



Keeyask Generation Project Resource Use Monitoring Plan

Resource Use Monitoring Report

RUMP-2019-01



KEYYASK GENERATION PROJECT

RESOURCE USE MONITORING PLAN

REPORT #RUMP-2019-01

RESOURCE USE MONITORING: YEAR 5 CONSTRUCTION

Prepared for

Manitoba Hydro

By

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SUMMARY

Background\

Construction of the Keeyask Generation Project (the Project) at Gull Rapids began in July 2014. The Keeyask Hydropower Limited Partnership (KHLP) was required to prepare a plan to monitor the effects of construction and operation of the Keeyask Generating Station (GS) on the environment. Monitoring results will help the KHLP, government regulators, members of local First Nation communities, and the general public understand how construction and operation of the generating station will affect the environment, and whether more needs to be done to reduce harmful effects.

Resource use is important to monitor because it is important to local First Nation people. On-site harvests by Project workforce personnel are not expected because of rules that prohibit hunting and fishing there (KHLP 2014). However, if the workforce is harvesting resources in off-site areas, this may affect the success of local First Nation peoples' domestic resource use. The Project also may increase the use of the area by other resource harvester groups such as licensed hunters and fishers in off-site areas. Levels of harvest, occurring on the Project site by local authorized resource users, is also important to understand.

Why is the study being done?

The 2018 monitoring was done to answer three questions:

- Has the construction workforce been harvesting resources and, if so, how much? It is important to understand if harvest by construction workers is reducing the resources available for harvest by local First Nation people.
- Has the Project or its workforce caused a change in the levels of licensed (non-Aboriginal) harvest? In other words, is there more use of the area for resource harvest due to the presence of the workforce or for other reasons related to the Project?
- Have authorized resource users accessed the site through the access gates? It is important to understand how the site is being used for resource harvesting.

What was done?

A construction workforce survey was conducted at the end of November 2018 to ask construction workers about harvesting in the area; previous surveys were completed in November 2016, June 2015, and November 2014. Keeyask camp site personnel were interviewed to provide information on the harvesting activities of the workforce and to understand any use of the site by authorized resource users. An official from Manitoba Sustainable Development (MSD) was interviewed to understand and record changes in licensed (non-Aboriginal) harvests in the area.

What was found?

In 2018, 498 workforce survey responses were received. This was much greater than any previous study year. Prior to the 2018 survey, the greatest number of responses completed was 244 in 2015, followed by 168 in 2016, and 154 in 2014.

The 2018 survey results suggest that there has been an increase in regional resource use undertaken by the construction workforce when compared with findings from 2016, 2015 and 2014. An increase in fishing and hunting activity by the construction workforce occurred at local off-site areas along with a limited amount of berry, mint and other plant harvest.

As in previous years, the North Moswakot River at Provincial Road 280 continues to be a preferred fishing location for some construction workforce members during working days. Results from the survey show an increase in the amount of fishing at this location over previous years and that all fish were caught (and released) by both Aboriginal and non-Aboriginal workforce personnel. For the first time, areas around Gillam and the Kettle and Long Spruce generating stations were reported as popular fishing areas for both Aboriginal and non-Aboriginal personnel working on the South Access Road. Email correspondence with an MSD official and an interview with the Keeyask site environmental lead confirmed increased fishing activity in these areas. Changes to the number of fishing licenses issued was not noted. Harvests of animals other than fish were reported only by Aboriginal workforce members.

Survey results indicated that ten moose and thirteen caribou were harvested within the study area by three Aboriginal hunters from local communities. An interview with an MSD official indicated that regional caribou and moose hunting by licensed hunters has remained stable over the past year. However, the official noted that in the winter of 2017/2018, a large herd of caribou remained in the area around Gillam and Split Lake which led to a possible increase in local caribou harvesting by Aboriginal peoples (non-workforce). In addition, the MSD official noticed increased accessibility and line of sight due to the Bipole III and collector lines running to the north and south of Stephens Lake which may have been, and continue to be, influencing hunting pressure. It is unlawful for non-Aboriginal people to hunt caribou in Game Hunting Area 9 (the area that includes the Keeyask site).

On-site environmental staff were not aware of resource harvesting undertaken by the workforce residing at the Keeyask camp or of any gate records indicating authorized resource users have entered the site for the purposes of hunting, fishing or gathering.

What does it mean?

Overall, workforce harvest monitoring conducted to date has not identified that non-local members of the workforce are harvesting in quantities that may negatively affect domestic resource use undertaken by local First Nation residents. The 2018 survey was the first to detect an increase in fishing in areas around Gillam and the Kettle and Long Spruce generating stations by workforce members. This fishing occurred during the open water seasons of 2017 and 2018 by south access road workers housed at the Kettle Camp. Once the crossing over the

Nelson River was completed in the autumn of 2018, workers were relocated to the Keeyask main construction camp where options to conduct fishing outside the project site are limited by a lack of transportation. As such, there are no expectations that this increase in fishing will continue during the open water season of 2019 and beyond.

What will be done next?

It is anticipated that the construction workforce survey will be conducted in November, 2019 as the construction workforce is expected to decline in future years. This survey can be used to verify that centralizing the workforce at the Keeyask camp reduced harvest to nominal levels. Interviews with on-site Keeyask environmental staff and Manitoba Sustainable Development officials are expected to continue to ensure information is documented for future reporting purposes.

ACKNOWLEDGEMENTS

We would like to thank Manitoba Hydro for the opportunity and resources to conduct this study.

Keeyask site personnel provided extensive support to the workforce survey and offered their expertise. Thanks to the Manitoba Sustainable Development, Parks and Regional Services (Northeast Division) for providing information on hunting and fishing activity in the region.

A special thank you is extended to Kim Bryson, the Keeyask Site Environmental Lead, for her support to the survey.

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1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt (MW) hydroelectric generating station currently under construction in northern Manitoba. The Project is located at Gull Rapids on the lower Nelson River in northern Manitoba where Gull Lake flows into Stephens Lake, 35 kilometres (km) upstream of the existing Kettle GS.

The *Keeyask Generation Project: Response to EIS Guidelines*, completed in June 2012, provides a summary of predicted effects and planned mitigation for the Project. Technical supporting information for the resource use environment, including a description of the environmental setting, effects and mitigation, and a summary of proposed monitoring and follow-up programs is provided in the *Keeyask Generation Project Environmental Impact Statement: Socio-Economic Environment Supporting Volume (SE SV)*. As part of the licensing process for the Project, a Resource Use Monitoring Plan (RUMP) was developed detailing the monitoring activities of various components of the resource use environment for the construction and operation phases of the Project.

