WUSKWATIM

Power Limited Partnership

Monitoring Overview

2009–10

Monitoring Overview for the period ending March 31, 2010

Head Office:

360 Portage Avenue
Winnipeg, Manitoba, Canada

Mailing Address:

PO Box 815
Station Main
Winnipeg, Manitoba
R3C 2P4

Telephone: 1-204-360-7192
Fax: 1-204-360-6131
www.wuskwatim.ca

WUSKWATIM
Power Limited Partnership

Front cover: An Elder from Nisichawayasihk Cree Nation collects spruce gum from a tree during an *Ethinesewin* study of the Wuskwatim project area.

Contents

Message from the Chair of the general partner of WPLP

Wuskwatim Power Limited Partnership (WPLP) is pleased to present the fourth annual Monitoring Overview, for the period ending March 31, 2010. The Wuskwatim Generation Project's monitoring activities were performed in accordance with prescribed government legislation, permits and authorizations, as well as the Wuskwatim Project Development Agreement signed between Manitoba Hydro and the Nisichawayasihk Cree Nation (NCN), partners in WPLP. This Monitoring Overview is a public document that summarizes the results of ongoing monitoring programs being undertaken as part of the development of Wuskwatim. Separate technical reports are filed annually with regulators under the terms of the approved Wuskwatim Environmental Protection Program and are available for review on the public registry.

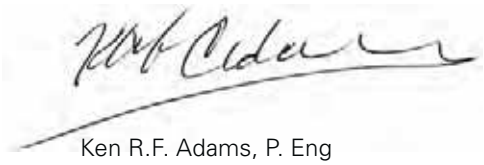
Comprehensive monitoring programs, as outlined in this document, were used to monitor the effects of these construction activities. Effects continue to reflect predictions in the project's environmental assessment and no significant adverse environmental effects have been experienced as a result of Wuskwatim Generating Station construction.

Ethinesewin — the traditional knowledge and collective wisdom of the Nisichawayasihk people — and conventional scientific analysis continue to be used equally as part of project monitoring activities. Monitoring programs began prior to

construction and will continue throughout construction and into project operation. As in previous years, project monitoring continued for water and land resources, and potential effects to people and economies. One of the more notable undertakings this past year was the beginning of fish habitat compensation construction projects on Wuskwatim Lake. These projects are part of the Fisheries Act Authorizations for the generating station. Once complete these new habitat sites will be monitored to ensure their success.

Manitoba Hydro is proud to manage the project on behalf of WPLP in a manner consistent with its Corporate Environmental Management Policy and Sustainable Development Guiding Principles. Manitoba Hydro and NCN developed the following overview on behalf of WPLP.

Sincerely,



Ken R.F. Adams, P. Eng
Chair of the general partner of Wuskwatim Power Limited Partnership
(5022649 Manitoba Ltd.)

Introduction

Manitoba has a large, self-renewing supply of water power available to meet the demand for electricity within the province and in export markets. The 200-megawatt Wuskwatim Generating Station under construction in northern Manitoba is being developed to harness that power and take advantage of the growing demand for clean, renewable energy. Designed as a low head, "run-of-river" plant, the construction of Wuskwatim will create less than one-half of one square kilometre of flooding, minimizing local environmental impacts.

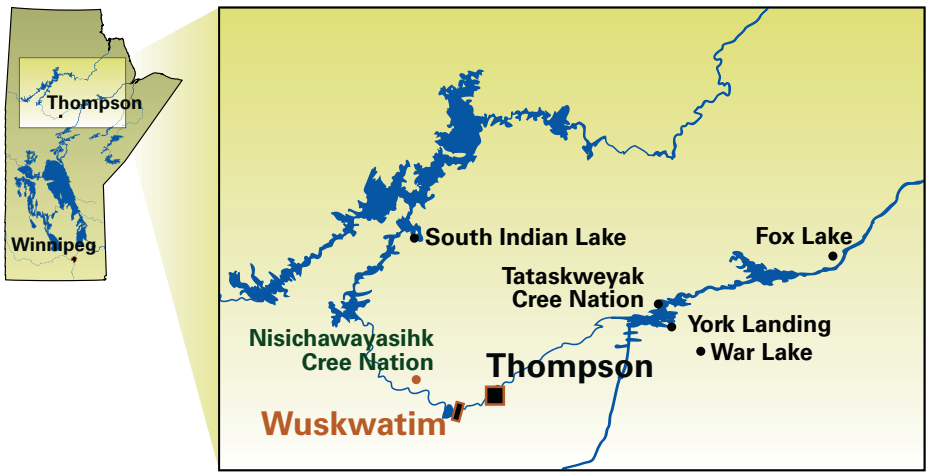
The Wuskwatim Power Limited Partnership, an entity consisting of Manitoba Hydro and the Nisichawayasihk Cree Nation (NCN), is developing the project. This is the first time in Canada that an electric utility has partnered with a First Nation to develop a hydroelectric generating station. Wuskwatim is located in NCN's traditional territory at Taskinigup Falls, at the outlet of Wuskwatim Lake on the Burntwood River.

In June 2006, the Wuskwatim Project Development Agreement (PDA) was approved by NCN. The PDA gives NCN the opportunity to own up to 33 per cent of the Wuskwatim Generating Station. NCN currently owns the full 33 per cent and has until the first turbine comes online to decide whether or not it wants to retain this level of ownership. Manitoba Hydro continues to provide construction and management services to WPLP.

An essential part of the Wuskwatim planning process was the use of *Ethinesewin* (NCN's traditional knowledge and collective wisdom of the Nisichawayasihk people) which helped to reduce the adverse effects of the generating station and establish the location of the construction camp and routes for the access road and transmission lines. To help ensure there is minimum disruption to the local environment as the project moves through the various phases of construction, traditional knowledge and conventional scientific monitoring continue to be used equally as part of project monitoring activities. Traditional ceremonies, led by NCN members, have been undertaken to express respect for the land and resources and help mitigate the effect of the project on culture and heritage.

Project Status

Construction of the Wuskwatim Generating Station continued at a brisk pace throughout the year. An important project milestone was reached with the start of concrete placement on the station's spillway structure in May 2009. From this time forward, intense activities associated with the project's General Civil Works contract continued, with approximately 65,000 cubic metres of the station's eventual 120,000 cubic metres of concrete being placed in the spillway, powerhouse, service bay and other associated structures. All concrete work for the spillway is now complete and the installation of gates and hoists began in spring 2010. In the service bay and powerhouse areas, special measures were taken to allow concrete work to continue throughout the winter. This was a challenging exercise given that temperatures often dipped well below –40 C. This year also saw the installation and commissioning of Wuskwatim's powerhouse crane. With a capacity of 275 tonnes, it is the largest capacity crane in any Manitoba generating station.



Environmental monitoring and management programs are being undertaken in accordance with monitoring and management plans approved by provincial and federal regulatory agencies. *Ethinesewin*, the traditional knowledge and collective wisdom of the Nisichawayasihk people, and conventional scientific analysis continue to be used equally as part of project monitoring activities. Monitoring programs began prior to construction and will continue throughout construction. Key activities over the past year included:

- completion of a Worker and Family Survey among NCN members
- a review of fish passage and other conditions at stream crossings along the access road
- monitoring of sediment and erosion processes upstream and downstream of the station
- heritage resource investigations during key construction activities
- ongoing monitoring by NCN representatives of the project site and surrounding area

Work also began during winter 2010 on fish habitat compensation projects within the future forebay. This included soil bioengineering work on six experimental sites on Wuskwatim Lake. Soil bioengineering uses live plants and plant parts to stabilize shorelines. Work will continue in 2010 and 2011 on all compensation projects.

Project employment peaked this past year at just under 1,100 workers, which is considerably higher than in previous years because of an increase in construction activity. Aboriginal workers continued to comprise a significant proportion of the workforce — from the start of construction to March 2010, 44 per cent of project hires or 47 per cent of person-years of employment have been Aboriginal. The WPLP also spent $122.3 million on goods and services purchased from northern Manitoba Aboriginal businesses, including several contracts with entities owned by NCN.

Cross-cultural training sessions, cultural ceremonies and counseling services are being managed and provided at site by NCN and are available to all employees. The number of cross-cultural training sessions increased substantially throughout the past year to ensure that all workers had the opportunity to participate.

Wuskwatim Monitoring

This report presents an overview of monitoring activities undertaken for the Wuskwatim Generation Project between April 1, 2009 and March 31, 2010.

Monitoring for the construction phase of the project is being conducted in accordance with the limits, terms and conditions of regulatory approvals issued by the Province of Manitoba and Government of Canada. These licences include an Environment Act Licence, Fisheries Act Authorizations and an interim Water Power Act Licence.

The Environment Act Licence for Wuskwatim, issued by Manitoba Conservation on June 21, 2006, prescribed monitoring for specific elements of the project and required the development and approval of the following documents:

- Environmental Protection Plan for construction and operation of the access road
- Environmental Protection Plan for construction and operation of the construction camp
- Environmental Protection Plan for construction of the generating station
- Aquatic Effects Monitoring Program
- Terrestrial Effects Monitoring Program
- Physical Environment Monitoring Program
- Resource Use Monitoring Plan
- Heritage Resources Protection Plan
- Road Access Management Plan
- Socio-economic Monitoring Plan
- Sediment Management Plan
- No Net Loss Plan (compensation plan for fish habitat loss)

Since the beginning of construction in August 2006, these plans and programs have been implemented and the results of monitoring activities have been summarized through this annual Monitoring Overview. The technical reports on monitoring work conducted are submitted annually to Manitoba Conservation.

In 2009, construction activities on the powerhouse and spillway occurred "in the dry". As a result, aquatic monitoring was limited to water quality monitoring only. This was conducted in conjunction with construction of ancillary works, including a water intake, and standard operation of the wastewater lagoon.

