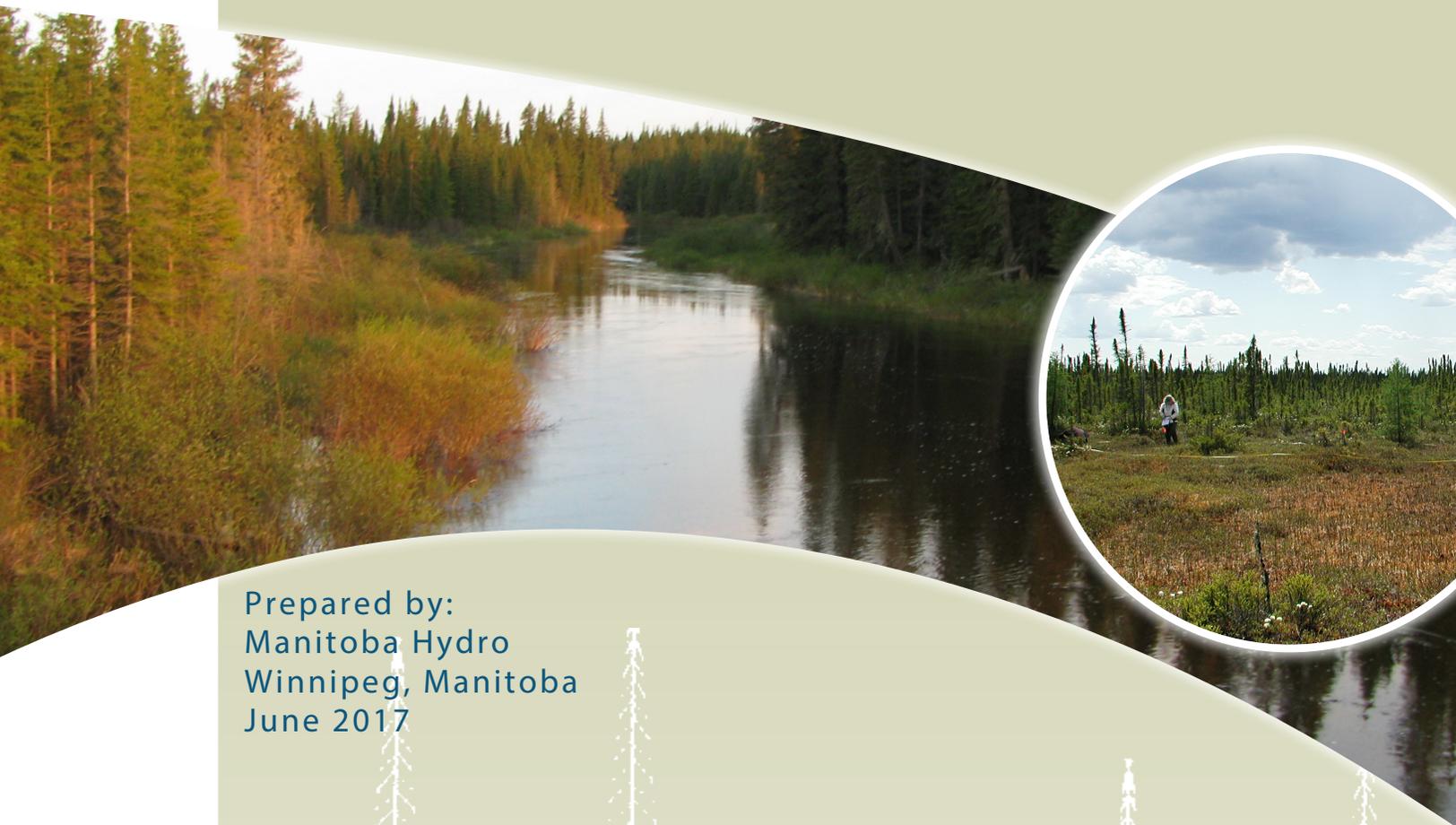




Keeyask Transmission Project **Environmental Effects Monitoring Plan** Annual Report



