro issued notifications on radio stations in northern Manitoba earlier this winter to advise people that the specific combination of freeze-up and heavy snow-fall conditions had created an increased risk for slush-ice development on all northern waterways.

Question 20:

Cumulative Effects

The Partnership has stated that the regional area is a highly disturbed environment due to hydroelectric related projects. Many issues with past disturbance have been raised by Participants and the KCNs. Many mitigation actions have been put forward regarding Keeyask.

- What has/ is being done to address past disturbance on the environment and negative impacts from past projects?
- What mitigative and rehabilitative actions have been taken to address past environmental impacts?
- Have the results been monitored?
- Has adaptive management been used?

Response:

Churchill River Diversion, Lake Winnipeg Regulation, and northern generating stations (with the exception of Wuskwatim) and the associated transmission infrastructure were constructed using contemporary practices of the day. These practices involved substantially less advanced environmental assessment and consultation activities than what is considered acceptable and standard today. As a result, environmental effects were not always fully understood and related avoidance, mitigation and enhancement measures were not always identified and implemented in advance of project construction.

Today, Manitoba Hydro's policy is to avoid impacts when possible, mitigate or remediate if the impact cannot be avoided, and to provide compensation to affected parties when an effect cannot be avoided or mitigated. Following the signing of the Northern Flood Agreement (NFA) in 1977, Manitoba Hydro recognized the need for a dedicated resource to deal with mitigation measures. The Mitigation Department was established in 1981, which included an office location in Thompson with staff that were familiar with the communities and their issues, to address concerns from the five First Nations who were signatory to the NFA (the Northern Flood Committee - Cross Lake, Norway House, Nelson House, Split Lake, and York Landing). By the late 1980s, the foundation had been set for addressing project impacts; this included the development of a comprehensive approach to resolving issues and mitigating adverse effects, as well as enhanced policies for northern Aboriginal job and business preferences.

Since then, Manitoba Hydro's relationships with northern Aboriginal communities have continued to evolve, and the various mitigation measures that have been undertaken pursuant to the NFA have broadened. Manitoba Hydro recognizes the importance of meaningful and lasting relationships with northern Aboriginal communities, and the Corporation has entered into Comprehensive/ Settlement Agreements with First Nations, Community Councils, and resource user organizations. To date, Manitoba Hydro has spent in excess of $700 million through mitigation and remedial works, offsetting programs and compensation related to past impacts. In addition to compensation, numerous programs

and initiatives have been established as we work to address adverse effects of past projects and create opportunities.

A complete list of mitigation measures that have been implemented and/or planned throughout the Nelson and Churchill River systems would be very extensive, with many measures specific to the local context of each community. However, a number of key initiatives described below represent the measures undertaken to lessen or reduce impacts through mitigatory and remedial measures, to provide appropriate replacements, substitutions or opportunities to offset impacts, or to pay fair compensation for the loss or damage suffered as a consequence of impacts.

Due to their nature, the initiatives described below inherently include a monitoring component. From the monitoring results, adaptive management is used to adjust the initiatives, as required, to meet their objectives.

Shoreline Stabilization Works

Manitoba Hydro provides shoreline protection to the severance lines. In addition, Manitoba Hydro provides funds for the construction of shoreline protection works and reinforcement around identified burial sites in affected waterways. Manitoba Hydro has contracted with community contractors for the completion of shoreline protection in and around the communities of Cross Lake, Tataskweyak Cree Nation, York Factory First Nation, and Nisichawayasihk Cree Nation. Emergency works were also undertaken TCN (2005) and Cross Lake (2011) to deal with damages due to high water levels. Shoreline work is also being undertaken in South Indian Lake and the City of Thompson.

Heritage Resources

Since the early 1970s, Manitoba Hydro has been conducting or participating in a variety of archaeological programs along the Churchill and Nelson River systems, working closely with First Nations and the Provincial Historic Resources Branch, which enforces The Heritage Resources Act. Local communities have expressed appreciation for the respectful approach and expanded historical information this work has generated. They have requested the use of the replicated materials and information for local displays and education purposes. Communities have also received local employment and training benefits and educational opportunities in the excavation of materials and the presentation of information. These programs include: archaeological mitigation efforts currently underway at the Hunting River Burial Site, in collaboration with Manitoba, Pikwitonei Community Council and Cross Lake First Nation; the Sipiwesk Lake Archaeological Program; a system-wide Archaeological Project for sites along the Winnipeg River, Nelson River, Saskatchewan River, Laurie River and Kettle;; a Churchill River Diversion Archaeological program that includes specific sites along South Indian Lake, the Churchill River Diversion. Work has also been completed at Ghost Point and Chipiy Naya sites, undertaken in collaboration with Tataskweyak Cree Nation.

Water Level Forecast Notice Program

In order to ensure that people living next to waterways affected by Manitoba Hydro's operations are aware of projected flow conditions, Manitoba Hydro has a water Level Forecast Notice Program. A water level forecast notice is provided to First Nations, Community Councils, resource user groups, government departments and other interested parties. The notices are comprised of a graph illustrating the anticipated levels or flows and an accompanying letter with a narrative description of the anticipated trend for the period. The notices are prepared at the beginning of each month and the information covers a two month period, except for Missi Falls which is provided for a one month period. Revisions are provided when levels or flows deviate more than the identified limits. Information is also provided on local radio stations in Cree and English.

Waterways Management Program

Manitoba Hydro has a Waterways Management Program in place to support and promote the safety of people travelling on waterways affected by Manitoba Hydro's operations. This program was initiated to address issues as a result of development of hydroelectric generating stations on the Saskatchewan and Nelson River systems including waterways affected by the Lake Winnipeg Regulation (LWR) and the Churchill River Diversion (CRD). As outlined below, the Waterways Management Program includes boat patrols, debris management and safe ice trails.

Boat Patrols

The boat patrol program initially started in 1999 and was expanded in 2000. The purpose is to patrol affected waterways to reduce mobile debris, making waterways safer for users. Beginning in 2003, boat patrol crews were given GPS devices and digital cameras to document debris that was picked up. The patrols work during open water season until just prior to freeze-up, usually from June to October. Boat patrols map and record daily routes, mark deadheads and reefs, identify debris work areas, place hazard markers identifying safe travel routes for resource users, gather floating debris, deadheads, old nets, etc. and relocate them to safe areas.

Each boat patrol consists of two workers. The boat patrol workers are seasonal Manitoba Hydro employees hired from northern Aboriginal communities.

Debris Management

The Debris Management Program includes identifying debris work locations, and collecting and burning debris. The Debris Management Program only deals with debris on shore. Mobile debris is collected by boat patrol crews. All debris collected is piled above the high water mark to prevent it from going back into the water. Debris piles accumulated throughout the summer are burned late in season typically after the first snowfall to minimize the risk of fire. The burning piles are monitored and water pumps are on stand-by. Burning permits are obtained from Manitoba Conservation and Water Stewardship. The work is undertaken through agreements with local contractors.

Safe Ice Travel

Manitoba Hydro works with affected communities to develop and maintain a Safe Ice Travel Program. The safe ice travel workers are Manitoba Hydro employees or local contractors hired from Northern Aboriginal communities. Trails are mapped, tested for ice thickness, cleared of obstructions, and routinely monitored and patrolled to provide a safe alternative to travelling on unchecked routes. Safe rest cabins that can be used in emergency situations may also be built into the trail network. The trails may vary slightly from year to year because of water levels, weather, and the quality of ice.

Mitigatory Structures

A number of mitigatory structures have been constructed to mitigate water level and flow impacts on various water regimes. Examples of these are:

The Cross Lake Weir

With the implementation of regulation, the historic pattern of water levels and water fluctuations at Cross Lake was reversed. Also, both minimum and maximum levels became lower on average than they were before regulation. To try to restore the former environment to the extent possible, a joint steering committee composed of representatives from the Cross Lake Band and Manitoba Hydro worked together over a number of years to find a way to raise the lake's water levels. In 1990, a mitigation agreement was reached for the construction of a $9.5 million rock weir and a channel excavation project at the outlet of Cross Lake as it flows back into the Nelson River. The weir and related operations at Jenpeg Generating Station gradually raised the minimum water level on Cross Lake. Fluctuations from season to season are more moderate and gradual than in the past. The design of the weir allows more water to flow out in high water years resulting in water levels that remain quite stable. The effectiveness of the weir continues to be monitored.

The Kiskitto Dam

The higher water levels, caused by Jenpeg's construction, made it necessary to build a control dam at the outlet of Kiskitto Lake to prevent water from backing up into the lake. The Kiskitto Dam is about 600 m long and has a maximum height of about 15 m. The lake is regulated within its natural range, and its water levels are controlled to best suit fish and wildlife habitats.

Churchill Water Level Enhancement Project, Marina and Goose Creek Enhancements

To address the lower water levels experienced along the lower Churchill River due to the Churchill River Diversion, a weir across the Churchill River and other ancillary components were constructed. These components collectively comprise the Lower Churchill River Water Level Enhancement Weir Project. The main objective of this project was to enhance water levels along a 10 km long reach of the lower Churchill River and thereby improve boating and increase the amount and productivity of fish habitat, and therefore fish, in this reach of the river. Project components included a rock-fill weir across the Churchill River to raise water levels, a marina and wayside park to improve boat access to the newly created reservoir, fish passage facilities to allow fish to move upstream past the weir, fish habitat enhancement along a 1.5 km long reach of Goose Creek downstream of the weir, and development of a

rock quarry resulting from construction into a small, shore-based fishery for stocked trout. Construction was initiated in 1998 and completed in 1999. To date, not all the benefits of the project have been realized, and the Town and Manitoba Hydro continue to work in an adaptive manner to modify the project and other mitigation measures to benefit the residents of Churchill.

Personal Property Loss and Damage

Under the NFA, the five signatory First Nations were eligible to make claims for losses associated with "the Project", which included LWR, CRD, generating stations and other related facilities. Under the agreement the onus was placed on Manitoba Hydro to establish that "the Project did not cause nor contribute to an adverse effect, where any claim arises by virtue of an actual or purported adverse effect of the Project." The intent of the agreement was that no affected party be left in a worse position than they would have been in the absence of the adverse effect. Cross Lake is the only remaining community proceeding with implementation of the NFA under the original 1977 agreement; under the Comprehensive Implementation Agreements and some other settlement agreements, impacted Communities have assumed responsibility for addressing claims by their members for personal property loss and damage. Personal property typically included under the program includes outboard motors, nets and traps damaged by floating or submerged debris and exposed rock surfaces.

Commercial Trapping and Commercial/Domestic Fisheries

Manitoba Hydro has entered into several long-term settlements that provided compensation and support payments to commercial fishers and commercial trappers. Manitoba Hydro also has numerous agreements with the Province of Manitoba and Commercial Trappers Associations in the region, which provide for programs and compensation to address adverse effects on commercial trapping activities.

Compensation has also been paid for losses in the domestic fishery. For example, programming has been established to allow for the continuation of the domestic fishery in Cross Lake and surrounding lakes.

Employment and Business Opportunities

Hydroelectric development has presented both short and long-term employment and business opportunities for northern Aboriginal residents, including operational employment, seasonal employment under the Waterways Management Program, shorter term employment and business opportunities associated with remedial works and employment associated with the implementation of the NFA and the subsequent Comprehensive Implementation Agreements. In addition to the Keeyask-specific employment and business opportunities, Manitoba Hydro has a range of programs and policies designed to encourage and enhance Aboriginal representation in its workforce and to promote the participation of northern Aboriginal business in its operations.

Environmental Assessments and Post-Project Environmental Reviews (PPERS)

Since Manitoba Hydro's development of the Northern Hydroelectric system, there have been many environmental initiatives, studies, and research and stewardship programs carried out including studies

carried out by Manitoba Hydro and the First Nations in connection with the resolution or arbitration of claims under the NFA. The programs have covered a wide array of areas. Due to the large number of studies (hundreds) that have been conducted, this section provides only some of the environmental assessments, post-project reviews, research and monitoring that has be carried out by Manitoba Hydro, Manitoba, Canada, the First Nations and others over the past 50 years in the Nelson/Churchill River basin. This information has been used by Manitoba Hydro in identifying and understanding the types of effects that have been caused our projects and helped to influence our operations and to shape the mitigation, remediation, and compensation that was discussed in the previous section.

Lake Winnipeg Churchill and Nelson River Study Board 1975: Environmental Impact Assessment

The Lake Winnipeg Churchill and Nelson River Study Board (LWCNRSB) that was formed from the "Canada-Manitoba Agreement for Lake Winnipeg and the Churchill and Nelson Rivers" which was signed by representatives of Canada and Manitoba in 1971. Work under the Agreement was to be completed by 1974 (it was subsequently extended to 1975). The budget for the study was in excess of $2,000,000. Government agencies that participated included:

- Manitoba Environmental Protection Branch;
- Manitoba Surveys, Mapping and Lands Branch;
- Manitoba Water Resources Branch;
- Manitoba Mines Branch;
- Manitoba Department of Tourism, Recreation, and Cultural Affairs;
- Manitoba M.R. and E.M. (Forestry Inventory Section); and
- Environment Canada (Freshwater institute).

Numerous experts also were involved from universities and consulting companies.
As a result of the Agreement, a comprehensive study was undertaken by the Lake Winnipeg, Churchill, and Nelson Rivers Study Board. The purpose of the study was:

> *"to determine the effects that regulation of Lake Winnipeg, diversion from the Churchill River and development of hydro-electric potential of the Churchill River diversion route are likely to have on other water and related resource uses and to make recommendations for enhancing the overall benefits with due consideration for the protection of the environment"*

The Terms of Reference for the study stated that:

> *"The study of probable effects of Manitoba Hydro's projects must be sufficiently broad so as to include all important effects on the water regime and on related resource uses and it must be adapted to provide reliable data on present natural conditions and the conditions arising from the operation of the controls and diversion as designed and constructed*."

A broad range of studies were conducted including physical, biological, heritage, resource use, and socio-economic studies. By the end of 1971, erosion, sedimentation, and recreation studies had been initiated and studies on the majority of the other components were initiated by 1972.

The results of these studies were provided in the following reports:

Technical report;

App. 1 - Background documents and interim reports;

App. 2 - Hydrologic, hydraulic, geomorphologic studies;

App. 3 - Biophysical, forestry, and geological studies;

App. 4 - Existing works and services;

App. 5 - Fisheries and limnology;

App. 6 - Wildlife studies;

App. 7 - Recreation and archaeological studies;

App. 8 - Social and economic studies; and

Summary report.

The reports totaled over 9,000 pages plus background documents and were considered one of the most comprehensive studies of its time. The summary report provided a list of 47 recommendations for the entire study area.

The majority of these recommendations were directed at Manitoba and Canada including Recommendation #10 which stated that *"appropriate government departments develop and implement a long-term coordinated ecological monitoring and research program to allow impact evaluation and assist in the ongoing management of the affected area".* In the early 1980's, the Northern Flood Committee (NFC) filed Claim #18 under the Northern Flood Agreement alleging that this recommendation had not been fulfilled. Claim #18 resulted in the implementation of the Federal Ecological Monitoring Program (FEMP) and the Manitoba Ecological Monitoring Program which are described later in this document.

A report by Fisheries and Oceans Canada (Hecky, R.E. et al. 1984) compared the predictions of the "independent environmental assessments" (Under-Wood-McLellan and Associates Ltd. 1970 and the LWCNRSB 1975) and compared those predictions to what actually occurred to determine their accuracy and to identify areas that required further research.

Cross Lake: Environmental Impact Assessment: 1982-1986

In 1982, the Arbitrator for the Northern Flood Agreement ordered (Interim Order 11-2) that an environmental impact assessment be conducted to determine the effects of LWR on the "community life and environment of Cross Lake". The study was to "identify the distribution of all significant quantifiable and qualitative impacts within the community" and "evaluate the effectiveness of proposed and study derived mitigation measures to reduce adverse impacts". Interim Order 11-2 also requested

that an environmental impact statement be prepared. While the study was referred to as an "environmental impact assessment" it would generally be referred to as a PPER under the current regulatory regime.

The study was conducted by "The Nelson River Group" which worked closely with the community (both the First Nation and the Community Council) as well as the Cross Lake Fishermen's Association, the Cross Lake Trapper's Association, Manitoba, Manitoba Hydro, and Canada. The study team produced a comprehensive three volume environmental impact assessment study (Wilson et al. 1986 a, b, c):

Volume I: Key Issues and Impacts;

Volume II: Evaluation of Mitigation Options; and

Volume III: Environmental Impact Statement.