Terrestrial monitoring in 2009 included bird monitoring and aerial and ground surveys for aquatic fur bearers in the project area. No unanticipated impacts were observed. Monitoring will continue in 2011 and 2012.

Physical environment monitoring included measurement of all erosion transects in the study area and results showed that erosion rates were within the range previously observed. Additionally, sedimentation monitoring took place in both summer and winter periods. Observations were within ranges previously observed and did not indicate any changes due to work on the project.

Heritage resources were recovered during field studies in 2009 and included a number of new artifacts discovered at previously recorded sites.

After four years of construction activities, socio-economic monitoring continues to provide information on economic and social impacts resulting from the project. The project continues to contribute significantly to Manitoba's economy in terms of employment, labour income and tax revenues.

Concrete batch plant settling ponds.

Environmental Protection Plans

Environmental Inspectors, also known as *Aski Kihche O'nanakachechikewuk* (AKOs), conduct compliance monitoring to ensure mitigation measures outlined in the Environmental Protection Plans, licences, permits and authorizations are followed during construction. Environmental Protection Plans were prepared for construction of the access road, camp and generating station. The plans outline measures to be implemented to minimize adverse environmental effects of construction. Daily field inspections cover a wide range of activities including actions by contractors, performance of completed works and success of areas where rehabilitation efforts have occurred. Numerous efforts have been undertaken to meet environmental requirements and compliance is consistently achieved as confirmed by inspections. In the event environmental concerns and issues do arise, they are addressed quickly. The AKOs attend regular contractor meetings to discuss specific environmental issues requiring attention. Corrective action reports are used to track and document non-compliance issues or concerns that require specific remediation or mitigation measures to be implemented by the contractor. The environmental issues that required resolution in the 2010 fiscal year are documented below.

Wastewater

The wastewater lagoon reached capacity in the spring of 2009, earlier than the allowed discharge period specified in Environment Act Licence No. 2699. Organic/microbiological parameters exceeded the allowable discharge limits written in the licence. Manitoba Conservation allowed an emergency release from the lagoon; however, they ordered the lagoon discharge pipe be closed prior to the lagoon being fully emptied due to obstructions in the drainage ditch that conveys the effluent to the Burntwood River. The wastewater lagoon discharge in October 2009 met all licence requirements.

The AKO noticed wastewater on the ground and investigated to find that the source was an overflowing holding tank in the contractor work area that was not accounted for. Operational changes with respect to holding tank inspections were discussed and carried out by the contractor. The contaminated area was cleaned up and wastes were properly disposed of.

Rock check dam installed in ditch along access road.

After noting elevated turbidity of the wastewater in the final cell of the concrete batch plant settling pond, the AKO asked the contractor if it was possible to improve suspended sediment retention in the ponds. The contractor installed filter cloths on the berms through which the wastewater passes and the turbidity results improved substantially. The AKO regularly tests the turbidity in the final cell and encourages the contractor to replace the filter cloth on a regular basis.

For logistical reasons, surface runoff that collects within the enclosed area of the cofferdam requires removal once it reaches a certain depth. When this occurs, the AKO checks the turbidity and compares it to the turbidity in the river. If the turbidity in the river is higher, the collected water is pumped directly into the river. If it is lower, the collected water is pumped to the concrete settling ponds to allow the suspended material time to settle before being returned to the environment. Water in spring 2009 had low enough turbidity that it could be sent directly to the river. Turbidity testing was conducted throughout the disposal process to ensure it continued to meet all standards.

Construction

A concrete batch plant water intake was constructed downstream of the powerhouse in April 2009. Construction was completed in accordance with the Department of Fisheries and Oceans Fisheries Act Authorization MB 01 0595-5. The AKOs monitored construction and provided feedback to the contractor throughout the process on how to improve methods to maintain environmental integrity. Like all ancillary works at site, the water intake was regularly inspected in 2009 to ensure it continued to function correctly. On one occasion, the AKOs noted a relief valve on the intake line was open and high-velocity water was spraying into a wooded area near the river. This caused soil erosion and sediment to be released into the water. In order to stop this from occurring, the AKOs asked the contractor to adjust the piping to recirculate the water back into the river instead of spraying over land and the problem was eliminated.

In September 2009, Nisichawayasihk Construction Limited Partnership completed improvements along the access road. The ditch on either side of the road was repaired in spots that were susceptible to erosion. Work included reshaping, laying geotextile and cobble stone to prevent material displacement and installing rock check dams to reduce water velocity and associated sediment transport to watercourses. At four crossings, there appeared to be sediment entering the streams in the vicinity of the access road. An additional year of monitoring will take place at all stream crossings to ensure water quality is not affected by the access road.

Site maintenance/remediation/rehabilitation

General site housekeeping can be difficult to keep up with during large construction projects, however, the AKOs continue to be vigilant about site tidiness. On one occasion, plastic wrap used to cover the temporary cladding on the powerhouse outer structure began blowing off of the building and littering the site. Measures were implemented immediately to recover the plastic waste, have it suitably disposed and prevent further litter. The AKOs continue to educate site personnel about the importance for proper disposal and recycling of wastes.

Two separate incidents of soil contamination were discovered by the AKOs. The first area was a recently decommissioned garage and the second was in the excavated material placement area. Soil samples were collected from the suspect areas and tested positive for hydrocarbons. All contaminated soil was removed from the areas and disposed of at a licensed hazardous waste facility in Thompson. Subsequent inspection by the AKOs indicated that all contaminated soil had been removed.

In June 2009, the AKOs oversaw planting 3,800 jack pine seedlings to begin rehabilitation of the J-5 borrow area, as well as 4,000 poplar seedlings to rehabilitate four defunct off-takes that were used to deflect runoff water away from streams crossed by the access road during construction.

Wildlife

Over the last year, moose and other animals were observed along the access road. Within camp, a timber wolf and 25 foxes were observed. The foxes were successfully live-trapped and relocated away from camp.

Education regarding feeding wildlife in camp is an ongoing effort. Additional garbage receptacles were installed in an effort to reduce littering and deter wildlife.

Jack pine seedlings planted at J-5 borrow area.

Ethinesewin

Ethinesewin, the traditional knowledge and collective wisdom of the Nisichawayasihk people, is an integral component of monitoring for the Wuskwatim Generation Project. *Ethinesewin* provided by local Elders is vital to ensuring the project achieves *Kistethichekewin*, which means that the conduct of those involved is always based on the sacred responsibility to treat all things with respect and honour, as outlined in *Kihche'othasowewin* (the Great Law of the Creator).

Respect for *Ethinesewin* is shown by documenting and incorporating NCN members' expertise and knowledge of the natural environment into project monitoring and assessment. The 2009 *Ethinesewin*-based Monitoring Program focused on an evaluation of the area around Wuskwatim Lake and up the Burntwood River to Early Morning Rapids prior to impoundment of the Wuskwatim forebay and the start of generating station operation. Efforts were also made to study areas downstream of the station between Taskinigup Falls and Birch Tree Lake. Elders are concerned about the safety of travel in these downstream reaches of the Burntwood River and extra precautions were taken for this component of the study.

As in previous years, the 2009 *Ethinesewin* program involved experienced and knowledgeable NCN members, including Elders, as well as youth and program support staff. The group of 15 spent several days in August travelling throughout the Wuskwatim Lake area collecting and documenting their observations on medicinal plants, burial grounds, sites of historical and special significance to the Nisichawayasihk people, erosion, debris and sites of proposed fish habitat compensation works.

Particular attention was paid throughout the program to ensure that the traditional knowledge of Elders was passed on to younger generations, with special emphasis placed on how the land and water in this area has changed over time, and how it could change as a result of the project.

The program began with observations along the Burntwood River to Early Morning Rapids. For some of the NCN members, this was the first time they had seen Early Morning Rapids and, for all, it was a very moving experience. Throughout the travel route, the group walked shorelines in different locations to look for artifacts and to visit burial

grounds. The Elders shared their feelings about the special places visited and described the historical significance of them to the Nisichawayasihk people. They also provided youth with insight into how traditional knowledge is used to evaluate the land and water in a unique way. The Elders expressed concern about the continuing erosion of large sections of shoreline and the presence of debris along shorelines and in water throughout this section of the river. They were particularly troubled by the difficulty experienced in some places trying to access burial grounds and areas where medicinal plants are harvested. They suggested a more regular program of cutting and clearing shoreline debris to improve site access and to ensure that fallen debris does not enter the river system.

The group then divided in two — half travelled to traditional gathering locations around Wuskwatim Lake to assess the quality and quantity of medicinal plants and the other half reviewed locations where fish habitat compensation works were planned for construction in winter 2009. One of the key recommendations made following this component of the program was the need for greater protection and enhancement of balsam fir stands throughout the Wuskwatim area. Balsam fir has a long history of use by the Nisichawayasihk people as a traditional medicine and is of cultural importance to the community.

The final component of the upstream work involved aerial observations of the Wuskwatim Lake area. From the air, the Elders made several observations of shoreline erosion and sediment entering the water. They expressed concern about the possible effects of sedimentation on fish, aquatic animals and medicinal plants valued by NCN resource users.

A smaller group of Elders also undertook a safety and environmental review of areas downstream of the station between Taskinigup Falls and Birch Tree Lake. The purpose of this review was to consider potential safety issues of creating new access to this stretch of the river as a result of Wuskwatim development. This section of the Burntwood River has been considered hazardous for boating since development of the Churchill River Diversion, but access has also been limited due to lack of land routes. As part of this review, the Elders started to develop recommendations concerning use of this section of the river and associated access management during station operation.