Prepared by:
Manitoba Hydro
Winnipeg, Manitoba
June 2017



This page intentionally left blank

TABLE OF CONTENTS

1	INTRODUCTION.....	1
2	PROJECT OVERVIEW	1
3	PROJECT STATUS.....	1
3.1	Radisson Converter Station Upgrades	1
3.2	Keyask Switching Station	1
3.3	Keyask Construction Power	1
3.4	Transmission Line Construction	1
4	ENVIRONMENTAL EFFECTS MONITORING PLAN OVERVIEW	3
5	IMPLEMENTATION OF MONITORING AND FOLLOW-UP ACTIVITIES.....	4
6	ENVIRONMENTAL COMPONENT MONITORING.....	5
7	AQUATICS.....	5
7.1	Stream Crossings	5
8	MAMMALS.....	6
8.1	Caribou	6
8.2	Moose	6
8.3	Wildlife Mortalities.....	6
9	TERRESTRIAL ECOSYSTEMS AND VEGETATION.....	7
9.1	Priority Plants.....	7
9.2	Ecosystem Diversity	7
9.3	Invasive Plants.....	8
10	BIRDS	8
10.1	Bird-Wire Collision	8
10.2	Species of Conservation Concern	9
10.3	Colonial Nesting Sites	9
11	Heritage.....	10
11.1	Heritage Resources	10
12	COMPLIANCE MONITORING.....	10
13	FUTURE MONITORING	10
MAPS		
Map 1:	Keyask Transmission Project Area.....	2

PHOTOS

Photo 1: Keeyask Transmission Project is located south of Gillam, MB. GOT lines 2 and 3 are scheduled for construction in 2017/18. 1

Photo 2: Keeyask Transmission Project traverses the Hudson Bay Railway..... 4

Photo 3: The clearing process minimized exposure of soil, preventing the encroachment of invasive species. 4

Photo 4: Evidence of minor damage due to vehicle traffic across a stream crossing. 5

Photo 5: Summer resident caribou identified south of the Project area in December 2016. 6

Photo 6: Summer resident caribou with calf on an island in Stephens Lake in August 2016..... 6

Photo 7: A muskeg lousewort plant. 7

Photo 8: Horizontal fen supporting a large patch of muskeg lousewort within the ROW. 7

Photo 9: Minimal vegetation clearing was conducted near wetlands. 8

Photo 10: Survey personnel searching for bird-wire collisions at environmentally sensitive sites. 9

Photo 11: Installation of passive audio recorders to monitor bird species of conservation concern. 9

Photo 12: An island in the Keeyask rapids supporting Ring-billed gulls and chicks..... 10

Photo 13: Shovel testing for heritage resources near the Kettle River. 10

Photo 15: The Keeyask Transmission Project. 11

TABLES

Table 1: 2016/17 Monitoring Activities by Environmental Component..... 5

Abbreviations

AC	Alternating Current
EA	Environmental Assessment
EEMP	Environmental Effects Monitoring Plan
EPIMS	Environmental Protection Information Management System
EPP	Environmental Protection Program
GPS	Geographic Positioning System
GOT	Generation Outlet Transmission Line
KHLP	Keyask Hydroelectric Limited Partnership
KTP	Keyask Transmission Project
km	kilometre
kV	kilovolt
m	metres
SD	Sustainable Development
ROW	Right-of-way

This page intentionally left blank

1 INTRODUCTION

The objective of this report is to present information and data on the Keyask Transmission Project Environmental Effects Monitoring Plan in compliance with clause 16 of the Project *Environment Act* licence (No. 5614). Manitoba Hydro presents this information to inform interested parties on progress made on construction, monitoring and implementation of mitigation measures to minimize environmental effects.

This is the Project's second annual monitoring report and describes progress from April 1, 2016 through March 31, 2017. Map 1 outlines the Keyask transmission Project area. Anyone interested in further information about this report or the Project is invited to contact Manitoba Hydro at:

Licensing and Environmental Assessment
820 Taylor Ave (3)
Winnipeg MB R3M 3T1
1-877-343-1631 or 204-360-7888

2 PROJECT OVERVIEW

The Keyask Transmission Project (the Project) involves the construction, operation and decommissioning of 22 km of a new 138 kV ac construction power transmission line, a new 138 kV ac to 12.47 kV ac construction power station to be located north of the Keyask generation station, upgrades to the existing Radisson converter station, a new Keyask switching station to be located south of the Nelson River, 4 km of four 138 kV ac unit transmission lines that will transmit power from the Keyask generation station to the Keyask switching station, and three 38 km 138 kV ac generation outlet transmission Lines that will transmit power from the new Keyask switching station to the existing Radisson converter station. The Keyask Transmission Project is owned and operated by Manitoba Hydro.