The reports covered the following broad range of topics and, where possible, compared pre-LWR and post-LWR conditions:

- description of the Cross Lake communities;
- socio-cultural values, employment, and recreation;
- water quality and community health;
- land exchange and hold areas;
- land use and internal/external access;
- description of LWR;
- physical environment (e.g., water regime/slush ice);
- fish, ungulates, furbearers, and forestry; and
- compensation and remedial programs.

The report provides a large amount of information on the effects of LWR shortly after it was in place and is particularly relevant due to the participation of the community and the comparison of pre-LWR and post-LWR conditions. One of the recommendations in the report was for the construction of the Cross Lake Weir (which was discussed earlier in this report) to mitigate water levels on Cross Lake. .

Canada-Manitoba Agreement: CRD Mercury Monitoring (1982-1986)

Although the Department of Fisheries and Oceans Canada had been collecting fish mercury samples as early as 1975, a formal agreement regarding mercury monitoring was signed in 1982. The main objectives of the Canada-Manitoba Agreement were to:

- Determine mercury levels in the water, sediment, and aquatic food chain along the diversion route;
- Determine how mercury was getting into the diversion route;
- Understand how mercury was entering and exiting the food chain;
- Gain an understanding of the importance of this mercury in the food chain; and
- Keep the public informed of the progress and results of the program.

The program ended in 1986, but the following studies took their place:

- 1991: Manitoba Hydro, Manitoba, and Canada monitored fish for mercury in northern reservoirs including the Limestone Forebay, Split Lake, and Stephens Lake;
- 1992-1996: Manitoba Hydro, Manitoba, Canada and Hydro Québec continued monitoring;
- 1998-2005: Manitoba Hydro, Manitoba, Canada continued monitoring; and
- 2006 to present: Manitoba and Manitoba Hydro continue to monitor fish for mercury.

As noted by the Aquatic and Terrestrial Panel, the extensive work conducted by the above noted parties has resulted in one of the longest and most complete databases on mercury in existence and is used by other utilities in Canada. As of 2012, approximately 80,000 fish have been sampled from 400 waterbodies in Manitoba.

Limestone Generating Station: Aquatic Environment Monitoring Programs 1985-2003

The Limestone GS Environmental Management Program, which was approved by the provincial government, required that fish populations be monitored during the construction and operation of the project to:

- identify impacts;
- develop mitigation options;
- assess the effectiveness of mitigation initiatives; and
- provide data and information to assist in the assessment of impacts of future hydroelectric development in the region.

The monitoring program ran from 1985 to 2003 and over 80 individual reports were produced documenting the results the studies. The information was subsequently synthesized and interpreted in the context of changes caused to the physical, chemical, and biological environments by the construction and operation of the Limestone GS (North/South Consultants Inc. 2012). Monitoring took an adaptive management approach. For example, monitoring was conducted on fish passage through culverts and the culverts were re-designed and then subsequently monitored and further modified to improve fish passage.

Manitoba Ecological Monitoring Program 1985-1989

As noted previously, in 1981, Claim 18 was filed under the Northern Flood Agreement which alleged that Recommendation #10 of the LWCNRSB Report (1975) had not been fulfilled. The recommendation stated that:

> *"appropriate government departments and agencies develop and implement a long-term coordinated ecological monitoring and research program to allow impact evaluation and assist in the ongoing management of the affected area."*

In response to this claim, the Manitoba Ecological Monitoring Program (MEMP) was developed by Manitoba and the Federal Ecological Monitoring Program (FEMP) was developed by Canada. A Program

Advisory Board (PAB) was established in 1986 to coordinate the ecological monitoring and research programs being conducted in response to Claim 18 and received input from all parties.

Lakes that were studied by MEMP in the area affected by LWR included Cross Lake, Sipiwesk Lake, Split Lake, and Stephens Lake. Parameters studied included water quality, limnology, and fish populations. A large number of individual reports were produced and published as a result of MEMP (e.g., Green 1988b; Hagenson 1987a; Kirton 1986; etc.).

It should be noted that Playgreen Lake was not included under MEMP or FEMP as detailed studies were being conducted on the lake by Manitoba Hydro (MacLaren Plansearch Inc. 1985).

Federal Ecological Monitoring Program (FEMP) 1986-1992

In response to Claim 18 (see above), Canada initiated the Federal Ecological Monitoring Program. FEMP conducted work on the areas affected by LWR but focused their work more on areas affected by CRD. The studies were initiated in 1986 and were conducted a five year period at a cost of $1.8 million (approximately $3.5 million 2013$).

The results of these studies were provided in the following reports:

Series of annual reports;

Final report, two volumes (EC and DFO 1992a);

Summary report (EC and DFO 1992b); and

Technical appendices, two volumes.

The primary objectives of the program were:

- determine pre-Project conditions to the extent possible;
- measure post-Project conditions;
- determine the cause of the change between pre-and post-Project conditions;
- assess viability of remedial and mitigation measures;
- increase knowledge of factors that could affect future conditions; and
- provide the results of the studies to the public.

The program included studies on “water quantity and quality, sediment sand morphology, mercury, fish and aquatic life, waterfowl, and resource harvesting”. The spatial scope of the studies “was the immediate vicinity of the six native communities”.

Although FEMP focused on CRD, a number of studies were conducted in the LWR area including:

- benthic invertebrate surveys in Playgreen Lake;
- whitefish genetic studies in Playgreen Lake and Lake Winnipeg;

- waterfowl surveys in the Norway House area;
- resource harvesting by the residents of Cross Lake and Norway House; and
- mercury methylation rates in Sipiwesk Lake.

As part of FEMP, Baker and Davies (1991) compiled all available information on the physical, chemical, and biological effects of LWR and CRD on aquatic ecosystems. The physical and chemical parameters included: water levels and flows; lake and river shorelines; erosion, sediment transport and deposition; debris; ice; and water quality. The biological parameters included: lower trophic levels; fish populations; fish movements; fish habitat; and mercury. The report provided a summary of the effects as well as a qualitative assessment of the extent pre-Project and post-Project effects and identified data gaps.

Post-Project Assessment of Kelsey and LWR Impacts on Wabowden: 1990

In 1990, the Mayor of Wabowden wrote Manitoba Hydro (correspondence Dram to Ransom 1990) requesting compensation for the effects of Manitoba Hydro's activities on the community. In his letter, Mayor Dram stated, in part "Changing water levels has adversely affected not only the commercial fishing industry but also tourism, hunting, sport fishing and camping".

In response to the Mayor, Manitoba Hydro contracted a study team of independent experts to produce a report (MacKay et al. 1990) that:

- organized the facts regarding the environmental impacts caused by LWR and the Kelsey GS;
- drew conclusions regarding the extent of the biophysical impacts in terms of magnitude, prevalence, timing and controllability;
- provided judgments regarding impacts on health and safety, traditional livelihoods, lifestyles and the use of recreational, aesthetic, education and historic features; and
- estimated the value of the impacts and compared them to the value of impact management programming (mitigation/compensation) undertaken by Manitoba Hydro.

The study reviewed all available literature and conducted key person interviews in the community including interviews with affected fishers and trappers. The report provided information on the following: demographics; income and lifestyles; community services and infrastructure; water regime; navigation; ice; debris; commercial fishing (including fish populations and mercury); domestic fishing; sport fishing; commercial trapping (with a focus on aquatic furbearers); hunting (with a focus on waterfowl and ungulates).

Split Lake Cree and Manitoba Hydro: Post-Project Environmental Review 1992-1996

The 1992 Split Lake NFA Implementation Agreement included a commitment to conduct a comprehensive post-Project environmental review (PPER) of the effects of hydroelectric development in the Split Lake Resource Management Area (RMA). The Split Lake Cree Post-Project Environmental Review (1996) was completed in 1996. The study was a unique undertaking where Manitoba Hydro and the Split Lake Cree worked jointly using both Traditional Knowledge and technical science to review the "context, nature, extent, and importance of the effects of existing Manitoba Hydro projects" including

LWR on the Split Lake Cree. The results of the study were provided in a series of five reports (Split Lake Cree First Nation 1996; Manitoba Hydro-Split Lake Cree Joint Studies 1996; Split Lake Cree-Manitoba Hydro Joint Studies 1996ab; Lawrence 1996):

The five volumes included:

Volume 1: Analysis of Change: Split Lake Cree First Nation (Split Lake Cree First Nation 1996)

Volume II: History and First Order Effects (Manitoba Hydro 1996)

Volume III: Environmental Matrices (William Kennedy Consultants 1996)

Volume IV: Environmental Baseline Evaluation (Lawrence 1996)

Volume V: Summary and Conclusions (Split Lake Cree-Manitoba Hydro Joint Studies 1996)

Following the release of these documents the Split Lake Cree formed the Tataskweyak Environmental Monitoring Agency (TEMA) and continued to monitor water quality, sedimentation, invertebrates, fish, and fish habitat in the Split Lake area for an additional two years.

Southern Indian Lake Environmental Monitoring: 2003-Present

The South Indian Lake Environmental Steering Committee was established in 2003 and includes representation from O-Pipon-Na-Piwin Cree Nation, Manitoba Hydro, Manitoba Conservation and Water Stewardship and South Indian Lake community organizations such as the Community Association of South Indian Lake, the South Indian Lake Fishermen's Association and the South Indian Lake Trappers Association. The Committee conducts environmental studies and actions to help address local concerns related to water level regulation of Southern Indian Lake. General areas of study have included Lake Whitefish stocks/habitat, fish community, fish movements through Missi Falls Control Structure, Walleye movements and spawning, winter sedimentation and benthic invertebrate community. Seventeen separate studies have been conducted since 2003. Studies are ongoing with a current focus on lake productivity. The Committee has used results of these studies to determine where best to focus actions to maximize benefits to the community. Committee actions have included shoreline stabilization; technical, facility and input assistance for the South Indian Lake Commercial Fishermen's Association, Walleye stocking to re-establish self-sustaining spawning runs in tributaries, resource and cultural educational programs, etc.

Lake Sturgeon

Lake Sturgeon were once abundant in Manitoba, however historical harvesting and habitat changes due to hydroelectric development have resulted in depleted populations.

Lake Sturgeon occurs throughout almost all of Manitoba Hydro's system, and Manitoba Hydro recognizes that its operations affect Lake Sturgeon both directly and indirectly. Manitoba Hydro is committed to the recovery of Lake Sturgeon populations in Manitoba. Over the past 20 years, the corporation has completed numerous studies, activities, and initiatives related to Lake Sturgeon biology,

ecology, behavior, and recovery in Manitoba. In 2008, Manitoba Hydro developed the Lake Sturgeon Stewardship & Enhancement Program to coordinate and focus these efforts. The primary objective of the Program is to maintain and enhance Lake Sturgeon populations in areas affected by Manitoba Hydro's operations, now and in the future.

Manitoba Hydro has evaluated the effectiveness of a number of recovery actions, and the most effective actions to bring about recovery appear to be conservation stocking, habitat enhancement, and flow modification. However, the most appropriate recovery action at each location will vary and requires site-specific research, development and implementation. To this end, Manitoba Hydro is committed to an adaptive management approach that enables progress on recovery actions even in the presence of uncertainty.

Manitoba Hydro has carried out numerous studies, programs and initiatives to support sturgeon recovery listed below are some of the key activities.

Nelson River Sturgeon Management Board (1994 – present)

"Nelson River Sturgeon Co-management Board (Nelson River upstream of Kelsey) was founded in 1993 as a result of a claim filed by Cross Lake under the Northern Flood Agreement. The first 10 years of the program were jointly funded by Manitoba and Manitoba Hydro. Following a 10 year review of the Board's activities, funding continued to be provided by Manitoba and Manitoba Hydro. The Board is made up of representatives from Norway House Cree Nation, Cross Lake First Nation, Tataskweyak Cree Nation, York Factory First Nation, Town of Wabowden, Thicket Portage, and Pikwitonei. Manitoba Conservation and Water Stewardship also have representatives that attend the Board meetings. "

Lower Nelson River Sturgeon Stewardship Agreement (2012 – present)

The Lower Nelson River Sturgeon Stewardship Committee (the Committee) is a committee of interested stakeholders committed to implementing measures to protect and enhance sturgeon populations in the Lower Nelson River from Kelsey Generating Station to Hudson Bay. Committee efforts focus on the Lower Nelson River and will include the Hayes River system (Hayes, Gods and Echoing rivers) and tributaries along the Nelson River that are important to these populations. Committee activities will take into consideration the Lake Sturgeon Management Strategy for Manitoba developed by Manitoba Conservation and Water Stewardship.

Grand Rapids Hatchery (1990 – present)

The Grand Rapids hatchery has been funded by Manitoba Hydro since 1990 and fish reared at the hatchery are frequently stocked in waterbodies affected by LWR. This includes: lake sturgeon fry and fingerlings in the Nelson River (1994, 1998, 2003, 2008, 2011-2013); lake whitefish fry or eggs in Lake Winnipeg (1992, 2002) and Cross Lake (1992-1994, 1996-1998, 2001-2004); and walleye fry in Cross Lake (1991-1992, 2007), Playgreen Lake (1992, 1995-1998), Little Playgreen Lake (1991), and Lake Winnipeg (1992, 1997-2013). A recent study conducted by Manitoba Hydro (McDougall and Pisiak 2012) captured 91 lake sturgeon at Sea River Falls of which over 70% had been stocked by MCWS with the sturgeon

raised at the Grand Rapids Hatchery. Maintaining the Grand Rapids Hatchery infrastructure is necessary for the continued use of the facility for the purposes of Lake Sturgeon stocking. Manitoba Hydro assumed operations of the hatchery in 2012, and is making many changes in infrastructure and operation to maintain and productive and clean hatchery that adheres to provincial and federal regulations, and can support stocking programs proposed as mitigation.

Wuskwatim GS Environmental Assessment and Environmental Monitoring Studies

Construction of the Wuskwatim Generation Projection, which is a jointly owned station between Manitoba Hydro and Nisichawayasihk Cree Nation, was complete in 2012. Wuskwatim has a full Environmental Protection Program (the Program) that was implemented during construction and many components will continue for many years into the operation phase of the generating station. The Program had three environmental protection plans (EnvPPs) – one for the construction of the access road, construction and operation of the camp and construction of the generating station. As construction is now complete these plans are obsolete. Environmental protection for the operation of the station is governed by Manitoba Hydro's operating procedures.

Five management plans are/were part of the Program to mitigate adverse impacts. The Sediment Management Plan (SMP) which monitored sediment input into the water during in-stream construction activities demonstrated that sediment input was generally low. When commissioning the spillway gates, sediment levels were closely monitored and gate openings were in approximately one metre increments and closed as necessary to prevent exceeding the set sediment target levels. This is an example of how the adaptive management approach was implemented for Wuskwatim.

The Access Management Plan (AMP) for construction controlled access to the site during construction for safety and resource protection purposes. The plan was very effective and allowed resources harvesters to access the site when it was safe to do so. An AMP is now in place to control access for operation of the station.

A Heritage Resource Protection Plan was in place during construction in the event that historic resources or human remains were unearthed during construction and to examine areas that were inaccessible prior to construction activities. The plan was activated when human remains were discovered and proper communication, cultural activities, and assistance to the Province of Manitoba to recover the remains occurred.

The No Net Loss Plan for fish habitat compensation included the installation of several works to create and protect fish habitat. It includes:

- stabilization of shoreline to protect back bays and shallower parts of Wuskwatim Lake,
- whitefish spawning reefs,
- boulder gardens (clusters),
- a weir downstream of the tailrace to protect an a narrow bay from water fluctuations,
- aquatic vegetation enhancement along part of the post-impoundment shoreline

- stream mouth improvements on Wuskwatim, Wapisu and Threepoint Lakes to remove debris and re-establish aquatic and shoreline vegetation, and
- experimental shoreline stabilization on sites on Wuskwatim Lake using soil bioengineering techniques

Installation of all these works has been completed and monitoring of their success as fish habitat is continuing.

The Rehabilitation Plan was developed after it was determined which disturbed areas were not needed for operation of the access road or generating station and what the post-construction conditions were. It is being implemented now and as of December 2013 is approximately 50% complete with tree planting continuing in 2014 and 2015. Long-term monitoring is planned to determine the success of the rehabilitation efforts and to determine if additional or alternative planting is required.