Aquatic Effects Monitoring Program

Construction monitoring in 2009–10 was conducted on the Burntwood River, but was limited to water quality monitoring during the construction of a breakwater, a water intake and a rock pad at the downstream edge of the spillway rock-plug. All other construction work on the project took place within the dry confines of the cofferdams. A third year of sampling took place at nine stream crossings on the access road to determine if there were any ongoing effects after road construction was complete. Finally, several stream mouths identified for restoration in the No Net Loss Plan were assessed to determine how many and what kinds of fish were using them.

Construction monitoring

Water quality monitoring took place before, during, and after installation of an intake serving the concrete batch plant and a "muck pad" required to provide a work area for the contractor to access the spillway rock plug and prepare it for blasting. Blasting took place in spring 2010 under the muck pad and the bedrock upstream of the muck pad. This work was completed in April 2010.

Two water quality parameters, turbidity and total suspended solids (TSS), were used to monitor aquatic ecosystem impacts before, during and after construction of each in-water work. Turbidity results taken early on during construction of the water intake indicated that water quality was being negatively affected during placement of rock in the water. At the direction of the AKO, the contractor slowed the rate of rock placement and subsequent results indicate that construction had no measurable effect on water quality. Turbidity results taken during construction of the muck pad showed there was no measurable effect on water quality.

Aquatic monitoring at stream crossings

Nine stream crossings, eight along the Wuskwatim Access Road and one through the camp, have been constructed. Turbidity and TSS were used to monitor aquatic ecosystem impacts in spring and summer 2009 to identify any ongoing effects on water quality after construction was complete.

TSS and turbidity varied among streams in 2009. In all streams, TSS and turbidity were relatively high in May and June but most returned to normal after the spring melt. The remainder of the streams returned to normal by September.

Mitigation measures used to prevent sediment from entering the streams from the roadway appeared to be working at five of the crossings, where TSS downstream of the stream crossings remained similar to upstream values. At four crossings, there appeared to be sediment entering the streams in the vicinity of the access road. As 2009 was an extremely rainy summer, grass seed applied to the ditches of the access road did not become firmly established because much of it washed away. Reseeding will take place in the ditches during summer 2010, which should prevent sediment from washing into the stream in future years. However, an additional year of monitoring will take place at the stream crossings where elevated values were found to ensure water quality at all stream crossings is not affected by the access road.

Additional monitoring in spring 2009 assessed whether fish could pass upstream through the culverts. Large-bodied fish were not observed in all streams, but where present, they were able to move upstream through the culverts. This indicates no impediment to fish passage.

No Net Loss Plan pre-enhancement monitoring

One component of the No Net Loss Plan is habitat enhancement at a few small stream mouths adversely affected by the Churchill River Diversion Project in the mid-1970s. Potential locations were identified through consultation with NCN Elders and three candidate locations were selected on Wapisu and Threepoint Lakes. Proposed habitat improvements include debris removal, channel modifications to remove sediment and improve flow and other measures, including rock or log placement and the establishment of in-stream and shoreline vegetation to increase habitat diversity. Additional enhancement sites were also identified on Wuskwatim Lake.

Fish surveys were conducted in the spring and fall of 2009 at all sites. Fish species caught in the spring typically included walleye, northern pike, white sucker and yellow perch. Forage fish species were absent from embayment areas with the exception of one bay on Threepoint Lake, where spottail shiner were caught. In the fall, fish were captured at each embayment area, and generally consisted of walleye, northern pike, emerald and spottail shiner.

Benthic invertebrates, primarily Annelida (aquatic worms) and Insecta (insects), were also collected at one site in each of Wuskwatim and Wapisu lakes and at two sites in Threepoint Lake during the fall. This indicates that potential fish food is presently available at the embayment areas and that these sites have the potential to become more productive habitat for invertebrates and fish following habitat enhancement.

Terrestrial Effects Monitoring Program

Aquatic mammal monitoring

A one-day aerial survey of beaver and muskrat took place in both April and September 2009 to collect baseline data on the two species. The area assessed included Wuskwatim, Cranberry and Opegano lakes, Burntwood River and Bison Lake (a control area). During the spring survey, a total of 414 beaver lodges, 261 beaver dams and 93 muskrat push-ups were observed. In the fall, a total of 346 beaver lodges, 281 dams and four muskrat push-ups were observed. A total of 132 food caches were observed in the fall.

A ground survey of the beaver was performed from September 22 to October 2, 2009 to collect baseline data on lodge and food characteristics in the immediate area of the station, including Wuskwatim Lake and the Burntwood River in close proximity to the control area of Bison Lake. The study team located 124 lodges which were most dense in the deep, marshy and protected Bison Lake area on Bison Creek.

Construction of the station is expected to cause changes to aquatic mammal behaviour along the Burntwood River, however, these effects are not expected to significantly alter populations due to the extensive availability of habitat in the area. Monitoring will continue in 2012.

Bird monitoring

Bird monitoring was conducted in June 2009 to provide information on changes to bird abundance and diversity in the forested areas in the vicinity of the construction site and access road. No significant differences in bird density or diversity were found and to date, no unexpected impacts to birds have been observed or reported.

The bird monitoring program began in 2007 and will conclude in 2011.

Vegetation

Rehabilitation work began at the J-5 borrow pit and at four off-takes from the access road. Approximately 3,800 jack pine seedlings were planted throughout J-5 and 4,000 poplar seedlings were planted along the off-takes. Monitoring progress of the seedlings will take place on a regular basis in the future to ensure rehabilitation success.

The ditches along the access road were revegetated by hydroseeding in July 2009. Unfortunately much of the seed washed away during a series of intense rainfall events after the application took place. Therefore, hydroseeding will take place again in 2010 to revegetate those areas that did not become adequately established.

Wapisu Caribou Committee

The Wapisu Caribou Committee (WCC) is a multi-stakeholder group comprising NCN, Manitoba Conservation, Manitoba Hydro and Wildlife Resources Consulting MB Inc. The WCC was established as a specific condition of Environment Act Licence No. 2699.

The committee provides advice and recommendations regarding caribou monitoring and research undertaken as part of the project. The WCC have also been actively working on educational projects to help inform people about the threatened status of the Wapisu herd. A video about woodland caribou was produced this year. It is targeted at high school students and includes Elders providing traditional knowledge about the Wapisu herd that live in NCN's Resource Management Area.

Sediment Management Plan

The monitoring of total suspended solids (TSS) during in-stream work is a requirement of the Fisheries Act Authorization for construction of the project. To fulfill this requirement turbidity loggers are installed in the water immediately upstream and downstream of the station and approximately 10 kilometres downstream at Opegano Lake. Turbidity is translated into TSS using a correlation scale.

This year no in-stream work occurred during open water season, so no monitoring was required. However, the loggers were installed with automated water samplers, which sampled water from the river regularly so that it could be analyzed for TSS and turbidity. This was done to improve the understanding of the relationship between TSS and turbidity in the Burntwood River. This information will be used to ensure that TSS is accurately measured in real time when in-stream construction takes place in 2010.

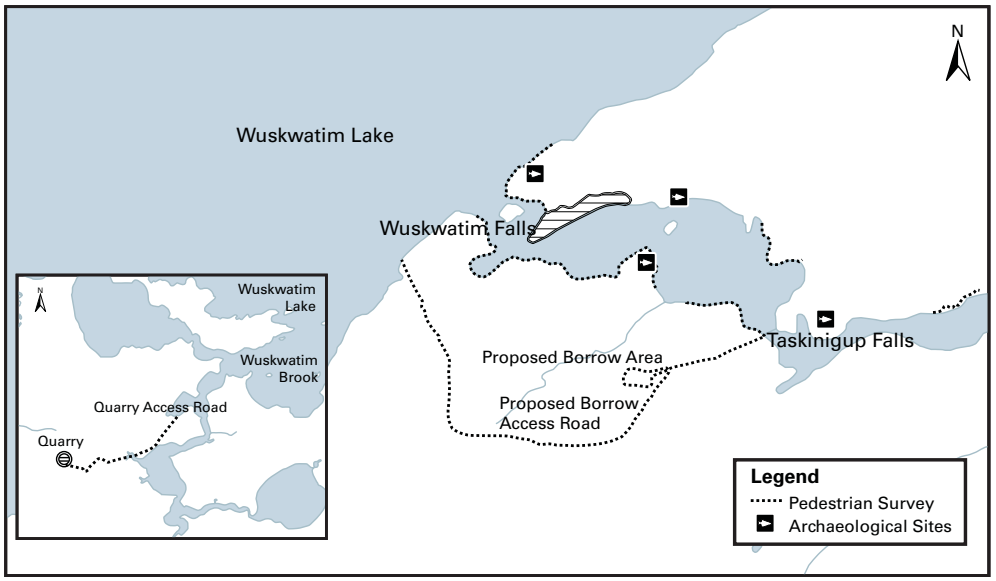
For one week in March 2010, in-stream work occurred for the installation of a rock or "muck" pad which was required to provide a work area for the contractor to access the spillway rock plug and prepare it for blasting. The monitoring was conducted using handheld devices as the work was of short duration and ice conditions made installation of the loggers too difficult. As described in the Aquatic Effects section, no increases in turbidity were detected so no modifications to construction were required.

Heritage Resource Protection Plan

Archaeological monitoring was conducted at several locations around the project site in fall 2009. Areas examined included the forebay clearing area on the north and south shoreline between Wuskwatim and Taskinigup Falls; the southeast shoreline of Wuskwatim Lake that will be affected by channel modifications at Wuskwatim Falls; a small section of north shoreline below Taskinigup Falls that was subject to clearing and soil removal associated with construction; a location that was proposed for a borrow area on the south side of Taskinigup Falls; and the access trail to this borrow area. This monitoring work took place between September 24 and October 2, 2009. Methods used to examine the areas included pedestrian surveys and arbitrary shovel testing.

