Keeyask Generation Project

Socio-Economic Monitoring Plan

KEEYASK

Hydropower Limited Partnership

Manitoba Conservation and Water Stewardship Client File 5550.00
Manitoba Environment Act Licence No. 3107

October 2015

KEEYASK GENERATION PROJECT

SOCIO-ECONOMIC MONITORING PLAN

Prepared by

Keeyask Hydropower Limited Partnership

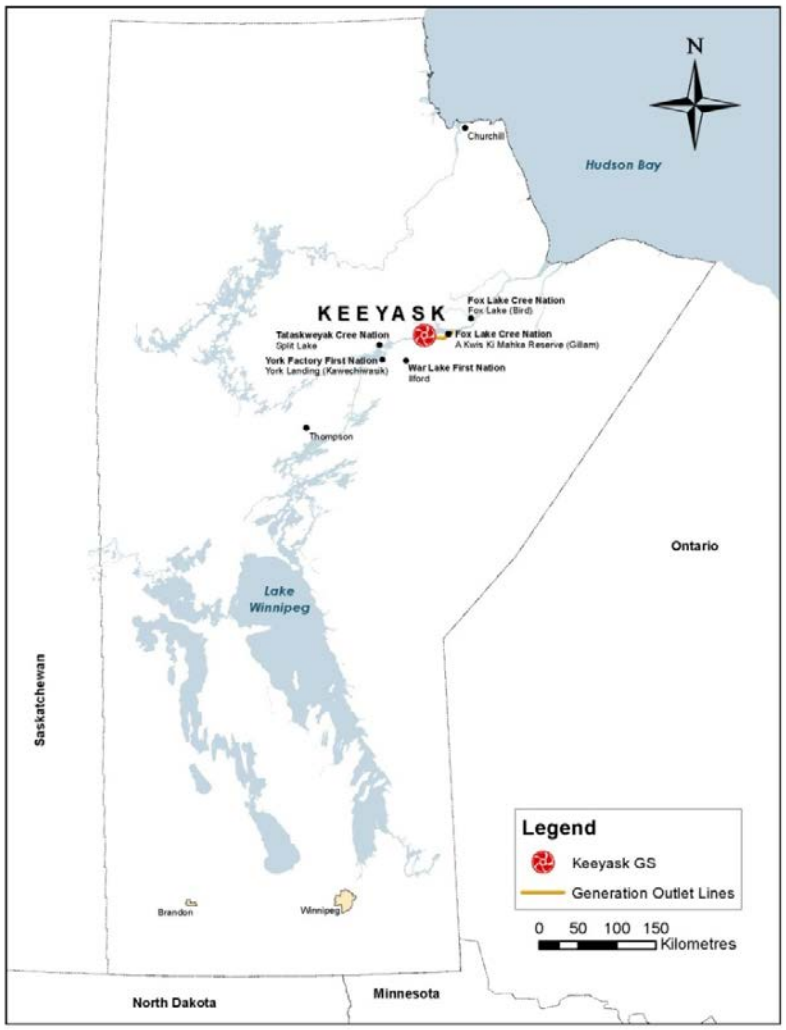
WINNIPEG, MANITOBA

October 2015

PREFACE

KEEYASK ENVIRONMENTAL PROTECTION PROGRAM

An Environmental Protection Program (the Program) has been developed to mitigate, manage and monitor potential environmental effects described in the *Keeyask Generation Project: Response to EIS Guidelines* during the construction and operation phases of the Keeyask Generation Project (the Project) shown on Map 1. The Program includes a collection of plans grouped in the following categories: Environmental Protection Plans, Environmental Management Plans and Environmental Monitoring Plans.



Map 1: Location of Keeyask Generation Project

Figure 1 lists all of the plans included in the Program. It also demonstrates how the Program will be managed. The Keeyask Hydropower Limited Partnership (the Partnership) has delegated authority to Manitoba Hydro to manage construction and operation of the Project including

implementation of the Program. The organizational structure of the Partnership for this aspect of the Project includes a Monitoring Advisory Committee (MAC), which includes participants from each of the Keeyask Cree Nations (KCNs) and Manitoba Hydro. Manitoba Hydro will be guided on the implementation of the Program by the MAC, the Partnership Board of Directors and ongoing discussion with Regulators.

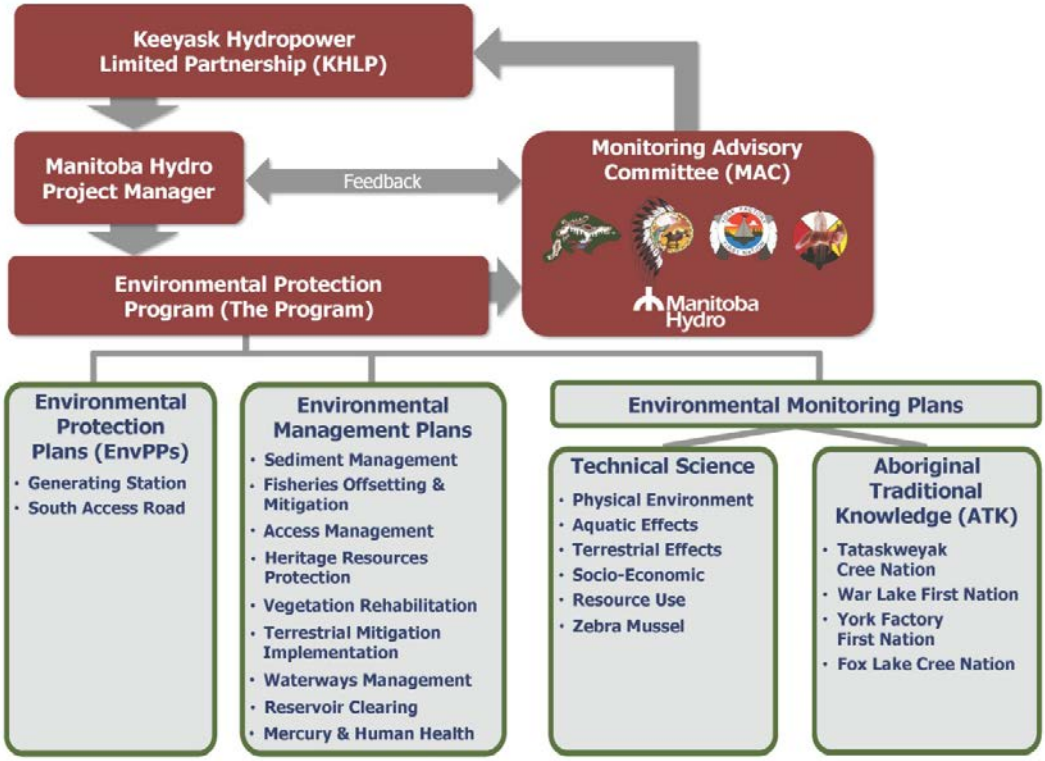


Figure 1: Environmental Protection Program

The Environmental Protection Plans (EnvPPs) provide detailed, site-specific environmental protection measures to be implemented by the contractors and construction staff to minimize environmental effects from construction of the generating station and south access road. They are designed for use as reference documents providing the best management practices to meet or exceed regulatory requirements. EnvPPs are organized by construction activity, highlighting measures to reduce the impact of a specific work activity (e.g., tree clearing or material placement in water). Contractors' compliance with the EnvPPs is a contractual obligation. Under Manitoba Hydro's construction site management, a Site Environmental Lead will be responsible for monitoring compliance and determining when corrective actions are required.

The Environmental Management Plans focus on minimizing effects on specific environmental parameters. They outline specific actions that must be taken during construction and in some cases into the operational phase to mitigate Project effects. The management plans include monitoring to determine success of the actions taken and to determine other actions that need to be undertaken (adaptive management). Implementation of these plans will involve Manitoba

Hydro's staff, the KCNs, specialized consultants and contractors under the direction of the Project Manager.

The Environmental Monitoring Plans are designed to measure the actual effects of the Project, test predictions or identify unanticipated effects. During the course of the environmental assessment, numerous requirements for monitoring were identified. There will be both technical science monitoring and Aboriginal Traditional Knowledge (ATK) monitoring undertaken. The technical science monitoring will be conducted by Manitoba Hydro and specialized consultants contracted by Manitoba Hydro, who will in turn hire members of the KCNs to work with them to fulfil the monitoring activities. Manitoba Hydro will also have contracts with each of the KCNs to undertake ATK monitoring of the project.

The activities that occur and the results generated from the Environmental Protection Program will be discussed at MAC meetings. The MAC is an advisory committee to the Partnership Board of Directors and will review outcomes of the programs and, if appropriate provide advice and recommendations to the Partnership on additional monitoring or alternative mitigation measures that may be required. The MAC will provide a forum for collaboration among all partners. On behalf of the Partnership, the MAC will also ensure that the outcomes of the Environmental Protection Program are communicated more broadly on an annual basis to Members of the KCNs, regulators and the general public.