The Program also has six monitoring plans that were initiated during construction and all of which continue into operation. They are intended to test the predictions in the Wuskwatim environmental impact statement and to identify any underestimated or unforeseen effects. The plans and component are:

- Aquatic Effects Monitoring Plan – water quality, benthic invertebrates, fish community, mercury in fish, and fish habitat compensation works
- Terrestrial Effects Monitoring Plan – caribou, large mammals, aquatic furbearers, birds, invasive plants, sensitive plants, sensitive habitat and rehabilitation success
- Physical Environment Monitoring Program – water regime, erosion, sediment transport and woody debris
- Socio-economic Monitoring Plan – employment, purchasing, labour income, business opportunities, cultural awareness, employee retention and ceremonies
- Resource Use Monitoring Plan – harvest
- Ethinesewin Monitoring (ATK)

With the construction phase complete generally results were as predicted. There a couple of examples of the implementation of adaptive management based on monitoring results.

- Through Ethinesewin studies it was determined that additional protection of the stream crossings along the access road was required. Additional rip rap was installed.
- Invasive plants were detected along the access road due to inadvertent planting of alfalfa. Eradication methods including mowing and additional planting of native plants is being tested and will continue. Also trail cameras were installed along the access road as both Ethinesewin and technical science were concerned about the possible attraction of wildlife to the forage species. It was determine this was not a problem.
- Unexpected erosion occurred on the south shore of the inner forebay after impoundment. To prevent the woody debris from entering the waterway. Trees were cleared from this section and

an erosion monitoring site was established to determine whether the accelerated erosion was temporary.

The monitoring that is now being conducted during the operation phase which is focused on the changes to the environment created by the stabilization of Wuskwatim Lake, impoundment of the inner forebay, the effects to the downstream environment with an operating station and resource use now that there is road access to Wuskwatim Lake.

Coordinated Aquatic Monitoring Program: 2008-Present

The Coordinated Aquatic Monitoring Program (CAMP) is a long-term, systematic and system-wide aquatic monitoring program that is conducted in all areas in Manitoba that are affected by Manitoba Hydro's hydraulic operating system. It is the largest monitoring program conducted in Manitoba to date. CAMP was developed as a result of input received from the Clean Environment Commission during the Wuskwatim GS hearings and from First Nations through the Section 35 process for the Wuskwatim GS. A Memorandum of understanding between Manitoba and Manitoba Hydro to conduct CAMP was signed in 2006 and the program was implemented in 2008.

The primary objectives of the Program are:

- to establish a baseline for a long-term ecological monitoring program which will enable the assessment of environmental conditions in comparison to established indicators over time; and
- to document the existing condition of Manitoba Hydro's hydraulic system

The scope of the Program includes:

- eight regions (see Map 1);
- 46 waterbodies/areas (lakes, reach of rivers, or basins of larger lakes such as South Indian Lake;
- and on-system and off-system waterbodies to provide comparisons between affected and non-affected waterbodies.

Some waterbodies are sampled on an annual basis and some waterbodies are sampled every three years for major components.

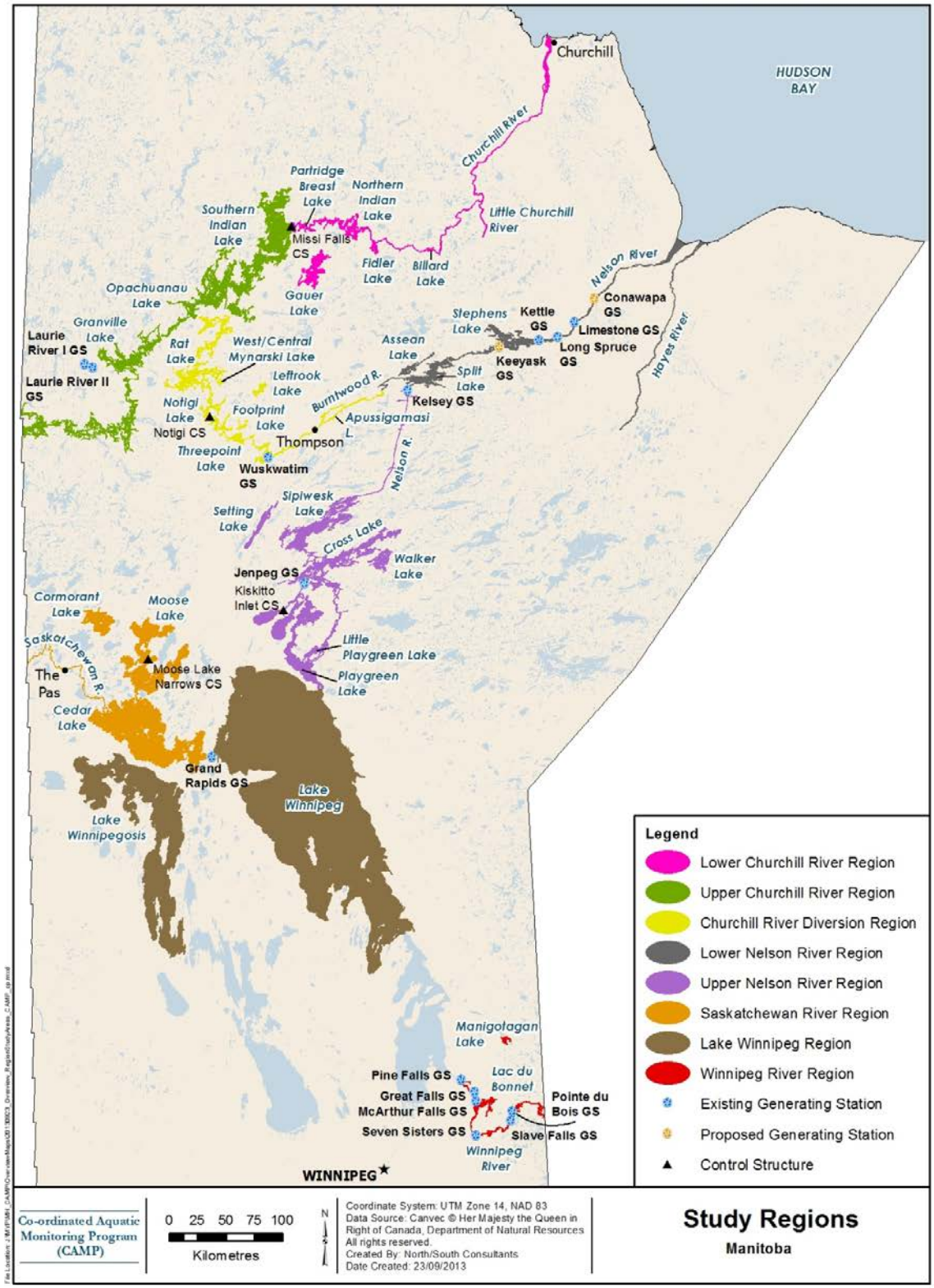
Components Studied

The major components monitored include:

- Hydrometrics (flows/water levels);
- Water quality;
- Sediment quality (conducted every six years at annual waterbodies);
- Phytoplankton is at four sites (annually).
- Benthic macro-invertebrates;

- Aquatic habitat surveys at selected sites each year since 2010: areas conducted to date include Assean Lake, Apussigamasi Lake, a portion of North Indian Lake, Billard Lake, South Moose Lake, west basin Cross Lake, Playgreen Lake, and SIL Area 4;
- Fish communities;
- Fish Mercury (two water bodies annually and numerous waterbodies on a three year rotational basis).

Map 1: CAMP Study Regions.



Question 21:

Cumulative Effects

CEC Rd 2 CEC-0102C requested the Partnership to provide estimates of the cumulative impacts due to past, current and future projects/activities on VECs based on the following formula:

Current Available VEC Habitat ÷ Current Total Terrestrial Habitat X Pre-Development Total Terrestrial Habitat = Pre-Development VEC Habitat

Based on this formula, the Partnership determined the following cumulative habitat losses for VECs due to past, current and future projects/activities:

- Olive-sided Flycatcher: 20.2%
- Rusty Blackbird: 17.7%
- Common Nighthawk: 24.6%
- Beaver: 20.6%

These cumulative effects are above the high magnitude of effects criterion of greater than 10% used by the Partnership.

- What do these numbers reflect at the regional scale?
- Do these results alter proposed development or mitigation actions?
- What do these results tell us about the future of the area and expected impacts?
- What impact may these results have on future projects?

Response:

Before responding to the specific questions contained within this enquiry, it is necessary to note a couple of limitations within the framework for the questions. While the Partnership developed the figures for the cumulative habitat losses, it did so at the direct request of the CEC, and in doing so, expressed reservations that the results of this formula-based approach would be crude estimates.

Past and current projects make the largest contribution to the cumulative effects percentages reported above. As the preamble indicates, this component of cumulative effects was derived by simply prorating the current habitat proportion to pre-development land area. The response to CEC-0102c explained how this could be misleading for some VEC indicator measures such as available wildlife habitat.

“As noted, attempting to estimate total pre-development VEC habitat using this simple extrapolation is misleading for some VEC indicator measures. Habitat availability for some VECs is highly influenced by total Nelson River shoreline length, and this was increased as a result of hydroelectric development. For example, using pre-development shoreline data, bald eagle habitat likely increased by 10% from pre-development to current conditions because the increase in Nelson River shoreline length more than offset the shoreline lost in large lakes flooded by the development of the Kettle generating station. In contrast, the simple area-based extrapolation in Table A suggests that available bald eagle habitat

declined by 2.5%. Additionally, some VEC habitat elements are based on spatial relationships between environmental attributes (e.g., proximity to water or a particular type of environmental edge), and the implicit assumptions in an area-based extrapolation may not be valid. Beaver and olive-sided flycatcher provide two examples. Beaver habitat availability is directly linked to shoreline length of suitable waterbodies and, since this shoreline density varies in different unaltered zones of the beaver Regional Study Area, it is reasonable to expect that it may also differ in the areas lost to past development. Like beaver, rusty blackbird habitat availability is also linked, but not limited to, shoreline length. As such, it is reasonable to expect that the quantity of rusty blackbird habitat may differ in the areas lost to past development. Similarly, olive-sided flycatcher habitat is directly linked to edges, and edge density in the areas lost to past development may differ substantially from that in the existing available habitat."

On that basis, the percentages should be viewed as crude approximations of habitat change relative to pre-development conditions, particularly for olive-sided flycatcher, rusty blackbird and beaver.

In addition, the 10% benchmark value used to mark the transition to the high magnitude range for cumulative habitat effects is measured relative to existing, rather than pre-development, habitat availability. A higher value would be applied for a benchmark if the reference condition is changed to pre-development. For example, Total's Josyln North Mine (located in northern Alberta) EIA took a precautionary approach by setting benchmarks for high magnitude effect on birds at 40% loss relative to pre-development conditions (Total E&P Joslyn Ltd 2008). Alternatively, using existing environment as the reference condition for habitat change for wildlife VECs is also common practice that has been used in other EIAs (Nalcor 2009) and comprehensive studies (Transport Canada and Fisheries and Oceans 2007; Husky Oil 2001).

Nonetheless, in this instance, comparing estimates of all potential habitat loss (including future) since the pre-development period against a benchmark designed to evaluate change against the existing conditions is an 'apples to oranges' comparison.

1. *What do these numbers reflect at the regional scale?*

For each of the species listed in the question, the estimated cumulative habitat losses reflect all or a portion of the habitat component of effects on the regional population. In the case of the bird VECs, breeding habitat is represented while for beaver it is habitat for all life requisites.

In the context of this question, it is difficult to ascertain what these numbers reflect at a regional scale, given the challenges of the method used to develop them and the fact that the 10% benchmark is not a cumulative effects benchmark for wildlife species relative to pre-development conditions (as noted above). Further, a benchmark value does not represent an ecological threshold where a sudden dramatic change is expected to occur but rather the start of a range where risk to the regional population has reached the level where more careful consideration of effects is warranted.

As noted in the response to CEC Rd 1 MB Wildlands-0074, an effects benchmark is a precautionary value, or range of values, for an indicator measure used for a VEC or supporting topic that is below the level where a threshold is reached for the specific VEC or supporting topic. For example, the benchmark

value used to separate the moderate from the high magnitude ranges is not a point where a sudden, dramatic change in the VEC or supporting topic is expected to occur; rather it is the point at which the total effect on the VEC is considered more seriously in conjunction with other factors (effect duration, ecological context) and other indicator measures, and when mitigation or adaptive management is often implemented to reduce the risk of an important adverse effect. That is, the ranges used for low, moderate and high magnitude terrestrial effects, respectively, identify values for an indicator measure where there is no concern, increasing potential concern but the effect is usually still regionally acceptable and then a range where there is increasing likelihood of a regionally important effect.

As discussed in the response to CEC Rd 1 CEC-0021, habitat change is only one component of the cumulative effects assessment for a VEC. Habitat availability in the Keeyask region is only one of the factors that determine whether or not a regional population is self-sustaining and may not be the most limiting factor. This is especially true for a species that is hunted or trapped, is at the climatic limit of its range and/or is a migratory species experiencing major habitat losses in its winter range.

In undertaking the cumulative effects assessments, quantitative measures have been used as required. This is especially the case for the spatial area affected in relation to each VEC of interest for this question. The percentages provide mostly the spatial component of the overall assessment. The full assessment of residual adverse effects also included a consideration of qualitative indicators, magnitude (includes the extent to which a VEC is vulnerable to any detectable adverse effect), duration and, for seven of the terrestrial VECs, reversibility, frequency, and ecological context. Coming to a final conclusion for a VEC has, in many cases, required an evaluation of the criteria used to assess significance based on professional judgment, past experience, current and potential future trends for these VECs and other non-quantifiable factors.

The regulatory significance of the residual adverse effects of Keeyask when acting in combination with other past, current and potential future projects and activities has been assessed based on guidance provided in the EIS Guidelines, and includes a consideration of the following:

- Direction or nature (i.e., positive, neutral or adverse) of the effect;
- Magnitude (i.e., severity) of the effect;
- Spatial boundaries (i.e., geographic extent);
- Temporal boundaries (i.e., duration) (see Section 5.5 of the Response to EIS Guidelines for further detail); and,
- Depending on the VEC, frequency, reversibility, and ecological and social context.

In evaluating the importance of these habitat losses to the relevant populations, a preferred approach would involve selecting a revised benchmark appropriate for a pre-development reference condition, understanding how to interpret the benchmark, and evaluating cumulative habitat change in combination with other factors that determine the future sustainability of regional populations. In the case of the three bird species identified, such pre-development benchmarks can be found. However, for beaver, no application of a benchmark for habitat loss from pre-development conditions was found in

the literature. Therefore, looking at these rough estimated percentages generated for total potential habitat loss since prior to development, we must take different approaches for birds and beaver.

- Birds

  For bird species at risk, a benchmark of 40% change[1] in habitat relative to pre-development levels could be used to indicate high magnitude of effect. If such a benchmark is applied for olive-sided flycatcher, common nighthawk and rusty blackbird, the assessment of residual effects would not change as habitat loss associated with past, present and future projects would still be considered moderate in magnitude. As well, given the numbers of these species in the area and the availability of suitable breeding habitat, habitat is not seen as a limiting factor for these species. Notwithstanding the potential use of a pre-development benchmark, the current assessment reflects the picture at a regional scale.

  In summary, for these bird species, these derived numbers for habitat loss relative to a pre-development condition suggest that while there has and will be habitat loss (associated with the Keeyask Generation Project and reasonably foreseeable future projects), this habitat loss is not expected to have a significant effect on the regional populations of olive-sided flycatcher, common nighthawk and rusty blackbird.

- Beaver

  Benchmark values for habitat loss for beaver (identified in the TE SV, pp 7-109) were selected based on those identified by AXYS (2001), and meant to assess changes from the existing environment (pre-Keeyask, not pre-development). As noted above, the formula-based approach to estimating total pre-development habitat is also not likely to be accurate for species such as beaver where potentially favourable beaver habitat is limited to particular types of waterbodies and watercourses relative to nearby shoreline, wetland and upland habitats. For example, beaver do not use the Nelson River or Nelson River shorelines, which would not be included as high quality habitat in the historic habitat loss calculation.