This document provides results of RUMP Year 5 monitoring activities. Results are available for all of the RUMP key objectives:

- To determine if the workforce is hunting, fishing, or gathering within or outside the Project site and, if so, whether the harvest would adversely affect domestic resource use;
- To document Project-related changes to moose and caribou licence demand, harvest patterns, and, if feasible, quantify harvests;
- To document Project-related changes to licensed fish harvest patterns and fishing intensity;
- To summarize resource use access requests and collect voluntary harvest information from authorized resource harvesters; and
- To consolidate information generated from other monitoring plans/programs.

To achieve these objectives, the following activities were conducted:

- A construction workforce survey was undertaken to document fishing, hunting, and plant gathering activities that may be conducted by the workforce;
- An interview was conducted with a Manitoba Sustainable Development (MSD) official to understand any changes to licensed hunting and fishing and potential linkages to the Project or its workforce; and
- Keeyask site personnel were interviewed to understand harvesting activities undertaken by the workforce and to request gate records of site access by authorized resource users.

The study area included areas east of Thompson, the PR 280 corridor, the Keeyask site area, and west to the Gillam area (Map 1).

Information consolidated from other monitoring programs included a waterfowl monitoring program and caribou and mammal monitoring conducted by Wildlife Resource Consulting Service (WRCS 2016, 2018, 2019; Knudson Wildlife Management Systems and WRCS 2018).

2.0 METHODS

2.1 WORKFORCE SURVEY

The purpose of the voluntary workforce survey was to document fishing, hunting, and plant gathering activities that may be conducted by the Project workforce. Survey results provide an indication of whether the construction workforce is harvesting at levels that may have the potential to affect local domestic use of resources and to provide information to other Project monitoring plans.

A workforce survey (Appendix 1), the fourth completed since the beginning of the Keeyask Generation Project's construction phase, was conducted in late November 2018. The survey included resource use from November 2017 to end of November 2018. Previous resource use surveys were conducted in 2014 (see Eaton 2015), 2015 (see Eaton 2016) and 2016 (Eaton and Bretecher, 2017).

Notification of the November 2018 workforce survey was posted in advance at the Keeyask Camp in common areas to generate awareness of the survey and to inform potential workforce participants that participation was voluntary and results would be kept confidential (Appendix 2).

The survey was conducted during the last two weeks of November 2018 using two different approaches to maximize participation:

- Surveys were provided to contractors for distribution at their morning safety meetings with their staff, during the week of November 19th to 23rd; and
- In-person surveys were also conducted outside the Keeyask Café between November 26th and 28th during mealtimes.

Sampling targets were set to gain an understanding of the percentage of the workforce surveyed and to determine if enough people were surveyed to get reliable results. Sampling targets were set at 10% of the total construction workforce and were exceeded in 2014 (23% of a total workforce of 678 at 154 completed surveys) and in 2015 (21% of total workforce of 1159 completed at 244 surveys) but not 2016 (7% of total workforce of 2398 completed only 168 surveys). In 2018 (Year 5), the survey response rate met the proposed 10% sampling target with 13% of the total workforce (498 of the 3768 total workforce).

Knowledge of where resource harvesters normally reside is also important to record. For example, harvesters new to the area would be conducting new or additional harvests, while harvesters already residing in, or visiting the area would harvest resources regardless of Project employment. Local Aboriginal people are those that reside in communities close to the Project (e.g., Split Lake, Ilford, Gillam, Fox Lake, Bird and York Landing). These workforce members conduct harvests that are not additive due to the Project. Other personnel (e.g., Metis, non-local

Aboriginal, non-Aboriginal), who do not normally live in the area, however, may be conducting additional harvesting in the area that may not have occurred without the Project. It is these potential new harvests that are of particular interest to this study.

If additional harvesting is being conducted by non-local groups, an estimated total additive harvest can be calculated from the known (surveyed) harvest to represent harvests by the entire workforce.

2.2 SITE PERSONNEL INTERVIEW

To build on and verify workforce survey results, the Keeyask site environmental lead (Ms. Kim Bryson) was interviewed on November 27, 2018. The site environmental lead was asked for information regarding resource use conducted by the construction workforce and any available details about that use. Additionally, Keeyask access gate records containing resource user access requests and voluntary statements of harvests were requested from the site environmental lead.

2.3 INTERVIEW WITH MANITOBA SUSTAINABLE DEVELOPMENT OFFICIAL

Interview questions were provided to the MSD District Supervisor located in Gillam on October 10, 2018 to gather expert perspectives on the changing demand for licences (moose, caribou, and fish), changes in the spatial distribution of resource use associated with the Project or its workforce, and changes in intensity of resource use associated with the Project or its workforce. Interview questions are provided in Appendix 3; responses to questions were received on October 12, 2018.

It should be noted that it is not possible to directly link changes in licence demand to effects of the Project on resource use due to other factors (e.g., moose hunters coming from the south due to Game Hunting Area [GHA] closures there). The areas where licences are issued are also a factor. For example, for the six GHAs that intersect within the Project region (Map 2) and several other GHAs, moose licensing is open or general and harvest is not tracked specifically by GHA. Fishing licences also are valid for any location within Manitoba (i.e., they can be purchased in one location and used in another within Manitoba).

Despite these limitations, consulting the local expertise of MSD officials, in addition to workforce survey results, provides the best available understanding of any Project-related changes to the nature, distribution, and intensity of licensed harvest.

3.0 RESULTS

3.1 WORKFORCE SURVEY

Four hundred and ninety-eight surveys were completed by construction workforce personnel. Employment statistics (see Appendix 4, KHLP 2018) indicated a total workforce count of 3,768 including 1,059 Aboriginal (28%) and 2,709 non-Aboriginal (72%) personnel at the end of August 2018. These statistics were used to calculate the proportion of the workforce surveyed by identity (Table 1).

Over 13% of the total workforce returned surveys. The non-Aboriginal response rate was 14%. The Aboriginal response rate was 11% of all workers who identified as Aboriginal inclusive of local community members (5%), non-local Aboriginal people (17%) and Metis (15%).

The survey response exceeded the targeted rate of 10% at 13% of the total workforce surveyed suggesting that the response rate is adequate to make inferences about total harvests by the workforce. The response rate was higher than the 2014 survey (7%) but lower than the response rate in 2015 (21%) and 2014 (23%). The nominal number of surveys completed in 2018 (498) exceeded the surveys completed in 2016 (168), 2015 (244) and 2014 (154). Although the nominal number of responses was the highest to date, at 498 responses, the proportion was still lower than the two previous highest proportions in 2015 and 2014. This reduction is primarily due to the continued increase of workforce personnel from 2014 onwards. While the 2016 survey results suggested that a possible change in survey method, implementation or target may be needed to increase response proportion, the results from the 2018 survey suggest not changing the survey protocol.

