



Keeyask Infrastructure Project

Environmental Protection Plan

Annual Report 2012-2013



KEYYASK INFRASTRUCTURE PROJECT

ENVIRONMENTAL PROTECTION PLAN

Annual Report 2012 - 2013

Report for

MANITOBA CONSERVATION AND WATER STEWARDSHIP

Prepared on Behalf of the
Keyyask Hydropower Limited Partnership

By

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1.0 INTRODUCTION

The Keeyask Hydropower Limited Partnership (KHLP) is constructing the Keeyask Infrastructure Project (the Project or KIP). The Project is located approximately 40 km southwest of Gillam, extending between Provincial Road (PR) 280 and Gull Rapids on the Nelson River. The Project includes a start-up camp and associated infrastructure, a 25 km all-weather access road and the first phase of a main camp.

The *Keeyask Infrastructure Project Construction Environmental Protection Plan* (EnvPP) outlines the commitments and efforts undertaken by the KHLP to protect the environment and mitigate environmental effects during construction of the Project. The mitigation measures included in the EnvPP are aligned with both provincial and federal regulatory requirements that apply to the Project. The EnvPP is a key element in implementing effective environmental protection and minimizing the environmental effects associated with the Project.

As stated in the EnvPP, an annual report will be produced on the compliance monitoring undertaken in connection with the construction of the Project. Manitoba Hydro will report on the status and results of the monitoring in connection with this EnvPP to Manitoba Conservation and Water Stewardship. This annual report covers the period beginning at the start of construction, January 2012, through to March 31, 2013.

2.0 OBJECTIVES

The objectives of this annual report on the EnvPP are to provide information on:

- Environmental monitoring and compliance with the EnvPP during Project construction;
- Any findings and improvements on environmental protection measures, particularly in regards to any additional mitigation applied during construction;
- Compliance with environmental licence and permit clauses that are linked to the EnvPP; and
- Interactions with regulators throughout the construction period.

3.0 SUMMARY OF CONSTRUCTION ACTIVITIES

The main components of the Project are the start-up camp, access road and main camp (Phase 1). Each of these components consists of a number of sub-components. Construction activities occurring for each component during this reporting period, January 1, 2012 – March 31, 2013, is summarized below.

3.1.1 Start-Up Camp

The start-up camp is located approximately 400 m from Provincial Road 280 (PR 280) at its junction with the access road. During the reporting period, the construction of the start-up camp was completed and it is now in operation. Construction activities for this component included clearing and grubbing, site preparation and drainage, installation of utilities and services, installation of trailers and buildings (dormitories, office space, kitchen/recreation facility, water treatment plant and soft covered storage), construction of the water treatment plant and wastewater management (water and sewer mains, wastewater holding tanks, sewage lift station and wastewater drainage field) and a fuel storage area.

3.1.2 Access Road

The 25 km all-weather access road starts at kilometre 174 on PR 280. As of March 31, 2013, construction of the access road and associated components was near completion with outstanding activities include grading and road top. During the reporting period, construction activities included clearing and grubbing of work areas (road area, right-of-way, contractor work areas and borrow areas), construction of the access road (excavation of borrow materials, installation of culvert at the unnamed tributary and other culverts for local drainage, construction of the Looking Back Creek bridge), construction of the security gatehouse and the communication tower.

3.1.3 Main Camp

The main camp is located at kilometre 20 along the access road. Construction activities associated with the main camp started in January 2013 and included clearing and grubbing, site preparation and drainage, and grading of work pads.

4.0 MONITORING AND FOLLOW-UP RELATED TO CONSTRUCTION ACTIVITIES

4.1 CLEARING AND GRUBBING

Construction of the Project commenced with clearing and grubbing of trees for the road right-of-way and the start-up camp components. The majority of the trees were cleared using a bulldozer (Figure 1). Depending on the proximity to sensitive areas, hand clearing took place, as outlined in the EnvPP.