  The broad distribution of beaver is closely related to their use of riparian habitat, which appears to be common and widely distributed in the Beaver Regional Study Area. These habitats extend

[1] Scientific literature supporting ecological thresholds for habitat loss and change in biodiversity do exist however they vary widely, with declines in species diversity and/or species abundance (which may result in extirpation of some species) occurring within a range of 70-30% habitat retention (30-70% loss) (Andrén 1994, Fahrig 1999, Drolet et al 1999, Villard et al. 1999, Fahrig 2001, Swift and Hannon 2002). A recent review by Swift and Hannon (2010), however, concluded that most empirical studies supported Andren's (1994) proposed range of 10 to 30% retention of pre-development habitat cover for forest birds at the landscape level. The majority of the evidence supports a 30% residual habitat threshold (relative to pre-development habitat cover) at a landscape level (e.g., Keeyask Bird Regional Study Area(s)) to avoid rapid declines that may lead to regional extirpation. To ensure that ecological thresholds are not reached and that species diversity is preserved, management benchmarks are often set at more conservative levels. For example, TOTAL's Josyln North Mine (located in northern Alberta) EIA took a precautionary approach by setting benchmarks at 60% habitat retention (40% loss relative to pre-development conditions) (Total E&P Joslyn Ltd 2008).

throughout Zone 4 and into Zones 5 and 6. Even with the near collapse of beaver populations because of excessive fur trapping during the 1700's, 1800's (Baker and Hill 2003) and during the pre- and post-World War II era which decimated beaver populations (Carmichael 1973, Usher and Weinstein 1991, Split Lake Cree and Manitoba Hydro 1996), beaver have been able to rebound naturally back towards high population levels. The 250 lodges estimated currently in the Regional Study Area indicate a healthy population extent (Response to EIS Guidelines, p 6-135). Because beavers are consistently found in the large majority of ponds, small lakes (and occasionally large lakes), creeks, streams and rivers (e.g., Cache Lake and the Butnau River, FLCN 2010), the beaver population will remain viable and sustainable, if slightly reduced in size due to the Keeyask Generation Project, even though the local distribution has changed due to reduced regional carrying capacity that resulted from historic habitat loss. This resilience in beaver populations suggests that population effects from past resource use, and from past and existing developments, are reversible and should not significantly affect the future persistence of this key furbearing species either with or without the Project.

Although it is uncertain what specific habitat threshold would be appropriate for loss of beaver habitat measured from historic conditions, beaver populations are considered healthy and are one of the most widely distributed species in the boreal forest today. For the most part, studies have indicated that the availability of habitat is commonly not a limiting factor for beaver as they are versatile engineers, create their own habitat, and colonize new habitat areas through rapid dispersal (Boyle and Owens 2007). The estimated number of breeding age females has been identified as an alternate method for use in identifying beaver population health (Higdon et al. 2005). Although the quantitative context of historic change is unclear where substantial historic decline and subsequent population recovery occurred, given that only 23 active lodges would be potentially lost from the Keeyask Generation Project (CEC Rd 1 CAC-0048b), and an estimated 250 active lodges in the Beaver RSA (TE SV p 7-57), this represents a loss of less than 10% of the region's reproductive females. This change relative to existing conditions indicates that this population should remain viable, with little loss in reproductive potential as beaver can replace annual mortality of 30% and can compensate for greater losses with increased reproduction (Payne 1989).

2. *Do these results alter proposed development or mitigation actions?*

No. Effects on species from habitat loss were already considered when the cumulative effects assessment was completed for the EIS. The benchmarks selected for the EIS were based on changes from current available habitat. Incorporating historical habitat losses would increase the benchmark percentage used for the assessment, and as shown above, not change the overall assessment result.

- Birds

  The results for olive-sided flycatcher, rusty blackbird and common nighthawk, which were assessed using the more conservative Zone 4 as the Bird Regional Study Area. would still be well below the benchmark for high magnitude effects should a benchmark in the range of 30-40% habitat loss relative to pre-development be used. Given that the current assessment captures habitat loss and the overall assessment would not change, changes to the proposed mitigation actions are not anticipated.

- Beaver

  These results in combination with the information used in the effects assessment suggest that substantial potential habitat effects occurred historically on beaver habitat. The beaver population is still substantive and appears to be healthy and viable in the region today after recovering from historic lows and near extirpation from over-trapping; no additional mitigation actions for beaver are required with the Keeyask Generation Project.

3. What do these results tell us about the future of the area and expected impacts?

These results, in combination with the results from the terrestrial habitat, ecosystem diversity, intactness and wetland function assessments, reinforce the fact that cumulative effects on the regional ecosystem away from the Nelson River are low relative to pre-development conditions. More specific to these species:

- Birds

  As shown in questions 1 and 2 above, limited impacts are anticipated for olive-sided flycatcher, rusty blackbird and common nighthawk in this area, despite changes in available habitat. In order to verify the predictions in the EIS, a number of monitoring programs, including those targeting species at risk, will be implemented. The future of this area for species at risk will be monitored during the construction and operation phases as part of the overall monitoring efforts described in the draft Terrestrial Effects Monitoring Plan.

- Beaver

  Beaver is one of the most widely distributed and common wildlife species in the boreal forest. The broad distribution of beaver is closely related to their use of riparian habitat, which is also common in the Beaver Regional Study Area (Zone 4), and extends into Zones 5, 6 and outside the region. In the calculation of habitat loss for beaver, following those methods outlined in CEC Rd 2 CEC-0102c, it should be noted that the Nelson River would not have been considered valuable beaver habitat historically prior to hydroelectric development because of its velocity, width and depth. Its inclusion could overestimate beaver habitat loss. As stated previously, even with the near collapse of beaver populations because of excessive historical fur trapping which decimated populations, beaver were able to rebound naturally and the beaver population is still

substantive and viable in the region today. The total population size, the existing distribution of habitat with or without the Project, and the resilience in beaver populations as measured from historic low level recovery, suggests that the effects from the Keeyask Generation Project is reversible and should not significantly affect the future persistence of this key aquatic furbearing species, even if measured against the loss of historic habitat carrying capacity using the methods outlined in CEC Rd 2 CEC-102c.

4. What impact may these results have on future projects?

There has been a loss of available habitat for these species in this study region, as expressed in the numbers derived for cumulative habitat loss. These losses include habitat loss potentially occurring as a result of foreseeable projects currently proposed for this area, such as the Keeyask Transmission Project and Bipole III. For future currently unforeseen projects in this immediate area, any additional changes to habitat would have to be carefully assessed to determine whether the effects predictions for the Keeyask Generation Project would remain applicable. For future projects outside of this study region (e.g., the proposed Conawapa Generation Project), while some effects on these species' habitat might be expected, an assessment would have to be done in the context of the very different ecological conditions that exist in that region, and recognize that to date, the Conawapa regional area is less disturbed overall.

References:

Andrén, H. 1994. Effects of habitat fragmentation on birds and mammals in landscapes with different proportions of suitable habitat: a review. Oikos 71(3):355-366.

AXYS (AXYS Environmental Consulting Ltd.). 2001. Thresholds for Addressing Cumulative Effects on Terrestrial and Avian Wildlife in the Yukon. Prepared for Department of Indian and Northern Affairs, Environmental Directorate and Environment Canada. 120 pp.

Boyle, S. and S. Owens. 2007. North American beaver (*Castor Canadensis*): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Available from http://www.fs.fed.us/r2/projects/scp/assessments/northamericanbeaver.pdf [accessed 21, December 2013].

Carmichael, R. G. 1973. Innovation and enterprise: a history of fur conservation in Northern Manitoba, 1935-1948. Unpublished manuscript.

Drolet, B., A. Desrochers, and M.-J. Fortin. 1999. Effects of landscape structure on nesting songbird distribution in a harvested boreal forest. Condor 101(3):699-704.

Dzus, E., J. Ray, I. Thompson, and C. Wedeles. 2010. Caribou and the National Boreal Standard: Report of the FSC Canada Science Panel. Report prepared for FSC Canada. July 26, 2010.

Fahrig, L. 1998. When does fragmentation of breeding habitat affect population survival? Ecol. Model. 105(2-3):273-292.

Fahrig, L. 2001. How much habitat is enough? Biological Conservation 100(1):65-74.

FLCN (Fox Lake Cree Nation). 2010. Environment Evaluation Report. Fox Lake Cree Nation, Manitoba.

Higdon, J.W., D. A. MacLean, J.M. Hagan, J.M. Reed. 2005. Evaluating vertebrate species risk on an industrial vertebrate landscape. Forest Ecology and Management 204: 279-296.

Husky Oil Operations Limited (as Operator). 2001. White Rose Oilfield Comprehensive Study Report.

Nalcor 2009. Lower Churchill Hydroelectric Generation Project Environmental Impact Statement.

Nietfeld, M., J. Wilk, K. Woolnough and B. Hoskin. 1985. Wildlife habitat requirement summaries for selected wildlife species in Alberta. Wildlife Resource Inventory Unit, Alberta Energy and Natural Resources, Fish and Wildlife Division. 260pp.

Payne, N.F. 1989. Population dynamics and harvest response of beaver. Fourth Eastern Wildlife Damage Control Conference. 134 pp.

Split Lake Cree First Nation. 1996. Split Lake Cree Post Project Environmental Review. Volume 1: August 1996.

Swift, T.L., and S.J. Hannon. 2002. Critical threshold responses resident birds to forest cover in eastcentral Alberta. Page 374 in T.S. Veeman, P.N. 94 Duinker, B.J. Macnab, A.G. Coyne, K.M. Veeman, G.A. Binsted, and D. Korber. Proceedings of the 2002 sustainable forest management network conference—advances in forest management: from knowledge to practice, November 2002, Edmonton, AB.

Swift, T.L and S. J. Hannon. 2010. Critical thresholds associated with habitat loss: a review of the concepts, evidence, and applications. Biological Reviews. 85:35-53.

TOTAL E&P Joslyn Ltd (2008). Joslyn North Mine Project Environmental Impact Statement. Calgary, Alberta.

Transport Canada and Fisheries and Oceans Canada. 2007. Comprehensive Study Report: Southern Head Marine Terminal and Associated Works Related to the Crude Oil Refinery Development Proposal. Prepared by SNC-Lavalin Inc.

Usher, P.J., and Weinstein, M.S. 1991. Towards assessing the effects of Lake Winnipeg Regulation and Churchill River Diversion on resource harvesting in native communities in northern Manitoba. Canadian Technical Report of Fisheries and Aquatic Sciences Report 1794. Central and Arctic Region Department of Fisheries and Oceans, Winnipeg, Manitoba. 69 pp.

Villard, M.A., M.K. Trzcinski, and G. Merriam. 1999. Fragmentation effects on forest birds: relative influence of woodland cover and configuration on landscape occupancy. Conserv. Biol. 13(4): 774-783.

Question 22:
Social Impacts

Preamble:
The Panel heard testimony expressing concerns with respect to the protection of First Nations' women.

Question:
a) Can the Partnership outline the variety of mitigation measures it is proposing to be in place to protect First Nations' women?
b) If the mitigation measures don't work, how would the Partnership address this?

Response:
a) Can the Partnership outline the variety of mitigation measures it is proposing to be in place to protect First Nations' women?

The protection of First Nations' women was an important component of the socio-economic assessment under the VEC of Public Safety and Worker Interaction. The assessment is found under Sec. 6.6.5.4 of the Response to EIS Guidelines (pg. 6-477). There is further detail in the Socio-Economic Supporting Volume (SE SV) in Sec. 5.4.1.4, pg. 5-181 through 5-191 for the construction phase; and Sec. 5.4.2.4 on pg. 5-224 for the operation phase. Mitigation measures include those at the construction site (including Camp Rules) and those aimed at prevention and coping.

Measures at the construction site:

- On-site facilities for construction workers to minimize travel outside the camp for entertainment (lounge, gym, exercise equipment, TV area); individual rooms equipped with cable TV and internet.
- Staffed security gate 24/7 to restrict unauthorized visitors to the main construction site as well as the south side construction area.
- Restrictions on use of company vehicles for personal use; and discourage non-northern workers from bringing their personal vehicles to site – to reduce the number of people traveling outside the camp for entertainment.
- Shuttle service to and from airports in Gillam and Thompson for construction workers.
- Cultural awareness training for all Project workers – this is part of the Employee Retention and Support DNC expected to be implemented by FLCN and YFFN. This will provide the opportunity to describe past experiences with hydro development and expectations for respectful behaviour by construction workers at site as well as when visiting communities. This DNC also include on-site counselling for employees.
- Camp Rules administered by a Camp Committee.

Measures for prevention and coping:

- As noted in IR CEC Rd 1 CAC-0081b, Manitoba Hydro has worked with the Town of Gillam and FLCN to establish a Terms of Reference for a worker interaction subcommittee (WIS). This subcommittee includes representatives from these three parties, as well as community health care providers and other stakeholders and service providers in the Gillam area. This committee is intended to provide a coordinated approach to addressing worker interaction issues across all Manitoba Hydro projects in the vicinity of the Gillam area.
    - The Terms of Reference for the WIS were drafted in June 2013 and representatives for the subcommittee were sought and confirmed over July/August 2013.
    - The first meeting of the WIS was held on September 12, 2013, with subsequent meetings held on October 3, 2013, November 7, 2013, and December 5, 2013.
    - These initial meetings have been focussed on the following activities:
        - Identifying and confirming potential issues and concerns from each respective organization/community on the subcommittee
        - Identifying existing or planned mitigation measures for each of the identified issues/concerns
        - Identifying any programs/mitigation measures which exist elsewhere (and not currently existing or planned in the Gillam area) which could be implemented in Gillam to assist in addressing any of the issues/concerns
        - Identifying and discussing ways to address any remaining mitigation gaps
    - The subcommittee will be developing a WIS monitoring plan; this will include accessing existing data collected through monitoring activities by the respective WIS member communities/organizations, as well as identifying any additional monitoring that may be required. The monitoring plan will enable the WIS to identify, and seek to address, any trends of concern in a timely manner.
    - Meetings are planned to continue on a monthly basis until the above activities are completed; subsequently, meetings will be held on a quarterly basis per the terms of reference, with additional meetings as required.
    - The WIS reports to the main committee of the Harmonized Gillam Development.
- In addition to the RCMP being represented on the WIS, there has been ongoing dialogue between Manitoba Hydro and the Gillam and Thompson RCMP to discuss concerns with respect to safety and policing resulting from a large temporary workforce in the region. Manitoba Hydro (on behalf of the Partnership) meets regularly with the RCMP. Discussion has occurred to date on how best to assess and respond to Project impacts related to policing matters in Gillam, Thompson and rural areas including Bird and Split Lake. The RCMP and Manitoba Hydro will review the Wuskwatim experience (2004 to 2012) to understand any trends that may have occurred during the pre-construction, construction and operation phases to inform response.

b) If the mitigation measures don't work, how would the Partnership address this?

The KHLP has in place mechanisms for it and other key parties to be informed of issues when the arise and is committed to addressing any worker interaction issues by working with the relevant parties on a direct and timely basis to identify appropriate actions in the circumstances.

Worker interaction or public safety concerns can be brought to the Partnership's attention in a variety of ways:

- Through the WIS representatives;
- Through the Partner First Nation representatives on the MAC;
- Through each of the Partner First Nation's community liaison officers; and
- Through the Employee Retention and Support counsellors and Project Manager at site.

The Partnership has stated at the CEC hearing through individual testimony its commitment to addressing any worker interaction issues – both Ms. Anderson and Ms. Cole specifically responded to questions regarding worker interaction (excerpts included below).

BACKGROUND DOCUMENTATION - CEC Hearing Testimony Excerpts:

Nov 6, 2013, pg. 2220 to 2221: MS. ANDERSON:

I just wanted to add that, again, there's a worker interaction committee that's been started, and Fox Lake is part of that. But at the same time, like for our community, we look at if there's like a large increase of any substance abuse, any assaults on women, children, or males. But we also have current workers, and our resources in the committee, a NADA worker, which is a National Alcohol Drug Abuse worker. And we have our health staff who also, you know, are aware of these types of issues. And the context that we are in right now, like it's not only the Keeyask project, but right now there are several projects happening around our community in Gillam and Bird.

So, you know, we are already on the --we are already, I guess, monitoring the activity of the workforce in the area, and it's going to continue.

Nov 6, 2013, pg. 2300: MS. COLE:
I talked about it for sure in my presentation, and I believe Janet discussed it as well, is over the next 10 years in the Gillam area in particular there is the potential for a lot of development. And particularly given concerns raised by Fox Lake as well as the other communities, we were very concerned about worker interaction and public safety. And it's one of the key reasons why we've taken a bit of a broader approach that's not Keeyask specific, that looks at establishing at a community level a worker interaction committee that involves key service providers, Manitoba Hydro, the Community of Fox Lake, as well as Tataskweyak Cree Nation, as appropriate, to address those concerns at a community level, regardless of the projects taking place.