3 PROJECT STATUS

Construction for the Keyask Transmission Project is occurring in parallel to construction of the Keyask Generating Station, which is forecast for completion in 2021. The Keyask Transmission Project provides power for the construction of the generation station and will allow for the integration of generation power into the Manitoba Hydro transmission system when the generating station is operational. Although limited construction occurred during this reporting period, the Keyask Transmission Project and all its components are currently on schedule. The projected in-service date for the Project is anticipated for 2020.

3.1 Radisson Converter Station Upgrades

Upgrades to the existing Radisson converter station are required to accommodate the Keyask transmission Project. Equipment replacement and station upgrades are currently underway. This past year, twenty-five wire-wound power PTs and four breakers were replaced. Cable trenches, the control building, grounding and some buswork were also

modified to accommodate the new equipment. Breaker replacements have been on-going throughout the winter and will continue until 2020.

3.2 Keyask Switching Station

The Keyask switching station will accept power from the generating station via four unit transmission lines and transfer that power to three generation outlet transmission lines. The site improvements for the Switching Station were completed in fall 2016. Its construction power facilities were energized in early spring 2017.

3.3 Keyask Construction Power

The Keyask Construction Power Project, which consists of two transmission lines and a construction power station, provides the Keyask construction site with permanent, reliable source of power during construction. The second transmission line was commissioned and brought into service in summer 2016, completing the Construction Power station.

