AGNICO EAGLE

MEADOWBANK GOLD PROJECT

2016 Annual Report

Prepared for:
Nunavut Water Board
Nunavut Impact Review Board
Fisheries and Oceans Canada
Indigenous and Northern Affairs Canada
Kivalliq Inuit Association

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Division

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ABBREVIATION

ABA	Acid base accounting
AEMP	Aquatic Ecosystem Monitoring Program
ARD	Acid Rock Drainage
AWAR	All Weather Access Road
CCME	Canadian Council of Ministers of the Environment
CREMP	Core Receiving Environmental Monitoring Program
CSM	Conceptual Site Model
CWS	Canada-Wide Standard
DFO	Department of Fisheries and Oceans Canada
ECCC	Environment and Climate Changes Canada
EEM	Environmental Effect Monitoring
El.	Elevation
ERT	Emergency Response Team
FEIS	Final Environmental Impact Statement
F/T	Freeze/Thaw
GN	Government of Nunavut
HCMP	Habitat Compensation Monitoring Plan
HHRA	Human Risk Assessment
HHS	Hunter Harvest Study
HTO	Hunter Trapping Organization
INAC	Indigenous and Northern Affairs Canada
INUG	Innuguguayalik Lake
KIA	Kivalliq Inuit Association
LSA	Local Study Area
LSM	Learning Management System
LOM	Life of Mine
Masl.	Meters above sea level
MDL	Method Detection Limit
MDRB	Meadowbank Dike Review Board
MPA	Maximum Potential Acidity
MMER	Metal Mining Effluent Regulations
NC	North Cell
NIRB	Nunavut Impact Review Board
NF	Near-Field
NNLP	No Net Loss Plan
NP	Neutralization Potential
NPAG	Non-Potentially Acid Generating
NPR	Net Potential Ratio
NWB	Nunavut Water Board
OMS	Operation, Maintenance and Surveillance
PAG	Potentially Acid Generating
PAHs	Polycyclic Aromatic Hydrocarbons
PEAMP	Post-Environmental Assessment Monitoring Program

PDL	Pipe Dream Lake
PHC	Petroleum Hydrocarbon
PRSF	Portage Waste Rock Storage Facility
QAQC	Quality Assurance Quality Control
RDP	Relative Percent Difference
RIME	Research Institute in Mine and Environment
RSA	Regional Study Area
RSF	Rock Storage Facility
TDS	Total Dissolved Solids
TMS	Training Management System
TPL, TPN, TPE	Third Portage Lake
TS	Total Sulphur
TSF	Tailings Storage Facility
TSS	Total Suspended Solids
RIME	Research Institute of Mine and Environment
RSF	Rock Storage Facility
S	Total Sulphur
SC	South Cell
SMP	Stormwater Management Pond
SPL, SP	Second Portage Lake
SPLE	Second Portage Lake Exposure
Sta.	Station
STP	Sewage Treatment Plan
VECs	Valued Ecosystem Components
VRWF	Vault Rock Storage Facility
WAL	Wally Lake
WEP	Waste Extension Pool
WLE	Wally Lake Exposure
WSLRA	Wildlife Screening Level Risk Assessment
WTP	Water Treatment Plan
W/D	Wet/Dry

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Comment
1	2017/03/31	All	All	This has been reviewed by Environmental Staff and will be incorporated into training for all mine staff on behalf of the Mine Manager and Senior Management

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The information in this document has been presented to mine managers and is endorsed and approved by senior management at Agnico Eagle*.

* Agnico Eagle is a recent signatory of the Mining Association of Canada- Toward Sustainable Mining. This document presents information related to assessment tools related to: Biodiversity Conservation Management and Tailings Management. Look for the * marked footnotes for TSM related information.

SECTION 1. INTRODUCTION

The Meadowbank Gold Project operated by Agnico Eagle Mines Limited - Meadowbank Division is located approximately 70 km north of the Hamlet of Baker Lake, Nunavut. The project components include marshalling facilities in Baker Lake, the 110 km All Weather Access Road (AWAR) between Baker Lake and Meadowbank, the Vault mine site and the Meadowbank mine site.

These various components and activities associated with the project require a number of different authorizations, leases and permits from regulatory agencies including the Nunavut Water Board (NWB), the Environment and Climate Changes Canada (ECCC) Metal Mining Effluent Regulations (MMER); the Department of Fisheries and Oceans Canada (DFO), Indigenous and Northern Affairs Canada (INAC); the Kivalliq Inuit Association (KIA) and the Nunavut Impact Review Board (NIRB).

This report is written to address all of the 2016 annual reporting requirements of the project under these authorizations:

NWB Type A Water License 2AM-MEA1525;
NIRB Project Certificate No. 4;
DFO HADD Authorization NU-03-190 AWAR;
DFO HADD Authorization NU-03-191 Mine Site;
DFO Authorization NU-14-1046 Phaser Lake;
INAC Land Leases 66A/8-71-2 (AWAR) and 66A/8-72-2 (AWAR Quarries); and
KIA Right of Way KVRW06F04.

Reporting requirements for the MMER have been submitted directly to Environment and Climate Changes Canada; results are presented herein to comply with the NWB Type A Water License.

Table 1.1 outlines each requirement by authorization and report section. Table 1.2 presents the status of each of the sampling stations stipulated in Part I, Schedule 1 of Water License 2AM-MEA1525.

SECTION 2. SUMMARY OF ACTIVITIES

2.1 2016 ACTIVITIES

The primary business objective of Agnico Eagle is to build a high-quality business focused on solid execution that drives growth in cash flow per share. This strategy has been consistent for many years — to minimize financial and political risk while using Agnico's broad range of technical skills and experience to build long-life, manageable operations in recognized mining regions. This strategy has worked well for Agnico and its shareholders over the 60 years the company has been in business.

In 2016, for the fifth year in a row, Agnico Eagle's operations exceeded production targets, allowing us to increase our guidance to the market and lower our costs. Exploration activities continued to add value and Agnico Eagle continued to advance its pipeline of development projects, and reduced net debt by approximately $436 million. Over the next three years, the company is forecasting stable to lower costs, with increased production, which will support continued investment in existing mines, maintain funding levels at key exploration projects and advance development initiatives. The Board of Directors has recently approved the development of the Meliadine Mine and Amaruq deposit with an estimated capex investment of $1.5 billion (CAD) over the next 3 years. The 2016 highlights for Meadowbank include:

- Meadowbank was Agnico Eagle's largest gold producer in 2016, and has 0.7 million ounces of gold in proven and probable reserves (8 million tonnes at 2.69 g/t) as of December 31, 2016.
- The mine is expected to produce 320,000 ounces of gold in 2017, and 165,000 ounces gold in 2018.
- During 2016, payable gold production at Meadowbank totaled 312,214 ounces at a production cost per ounce of $701 and a total cash cost per ounce of $715 on a by-product basis. The mine also produced 221,000 ounces of silver in the year.
- During 2016, the mill processed 3,915,000 tonnes of ore (10,697 tonnes/day), with production costs per tonne of C$73 and mine-site costs at C$74 per tonne.
- Meadowbank's retention rates and training of Inuit are continuing to show encouraging outcomes.

Given the favourable project economics and expected potential for extensions to the currently forecasted mine plans, the Amaruq satellite deposit which will feed the existing Meadowbank mill has been approved by the Company's Board of Directors. Both Amaruq and Meliadine are now expected to start up in the third quarter of 2019; as such, production at Meliadine is now forecasted to begin approximately one year earlier than previously anticipated.

The next major milestone expected in 2017, is the permitting requirements at the Amaruq satellite deposit, which are not expected to be completed and approved until the third quarter of 2018. At the Vault deposit, opportunities are being investigated to potentially extend production through year-end 2018.

Extension of Meadowbank's mine life will help bridge the production gap between the end of production at the mine and the anticipated start of production at the satellite operation at Amaruq in the third quarter of 2019. Reducing or eliminating the gap will help to retain the labour force and contractors already in place at Meadowbank, which is why Agnico Eagle values the support of regulatory agencies in an efficient regulatory process.

Quarterly progress reports, providing further details of activities throughout the 2016 year, were prepared for the Kivalliq Inuit Association as required by Production Lease KVPL08D280.

Agnico infrastructure locations can also be found in Figure 1, 2, 3, 4, and 5.