Artifacts were discovered on the south shoreline between Wuskwatim and Taskinigup Falls. Prior to removal of the artifacts an offering of tobacco was made in accordance with the Heritage Resources Protection Plan. The artifacts were all from a previously recorded archaeological site. The 25 artifacts recovered at this location had been dislodged from their original location as a result of active erosion and most were found close to the water's edge. They included stone tools, flakes and animal bone fragments.

The north shoreline area between the falls as well as the area downstream of the Taskinigup Falls produced no heritage resources. Some spots closer to the construction site had little visible shoreline due to high water. The north shore area close to Wuskwatim Falls was intensely investigated for burial grounds as the land will be altered due to construction activities. Over the winter, forebay clearing took place on the north shore. The AKO walked the entire area in front of the construction equipment to ensure no heritage resources were disturbed.



The southeast shoreline of Wuskwatim Lake is also a previously recorded archaeological site. A log feature of undetermined function (possible late historic latrine) was recorded in the area where the channel modifications will occur. Artifacts recovered from this area during the revisit of this site were likely displaced from their original context and were from both pre- and post-contact periods. They included cartridges and shell casings, a corroded spoon, a late historic wood handled fork, small pieces of metal strapping, a button and unidentified pieces of corroded metal.

There was a possibility that a borrow area would need to be established on the south side of Taskinigup Falls. This would also have required a small access road. Archaeological investigation occurred in these potential construction areas. No heritage artifacts were located at the proposed borrow area or along the proposed access road and the construction team decided not to use these south side areas.

In addition to the work conducted in fall 2009, a survey was conducted on February 8, 2010 at a rock outcrop about one kilometre inland from the southwest shore of Wuskwatim Lake, near Wuskwatim Brook. The rock outcrop was used as a quarry following the archaeological survey. The majority of the ground was under snow cover more than one metre deep; therefore, the investigation was done by pedestrian survey except at the quarry site where the project archaeologist requested that some areas be cleared of snow to allow for investigation of the soil matrix. No evidence of heritage resources or burial grounds were identified during this survey.

Artifacts recovered during Heritage Resource investigations.

Physical Environment Monitoring Program

The Physical Environment Monitoring Program (PEMP) is an adaptive program designed to measure various components of the physical environment that may experience some form of change from the construction of the Wuskwatim Generation Project.

Components of the physical environment addressed in the PEMP include:

- climate
- water regime
- physiography
- erosion
- sediment transport
- woody debris

The PEMP monitoring area includes a section of the Burntwood River upstream of the project to the foot of Early Morning Rapids — including Wuskwatim Lake — and downstream of the project area to Birch Tree Lake.

Climate, water regime and reservoir greenhouse gas monitoring

To better characterize the climate of the Wuskwatim monitoring area, weather was monitored at five weather stations within the region. Manitoba Hydro upgraded the equipment at the Wuskwatim Lake station in 2009 to address malfunction issues and since then the reliability of the station has improved.

Total precipitation during the reporting period (April 2009 to March 2010) was slightly below normal. Total rainfall in July 2009 was among the highest in the 40-year record at Thompson. Flows and water levels at Wuskwatim Lake rose very little in response to significant rainfall in July.

Flow in the Burntwood River was reduced from historical high flows in the spring to below average during the summer. The river flow increased to maximum levels from fall through winter. Water levels on Wuskwatim Lake varied in response to the flow from Notigi, dropping about one metre by the end of September and then increasing about one metre in October 2009 in response to increased Notigi flows. There was no change in water level on Wuskwatim Lake or downstream of the project area as a result of in-stream construction activities.

Pre-flooding greenhouse gas (GHG) monitoring continued in the project area in 2009. These studies are designed to characterize spatial and temporal pre-impoundment conditions in the vicinity of the project area. Continuous monitoring of carbon dioxide, methane and oxygen took place from June through October between Wuskwatim and Taskinigup Falls. In addition to continuous monitoring, discrete measurements of carbon dioxide, methane and nitrous oxide were recorded on Wuskwatim Lake as well as upstream and downstream of Taskinigup Falls.

Physiography

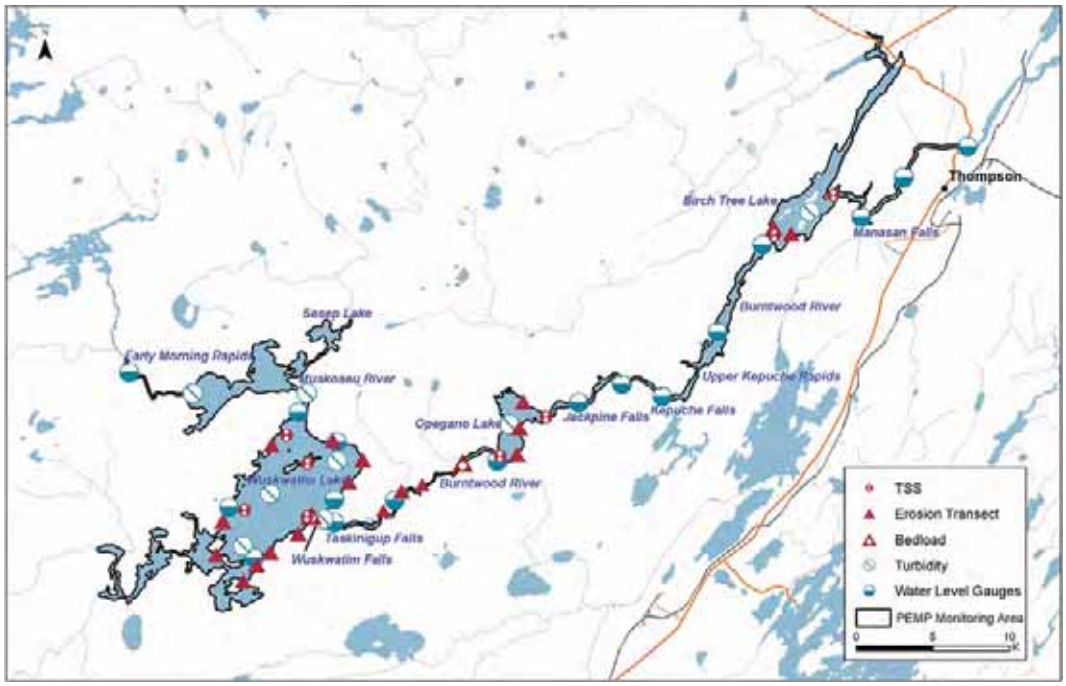
Excavation of rock began from the new Wuskwatim Brook quarry located at the south end of Wuskwatim Lake. The rock was used to begin constructing fish habitat structures required to compensate for habitat lost as a result of constructing the station. It was also used to begin construction on experimental soil bioengineering sites. Approximately 12,000 cubic metres of rock was placed at these sites, located around Wuskwatim Lake, while roughly 10,000 cubic metres remains stockpiled to complete the work next winter. There was no excavation of rock at the construction site during the past year.

Shoreline erosion

Erosion monitoring activities consist of surveying the shape of the bank and comparing the position of the bank and nearshore underwater slope from year to year.

The project has 35 erosion monitoring sites all of which were surveyed in 2009. Almost 400 water samples were obtained for suspended sediment testing. The majority of these sites were last surveyed in 2007. Of the 21 Wuskwatim Lake sites surveyed in 2007–08 and 2009, two had insignificant bluff-recession rates (less than 0.25 metres per year), 15 had moderate recession rates (0.25 to 0.99 metres per year) and four exhibited recession rates greater than one metre per year.

Downstream of the Wuskwatim project, riverbank erosion sites were surveyed in 2007–08 and 2009. Of the eight sites surveyed, seven had a bluff-recession rate that was negligible (less than 0.25 metre per year) and one experienced more than one metre of recession. This is consistent with previous monitoring results at downstream river sites. At five downstream lake erosion sites, four had a moderate bluff recession rate and one had a recession rate greater than one metre per year.



Sediment transport

Sediment transport data were collected at 30 locations upstream and downstream of the project, including bed-load sampling at nine locations. Total suspended solids (TSS), turbidity and sediment grain size data were collected at each site. TSS concentrations observed in 2009 fell within the range previously observed in the PEMP monitoring area. Similarly the monitoring results for turbidity and sediment grain size were consistent with past observations within the monitoring area. The results indicate no change in sediment transport conditions due to construction activities at the project site.

Turbidity and TSS monitoring also took place at two sites, at the upstream and downstream ends of the PEMP monitoring area in March 2010, when a rock pad was constructed in the Burntwood River on the downstream side of the spillway rock plug. Monitoring results do not indicate any effect on turbidity or TSS at the downstream end of the PEMP study area due to construction.

Woody debris

The Manitoba Hydro waterways management group undertook debris management activities along the Burntwood River downstream of the project site between Opegano Lake and Thompson. A new debris management crew was established on Wuskwatim Lake in summer 2009. The debris management crews travelled more than 8,000 kilometres, patrolling some shorelines more than once, and removed both small and large pieces of debris. The majority of material removed was either old debris not related to the Wuskwatim project or debris due to beaver activity.

Socio-economic Monitoring

Economic monitoring

The Wuskwatim Generation Project influences the economy of Manitoba in many ways. This includes providing employment (creating labour income) and purchasing the goods and services required to build the project. In turn, these expenditures result in incremental provincial tax revenues and contributions to provincial gross domestic product (GDP).