Question 23:
Human Health

Preamble:

The First Nations traditional "country food" includes such items as several kinds of fish, moose, caribou, ducks, gull eggs, plants and water; i.e., a diet of foods which may contain mercury. It is possible that a regular weekly/monthly diet includes a combination of such foods. Mitigation measures identified by the Partnership specific to fish include: monitoring mercury levels, providing an advisory on safe levels of consumption for fish, and identifying alternative areas for fishing. Mitigation measures are specific to a particular VEC. A "diet of country food" is not identified as a VEC.

Question:

a) Did the human health risk assessment consider the varied components of country foods in the diet and the cumulative mercury levels?
b) Please explain how the advisories will be derived considering a varied diet.

Response:

a) Did the human health risk assessment consider the varied components of country foods in the diet and the cumulative mercury levels?

Appendix 5 C (Revised, April 2013) to the Socio-Economic Supporting Volume includes Section 5.6 Chemical Interaction Assessment of Various Forms of Mercury. This section essentially looked at the health risk of exposure to multiple country (wild) foods (see pgs. 5C-61 through 5C-65). Risk estimates for combined sources were provided for both present and post-impoundment conditions [Table 5-10, pg. 5C-64 for present conditions; and Table 5-11, pg. 5C-65 for post-impoundment conditions].

It is noted on pg. 5C-62 that fish consumption is the dominant contributor in terms of risk. This is further explained in CEC Rd 1 CAC-0017, which is attached for reference purposes.

b) Please explain how the advisories will be derived considering a varied diet.

Advisories will be prepared in conjunction with provincial and federal health authorities and Manitoba Conservation and Water Stewardship, with monitoring information derived from the Partnership's monitoring programs. As noted in CEC Rd 1 CAC-0017, consumption of fish is recognized by most health agencies as the key source of exposure to methylmercury and evaluation of background non-fish sources is not typically considered or required (see examples from MB Water Stewardship and Health Canada cited in the IR). Mercury monitoring related to fish will be undertaken under the Aquatic Environment Monitoring Plan; reporting will occur through the Monitoring Advisory Committee as well as to regulatory agencies.

As noted in the Human Health Risk Assessment, mercury in country foods other than fish are not expected to add to health risks of those who consume these foods. Nevertheless, the Partnership felt that it was important that Partner First Nation Members who use the local area have the opportunity to put their minds at ease with respect to testing for mercury in these other country foods. The programs of mercury testing of other country foods (e.g., wildlife and plants) outlined in the Terrestrial and Socio-Economic monitoring plans note that this monitoring is of a voluntary nature. Partner First Nation Members will have the opportunity to submit samples for mercury testing. The rationale for voluntary monitoring of, for example, moose, caribou and waterfowl is to avoid suggesting or encouraging the harvest of animals or waterfowl just for the sake of sampling. Any voluntary samples provided will be analyzed for methylmercury and the results provided to the Monitoring Advisory Committee and included in the annual reporting to regulators.

Members from the Partner First Nations have also been aware of the opportunities for hair and blood sampling (also referred to as biomonitoring) through either Dr. Laurie Chan (hair analysis) or through their public health authorities (hair or blood). IR TAC Public Rd 1 HC-0008 (which is also attached) provides a response on why the Partner First Nation members were not originally interested in undertaking biomonitoring; however, each of the communities' leadership is aware of the opportunity to participate in hair and/or blood analysis for mercury.

Question 24:

Housing

The suggestion has been made that camp housing could be repurposed after the Project to address shortages of housing on the KCNs. Is this feasible? Would such housing be suitable? Would it be economically feasible to make such housing available for moving to the KCNs?

Response:

The RFP for the Keeyask Camp Facility included an alternative building proposal option (Re-purposing of the 2000 person dorms into houses) as a purchaser's option. This was also done for the Wuskwatim project. None of the vendors, for either project, submitted any proposals.

A substantial amount of money and safety upgrades would be required to refurbish the multi-story modular unit's electrical, mechanical and structural components for reassembly into housing. Economic analysis indicates that purchasing a new Ready to Move home (modular built) today is more cost effective and addresses the immediate housing requirement than waiting for project completion to re-purpose the old buildings.

Question 25:
Housing

Preamble:
The Panel heard that Thompson has a zero per cent vacancy rate for rental housing. We have also heard concern that some workers may look for rental housing in Thompson for their off days.

Question:
In light of these concerns, please explain why the Partnership believes the Project will not have a significant effect on housing in Thompson.

Response:
Table 4-12 in Section 4.3.2.3 of the Socio-Economic Supporting Volume (SE SV), pg. 4-51 includes the rental property vacancy rates in Thompson between 2000 and 2011. The rate in 2011 was 0.5%. Several planned housing projects in Thompson were also noted.

In terms of workers looking for temporary accommodation during their days off, Table 4-13 on pg. 4-52 identifies the available accommodation as of 2011. The SE SV notes "[t]here were also a number of workers for the Wuskwatim Generation Project staying in Thompson in the early stage of construction; however, this decreased once the main camp was completed." Other projects or agencies putting pressure on temporary accommodation in Thompson include Vale capital projects, cold weather testing, the Northern Regional Health Authority and other construction projects (see pg. 4-52). "In response to this demand, the new Extended Stay Hotel was constructed in 2010, and opened in May 2011; and several apartment-style suites have been built focusing on people staying for a week or a month" (pg. 4-52).

Section 4.4.1.2.3 of the SE SV states there is likely to be "an increase in demand for temporary accommodations, generated by non-local construction workers accessing amenities and services or staying in the community when arriving or departing the region. ... Recent extended stay facilities have helped to reduce the overall strain on accommodations as people coming for stays of one week to one month have other options. It is expected the market will respond to increased demand if plans for the Super 8/Best Western are completed in the near future; otherwise, shortages in temporary accommodation could occur" (pg 5-107).

Residual effects related to temporary accommodation in Thompson were considered to be adverse, short-term in duration, small in magnitude and medium in geographic extent; by definition described in Chapter 5 of the Response to EIS Guidelines, this is not significant.

Question 26:

On-Site Support

KHLP has stated that FLCN and WLFN will be offering on-site social support services for aboriginal workers. Specifically, what type of support services will be offered?

Response:

It is FLCN and YFFN (not WLFN) who will offer this service jointly through the Employee Retention and Support Services contract. The Technical Specification of this contract (the services) was developed jointly with the KCN and Manitoba Hydro and provide within On-Site Counselling, Aboriginal Awareness Training, KCN Site Member Orientation, and Ceremonies.

On-Site Counselling is available to all project staff and covers a wide variety of services some of which are: work adjustment problems, vocational and career issues, cross-cultural adjustments, racial tensions, alcohol, drug and gambling abuse, marital stress, family stress, depressions and anxiety, money management, on-site training and development, and personal health issues. On matters covered by the BNA, the counsellor will direct workers to the appropriate on-Site union representative, which includes an Aboriginal union representative (new for this project). Counsellors are required to take a proactive approach to identifying and trying to address potential problems of individual Aboriginal project workers which includes: 1) meeting each new Aboriginal project worker when they come to site to ensure they are aware of the services; 2) checking in with Aboriginal workers on a regular basis to help address issues which could include meeting with worker's family at home to deal with problems or bringing family to site to deal with issue or arranging for time off to deal with the problems; and 3) maintaining a tracking system so activities occur on a comprehensive and reliable basis.

Aboriginal Awareness Training is required for all project workers at site. All sessions include Manitoba Hydro representation, contractor staff and various Aboriginal community members particularly those of Cree heritage. The purposes of these sessions are to understand and appreciate the cultural differences, beliefs and values of individuals within the various parties/communities working at the site; to enhance comfort in living, working and/or doing business in a culturally diverse environment; to identify barriers and issues between the various parties working at the site; to identify common goals; to develop strategies and an action plan for addressing issues/barriers, reaching common goals and developing and maintaining long-term harmonious relationships; to increase participants' understanding of contemporary issues facing Aboriginal peoples; to challenge participants who have preconceived personal biases about Aboriginal peoples to re-think their assumptions; and to provide participants with information that will promote understanding and respect of Aboriginal cultures enabling participants to work effectively with Aboriginal peoples. For KIP, training is currently offered once a week. This will continue for the project with adjustment to frequency as required.

KCN Site Member Orientation is new for Keeyask at the request of the KCNs. It covers Employee Retention and Support staff regularly visiting KCN communities to inform Members about what to

expect when working on a project so potential job seekers have the ability to address concerns before arriving at site.

Cultural Ceremonies are held to mark various significant events as identified by the KCN. Attendance by all project staff is voluntary and welcomed.

In addition to the Employee Retention and Support Contract which includes counselling services, the Partnership is currently in discussions with the Northern Regional Health Authority (NRHA) to expand the scope to include additional public health programming and others services that may be required. This includes securing an on-site public health care professional who would be responsible for the provision of and/or referral to health promotion and risk management programming (including communicable disease education and prevention measures, if required) and make referrals to appropriate and more comprehensive services at the community or regional level. This health care professional would work with the Medical Services provider, Project counseling services, NRHA and the Partnership to identify and develop adaptive management measures, if required (e.g. expansion of on-site addictions counseling). Services will be available to all site staff, including KCNs members.

Manitoba Hydro continues to work closely with the NRHA to help identify new health service requirements and priorities for incorporation in their 5 year Strategic Plan. This is mutually beneficial for the NRHA and the Partnership in preparing for any additional service requirements that may be needed as the project unfolds.

Two new KCN Site Representatives will be hired as advisors to the resident Site Manager/Engineer. Although specific roles and responsibilities are not yet defined, these positions will be responsible to participate in pre-job meetings and meetings of any Committee constituted under the BNA for the purposes of the Project. It is expected that these individuals will liaise between the various groups, committees, communities, etc. to ensure KCN issues are understood and addressed.

Question 27:

Employment

Section 12.6.3 in the JKDA seems to suggest that a single day's work could count as one person-month of employment and 12 months with a single day's work in them could count as one person-year. ("each Member employed in any such job for one day or more but thirty days or less in each consecutive 30 day period will be considered to have been employed for a month" ... "One person-year of employment shall be calculated as any twelve individual months of employment in accordance with clauses 12.6.3 b and c" p. 109 of the JKDA).

- Is this reading correct?

Response:

Keeyask employment will be tracked for two separate and distinct purposes, using the following methodologies: 1. General monitoring and public reporting (using a standardized methodology consistent with the EIS approach and what has been done for other projects, most recently Wuskwatim) and 2. Monitoring against JKDA commitments.

The reading of JKDA 12.6.3 is correct. It is the result of the negotiated business arrangement between the Project Partners that is not in any way related to project employment predictions, as explained above. JKDA Section 12.6.2 "Construction Employment Target" and the corresponding section 12.6.3 "Measurement of Employment" (of the target), were agreed to as part of the overall contractual arrangement between the partners. If the target is not met, article 12.6.4 "Enhancements to Operational Jobs Efforts if Target Not Met" outlines the requirement for Manitoba Hydro to provide additional dollars to the Working Groups on Operational Jobs (established between the KCN and Manitoba Hydro).

Question 28:

Employment

Section 12.6.3 of the JKDA states that employment of Members in jobs related to the Project commencing after the date of the JKDA will be counted as employment on the Project. Presumably, then, KCN members who have worked on development of the EIS and the KCN assessments, consultations and these hearings would count toward the target of 630 person years.

- Is this correct? If so, can you estimate how many person-years have already been worked since the signing of the JKDA?

Response:

JKDA Section 12.6.3 indicates that all KCN Members from signing of the JKDA (May 2009) employed in jobs related to the project would be counted toward this negotiated arrangement. This would include development of the EIS and the KCN assessments, consultations and the hearings. Again, this negotiated arrangement between the Project Partners has no correlation to employment predictions, but rather additional funding of the Working Groups on Operational Jobs.

As of September 30, 2013 the total towards the JKDA target is 257 person years.

Question 29:

Training

Concerns have been raised that much of the Aboriginal employment on the Project will be at lower pay and skill levels. There has been some description of training programs for workers in skilled trades.

- Could you describe training and employment programs designed to increase the number of Aboriginal employees in managerial positions?

Response:

On the Wuskwatim project, Aboriginal workers made up approximately 40% of the Project's total 6,000 hires. In terms of the level of work, almost half of the Aboriginal hires were carpenters, iron workers, electricians, equipment operators, and other skilled trades.

Efforts are made to assist employees in career advancement at the site. It should be noted that especially on capital projects, there are limited managerial opportunities. However, there are other opportunities in the context of one's job to acquire managerial/supervisory skills. For example, a journeyperson will likely have responsibility for apprentices and/or work crews.

One of the considerations for proceeding with the Keeyask Infrastructure Project (KIP) was the ability to build KCNs capacity through their involvement in the Direct Negotiated Contracts (DNCs). Most of the DNCs have been joint ventures between the KCNs and contractors experienced in the work or service required to fulfill the scope of the work within the contracts. The KCNs play an active role in these joint ventures from their initial establishment to the executive committees set up for contract negotiations and for ongoing operation of the joint venture. Although not a formal training program, the business structure itself provides for active participation of KCNs members in managing the business. As an example, the Employee Retention and Support Contract is a joint venture between Fox Lake Cree Nation (FLCN) and York Factory First Nation (YFFN). One member from each of FLCN and YFFN form the Executive Committee, along with one independent Appointee (to help with decisions if consensus cannot be reached). They are responsible to make all decisions related to the business including hiring of individuals to perform the work. This particular Executive Committee has hired a KCN Member to be the Manager and manage the day to day operations of the business. This is similar to all DNCs, where the KCNs have the ability to directly hire their own Members into any of the positions required to fulfill the terms of the contract, including management and supervisory positions. Many of these contracts will continue on with the Keeyask Generation Project in the same manner as they are currently set up to do.

Question 30:

Training

Please clarify the reference to the HNTEI made in the Socio Economic Supporting Volume (3.3.1.1.) and the reference made to a $62 million training initiative in the JKDA.

- Are these initiatives the same?
- If so, in the JKDA the parties were agreeing to a program that was almost finished at the time of the signing. Is this correct?

Response:

Yes, the $62 million training initiative referenced in the JKDA (Article 12) and HNTEI are the same initiatives. The HNTEI started in 2001 and of the $60.3 million in funding ($62 million less the in-kind contribution from the Aboriginal Partners), $52.7M or 87% of the funding for HNTEI had been provided by March 31, 2009. The JKDA is the comprehensive legal agreement for the Keeyask Generation Project that is the product of the multi-year negotiation process between Hydro and the Cree Partners which began in approximately 2000. As it documents a number of arrangements/agreements already in place prior to its 2009 signing, it includes provisions related to the Wuskwatim and Keeyask Pre-Project Training Initiative (otherwise referred to as HNTEI).

Question 31:

Training

The Panel heard that in citing the number of participants in the HNTEI, the Partnership has used a number that refers to every participant who has successfully completed at least one course.

- Can you please provide some specifics about what type of training was offered, specifically for what trades, occupations, etc.?
- Can you advise as to how many participants completed enough training to become eligible to qualify for good jobs at Keeyask?

Response:

Training was offered in the following areas:

- Designated trades – training towards obtaining journey person status as carpenters, electricians, cooks, crane operators, heavy duty mechanics, iron workers, millwrights, plumbers, welders
- Construction support – caterers, environmental monitors, facility technicians, security guards
- Non-designated trades – heavy equipment operators, skilled labourers, truck drivers, warehousing
- Professional and administrative – includes 2-4 year college or university programs in engineering and business
- Non-occupational training – educational upgrading, life skills, short programs (e.g. Class 5 licensing, safety workshops)

Of the total 2,670 HNTEI participants, 595 completed at least some training in job categories required for Keeyask Generation Project construction (in designated trades as apprentices, non-designated trades and construction support. Of these 595 participants, 242 were from Partner First Nations. This information was provided in section 3.3.1 of the Response to EIS Guidelines and the presentation at the hearings from the Socio-economic, Resource Use and Heritage Resources Panel (page 31 of the presentation slides). The remainder of the 2,670 participants also undertook educational upgrading (209), lifeskills (338), short programs (254), professional and administrative courses (160), designated pre-employment training (320 working towards becoming apprentices) and some did not complete courses (755). Some of these trainees could also be eligible for employment at Keeyask in non-construction related positions.