Figure 1. 2016 Meadowbank Site Sampling Locations

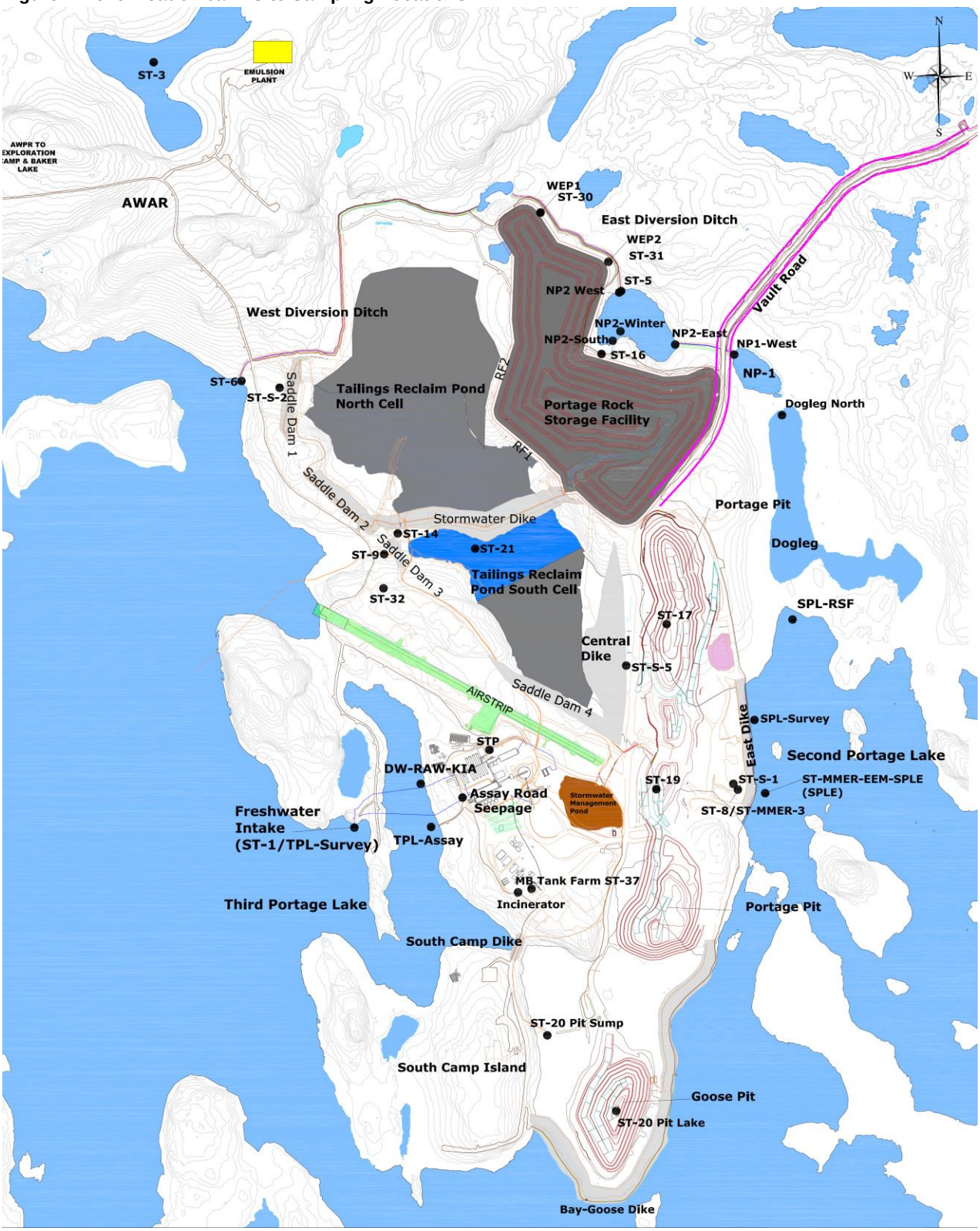


Figure 2. EEM Receiving Environment Sampling Locations

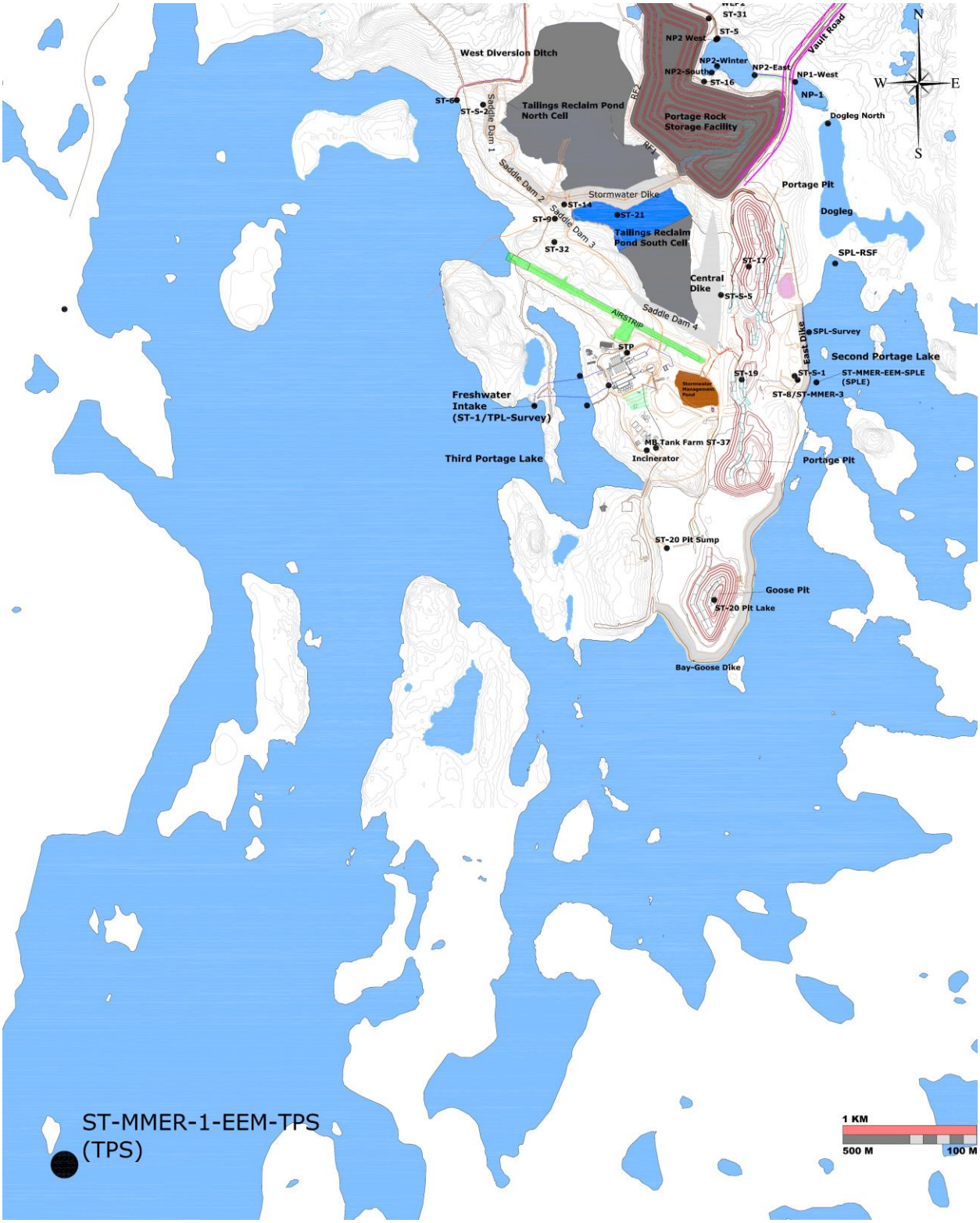


Figure 3. Vault Area Sampling Locations

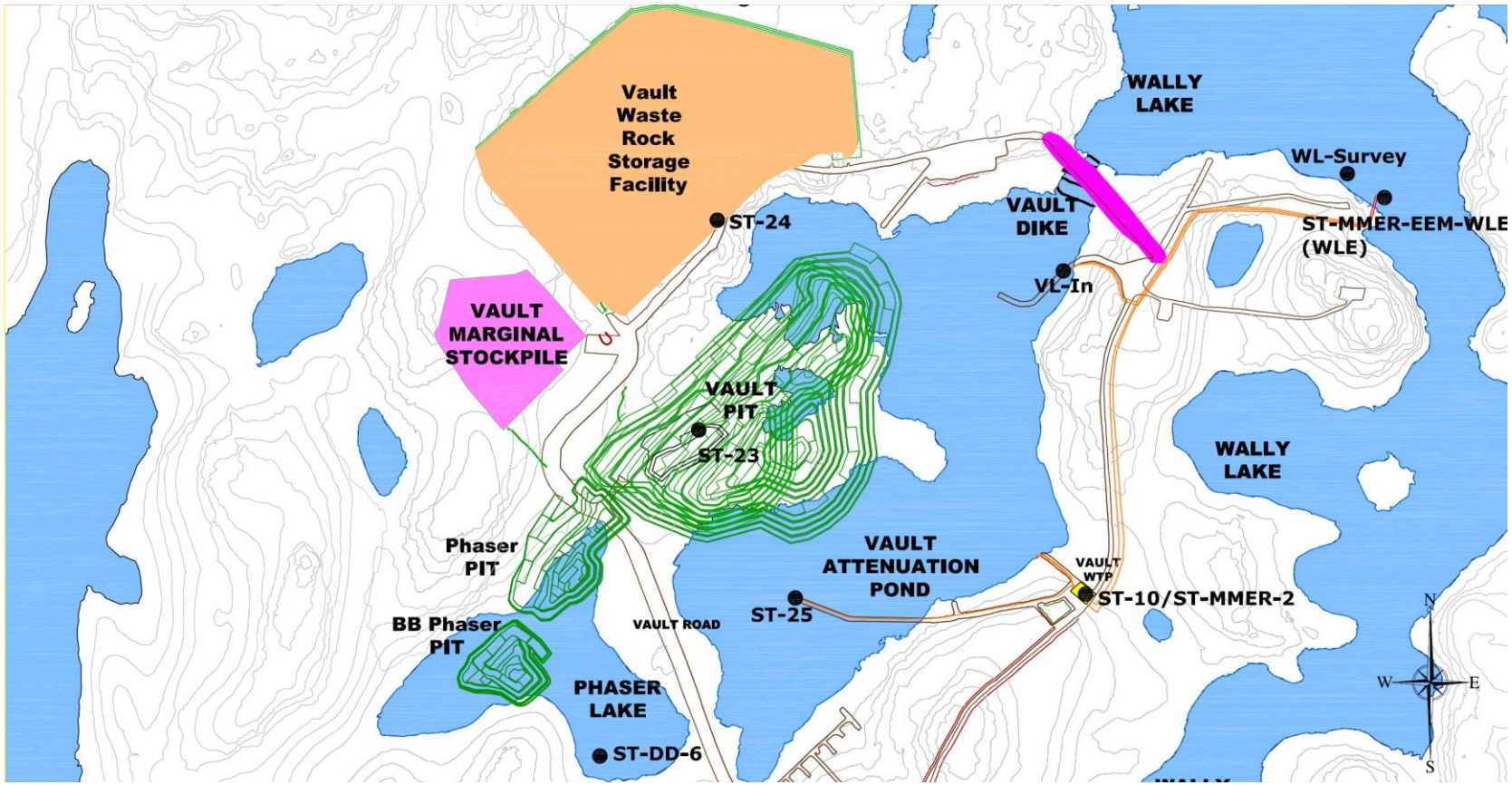


Figure 4. Baker Lake Marshalling Area Sampling Locations

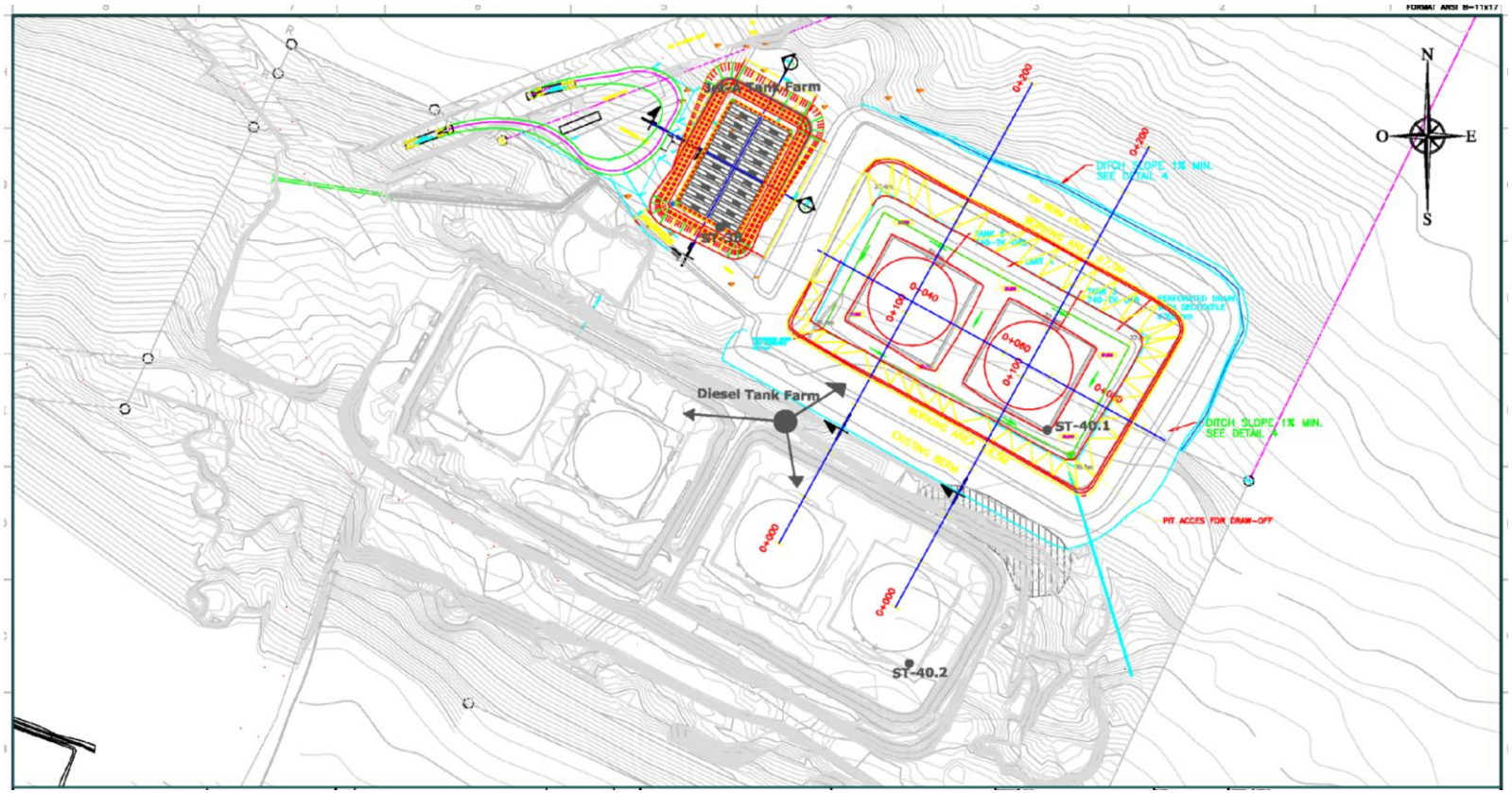
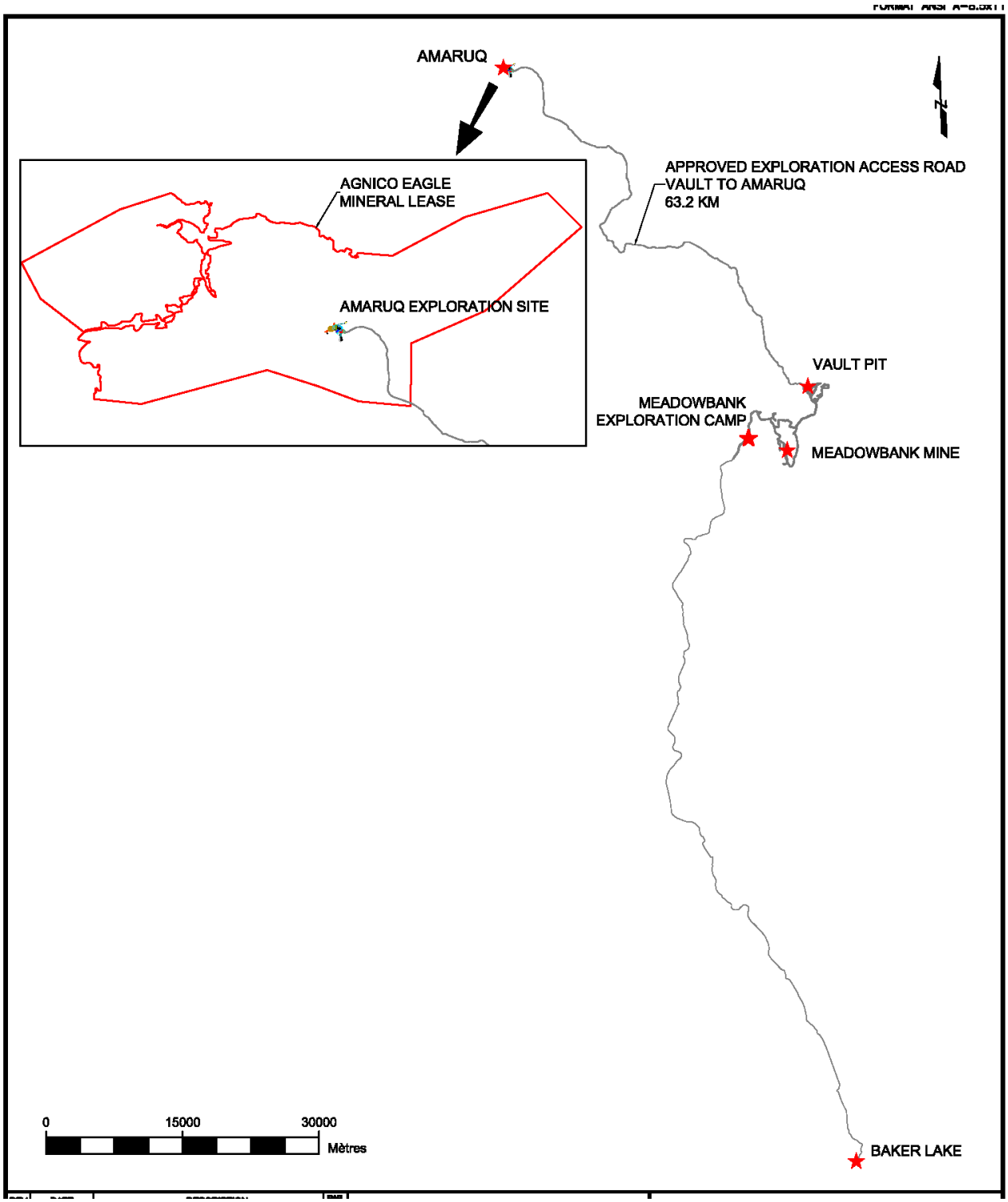


Figure 5. Amaruq Project Plan View



2.2 2017 MINE PLAN

The "*2017 Mine Plan*" for the Meadowbank Gold Project, prepared for the Kivalliq Inuit Association as required by Production Lease KVPL08D280, is attached in Appendix A1. This report was submitted to the KIA on December 23rd, 2016, and outlines the activities planned for the project throughout the 2017 year.

The Meadowbank gold mine began the operation phase of the project in February 2010, and thus, is entering its eight year of operations. In addition to routine activities throughout the 2017 season, a number of secondary construction/modification projects will be undertaken near the main mine site area and Vault area. Construction of the Central Dike Phase 6 and Saddle Dam 3, 4 and 5 Phase 3 will be completed in 2017.

Environmental monitoring (wildlife, aquatic effects, groundwater, noise and air) will continue through 2017 in support of all operational undertakings at the Meadowbank site as required by the NWB Type A Water License 2AM-MEA1525, NIRB Project Certificate No.004, DFO authorizations, and MMER regulations.

In 2017, Agnico mining plan is to operate Portage and Vault pits at the Meadowbank mine site. A total of 21.3 Mt of rock will be hauled from these two pits during the year. The mine plan consists of moving 17.6 Mt of waste rock and 3.8 Mt of ore from the open pits and 0.6 Mt of ore from the stockpiles. 3.2 Mt of material will be mined out from Portage pit. The Vault pit area (including Phaser and BB Phaser) will accommodate the majority of the mining, totaling 18.1 Mt of total mining.