Table 1: Surveyed Personnel by Identity and Proportion of Total Workforce Surveyed.

Identity	# Surveyed	Total Employed ²	Proportion of Total Workforce Surveyed (%)
Non-Aboriginal	377	2,709	14
Partner First Nations ¹	21	455	5
Non-local Aboriginal	63	361	17
Metis	37	243	15
Total/Average	498	3,768	13

1. 'Partner First Nations' includes members of: Tataskweyak Cree Nation, War Lake First Nation, Fox Lake Cree Nation, and York Factory First Nation.
2. Source: KHLP (2018).

Of the 498 completed surveys, 38 (8%) workforce personnel indicated that they had conducted resource use in the study area during the reporting period (November 2017 to November 2018). Of the 38 individuals who conducted resource use, five (13%) were Partner First Nation members, four (11%) were Metis, 6 (16%) were other Aboriginals and twenty-three (61%) were non-Aboriginal.

3.1.1 RESOURCE USE DURING DAYS WORKED

Of the 38 workforce members who reported resource use, 23 (fishers and hunters combined) conducted resource use during days they worked.

Twenty workforce members fished during days worked, 13 of which were non-Aboriginal and seven were Aboriginal. Fishing locations included off-site areas of Split Lake, North Moswakot River, Kettle River, and the Nelson River near Kettle and Long Spruce generating stations. Harvest was reported by every group, with Metis members harvesting 45 fish (45 Walleye), non-local Aboriginals harvesting 17 fish (7 Walleye, 10 Northern Pike) and non-Aboriginals harvesting 49 fish (31 Walleye and 18 Northern Pike). Twenty fishers spent an estimated total of 782 hours fishing over the 12 month period averaging about 3.25 hours per month per person fishing. The fish caught by all groups were reported as harvested as opposed to caught and then released. It should be noted however, that fishing was primarily, if not exclusively open water fishing conducted between May and October and that fishing effort declined substantially in the summer of 2018 as observed by Manitoba Sustainable Development.

Hunting was not reported on days worked by any group.

Four non-aboriginal workers and one local Aboriginal workforce member reported gathering resources on days worked. Small quantities of Labrador tea, strawberries, blueberries, raspberries, cranberries, cloudberries, and chaga were harvested near Troy and Gull lakes and the Nelson River by non-Aboriginal workers. One non-Aboriginal individual picked berries behind one of the Hydro offices on the Keeyask site. Appendix 5 contains a summary of all resource use.

3.1.2 RESOURCE USE DURING DAYS OFF

Of the 38 workforce members who reported resource use, 17 (fishers and hunters combined) conducted resource use on days they did not work.

Fishing for Walleye, Northern Pike, Lake Sturgeon, Lake Whitefish, perch and suckers was conducted by 14 participants; four were local Aboriginal, nine were non-Aboriginal, two were unspecified Aboriginal, one was non-local Aboriginal and one was Metis. Fishing locations included Split, Assean and Stephens lakes, Odei, Grass, North Moswakot and Kettle rivers as well as on the Nelson River near Kettle and Long Spruce generating stations. Although there

was some catch and release reported, the majority of participants reported harvest of Walleye, Northern Pike, Lake Sturgeon and/or Lake Whitefish which totalled over 2,200 fish. Three local Aboriginal individuals were responsible for the vast majority of total fish taken, which was over 2,000 fish. One local Aboriginal reported catching almost 1,500 Walleye and approximately 40 Northern Pike and 20 Lake Sturgeon. Total hours spent by fishers during days off was estimated at 1,722 total hours over the 12 month survey period or an average of 10.25 hours/person/month by the 14 active fishers only.

Hunting by seven workforce members during days off was conducted by three local Aboriginal, one unspecified Aboriginal, two non-Aboriginal, and one non-local Aboriginal participant, all of whom had local connections meaning they would have hunted regardless of their Project employment. Three participants, including two local Aboriginals harvested ten moose and thirteen caribou at undisclosed locations within the study area. The remainder of the hunters reported hunting effort but did not disclose a harvest. Waterfowl, upland bird and rabbit hunting were not reported.

Gathering was reported by one non-local Aboriginal person and two Partner First Nation members. Unknown quantities of plants and berries were harvested by these individuals. One Partner First Nation member reported harvesting between 40 and 50 trees for firewood throughout the year from the Split Lake area. Appendix 5 contains a summary of resource harvesting survey data.

3.1.3 RESULTS FROM OTHER MONITORING ACTIVITIES

Wildlife Resource Consulting Services undertook waterfowl and large mammal monitoring programs as part of the Terrestrial Effects Monitoring Plan (TEMP). The waterfowl survey took place in 2017 and determined that Scaup numbers had increased while duck and goose numbers remained similar to counts conducted in 2015.

Caribou and mammal monitoring took place between April and December 2017 on islands on Gull and Stephens lakes, adjacent to the north and south access roads and in control areas radiating up to 65 km away from the Project site. No signs of hunting were identified within these areas (WRCS 2016, 2018). Moose hunting was not noted during the winter 2017/2018 moose aerial survey, however, stratification flights were cancelled in the Split Lake area in order to not disrupt the caribou hunt at that location (Knudsen Wildlife Management Systems and WRCS 2018).

The caribou aerial survey that was conducted in February 2019 was designed to minimize disruption to hunters and as such, only a single group of hunters was observed (WRCS 2019). Conservation Officers from Manitoba Sustainable Development, however, observed hunters daily while the coastal caribou were present.

3.2 SITE PERSONNEL INTERVIEW

3.2.1 KNOWLEDGE OF WORKFORCE RESOURCE USE AND HARVESTS

The Keeyask site environmental lead was anecdotally aware of fishing and gathering activities undertaken by the Project workforce between November 2017 and November 2018. Workforce personnel were housed in the Kettle Camp during the construction of the South Access Road in 2017 and 2018. At Kettle, there are fewer restrictions on transportation than at Keeyask main camp, which allowed workforce personnel to access popular fishing areas during the summers of 2017 and 2018. Fishing activity decreased in October 2018 when road access over the dam was made possible and workers were relocated back to Keeyask Main Camp.

The Keeyask site environmental lead was not aware of any hunting activities carried out by Project personnel.

There was one incident in the survey period of a member of the workforce picking berries behind the lounge according to the Keeyask site environmental lead. Berries were more plentiful due to a decrease in bear numbers based on reduced sightings. The incident was treated solely as a safety related incident (Bryson *pers. comm.* November 27, 2018).