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1.0 INTRODUCTION

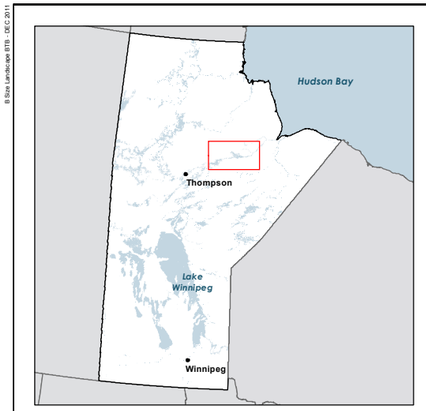
This document describes the Socio-Economic Monitoring Plan (SEMP) for the Keeyask Generation Project (the Project), a 695-megawatt (MW) hydroelectric generating station at Gull (Keeyask) Rapids on the lower Nelson River in northern Manitoba. (Map 2).

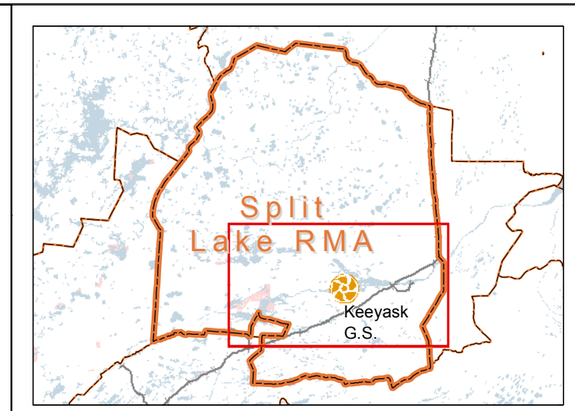
The Keeyask Generation Project Response to EIS Guidelines ("the EIS"*),* completed in June 2012, provides a summary of predicted effects and planned mitigation for the Project. Technical supporting information for the socio-economic environment, including a description of the existing environment, effects and mitigation, and a summary of proposed monitoring and follow-up programs is provided in the *Socio-Economic Environment, Resource Use and Heritage Resources Supporting Volume* (SE SV). The SEMP is a commitment made by the Keeyask Hydropower Limited Partnership (KHLP) in Chapter 8 of the EIS.

The Keeyask Generation Project follows the Keeyask Infrastructure Project (KIP), which included a start-up camp and associated infrastructure, a 25 km all weather north access road, and the first phase of the Keeyask main camp. A SEMP was also developed and executed for KIP.

The environmental assessment for the Generation Project used both technical science and Aboriginal Traditional Knowledge (ATK). Mitigation measures were carefully planned and designed to prevent or reduce (to the extent practical), adverse effects from the Project. However, there are uncertainties associated with predicted effects and the effectiveness of planned mitigation measures. To address these uncertainties, many of the predictions and mitigation measures are supported by monitoring to enable testing of the predictions and timely response when actual results differ from the predictions.

As outlined in the Preface, this SEMP is part of an integrated and coordinated Environmental Protection Program (the Program) that has been developed to facilitate an effective transition from planning and assessment to implementation of all aspects of the Project.





N

TL RC60

PR 280

Limestone G.S.

Fox Lake Cree Nation
Fox Lake (Bird)

Henday C.S.

Long Spruce G.S.

Kettle G.S.

Gillam

Radisson C.S.

Fox Lake Cree Nation
A Kwis Ki Mahka Reserve

North Access Road

STEPHENS LAKE

Keeyask G.S.

South Access Road

NELSON RIVER

GULL LAKE

Birthday Rapids

CLARK LAKE

Tataskweyak Cree Nation
Tataskweyak (Split Lake)

TL KS37

HUDSON BAY RAILWAY

Bipoles 1 & 2

Split Lake RMA

Fox Lake RMA

RIVER

York Factory First Nation
York Landing (Kawechiwasik)

TL KN36

Kelsey G.S.

TL KH38

York Factory RMA

War Lake First Nation
Ilford

DATA SOURCE:
Manitoba Hydro; Government of Manitoba; Government of Canada

CREATED BY:
Manitoba Hydro - Hydro Power Planning - GIS & Special Studies

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
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0 5 10 Kilometres / 0 4 8 Miles	VERSION NO: 2.0	QA/QC: JCL/YYY/ZZZ

KEEYASK
Hydropower Limited Partnership

Legend

- Generating Station (Existing)
- Keeyask Generating Station
- Converter Station
- Keeyask Principal Structures
- Highway
- Access Road
- South Access Road
- Rail
- Transmission Line
- Proposed Road Corridor
- First Nation Reserve
- Resource Management Area

General Project Location

Map 2

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1.1 OVERVIEW OF PROJECT

The Project, which will be constructed by the Keeyask Hydropower Limited Partnership [1] (the Partnership), is a 695 megawatt (MW) hydroelectric generating station at Gull Rapids on the lower Nelson River, immediately upstream of Stephens Lake. It consists of four principal structures: a powerhouse complex; a spillway; dams; and dykes. A reservoir will be created upstream of the principal structures. Supporting infrastructure consists of temporary facilities required to construct the principal structures and permanent facilities required to construct and operate the Project. Temporary infrastructure consists of roads, borrow sources, a camp and work areas, cofferdams, rock groins, and an ice boom. Permanent supporting infrastructure consists of north and south access roads, a transmission tower spur, communications tower, some borrow areas, excavated-material placement areas, boat launches, and a portage to enable river traffic to bypass the dam.

1.2 OBJECTIVES AND APPROACH

The SEMP is intended to monitor changes over time for certain Valued Environmental Components (VECs) in order to, where applicable:

- Test predicted effects in the EIS;
- Identify unanticipated effects related to the Project;
- Monitor the effectiveness of mitigation measures;
- Determine if adaptive management is required; and
- Confirm compliance with regulatory requirements, including terms and conditions in Project approvals.

The SEMP focuses on the primary effects to the socio-economic VECs and supporting topics identified for monitoring in the EIS, and defines the process, scope, methods, documentation and application of the socio-economic monitoring for the Project. Monitoring results will be reviewed by Project personnel (e.g., the MAC and the Advisory Group on Employment). The Preface provides additional information regarding the MAC.

The EIS noted that, for some socio-economic VECs, there can be considerable overlap between the effects of Keeyask and other past, current and (at the time of the EIS) future projects. This includes a potential overlap of the effects of Keeyask and other (concurrent) Manitoba Hydro

[1] The Keeyask Hydropower Limited Partnership is comprised of four limited partners and one general partner. The limited partners are Manitoba Hydro; Cree Nation Partners Limited Partnership (CNP), controlled by Tataskweyak Cree Nation (TCN) and War Lake First Nation (WLFN); York Factory First Nation Limited Partnership, controlled by York Factory First Nation (YFFN); and Fox Lake Cree Nation Keeyask Investments Inc., controlled by Fox Lake Cree Nation (FLCN). The four communities together are referred to as the Keeyask Cree Nations (KCNs). The general partner is 5900345 Manitoba Ltd., a corporation wholly owned by Manitoba Hydro.

construction projects (e.g., the Keeyask Transmission Project and Bipole III Project) for some Keeyask SEMP components within this report. As a result, analysis of, and response to, Keeyask monitoring outcomes may also require consideration of the potential impacts of other projects.

Construction of the Project is expected to occur over an approximate eight-and-a-half year period. It will begin producing power about two and a half years before construction is completed when the reservoir will be impounded to full supply level (FSL).

1.3 SEMP COMPONENTS, MONITORING SCHEDULE AND OTHER RELEVANT MONITORING

1.3.1 SEMP COMPONENTS

The SEMP covers the following aspects of the socio-economic environment:

- Economy (Section 2.0)
  - Employment and training opportunities;
  - Business opportunities; and
  - Income.
- Population, Infrastructure and Services (Section 3.0)
  - Population;
  - Housing;
  - Infrastructure and Services; and
  - Transportation Infrastructure.
- Personal, Family and Community Life (Section 4.0)
  - Public Safety and Worker Interaction;
  - Travel, Access and Safety;
  - Culture and Spirituality; and
  - Mercury and Human Health.

1.3.2 MONITORING SCHEDULE

The socio-economic monitoring program will be more extensive during construction of the Project, but will also occur during the operation phase [2] as follows:

- **Construction Phase** – SEMP monitoring during construction is related to employment and training opportunities; business opportunities; income; population changes; housing; infrastructure and services; transportation infrastructure; public safety and worker interaction; travel, access and safety; and culture and spirituality.
- **Operation Phase** – SEMP monitoring during operation is more limited, and is related to population change in Gillam during the first five years of operation; water levels at Split Lake (re: transportation infrastructure/travel safety); and monitoring related to mercury and human health.