The Waste Management Plan for 2017 is to maximize waste storage facility (WSF) utilization and minimize haulage cycle times which will, in turn, minimize the greenhouse gas emissions and impact on the environment.

2.3 AMARUQ EXPLORATION ACCESS ROAD

As requested by the NIRB in the screening decision NIRB File No.11EN010, Agnico included within this annual report (Appendix A2), a comprehensive annual report of the activities associated with that project. A complete report including annual reporting requirement from NWB, KIA and INAC will also be submitted under a separate cover by March 31, 2017.

SECTION 3. CONSTRUCTION / EARTHWORKS

The following section discusses reporting requirements related to site construction and earthworks activities associated with dikes, dams and quarries.

3.1 DIKES AND DAMS

3.1.1 Performance Evaluation

As required by water license 2AM-MEA1525, Schedule B, Item 1:

a. An overview of methods and frequency used to monitor deformations, seepage and geothermal responses;

The surveillance program consists of several types of inspection and monitoring:

- Daily inspection – carried out daily by a designated qualified engineer or technician;
- Thermistor and piezometer monitoring – carried out generally weekly or bi-weekly by a designated qualified engineer or technician;
- Detailed inspection - carried out, generally monthly or bi-monthly, by a designated qualified engineer or technician; and
- Engineering annual inspection – carried out annually by qualified engineer (consultant), during open water, if possible, to verify that the facilities are functioning as intended.

Table 3.1 describes the routine geotechnical monitoring program. Refer also to the TSF OMS Manual and the Dewatering Dike OMS Manual available in Appendix I1, and the 2016 Annual Geotechnical Inspection, in Appendix B1.