3.2.2 GATE ACCESS

The Keeyask site environmental lead was not aware of any records indicating that authorized resource users were accessing the construction site via the gate to conduct resource use activities from November 2017 to November 2018 (Bryson *pers. comm.* February 23, 2017). It should be noted that the Partnership has the ability to manage site access through the security gates; however, trail use or water access by local resource users may still occur.

3.3 INTERVIEWS WITH MANITOBA SUSTAINABLE DEVELOPMENT OFFICIALS

3.3.1 LICENSED MOOSE AND CARIBOU HUNTING

A MSD official provided observations over a longer time frame – from April 2017 to November 2018. Changes in demand for moose licences were not detected at the Gillam office by a MSD official between April 2017 and November 2018 which is consistent with the previous survey period in 2015 and 2016. There has not been an increase in demand since the survey period

between 2013 and 2014 (MSD *pers. comm.* October 12, 2018) (Eaton 2017). This suggests continued leveling off of demand. It should be noted that general moose tags can be bought from any MSD vendor in the province and harvests are not tracked by GHA. The MSD official has observed changes in local hunting pressure and location due to the construction of the Project. New Bipole III and collector lines have provided access to new hunting areas around Stephens Lake while also improving the line of sight for shooting. The MSD official also found that local hunters are anticipating the completion of the Project in order to access additional, but unspecified, hunting areas that were once difficult to travel to.

Demand for caribou licences remained high but the number of tags available (75) did not change in GHA 3¹. However, fewer tags were purchased at the Gillam office with more being obtained in Winnipeg, Thompson and The Pas than in previous years. Regular local hunters were apparently unsuccessful in obtaining caribou tags due to a significant allotment of tags being purchased elsewhere. GHA 2 has seen a decrease in tags sold with 38 in 2016, 19 in 2017 and 3 as of October 12, 2018. The total number of available tags for GHA 2 remained at 120, as in previous years. The MSD official noted that a large number of caribou remained in the areas around Gillam, York Landing, Split Lake and Ilford in the winter of 2017 and 2018 which possibly increased hunting success (MSD *pers. comm.* October 12, 2018).

3.3.2 LICENSED FISHING

MSD officials did detect changes in fishing activity within the region. Hydro employees and contractors were observed fishing along PR 280 and near the Keewatinohk Converter Station in the evenings by MSD officials during the summer of 2017 and spring of 2018. According to anecdotal information provided by MSD, this increase in fishing may have had an impact on Brook Trout numbers in the Limestone River. However, no workforce member indicated any harvest of Brook Trout anywhere in the study area. This may indicate that fishers on the Limestone River may have been residing at the Keewatinohk Converter Station camp; these individuals are not part of the workforce at the Keeyask main camp. Additionally, workforce members residing in Kettle camp had access to popular fishing locations that require less transportation time than those at the Limestone River. The fishing pressure around the Limestone River may therefore be attributable to workers of the Keewatinohk Converter Station rather than those of the Project. Additionally, MSD conducted several angler compliance patrols along PR 280 and encountered violations including fishing without a licence, open fires and littering. Litter found in popular fishing spots along PR 280 was consistent with food packaging found in the Keeyask cafeteria. Fishing pressure seemed to decline in the summer of 2018 upon completion of the South Access Road and Keewatinohk Converter Station (MSD *pers. comm.* October 12, 2018).

¹ The study area also includes portions of GHA 9. Caribou licences are not issued in this GHA.

4.0 SUMMARY AND CONCLUSIONS

4.1 WORKFORCE HARVEST LEVELS

The first objective of the monitoring program was to determine if, and how much, the workforce was harvesting resources. This information was to be used to determine if harvest by the Project workforce had the potential to affect local First Nation resource harvesting success.

Big game harvests documented through the current survey amounted to ten moose and thirteen caribou harvested by local Aboriginal workforce members.

Of the 2,315 fish harvested, local Aboriginal members were responsible for 2,065 (89%), Metis members were responsible for 53 (2%), non-local Aboriginal members were responsible for 17 (<1%) and non-Aboriginal members were responsible for 180 (8%). Therefore, a total of 250 fish were considered to be harvests undertaken by groups other than the local Aboriginal workforce members. Of those 250 fish, 70 Walleye were taken by workers who neither live in the area nor would have harvested in the area with family or friends. This is additive harvest.

This new harvest of 70 Walleye allowed an estimate of additive harvest by the entire workforce which totalled 540 fish (70 x 1/13%) This amount, spread over more than 10 waterbodies is not expected to be detectable by local Aboriginal fishers. There were no new harvests of moose or caribou as all successful hunters indicated they were local or had local connections to the area. A limited amount of berries, mint and other plants were harvested in areas within the study area.

Survey results suggest that resource harvest by the construction workforce are similar to, or have increased, when compared with 2016, 2015 and 2014 findings including fish, moose and caribou harvests (Table A5-3). Local Aboriginal members continue to be the group that accounts for the most harvest among all groups that form the construction workforce.

4.2 CHANGES IN LICENSED HUNTING AND FISHING

The second and third objectives of resource use monitoring were to determine if licensed hunting and licensed fishing changed, and if those changes were caused by the Project.

Email correspondence with an MSD official indicated the demand for fishing and moose licences in the region showed little or no change from the previous two survey years. Changes to licensed hunting included possible increased hunting success due to increased line of sight down new transmission corridors. Hunters have noted that they look forward to the end of the construction period when access to new hunting locations are expected to improve. Fishing activity was higher than in previous years due to Hydro personnel working out of Kettle having

fewer restrictions on transportation and recreation as compared to the Keeyask camp. However, as of fall of 2018 these new fishing opportunities have ceased due to the completion of the South Access road and the relocation of the workforce back to the Keeyask camp where there are stricter rules regarding transportation (MSD *pers. comm.* October 12, 2018; Bryson *pers. comm.* February 23, 2017).

4.3 USE OF THE SITE BY AUTHORIZED RESOURCE USERS

The fourth objective of resource use monitoring was to document resource user requests to access the site and their harvests (if voluntarily provided).

Keeyask site environmental staff personnel were not aware of any gate records documenting access to the site between November 2017 and November 2018 for the purposes of resource harvesting. It should be noted that the Partnership has the ability to manage site access through the security gates; however, trail use or water access by local resource users may still occur.