Job and labour income creation continue as long as some portion of spending on the project occurs in Manitoba. Influences are categorized as direct, indirect or induced impacts. Direct impacts result from project expenditures and refer to employment, purchases and income generated by the project itself. Indirect impacts refer to the employment, purchases and income created in other industries as the effects of project expenditures work their way through the economy. For example, there will be indirect impacts on businesses supplying materials and equipment to companies in the direct impact segment. Induced impacts result from the spending and re-spending of direct and indirect income generated by the project, increasing sales for consumer goods and the businesses that supply them. These are the impacts that are created by the additional income and profits earned by workers and businesses that are associated with the project either directly or indirectly. The sum of the direct, indirect and induced impacts is the total economic impact of the project.

Data is available to provide estimates of direct employment, labour income, tax revenue impacts and purchases associated with the project from the start of construction to March 2010. Information on some indirect and induced impacts of the project on the local economy, specifically the contributions of the project to local employment and business opportunities in Thompson and Nelson House was summarized in the 2007–08 Monitoring Overview based on a survey conducted in early 2008. A second survey is anticipated to be conducted in 2010 and will be summarized in future Monitoring Overviews. While data is not available to calculate GDP specifically for the project, the economic impacts provide a positive contribution to provincial GDP.

Direct economic impacts

These are impacts of the initial project expenditures made to suppliers of labour, equipment and services required for the construction of the project. Major direct economic impacts of the project from start of construction to March 2010 include:

	Total
Person-years of direct employment	1,544
Direct project purchases ($ Millions)	$553.3
Direct labour income ($ Millions)	$106.8
Direct federal & provincial taxes ($ Millions)	$65.5

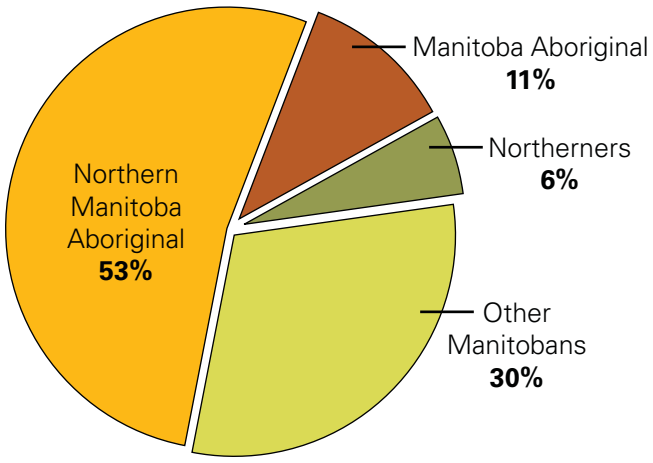
Employment

Employment can be measured in different ways including hires and person-years. Hires refers to the number of people hired for any duration at the project site. One individual may be hired more than once (for example, for different contracts) and each hire is recorded separately. However, when part-time and/or seasonal workers are used or when there is turnover at the work site, it is useful to standardize the hires in terms of person-years of employment. A person-year of employment is defined as one full-time job for one year. This typically represents about 2,000 hours of work. Information on both hires and person-years is provided in this report.

Person-years of employment

From the start of construction to March 31, 2010, direct employment created on the project amounted to 1,544 person-years. Of this, 75 per cent, or 1,152 person-years represent Manitoba employment. Total northern Manitoba and northern Manitoba Aboriginal employment represents approximately 59 per cent (682 person-years) and 53 per cent (609 person-years), respectively, of Manitoba employment.

Person-years of employment — breakdown of Manitobans



Hires on the project

From the start of construction to March 31, 2010, there were 3,794 hires to the work site, including Aboriginal hires. Of the total hires, 2,625 or approximately 69 per cent were Manitobans. Total northern Manitoba and northern Manitoba Aboriginal hires represent approximately 56 per cent (1,479 hires) and 49 per cent (1,287 hires), respectively, of Manitoba hires. There were a total of 1,659 Aboriginal hires including 1,250 Status, 369 Métis, and 40 other (Inuit and non-Status). There were a total of 492 NCN hires on the project.

Breakdown of total project hires by job classification from the start of construction to March 31, 2010

Job Classification	Total Hires	Aboriginal	Non-Aboriginal
Labourer	558	335	223
Security Guard	77	59	18
Operating Engineers (Crane & Equipment)	500	248	252
Teamster	262	199	63
Carpenter & Millwright	608	98	510
Painter	3	1	2
Glass Worker	5	0	5
Floor Coverer	8	0	8
Insulator	12	0	12
Lather	10	5	5
Plasterer & Cement Mason	30	4	26
Sheet Metal Worker	5	2	3
Roofer	5	2	3
Sheeter, Decker & Cladder	16	6	10
Boilermaker	2	2	0
Ironworker & Rodmen	299	99	200
Electrician	87	28	59
Pipefitter & Plumber	85	22	63
Office & Professional	174	57	117
Caterer	420	398	22
Other*	628	94	534
Total Hires	**3,794**	**1,659**	**2,135**
Total Person-Years	**1,544**	**732**	**812**

* *The "Other" category refers to hires in job classifications not covered by the Burntwood Nelson Agreement. This would include managerial and supervisory staff (both contractor and Manitoba Hydro), other Manitoba Hydro site staff and certain technical staff (engineers and technicians).*

Employee turnover

Since project inception to March 31, 2010, there have been 996 occurrences where employees were discharged or resigned. This represents a rate of turnover of 27 per cent of total hires. Of the 996 occurrences where employees were discharged or resigned, 616 reported being of Aboriginal descent. This represents a 37 per cent rate of turnover among Aboriginal hires[1]. The majority of turnover (71 per cent) on the job site is comprised of resignations as opposed to discharges. A resignation represents an individual choosing to leave a job and does not include layoffs.

To date there have been a number of instances where individuals have resigned or been discharged from the job site, but have later returned to work on the project. Since project inception to March 31, 2010 this has occurred 145 times — approximately 14.6 per cent of total resignations and discharges. Of these returns to the work site, approximately 121 reported to be of Aboriginal descent, representing about 20 per cent of all Aboriginal resignations and discharges.

Employee training

A key component of the Wuskwatim Project Development Agreement is the provision for both pre-project and on-the-job training for northern Aboriginal people seeking employment on the project.

Pre-project training, designed to train and prepare northern Aboriginal people for employment in a wide range of occupations during the construction of both the Wuskwatim and the proposed Keeyask projects, is being offered through the Wuskwatim and Keeyask Training Consortium (WKTC). Funded by Manitoba Hydro, and the provincial and federal governments, WKTC facilitates the Hydro Northern Training and Employment Initiative (HNTEI) and provides project-based funding to five Cree Nations and two Aboriginal organizations, who in turn offer training to their members.

The training portion of HNTEI came to an end on March 31, 2010 and final data related to the initiative will be analyzed over the next reporting period. As of March 31, 2010, 166 pre-project trainees had found work at the Wuskwatim project site.

At Nelson House, training is provided through the Atoskiwin Training and Employment Centre (ATEC). To date, ATEC graduates have found employment at Wuskwatim in a wide variety of fields, including carpentry, catering, security, brush clearing and heavy equipment operation. From the beginning of the initiative through to September 30, 2009,

1 Turnover is calculated as the total incidences of discharges and resignations divided by total hires. The total number of resignations has been corrected to exclude circumstances where an individual left a position but was rehired to improve their job level on-site.

398 people were trained through ATEC and of those people trained 230 obtained employment experience including 76 at Wuskwatim. In addition to pre-project training through WKTC, approximately $1 million has been spent for on-the-job training provided by NCN joint venture contractors at the Wuskwatim site itself.

Purchasing

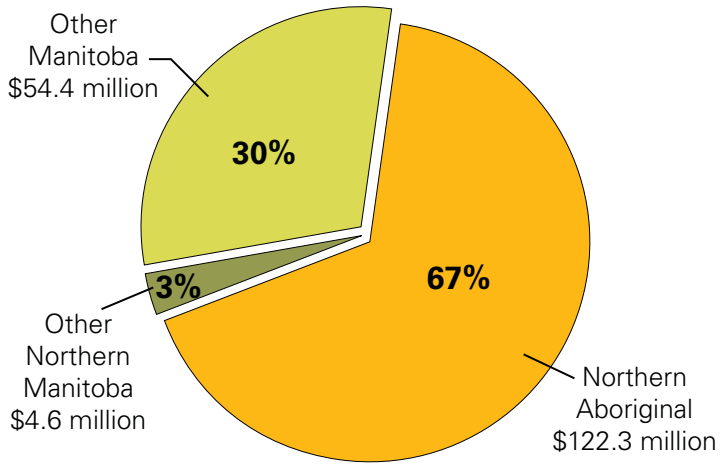
To the end of March 31, 2010, a total of $553.3 million was spent on goods and services for the project. Of this, $181.3 million were Manitoba purchases.

Total northern Manitoba (Aboriginal and non-Aboriginal) purchases represent $126.9 million or 70 per cent of total Manitoba purchases. Total northern Manitoba Aboriginal purchases represent $122.3 million or 67 per cent of total Manitoba purchases. Another $3 million was spent on other purchases where there is no definitive way to confirm whether the vendor is a northern, Aboriginal, Manitoba or non-Manitoba business. The table below summarizes total purchases to date while the accompanying pie chart provides a further breakdown of the Manitoba purchases. The information provided represents direct purchases of the project from contractors. Secondary purchases by contractors, in turn, would include purchases of goods and services from Manitoba based businesses.