Table 3.1. 2016 Routine Geotechnical Monitoring Program

Instrumentation	Frequency during dewatering	Frequency during operations
Piezometer	Daily/every 3 hours	Daily/every 3 hours
Slope Inclinometer Casings	Monthly	Monthly in winter, bimonthly for the rest of the year
Thermistors	Automatically: Daily/every 3 hours Manually: Every 3 days in summer and weekly in winter	Automatically: Daily/every 3 hours Manually: Every 3 days in summer and weekly in winter
Surface Monuments and Surface Prisms	Not operational	Bi-weekly
Seismographs	During blasting at the Portage Pit / Goose Pit adjacent to the dike	

b. A comparison of measured versus predicted performance;

For the dewatering dikes, i.e. East Dike, Bay Goose Dike, South Camp Dike and Vault Dike; from the analyses of the available geotechnical instrumentation data and as observed by visual inspection, the structures are performing as expected. No major concerns were identified in 2016. Regular monitoring will continue in 2017 to assess the performance of the structures.

For the Tailing Storage Facilities structures in operation; i.e. Saddle Dam 3, Saddle Dam 4, Saddle Dam 5 and Central Dike; from the analyses of the geotechnical instrumentation data available and as observed by visual inspection; the structures are performing as expected. No major concerns were identified for these structures in 2016. Regular monitoring will continue in 2017 to assess the performance of the structures.

For the dewatering dikes and the Tailing Facilities structures, further comparison of the measured performance to the predicted performance will continue in 2017, as additional data becomes available for analysis.

For the Central Dike; from the analyses of the geotechnical instrumentation data available and as observed by visual inspection, the structure is performing as expected structurally. No unexpected settlement, erosion, bulging or sloughing is observed on the structure. From the analyses of the geotechnical instrumentation data available and as observed by visual inspections of the Central Dike, seepage was observed at the downstream toe of the dike during the fall of 2014 (reported in 2014 Annual report). The seepage continued in 2016. Mitigation actions were taken in 2015 in order to control the Central Dike seepage. Refer to Section 3.1.1 c for details on mitigation actions to control the seepage. For additional information about the Central dike seepage, refer to Section c) below and Section 8.3.7.2 of this report. This information is also stated in the 2016 Water Management Report and Plan (Appendix C2).

The monitoring and inspection of the Central Dike will continue in 2017 and throughout the operating life of the dike.

c. A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk;

East Dike

The installation of a seepage collection system downstream of East Dike to capture and pump the seepage water started in September 2011 and was completed in 2012. This was reported in previous annual reports and is noted to be an inflow from Second Portage Lake. After the system installation, 3 zones of seepage were identified near the downstream toe. The zones at about Sta. 60+247 and Sta. 60+498 each had a collection sump with pump connected to a year round pumping and piping system.

In 2011, the downstream seepage at Sta. 60+498 was stable at a rate of about 864 m^3/day (10L/s), with no visual signs of turbidity. This was consistent with rates recorded during previous years. In 2011, the seepage downstream at Sta.60+247 appeared stable at around 345.6 m^3/day (4L/s) with no visual signs of turbidity noted, which was consistent with previous rates. Since the pumping installation, all unanticipated seepage has been mitigated through the use of the collection system, all seepage is being

captured within the sumps and no sign of additional seepage on the ground surface or downstream in the Portage Pit has been observed. The implementation of this system has reduced risks to the mining activities in Portage Pit and to the dike integrity. Flow meters were installed in 2013 at the discharge of each pump. The flow has been generally consistent from 2013 to present and represents approximately 1,000 m^3/day.

In 2013, Agnico applied for a modification to the previous Type A water license (No. 2AM-MEA0815) Part F, Item 4 to discharge East dike seepage water as non-contact water effluent. Agnico proposed to discharge seepage water from East Dike collection system through a separate sump collection system and diffuser, back to Second Portage Lake (SPL) prior to contact with mining activity (thus minimizing site contact water and further mitigating the risks to the environment). In April 2013, NWB approved Agnico's application to modify the previous Type A water license. The discharge, from the East Dike sump back to SPL, began in January 2014 and is ongoing. This discharge is subject to MMER requirements and monitoring results to date indicate the parameters are within criteria. If water quality shows increased TSS during freshet period and large precipitation events in summer, the seepage water from East Dike is pumped to the mined out areas of the Portage Pit. In 2016, the East dike seepage was discharged all year in Second Portage Lake. Once mining of Portage Pit area is completed, the East Dike seepage will remain in the Portage Pit as part of the pit flooding. See Section 8.3.3.5 for more information on the East Dike Seepage.

Bay Goose Dike

Mining activity in the Goose Pit stopped in April, 2015. Four small seepage areas were identified with a total of 9 seepage channels along the dike. No turbidity was observed in the seepage. In 2016, the overall seepage average over the 3 summer months represents 26 m^3/day which is less than anticipated and is not presently a concern as no risks have been identified. There is currently no downstream seepage collection and monitoring system as the amount of seepage through the dike is not significant. The area will continue to be monitored to determine increases/decreases of the seepage in these areas, even if mining activities are terminated in Goose Pit. Seepage of the dike will contribute to natural re-flooding of the Goose Pit.

Refer to the Section 2.3 of the 2016 Annual Geotechnical Inspection (Appendix B1) for detailed field observations regarding this dike. No additional seepage collection has been implemented as the seepage is not affecting the mine operation nor the integrity of the dike. The condition of the dike will continually be monitored and if the condition of the dike is judged to be deteriorating then management actions and remediation will be assessed.

Central Dike

Once tailings deposition started in the South Cell (SC), in November, 2014, daily inspections of the downstream toe of Central Dike were undertaken as part of the geotechnical inspection program. A small volume of water located against the downstream toe of Central Dike was noticed at that time. This water was contained between the West road and the Central Dike downstream toe. Agnico utilized piezometers, thermistors and a ground water well to monitor the dike integrity, the foundation temperatures and the piezometric levels within the structures and its foundation. The seepage was contained at the downstream toe of the Central Dike and did not reach the environment.

On April 14th 2015, Agnico started pumping at the D/S toe of the dike to lower the water level. The water was pumped back to the South Cell TSF. Water quality was closely monitored to foresee any changes from initial conditions in terms of turbidity and clarity. A flowmeter was also installed to monitor the volume of water pumped. By July 7th, pumping was still on going with a larger pump. Daily inspections are conducted by Engineering Department staff.

Monthly samples are collected as per the Water License and include analysis for metals, cyanide and major anions. The concentration of some parameters, namely copper, cyanide, sulfates, to name a few, confirms a link between the water ponding at the D/S and the SC water. Agnico engaged SNC and Golder to assist with the assessment, mitigation and water quality in 2015. In addition to steady flow tests, SNC performed two specific chemical mass balances to evaluate the ratio of reclaim water, ground water and runoff in the water pumped from the Central Dike D/S pond back into the South Cell TSF. A transfer of the seepage water to Goose Pit was also done in September 2015 to evaluate the same ratio by monitoring the drawdown in the South Cell during the transfer. SNC identified that 50,000 m^3 of seepage transfer from the downstream toe to Goose Pit was possible without compromising water quality at closure (using CCME guidelines for the protection of aquatic life).

A series of pumping tests were also performed by Agnico during the summer 2015 to measure the seepage flow according to the head pressure difference between the South Cell and the Central Dike downstream pond (sampling location ST-S-5) where seepage water is collected and pumping infrastructure redirects this seepage water back to the cell. This information has been used by Golder to review the Central Dike seepage model. In September 2015, mitigation measures were defined with the support of Golder and it was confirmed that the Central Dike could be operated safely under certain conditions. The Meadowbank Dike Review Board (MDRB) also agreed to recommence the operations of the South Cell tailings deposition and that no short term mitigation was required to be implemented. In early November, the downstream pond operational level was to be set at 115masl until summer 2016 following Golder's recommendations (Golder, 2015). At the same time, a permanent and winterized pumping system was put in place to manage and track the water volumes through the winter. The deposition in South Cell TSF restarted on October 28th, 2015. Tailings deposition along the Central Dike to promote a tailings beach along the structure was undertaken. Within two weeks the seepage flow dropped from 800m^3/h to 400m^3/h and has been stable since that time.

During the year 2016, the flow of the seepage remains stable over the course of the year. A new robust permanent electrical pump has been installed to replace the diesel pump to redirect the water ponding at the D/S to the South Cell. The new system offers more security in terms of continues pumping especially during winter time when the weather limits access to the pump. An update of the seepage model has also been undertaken by Golder under the request of Agnico with the most up to data. The goal is to insure that the conclusions obtain in 2015 are still applicable for the Central Dike and the South Cell. This study will be completed in 2017.

For additional detailed information about the Central dike seepage, refer to Section 8.3.7.2 of this report.

Stormwater Dike

During the summer 2016, cracks were observed on the top platform of Stormwater dike approximatively in between station 10+500 and 10+750 during a routine inspection of the structure. Immediately following

the discovery, instrumentations to measure the movement of the dike has been implemented. The designer of the structure, Golder, was informed shortly following the observation.

It is important to note that condition at the footprint of the Stormwater changed over the course of the summer 2016 with the water level in the South Cell TSF rising in elevation. As a result, the frozen foundation of the Stormwater slowly got flooded with reclaim water from the South Cell. As the water slowly made is way in the structure, the contact in between the water and the frozen sediment within the foundation slowly melt the foundation of the structure.

The implementation of a buttress type like structure directly at the downstream toe of the dike has been put in place following recommendation of the designer Golder. The situation has been presented to the MDRB during the annual meeting in September 2016. A field visit with the members of the board also occurred during this meeting. No major concern in term of overall stability of the structure were noted. The Board recommended installing instrumentation at the downstream toe of the dike combine with an investigation campaign to better characterise the material properties of the foundation. More details about the recommendations of the board are available in the section 4 of the MDRB Report 19 in Appendix B2 of the present document.

d. As-built drawings of all mitigation works undertaken;

The as-built drawings of the work performed at Stormwater dike can be find in Appendix B4

e. Any changes in the design and/or as-built condition and respective consequences of any changes to safety, water balance and water quality;

The 2016 dike construction season at Meadowbank was conducted from June 2016 to September 2016. It consisted of the construction of Stage 5 for Central Dike, and the construction of Stage 2 for Saddle Dams 3, 4, and 5. Construction was completed in accordance with the requirements of the Design and Technical Specifications developed by Golder for each structure.