4.4 CONCLUSION

Most of the additive harvest based off survey results for 2017 and 2018 can be linked to the increase in fishing activity by workforce members residing at Kettle Camp. This increase is supported by a strong survey response rate, the survey results themselves as well as observations by MSD officials and the Keeyask site environmental lead. However, this activity has most likely ceased with the completion of the South Access Road and the return of the workforce to the Keeyask main camp (MSD *pers. comm.* October 12, 2018) (Bryson *pers. comm.* February 23, 2017). Although MSD officials noted that Brook Trout numbers in the Limestone River may have been affected by increased fishing pressure, it is not suspected that workforce members of the Project had any impact. (MSD *pers. comm.* October 12, 2018).

Overall, workforce harvest monitoring conducted to date has not identified concerns with respect to the potential to negatively affect domestic resource use undertaken by local First Nation residents.

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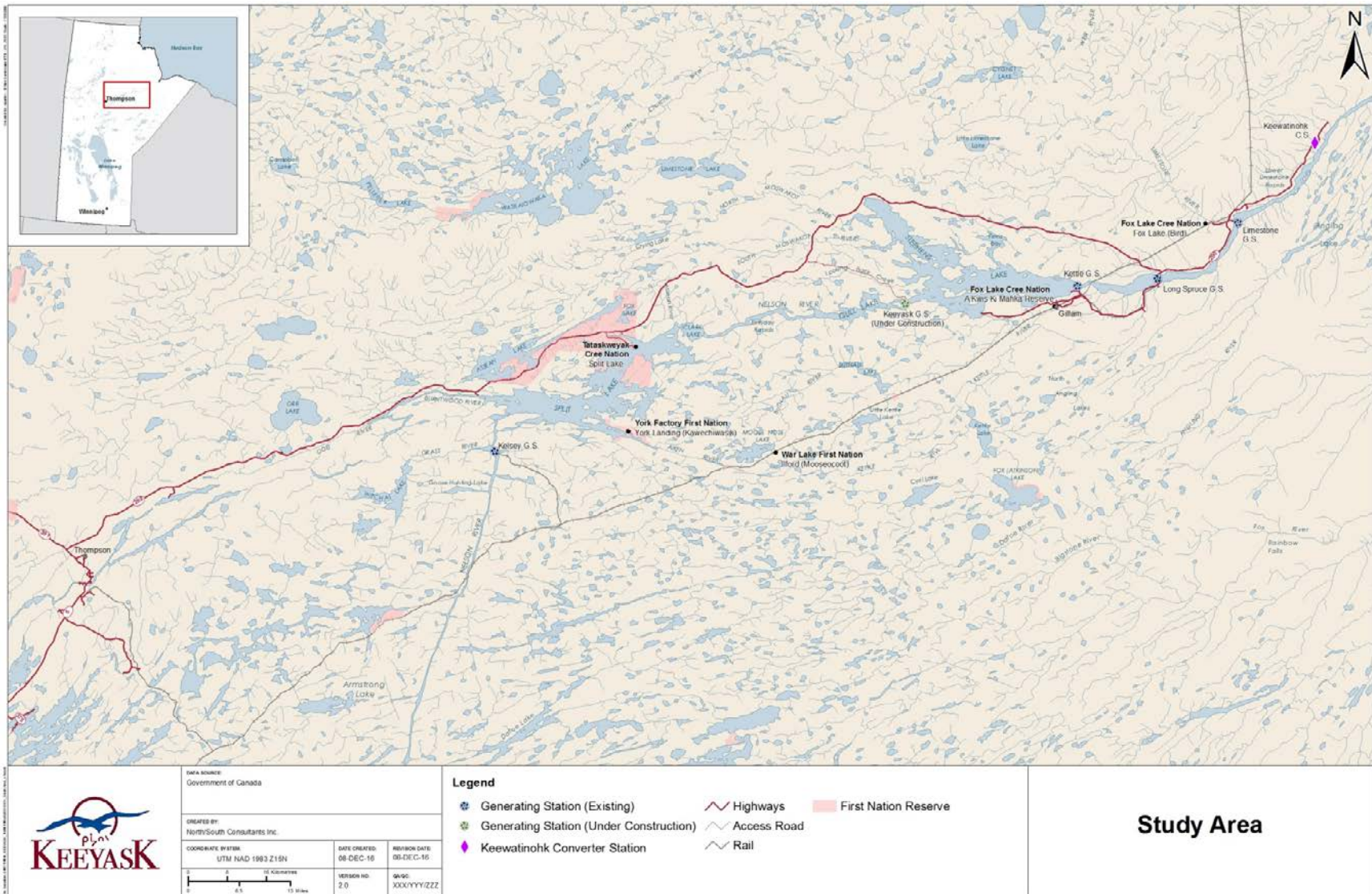
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5.1 PERSONAL COMMUNICATIONS

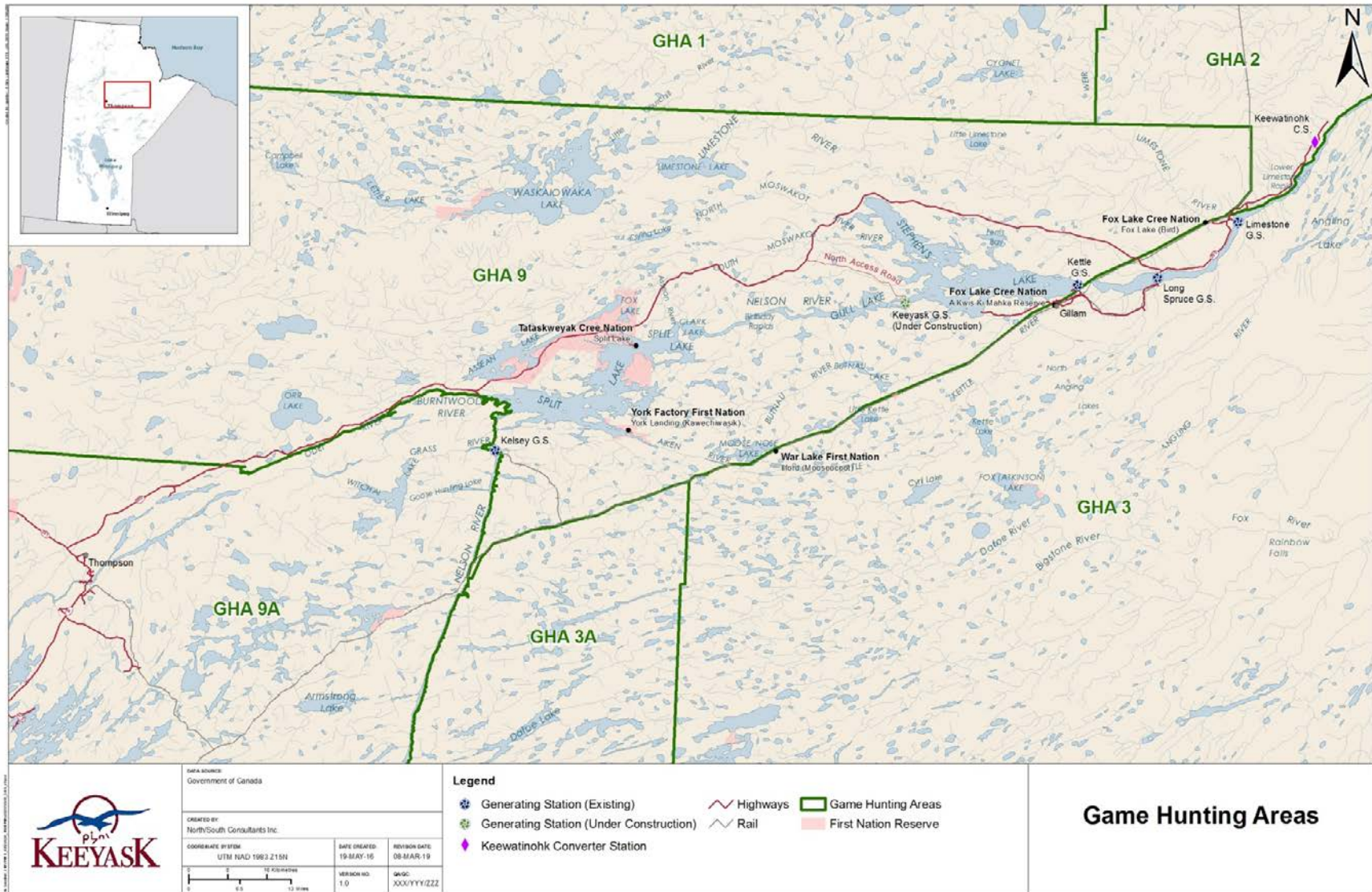
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Manitoba Sustainable Development Resource Managers (Northeast Region). February 27, 2017. Email correspondence with G. Eaton, North/South Consultants Inc.