Further details regarding the scheduling of the components of this SEMP are provided in relevant sections of this document.

1.3.3 OTHER MONITORING INFORMATION RELEVANT TO THE SEMP

Other Keeyask monitoring and environmental management plans that complement or provide input to the SEMP include the following:

- The Aquatic Effects Monitoring Plan (see SEMP 4.4, Mercury and Human Health);
- The Terrestrial Effects Monitoring Plan (see SEMP 4.4, Mercury and Human Health);
- Water quality monitoring in Gull and Stephens Lake (see SEMP 4.4, Mercury and Human Health);
- The Waterways Management Program (see SEMP 4.2, Travel Access and Safety);
- The Reservoir Clearing Plan (see SEMP 4.2, Travel Access and Safety); and
- The Construction Access Management Plan (see SEMP 3.4 Transportation Infrastructure, and 4.2, Travel Access and Safety)

[2] Monitoring in this plan is described in terms of “year” of construction (eight-and-a-half years in total) and “year” of operation.

1.4 STUDY AREA

1.4.1 SOCIO-ECONOMIC LOCAL STUDY AREA

The Socio-Economic Local Study Area for the SEMP (Map 3) incorporates the Project site, and includes the KCNs communities of TCN at Split Lake, WLFN at Ilford, YFFN at York Landing and FLCN at Fox Lake/Gillam, which are affected by the Project through the following pathways of effect:

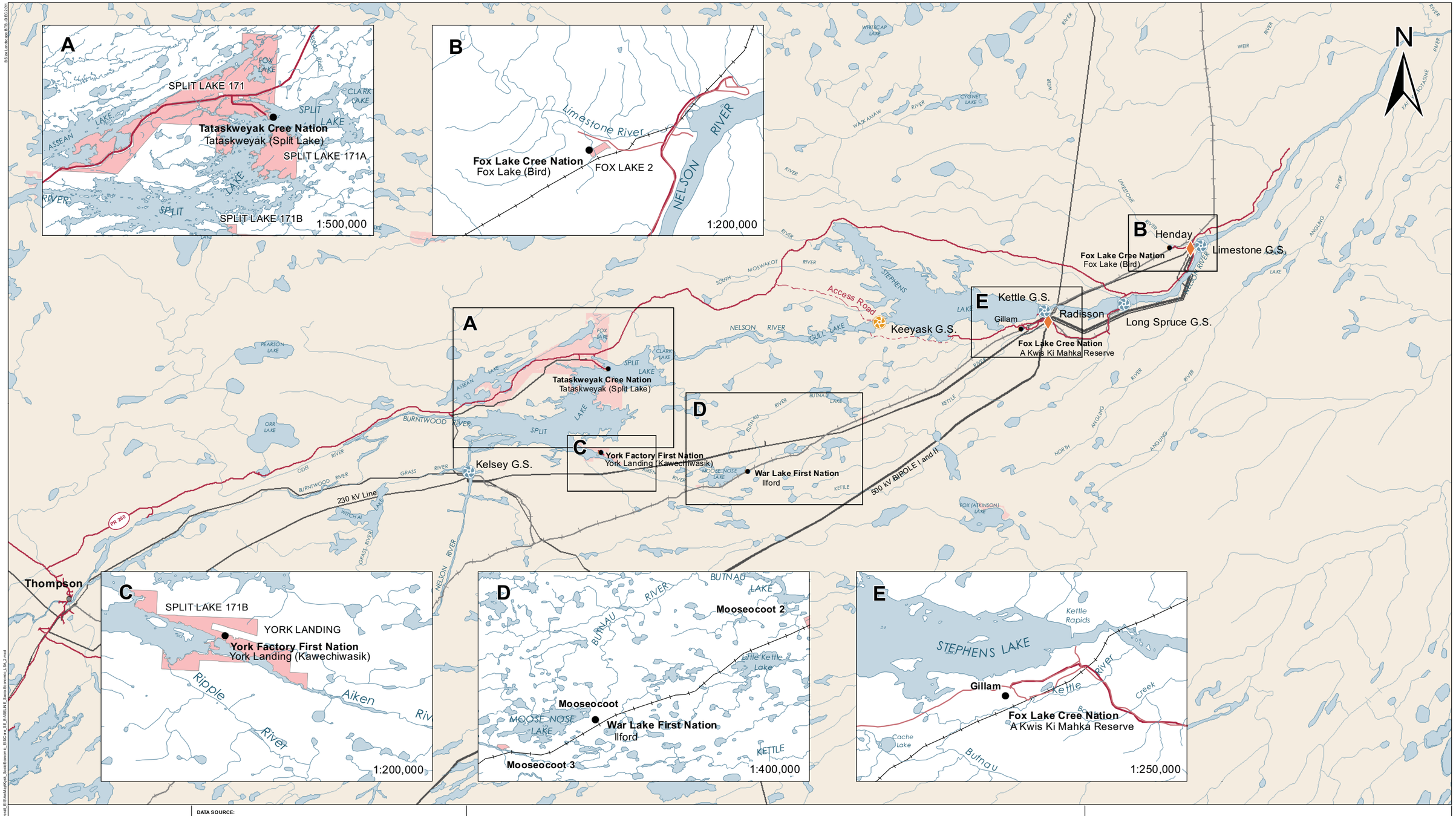
- Physical/biophysical changes to the way the landscape looks;
- Physical/biophysical effects on resource use/traditional use areas and heritage resources;
- Employment and business opportunities;
- Construction traffic;
- Interaction with non-local construction workers within the KCNs' home communities; and
- Investment income.

In addition to the KCNs communities, the Town of Gillam and the City of Thompson are included in the Socio-Economic Local Study Area for the following reasons:

- The Town of Gillam is Manitoba Hydro's northern operations base and operational staff for the Project will be located in Gillam. Gillam is also home to FLCN Members living on reserve and both FLCN and TCN Members living off-reserve;
- Some of the Project's workforce are likely to visit Gillam and Thompson during their leisure time;
- Transportation/traffic for construction equipment, materials and people will flow primarily through Thompson, and some also via Gillam; and
- The City of Thompson is the regional centre for the Project and, as such, can be expected to experience increased expenditures on retail goods and services due to re-spending of wages by the Project construction workforce. Some commercial and industrial services in Thompson could see increased demand (*e.g.,* air and freight travel through Thompson). As well, Thompson could receive additional pressure on regional health and social services.

1.4.2 SOCIO-ECONOMIC REGIONAL STUDY AREA

Certain Project effects, in particular preferential hiring of northern Aboriginal and other northern workers for construction employment, will extend beyond the Socio-Economic Local Study Area to all of northern Manitoba. For this reason, the Socio-Economic Regional Study Area has been defined using the boundary identified under Schedule D of the Burntwood Nelson Agreement (BNA) (Map 3) as the area pertaining to northern preference. This includes the Churchill-Burntwood-Nelson (CBN) communities identified in the BNA as part of hiring preference Zone 1.



DATA SOURCE:
Manitoba Hydro, NTS, Stantec Consulting Ltd.

CREATED BY:
Stantec Consulting Ltd.

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	16-DEC-10	07-JUN-12
0 8.5 17 Kilometres / 0 7 14 Miles	VERSION NO: 1.0	QA/QC: APPROVED

Legend

- Keeyask Generating Station
- Generating Station (Existing)
- Converter Station
- First Nation Community
- Town/City
- Highway
- Proposed Access Road
- Rail
- Existing Transmission Line
- First Nation Reserve
- Waterbody

Communities depicted on the map are included in the Socio-Economic Local Study Area

Socio-Economic Local Study Area

Map 3

File Location: G:_GIS_Project_Folder\00_Hydro\111420017_Kysk_GS_Overall_EIS\ArcMap\Kysk_SocioEconomic_EISCore_SE_BASELINE_Socio-Economic_Regional_Study_Area.mxd

B Size Portrait BTB - DEC 2011

N

HUDSON BAY

Churchill

Lynn Lake

South Indian Lake

Tataskweyak Cree Nation
Tataskweyak (Split Lake)

Leaf Rapids

Granville Lake

York Factory First Nation
York Landing (Kawechiwasik)

Keeyask G.S.