Work carried out during construction of Central Dike Stage 5 and Saddle Dams 3, 4, and 5 included foundation excavations, fill placement, liner placement and liner tie-in key trench work. The design and technical specifications of Central Dike and Saddle Dams 3, 4, and 5 was developed by Golder Associates (Golder) and reviewed by Agnico and by the Meadowbank Dike Review Board. The Stage 5 Central Dike embankment crest is El. 143 m.

The Saddle Dam 3 embankment crest is at El. 143 m and the downstream toe is between El. 134 m and El. 140 m. In 2016, Saddle Dam 3 has been constructed during Stage 2 from station 20+580 to 20+780, for a total length of 200 m. The Saddle Dam 4 embankment crest is at El. 140 m and the downstream toe is between El. 136 m and El. 140 m. In 2016, Saddle Dam 4 has been constructed during Stage 2 from station 40+100 to 40+440, for a total length of 340 m. The Saddle Dam 5 embankment crest is at El. 143 m and the downstream toe is between El. 133.5 m and El. 134 m. In 2016, Saddle Dam 5 has been constructed during Stage 2 from station 40+580 to 40+800, for a total length of 220 m.

None of the changes in the design and/or as-built conditions stated above have consequence on safety, water balance and water quality (refer to the 2016 Annual Geotechnical Inspection in Appendix B1). Continuous monitoring will be done to ensure that the conditions remain stable. As-built reports of the

construction completed in 2016 (Stage 2 Saddle Dam 3, 4, 5 and Stage 5 Central Dike) can be found in Appendix B6.

f. Data collected from instrumentation used to monitor earthworks and an interpretation of that data;

Section 4.0 of the 2016 Annual Geotechnical Inspection by Golder, provided in Appendix B1, presents the instrumentation data collected in 2016.

The report, Annual Review of Portage and Goose Pit Slope Performance (2016), which presents the pit wall geotechnical inspection results, is also provided in Appendix B3, for informational purposes.

g. A summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams; and

No major maintenance work on the dewatering or TSF structures was undertaken in 2016. Refer to Section c) of this section for work completed on Stowmwater dike.

h. The monthly and annual quantities of seepage from dikes and dams in cubic metres.

See Section 3.1.1 c and 8.3.7.below for a discussion of seepage from East Dike, Bay Goose and Central Dike. Refer also to the 2016 Water Management Report and Plan (Appendix C2).

3.1.2 Meadowbank Dike Review Board

As required by water license 2AM-MEA1525 Part I, Item 12: ***The Licensee shall submit to the Board as part of the Annual Report required under Part B Item 2, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.***

One report (Report 19) was prepared by the Meadowbank Dike Review Board in 2016. The report and Agrico's response is included in Appendix B2.

As per Section 6 and 8 of the MDRB report and Agnico Eagle's response, it should be noted that a study has been started with SNC-Lavalin in order to gather all the required information to develop the best in-pit tailings deposition methodology and to meet the required environmental criteria at an effective cost along with an optimized closure plan.

The main objective of this study is to develop and evaluate the In-Pit deposition for the Portage and Goose Pits at a pre-feasibility level to support a Meadowbank FEIS Addendum and Type A Application and for future life of mine (LOM) decisions. As part of the study, different components will be evaluated that includes: field investigations, hydrogeological modelling, numerical simulations, infrastructure design, and geotechnical and groundwater monitoring programs.

3.2 QUARRIES

The annual reporting requirements listed in the following sections apply only to quarries located along the All Weather Access Road (AWAR).

As required by INAC Land Lease 66A/8 72-2, Condition 8: ***The lessee shall file a report, annually, with the Minister in the manner and format stipulated by the Minister. The report shall include:***
i. Quantity of material removed and location of removal, for the immediately preceding calendar year; and
ii. Such other data as are reasonably required by the Minister from time to time.

And

As required by INAC Land Lease 66A/8 72-2, Condition 25: ***The lessee shall file, annually, a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.***

And

As required by KIA Right of Way Authorization KVRW06F04, Schedule E, Condition 8: ***The lessee shall file annually a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.***

In 2016, Agnico Eagle blasted 30,000 tons of NPAG material from Quarry 2 along the Meadowbank All Weather Access Road situated on INAC leased land. The 2016 Annual quarry report was sent to INAC on February 17, 2017. The material removed was use on the AWAR maintenance. No material was blasted in other quarries situated on INAC and KIA leased land.

In 2016, Agnico continued the remedial activities in Quarry 22. This quarry was historically used as a temporary storage area for contaminated materials generated as a result of petroleum hydrocarbon (PHC) spill clean-up activities. The contaminated material from these quarries continue to be excavated and removed in 2016 as it was the case in previous year since 2013. The contaminated material was transported to the Meadowbank Landfarm. The Quarry 22 report can be found in Appendix B5 – Quarry 22 2016 Report.

Results from the September 2014 fall confirmatory sampling indicated some remnants of contamination when compared to the CCME remediation Criteria for Industrial Use of Coarse Material. Most of the contamination remaining was associated with Fraction 3 hydrocarbons. Therefore, Agnico proposed to scarify the remaining contaminated areas in Q22 during the summer of 2015 and 2016 and resample (see Q22 2015 report – 2015 Annual report) in 2016.

Taking into consideration the results from 2014 and the 2015 work plan, Agnico Eagle continued in 2016 to scarify the surface of Quarry 22, as in previous years, with the back-end of a grader, allowing ground surface to be aerated thus increasing degradation of PHC. The scarification work started mid-July and extended throughout warmer months, depending on equipment availability. On average it was done every second week from July to September.

A sampling campaign was completed in September to track the degradation of PHC with time. As previously done in 2014, a grid was used to divide the quarry in portions representing areas where contaminated material had been stored. Results from the 2016 fall sampling (Table 1 of the Quarry 22 2016 Report) indicate some remnants of contamination when compared to the CCME remediation Criteria for Industrial use of Coarse material. The vast majority of contamination remaining is associated with Fraction 3 for which the CCME criteria is 1,700 mg/Kg.

Based on the degradation history of PHC's in the Meadowbank Landfarm and upon analyzing results from the 2014 and 2016 Q22 soil sampling, Agnico Eagle is confident that the natural degradation of Petroleum Hydrocarbon related products is an effective remediation method for Q22.

Therefore Agnico proposes to continue scarifying the surface areas in Q22 during the summer of 2017 and conduct another round of sampling in the late fall before freeze up. Results will be compared to the 2014 and 2016 data to monitor the level of degradation.

Results will be collated and analyzed further to follow the degradation rates of the quarry surface. If needed, further course of action could include removal of additional material. Nonetheless, Agnico considers the actual methodology to be a satisfactory solution to the remediation of the quarry.

Agnico will then assess any future actions based on the next soil sampling campaign.

Regular inspections of the quarry were also performed during the year to ensure that runoff, if any, would be free of any visible sheen and would not impact the environment. No issues with runoff water inside the quarry were noted in 2016.

SECTION 4. WATER MANAGEMENT ACTIVITIES

The following section addresses reporting requirements related to water management activities.

4.1 FRESH WATER OBTAINED FROM THIRD PORTAGE LAKE

As required by Water License 2AM-MEA1525 Schedule B, Item 2: ***Monthly and annual volume of fresh Water obtained from Third Portage Lake*****.**

As per Type A Water License 2AM-MEA1525 Part E Item 4: "*the total volume of freshwater for all uses and from all sources shall not exceed 2,350,000 m^3 per year from the licence approval date to December 31, 2017, followed by a maximum of nine million one hundred and twenty thousand (9,120,000) cubic meters per year in 2018 through to the Expiry of the Licence."*

The total volume of freshwater pumped from the surrounding lakes and used for the Meadowbank Gold Project is listed in Table 4.1. A total volume of 608,308 m^3 of freshwater was used for the project in 2016 which was in compliance with the Water License Freshwater usage amount of 2,350,000 m^3.

The volume of reclaim water used in the mill in 2016 was 2,901,123 m^3. The volume of freshwater that is contained in the ore to the mill in 2016 was 38,805 m^3.

Flow meter calibrations datasheets for freshwater are presented in Appendix C1. The flowmeter will be recalibrated in 2017 and calibration sheet provide with the 2017 Annual Report.

Table 4.1. 2016 Freshwater usage

Water Location	Source Lake	January	February	March	April	May	June	July
Camp	Third Portage Lake	3,181	3,061	3,418	3,297	3,478	3,235	3,441
Mill (freshwater tank)	Third Portage Lake	38,578	47,316	84,254	84,309	37,388	41,429	35,270
Emulsion plant	No-name Lake	135	125	119	138	147	54	116
Total Freshwater Usage (m^3)		**41,894**	**50,502**	**87,791**	**87,744**	**41,013**	**44,718**	**38,827**
Ore Water (m^3)	Ore	4,160	2,575	4,316	3,554	3,418	2,050	2,370
Reclaim Water Usage (m^3)	Tailings Pond	261,513	207,769	204,407	200,883	268,825	231,995	273,558

Water Location	Source Lake	August	September	October	November	December	Total
Camp	Third Portage Lake	3,530	3,342	3,601	3,570	3,422	**40,576**
Mill (freshwater tank)	Third Portage Lake	33,516	27,030	44,773	45,980	46,435	**566,278**
Emulsion plant	No-name Lake	124	116	152	136	93	**1,454**
Total Freshwater Usage (m^3)		**37,170**	**30,488**	**48,526**	**49,686**	**49,950**	**608,308**
Ore Water (m^3)	Ore	2,463	2,134	3,860	4,085	3,820	**38,805**
Reclaim Water Usage (m^3)	Tailings Pond	264,956	259,254	240,238	235,292	252,433	**2,901,123**

4.2 FRESH WATER OBTAINED FROM WALLY LAKE

As required by Water License 2AM-MEA1525 Schedule B, Item 3: ***Monthly and annual volume of fresh Water obtained from Wally Lake*****.**

There was no freshwater obtained from Wally Lake for re-flooding activities in 2016.