MAPS



Map 1: Keeyask Study Area.



Map 2: Game Hunting Areas.

APPENDICES

APPENDIX 1: CONSTRUCTION WORKFORCE RESOURCE HARVEST SURVEY

Figure A1-1: Construction workforce resource harvest survey. 19

**CONSTRUCTION WORKFORCE RESOURCE HARVEST SURVEY-
PURPOSE AND HOW INFORMATION WILL BE USED**

The purpose of this survey is to find out if and how much wildlife, fish and plants are harvested by construction workers. This information will be used to understand the level of fishing, hunting and gathering conducted by the workforce. You will not be personally identified in any way and information collected will be used to monitor fish and wildlife.

THIS SURVEY IS FOR THE PERIOD OF NOVEMBER 2017 TO NOVEMBER 2018

SECTION 1

Question 1. Which group best describes you (check one box):

- Construction workforce member (non-Aboriginal)
- Construction workforce member (Aboriginal)
- TCN WLFN YFFN FLCN Métis
- Non-Status Inuit Other First Nation _____

Question 2. Do you normally live in Thompson, Split Lake, Gillam or Bird? Yes No

Question 3. Do you have friends or family connections in Thomson, Split Lake, Gillam or Bird that would bring you to this area to visit? If yes, how many times/year would you visit this area?

Question 4. When did your employment begin at the Keeyask Generation Site? _____ (Date)

Question 5. Have you worked regularly since that date?

- Yes No _____ (specify any interruptions in employment)

Question 6. What is your work rotation? _____ days on, _____ days off.

Question 7. Since you began working here, have you fished, hunted or gathered plants and/or other natural products on **days that you worked**?

- No Yes – Fished Yes – Hunted Yes – Gathered plants/other natural products.

Question 8. During your **days off**, did you fish, hunt or gather plants and/or other natural products east of Thompson?

- No Yes – Fished Yes – Hunted Yes – Gathered plants/other natural products.

If **no to questions 7 and 8**, this survey is completed. If **yes**, please answer questions 9 (fishing), 10 (hunting) and/or 11 (gathering); all that are applicable.



RESOURCE USE MONITORING PLAN – CONSTRUCTION
WORKFORCE SURVEY

Figure A1-1: Construction workforce resource harvest survey, page one.

SECTION 2

Question 9 – FISHING SINCE NOVEMBER 2017

Fishing method: Angling (rod and reel) Ice fishing Net fishing

Fishing effort: average number of hours per trip _____, number of trips/month _____ and months active _____

Fishing location(s): _____ (waterbody)

Harvest: No, catch and release Yes. If yes, indicate how much: Species: _____ # of fish: _____

Species: _____ # of fish: _____
Species: _____ # of fish: _____

Fishing occurred during Stay at site Days off Both. If local resident or one with connections to local residents: Would you have fished these times even if you were not working here? Yes No

Question 10 – HUNTING SINCE NOVEMBER 2017 (includes small and large game such as rabbits, grouse, moose, caribou and furbearers etc.)

Hunting method: Rifle Bow Other, please specify: _____

Hunting effort: average number of hours per trip _____, number of trips /month _____ and months active _____

Hunting location(s) (please be as specific as possible and list multiple locations if necessary):

Species: _____ # harvested: _____ Species: _____ # of harvested _____

Species: _____ # harvested: _____ Species: _____ # of harvested _____

Hunting occurred during Stay at site Days off Both.

If local resident or one with connections to local residents: Would you have hunted these times even if you were not working here? Yes No

Question 11 – GATHERING SINCE NOVEMBER 2017 (plants for medicine or for eating, crafts or ceremonial purposes [e.g., feathers, firewood or other natural items.]

Gathering effort: average number of hours per trip _____, number of trips /month _____ and months active _____

Gathering location(s) (please be as specific as possible and list multiple locations if necessary):

Species or type: _____ Amount: _____ Species or type: _____ Amount: _____ Species or type: _____ Amount: _____

Gathering occurred during Stay at site Days off Both. If local resident or one with connections to local residents: Would you have gathered these times even if you were not working here? Yes No



RESOURCE USE MONITORING PLAN – CONSTRUCTION WORKFORCE SURVEY

Figure A1-1: Construction workforce resource harvest survey, page two.