Fox Lake Cree Nation
Fox Lake (Bird)

Gillam
Fox Lake Cree Nation
A Kwis Ki Mahka Reserve

War Lake
First Nation
Ilford

Shamattawa

Thompson

Nelson House

Pikwitonei

Thicket Portage

Flin Flon

Wabowden

Cross Lake

The Pas

Norway House

CEDAR LAKE

LAKE WINNIPEGOSIS

LAKE WINNIPEG

LAKE MANITOBA

LAKE WINNIPEG

Winnipeg

Legend

- Northern Communities in Churchill / Burntwood / Nelson River Water Power Reserve Area - Preference Zone 1 (Article 12.1.1.3(a))
- Manitoba Communities
- Keeyask Generating Station
- Southern Boundary of Preference Zone 2 (Northern Affairs Boundary) (Article 12.1.1.3(b,(c),(d)+13.2))

Derived from BNA Hiring Preference Map Schedule D - May 2009

Hydropower Limited Partnership

DATA SOURCE:
Manitoba Hydro, NTS, Stantec Consulting Ltd., Government of Canada

CREATED BY:
Stantec Consulting Ltd.

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	18-JAN-12	18-MAY-12
0 40 80 Kilometers 0 30 60 Miles	VERSION NO: 1.0	QA/QC: GS/YYY/MWZ

Socio-Economic Regional Study Area

Map 4

2.0 ECONOMY

Economic monitoring will include monitoring of employment and training, business, and income outcomes associated with the Project. To allow comparison across projects, the monitoring method will be consistent with that used for Manitoba Hydro major capital projects.

2.1 EMPLOYMENT AND TRAINING OPPORTUNITIES

2.1.1 BACKGROUND AND OBJECTIVES

Analysis in the EIS provided estimates indicating that employment would vary by year depending upon the specific construction activities being undertaken, with peak quarterly workforce requirements being the highest in the middle years of construction. These estimates would also vary seasonally, with the majority of activity occurring during the summer (Q2 and Q3) construction months.

EIS analysis for the construction phase provided employment estimates for the KCNs, the Aboriginal workforce in the Churchill-Burntwood-Nelson (CBN) area, and the Aboriginal workforce in the Socio-Economic Regional Study Area as a whole (see SE SV Section 3.4.1). The EIS also predicted that there would be northern participation in the operating jobs required to operate the facility.

The objective of monitoring employment and training opportunities is:

- To determine the overall employment outcomes of Project construction, with particular emphasis on Aboriginal and northern resident participation in employment; and
- To determine the extent to which recipients of pre-project training (PPT) (i.e., the Hydro Northern Training Employment Initiative, or HNTEI) participated in Keeyask construction jobs, and received on the job training.

In addition, the Advisory Group on Employment (AGE) has been established and will continue during construction. The AGE[3] will be a forum for addressing employment-related issues, in particular Aboriginal employment, related to construction of the Project. The AGE is established to receive, review and find solutions to concerns and issues and to monitor, report and make recommendations to the Project Manager (Manitoba Hydro) on employment-related matters, as required.

[3] Schedule 12-7, JKDA - Advisory Group on Employment terms of reference.

2.1.2 METHODOLOGY AND SCHEDULE

2.1.2.1 CONSTRUCTION

As noted previously, the majority of available Project employment will occur during the construction period. Monitoring, through Manitoba Hydro's existing tracking systems, will include the following:

- Track total opportunity available, including the amount (e.g., total person years) and type (e.g., job classification) of work available, and the total number of hires and total number of employees. Data will be broken down by KCNs, CBN region, Aboriginal, non-Aboriginal, northern, and Manitoban.
  - Track both on-site construction employment and direct Project-related community-based employment (*e.g.*, for community-based job referral employment).
  - Track rates of turnover for site employees during the Project construction phase.
- Collect trainee status of site contractor employees, including information on trainee participation in HNTEI pre-project training, trainee designation and apprenticeship level at the point of hire, at the point of separation and at any point during employment when reclassification occurs.

Employment information will be collected throughout each year of construction, summarized at the end of each reporting year and form part of the annual report. However, due to the sensitive nature of the topics addressed, the results of the KCNs breakdowns will be reported to the Partnership only.

2.1.2.2 OPERATION

As per the EIS, no SEMP Employment and Training monitoring will be undertaken during the operation phase of the Keeyask Generating Station.

2.2 BUSINESS OPPORTUNITIES

2.2.1 BACKGROUND AND OBJECTIVES

Project construction will present direct business opportunities locally, regionally and across the province as a whole. Manitoba Hydro's Northern Purchasing Policy encourages the participation of northern Aboriginal and northern Manitoba businesses through the following measures:

- Information sharing;
- Scoping;

- Restricted tender or Direct Negotiated Contracts (DNCs);
- Northern Aboriginal and northern Manitoba content provisions; and
- Prioritization of contract awards (including recognition of Aboriginal joint ventures).

Application of this policy will enable northern Aboriginal and northern Manitoba businesses to have the opportunity to participate in economic activity resulting from Project construction.

As part of the JKDA, Manitoba Hydro and the KCNs negotiated a series of DNCs with one or more of the KCNs or KCNs businesses designated by them.

In addition to direct business opportunities, it is anticipated that some businesses in Gillam and Thompson will benefit indirectly from Project construction.

The objective of the monitoring is to track construction business outcomes of Project construction, with a particular focus on the KCNs (including DNCs), Aboriginal and northern Manitoba business participation; and to understand indirect business opportunities generated as a result of Project-related expenditures in Gillam, Thompson and the KCNs communities.

2.2.2 METHODOLOGY AND SCHEDULE

2.2.2.1 CONSTRUCTION

Monitoring will include the following:

- Track purchases made by the Partnership through Manitoba Hydro's existing accounting and tracking systems.
    - Data will be collected on the value of purchases made, as well as the breakdown of those purchases between KCNs, Aboriginal, northern and other businesses.
- At the peak of the General Civil Contract, Key Person Interviews (KPIs) will be undertaken in Thompson, Gillam and each of the KCNs communities to ascertain any indirect business opportunities that may be generated as a result of the Project.
- A KPI program of key participants involved in management of the DNCs will also be undertaken to understand the role of KCNs businesses in implementing the DNCs and how the DNCs contribute to building KCNs business capacity.

Information collected will form part of the annual report. However, the results of the DNC KPI program will be reported to the Partnership only.

2.2.2.2 OPERATION

As per the EIS, no SEMP Business Opportunities monitoring will be undertaken during the operation phase of the Keeyask Generating Station.

2.3 INCOME

2.3.1 BACKGROUND AND OBJECTIVES

As noted in the EIS, Project construction will generate income from a number of sources including employment, business opportunities and payment of taxes. KCNs construction income will originate mainly from employment and to a lesser extent from business opportunities, while employment will be the main source of income for Aboriginal residents of the Regional Study Area. During the operation phase, the KCNs will receive additional equity income as a result of being Partners in the Project.

The objective of monitoring is to determine the levels of employment income generated by Project construction, particularly for KCNs and CBN region employees.

2.3.2 METHODOLOGY AND SCHEDULE

2.3.2.1 CONSTRUCTION

Monitoring, through Manitoba Hydro's existing accounting and tracking systems, will provide an estimate of the labour income generated by the Project for on-site workers based on person-hours of employment generated by the Project and applicable wage rates. Labour income will be broken down by the KCNs, CBN region, Aboriginal, non-Aboriginal, northern, Manitoban, and non-Manitoban workers.

Information collected will form part of the annual report.

2.3.2.2 OPERATION

As per the EIS, no SEMP Income monitoring will be undertaken during the operation phase of the Keeyask Generating Station.

3.0 POPULATION, INFRASTRUCTURE AND SERVICES

3.1 POPULATION

3.1.1 BACKGROUND AND OBJECTIVES

Population changes have implications for community housing, infrastructure and services. In many communities in the Regional Study Area, and particularly in First Nation and Northern Affairs communities, limited financial resources often hamper the provision of housing, infrastructure and services. In many cases, this is coupled with population growth higher than the provincial average.

The provision of adequate housing is of key concern to the KCNs communities, where demand frequently exceeds the available supply of quality homes; and many community residents and families currently live in crowded conditions. As a result, there is limited capacity in most communities to handle population growth, including the ability to accommodate community members who may wish to return to their home reserve after living elsewhere.

In-migration of Keeyask workers and their families to the KCNs communities has the potential to affect housing, infrastructure and services in communities, particularly where existing amenities and services are at capacity. Some out-migration may also occur if new income facilitates such a move for some individuals or families.

Per the EIS, the Project is not expected to result in notable changes to population in the KCNs communities, and net in-migration associated with Project construction is expected to be quite small. However, the KCNs have expressed the concern that any in-migration would stress services that are already at capacity.

Gillam is not expected to see any substantial population growth as a result of Project-related construction.

Thompson is not expected to see any material population change as a result of Project construction.

The Project is expected to create operation jobs based in Gillam. Project effects on population and migration in Gillam will depend on whether the operation staff are hired from within the community or are relocated to the community from elsewhere, as well as on how many relocated staff have families. Population growth in Gillam in response to operation employment is likely to increase the demand for housing, infrastructure and services in Gillam.