Trees that were cleared were burned in piles during the winter at various points along the road and in borrow pit areas (Figure 2). Manitoba Conservation and Water Stewardship (MCWS) was notified of the burning that took place between November 15 and March 1, and outside of those timelines a burn permit was obtained from MCWS. During the burning of slash, the fires were attended to by the contractor's staff and also monitored by Manitoba Hydro site staff.

Further into the 2012 construction season, the contractor introduced a commercial-sized mulching machine that was able to clear the road right-of-way in an efficient manner. The mulched material was left on the ground and will decompose over time, which reduced the volume of materials that required burning.



Figure 1. Clearing of vegetation using a bulldozer.



Figure 2. Disposal of cleared vegetation using burning (left) and mulching (right) methods.

4.2 EROSION AND SEDIMENT CONTROL

Sediment fence, wood slash bundles and the placement of rip rap are all sediment control measures that help to prevent sediment transfer from one area to another and in many cases, also help to minimize erosion.

4.2.1 Sediment Fence

More than 300 m of sediment fence was installed around the Start-Up Camp to prevent any sediment from construction activities entering the perimeter ditches. Straw roll ditch checks were installed in the ditches at the entrance to the construction site at kilometer 177 on Provincial Road 280. The ditch check and erosion control blanket were installed to prevent construction sediment from entering the Provincial drainage until re-vegetation could occur.

Sediment fence was also installed as a protective measure along a section of the trail leading up to the winter ice crossing over Looking Back Creek (Figure 3). The road to the crossing is on a downwards slope towards the creek and in order to ensure that winter construction activities did not have an adverse effect on the sloped area, erosion control blanket and sediment fence were installed.



Figure 3. Sediment fence and erosion control blanket installed near the winter ice crossing at Looking Back Creek.

4.2.2 Rip Rap

Rip rap is an effective measure for erosion control. It was placed at the entrance and exits to culverts and ditch checks along the road in areas that were prone to erosion during large rain events, and also used along embankment at Looking Back Creek and to line the unnamed tributary.

Figure 4 and Figure 5 show before and after pictures of rip rap being used as erosion and sediment control measures.



Figure 4. The access road before and after the placement of rock ditch checks.



Figure 5. The unnamed tributary before and after the placement of rip rap.

4.2.3 Wood Slash Bundles

Wood slash bundles were utilized around the Looking Back Creek Bridge as a sediment control measure during the construction of the road and the bridge. Approximately 200m of wood slash bundles were installed along the right-of-way. They are a natural alternative to filter any runoff from construction activities entering a water body or wet area. Trees that were cleared for Project construction during the winter were used to construct the bundles. To construct the slash bundles, trees are laid in place and tied together in 6ft to 10ft bundles, approximately 60cm in height and staked in place. The needles on the trees act as the natural filter, and eventually the trees will decompose so the bundles can be left in place. The wood slash bundles were effective in controlling sediment and erosion in areas around the bridge. It was also a better alternative to sediment fence because the ground did not need to be disturbed or prepared as it would have for the installation of sediment fence.

4.3 STREAM CROSSINGS AND WORK AROUND WATER

Two stream crossings were constructed for the Project, a through grade culvert across an unnamed tributary of the South Moswakot River, and a clear span bridge across Looking Back Creek. The culvert across the unnamed tributary was installed in early 2012, during the winter, when there was no detectable flow in the tributary.

The bridge abutments at Looking Back Creek were constructed in 2012 and the clear span bridge was installed in late 2012/early 2013, during the winter season. A wooden pedestrian bridge was constructed within the cleared right-of-way and above the ordinary high water mark in early 2012 to allow access to the far side of Looking Back Creek. This was required to allow work to continue on the abutments during the open water period of 2012 in preparation for installing the bridge. A conveyor system was installed to move rock to the south side of Looking Back Creek to build the abutments. Upon start up, it was noted that small rocks were falling off the conveyor belt at times, so a layer of geotextile was suspended underneath the conveyor to capture any rocks that fell. This proved to be an effective mitigation measure.

4.4 INSTALLATION OF FIBRE OPTIC CABLE

Construction of the Main Camp fibre optic cables were directionally drilled at Looking Back Creek and at the unnamed tributary in February 2013 with no issues (Figure 6).