APPENDIX 2: NOTIFICATION POSTER FOR WORKFORCE SURVEY

Figure A2-1: Notification poster for workforce survey. 22

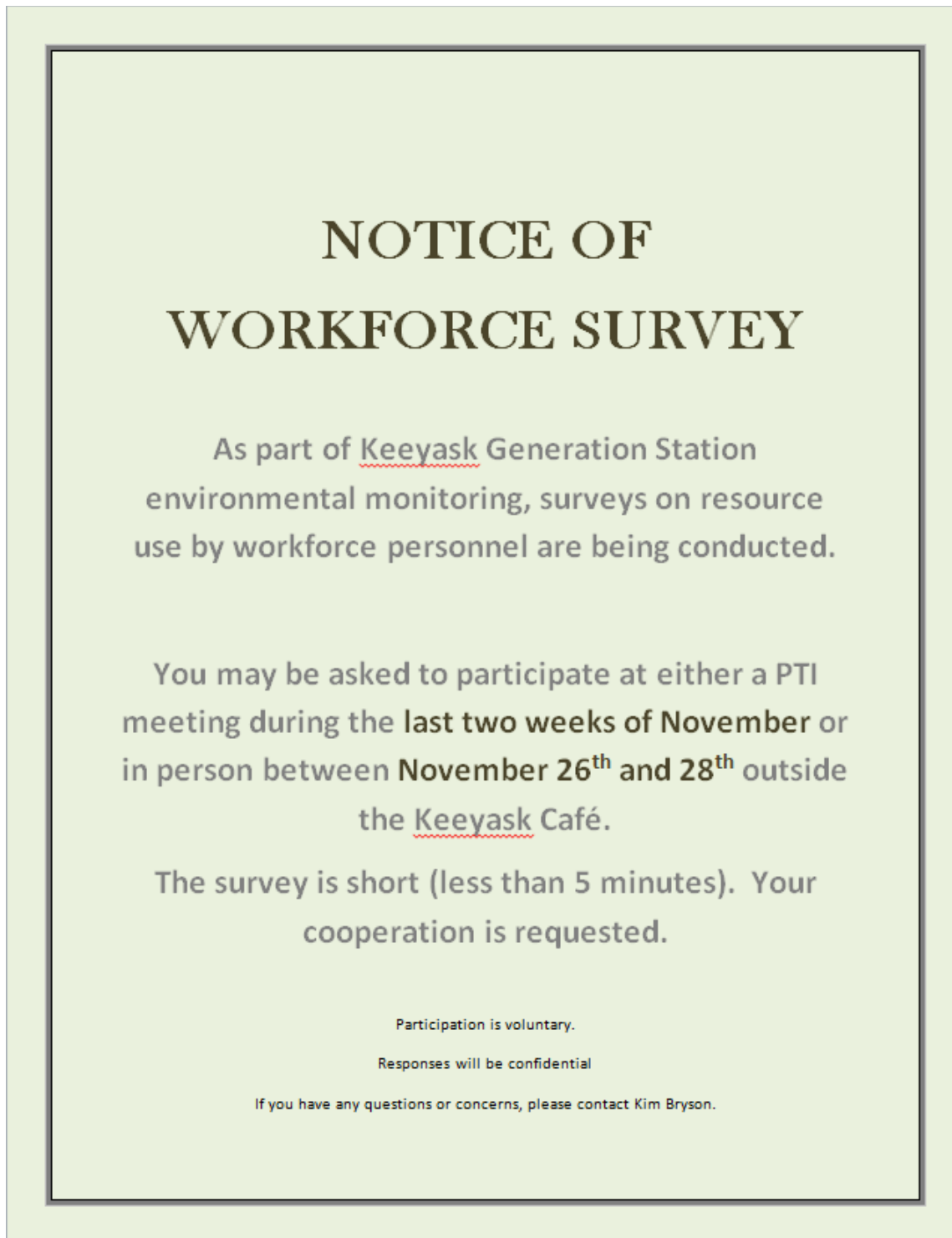


Figure A2-1: Notification poster for workforce survey.

APPENDIX 3: INTERVIEW GUIDE FOR MANITOBA SUSTAINABLE DEVELOPMENT RESOURCE MANAGERS

Table A3-1: Interview guide for Manitoba Sustainable Development resource managers.24

Table A3-1: Interview guide for Manitoba Sustainable Development resource managers.**Keeyask Generation Project (KGP) Resource Use Monitoring Plan (RUMP)**

Purpose - To consult resource MCWS managers' expertise to meet the following RUMP objectives:

1. To document any changes to moose and caribou licence demand, harvest patterns, and, if feasible, quantify harvests; and
2. To document any changes to licensed fish harvest patterns and fishing intensity.

Results will be published in a short report entitled: Resource Use Monitoring Plan: Results of Year 3 Monitoring produced for the Keeyask Hydropower Limited Partnership.

Questions:**MOOSE:**

For the period between April 2017 and October 2018,

- Are you aware of changes to demand for moose licences in the Project area including GHA's 9, 2 and 3? If so, could you please explain changes?
- Have you noticed any changes to the patterns of moose hunting / harvest by resident licensed hunters specifically in GHA 9 (eastern portion), GHA's 2 (south portion) and 3 (north central portion)? If so, are any changes considered to be associated with the Project or its workforce?
- Have you noticed any changes to the patterns of moose hunting / harvest by non-resident licensed hunters? If so, are any changes associated with the Project or its workforce?
- Can a quantitative estimate of licences/ harvest be developed for the Project area relating to the GHA areas noted above?
- Are there any other changes that you would like to note?

CARIBOU:

For the period between April 2017 and October 2018,

- Are you aware of changes to demand for caribou licences? If so, could you please explain.
- Are the same numbers of licences being issued for GHA 2 and GHA 3 as in previous years? If so, could you please confirm the number of licences issued for each GHA and the success rate.
- Have you noticed any changes to the patterns of caribou hunting/ harvest by resident licensed hunters? If so, are any changes associated with the Project or its workforce?
- Are there any other changes that you would like to note?

FISH:

For the period between April 2017 and October 2018,

- Are you aware of changes to the overall intensity of licensed fishing? Have there been increases or decreases in activity at specific locations? If so, would you consider any changes noted related to the Project or its workforce?
- Have any increases or decreases led to changes in harvest, species harvested or a redistribution of harvest? Are any changes noted related to the Project or its workforce?
- Are there any other changes that you would like to note?

APPENDIX 4: EMPLOYMENT STATISTICS FOR END OF NOVEMBER 2016 FROM KEEYASK.COM

_Toc7509179Table A4-1: Employment statistics for end of August, 2018.

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Table A4-1: Employment statistics for end of August, 2018.

	Active Hires	% of Active Hires
Active Project Hires	3768	n/a
Indigenous	1059	28%
Manitobans	1971	52%
Partner Communities	455	12%

Source: KHLP (2019).