The objective of monitoring of population that will be undertaken is:

- To confirm the extent of Project-induced in-migration in the KCN communities and Gillam; and
- To confirm Environmental Assessment prediction that there is minimal Project induced in-migration in the KCN communities and Gillam.

3.1.2 METHODOLOGY

3.1.2.1 CONSTRUCTION

As accurately identifying the precise levels of in- and out-migration is difficult, monitoring will focus on tracking the extent of overall population change in Gillam and the KCNs communities during the construction phase. If population change suggests that notable Project-induced in-migration or out-migration is taking place and is greater than predicted (i.e., on an as-needed basis), KPIs will be undertaken to understand the influence of the Project on population.

Information collected will form part of the annual report.

3.1.2.2 OPERATION

Population change in Gillam will be monitored annually over the first five years of the operation phase to enable FLCN, the Town of Gillam, Manitoba Hydro and other Gillam stakeholders to plan and respond to anticipated population changes.

3.2 HOUSING

3.2.1 BACKGROUND AND OBJECTIVES

As noted in 3.1 Population, the EIS predicts limited new Project-related population growth in the KCNs communities and Gillam during the construction period, therefore resulting in little new demand for housing. It is anticipated that population effects will be felt within the Town of Gillam during operations. Thompson is not expected to see any material Project-related demand for rental or purchased housing during the construction or operational phases.

The objective of monitoring efforts is to test the EIS predictions with respect to Project-related changes to housing demand in the KCNs communities and Gillam.

3.2.2 METHODOLOGY AND SCHEDULE

3.2.2.1 CONSTRUCTION

In addition to the population monitoring noted in 3.1 Population, a one-time program of KPIs will be undertaken with representatives of the Housing Authorities in each of the KCNs communities to identify any apparent Project effects on housing. The KPIs will be conducted sometime around the 3rd or 4th year of the construction period; exact timing will be determined through discussion at the MAC. (The Preface provides additional information regarding the MAC.)

3.2.2.2 OPERATION

As per the EIS, no SEMP Housing monitoring will be undertaken during the operation phase of the Keeyask Generating Station. However, demand for housing in Gillam will be considered through existing processes.

As also noted in 3.1 Population, tracking of population change in Gillam over the first five years of the operation phase will provide an indication of the implications for housing and will enable service providers and other Gillam stakeholders to plan and respond to anticipated change.

3.3 INFRASTRUCTURE AND SERVICES

3.3.1 BACKGROUND AND OBJECTIVES

As with housing, Project-related population change may be a driver of changes to infrastructure and services. Other Project effects on infrastructure and services may result from the needs associated with the workforce (*e.g.*, emergency services that cannot be handled at the work site). The extent to which these sources of change affect any given community will vary.

As noted in 3.1 Population, the EIS predicts limited new Project-related population growth in the KCNs communities during the construction period, therefore resulting in minimal effect on infrastructure and services due to the Project.

Given Gillam's proximity to the construction site as well as other Manitoba Hydro projects currently underway, it is anticipated that Gillam may experience effects on infrastructure and services associated with short-term influxes of construction workers. TCN has expressed concern that, given Split Lake's close proximity to the Project site, TCN Members residing in Split Lake may also experience effects on infrastructure and services due to the short-term influxes of construction workers.

It is difficult to predict the exact effect the short-term influx of people may have on a community, since the total number of visitors at any one time is unknown. Potential effects of short-term

influxes of construction workers can include increased pressure on emergency services, community facilities, and services.

The objectives of the monitoring efforts will be focused on testing the prediction of minimal demand on infrastructure and services in KCNs communities due to the Project and to understand the effects from an influx of non-local construction workers on demand for infrastructure and services in Gillam.

As also noted in 3.1 Population, Thompson is not expected to see any material Project-related population change as a result of Project construction.

3.3.2 METHODOLOGY AND SCHEDULE

3.3.2.1 CONSTRUCTION

A one-time set of KPIs with contractors and service providers in the KCNs communities will be undertaken to test EIS predictions. The KPIs are to be conducted during the 2nd or 3rd year of the construction period.

Monitoring will also be undertaken to understand the effects of non-local construction workers on the demand for infrastructure and services in Gillam. Information related to such impacts is anticipated to be available through the established Gillam Worker Interaction Subcommittee. The Subcommittee, which is part of a separate corporate-wide initiative, was formed in anticipation of increases in the Gillam area workforce resulting from all Manitoba Hydro projects being constructed in the area in an overlapping timeframe. It is intended as a forum for information sharing and communication, in order to provide for early identification of potential issues; prevention of issues to the extent possible; and identification of ways and means to work cooperatively to address issues as they arise.

Subcommittee members include Manitoba Hydro, Fox Lake Cree Nation, the Town of Gillam, RCMP (Gillam Detachment), Gillam Hospital, and Gillam School. Other stakeholder members may be identified by the Subcommittee on an as needed basis.

Information to be monitored by the Subcommittee is to include data related to the demand for health services and policing. Where community service impacts are identified, the extent to which any such impacts will be able to be specifically attributed to Keeyask or any other Manitoba Hydro projects underway at the same time is yet to be determined.

It is anticipated that, due to the sensitive nature of the topics addressed, some information gathered by the Subcommittee will remain confidential and will not be included in regulatory and public reporting.

3.3.2.2 OPERATION

As per the EIS, no SEMP Infrastructure and Services monitoring will be undertaken during the operation phase of the Keeyask Generating Station. However, as noted in 3.1 Population, tracking of population change in Gillam over the first five years of the operation phase will enable service providers and other Gillam stakeholders to plan and respond to anticipated change.

3.4 TRANSPORTATION INFRASTRUCTURE

3.4.1 BACKGROUND AND OBJECTIVES

Project effects on transportation infrastructure and services in the Socio-Economic Local Study Area will include increased use of rail, air and road networks related to the transport of people, equipment and materials to the Project site during the construction period.

There is existing capacity to handle any increases in rail and air traffic.

A traffic analysis was undertaken to examine the potential for, and attempt to predict, increases in provincial road traffic due to the Project. The analysis concluded that the percentage increase in Project-related traffic on PR 391 was expected to be low, and the percentage increase in Project-related traffic on sections of PR 280 was expected to exceed 20% at peak times. However, the total volume of traffic for all was predicted to be well below roadway design tolerances.

Manitoba Infrastructure and Transportation (MIT) is responsible for upgrades to the existing provincial highway system, including upgrading of PR 280. It is anticipated that MIT upgrades and maintenance of PR 280 will be sufficient to handle increased travel by road.

MIT undertakes biennial monitoring of traffic volume on PR 280.

A Construction Access Management Plan has also been developed by Manitoba Hydro and the KCNs to manage access to the Project site. The Construction Access Management Plan includes a section on monitoring and follow-up related to use of the access roads.

During the operation period, MIT will re-route PR 280 to include the north access road, the generating station facility over the Nelson River, and the south access road to Gillam. MIT is the responsible authority for regular maintenance of the highway system.

The operation of the Project is not expected to affect the water level on Clark Lake or Split Lake during open-water conditions. However, TCN and YFFN have expressed concerns that Project effects on open-water levels at Split Lake could affect ferry service, landing sites and the winter road.

As noted in 4.2 Travel, Access and Safety, implementation of the Keeyask Reservoir Clearing Plan and the Waterways Management Program (Schedules 11-1 and 11-2 of the JKDA respectively); safety signage posted in English and Cree around the Project site; and the implementation of portages are intended to mitigate potential effects on water travel upstream, downstream and in the vicinity of the Project.

Information on Waterways Management Program debris-related activities during construction are reported through the Physical Environment Monitoring Plan.

The objective of traffic volume monitoring will be to test EIS predictions.

3.4.2 METHODOLOGY AND SCHEDULE

3.4.2.1 CONSTRUCTION

MIT traffic volume monitoring results for PR 280 will be obtained and reported on, as available from MIT.

Regular Construction Access Management Plan monitoring of traffic volume on the access roads will take place through Manitoba Hydro's gate records and security reports from patrols. Related information will be reported on through the SEMP, and will include the number and type of non-construction users of the roads (including resource users and suppliers). This information will form part of the annual report.

3.4.2.2 OPERATION

Manitoba Hydro will continue to monitor water levels at Split Lake on an annual basis and will inform TCN and YFFN of the results.

Information on Waterways Management Program debris-related activities during operation will also be available through the Physical Environment Monitoring Plan.

During operation, Project-related traffic is not expected to have a noticeable effect on road traffic levels. As a result, as per the EIS, no SEMP monitoring related to road traffic volume will be undertaken during the operation phase of the Keeyask Generating Station.