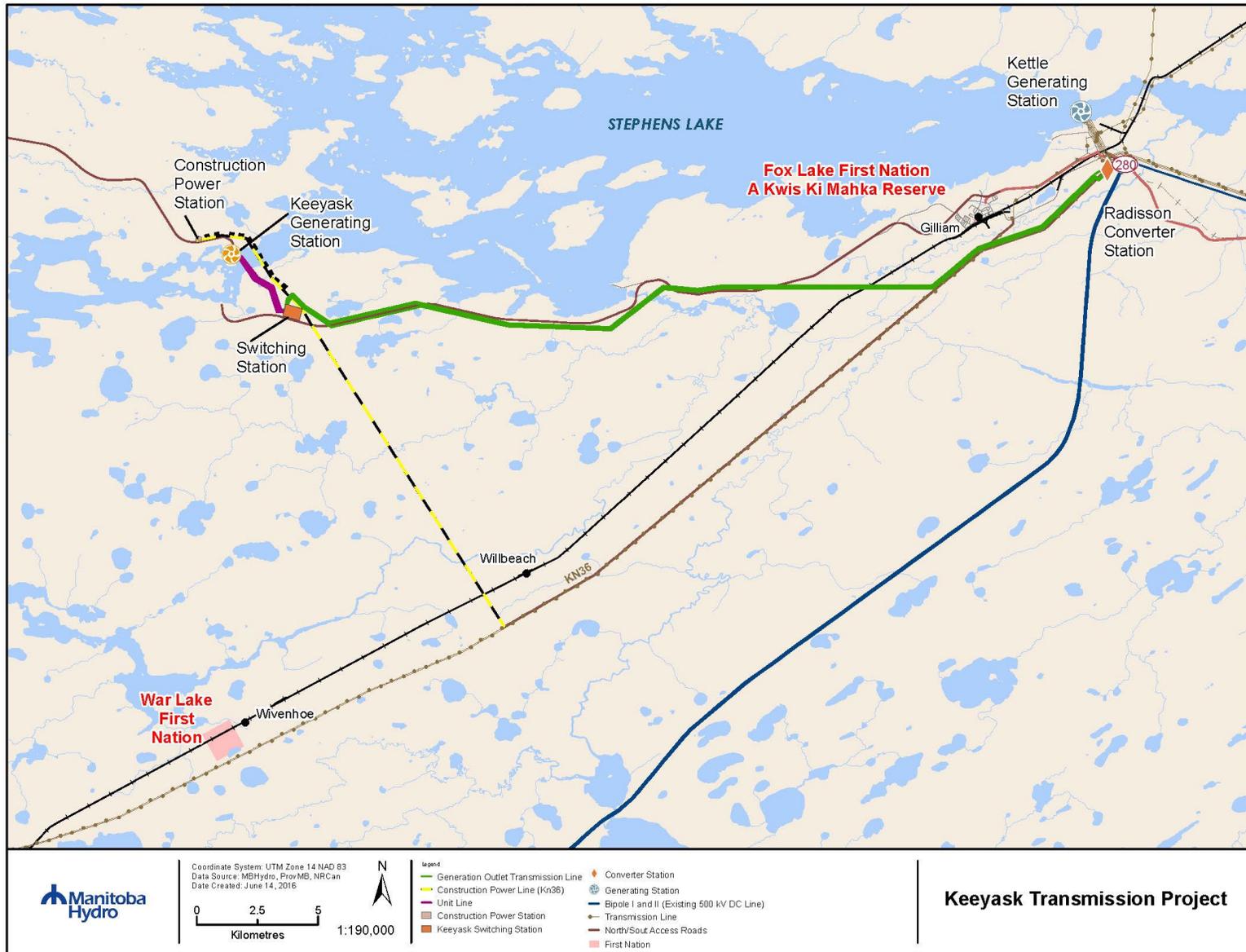
3.4 Transmission Line Construction

The unit transmission lines will transmit power from the seven generators located at the Keyask generating station to the new Keyask switching station. The four unit transmission lines will be located in a single corridor, which was cleared in winter 2015/2016. Geotechnical drilling is complete, but line construction has not started. Procurement of a construction contract is currently underway.

Three generation output transmission (GOT) lines will transmit power from the Keyask switching station to the existing Radisson converter station. Construction of the 138kV ac generation output transmission (GOT) Line 1 is complete. Work completed on GOT Line 2 and GOT Line 3 within the ROW includes; clearing, geotechnical drilling and tower spotting. Final tasks including foundations, anchor installation, tower assembly and stringing are expected to begin winter 2017/18 after the procurement of a construction contract.



Photo 1: Keyask Transmission Project is located south of Gillam, MB. GOT lines 2 and 3 are scheduled for construction in 2017/18.



Map 1: Keeyask Transmission Project Area

2016/17 Environmental Effects Monitoring Highlights

Key monitoring highlights during this reporting period include:

- Of the 41 water crossing sites assessed, minor vehicle damage was the only mitigation measure in non-compliance at one watercourse. Water crossing sites identified in 2015 as being non-compliant with prescribed mitigation showed signs of successful natural revegetation, with no further remediation warranted.
- Summer resident caribou continue to calve in the peatland complexes and islands around the Project area. Very low densities of caribou were detected in the Keeyask region during the late fall and winter of 2016/17.
- Vegetation surveys identified a low impact to priority plants, ecosystem diversity, and the spread of invasive species.
- The installation of bird diverters on the Keeyask transmission lines appears to have been successful at protecting birds from collisions.
- 119 passive data recorders were deployed to assess breeding success of bird species of conservation concern. Multi-year data collection and analysis will help determine Project effects.
- Colonial waterbird populations and chick productivity, mainly ring-billed gulls, remained consistent when compared to previous years within the Keeyask area.
- No heritage resources were identified at the 15 sites assessed in the Project area.
- Survey personnel from Tataskweyak, War Lake, York Factory and Fox Lake Cree Nation were vital in conducting many field activities, including mammal sensory disturbance, bird-collision, colonial waterbird, and heritage surveys.
- Newly developed passive recorders for breeding bird, and improved bird diverters are examples of adaptive management being employed in the environmental effects monitoring program.

4 ENVIRONMENTAL EFFECTS MONITORING PLAN OVERVIEW

Part of Manitoba Hydro's commitment to environmental protection includes the development of a comprehensive Environmental Protection Program (EPP) for the Keeyask Transmission Project. One aspect of this program is monitoring and follow up for biophysical environmental components identified in the Keeyask Transmission Project Environmental Assessment and associated technical reports. The Environmental Effects Monitoring Plan (EEMP) submitted to Sustainable Development outlines the various monitoring activities that will occur during the different phases of the Project.

The scope of this plan includes physical and biological components of the environment. The purpose of the EMP is to identify the key activities that will be conducted as part of the monitoring and follow-up component of the Environmental Protection Program that will verify potential effects and effectiveness of mitigation.

The objectives of the EEMP are to:

- Confirm the nature and magnitude of predicted environmental effects as stated in the EA;
- Assess the effectiveness of mitigation measures implemented;

- Identify unexpected environmental effects of the Project, if they occur;
- Identify mitigation measures to address unanticipated environmental effects, if required;
- Confirm compliance with regulatory requirements; and
- Provide baseline information to evaluate long-term changes or trends.

Environmental components requiring follow-up monitoring are discussed further in this annual Environmental Effects Monitoring Report include:

- Aquatics;
- Terrestrial Ecosystems and Vegetation;
- Mammals;
- Birds; and
- Heritage

Adaptive Management

Adaptive management is a planned and systematic process used to continuously improve environmental management practices by learning about their outcomes. Manitoba Hydro has accumulated knowledge and lessons learned from previous monitoring programs. The successes of those

programs have been useful in implementing the EEMP for this Project.