APPENDIX 5: SUMMARY OF YEAR 1, YEAR 2, AND YEAR 3 WORKFORCE SURVEY DATA

Table A5-1:	Summary of Year V workforce survey data for the period of 1 November, 2017 to 30 November, 2018.	29
Table A5-2:	Summary of workforce survey data in Year I, Year II, Year III and Year V.	30
Table A5-3:	Summary of resource harvests and effort in Year I, Year II, Year III and Year V.	31

Table A5-1: Summary of Year V workforce survey data for the period of 1 November, 2017 to 30 November, 2018.

Identity	Non-Harvesters			Resource Users			Harvests										
	Count	Total Days On	Total Days Off	Count	Total Days On	Total Days Off	Fish				Hunting				Plants and Berries		
							Catch & Release Total	Harvest Total (# fish)	Effort Days On	Effort Days Off	Harvest Total (# moose)	Harvest Total (# caribou)	Effort Days On	Effort Days Off	Harvest Total	Effort Days On	Effort Days Off
Local Aboriginal	16	3,813	1,338	5	1,361	428	0	2065	39	50	10	13	9	32	45	2	2
Metis	33	7,370	2,768	4	1,168	408	0	53	15	23	0	0	0	0	0	0	0
Non-Local Aboriginal	57	12,978	5,401	6	1,660	553	0	17	58	69	n/s	n/s	0	56	n/s	0	54
Non-Aboriginal	354	80,397	31,483	23	6,373	2,477	59	180	24	35	2	n/s	0	5	50	1	1
Totals (n=498)	460	104,558	40,990	38	10,562	3,866	59	2315	136	177	12	13	9	93	95	3	57

Note: Effort is expressed as total number of eight hour days.
n/s refers to harvest quantities that were not specified.

Table A5-2: Summary of workforce survey data in Year I, Year II, Year III and Year V.

Workforce	Year I						Year II						Year III						Year V					
	Local Aboriginal	Metis	Non-Local	Non-Aboriginal	Non-Specified	Total	Local Aboriginal	Metis	Non-Local	Non-Aboriginal	Non-Specified	Total	Local Aboriginal	Metis	Non-Local	Non-Aboriginal	Non-Specified	Total	Local Aboriginal	Metis	Non-Local	Non-Aboriginal	Non-Specified	Total
Non-Harvesters																								
Total No:	15	12	21	84	2	134	25	26	39	127	0	217	20	19	27	88	0	154	16	33	57	354	0	354
Total Days On:	1350	1034	1394	5952	200	9930	2969	3165	5347	15564	0	27045	4088	4478	7123	19312	0	35001	3813	7370	12978	80397	0	104558
Total Days Off:	436	337	482	2067	67	3389	993	1085	1779	5417	0	9274	1384	1502	2384	6945	0	12215	1338	2768	5401	31483	0	40990
Resource Users																								
Total No:	9	3	1	6	1	20	12	1	0	14	0	27	4	4	2	4	0	14	5	4	6	23	0	38
Total Days On:	1350	1034	1292	5551	200	9427	1557	181	0	1401	0	3159	1107	729	313	1502	0	3651	1361	1168	1660	6373	0	10562
Total Days Off:	436	337	448	1933	67	3221	521	45	0	474	0	1040	369	243	104	545	0	1261	428	408	553	2477	0	3866
Total Surveyed (n=154)						Total Surveyed (n=244)						Total Surveyed (n=168)						Total Surveyed (n=498)						

Table A5-3: Summary of resource harvests and effort in Year I, Year II, Year III and Year V.

Workforce	Year I						Year II						Year III						Year V						Average					
	Local Aboriginal	Metis	Non-Local Aboriginal	Non-Aboriginal	Non-Specified	Total	Local Aboriginal	Metis	Non-Local Aboriginal	Non-Aboriginal	Non-Specified	Total	Local Aboriginal	Metis	Non-Local Aboriginal	Non-Aboriginal	Non-Specified	Total	Local Aboriginal	Metis	Non-Local Aboriginal	Non-Aboriginal	Non-Specified	Total	Local Aboriginal	Metis	Non-Local Aboriginal	Non-Aboriginal	Non-Specified	Total
Fishing																														
Catch/Release:	88	60	0	0	0	148	19	9	0	75	0	103	20	4	64	14	0	102	0	0	0	59	0	59	32	18	16	37	0	103
Harvest Total:	90	0	0	0	0	90	63	0	0	8	0	71	10	0	0	0	0	10	2065	53	17	180	0	2315	557	13	4	47	0	621
Total Days On:	0	7	0	3	0	10	6	0	0	10	0	16	23	12	0	1	0	36	38	15	58	24	0	135	17	9	15	10	0	51
Total Days Off:	12	6	0	4	0	22	61	3	0	6	0	70	36	0	13	1	0	50	50	23	69	35	0	177	40	8	21	12	0	81
Hunting																														
Total Moose:	1	0	2	0	0	3	3	0	0	1	0	4	n/s	1	0	1	0	2	10	0	n/s	0	0	10	4	0	0	1	0	5
Total Caribou:	0	0	0	0	0	0	5	0	0	0	0	5	n/s	0	0	1	0	1	13	0	n/s	n/s	0	13	5	0	0	0	0	5
Total Rabbits:	0	0	0	0	0	0	0	0	0	11	0	11	0	0	0	0	0	0	0	0	n/s	n/s	0	0	0	0	0	3	0	3
Total Birds:	0	0	0	0	0	0	66	0	0	10	0	76	0	0	0	0	0	0	0	0	n/s	n/s	0	0	17	0	0	3	0	20
Total Days On:	0	0	0	0	0	0	2	0	0	0	0	2	23	0	0	0	0	23	9	0	54	0	0	63	9	0	14	0	0	23
Total Days Off:	17	0	3	0	0	20	39	0	0	25	0	64	23	2	0	6	0	29	32	0	2	5	0	39	28	0	1	9	0	38
Plants and Berries																														
Harvest Total:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n/s	0	n/s	45	0	n/s	50	0	95	11	0	0	13	0	11
Total Days On:	0	0	0	0	0	0	0	0	0	3	0	3	0	2	0	1	0	3	2	0	0	1	0	3	1	1	0	1	0	3
Total Days Off:	8	0	0	0	0	8	16	0	0	1	0	17	0	0	13	0	0	13	1	0	54	1	0	56	6	0	17	1	0	24

Total Harvesters Surveyed (n=20)

Total Harvesters Surveyed (n=27)

Total Harvesters Surveyed (n=14)

Total Harvesters Surveyed (n=38)

Total Harvesters Surveyed (n=99)

Note: Effort is expressed as total number of eight hour days.
n/s refers to harvest quantities that were not specified.