4.0 PERSONAL, FAMILY AND COMMUNITY LIFE

4.1 PUBLIC SAFETY AND WORKER INTERACTION

4.1.1 BACKGROUND AND OBJECTIVES

Construction of the Project may result in the potential for adverse interactions between non-local construction workers and TCN and FLCN Members and Gillam residents. The principle sources of concern for potential adverse effects relate to Project construction workers who travel to communities in the Socio-Economic Local Study Area during their leisure hours to socialize at bars, restaurants, community events, or in residents' homes. The potential for these interactions may lead to broad concerns about adverse effects on general public safety in the communities.

TCN has expressed concerns that non-local workers will visit Split Lake, because it is the closest community to the north construction camp, is conveniently located on the road to Thompson, and offers amenities such as a gas station, northern store and fast food outlet. FLCN Members have identified potential adverse effects of construction-worker interaction with community members, in particular women and youth, as their greatest socio-economic concern associated with new major projects being developed close to home. YFFN has noted that many of their youth attend high school in Thompson and there is the potential for adverse interactions with construction workers when there. There is also the potential for such adverse interactions to be experienced by WLFN youth attending high school in Thompson. The communities' concerns are based on direct experience with the construction of previous hydroelectric generation projects, with FLCN's experience centred in the Gillam area and TCN's experience in Split Lake.

The objective of monitoring is to focus on direct effects of the Project to the communities of TCN, FLCN and Gillam.

4.1.2 METHODOLOGY AND SCHEDULE

4.1.2.1 CONSTRUCTION

As noted in the Preface, the MAC provides a forum for collaboration among all the Project Partners, as well as a forum for the KCNs to provide advice and recommendations on additional monitoring or alternative mitigation measures that may be required. It is anticipated this would include discussions regarding any worker interaction issues that may be identified by the KCN communities as the Project proceeds.

In addition, for Gillam, related monitoring will be incorporated into the established Gillam Worker Interaction Subcommittee, which includes representatives from Manitoba Hydro, FLCN, the Town of Gillam and other area stakeholders. The Subcommittee, which is part of a separate corporate-wide initiative, was formed in anticipation of increases in the Gillam area workforce resulting from all Manitoba Hydro projects being constructed in the area in an overlapping timeframe. (Additional information on the Subcommittee is provided in 3.3.2.1 Infrastructure and Services – Construction.)

Monitoring information pertaining to worker interaction is primarily intended to be communicated and discussed internally by the Partnership for management of Project effects; it is anticipated that, due to the sensitive nature of the topics addressed, some information gathered will remain confidential, and will not be included in regulatory and public reporting.

4.1.2.2 OPERATION

As per the EIS, no SEMP Public Safety and Worker Interaction monitoring will be undertaken during the operation phase of the Keeyask Generating Station.

4.2 TRAVEL, ACCESS AND SAFETY

4.2.1 BACKGROUND AND OBJECTIVES

In the Socio-Economic Local Study Area, construction and operation of the Project and related activities may affect the waterways, roadways and trails. These activities could impede travel along the Nelson River, and could affect shoreline access and navigation safety on the river. Project construction activities also have the potential to increase road traffic levels and associated traffic accidents.

Water / Ice-based Travel:

The open-water regime (flows, velocities and levels) on the Nelson River have been modified by the Lake Winnipeg Regulation and Churchill River Diversion projects for over three decades. A similar situation exists for winter ice processes, which vary from year to year depending on the specific water flows and meteorological conditions.

KCNs Members are the predominant users of the waterways upstream and downstream of the Project. Metis, other Aboriginal and non-Aboriginal people may also use the waterways in the vicinity of the Project. Waterways are an important cultural and economic resource for Aboriginal people and have been an integral part of their traditional activities. For several decades, Manitoba Hydro and signatory First Nations to the Northern Flood Agreement have been implementing programs to facilitate safe travel under open-water and ice conditions on the

Nelson River. Through these programs, much has been learned about what is required to support safe travel along the river.

During construction, the Project will affect accessibility and navigation in areas where and when construction is occurring. The operation of the Project is expected to alter the existing water and ice regimes within the Project's anticipated open-water hydraulic zone of influence. During open-water conditions, these changes are expected to result in safer boat travel due to more stable flows and levels along most of this reach of the river. Reservoir flooding is expected to create navigation hazards (e.g., floating debris, bogs, etc.) and flooding of land-based trails. During winter conditions, the ice cover is expected to occur earlier in winter, creating a more stable ice cover for about 25 km upstream of the station.

While Manitoba Hydro has a high degree of confidence in the predicted open-water hydraulic zone of influence, TCN and YFFN Members have expressed concern that the effects of the Project will go beyond the predicted hydraulic zone of influence, and that travel safety related to ice and open-water travel across Split Lake will be affected. Specific concerns have been expressed about travel safety related to ice and open-water travel across Split Lake for YFFN Members who will travel across Split Lake to access employment opportunities at the Project site.

Implementation of the Keeyask Reservoir Clearing Plan and the Waterways Management Program (Schedules 11-1 and 11-2 of the JKDA respectively); safety signage posted in English and Cree around the Project site; and the implementation of portages are intended to mitigate potential effects on water travel upstream, downstream and in the vicinity of the Project. These plans, developed jointly between the KCNs and Manitoba Hydro, build on previous experience, and will help to accommodate existing users of the Nelson River and manage safety liabilities associated with the Project.

The first phase of the Waterways Management Program will consist of implementing measures in the pre-flooding period, including travel, access and safety-related activities such as: operating a multi-purpose boat patrol, monitoring waterway activities and liaising with individuals and groups using the Nelson River; stabilizing shorelines at sensitive streams using low impact techniques; cutting and maintaining trails and portages; and installing and monitoring regularly the condition of safe ice trails and the nature and extent of their use.

Implementation of the second phase of the Waterways Management Program will include (in different time periods after impoundment) travel, access and safety-related activities such as: collecting floating debris; monitoring waterway activities and liaising with individuals and groups; marking safe travel routes, by installing and maintaining navigation and hazard markers; constructing and maintaining safe landing sites and required docks and shelters; installing and monitoring regularly the condition of safe ice trails and the nature and extent of their use; monitoring and maintaining shoreline stabilization measures previously installed at sensitive streams; and maintaining trails and portages.

Road-based Travel, Access and Safety:

As noted in 3.4 Transportation Infrastructure, regarding Project construction:

- During construction, Project effects on road-based travel will stem from increased vehicular traffic associated with transport of people (construction personnel, construction service providers), equipment and materials on public roads in the Local Study Area.
- MIT is responsible for upgrades to the existing provincial highway system, including upgrading of PR 280. It is anticipated that MIT upgrades and maintenance of PR 280 will be sufficient to handle increased travel by road.
- A traffic analysis was undertaken to examine potential increases in provincial road traffic due to the Project. The total volume of traffic for all was predicted to be well below roadway design tolerances.

During construction, local residents and regular haulers already travelling these routes are likely to notice the increase in the number of vehicles that they encounter. Increased traffic volume on public roads has the potential to affect traffic safety and road conditions. Despite predictions that the highway system will be able to handle increased traffic volume, TCN has expressed the concern there is the potential for a proportionally higher rate of collisions relative to traffic increases. KCNs Members and residents of the Socio-Economic Local Study Area have expressed concern about the added potential for collisions with regard to the safety and conditions of PR 280.

During the operation period, MIT will re-route PR 280 to include the north access road, the generating station facility over the Nelson River and the south access road to Gillam. MIT is the responsible authority for regular maintenance of the highway system. No further monitoring is required.

A Construction Access Management Plan has been developed by Manitoba Hydro and the KCNs to manage access to the Project site. The Construction Access Management Plan includes a section on monitoring and follow-up related to use of the access roads.

As per the EIS, no SEMP monitoring related to water/ice-based travel will be undertaken during the construction phase of the Project. However, information on Waterways Management Program debris-related activities during construction is reported through the Physical Environment Monitoring Plan

The objective of monitoring of road-based transportation infrastructure is to understand if the regular maintenance and the planned improvements to PR280, by Manitoba Infrastructure and Transportation (MIT) are sufficient to handle the increased travel by road associated with the Project. The KCNs also noted a concern regarding increased traffic of PR 280.

4.2.2 METHODOLOGY AND SCHEDULE

4.2.2.1 CONSTRUCTION

It is anticipated that MIT monitoring results for traffic-related collisions on PR 280 will be obtained, and reported on, as available from MIT. If it is determined that traffic collisions have increased considerably, the Partnership will communicate with MIT to determine if additional mitigation measures are appropriate.

Regular Construction Access Management Plan monitoring of traffic on the access roads will take place through Manitoba Hydro's gate records and security reports from patrols. The following related information will be reported on through the SEMP:

- Number and type of non-construction users (including suppliers) of the access roads, including resource users.
- Incidents or problems with non-construction use of the access roads (circumstances and timing – e.g. parking along the road).

This information will be summarized annually and will form part of the annual report.