An adaptive management framework is being used to deal with unexpected outcomes or events. Program documents, processes, procedures and mitigation measures are continuously evaluated by inspection, monitoring and communication programs. Data is reviewed as collected to determine if any of the environmental thresholds specified in the EEMP have been exceeded due to shortfalls in impact prediction, ineffective mitigation measures or inadequate monitoring approaches. Actions are developed in response to these contingencies.

5 IMPLEMENTATION OF MONITORING AND FOLLOW-UP ACTIVITIES

Environmental monitoring is being implemented for the Keeyask Transmission Project to verify the accuracy of the environmental assessment and the effectiveness of mitigation measures in protecting the environment. Manitoba Hydro has retained full-time staff for the implementation of the EEMP, funded participation of community environmental monitors, and retained highly qualified specialists in appropriate disciplines. Manitoba Hydro's Environmental Protection Information Management System (EPIMS) will also play a major role in managing the EEMP implementation, coordination of field work, data collection and communications amongst the monitoring team.

Environmental Inspection Staff

Reporting to a Senior Manitoba Hydro Environmental Assessment Officer, an on-site Construction Environmental Inspector was retained and trained for the 2016/17 transmission line construction season. In addition, Manitoba Hydro's Licensing and Environmental Assessment Department provides advice and guidance to these on-site environmental inspectors.

Community Liaisons and Environmental Monitors

In addition to providing employment and business opportunities through the Project, Manitoba Hydro is committed to engaging local community-based environmental expertise during the construction of the Keeyask Transmission Project. Manitoba Hydro is funding qualified and interested individuals from Indigenous communities to work as environmental monitors and Community Liaisons. The environmental monitors assist in undertaking inspections with environmental inspectors during construction and collect monitoring information in support of Manitoba Hydro's environmental effects monitoring programs. The community liaisons observe the construction and environmental protection program activities and reports back to community leadership as well as informs the Manitoba Hydro construction supervisor of any concerns the communities may have with those activities.

Data Management

As the Project's EEMP requires and generates large amounts of data, the EPIMS was developed to manage, store and facilitate the transfer of Environmental Protection Program data and information amongst the Project team. The EPIMS will facilitate the transfer of knowledge and experiences encountered on a daily basis during construction activities from environmental inspectors and community environmental monitors to specialists that are responsible for monitoring Project effects on a real time basis. As well, monitoring results and mitigation measure adaptations will be communicated back to construction staff and contractors.



Photo 2: Keeyask Transmission Project traverses the Hudson Bay Railway.



Photo 3: The clearing process minimized exposure of soil, preventing the encroachment of invasive species.

Table 1: 2016/17 Monitoring Activities by Environmental Component

Component	Environmental Indicator	2016/17 Monitoring Status
Aquatics	Fish habitat	Post-construction stream crossing surveys at 41 sites
Mammals	Moose	No activity in 2016/17 – Additional reporting in Keeyask Generation Terrestrial Effects Monitoring Report
	Caribou	Summer Resident Caribou and Sensory Disturbance Survey – Additional reporting in Keeyask Generation Terrestrial Effects Monitoring Report
Terrestrial Ecosystems and Vegetation	Priority plants	Priority Plant surveys at 4 environmentally sensitive sites
	Ecosystem diversity	Ecosystem Diversity surveys at 15 priority habitat sites
	Invasive Plants	Invasive Plant survey conducted along the Project ROW
Birds	Bird wire collision mortality	Bird wire collision mortality surveys conducted at 15 environmentally sensitive sites
	Bird species of conservation concern	119 audio recorders deployed 32 disturbance sites during bird breeding season - Additional reporting in Keeyask Generation Terrestrial Effects Monitoring Report
	Colonial bird nesting sites	Aerial Survey of Colonial Nest Sites – Additional reporting in Keeyask Generation Terrestrial Effects Monitoring Report
Heritage	Heritage Sites	Heritage surveys conducted at 15 sites

6 ENVIRONMENTAL COMPONENT MONITORING

Multiple environmental components were identified for follow-up monitoring in the environmental assessment, technical reports, and Environment Act licence. For each environmental component, one or more environmental indicators were selected to focus monitoring and follow-up efforts as indicated in the EEMP (Table 1).

7 AQUATICS

The potential effect of the Project on aquatics was a component of the environmental assessment. One of the main risks to existing fish habitat from transmission line construction is damage to stream banks and riparian vegetation leading to loss of cover and in-stream sediment delivery.