Purchases to end of March 2010

	$ Millions	% of Total
Manitoba	**$181.3**	**33%**
Outside of Manitoba	$369.0	66%
Other	$3.0	1%
Total	**$553.3**	**100%**

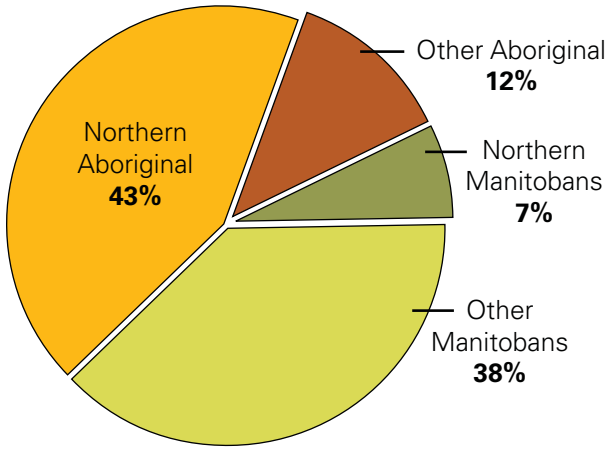
Breakdown of Manitoba purchases



Labour income

Labour income is an important indicator of the direct economic impact of a project. The estimate of labour income reflects the direct income earned by workers from employment on the project. It is the sum of wages and salaries associated with direct person-years of employment. The total direct labour income impact of the project to the end of March 31, 2010 is approximately $106.8 million[2]. Nearly 68 per cent or $72.7 million represents labour income associated with direct Manitoba employment. Total northern Manitoba and northern Manitoba Aboriginal direct labour income impacts represent approximately 50 per cent ($36.1 million) and 43 per cent ($30.9 million), respectively, of the total Manitoba direct labour income. The chart below provides a breakdown of the estimated labour income in Manitoba.

Manitoba labour income breakdown



Tax revenues

The Wuskwatim Generation Project also contributes to government revenues. This includes direct revenues received by federal and provincial governments such as payroll tax, personal income tax, fuel tax and provincial sales tax. Not all of these taxes are payable by the project; however, they are generated as a result of it. The estimate provided here does not include taxes received by local or municipal governments or taxes associated with indirect or induced employment.

2 Labour income is calculated based on information provided by contractors and Manitoba Hydro.

The estimate of tax impacts to the end of March 2010 is $65.5 million and includes $2.3 million in payroll taxes[3], $29.8 million in personal income taxes[4], $9.5 million in capital tax, $1.7 million in fuel tax[5] and $22.2 million in provincial retail sales tax[6].

Indirect and induced economic impacts

The Wuskwatim Socio-economic Effects Monitoring Plan required a survey of indirect and induced impacts on businesses be conducted near the end of the infrastructure (road and camps) construction activity. This survey was conducted in early 2008 and the results of that survey were summarized in the 2007–08 Monitoring Overview. A second survey will be conducted in 2010 to reflect the peak of activity during the general civil work and will be summarized in the 2010–11 Monitoring Overview.

Social monitoring

Cultural awareness activities and employee retention support programs

Numerous measures were in effect during the reporting period to support the retention of northern and Aboriginal employees at the job site and to ensure that sensitivity and respect for local culture is established throughout construction of the project. These measures include on-site cultural awareness training for employees, voluntary counseling services and cultural ceremonies prior to many key construction activities. NCN is responsible for providing cultural and retention support programming on-site under contract with WPLP.

Cultural awareness training

The purpose of cultural awareness training is to assess and address the challenges that arise from cultural differences experienced on the job site and as a result of interactions between employees and nearby communities. Training sessions consist of facilitated face to face awareness workshops delivered by qualified NCN members. Over the past fiscal year, 60 cultural awareness workshops were held with contractor employees and one full day cross-cultural awareness session was held with senior management, providing training for 794 individuals.

---

3 Health and Post-secondary Education Tax is calculated as 2.15 per cent of the estimated labour income of $106.8 million.

4 Personal income taxes are paid by individual employees to the federal and provincial governments. Each individual's personal tax situation (and therefore taxes payable) will vary. However, this estimate is based on a range of reasonable assumptions.

5 The fuel tax estimate is based on provincial taxes of 11.5 cents/litre for both diesel and gasoline and federal taxes of 4 cents/litre for diesel fuel and 10 cents/litre for gasoline, provincial and federal taxes of 3.2 cents/litre and 4.0 cents/litre, respectively, for aviation fuel.

6 PST is based on estimates of taxes paid directly by the project and PST on materials provided by suppliers under real property contracts.

From April 2009 to June 2009 training sessions were held twice each week to accommodate the substantial increase in labour force associated with the general civil contract. The workshops are now being delivered once every month recognizing that most workers on-site this year will have already received training.

On-site counseling

On-site counseling is available on a voluntary basis to help all employees deal with any issues experienced while working on the project. This could include issues such as work adjustment problems, vocational/career issues, cultural adjustments, family stresses and money management, among other topics. Employees also have the option to involve other family members in counseling sessions and to meet with community Elders. On-site counseling services are available all year and informational brochures are made available to publicize the service.

Cultural ceremonies

Site ceremonies are held at key construction milestones to help mitigate the effect of the project on culture and heritage and to demonstrate respect for the land. Ceremonies are organized by NCN spiritual leaders and attended by Wuskwatim workers and other NCN members. To the end of March 2010, several ceremonies had been held, including most recently five sweat lodge ceremonies and one pipe ceremony.

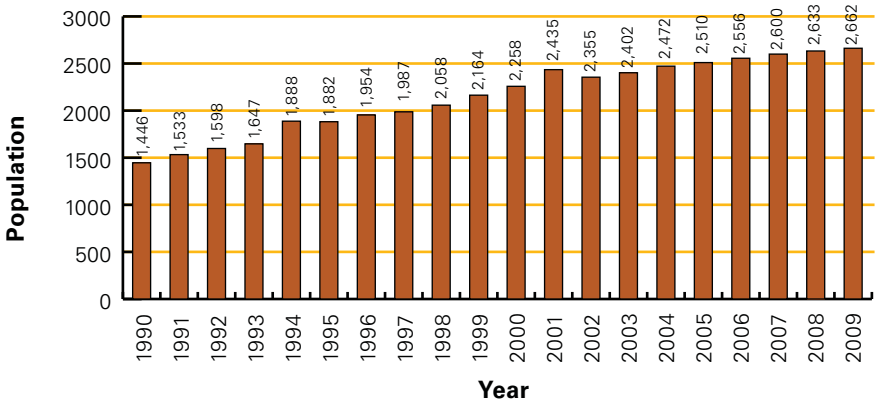
Community of Nelson House

Population

The Wuskwatim Generation Project Environmental Impact Assessment predicted a moderate amount of immigration and emigration at Nelson House associated with construction of the project. The possibility of immigration is associated with the lure of well paying construction jobs as well as community-based training opportunities. This type of migration may have been mitigated somewhat by the use of the Wuskwatim Job Referral System for hiring on the project, which allows individuals to register for employment without relocating closer to the project. Potential emigration could occur as families with new construction income choose to relocate to more urban centres, such as Thompson or Winnipeg, in order to access housing and other services unavailable in the community.

Data from Indian and Northern Affairs Canada (INAC) suggests that the population at Nelson House has continued to remain stable since the start of construction on Wuskwatim. As shown below, the total population at Nelson House increased from 2,633 to 2,662, an increase of 29 people, between the 2008–09 and 2009–10 reporting periods. Since the start of construction, the population has increased from 2,510 at the end of 2005 to 2,662 at the end of 2009, an increase of 152 people. This represents an average annual growth rate of 1.5 per cent. This compares to an average annual growth rate of 2.4[7] per cent in the Nelson House population from 2000 to 2004.

NCN on-reserve population (1990–2009)



Source: INAC's Indian Registry System as of December 31 of each year.

City of Thompson

Population

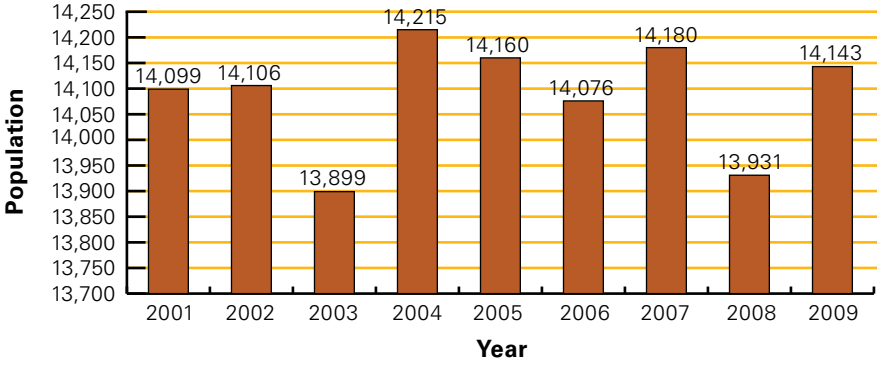
Thompson is the nearest industrial and commercial centre to the project and is potentially a significant contributor to the project workforce. There is also the potential that workers may take up residence in the community and/or visit the community during off hours to take advantage of various services (restaurants, shopping). This type of migration can positively impact the local community economy, but can also place a temporary strain on existing infrastructure and services. Measures have been taken to minimize immigration and off-hour worker visits to Thompson, including the construction of a camp at site outfitted with various recreational facilities for workers. As shown in the chart on page 33, while the annual data from Manitoba Health Annual Health Statistics show a slight increase (of 212 people) from the previous reporting period, the overall Thompson population has not increased significantly during the construction of Wuskwatim (a cumulative total of 67 persons since the start of construction).

7 This statistic has been adjusted by .1 per cent from the 2008–2009 Monitoring Overview.

It is important to note that Thompson continues to be affected by a number of social and economic drivers. The conditions in the city are, and always have been, closely tied to the mining industry. Interviews with key service providers in Thompson indicate that current population trends are influenced as much or more so, by the activities of Vale Inco and other large employers in the Thompson area. This being said, it is difficult to assign responsibility for certain changes or trends to any one factor or industry.