4.2.2.2 OPERATION

As noted in 3.4 Transportation Infrastructure, Manitoba Hydro will continue to monitor water levels at Split Lake on an annual basis and will inform TCN and YFFN of the results.

Information on Waterways Management Program debris-related activities during operation will also be available through the Physical Environment Monitoring Plan.

During operation, Project-related traffic is not expected to have a noticeable effect on road traffic levels. As a result, as per the EIS, no SEMP monitoring for road-based travel, access and safety will be undertaken during the operation phase of the of the Keeyask Generating Station.

4.3 CULTURE AND SPIRITUALITY

4.3.1 BACKGROUND AND OBJECTIVES

The Cree worldview indicates that everything is alive, is interconnected and needs to be respected. The Cree view themselves as being stewards of *Askiy* (land, water and living things). Through the KCNs efforts and their desire to uphold this worldview, processes and measures have been put in place to address the potential effects of Project construction and operation on Cree culture and spirituality. These measures and processes, tailored to the specific circumstances and priorities for each of the KCNs, include being Partners in the Project, the Adverse Effects Agreements (AEAs) negotiated and signed by each of the KCNs, and the

Employee Retention and Support Services Direct Negotiated Contract that includes cultural training of construction workers and ceremonies to mark key milestones in the construction Project.

Being Partners in the Project provides the KCNs with involvement in Project decision-making and influence over how the Project has been planned, and how it will be constructed, operated and monitored. Through this mechanism, the KCNs are able to bring to bear the Cree worldview and implications for Cree culture and spirituality in Project decision-making and governance.

AEAs have been negotiated with each of the KCNs to mitigate adverse effects of the Project, including interference with its traditional customs, practices and traditions. The agreements provide for offsetting programs that address the potential adverse effects of the Project on culture and spirituality. Programs agreed upon in the AEAs (which vary by each KCN) deal with traditional lifestyles, Cree language, land/environmental stewardship, access programs for resource harvesting, wellness counselling and a cultural sustainability program that can assist in maintaining cultural success and lessening Project effects. On an annual basis, each community will undertake its own internal evaluation of the AEA offsetting programs and determine whether they continue to address the adverse effects of the Project. If required, these agreements provide flexibility for the AEA offsetting programs to be modified to more adequately address Project effects, as they are experienced. The agreements also provide the opportunity for the communities and Manitoba Hydro to negotiate additional programming if unforeseen or unanticipated effects arise.

The objective of monitoring for culture and spirituality is to assess how employment experience during project construction will affect the culture of workers and their families.

4.3.2 METHODOLOGY AND SCHEDULE

4.3.2.1 CONSTRUCTION

There is some uncertainty about how the employment experience of KCNs workers during Project construction will affect the workers and their families. To address this uncertainty, during the third year of construction, the Partnership will conduct a worker and family survey of a sample of KCNs workers employed on Project construction, and their families, to assess their employment experience such as cross-cultural awareness training, work and camp life, counselling, ceremonies, and effects on family, community life and traditional life. The KCNs will be involved in the design and implementation of the worker and family survey.

An Employee Retention and Support Services DNC for the construction phase will include KCNs Members orientations, on-site counselling, Aboriginal awareness training for all Project workers at the site, and ceremonies at key Project milestones.

Outcomes from on-site support and retention services will be documented by the contractor. Monitoring information pertaining to culture and spirituality, including employee retention and

support services outcomes and the results of the worker and family survey, is primarily intended to be communicated and discussed internally by the Partnership for management of Project effects; it is anticipated that, due to the sensitive nature of the topics addressed, details will remain confidential, and will not be included in regulatory and public reporting.

4.3.2.2 OPERATION

As per the EIS, no SEMP Culture, Heritage and Spirituality monitoring will be undertaken during the operation phase of the Keeyask Generating Station.

4.4 MERCURY AND HUMAN HEALTH[4]

4.4.1 BACKGROUND AND OBJECTIVES

Flooding resulting from the Project will release methylmercury into the Nelson River biological system (*i.e.,* the food chain). Methylmercury can bioaccumulate (*i.e.*, build up and become more concentrated at higher levels in the food chain). For people, the vast majority of exposure to methylmercury is through the consumption of fish. Fish with the highest methylmercury levels tend to be the large and long-lived predatory fish, such as jackfish and pickerel; however, most fish in the region contain some levels of mercury [5].

In-vicinity communities, including the KCNs communities, are concerned about health effects from the impoundment of the Keeyask reservoir and subsequent flooding, which is expected to increase mercury concentrations in fish in Gull Lake and, to a lesser extent, Stephens Lake. Fish, particularly lake whitefish, pickerel and jackfish, are country food staples for the KCNs, as well as being sources of food for recreational users of Gull and Stephens Lakes.

There are no anticipated effects of the Project during the construction phase in relation to mercury and human health.

After impoundment of the reservoir, flooding of soils is expected to release mercury into the environment and food chain. Increased mercury levels, especially in jackfish and pickerel in Gull Lake and to a lesser extent in Stephens Lake, are estimated to peak about three to seven years after impoundment and then return to pre-impoundment levels over about 30 years.

[4] The Keeyask Generation Project Mercury and Human Health Risk Management Plan (RMP) was submitted to the Federal/Provincial Technical Advisory Committee (TAC) for review and comment on June 3, 2015. As a result of the TAC review and comment process, monitoring commitments and processes identified in the RMP may be refined. If refinement to monitoring or processes is required, SEMP Section 4.4 will be modified to reflect changes. All regulatory reporting requirements with regard to the RMP will be fulfilled through the Socio-Economic Monitoring Plan reporting process.

[5] From this point forward, for ease of reading, reference to methylmercury is shortened to mercury unless otherwise noted.

In order to characterize the effects of impoundment on mercury levels and subsequently human health, exposure to mercury under post-impoundment conditions was calculated in a Human Health Risk Assessment (HHRA). Concentrations of mercury were predicted for foods identified by KCNs community Members, including fish, wild game, waterfowl and surface water. The HHRA considered post-impoundment conditions for Gull Lake and Stephens Lake because these are the waterbodies that will have increased levels of mercury, particularly Gull Lake where flooding of the reservoir will occur.

To address the predicted increased mercury levels in fish, the respective AEAs of the KCNs have offsetting programs to enable them to pursue continued use of country foods from areas unaffected by the Project and within their respective Resource Management Areas. For CNP, this includes programs specific to the harvesting and distribution of fish in their communities (i.e., TCN Healthy Food Fish Program and WLFN Community Fish Program).

The objective of the monitoring for mercury and human health is to support discussion and build understanding around mercury and fish that allows individuals and families to confidently assess and manage the benefits and risks associated with eating wild fish in the Project area and to support and enhance local practices of fishing for sharing, and eating wild-caught fish at levels that are healthy for all community members.

4.4.2 METHODOLOGY AND SCHEDULE

4.4.2.1 CONSTRUCTION

As noted previously, there are no anticipated effects of the Project during the construction phase in relation to methylmercury and human health.

During the construction phase, and as per the Keeyask Generation Project Environment Act Licence, the Partnership will prepare a Mercury and Human Health Risk Management Plan (RMP) in consultation with Health Canada, Manitoba Health, and Manitoba Conservation and Water Stewardship. The RMP is developed to fulfill Manitoba Environmental Act Licence No. 3107, Condition #18(n) which requires the Keeyask Hydropower Limited Partnership (KHLP) to submit a plan “to identify, assess, respond to, communicate and monitor risks to human health from increased methylmercury in the environment as a result of the Development”. The RMP outlines mercury and human health-related mitigation and monitoring commitments and requirements, as well as a process in which additional details with regard to implementation will be developed. This plan continues to evolve and health input will occur for key components which will be detailed in the implementation planning process of the Keeyask Mercury and Human Health Risk Management Plan. Required regulatory reporting for the RMP will be through this Socio-Economic Monitoring Plan.

Prior to impoundment, a risk communication strategy will be implemented in KCNs communities. In addition, a baseline food survey and hair-monitoring program will also be made available to KCNs communities that wish to participate.

4.4.2.2 OPERATION

As noted in the Keeyask Mercury and Human Health Risk Management Plan, food surveys in the KCNs communities will be undertaken approximately every five years, starting at peak mercury levels (three to seven years post-impoundment), until mercury levels return to baseline conditions. The food surveys, with a focus on country food consumption, will also evaluate the effectiveness of the communication products available to the communities. Hair monitoring will continue to be made available during post-impoundment conditions.

The information from the food surveys will provide input to updated HHRAs, which will also be undertaken every five years after peak mercury levels have been reached and until mercury levels return to baseline conditions. HHRA results will be reviewed with the KCNs and with federal and provincial health authorities to determine if adjustments can be made to consumption recommendations, which will then be provided to the KCNs communities via communication products. Results will also be provided (e.g., via signage) for other domestic resource harvesters and sport fishers.