4.3 LAKE LEVEL MONITORING

As required by Water License 2AM-MEA1525 Schedule B, Item 4: ***Results of lake level monitoring conducted under the protocol developed as per Part D Item 5 (Water Quality Monitoring and Management Plan for Dike Construction and Dewatering)*****.**

As of November 19, 2014 when tailings deposition began in the South Cell, the Portage Attenuation Pond ceased operation and became the South Cell TSF. There is no discharge from the Portage Attenuation Pond into Third Portage Lake since July 5, 2014. The elevation, in metres above sea level (masl), of Third Portage Lake continued to be monitored in 2016 for information purposes only. Surveying activities were conducted on a weekly basis, during open water season and, weather permitting. The location of the lake level survey monitoring is identified as TPL-survey on Figure 1. The lake level monitoring results are presented in Table 4.2; the lake level remained within the range of naturally occurring levels.

Water from the East Dike Seepage was discharged into Second Portage Lake all year. The elevation, in metres above sea level, of Second Portage Lake was monitored on a weekly basis, during open water season and, weather permitting. The location of the lake level survey monitoring is identified as SPL-survey on Figure 1. The lake level monitoring results are presented in Table 4.2; the lake level remained within the range of naturally occurring levels.

Water from the Vault Attenuation Pond (contact water) was discharged from July 17, 2016 to October 11, 2016. This water was discharged into Wally Lake through the diffuser as effluent. No treatment of the water was required to date prior to discharge as the total suspended solids (TSS) were below the required limit. The Vault discharge is also subject to the MMER and all monitoring results met the appropriate criteria.

In 2016, Agnico also complete the dewatering of Phaser Lake. The dewatering started on August 26 and was completed on October 4, 2016. A total of 407,666 m^3 of water was transferred to the Vault Attenuation Pond. Please refer to Section 8.3.2 for a complete review of the dewatering activities in 2016. As the water from Phaser Lake was discharged into the Vault Attenuation Pond and not directly in Wally Lake, Agnico did not observed any impact of the Phaser Lake dewatering to the water level of Wally Lake.

The elevation measurement, in metres above sea level, of Wally Lake was conducted on a weekly basis, during open water season and, weather permitting. The location of the lake level survey monitoring station is identified as WL-survey on Figure 3. The lake level monitoring results are presented in Table 4.2; the lake level remained within the range of naturally occurring levels.

Water levels of the Vault Attenuation Pond were also monitored. Table 4.2 presents the elevation monitoring results; the monitoring location is identified as VL-IN on Figure 3. This information is provided for informational purposes only

NIRB recommendation regarding the 2014 Annual Report states: "*AEM should present the range of naturally occurring water levels for each season in the annual report to validate its claim that variations in water level within the receiving environment have not been impacted by discharge volume. This is especially important given the planned dewatering of the Phaser Pit in 2016*". "*AEM states these measurements were within the range of naturally occurring levels but does not present supporting data to inform this claim*."

In 2016, Agnico have the same conclusion as presented in 2015; lake level for Third Portage, Second Portage and Wally lakes remained within the range of naturally occurring levels. Please refer to PEAMP Section 12.1.1.1 and Table 12.2 for a complete discussion of the impacts of discharge on water level in the receiving environment. Overall, modeling predicted the natural range of water levels in Third Portage Lake to be 133.82 – 134.19 masl., and the impact assessment indicated that this range would not be exceeded (Physical Environment Impact Assessment Report, 2005). Although these values accounted for 1-in-100 year precipitation or drought events, prior to operation, water levels were already below this range when monitoring began (prior to any significant freshwater consumption) in 2009 and continue to be as of now. Although rates of dewatering (i.e. pumping rates) were underestimated during the FEIS, water levels have not significantly changed at monitoring stations since monitoring began. Similarly, discharge volumes from the Vault Attenuation Pond to Wally Lake were underestimated in the FEIS (mainly due to changes in site designs since that time) but impacts to water levels in Wally Lake have not been observed, as anticipated. For Second Portage Lake, the baseline level is 133.1 masl. The average for 2016 is 132.9 masl. Following this analysis, Agnico Eagle concluded the water level in Third Portage, Second Portage and Wally Lakes were within the range of naturally occurring levels. Agnico Eagle does not see the advantage of comparing the water level to the natural seasonal variation as water levels are only taken in ice free period.

Table 4.2. 2016 Lake Water level monitoring

	Vault Attenuation Pond (masl)	Wally Lake (masl)	Third Portage Lake (masl)	Second Portage Lake (masl)
Identification Code	VL-IN	WL-survey	TPL-survey	SPL-survey
11/06/2016		139.423	133.580	132.831
20/06/2016	135.611			
21/06/2016	135.659			
22/06/2016	135.725			
23/06/2016	135.774			
24/06/2016	135.828			
25/06/2016	135.860			
26/06/2016			133.670	
26/06/2016				133.135
28/06/2016	136.018			
28/06/2016	135.015			
28/06/2016	135.995			
30/06/2016	136.040			
01/07/2016	136.094			
01/07/2016	136.115			
02/07/2016	136.152	139.628	133.721	133.090
04/07/2016	136.175			
05/07/2016	136.174			
06/07/2016	136.209			
07/07/2016	136.241			
08/07/2016	136.223			
09/07/2016	136.197	139.509	133.708	133.033
10/07/2016	136.296			
11/07/2016	136.277			
12/07/2016	136.249			
15/07/2016	136.271			
16/07/2016	136.260			
17/07/2016	136.204			
18/07/2016	136.202	139.488		
18/07/2016				133.024
20/07/2016	136.097			
24/07/2016	135.771			
24/07/2016	135.778			
24/07/2016		139.448		
25/07/2016	135.612	139.439	133.663	132.944
26/07/2016	135.640			
27/07/2016	135.522			

28/07/2016	135.437			
30/07/2016	135.204	139.480	133.690	132.911
02/08/2016	134.941			
03/08/2016	134.935			
05/08/2016	134.900	139.542	133.626	132.910
06/08/2016	134.788			
07/08/2016	134.779			
08/08/2016	134.692			
09/08/2016	134.555			
10/08/2016	134.494			
12/08/2016	134.360			
14/08/2016	134.190			
14/08/2016		139.496		
15/08/2016	134.102			
15/08/2016			133.673	132.932
16/08/2016	134.154			
17/08/2016	134.122			
18/08/2016	134.133			
19/08/2016	134.170			
20/08/2016	134.124			
20/08/2016				132.914
21/08/2016	134.100	139.450		
21/08/2016			133.630	
24/08/2016	134.093			
26/08/2016	133.073			
26/08/2016	133.114			
27/08/2016	133.136	139.433	133.621	132.914
27/08/2016	133.248			
28/08/2016	133.513			
29/08/2016	133.822			
31/08/2016	134.328			
01/09/2016	134.450			
02/09/2016	134.447			
04/09/2016	134.438			
05/09/2016		139.434		132.860
08/09/2016	134.532			
08/09/2016	134.566			
10/09/2016	134.570			
11/09/2016	134.600			
16/09/2016	134.350			
17/09/2016		139.370		
17/09/2016	134.240			
18/09/2016	134.330	139.440		
19/09/2016				132.910
19/09/2016	134.320			

20/09/2016	134.270			
21/09/2016	134.320			
23/09/2016	133.882			
24/09/2016	133.767			
25/09/2016	133.605			
26/09/2016	133.660	139.471	133.588	132.877
27/09/2016	133.784			
28/09/2016	134.024			
29/09/2016	134.221			
30/09/2016	134.219			
02/10/2016	133.919			
03/10/2016	133.869	139.477		
04/10/2016	133.807		133.527	132.952
05/10/2016	133.682			
06/10/2016	133.537			
10/10/2016				132.902
17/10/2016				132.970
20/10/2016	134.051	139.389	133.571	132.896

4.4 WATER BALANCE WATER QUALITY MODEL REPORTING SUMMARY

As required by Water License 2AM-MEA1525 Schedule B, Item 5: ***Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 7-9.***

A water balance and water management plan (and report) update for 2016 was completed. The technical report, entitled “Meadowbank Gold Mine Water Management Report and Plan 2016”, is included in Appendix C2.

As in previous years, the 2016 water management plan for the Meadowbank mine site update consists of:

- The validation and update of the site hydrology, including the revision of drainage areas and the update of meteorological conditions.

- The update of the short-term and long-term water management plan, taking into account changes to the following elements:
    - Mining schedule;
    - Mill operation rate;
    - Mine pits layout;
    - Rock storage facility extent; and
    - Tailings management facilities filling.

- The development of a water balance model for the entire site and for the complete duration of the mining activities until final site closure.

- A comparison of the predicted and recently remodeled pit water quality (Meadowbank Water Quality Forecasting Update – Based on the 2016 Water Management Plan, SNC, 2017) forecast to assist in water treatment options development for closure planning.

Also, recent updates to the Life of Mine (LOM) have required revision of Agnico's water management plan. The major changes observed in the life-of-mine plan affecting the water management include but are not limited to:

- Phaser and Vault Pit modifications;
- Updated truck mining fleet;
- Updated stockpile status;
- Modification to the Central waste rock storage (Portage Pit) design and overall volume;
- South Cell (SC) and North Cell (NC) TSF NPAG capping volumes (progressive reclamation) and timeframe.

In 2016, in addition to the changes in the LOM, many other revisions/modifications were made to the water balance in that lead to this update. These include:

- Fresh water consumption revision;
- Total daily mill water requirements;
- Updated tailings deposition plan affecting the North Cell and South Cell deposition calendar;
- Pit water inflow revision based on observed flowmeter data as well as a revision of the pits and TSF run off inflows related to their underlying watersheds (performed by SNC, 2013);
- Flooding sequence and volumes update to take into account the updated run off inflows, as well as to optimize flooding activities to reduce the impact on wall stability;
- Reporting on the dewatering of Phaser Lake that occurred in 2016;
- Updating the seepage section;
- Changes in tailings dry density as observed through bathymetric analysis.

Details of the revisions and their effects on the overall water management strategy are discussed in detail in the 2016 Water Management Report and Plan (Appendix C2).

As detailed in the 2016 Water Management Report and Plan the principal additions to this update are:

- The optimization of the flooding activities which are now aimed to reduce the impact on wall stability and are planned according to the more refined design of the reflooding infrastructure;
- The tailings deposition parameters used for the model following the results of the 2016 bathymetries analysis;

- The Central Dike seepage status update;
- Reporting on the 2016 Phaser Lake dewatering and the mining of Phaser Pit in 2017-2018.