Figure 6. Machinery used in the directional drilling of the fibre optic cables at Looking Back Creek.

4.5 WATER TREATMENT/WASTEWATER

4.5.1 Water Treatment Facility

The potable water treatment facility was installed and fully operational by March of 2013. Water quality testing is conducted by the facility operator daily and bi-weekly water samples are collected and sent to an accredited laboratory for analysis.

4.5.2 Wastewater Drainage Field

Construction of the wastewater drainage field began in 2012 with the final filtration chambers installed in the winter of 2013. The drainage field consists of 4 cells that are able to handle the capacity of the Start-Up Camp. One of the four cells was operational at the end of the reporting period. The cells consist of filtration chambers that allow the wastewater to percolate into the ground. The chambers are backfilled (Figure 7) and organic material is placed on top.



Figure 7. Filtration chambers in the drainage field being backfilled.

4.6 HAZARDOUS MATERIALS

4.6.1 Hazardous Materials Releases

The EnvPP developed for the Project included a Project-specific Hazardous Materials Spill Response Plan (HMSRP) that all contractors are required to conform to, or they are required to provide a plan of their own that meets the minimum standards set out in the Project specific

HMSRP. When a contractor proposed to use their own plan, it was reviewed and approved by Manitoba Hydro for use on the Project site prior to implementation.

In all cases, regardless of the amount of the release, a spill report is submitted to the Area Spill Response Coordinator, who is also the Site Environmental Officer (SEO), within a 24-hour period. All releases that are considered reportable are to be reported to the external regulatory agencies immediately upon noticing (or being notified of) the release. The contractor is responsible for all their releases and the clean-up and reporting of the releases to Manitoba Hydro and external agencies such as Manitoba Conservation and Water Stewardship (MCWS), and in some cases, Environment Canada. The hazardous materials reporting is required to ensure the environment is protected and that any serious environmental effects are reduced, both through mitigation and preventative measures (Figure 8).

The most common type of release involved hydraulic fluid. The preventative measures identified for the machinery were more regular inspections and reporting of any issues. All releases of hazardous materials on the Project site have been internally documented and remediated as per the requirements of the HMSRP.

Manitoba Hydro has a monthly inspection for all their work vehicles and an inspection is conducted for all the fuel tanks and spill kits on site. No hazardous releases were reported for Manitoba Hydro site staff.

4.6.2 Reportable Releases

For the 2012-2013 reporting period, data is presented for the period of March 2012 to March 2013. There were five (5) releases that required external reporting to MCWS's 24-Hour Emergency Line. Three of the five reportable releases were engine oil and two were glycol. In all cases, the reportable limits for these substances were equal to or greater than 5L and were reported to the appropriate regulators.



Figure 8. Mitigating potential releases using drip trays under construction equipment (left) and collecting soil samples after a hydraulic fluid release (right).

4.7 WILDLIFE

Wildlife was observed around the Project site throughout the 2012 - 2013 reporting period, in the start-up camp, along the access road, and within the general Project area. Below are some specific examples of wildlife observed by Project staff, including the Site Environmental Officer (SEO).

4.7.1 Large Mammals

Black Bears

In the summer of 2012, a small number of black bears were observed near the access road and on site near the Manitoba Hydro trailer. Information was shared with the contractor regarding the importance of not letting bears get too close, both as a safety concern and from the perspective of harassing the animals. A garbage bin near the pedestrian bridge over Looking Back Creek was also overturned, with garbage strewn around the entrance to the crossing area. The SEO spoke to Manitoba Hydro and contractor representatives about the importance of not leaving garbage bins out in the open.

In the fall of 2012, bear prints were observed around the Looking Back Creek area. The site contractors were advised that feeding the wildlife is prohibited, and were instructed to empty all outdoor garbage bins.

Subsequently, two bears were spotted in the camp. Bear bangers and horns were not effective in scaring the bears away from the camp area. Manitoba Conservation and Water Stewardship (MCWS) was advised of the bears on site, and notices were posted around the camp reminding workers about the bears and the relevant safe practices. The Project Safety Officer (PSO) was given permission by MCWS to set a bear trap on site without their supervision. The trap was set in the evening and a bear was trapped in the early morning hours. The contractors drove the bear approximately 50 km north on PR280 that morning and released it. A safe work procedure and a job hazard analysis were developed for the trapping of bears using the bear trap.