1876 (70%) of the total participants completed at least one course. There was a 72% success rate for course completions in non-designated trades, 51% in designated trades, and 56% in non-occupational training (upgrading). There were 27 participants who became certified journey persons (21 carpenters, 2 crane operators, 2 electricians and 2 welders) and 140 active apprentices at the end of HNTEI (68 working towards becoming qualified for Level 1, 32 completed Level 1, 25 completed Level 2, 9 completed Level 3 and 6 completed Level 4).

As at October 2013, 172 HNTEI participants have already found employment on the Keeyask Generation Project (including KIP and Keeyask planning and environmental licensing activities). The table below provides the number of hires for these participants.

Classification	***# of HNTEI Hires***	***% of HNTEI Hires***
Carpenter & Millwright	*14*	*4%*
Caterer	*17*	*5%*
Electrician	*3*	*1%*
Labourer	*52*	*14%*
Office & Professional	*13*	*4%*
Operating Engineers (Crane & Equipment)	*42*	*12%*
Other (ERS, Environmental, Future Development, Road Camp staff)	*109*	*30%*
Security Guard	*1*	*0%*
Teamster	*110*	*30%*
Total	***361***	***100%***

For comparison purposes, 189 HNTEI participants found employment at Wuskwatim. The HNTEI hires at Wuskwatim are detailed in the table below:

Classification	***# of HNTEI Hires***	***% of HNTEI Hires***
Carpenter & Millwright	*30*	*12%*
Caterer	*18*	*7%*
Electrician	*5*	*2%*
Insulator	*1*	*0%*
Ironworker & Rodmen	*10*	*4%*

Labourer	*78*	*32%*
Office & Professional	*4*	*2%*
Operating Engineers (Crane & Equipment)	*53*	*22%*
Other	*33*	*13%*
Pipefitter & Plumber	*3*	*1%*
Plasterer & Cement Mason	*1*	*0%*
Security Guard	*7*	*3%*
Teamster	*3*	*1%*
Total	***246***	***100%***

Question 32:

Training

Why was the HNTEI training ended?

Response:

Please refer to CEC Rd 1 CAC-0088a, which stated the following:

"The duration of the Hydro Northern Training and Employment Initiative was tied to the availability of the funding, which was allocated to each of the participating Aboriginal Partners. The bulk of the funding was expended by 2010. Where Aboriginal Partners had funding remaining, they were able to utilize these funds for further training of existing HNTEI trainees. See SE SV Section 3.3.1.1 for additional background on HNTEI."

The Aboriginal Partners, Manitoba Hydro and Manitoba submitted a proposal to the federal Aboriginal Skills and Employment Partnership (ASEP) Program in November 2003 that secured $22 million of the $60.3 million HNTEI funds. At that time it was anticipated Wuskwatim construction would start in 2004 and end in 2010 and Keeyask construction would start in 2007 and end in 2012/13 such that training activities would overlap with the start of construction on both projects. The federal funding was time limited and accordingly had to be used during a prescribed period. A second proposal for additional federal ASEP funding was submitted in 2009 but was unsuccessful. Although the Keeyask Generation Project delay has resulted in a gap between the end of HNTEI and the start of construction, it was and remains anticipated that additional funding from Manitoba Hydro for project related training initiatives will be available in the context of the Conawapa project, which could in turn support trainees hoping to work on Keeyask.

Question 33.1:

Training

Can the training provided under the HNTEI be compared to the Limestone model, where Aboriginal people were trained in everything from bus driving to engineering technology to professional engineering as well as many trades?

Can you advise as to the success of the Limestone training program?

Response:

As noted in the response to question 31 above, HTNEI training was very broad in its scope, which met the objectives and interests of the various funders. HNTEI training was community-led and designed and implemented by the Aboriginal partners for their communities. This addressed a major critique of the Limestone Training and Employment Agency (LTEA), which in contrast was a provincial agency that led, designed and implemented the training. LTEA was developed and coordinated in the south on behalf of northerners and as a result northerners felt excluded from the process. With HNTEI, the Aboriginal partners influenced and determined the training provided within their communities and as such, training focused on areas beyond the scope of hydro construction.

Below is a table comparing some of the outcomes of the two initiatives:

	Limestone	**HNTEI**
Training designed and delivered by	Provincial agency	Aboriginal communities
Funding (in 2010$)	$61M ($41M from 1985-1990)	$60M
Average cost per trainee (in 2010$)	$16,600	$23,500
Journey persons trained	14	27
Active apprentices	192	140

Overall Wuskwatim achieved slightly greater northern Aboriginal employment participation than was achieved on the Limestone project. Northern Aboriginal hires at Wuskwatim represented 28% of total hires, whereas at Limestone, northern Aboriginal hires represented 25% of the total number of hires.

The average rate of turnover among northern Aboriginal hires on the Wuskwatim project was 41% compared to 50% on the Limestone project. Accordingly, the turnover rate for northern Aboriginal hires on Wuskwatim was 9% lower relative to Limestone. At Limestone there was a higher rate of resignation for northern Aboriginal workers then at Wuskwatim (38% compared to 27%). Rates of discharge remained the same across the two projects.

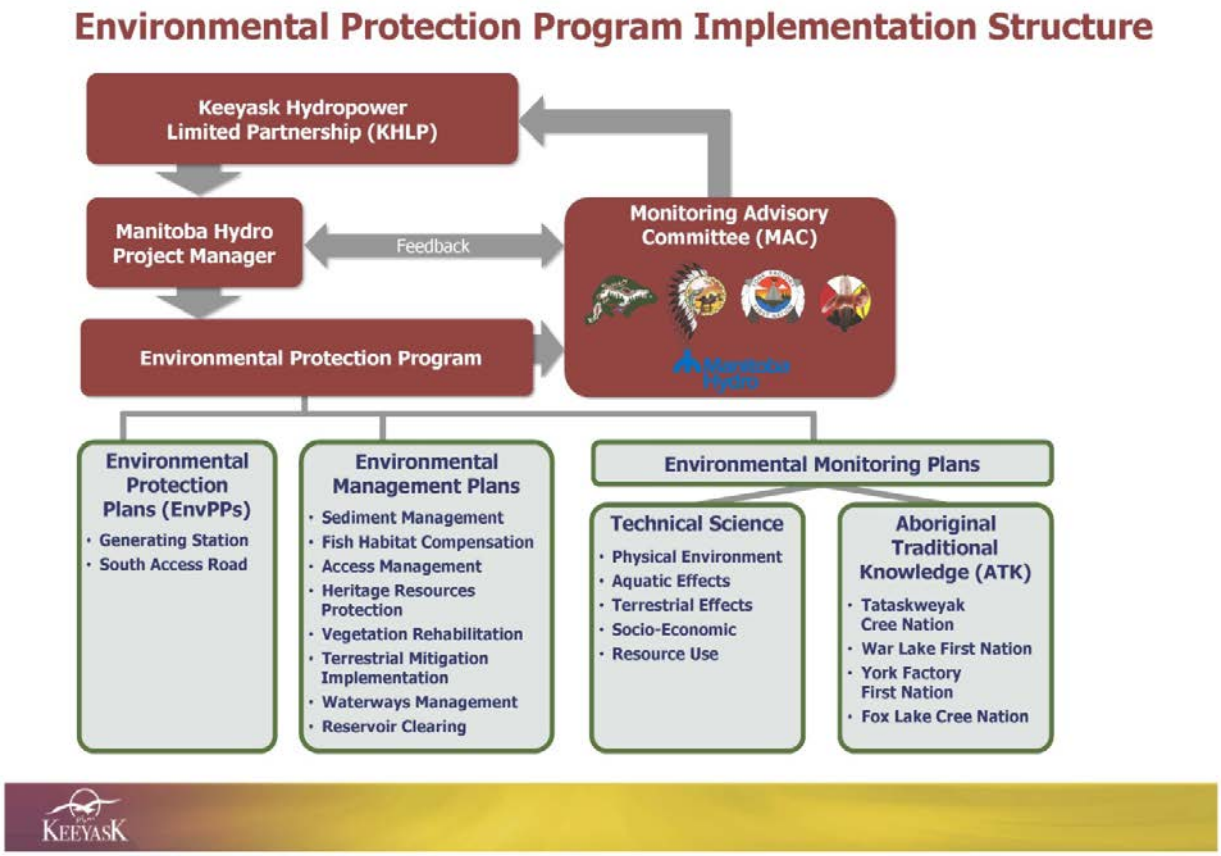
Question 33.2:

Environmental Protection Plan

Could the Partnership provide an overview of the management structure and process for the Environmental Protection Plan (EPP) monitoring programs?

Response:

During the presentation on Moving Forward on Environmental Matters the following diagram was presented.



This diagram indicates that Manitoba Hydro has been delegated responsibility by the KHLP to fulfill the entire Environmental Protection Program. A Monitoring Advisory Committee will be established to oversee the Program and to report back to the KHLP as required. During the Moving Forward on Environmental Matters presentation and the responses to some Information Requests, reference was made to the KHLP Board. This was describing the Board of the General Partner in layman's terms and the response to question 5 outlines in detail the formal legal structure for the Partnership.

Manitoba Hydro, acting in its capacity as Project manager, will enter into contractual arrangement with each of the partner First Nations to undertake ATK monitoring and to prepare reports on the ATK monitoring for regulatory submission. Manitoba Hydro will fulfill the technical science monitoring plans. Some of the activities required to fulfill these technical science monitoring plans will be conducted internally at Manitoba Hydro; in other cases, Manitoba Hydro will contract specialized consultants to undertake the field work and related report preparation. Members of the partner First Nations will be hired to assist in the field studies associated with these plans.

Question 34:

Environmental Protection Plan

Who is responsible for making day to day decisions regarding changes to the Environmental EPP monitoring programs and what is the process and timelines for reporting these changes to the Partnership?

Response:

Typically, day to day decisions are undertaken with respect to monitoring outlined in the Environmental Protection Plans. These are the plans specifically designed for implementation by contractors so that the environment is protected during the course of construction. These types of day to day decisions will be made by Manitoba Hydro in its capacity as project manager and will normally be reported to the Monitoring Advisory Committee at the bimonthly meetings.

If unexpected or unforeseen issues arise, these will be responded to and discussed with the Partners as the circumstances require.

Question 35:

Environmental Protection Plan

Will the Site Environmental Officer, referred to in the GS Construction Environmental PP have the authority to halt an operation or procedure?

Response:

As described in Section 1.4 of the *Keeyask Generating Project: Generating Station Construction Environmental Protection Plan – DRAFT*, the Site Environmental Officer(s) (SEO) for the project is responsible for conducting environmental compliance monitoring to confirm that the terms of the environmental protection plan and other project related permits, authorizations, licences, approvals, regulations and guidelines are followed. The SEO has the authority to issue stop work orders.

Question 36:

Environmental Protection Plan

If heritage resources or human remains are discovered during construction how is the incident handled?

Response:

As per the *Summary of Steps That will be Followed if Human Remains and or Priority Heritage Resources are Found – High, Medium or Low*, located on page 2-9 of the Preliminary Heritage Resources Protection Plan – Registry Reference Number: 11-03-64144, twelve steps are listed that will ensure that heritage resources or human remains are handled in a manner that is culturally appropriate and in compliance with the Manitoba *Heritage Resources Act* (1986) and the Policy Concerning the Reporting, Exhumation and Reburial of Found Human Remains (1987).

Summary of Steps That will be Followed if Human Remains and/ or Priority Heritage Resources are Found- High, Medium or Low [6]

	Communication: The Resident Manager will communicate and work with the Project Archaeologist to determine the scope of attendance at a site.	**Human Remains**[7]	**Heritage Resources**		
	STEPS		**H**	**M**	**L**
1	**Stop Construction** Construction activities at that location will be stopped until the situation is evaluated by Resident Manager (or delegate)[8].	x	x	x	x
2	**Notification (a)** The Environmental Officer and Resident Manager (or delegate) will notify the Project Archaeologist and representatives from all the KCNs (TCN lead). If skeletal remains are identified on-site as human, the Manitoba Historic Resources Branch will immediately notify the RCMP of the findings. Persons designated by the RCMP and/or the Office of the Chief Medical Examiner. The Historic Resources Branch will determine proper jurisdiction.	x	x		
3	**Photography (considerations)** Photographs of the isolated find will be immediately emailed to the Project Archaeologist who will determine the significance of the find. • If advised by the Project Archaeologist, proceed to Notification (b) and Artifact Documentation and Storage.			x	x
	NOTE: If determined to be non-forensic human remains, no photographs or video recordings other than those authorized by KCNs shall be taken.	x			
4	**Notification (b)** The Resident Manager will notify the Project Archaeologist and the Historic Resources Branch; Permit may be under Historic Resources Branch or assigned to Project Archaeologist.			x	x
5	**Establish Buffer** The Resident Manager (or delegate), with the advice of the Project Archaeologist, will establish a buffer around the find.	x	x	x	
6	All human remains and **artifacts** will be left *in situ*, that is, in the same position in which they were discovered and no objects will be removed from the site unless under the direction of Project Archaeologist.	x	x	x	x
7	**Cultural Ceremony** If sacred or ceremonial objects are discovered, KCNs representative(s) working with the Project Archaeologist will arrange for and facilitate the appropriate cultural and spiritual ceremony.		x		
8	**Exhumation of Found Human Remains** A cautious exhumation under the direction of the Historic Resources Branch or Project Archaeologist, and in keeping with KCNs (TCN lead) cultural advice, will be conducted to remove the human remains and any associated grave goods.	x	x		
9	**Archaeological Sites / Artifact Documentation and Storage** Archaeological Investigation will include: surface reconnaissance; shovel tests; data collection; test excavations.	x	x	x	x
10	The find will be located and documented with GPS and relevant data recorded, artifacts documented and prepared for storage	x	x	x	x
11	**Resume Construction** Under the direction of the Historic Resources Branch and the Project Archaeologist, no construction activities will take place within the buffer until archaeological investigation has been completed.	x	x	x	x
12	**Reporting** Reports will be submitted to Historic Resources Branch. Copies of technical data and reports will be submitted to Partnership (list name of appropriate organization).	x	x	x	X

6 Refer to section 2.0 for detailed descriptions of each category.

7 These practices will be followed where the RCMP have determined that they have no interest in the remains under the Fatalities Inquiries Act.

8 In order to determine if the heritage resources are high, medium or low, all finds will require an evaluation as set out in the protocol.

Question 37:

Environmental Protection Plan

Does the Project Archaeologist referred to in the GS Construction Environmental PP have the authority to halt an operation or procedure?

Response:

Yes, the Project Archaeologist, in consultation with the KCN (TCN lead) and the Resident Manager and Environmental Officer and the Provincial Archaeologist can request halt of operation or procedure at the site of the area of interest.

Question 38:

Environmental Protection Plan

Is there a process in place whereby artifacts, heritage resources or human remains discovered during the archaeological assessment process (or during construction activities) can be returned to the KCNs?

Response:

Yes. For artifacts, these will be collected with all relevant contextual detail, cleaned, analyzed and prepared for deposition with the Historic Resources Branch. Once the arrangements for repatriation of artifacts to TCN have been completed the Province will transfer custody to TCN for display purposes in the Keeyask Resource Centre, educational displays and research.

Human remains, if not of a forensic nature will be managed by the Province according to their mandate. As per No. 8 of the Summary, the KCN, with TCN as lead will provide cultural advice and ceremony. Found human remains associated with the Keeyask Generation Project will be reinterred in a yet-to-be-determined site along the North Access Road. Four sites will be examined by the KCN, the Project Archaeologist and Manitoba Hydro representatives in the spring of 2014.

Question 39:

Environmental Protection Plan

Is there or will there be a similar agreement as was negotiated with NCN on the Wuskwatim project (see exhibits KK 013,014, 015, 016)?

Response:

In August 2006, an *Agreement for a Protocol for the Protection of Heritage Resources and Aboriginal Human Remains Related to the Wuskwatim Generating Project* was signed by NCN, MH and the Province of Manitoba. This Agreement provided for the protection of heritage resources and to achieve Kwayaskonikiwin (reconciliation) in respect of heritage resources that may be found, discovered or disturbed during construction activity associated with the building of the Wuskwatim Generating Station. The 2006 Agreement, which arose out of the May 2005 Agreement in Principle between NCN and the Province of Manitoba, included a commitment by the Province of Manitoba and NCN to develop an NCN-Manitoba Heritage Resources Agreement for the Nelson House Resource Management Area. The 2006 Agreement concluded at the end of Wuskwatim construction and NCN and the Province continue to discuss the broader NCN-Manitoba Heritage Resources Agreement.