The below summarizes water management activities as presented in the 2016 Water Management Report and Plan:

- Freshwater pumped from Third Portage Lake was mainly used at the mill (average of 44,359 m^3/month in 2016) and the camp (average of 3,378 m^3/month in 2016);
- Freshwater going to the mill is discharged with the tailings as slurry. The water volume is comprised of 40-70% of free reclaim water, 30% is entrapped within void space and 30% is entrapped as ice (varies seasonally). Ice entrapment is forecasted to increase in future years.
- Expected fresh water utilization planned for 2017 to mine closure varies from 50-250m^3/hr during mill operation, and drops gradually during closure to 4m^3/hr once the mill has closed (represents water used by the camp only and does not include pit flooding). The variation seen in the fresh water consumption during the mill operation is optimized to prevent a water deficit in the TSF and allows for adequate reclaim volumes while minimizing the reclaim water transfers from the TSF to the pits at closure.
- Re-flooding volumes and sequence presented. Active re-flooding will commence in 2018 with Goose Pit and for Portage Pit and 2019 for Vault Pit. Re-flooding will be completed in 2025. Contingent that the water quality meets CCME Guidelines for the Protection of Aquatic Life or site specific concentrations, dike breaching will occur in approximately 2029 and will reconnect the Portage and Goose areas to Third Portage Lake and Vault area to Wally Lake.
- The Water Quality Forecast provides water quality modelling with updated parameters (including dissolved) to determine the need for potential treatment at closure. The updated water quality forecast model applies to the North and South Cell TSF Reclaim Ponds, the Portage, Goose, Vault and Phaser Pits. A review of the available water quality data measured in 2016 was undertaken. Treatment may be required for aluminum, arsenic, chromium, copper, iron, silver, selenium and fluoride, as the pit water quality may exceed CCME limits if the water is not treated. For the Vault pit, no treatment is expected when re-flooding the pit, with CCME use as reference base only.

The following recommendations are presented in the 2016 Water Management Report and Plan in order to improve on the current water management strategies and water balance:

- Continue to monitor and include any new flow monitoring locations/devices for any additional or new inflows observed in 2016.
- Continue to update the deposition plans of the North and South Cell as needed to maximize water use and availability as well as increasing the accuracy of the models including but not limited to bathymetric readings.
- Validate new tailings parameters with 2017 North and South Cells bathymetries.

- Conduct the water quality modelling analysis on a yearly basis based on updated water quality results and water balance through the life of mine.
- Continue development of the sediment flux model to evaluate erosion of geotechnical structures on site for the closure, primarily for TSS control: diversion ditches, rock storage facilities, capping of the tailings storage facilities, dikes and dams.
- Evaluate opportunities to reduce contaminants concentration in the reclaim pond prior to closure.
- Evaluate active TSF ice thickness to optimize operations and potentially diminish closure transfers to the pits.
- Continue follow up of the Central Dike seepage flow and adjust pumping station capacity in function of the decreasing flow.
- Implement 2016 Meadowbank water quality forecasting (SNC, 2017) recommendations.

4.5 BATHYMETRIC SURVEYS

As required by Water License 2AM-MEA1525 Schedule B, Item 6: ***The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility*****.**

The bathymetric survey in Baker Lake was completed on July 9, 2016 and is included in Appendix C3. The survey was done before the shipping season began on July 21, 2016.

4.6 PREDICTED VS MEASURED WATER QUALITY

As required by Water License 2AM-MEA1525 Part E, Item 9: ***The Licensee shall, on an annual basis during Operations, compare the predicted water quantity and quality within the pits, to the measured water quantity and quality. Should the difference between the predicted and measured values be 20% or greater, then the cause(s) of the difference(s) shall be identified and the implications of the difference shall be assessed and reported to the Board. The comparison of predicted water quality in reflooded pits also addresses Water License 2AM-MEA1525 Part E, Item 7.***

As per NIRB Comments to 2014 Annual Report "(…) *provides comparisons between originally predicted and measured water quantity and quality in 2014. This comparison only uses the current year, but a year over year comparison would help identify trends.*" In the 2015 Annual Report, the predicted water quantity and quality within the pits was compared to the measured water quantity and quality. This comparison used a year over year comparison. For the 2016 Annual Report, the predicted water quantity and quality within the pits will be compared to the measured water quantity and quality values that were sampled in 2016.

The comparison between the predicted water quantity and quality within the pits will be compared to the measured water quantity and quality done for 2012 to 2016. Because the Portage Pit was not deep enough to collect sufficient data from the sumps in 2011, this comparison used 2012 as a start point.

Appendix C4 provides a comparison between predicted (originally predicted in support of the NWB license) and measured water quantity within Portage, Goose and Vault Pit. The appendix includes the measured data for 2016, and also from 2012 to 2015.

Percent difference between the predicted and measured values for water quantity was calculated using the following formula:

*Relative % difference = (A-B) / ((A+B)/2)*100;*
where: A = measured value and B = predicted

Percent difference between the predicted and measured values for water quality was calculated using the following formula:

*% difference = ((A-B) / B)*100;*
where: A = measured value and B = predicted

Water Quantity

For Portage Pit, as presented in Appendix C4, the % difference between water volume predicted in Golder (2007) and water volume measured were less than predicted by more the 20% from 2013 to 2016. For 2012, the volume was slightly higher than predicted (+10%). This indicates that the seepage and groundwater sources and volumes predicted that collectively make up the water in the pits in 2013 to 2016, are less than what was originally predicted for operations. More specifically for 2016, Portage Pit was -138% less than the predicted value. Before 2014, seepage water from East Dike was pumped to the Portage Pit sump. However, as of January 2014, water from the East Dike Seepage has been pumped back to Second Portage Lake which contributes to significantly decrease the water quantity in Portage Pit between 2014 and 2016.

For Goose Pit, the % difference between water volume predicted in Golder (2007) and water volume measured in Goose Pit were less than predicted by more the 20% from 2012 to 2016. More specifically for 2016, Goose Pit was -111% less than the predicted value. This indicates that since 2012, the seepage and groundwater sources and volumes predicted that collectively make up the water in the Goose pit are less than what was originally predicted for operations. As the mining activity ceased in 2015 in Goose Pit, runoff, groundwater and seepage will contribute to the natural reflooding of the pit.

For Vault Pit, the % difference were higher by 75% in 2014 (commencement of mining operations) and 83% in 2015 between water volume predicted in Golder (2007) and water volume measured. This can be explained by the fact that there was more precipitation including larger freshet and rainfalls in 2015. In 2016, there was no significant difference between the predicted and measured volume (i.e. -1%).

Water Quality

According to the original NWB application documents (Golder, 2007- Water Quality Predictions), a Probable scenario and a Possible Poor End scenario for predicted water quality results were evaluated. These models were developed to anticipate a representative range of water quality that would be used for management and mitigative decisions. The Probable scenario used input values that simulate predicted

observed field conditions and added realistic scaling factors related to explosives management and pit operations. The Possible Poor End scenario input values simulated probable variance on observed field characteristics and selected input parameters to capture possible, conservative variance. The predicted values in the Probable scenario and the Possible Poor End scenario represented the summer averages.

The measured values for 2012 to 2016 are summarized in Appendix C4. The yearly mean and lower 25th percentile of all the data available throughout the year at Portage Pit (ST-17 and ST-19), Goose Pit (ST-20) and Vault Pit (ST-23) were compared to the predicted values where data were available. The lower 25th percentile values were calculated and compared to the predicted values when 3 or more samples were taken during the year.

Furthermore, the measured data was also compared to the Water License discharge criteria to Third Portage Lake and Wally Lake, the Metal Mining Effluent Regulations (MMER) and the CCME water quality guidelines for the protection of aquatic life. It is understood that the Water Licence, MMER and CCME criteria apply to mining effluents discharged to the environment and are as such not applicable to the pit water since it is managed within the site and undergoes a treatment step if required prior to discharge to the environment. These criteria are used as a guide to identify potential parameters of concern.

In 2012:

- For the Third Portage Pit sump:
    - Except for ammonia nitrogen (0%), dissolved barium (14%) and Sulphate (-6%) under Possible Poor End scenario, all the parameters exceeded +/-20% of difference between the predicted and mean measured values. All parameters exceeded for the Probable Scenario. For the lower 25th percentile, all parameters measured exceeded the predicted in the Probable scenario, except dissolved arsenic (4%), dissolved nickel (-14%) and nitrate (14%). All parameters exceeded +/-20% difference for the Possible Poor End scenario.
    - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, copper, fluoride, lead, cadmium, mercury, selenium, thallium and nitrate. Only cadmium exceeded the Water License criteria. No parameters exceeded the MMER criteria.
- For Goose Pit:
    - All the parameters exceeded +/-20% of difference between the predicted (Probable and Possible Poor End scenarios) and mean measured values except for dissolved manganese (14%). For the lower 25th percentile, all parameters measured exceeded the predicted (Probable and Possible Poor End scenarios), except dissolved barium (13% for both scenarios) and dissolved manganese (-15% for both scenarios).
    - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, arsenic, copper, fluoride, lead, cadmium, mercury, selenium, thallium and nitrate. Cadmium and mercury exceeded the Water License criteria. No parameters exceeded the MMER criteria.

In 2013:

- For the Third Portage Pit sump:
    - Except for ammonia nitrogen (+2%) and dissolved mercury (-7%) under Possible Poor End scenario, all the parameters exceeded +/-20% of difference between the predicted and mean measured values. All parameters exceed for the Probable Scenario, except pH (19%). For the lower 25th percentile, limited data are available, but available parameters measured exceeded the predicted in the Probable scenario and Possible Poor End scenario, except for pH (14% and 18% respectively).
    - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, arsenic, copper, fluoride, lead, mercury and thallium. No parameters exceeded the MMER and Water License criteria.
- For Goose Pit:
    - All the parameters exceeded +/-20% of difference between the predicted (Probable and Possible Poor End scenarios) and mean measured values except hardness (2% for both scenarios) and dissolved cadmium (-12% for both scenarios). For the lower 25th percentile, all parameters measured exceeded the predicted (Probable and Possible Poor End scenarios).
    - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, copper, fluoride, nickel, cadmium, mercury, selenium, thallium and nitrate. Nitrate exceeded the Water License criteria. No parameters exceeded the MMER criteria.