As mitigation, the contractor installed two panel pieces on the main garbage storage area, and all small garbage containers were changed to be bear-proof. “Tydee Bins” garbage receptacles were set up within the camp area (Figure 9). The bins are constructed of metal, have a twist handle that is able to lock in place after opening, and are typically the types of receptacles that are found in Provincial and National Parks. In addition, all garbage was hauled to the dump at the end of the day.

Two additional bears were trapped in fall 2012, and were also released about 50 km north on PR280. All garbage was still being removed from the site in the evenings and transported to the dump.



Figure 9. Tydee Bins located around the start-up camp.

Moose

In the summer of 2012 a moose was spotted walking across the access road and into the trees. Later that fall, two moose (one bull and one cow) were observed at kilometer 13 near the access road. In the spring of 2013, a moose was observed in the treed area behind the rock stockpile at kilometer 13 of the access road. Two moose have been observed to frequent this area.

Caribou

In January of 2013, a herd of caribou was spotted in multiple locations along the access road. These animals were noted to be in the hundreds, and were also observed by the wildlife biologists performing bear den surveys in the area between the Start-up Camp and Kilometer 24. The biologists advised that Manitoba Hydro notify the contractor that reduced vehicular speed should be used by workers travelling along the access road. MCWS was advised of the caribou sightings. Through subsequent aerial surveys it was determined there were several thousand

caribou in the project area. The contractor was made aware of these numbers and the SEO again informed Project workers to be extra cautious when working and travelling in the Project area.

Caribou were still observed to be frequenting the Project area in February 2013. In March, 2013, a wolf was observed pursuing a caribou through the main work area. Work was ongoing, but did not appear to distract the wolf or caribou.

4.7.2 Small Mammals

Throughout the reporting period, numerous foxes were observed near the Project site. To address this, site workers were reminded not to feed or harass wildlife at all worker orientations and at a number of contractor safety meetings.

4.7.3 Birds

Eagles were observed near the Project site in 2012 near the start-up camp. Gulls, whiskey jacks, and killdeer were all common birds that were observed by staff on the Project site. Sandhill cranes were present in the vegetated areas of the drainage field in the summer of 2012 - approximately 9 of these large birds made their way to the field daily during this time.



Figure 10. Wildlife observed on the Project site during the 2012 – 2013 reporting period.

5.0 REGULATORY

5.1 SITE VISITS AND INSPECTIONS

Bruce Holmes, Forester, with MCWS visited the site during 2012 to identify the merchantable timber areas, and again in early 2013 once the bridge over Looking Back Creek was built and accessible to traffic. During the second visit, the Main Camp area and the work areas were being cleared for upcoming work.

Darren Henry, Natural Resource Officer with Manitoba Conservation and Water Stewardship (MCWS), attended the Project site on numerous occasions during the 2012 - 2013 reporting period to conduct visual inspections of construction activities. During most visits, there were no concerns with the EnvPP and its implementation. However, following a work permit inspection carried out on April 16, 2012, it was noted that material used for the temporary snow bridge needed to be pulled farther away from the creek so that vegetation and soil would not enter Looking Back Creek during spring run-off. As well, the dirty snow and soil left on the ice of the creek needed to be scraped and pulled back beyond the creek banks. Immediate remedial action was taken to address these concerns.

Don MacDonald, Fisheries Manager with MCWS, visited the site in early 2013. This site visit included the water crossing sites of both the unnamed tributary and Looking Back Creek. At the time of the visit, ice was still on both waterways.

5.2 REGULATORY PERMITS/APPROVALS

As required by the Manitoba *Environment Act* Licence (EAL No.2952R), the relevant crown land work permits were obtained in 2012 and 2013 for construction activities in the Project area. Burn permits were also obtained, as required. The SEO coordinated with the local MCWS district office to ensure all regulatory requirements were met with regards to construction activities.