Preliminary discussions and correspondence with the Provincial Archaeological Assessment Branch involving the Cree Nation Partners have occurred to date. These preliminary discussions between Cree Nation Partners and Manitoba indicate that Heritage Agreements for the Keeyask Generation Project would be possible. The KHLP has not been involved in any negotiations or discussions to this point however and no agreements have been finalized. Such agreements would not necessarily mirror the 2006 NCN Agreement, as they would be specific to the interests of each of the KCNs. Further discussion regarding such agreements will occur among the KCNs, the Province and MH.

Question 40:

Environmental Protection Plan

How are differences and uncertainty between the ATK EPP monitoring and western science EPP monitoring addressed? Please describe the process for how these will be resolved?

Response:

The Monitoring Advisory Committee will be the forum for discussing monitoring results. If results differ between ATK monitoring and western science monitoring the approach to be taken to resolve the differences will vary and will be determined on a case-by-case basis. There are numerous parameters being monitored for the Project and the degree of difference also needs to be considered, so there is not a "one size fits all" approach that the MAC will implement to address any discrepancies. It may be determined that additional monitoring is required to obtain more information or that the ATK information holders need to review information jointly with western scientists. In some cases it may be simple to undertake additional mitigation to address the difference.

Question 41:

Environmental Protection Plan

Have specific benchmarks and thresholds been established for the various components of the EPP monitoring programs?

Response:

The draft monitoring plans are being revised and benchmarks and thresholds for change are being incorporated where it is reasonable to do so.

Question 42:

Environmental Protection Plan

Who will be responsible for determining when mitigation measures should be applied and how will this be reported?

Response:

Mitigation measures to be implemented have been outlined in the Environmental Protection Program documents and in the EIS. In a few cases there is still ongoing discussion with regulators to finalize the mitigation that will be undertaken (some of the fisheries compensation measures and terrestrial mitigation measures) and in some cases it has been determined that long term monitoring must be undertaken before it can be determined if mitigation is necessary (for example fish passage).

Determining if additional or alternative mitigation measures are needed will depend on the situation. If there is an immediate issue that must be addressed Manitoba Hydro, as project manager, will take the necessary action. This was described during the Moving Forward on Environmental Matters presentation and is captured in the transcripts on page 3519. In other cases there will be more time to consider monitoring results and discussion will occur at MAC and in some cases between regulatory agencies and members of the KHLP. Examples can be found on pages 3522-3533 of the transcripts.

This will be reported as part of the regular reporting mechanisms – annual reports to MCWS, the summary monitoring report and at community information sessions.

Question 43:

Environmental Protection Plan

Will a monitoring program be established for mitigation measures and at what point will Adaptive Management (AM) be considered?

Response:

The current draft monitoring plans include monitoring of mitigation measures. One of the fundamental features of the monitoring plans is to evaluate the effectiveness of mitigation in reducing environmental and social effects of the Project.

See Question 42 for additional information on adaptive management.

Question 44:

Environmental Protection Plan

When Adaptive Management is implemented how will it be monitored and reported?

Response:

Monitoring plans will be adapted to incorporate monitoring of the additional or alternative mitigation. The monitoring will be reported in the same manner as the rest of the monitoring; annual reports to the regulator, monitoring summary document, and at community information sessions.

Question 45:

Environmental Protection Plan

Appendix C of the GS Construction Environmental PP was to identify all project licences, approvals and permits but was not filled out. Could the Partnership provide a list of these?

Response:

The intent of Appendix C is to provide a hard copy of environmental licences, permit and authorizations for easy reference by the Site Environmental Officer and contractors while they are working on the project. It is not meant to contain an exhaustive list of all permits acquired during the project (i.e., building permits, food handling permits, quarry leases, etc.)

Should the project be licensed and once the documents are issued, Appendix C will contain a copy of the *Manitoba Environment Act* Licence for the Keeyask Generation Project, any/all *Fisheries Act* Authorizations issued by the Department of Fisheries and Oceans Canada, and work permits issued under the provincial *Crown Lands Act*.

Question 46:

Environmental Protection Plan

Section 1.7 “Reporting and Communication” of the GS Construction Environmental PP indicates that Manitoba Hydro will prepare an annual report on the compliance monitoring undertaken in connection with the construction of the Project. Please provide an overview of environmental non-compliances that occurred during the Wuskwatim Project? What were the most common environmental non-compliances or problems? How significant were these?

Response:

Environmental Protection Plan non-compliances that occurred during construction of the Wuskwatim Project include, installation of culvert stream crossing without first constructing a water diversion structure, inadequate erosion and sediment control along the access road during construction, seeding the access road right of way with a mix that contained invasive species, clearing trees into standing timber, feeding wildlife, improper garbage disposal, soil contamination from bulk fuel tanks and a flare up caused by an improperly extinguished fire.

The most common/repetitive environmental non-compliance item included litter around the site that attracted wildlife. Each of the aforementioned non-compliance items was reported to the regulator.

The most significant non-compliance item pertaining to the Wuskwatim project occurred when Manitoba Conservation and Water Stewardship issued a warning to the WPLP for failure to comply with the Manitoba Environment Act Licence in regards to proper disposal of waste at a permitted or licensed waste disposal ground.

All non-compliance items were reported, immediate steps were taken by site to correct the problems, including issuing corrective action reports to the contractor, applying various mitigation techniques to reduce or eliminate the effect and continually educate site personnel about the importance of environmental compliance. This information is also included in the annual report on compliance monitoring.

Question 47:

JKDA – Adverse Effects Agreements

Provide a listing of the conditions/clauses/elements in the JKKA and the Adverse Effects Agreements that apply to environmental management and monitoring for both the Keeyask site and offsetting locations. Specifically, how were/are they incorporated into the Keeyask Generation Project EPP, monitoring plan(s) and project oversight?

Response:

Joint Keeyask Development Agreement

The **Joint Keeyask Development Agreement** is a contractual arrangement between Tataskweyak Cree Nation and War Lake First Nation (operating as the Cree Nation Partners), York Factory First Nation, Fox Lake Cree Nation and the Manitoba Hydro Electric Board. The following are the pertinent clauses related to environmental management and monitoring. Specifically they detail the agreement between the signatories to the JKDA with respect to the Monitoring Advisory Committee, Hydro's responsibility for monitoring activities as a Management Service and Monitoring for Adverse Effects (anticipated and unanticipated).

4.7 Advisory Committees

4.7.1. **Hydro** will cause the **General Partner** to establish on or before the **Initial Closing Date**, a **Construction Advisory Committee** and a **Monitoring Advisory Committee**, with terms of reference as set forth in Schedules 4-6 and 4-7 hereto, respectively. **Hydro** shall cause the **General Partner** not to allow amendment of the **CAC Terms of Reference** or the **MAC Terms of Reference** without the prior written consent of the **Keeyask Cree Nations**, acting by a **KCN Majority**, which consent may not be withheld unreasonably, provided that **Hydro** shall cause the General Partner to ensure that no change will be made to such terms of reference that would alter the proportionate representation of either **York Factory** or **Fox Lake** on such committees without the prior written consent of **York Factory** or **Fox Lake**.

9.1 Management Services

9.1.1 The **General Partner** will delegate to **Hydro** and **Hydro** will agree to provide and perform, or to procure, the following services and functions:

(i) Undertaking such follow-up, monitoring and reporting activities, including to the **Monitoring Advisory Committee,** as may be necessary or desirable or, in some cases, as may be required by **Regulatory Authorities**, in order to assess the accuracy of predictions, clarify uncertainties and track **Keeyask Project** induced changes to the environment and socio-economic conditions and generally monitoring and reporting

periodically to the board of the **General Partner** on the performance of the **Keeyask Project**

(j) implementing and administering the **Reservoir Clearing Plan** and the **Waterways Management Plan** and all **Environmental Protection Plans** (except during the **Construction Period**, when **Environmental Protection Plans** will be implemented and administered by the **Project Manager** under the **Construction Agreement**)

Article 11 Adverse Effects of the Project

On-Going Monitoring for Adverse Effects

11.2.7 The **Limited Partnership** will conduct such on-going monitoring as it considers necessary or desirable or as may be required by **Regulatory Authorities**, in order to assess the validity and accuracy of the predictions in the EIS regarding the adverse effects of the **Keeyask Project**. It is acknowledged that the **General Partner** has delegated this responsibility to **Hydro** pursuant to subsection 9.1.1 of this **JKDA**.

Unanticipated Adverse Effects

11.2.8 If the information obtained from on-going monitoring subsequently discloses unanticipated adverse effects caused by the **Keeyask Project**, then such adverse effects will be addressed by the **Limited Partnership** as set out in the **KCN Adverse Effects Agreements** and in any other adverse effects agreements entered into by the **Limited Partnership**.

Note: Words/terms are bolded as they are defined terms in the JKDA.

Adverse Effects Agreement

There are a number of sections in the Adverse Effects Agreements that relate to environmental management and monitoring, as outlined in the table below:

Section	Tataskweyak AEA	War Lake AEA	Fox Lake AEA	York Factory AEA
Land Stewardship Program	3.4.2	N/A	N/A	N/A
Environmental Stewardship Program	N/A	N/A	N/A	3.3
Coordination with Resource Management Board	6.1.1	6.1.1	6.1.1	3.5.1

Annual Program Reports on Offsetting Programs	6.3.1	6.2.1	6.2.1	Schedule 3 Trust Term Sheet ("Reporting to Members")
Monitoring Commitment	8	8	8	6
Exceptions to Release and Continuing Liability	14.4	12.4	12.4	11.4
Fundamental Operating Features	12	N/A	N/A	10

Tataskweyak Cree Nation and York Factory First Nation both developed programs that include a monitoring component. In the case of the Tataskweyak Cree Nation "Land Stewardship Program", one of the purposes of the funding is "hiring of staff to monitor land use in the Split Lake Resource Management Area, and to provide support to TCN representatives involved in work of the Resource Management Board". The monitoring activities undertaken pursuant to this program will relate to the implementation of the offsetting programs, but may also consider land use in the RMA more generally. TCN representatives may bring forward certain issues to the MAC for consideration; at this time there is no formal link between this program and the Environmental Protection Program but this may change once the programs are in place.

The York Factory AEA includes the "Environmental Stewardship Program", the objective of which is to "provide York Factory with the capacity to monitor and assess potential environmental changes resulting from Keeyask Adverse Effects, including potential environmental changes resulting from implementation of Offsetting Programs."When the AEAs were under negotiation, YFFN identified a number of community specific concerns. While there are a number of Keeyask monitoring provisions in place related to the monitoring of adverse effects, YFFN determined that the community had an interest in establishing an additional program to enable them to conduct monitoring activities of specific concern to their community.

All of the Adverse Effects Agreements include provisions related to coordination with the local Resource Management Board with respect to the management and administration of the offsetting programs. The Annual Program Reports, which are to be provided to members, provide an additional oversight mechanism for community members with respect to the implementation of the Offsetting Programs.

Each of the AEA includes an article related to monitoring. As described in the agreements, once the scope of planned Keeyask monitoring activities pursuant to the closing licences is known, Manitoba

Hydro and each of the First Nations will determine whether or not additional monitoring, relevant to Keeyask adverse effects, is required and the scope and duration of such monitoring.

Any monitoring activities undertaken pursuant to the AEA Monitoring Article would be in addition to the Environmental Protection Program and would be funded under a separate process. Such information may be tabled at Monitoring Advisory Committee (MAC) meetings if it is determined that the information is necessary for understanding Keeyask effects by MAC participants.

The Adverse Effects Agreements do not provide a release for “Keeyask Adverse Effects… that were, at the date of this Agreement, unknown and/or unforeseen”. The identification of an unknown and/or unforeseen adverse effect could be discovered through Environmental Protection Program monitoring or the AEA specific monitoring provisions.

Question 48:

Debris Management

Will data collected through Manitoba Hydro's Waterways Management Program regarding the types and quantities of debris removed upstream and downstream of the generating station following forebay impoundment, be used along with relevant information collected during construction to determine if the debris environment changes as a result of operating the generating station, similar to the program that exists for Wuskwatim?

Response:

The Keeyask Generation Project will change the debris environment as a result of flooding terrestrial areas and reservoir expansion during operation. In recognition of this fact and concerns about debris expressed early on by the Cree Nation Partners, the Joint Keeyask Development Agreement commits to the implementation of the Reservoir Clearing Plan and the Waterways Management Program (the Program) to mitigate the potential impacts of debris within the reservoir. The Partnership's response to interrogatory CEC Rd 1 CAC-0052c notes the following with respect to the Program:

"The Partnership has committed to the implementation of a Waterways Management Program (the Program) as part of the Joint Keeyask Development Agreement (JKDA, Schedule 11-2). As a service to the Partnership, Manitoba Hydro will implement the Program. Manitoba Hydro currently has a Waterways Management Program in place throughout the Churchill River Diversion and Lake Winnipeg Regulation waterways, as well as the Saskatchewan River watershed areas. In part, the objectives state that the Program will be implemented "to contribute to the safe use and enjoyment of the waterway from Split Lake to Stephens Lake throughout the pre-flooding and operational stages of the Keeyask Project". The JKDA commits the Partnership to review program capacity to ensure that it is able to meet the objective of contributing to the safe use of the waterway, which includes removal of debris that poses a hazard to navigation."

The Keeyask Program will specifically monitor and manage debris due to the Keeyask Generation Project from Split Lake to Stephens Lake, similar to the implementation of a specific program to address effects due to the Wuskwatim project. Program implementation will include the collection of information such as the location, types and quantities of debris removed to support the Partnership's ongoing review of the Program's capacity to meet its objectives. This is noted in the response to CEC Rd 2 CAC-00138a: "*In the event that the level of debris exceeds the capacity of the Waterways Management Program, the Partnership will review and adapt the program as required*"; and is further elaborated upon in the response to CEC Rd 2 CAC-0138b: "*There are two components to the process: removal and monitoring. The debris is removed and then the debris information is recorded using GPS technology and downloaded into a database. Adjustments related to removal and monitoring are then made based on the information that is gathered.*"

Question 49:

Monitoring

Regarding its monitoring process for the terrestrial and aquatic environments, is the Partnership willing to depart from the results of its VEC approach and investigate alleged project- related impacts on certain species (not determined to be VECs) based solely on information from local residents?

Response:

The Partnership has taken an ecosystem based approach and will be monitoring both the VECs, the components that support them (e.g., benthic invertebrates which provide a source of food), and a variety of non-VEC priority species of interest to local communities (e.g., aquatic and terrestrial furbearers). ATK monitoring programs will also be conducted concurrent with the scientific monitoring programs. If an effect on a non-VEC species is reported through the ATK monitoring program, the effect will be discussed at MAC to determine if the change is potentially linked to the Project. If ATK indicates that the change is potentially linked to the Project, the Partnership will attempt to determine why the change occurred, the magnitude of the change, and potential linkages between that component and other components (e.g., will a change in a non-VEC fish species result in future changes to other fish species that may use it as a food source). The component will then be monitored and, if appropriate, adaptive management will also be used to mitigate the effect.

Question 50:

Monitoring

With respect to all of the monitoring activities conducted by Manitoba Hydro and its partner regarding the Wuskwatim Project from 2006 to date, were there any deficiencies or "gaps" that became apparent either in the monitoring process itself or with what was or should have been monitored? If so, what were they and what corrective measures were taken? Also, have those "risks" been dealt with in the proposed monitoring plans for the Keeyask Project?

Response:

For the aquatic, terrestrial, and physical environment monitoring undertaken to date for Wuskwatim, no deficiencies have been identified by Manitoba Hydro and its consultants, the MAC or through review of reports by regulators.

For the socio-economic monitoring no deficiencies or "gaps" have become apparent either in the monitoring process itself or with what was or should have been monitored.

One minor thing that became apparent during the monitoring efforts on employment is that Manitoba Hydro was not able to report on NCN person years of employment during construction. This was not a gap for Wuskwatim, but has been a lesson learned that has been applied to Keeyask. Information on NCN hours worked was not available from contractors. The information was in broader categories of northern Aboriginal, total Aboriginal, etc. The number of NCN hires and employees was reported on at regular intervals – just not person years for NCN, specifically. Reporting on total NCN person years as at project end is being completed now. The data collection that is being done for the Keeyask Infrastructure Project and that will be in place for Keeyask is such that person years for each of the KCNs can be reported on during construction. Contractors are providing information on hours worked for KCN members to enable this calculation.