It should also be noted that, as a regional service centre, Thompson has a large temporary population of workers and Aboriginal people. A portion of this temporary population visit Thompson from outlying communities to access services, such as health care, that are not available to them at home. These individuals generally list their home community as their permanent place of residence.

Thompson population (2001–2009)



Source: Manitoba Health Annual Health Statistics (http://www.gov.mb.ca/health/annstats/index.html)

NCN impact management process

As part of monitoring the impacts of the Wuskwatim project on NCN citizens, 96 former and current Wuskwatim workers and 33 of their family members were interviewed in spring of 2009 as part of the Wuskwatim Worker and Family Survey. At the time the survey was taken, most workers surveyed were employed on the catering, security and access road contracts.

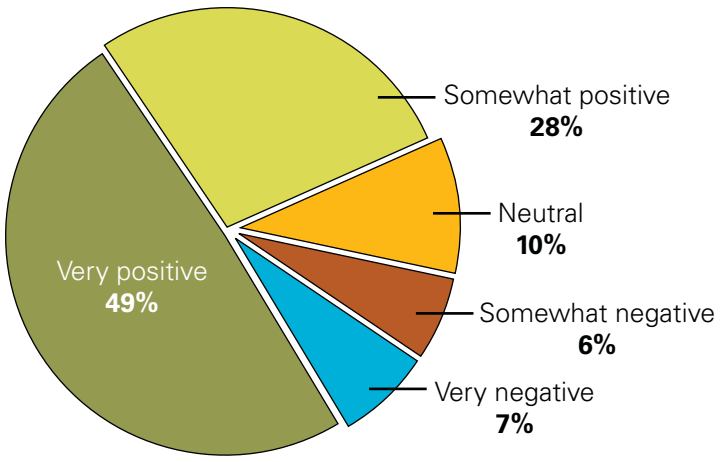
The survey had two main aims; to help understand experiences related to project construction both on-site and at home and to understand the project's effects on the community of Nelson House as a whole.

Workers views of overall experience

Among the workers asked about their overall experience working at the construction site, almost half felt their work experience was very positive with another 28 per cent indicating a somewhat positive experience. Positive comments about camp life included the opportunity to gain skills and new experience, camaraderie, new or increased income and job satisfaction. Management and food were also mentioned as positives. Only 13 per cent of workers indicated a negative experience, almost evenly split between six per cent somewhat negative and seven per cent very negative. Negative comments included management issues, concerns about the number of NCN citizens at the work site and experiences with racism/prejudice. Other concerns included inappropriate behaviours at site, drinking on-site, work schedules and paying taxes.

About 58 per cent of workers spoke Cree and English while on the work site and 66 per cent spoke Cree during their leisure time.

Workers' views on overall work experience

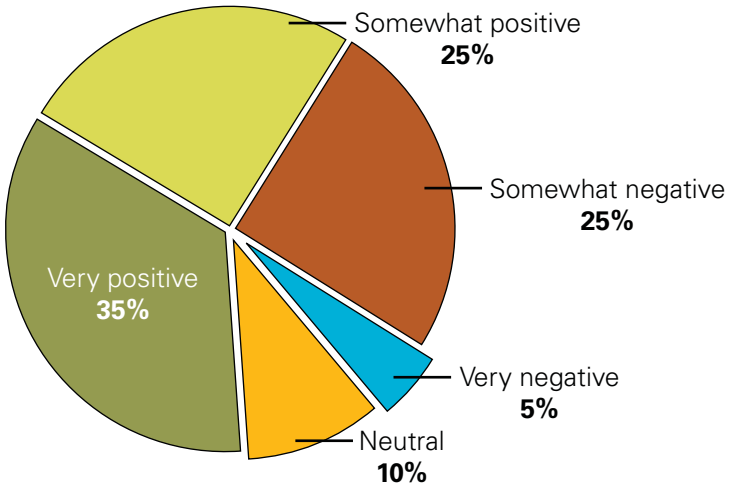


Workers and family members differ on project's impact on family life

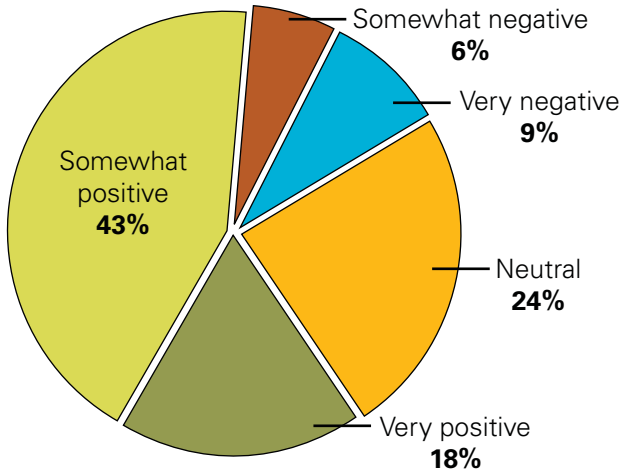
About 60 per cent of both workers and family members when asked about the family's experience with project employment indicated a positive experience, but differed on the degree. Of the 60 per cent, 35 per cent of workers believed the experience was very positive for their families while only 18 per cent of family members indicated the same. Positive changes noted were increased income, job experience, training and other benefits. A higher portion of workers (30 per cent) indicated the project was somewhat or very negative for their families, compared to only half that proportion (15 per cent) of family members who indicated that. Family members (24 per cent) were more inclined to say changes for their family were neutral compared to workers (10 per cent) who indicated the same.

Negative changes included family/marital stress due to the long work schedules, income-related issues, divorce/separation, and other concerns.

Workers' views about effects on families



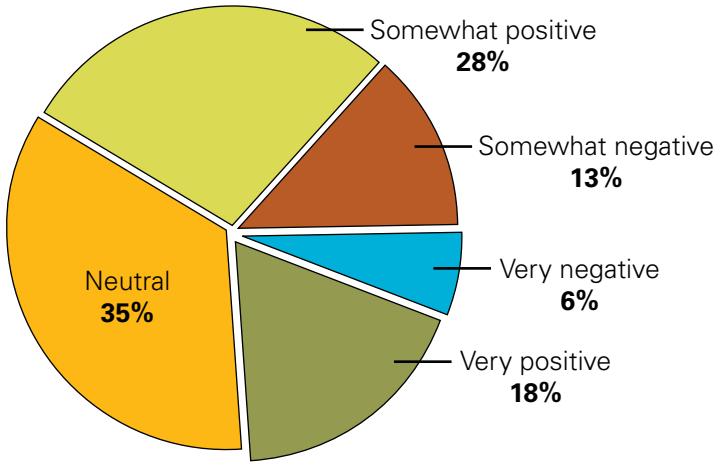
Family members' views about effects on families



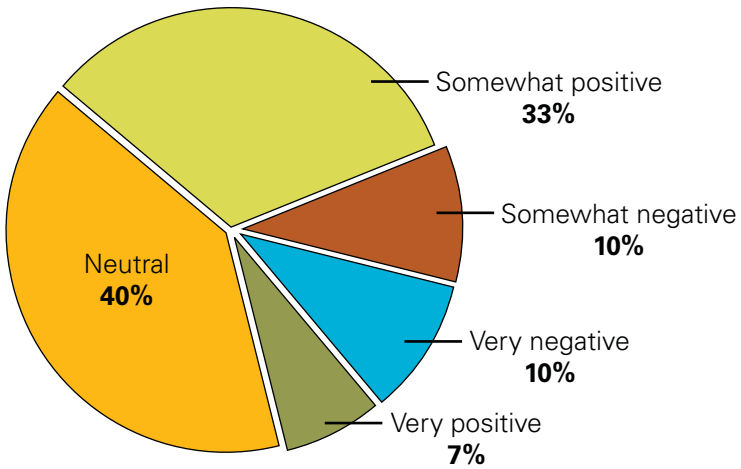
Project effects on community

The largest portions of both workers (46 per cent) and family members (40 per cent) felt the project had somewhat or very positive effects on the community with the second highest proportion of both workers (35 per cent) and family members (40 per cent) indicating the project had neither positive nor negative effects. Positive changes noted included employment and business opportunities, new income, training and education opportunities, ATEC and ceremonies. Only about one in five workers and family members felt the project had somewhat negative or very negative effects on the community. Negative changes noted included drinking, drugs, violence, gangs, and concerns about the hiring process, environmental change and worker absence from the family.

Workers' views about effects on community



Family members' views about effects on community



Characteristics of the survey participants

Of workers interviewed about 73 per cent were men and 27 per cent women, with most between ages 30 and 49. Among family members surveyed, about 75 per cent were women and 25 per cent men with most between ages 20 and 39. Most workers lived in a household of five or more people with over half living with a spouse or partner and more than eight out of 10 having one or more dependents. About 69 per cent of workers stayed at camp while on shift, 23 per cent stayed both in camp and commuted, and nine per cent commuted. About one in four workers had trained with ATEC or through an ATEC-sponsored program. The majority of ATEC coursework was provided in Nelson House and included training in designated trades, non-designated trades, food service, security and others.

Survey conducted by NCN citizens

Four NCN citizens were hired and trained to conduct the survey using personal interviews. They were also trained to code and input the data in a computer database so InterGroup Consultants Inc, who worked with NCN during the initial planning stages of the Wuskwatim project, could analyze it. A report on the survey results went to NCN Chief and Council and WPLP in December 2009. Both NCN and Manitoba Hydro are working together to consider the results and integrate the findings into planning processes. Further work will be undertaken at Nelson House over the next year. The full survey results are available through the Implementation Office.

Community infrastructure and services

During the 2009–10 reporting period discussions were held with key service providers in Thompson regarding potential project impacts on community infrastructure and services. These discussions indicated that, as with population migration, while changes in demand on community infrastructure and services can be linked in part to the project, it is the impact of all the growth factors in Thompson over the last few years that is likely causing certain community trends to be more pronounced.