Additional EPP monitoring that will contribute to HHRA updates includes:

- Monitoring of mercury concentrations in fish muscle under the Aquatic Effects Monitoring Plan;
- Periodic volunteer sampling of wild game, waterfowl and wild plants (as submitted by local resource harvesters) through the Terrestrial Effects Monitoring Plan; and
- Water quality monitoring in Gull and Stephens Lakes.

The implementation of the Keeyask Mercury and Human Health Risk Management Plan will be evaluated and feedback on key components will be considered in consultation with input from health jurisdictions.

5.0 REPORTING AND FOLLOW-UP

5.1 CONSTRUCTION PHASE

Results of socio-economic monitoring during the construction phase will include:

- Employment and training outcomes *(provided in annual reports)*;
- Tracking of purchases (provided in annual reports);
- Results of KPIs in Thompson, Gillam and the KCNs communities re: indirect business opportunities generated by the Project) *(to be implemented in Year 3 or 4; provided in the corresponding annual report)*;
- Results of a KPI program of key participants involved in management of the DNCs *(to be implemented in Year 4 and 8; to be reported to the Partnership only)*
- Labour income outcomes(provided in annual reports);
- Population changes in Gillam and KCNs communities(provided in annual reports);
- If population change suggests that notable Project-induced in-migration or out-migration is taking place and is greater than predicted (i.e., on an as-needed basis), results from KPIs to understand the influence of the Project on population (to be implemented as and if required);
- Results of a one-time program of KPIs with representatives of the KCNs' Housing Authorities to identify any apparent Project effects on housing (to be implemented around Year 3 or 4 – exact timing to be determined through discussions at MAC; provided in the corresponding annual report);
- Results of KPIs with contractors and service providers in the KCNs communities regarding effects on infrastructure and services(to be implemented in Year 2 or 3; provided in the corresponding annual report);
- Information pertaining to Keeyask-related worker interactions and infrastructure and services effects, as it is available through the Gillam Worker Interaction Subcommittee (a separate, corporate-wide initiative) (due to the sensitive nature of the topics addressed, some information to be reported to the Partnership only);
- Monitoring of traffic volumes for PR 280 (provided in annual report, when available from the Province);
- Monitoring of traffic-related collisions on PR 280 (provided in annual report, when available from the Province);
- Information collected through the Construction Access Management Plan on traffic volume on the access roads, including number and type of non-construction users (provided in annual reports);
- Information collected through the Construction Access Management Plan on incidents or problems associated with non-construction use of the access roads *(provided in annual reports)*;

- Outcomes from on-site employee retention and support services (due to the sensitive nature of the topics addressed, details to be reported to the Partnership only); and
- Results of a worker-family survey of a sample of KCNs workers employed on the Project re: their employment experience (to be implemented in Year 3; due to the sensitive nature of the topics addressed, details to be reported to the Partnership only).
- Results of a baseline food survey of KCNs Members diets (emphasis on wild foods)(*to be implemented in Year 3; summary results provided in Annual Report*)
- Understanding of mercury levels, for the KCN communities as a whole, through voluntary baseline hair sampling Program (*for KCN members who wish to participate; implemented in Year 3; summary results provided in Annual report*)
- Documenting annual progress made of the implementation of the RMP, associated engagement with KCNs communities, other stakeholders and summary results from the AEMP, TEMP and HHRA (where applicable).

See Table 1 for an illustration of the monitoring schedule.

See Section 1.2 Objectives and Approach, as well as specific sections, for additional information regarding the use of monitoring results.

5.2 OPERATION PHASE

Results of monitoring during the operation phase will include:

- Population changes in Gillam (to be implemented annually over first five years of the operation phase);
- Information on monitoring of water levels at Split Lake (to be implemented annually, reported to TCN and YFFN only);
- Updated HHRAs, (approximately every five years after peak mercury levels have been reached, until mercury levels return to baseline conditions; for review with the KCNs and with federal and provincial health authorities); and
- Food surveys, to be undertaken in the KCNs communities (approximately every five years after peak mercury levels have been reached, until mercury levels return to baseline conditions; for input into the HHRAs).
- Hair monitoring, to be undertaken on a voluntary basis in the KCNs communities (approximately every five years after peak mercury levels have been reached, until mercury levels return to baseline conditions; for input into the HHRAs).
- Documenting annual progress made of the implementation of the RMP, associated engagement with KCNs communities, other stakeholders and summary results from the AEMP, TEMP and HHRA (where applicable).

See Table 1 for an illustration of the monitoring schedule.

See Section 1.2 Objectives and Approach, as well as specific sections, for additional information regarding the use of monitoring results.

Table 1: Summary of Socio-Economic Monitoring Activities Planned for the Keeyask Socio-Economic Monitoring

Monitoring Program	Construction								Operation										
	Year(s)																		
	1	2	3	4	5	6	7	8	9[1]	10	11	12	13	14	15	16	17	18-25	26-35
ECONOMY																			
Employment and Training Opportunities (See 2.1.2.1 and 2.1.2.2)																			
Employment and training outcomes	●	●	●	●	●	●	●	●	●										
Business Opportunities (See 2.2.2.1 and 2.2.2.2)																			
Tracking of purchases	●	●	●	●	●	●	●	●	●										
Indirect business opportunities KPIs (Thompson, Gillam and KCNs communities)			● or ●																
KPIs of key participants in management of DNCs [2]				●				●											
Income (See 2.3.2.1 and 2.3.2.2)																			
Labour income outcomes	●	●	●	●	●	●	●	●	●										
POPULATION, INFRASTRUCTURE AND SERVICES																			
Population (See 3.1.2.1 and 3.1.2.2)																			
Population changes (Gillam and KCNs communities)	●	●	●	●	●	●	●	●	●										
Population KPIs (if required)																			
Population changes (Gillam)									●	●	●	●	●						

Table 1: Summary of Socio-Economic Monitoring Activities Planned for the Keeyask Socio-Economic Monitoring

Monitoring Program	Construction								Operation										
	Year(s)																		
	1	2	3	4	5	6	7	8	9[1]	10	11	12	13	14	15	16	17	18-25	26-35
Housing (See 3.2.2.1 and 3.2.2.2)																			
Housing KPIs (KCNs Housing Authorities) [3]			● or ●																
Infrastructure and Services (See 3.3.2.1 and 3.3.2.2)																			
Contractors/service providers KPIs (KCNs communities)		● or ●																	
Information as available through Gillam Worker Interaction Subcommittee [2]																			
Transportation Infrastructure (See 3.4.2.1 and 3.4.2.2)																			
Traffic volume on PR 280 [4]		●		●		●		●											
Split Lake water levels [5]									●	●	●	●	●	●	●	●	●	●	●
Access road traffic volume	●	●	●	●	●	●	●	●	●										
Road collisions on PR 280 [4]																			
Access road non-construction use	●	●	●	●	●	●	●	●	●										
PERSONAL, FAMILY AND COMMUNITY LIFE																			
Public Safety and Worker Interaction (See 4.1.2.1 and 4.1.2.2)																			
Information as available through Gillam Worker Interaction Subcommittee [2]																			

Table 1: Summary of Socio-Economic Monitoring Activities Planned for the Keeyask Socio-Economic Monitoring

Monitoring Program	Construction								Operation										
	Year(s)																		
	1	2	3	4	5	6	7	8	9[1]	10	11	12	13	14	15	16	17	18-25	26-35
Travel, Access and Safety (See 4.2.2.1 and 4.2.2.2)																			
Access road non-construction use incidents or problems	●	●	●	●	●	●	●	●	●										
Culture and Spirituality (See 4.3.2.1 and 4.3.2.2)																			
On-site employee retention and support services outcomes [2]	●	●	●	●	●	●	●	●	●										
Worker family survey of KCNs workers [2]			●																
MERCURY AND HUMAN HEALTH (See 4.4.2.1 and 4.4.2.2)																			
Food surveys (timing to be confirmed[6])			●						●				●					●	●
Hair Sampling (timing to be confirmed[7])			●						●				●					●	●
Revised HHRAs (timing to be confirmed)														●				●	●

= Economic

= Population, infrastructure and services

= Personal, family and community life

[1] Year 9 is included for some construction phase monitoring components, to note that there will be reporting of construction phase monitoring during the first year of operation.
[2] Results or details to be reported to the Partnership only.
[3] Exact timing to be determined through discussions at the MAC.
[4] As available from the Province.
[5] Results to be reported to TCN and YFFN only.
[6] Optimal timing and intervals of these initiatives will be determined through further discussion with Partner First Nation communities, technical experts, and health agencies.
[7] Optimal timing and intervals of these initiatives will be determined through further discussion with Partner First Nation communities, technical experts, and health agencies.