7.1 Stream Crossings

A stream crossing survey was conducted along Project components where construction was carried out in 2016.

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

As predicted in the EA, Project effects on stream crossings were minor. Of the 41 watercourse sites assessed in 2106, construction at all but one stream crossings was compliant with prescribed mitigation. This site (Photo 4) showed evidence of minor damage to due to vehicle traffic.

Assess the effectiveness of mitigation measures implemented:

The implementation of mitigation recommendations outlined in the construction Environmental Protection

Plan was effective. Sites identified in 2015 as being non-compliant with the prescribed mitigation showed signs of successful natural revegetation, with no further remediation warranted.

Identify mitigation measures to address unanticipated environmental effects, if required:

Due to the natural revegetation of damaged locations, no further remediation is required.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating any long-term changes or trends in stream crossings.



Photo 4: Evidence of minor damage due to vehicle traffic across a stream crossing.

8 MAMMALS

The potential effect of the Project on moose (*Alces alces*) and caribou (*Rangifer tarandus*) was the focus of the environmental assessment for mammals. Both species occur in vicinity of the Keeyask Transmission Project. Survey support was provided by members of the Keeyask Cree Nations, including Tataskweyak, War Lake, York Factory and Fox Lake Cree Nations.

8.1 Caribou

Manitoba Hydro is working cooperatively with the Keeyask Hydroelectric Limited Partnership (KHLPL) to jointly study Project effects on caribou.

In 2016, a sensory disturbance survey was conducted in the spring and summer, and a summer resident caribou survey was conducted in late fall.

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

As predicted in the EIS for the Keeyask Generation Project, no caribou or calves were documented on the islands nearest the Keeyask area under construction in 2016, including some islands on which their presence was observed in 2015. Caribou were mainly distributed on islands in the north-central portion of Stephens Lake in 2016. While the spring and summer distribution of caribou in Gull and Stephens lakes can vary from year to year, the potentially unoccupied islands nearest the Project area may indicate an avoidance of construction-related sensory disturbances.

Assess the effectiveness of mitigation measures implemented:

Mitigation efforts, including construction timing windows appear to be effective.

Identify unexpected environmental effects of the Project, if they occur:

No unexpected environmental effects have been observed.

Identify mitigation measures to address unanticipated environmental effects, if required:

To date, none required.

Confirm compliance with regulatory requirement:

Compliance with regulatory requirements continues.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating long-term changes or trends in caribou population changes, calving locations, and habitat use in response to the transmission Project.

A detailed report on the findings of the caribou population and sensory disturbance survey can be found in the 2017 KHLPL Keeyask Generation Project Terrestrial Effects Monitoring Report.



Photo 5: Summer resident caribou identified south of the Project area in December 2016.



Photo 6: Summer resident caribou with calf on an island in Stephens Lake in August 2016.

8.2 Moose

Manitoba Hydro is working with the Keeyask Hydroelectric Limited Partnership (KHLPL) to jointly study Project effects on moose. Due to the staggered nature of the long-term moose monitoring program, no moose specific surveys were conducted in 2016/17.

8.3 Wildlife Mortalities

With the implementation of wildlife protection mitigation measures as described in the Environmental Protection Plan, there were no direct wildlife mortalities related to the Project in 2017/18.

9 TERRESTRIAL ECOSYSTEMS AND VEGETATION

The potential effect of the Project on terrestrial ecosystems and vegetation was a component of the environmental assessment.

9.1 Priority Plants

In 2016, a priority plant survey was conducted in the summer months.

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

As predicted in the EA, Project construction had very low effects on the four known priority plant locations in the Project area. Muskeg lousewort (*Pedicularis macrodonta*) is the only rare plant known to occur in the Project area. Healthy, living muskeg lousewort plants were found at all four priority plant locations, post construction.

Assess the effectiveness of mitigation measures implemented:

The implementation of mitigation recommendations outlined in the construction Environmental Protection Plan, were effective at protecting these environmentally sensitive sites.

Identify unexpected environmental effects of the Project, if they occur:

No unexpected environmental effects have been observed.

Identify mitigation measures to address unanticipated environmental effects, if required:

To date, none required.

Confirm compliance with regulatory requirements;

Compliance with regulatory requirements continues.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating long-term changes or trends in priority plant species.



Photo 7: A muskeg lousewort plant.



Photo 8: Horizontal fen supporting a large patch of muskeg lousewort within the ROW.