While not directly linked to the project, Thompson service providers have noticed certain challenging and ongoing trends in the community which could be exacerbated by further economic growth. Service providers indicated that Thompson continues to experience a shortage of accommodation, particularly with respect to lower income housing and rental units. Although there are plans to have 50–60 new affordable housing units available in the next year, this is seen only as a start in addressing the housing shortage in Thompson. This shortage extends to the availability of hotel units, which can be hard to locate at certain times of the year.

Due to growth in the local economy, including employment opportunities, Thompson continues to experience a shortage of workers in the retail and hospitality sector. This shortage has continued despite increased wages. Perspectives shared during the previous study on indirect employment and business impacts suggests that Wuskwatim may be compounding this shortage through the availability of higher paying jobs on the construction site.

Service providers did indicate a direct and observable link between construction of the station and airport traffic — both person and freight. It is anticipated that this increase will continue for the remainder of construction activity.

Thompson service providers also indicated that they have noticed an increase in the number of homeless people in Thompson, as well as an increase in crime largely associated with gang activity. While not directly attributed to the project, there is the potential that project related income could be contributing in some measure to existing trends.

Transportation monitoring

Traffic safety — Wuskwatim access road

The access road connects Provincial Road (PR) 391 to the construction site. It is a private road with access restricted to a list of authorized users. Access is controlled by means of a gate at the PR 391/access road intersection. The gate office is staffed 24 hours per day, seven days per week and security staff document all authorized vehicles entering and exiting the road.

The table below provides a summary of traffic use on the Wuskwatim access road during the reporting period. On average, 145 vehicles per day used the road from April 2009 to March 2010. This is an increase of 33 vehicles per day on average compared to the previous year and reflects the peak in construction activity that occurred during this reporting period. There were two minor motor vehicle accidents along the access road during this reporting period, one in November and one in December 2009.

Traffic using the Wuskwatim access road
Trips by month, with daily average (2009–2010)

	2009									2010			
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Total	4,024	4,279	5,085	5,254	4,896	5,635	6,080	4,309	2,657	3,314	3,639	3,732	52,904
Daily Average	134	138	170	169	158	188	196	144	86	107	130	120	145

Source: Manitoba Hydro
Note: one trip represents one round-trip (entry plus exit).

Navigation Safety

During construction of the station, new access to the Wuskwatim Lake area was expected to bring more people in contact with Wuskwatim Lake and areas downstream of the station on the Burntwood River. NCN and Manitoba Hydro have begun to implement safety measures to mitigate potential effects associated with this new access and to assist resource users in reaching their traplines safely. There are currently four winter trails in operation around the Wuskwatim site. These trails were established and continue to be maintained as a result of the project. NCN members were hired to construct safe haven cabins along some of these trails for resource users such as hunters, fishers and berry pickers.

In 2007–08, two docks were installed on Wuskwatim Lake as part of the safety measures program. One dock is located near the construction site and the other is located on the west side of Wuskwatim Lake at the old Wuskwatim village site. As planned, these docks were removed at the close of the 2009–10 season and will be in place again when conditions permit.

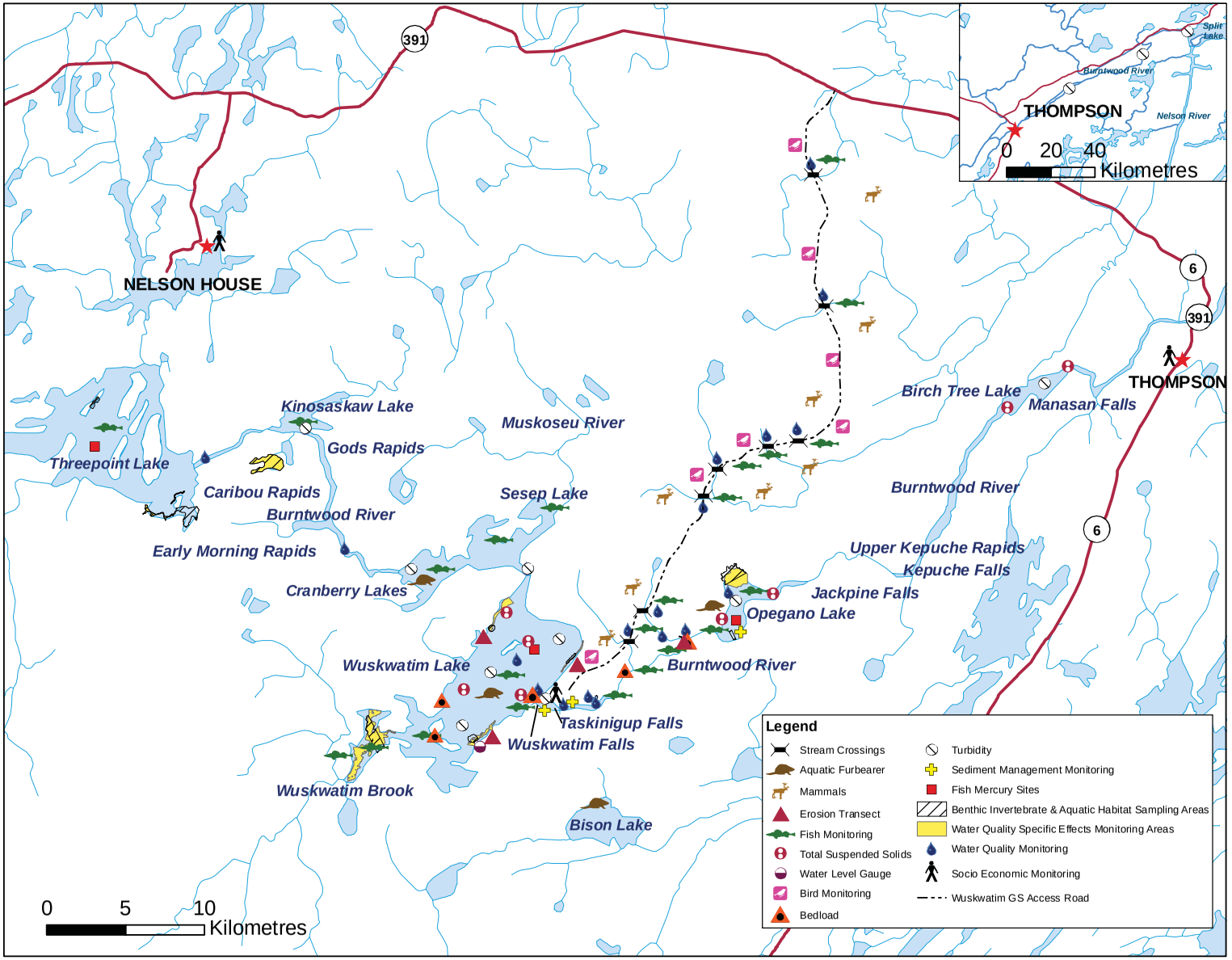
Over this reporting period four NCN members were hired to run two boat patrols in the forebay to monitor debris in the water and along the shoreline. Patrols took place for approximately five months during the open water season. This process continued through summer 2010.

There have been no safety incidents reported over the last year on Wuskwatim Lake or downstream on the Burntwood River in the project area.

Public Communication

WPLP is committed to providing the public with information about its monitoring activities and the results of monitoring studies undertaken each year. As part of its public communication activities, WPLP:

- annually develops this Monitoring Overview document to summarize key outcomes from the previous year. This document is distributed to Nisichawayasihk Cree Nation members living both on and off reserve and to various other stakeholders. The document is also available at the Wuskwatim Implementation Office in Nelson House, in the Public Registry and on the WPLP website at www.wuskwatim.ca.
- annually schedules a Wuskwatim Monitoring Advisory Committee (MAC) open house in Nelson House to provide community members with up-to-date information on monitoring programs and to answer any related questions. This past year, WPLP's Wuskwatim MAC held the open house on November 24, 2009 at the Duncan Wood Memorial Hall. A meeting with Elders and Resource Harvesters was held during the early afternoon to provide information and discuss monitoring results with them. The open house was open to the general public following this session.
- presented monitoring information to each of the four Keeyask partners at the Wuskwatim site in fall 2009. This was followed by a tour of the construction site and a presentation by the Cultural Awareness Coordinator.


391
NELSON HOUSE
Kinosaskaw Lake
Threepoint Lake
Gods Rapids
Caribou Rapids
Burntwood River
Early Morning Rapids
Muskoseu River
Sesep Lake
Cranberry Lakes
Wuskwatim Lake
Wuskwatim Brook
Bison Lake
Taskinigup Falls
Wuskwatim Falls
Burntwood River
Opegano Lake
Jackpine Falls
Upper Kepuche Rapids
Kepuche Falls
Burntwood River
Birch Tree Lake
Manasan Falls
6
391
THOMPSON
0 5 10 Kilometres
Split Lake
Burntwood River
THOMPSON
Nelson River
0 20 40 Kilometres
Legend
Stream Crossings
Aquatic Furbearer
Mammals
Erosion Transect
Fish Monitoring
Total Suspended Solids
Water Level Gauge
Bird Monitoring
Bedload
Turbidity
Sediment Management Monitoring
Fish Mercury Sites
Benthic Invertebrate & Aquatic Habitat Sampling Areas
Water Quality Specific Effects Monitoring Areas
Water Quality Monitoring
Socio Economic Monitoring
Wuskwatim GS Access Road

WUSKWATIM

Power Limited Partnership

Recycled

Supporting responsible use of forest resources

100%

FSC

www.fsc.org Cert no. SW-COC-2150

RAINFOREST ALLIANCE CERTIFIED