Also, the Wuskwatim EIS indicated that a coordinated response committee would be established for socio-economic related issues. Following the start of Wuskwatim construction, NCN chose to address socio-economic issues and concerns at the Chief and Council level and through the MAC, rather than establishing the coordinated response committee. The results of a mid-Project worker family survey and a post-Project key person interview program with service providers in Nelson House are being used to inform the implementation of socio-economic monitoring and mitigation at Keeyask.

Question 51:

Monitoring

Page 2 of the Draft Aquatic Effects Monitoring Plan (AEMP) indicates that the AEMP will be provided to and discussed with DFO and MCWS. Can the Partnership provide a general overview of how it will report to Manitoba Conservation on its monitoring activities (for the terrestrial, aquatic, physical, resource use, heritage and socio-economic environments) during construction and operations? How regular is the reporting? What is included in the Reporting? Are the Reports or components of them to be made public?

Response:

It is anticipated that the Manitoba Environment Act Licence, if granted, will include a clause on reporting the results of monitoring to Manitoba Conservation and Water Stewardship and that clause, if consistent with other recent licences, will likely require annual reporting of results. The monitoring activities undertaken in any given year will have a report prepared on the data collected and analysis of that data. In many cases there will be comparison to baseline information and if necessary there will be recommendations made in the reports.

Not every parameter is monitored every year, but if a parameter is studied information on it will be included in a report. In any given annual submission to MCWS there will be several reports submitted. These reports will be made public via the Keeyask website and through the MCWS public registry.

If unforeseen effects are detected then reporting and discussions will take place with MCWS to address the issue at a frequency greater than the regular annual reporting.

Question 52:

Monitoring

Has a preliminary assessment been done to estimate the extra work required by some Manitoba government departments (e.g., Manitoba Conservation, Manitoba Infrastructure and Transportation) because of the monitoring associated with the Project? Please identify all of the affected departments and give some indication of the increased workload each will be facing.

Response:

The KHLP has been regularly communicating the scope and schedule of the various Project requirements throughout the process, so that the various provincial departments have ample lead time to prepare for the various responsibilities during the various phases. This regular communication includes not only the Keeyask Generation Project, but all other ongoing/upcoming Manitoba Hydro Projects. For the Keeyask Generation Project, communication and interaction including monitoring with the Province included introductory sessions before and soon after the regulatory process was triggered, submission by the KHLP of preliminary versions of monitoring plans in 2012 (included in Chapter 8 of the EIS), involvement in various technical workshops starting in 2009 and including the fall of 2012 and spring of 2013, and the various rounds of TAC-Public Information Requests, which included questions about monitoring plans.

In general terms, it is not expected that monitoring activities would require any substantial involvement of Manitoba Infrastructure and Transportation, but would primarily involve staff from Manitoba Conservation and Water Stewardship's (MCWS) fisheries and wildlife branches, and the Culture, Heritage and Tourism department's Historic Resources Branch. Fisheries Branch staff will participate in regular meetings on aquatic monitoring and follow up work (with the federal department of Fisheries and Oceans Canada) and Wildlife Branch staff will participate in meetings on terrestrial issues such as caribou. The Historic Resources Branch will become involved if human remains are unearthed as a result of the project.

Once the Licence for the Project is issued, meetings will be initiated with relevant provincial departments to confirm monitoring requirements and associated responsibilities for all parties. As an example, the regional MCWS staff in Gillam have been very engaged with the Keeyask Infrastructure Project to date, so to the Partnership's knowledge that level of engagement will continue for Keeyask.

Question 53:

The Panel heard testimony that both the Northern Flood Agreement and the report of the Aboriginal Justice Implementation Commission include provisions requiring consultation and/or consent from aboriginal groups prior to further resource development.

Article 9.2 of the NFA states: "Hydro shall not make any decisions in respect to any such future developments unless and until a process of bona fide and meaningful consultation with the communities has taken place."

Article 4.1 of the AJIC report states: "Any future, major, natural resource developments not proceed, unless and until agreements or treaties are reached with the Aboriginal people and communities in the region, including the Manitoba Métis Federation and its locals and regions, who might be negatively affected by such projects, in order to respect their Aboriginal, treaty, or other rights in the territory concerned."

Please clarify how these statements have been interpreted and applied for the Keeyask project?

Response:

Article 9.2

Article 9.2 of the NFA was negotiated and drafted prior to December 16, 1977. Since that time there have been significant changes in the areas of environmental law and Treaty and Aboriginal Rights, which are part of the current context.

Article 9 is part of an Article of the NFA which relates to "Notice to Parties" and, when it refers to "future developments" it is referencing developments, as described in Article 9.1, "affecting the Rat or Burntwood or lower Churchill Rivers, or the Nelson River, or any tributary thereto or lake thereon, which may affect any one or more residents of the Reserves". In that context Article 9.2 is referencing a development that would affect certain waterways which in turn could potentially impact the residents of one of the NFA First Nations.

The notice of a future development is to be given to each of the NFA First Nations and to the Regional Director General of Indian Affairs. Although the notice is provided to the Regional Director General Hydro's obligation is to undertake a bona fide and meaningful consultation with the NFA First Nations.

The language is general in nature but has been considered with each of the NFA First Nations and Manitoba Hydro in the context of undertaking such consultations and in the context of drafting more specific and certain provisions in relevant implementation agreements. In each instance this process has, at the minimum, included:

1. A detailed project description;
2. Identification of potential impacts associated with such a development;

3. Consultation with the representatives of the First Nations about the potential impacts and how they might affect the First Nation or its members;
4. Consultation about how any potential impacts could be avoided, mitigated or addressed through compensatory (offsetting) programs, compensation in kind or monetary compensation;
5. Consideration of any studies or investigations of any issue of particular concern;
6. Consultation about potential opportunities that might be available to the First Nation or its members arising from the proposed development with particular emphasis on training, employment and business opportunities; and,
7. Provision for funding by Manitoba Hydro to cover the First Nations costs of participating in the consultations.

Consultation is necessarily a two-way process. It involves exchanges of information, active and interactive listening, serious consideration of the information exchanged, a process through which each party can articulate what it has heard, open communication and dialogue. A bona fide and meaningful consultation requires the support and participation of both parties to the process in a similar fashion.

The Cross Lake First Nation/Pimicikamak is the only NFA First Nation which does not have a more detailed set of consultations arrangements related to future developments. This process for the other NFA First Nations has been superseded by the specific provisions of their respective implementation agreements. The Article 9.2 process continues to be the basis upon which Manitoba Hydro consults with Cross Lake/Pimicikamak in relation to future development. As a consequence Manitoba Hydro and Cross Lake/Pimicikamak have had a number of detailed discussions about Article 9.2.

There is agreement that Article 9.2 is not a process generally open to the public but representatives of Manitoba have been invited to attend and have attended but as observers not as participants. It is agreed that there are many areas of overlap between the Article 9 process and the Environmental Assessment process and that although the EA can inform the Article 9 process it does not replace the Article 9 Process. There is agreement that information identified in the Article 9 process and relevant to the EA process should be provided to the EA process. There is agreement that the Article 9 process is similar in many respects to the Section 35 consultation process but the Section 35 process does not include Manitoba Hydro unless invited.

Although Cross Lake/Pimicikamak and Manitoba Hydro do not always agree on all aspects of the Article 9 process they continue to work together and to date there has been no dispute that has been referred to the NFA Arbitrator for resolution.

AJIC Report

After delivery of the Aboriginal Justice Inquiry (AJI) report, the Government of Manitoba appointed the Aboriginal Justice Implementation Commission (AJIC) to review the recommendations made in the AJIC and to propose to government methods of implementing appropriate AJIC recommendations. The AJIC delivered its final report to Manitoba in March 2001.

It should be noted at the outset that these were recommendations directed to Government and as such do not have the force of law. The Government in its discretion determines implementation priorities and the manner in which these recommendations will be implemented. It should also be noted that these recommendations involve matters of law and policy which are beyond the mandate and competence of KHLP and Manitoba Hydro.

This was after the decision of the Supreme Court of Canada in *R. v Sparrow*, [1990] 1 S.C.R. 1075. However subsequent to that Report the issue raised at Article 4.1 has become one of increasing complexity resulting in a broadening of the requirements placed on project proponents to consult and resolve concerns and upon the Crown with respect to its need to consider Aboriginal and Treaty Rights in the context of Crown decision making. Crown decision making in the context of potential impacts on Aboriginal and Treaty Rights has been considered in a number of seminal Supreme Court of Canada cases. These include, but are not limited to:

***Haida Nation v. British Columbia*, [2004] 3 S.C.R. 511 and *Taku River Tlingit First Nation v. British Columbia*, [2004] 3 S.C.R. 550**

These two cases established the origin, nature and scope of the duty of consultation and accommodation even where an Aboriginal Right although asserted, had yet to be proved or accepted. .

The duty was created to make the Crown (not private parties) engage in a dialogue with Aboriginal groups, especially when making resource allocation decisions notwithstanding that a right had not been formally proved in court. The duty arises when the Crown has real or constructive knowledge of an Aboriginal rights claim and contemplates a governmental action, decision or allocation action that could adversely affect the right. Depending on the strength of the claim and the nature of the impact, the duty could range from notice of a potential decision to allowing an Aboriginal group the right to make submissions, participating in the decision making process and being provided with written reasons. In carrying out such actions generally, the Crown must act honourably and with a view to reconciliation with Aboriginal peoples.

The Supreme Court of Canada has laid out the requirements that the Crown must meet in proceeding with or permitting any development that could impact the exercise of Treaty and Aboriginal Rights. It is based on the Honour of the Crown and does not require the Crown to reach agreements or treaties with the Aboriginal people in order to respect their Aboriginal, Treaty, or other rights.

The KHLP notes that the Government of Manitoba and the Government of Canada are each carrying out the required government to government consultations with various First Nations and other Aboriginal groups in connection with the decisions which each government will be required to make. The First Nations and other Aboriginal groups included in the consultation were determined solely by the governments. These consultations do not by and large involve the KHLP but does utilize and rely upon the environmental assessment materials prepared by the KHLP as necessary for background and context.

With respect to the actions of KHLP and Manitoba Hydro we would make the following observations:

- In its initial planning stages Manitoba Hydro determined that the Keeyask Generation Project would likely constitute an "Impacting Future Development" for Tataskweyak Cree Nation, War Lake First Nation, York Factory First Nation and Fox Lake Cree Nation. This determination in turn engaged the Future Development provisions of various agreements with the First Nation partners.
- As pointed out above there has been engagement with Cross Lake First Nation/Pimichikamak in accordance with Article 9 of the NFA and the NFA in its entirety continues to be available to parties in connection with the Keeyask Generation Project.
- The Government of Manitoba has declared the NFA to be a "Modern Day Treaty".
- The discussions which flowed under the provisions of the various agreements culminated in Joint Keeyask Development Agreement and formation of the Keeyask Hydropower Limited Partnership.
- Those same discussions also resulted in the individual adverse effects agreements with each First Nation.
- It should also be noted that the members of the two concerned citizens groups are equally entitled as are all First Nation members to the benefits flowing under the respective Adverse Effects Agreements
- With respect to the portion of the recommendation pertaining to the MMF it seems reasonably clear that to this point in time no rights bearing Métis community has been identified in the Keeyask area. The proponent continues to await completion of the work undertaken by the MMF.
- While government has come to an accommodation with the MMF in certain portions of Manitoba, the proponent must wait upon government to frame and resolve the issues of Métis rights and interests in the area of the province which includes the Keeyask Generation Project.

It must also be borne in mind that in addition to these overarching agreements the proponent will compensate individuals who suffer direct loss and/or damage which may accrue as a result of the project.

The important words of the recommendation are "who might be negatively affected". The assessment carried out by the proponent suggests that the position taken by certain of the intervenors is not sustainable in that there is no pathway of effect or assertion that can be reasonably made to support an allegation of negative effect.

It is noteworthy that the recommendation has to be read in the context of Manitoba Hydro's statutory obligation under *The Manitoba Hydro Act* to ensure an adequate supply of electricity for the province. There is an inherent conflict between the recommendation and the duty imposed on Manitoba Hydro by Government.

Finally, the last arbiter of issues regarding this recommendation is the Government itself and in assessing this project through the lens of its aboriginal consultation duty will determine whether the degree of implementation of this recommendation is satisfactory to it.

Question 54:

KHLP has stated that construction is to (must) start in the summer of 2014. How will it be possible given:

- CEC report will be filed in mid-April;
- PUB is scheduled to file its report in June;
- Uncertain when Aboriginal consultations report will be filed;
- If approved then a licence will take a month or two; and
- The tendering process needs to be completed?

Please comment on the scheduling impacts considering the conditions provided above.

Response:

The first four bullets (timing elements) are at the discretion of the Federal/Provincial governments, the CEC and the PUB. The Partnership is hopeful that each of these entities, being aware of the Project schedule and consequences of delay, will make their respective recommendations and licensing decisions within the expected timeframe to protect a summer 2014 construction start.

The tendering process for the General Civil Works for the Keeyask Generating Station has started and proposals have been received and are currently being evaluated by Manitoba Hydro, with the intent of seeking Manitoba Hydro Electric Board approval of the successful bid and award in early 2014. The successful General Civil Contractor (GCC) would then begin preparations to be in position to mobilize and commence construction in July, 2014. Concurrently, Manitoba Hydro is in the process of completing the infrastructure and the construction preparations prior to July 2014.

Construction of the Keeyask Generating Station must start in July 2014, to enable a 2019 In-Service Date (ISD). In the event of a one month delay Manitoba Hydro expects that it could protect the 2019 ISD. The impact of a two month delay is uncertain due to factors such as weather. If construction does not start prior to September 2014, it is expected that the 2019 ISD would not be achievable. Due to the seasonality of the cofferdam construction, a delay in the order of three months in construction start would result in a 12 month delay of the Keeyask ISD. Delay of the Keeyask ISD to 2020 will increase the in-service capital cost by $250M - $300M due to the additional escalation and interest costs, plus the additional one year of ongoing project process costs (including environmental monitoring, engineering, construction preparation, community participation and regulatory process costs). In addition to the increase in capital costs, there will be production cost increases due to the loss of one year energy production.

Question 55:

A number of times different participants said that MH charges more for power on the North than in the South – please confirm that rates are the same North and South in the Province.

Response:

Uniform rates for customers on Manitoba Hydro's electrical grid are mandated by Section 39(2.1) of *The Manitoba Hydro Act*, R.S.M. 1987 c. H190 which reads:

"Equalization of rates

39(2.1) The rates charged for power supplied to a class of grid customers within the province shall be the same throughout the province.

Interpretation

39(2.2) For the purpose of subsection (2.1),

(a) grid customers are those who obtain power from the corporation's main interconnected system for transmitting and distributing power in Manitoba; and

(b) customers shall not be classified based solely on the region of the province in which they are located or on the population density of the area in which they are located."

That statutory provision does not apply to the four diesel communities, as they are not on the electrical grid, and the costs to service those customers are higher. Those communities are Shamattawa, Brochet, Lac Brochet and Tadoule.

Residential customer rates in those four communities are the same as the rates paid by residential grid customers for electricity. However, there is a 60 amp restriction. General service customers, as well as Government and First Nation Education customers, pay rates that recover the majority of costs to provide service. In addition, Government and First Nation Education customers pay a surcharge that is utilized, in part, to maintain lower rates for residential grid customers.

Question 56:

A number of participants referenced “two meters” on Hydro buildings in the North and how MH employees get “free heat” – please explain the two meters and explain if MH employees in the North get “free heat”.

Response:

Manitoba Hydro employees living in Corporate housing do not get “free heat”.

Corporate housing provided to Manitoba Hydro employees living north of the 53rd parallel are normally fitted with two meters.

One meter is for heating. As the accommodations vary with respect to energy efficiency and building standards, heating costs will also vary widely. As such, to maintain equity amongst employees, they are charged a flat rate for heat, which is deducted through payroll deduction. That flat rate is derived from the lowest average heating costs in Winnipeg, adjusted annually.

The second meter is for all other energy consumption and employees pay for this directly. The rates charged are identical to all other Manitoba Hydro residential customers on the grid.