9.2 Ecosystem Diversity

In 2016, an aerial and ground ecosystem diversity survey was conducted in the summer.

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

As predicted in the EA, surveys found that overall impacts on the 15 priority habitat patches situated along the Project ROW were minor.

Assess the effectiveness of mitigation measures implemented:

Monitoring results indicated that mitigation measures were implemented correctly during Project construction.

Identify unexpected environmental effects of the Project, if they occur:

Monitoring results identified minor disturbance activities within the Project area including;

- One instance of clearing beyond ROW (20m²).
- Three instances of tree mortality adjacent to ROW.
- One instance of excessive ground disturbance and excavation.

Identify mitigation measures to address unanticipated environmental effects, if required:

To date, none required as natural regeneration is evident.

Confirm compliance with regulatory requirement:

Compliance with regulatory requirements continues.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating long-term changes or trends in ecosystem diversity in this Project area.

9.3 Invasive Plants

In 2016, an invasive plant survey was conducted in the summer months.

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

As predicted in the EA, Project construction had minimal effect on the spread of invasive species. Non-native or invasive plants were not observed in the cleared Project ROW at any of the locations surveyed with the exception of one patch of common dandelion (*Taraxacum officinale*) near a previously disturbed area, outside the Project area.

Assess the effectiveness of mitigation measures implemented:

Mitigation actions in the construction Environmental Protection Plan, to limit the exposure of mineral soils by clearing equipment were successfully implemented.

Identify unexpected environmental effects of the Project, if they occur:

No unexpected environmental effects have been observed.

Identify mitigation measures to address unanticipated environmental effects, if required:

To date, none required. The common dandelion is ubiquitous in the area and revegetation of native plants on the ROW will eventually reduce the spread of any common dandelions.

Confirm compliance with regulatory requirements:

Compliance with regulatory requirements continues.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating long-term changes or trends in muskeg lousewort in the Project area.



Photo 9: Minimal vegetation clearing was conducted near wetlands.

10 BIRDS

The potential effect of the Project on bird wire collisions, species of conservation concern, and colonial bird nesting islands was a component of the environmental assessment.

10.1 Bird-Wire Collision

In 2016, a bird-wire collision survey in the Project area was conducted in spring and fall at 15 locations along the Project ROW. Field support was provided by members of the Keeyask Cree Nations.

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

As predicted in the EA, the installation of power line sentry and spiral bird diverters on the Keeyask transmission lines at environmentally sensitive sites appears to have been successful at protecting birds from collisions. After correcting for searcher efficiency, scavenger removal bias, and habitat bias, minimum estimated collision mortality was 10.80 birds/km in the late breeding bird season and 10.32 birds/km in the fall migration period. These bird-wire collision mortality estimates are lower than rates reported in the literature.

Assess the effectiveness of mitigation measures implemented:

Mitigation efforts, including the installation of bird wire diverters appears to be effective.

Identify unexpected environmental effects of the Project, if they occur:

No unexpected environmental effects have been observed.

Identify mitigation measures to address unanticipated environmental effects, if required:

To date, none required.

Confirm compliance with regulatory requirements:

Compliance with regulatory requirements continues.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating long-term changes or trends in bird wire collision rates on this and other Manitoba Hydro transmission Projects.



Photo 10: Survey personnel searching for bird-wire collisions at environmentally sensitive sites.

10.2 Species of Conservation Concern

Manitoba Hydro is working cooperatively with the Keeyask Hydroelectric Limited Partnership (KHLP) to jointly study Project effects on bird species of conservation concern. Due to the long term nature of this study, surveys done in 2016/17 were focused on verification of study design and passive field recording units. Field crews located about 50 territories of olive-sided flycatcher (*Contopus cooperi*) and rusty blackbird (*Euphagus carolinus*) in early June, 2016. Of these, 26 rusty blackbird and 21 olive-sided flycatcher territories were mapped. 119 audio recorders were placed in the mapped territories at 32 disturbance sites from June 12 to 29, 2016. This information will serve to allow the development of a multi-year monitoring program. Survey support was provided by members of the Keeyask Cree Nations, including Tataskweyak, War Lake, York Factory and Fox Lake Cree Nations.



Photo 11: Installation of passive audio recorders to monitor bird species of conservation concern.

10.3 Colonial Nesting Sites

In 2016, colonial nesting site surveys in the Project area were conducted through spring and summer. Survey support was provided by members of the Keeyask Cree Nations, including Tataskweyak, War Lake, York Factory and Fox Lake Cree Nations.

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

As predicted in the EA, monitoring results suggest that with mitigation, Project construction is not negatively affecting colonial waterbirds. The consistent locations of colonies and number of waterbirds (>5,000 adults) observed in the Keeyask area suggests that construction is not discouraging the use of traditional nesting islands. Six species of colonial waterbirds were observed during the surveys. The most common species reported was the ring-billed gull, which was observed in greatest numbers on islands within Keeyask Rapids. Other waterbird species observed included the common tern, Bonaparte's gull, herring gull, American white pelican, and black tern.

The productivity of ring-billed gulls (*Larus delawarensis*), the most common gull in the Keeyask area, was found to be within published ranges from other study locations.

Assess the effectiveness of mitigation measures implemented:

Mitigation efforts, including bird-wire diverters, bird control methods (falconry) and construction timing windows appear to be effective. The common tern (*Sterna hirundo*) floating nesting platforms and a gull habitat enhancement area experienced limited success, presumably due to the remaining availability of traditional nesting islands.

Identify unexpected environmental effects of the Project, if they occur:

No unexpected environmental effects have been observed.

Identify mitigation measures to address unanticipated environmental effects, if required:

To date, none required.

Confirm compliance with regulatory requirements;

Compliance with regulatory requirements continues.

Provide baseline information to evaluate long-term changes or trends.

Survey information will contribute to evaluating long-term changes or trends in colonial waterbird colony populations and nesting areas.

A complete report on the findings of the colonial nesting bird survey can be found in the 2017 KHLP Keeyask Generation Project Terrestrial Effects Monitoring Report.



Photo 12: An island in the Keeyask rapids supporting Ring-billed gulls and chicks.



Photo 13: Shovel testing for heritage resources near the Kettle River.

11 HERITAGE

The potential effect of the Project on heritage resources was a focus of the environmental assessment.

11.1 Heritage Resources

In 2016 a heritage survey was conducted in the Project area during late summer. Traditional knowledge locations and survey support provided by Fox Lake Cree Nation was very valuable to the survey.

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

15 locations were assessed but did not result in the identification of heritage resources. Based on this there are no further heritage concerns for environmentally sensitive locations or water crossings along the ROW.

Assess the effectiveness of mitigation measures implemented:

Mitigation efforts, including avoidance and protection of the cultural site containing a memorial cross was confirmed.

Identify unexpected environmental effects of the Project, if they occur:

No unexpected effects have been observed.

Identify mitigation measures to address unanticipated environmental effects, if require:

To date, none required.

Confirm compliance with regulatory requirements:

Compliance with regulatory requirements continues.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating long-term understanding of heritage resources in the Project area.

12 COMPLIANCE MONITORING

Including Compliance monitoring is observation or testing conducted to verify whether a practice or procedure meets the applicable requirements prescribed by legislation, licence conditions, permits, and/or environmental protection plans. Manitoba Hydro's Keeyask Transmission Project mitigation measures are aligned with both provincial and federal regulatory requirements.

The Compliance Program involves the use of a dedicated environmental inspector to observe and verify the implementation of the environmental protection plans. Information generated from these programs will be used within an adaptive management approach to improve both mitigation measure effectiveness and monitoring program design.

In 2016/17 all Project components of the Keeyask Transmission Project were in compliance with applicable requirements. No regulatory citations or warnings were issued.

13 FUTURE MONITORING

The following monitoring activities are planned for 2017/18. Detailed descriptions of all monitoring activities can be found in the Keeyask Transmission Project Environmental Effects Monitoring Plan.

Aquatics

Post construction surveys will continue in 2017/18 in accordance with the EEMP. This includes post construction monitoring of stream crossings after the completion of construction of the GOT and unit transmission lines.

Terrestrial & Vegetation

Post construction surveys will continue in 2016/17 in

accordance with the EEMP. This includes surveys for ecosystem diversity, priority plants and ecosystem diversity after the completion of the GOT and unit transmission lines.

Mammals

Post construction surveys will continue in 2017/18 in accordance with the EEMP. These includes a winter aerial survey and sensory disturbance survey for caribou. The next moose aerial survey is planned for winter of 2018.

Birds

Post construction surveys will continue in 2017/18 in accordance with the EEMP. These include breeding bird surveys for species of conservation concern, colonial waterbird surveys, and bird-wire collision monitoring.

Heritage

All heritage related surveys have been completed.



Photo 14: The Keeyask Transmission Project.