In 2014:

- For Vault Pit:
    - Exceedances of greater than +/-20% percent difference between predicted (Probable and Possible Poor scenarios) versus the mean of measured values in Vault Pit were found for all of the parameters except for pH (-11% for both scenarios).
    - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, arsenic, copper, fluoride, nickel, cadmium, mercury, molybdenum, selenium, thallium and nitrate. No parameters exceeded the MMER and Water Licence criteria.
- For Goose Pit:
    - The mean water quality concentrations measured in the Goose Pit sump exceeded 20% predicted concentrations for all the parameters except for dissolved barium (4% for both scenarios) and dissolved copper (5% for both scenarios). For the lower 25th percentile, all available parameters measured exceeded the predicted (Probable and Possible Poor End scenarios).
    - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, fluoride, mercury, thallium and nitrate. No parameters exceeded the MMER and Water Licence criteria.

- It should be noted that in 2014 no water from South Portage Pit sump was sampled because the access to the sump presented health and safety issues for the technicians and water was pumped only for 3 months (August to October). All sump water was pumped to the South Cell TSF for use as reclaim water in the mill.

In 2015:

- For Vault Pit:
    - Exceedances of greater than +/-20% percent difference between predicted (Probable and Possible Poor End scenarios) versus the mean of measured values in Vault Pit were found for all of the parameters except for pH (-11% for both scenarios) and nitrate (-8%, Probable scenario).
    - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, fluoride, iron, molybdenum, selenium, thallium and nitrate. Ammonia nitrogen exceeded the Water License criteria. No parameters exceeded the MMER criteria.
- For Goose Pit:
    - The mean water quality concentrations measured in the Goose Pit sump exceeded +/-20% predicted concentrations for Probable and Possible Poor End scenarios for all the parameters except for dissolved molybdenum (16%). For the lower 25th percentile, all available parameters measured exceeded the predicted (Probable and Possible Poor End scenarios), except for pH (16% for both scenarios) and dissolved molybdenum (3% for both scenarios).
    - The following measured parameters were found to be higher than the CCME guidelines: fluoride, nickel, selenium, thallium and nitrate. No parameters exceeded the MMER and Water Licence criteria.
- For Third Portage Pit:
    - The mean water quality concentrations measured in the Third Portage Pit sump exceeded 20% predicted concentrations for Probable and Possible Poor End scenarios for all the parameters except for pH (6% and 9% respectively) and the fluoride (10% for Possible Poor End). For the lower 25th percentile, all available parameters measured exceeded the predicted values for both scenarios, except for pH (1% and 4% respectively).
    - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, arsenic, fluoride, selenium, thallium and nitrate. No parameters exceeded the MMER and Water License criteria.
- For North Portage pit:
    - The mean water quality concentrations measured in the North Portage Pit sump exceeded +/-20% predicted concentrations for Probable and Possible Poor End scenario for all the parameters except for nitrate (-8% and 19% respectively). For the lower 25th percentile, all available parameters measured exceeded the predicted value except for pH (18% for Probable scenario) and sulphate (-3%, for Possible Poor End scenario).

- The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, arsenic, fluoride, nickel, thallium and nitrate. No parameters exceeded the MMER and Water License criteria.

In 2016:

- For Vault Pit:
  - Exceedances of greater than +/-20% percent difference between predicted (Probable and Possible Poor End scenarios) versus the mean of measured values in Vault Pit were found for all of the parameters except for pH (-3% for both scenarios) and dissolved barium and molybdenum (9% and -10% respectively for Possible Poor End scenario). For the lower 25th percentile, all parameters measured exceeded the predicted (Probable and Possible Poor End scenarios), except for pH.
  - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, copper, fluoride, cadmium, selenium and nitrate. No parameters exceeded the MMER and Water License criteria.
- For Goose Pit:
  - The mean water quality concentrations measured in the Goose Pit sump exceeded +/-20% predicted concentrations for Probable and Possible Poor End scenarios for all the parameters except for dissolved copper (-7%) and nitrate (-7%). For the lower 25th percentile, all available parameters measured exceeded the predicted (Probable and Possible Poor End scenarios), except for nitrate (-11% for both scenarios).
  - The following measured parameters were found to be higher than the CCME guidelines: fluoride, nickel and nitrate. No parameters exceeded the MMER and Water Licence criteria.
- For Third Portage Pit:
  - The mean water quality concentrations measured in the Third Portage Pit sump exceeded 20% predicted concentrations for Probable and Possible Poor End scenarios for all the parameters except for hardness (-9% and -12% respectively), dissolved cadmium, mercury and magnesium (-11%, -7%, -11% respectively for Possible Poor End) and nitrate (9% for Possible Poor End). For the lower 25th percentile, all available parameters measured exceeded the predicted values for both scenarios.
  - The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, fluoride, cadmium, mercury, molybdenum, selenium and nitrate. No parameters exceeded the MMER and Water License criteria.
- For North Portage Pit:
  - The mean water quality concentrations measured in the North Portage Pit sump exceeded +/-20% predicted concentrations for Probable and Possible Poor End scenario for all the parameters except for nitrate (-2% for Probable scenario). For the lower 25th percentile, all available parameters measured exceeded the predicted value except for dissolved barium (15% for Possible Poor End scenario) and nitrate (-3% for Probable scenario).

- The following measured parameters were found to be higher than the CCME guidelines: un-ionized ammonia, ammonia nitrogen, arsenic, fluoride, nickel, cadmium, molybdenum, selenium and nitrate. No parameters exceeded the MMER and Water License criteria.

Based on this analysis, many of the predicted values for the Probable and Probable Poor End scenarios have differences greater than +/- 20% when compared to the measured values. There are several potential causes that could contribute to these differences:

- For Portage and Goose Pits, the predicted water volumes were significantly less than what was originally predicted, specifically from 2012 to 2016. This reflects the fact that seepage, ground water and local runoff volumes were being managed and less water than what was originally predicted was reporting to the pit sumps. Consequently, there is less volume of water to attenuate any contaminant loads that may accumulate in the pit sump water body.
- The higher contaminant loads measured in the pit water can also be contributed to a higher observed load in the seepages flowing into the pits.
- Some accredited laboratory water quality measurements have detection limits that are higher than the predicted values. This is particularly true for dissolved metal analysis, such as cadmium, iron, lead, nickel, molybdenum, selenium, thallium and zinc.
- Un-ionized ammonia concentration in water is greatly influence by the pH. The higher the pH, the higher the fraction of un-ionized ammonia in the water. The predicted pH of the Portage and Goose pit water is between 6.1 and 6.3, while the measured values are generally between 7.0 and 7.9.

Furthermore, there are many parameters in the pit water that are slightly higher or higher than the CCME water quality guidelines for the protection of aquatic life. Some parameters, such as ammonia and nitrate, are present in the pit water from the use of explosive during the pit development. Other parameters found in the pit water could originate from the natural groundwater seepage into the pit or from contact of runoff water and seepage water with potentially acid generating (PAG) rock surfaces of the pit wall

However, it is important to note that the water from the all pits is monitored extensively and are not discharged directly into the environment:

- For Portage and Goose Pit sump water, no water was discharged to the environment from these pits. Rather, the pit water is transferred to the former Attenuation Pond. The water accumulated in the Attenuation Pond was sent to the Tailings Storage Facility or treated by the Water Treatment Plant (WTP) before discharge to Third Portage Lake. No discharge limits were exceeded in 2012, 2013 and 2014 as all the results are below the maximum value required by NWB (Water License 2AM-MEA1525) and Environment and Climate Changes Canada (MMER). It should also be noted that since the South Cell Tailings Storage Facility was put into operation (November, 2014), no additional water from the former Portage Attenuation Pond has been discharged into the receiving environment during mining operations. Since mining activities are completed in Goose, all water inflows will remain in Goose Pit and form part of the natural re-flooding volume (since July 2015).
- For Vault Pit sump water, the pit water reports to the Vault Attenuation Pond. The water accumulated in the Vault Attenuation Pond can be treated by the WTP for Total Suspended

Solids (TSS) removal before discharge into the receiving environment (Wally Lake). The results of the Vault discharge can be found in Section 8.3.3.4 under sampling ST-10 (discharge). No discharge limits were exceeded in 2014, 2015 and 2016, as all the results are below the maximum value required by NWB (Water License 2AM-MEA1525) and Environment and Climate Changes Canada (MMER).

The sample results from Portage, Goose and Vault will continue to be monitored in the future and the results will be considered in the water quality modelling, revised yearly, to assist in informing management of water quality in the pits during closure. All factors including the proportional volume of pit water and reclaim water in the TSF, as well as possible implementation of mitigative measures during operation and closure, will be considered when deciding if water treatment will be required at closure. All of this information including the applicable parameters are integrated into the water quality model and is discussed in the subsequent section.

Water Quality Forecast model - Pit Water Quality

The Water Quality Forecast model is completed yearly with the updated, measured data from site, as well as the water balance used on site. Review of the water quality predictions for pit reflooding is completed in this forecast. Table 4.2 of the 2016 Meadowbank Water Quality Forecasting Update found in Appendix C of the 2016 Water Management Report and Plan (Appendix C2) summarizes the forecasted concentrations of applicable parameters in Portage and Goose Pits (based on measured water quality from the TSF) predicted in the pits after reflooding and compares them to originally predicted concentrations for Goose and Portage.

Based on the results of the water quality mass balance presented in Section 4.2 of the 2016 Meadowbank Water Quality Forecasting, treatment may be required for total aluminium, total arsenic, total iron, total and dissolved chromium, copper, selenium and fluoride as the forecasted pit water quality may exceed CCME guidelines or other site specific criteria developed during the closure process prior to dike breaching, if the water is not treated. Total nitrogen forecasted concentration at closure is also higher than the threshold concentration adopted for Oligotrophic Lake in terms of nutrient concentration.

For the Vault pit, no treatment would likely be required after the pit has been re-flooded prior to dike breaching. This is largely due to the fact that there is no interaction of contact water with a tailings disposal facility at the Vault site and all parameters are expected to meet the CCME guidelines or other site specific criteria developed during the closure process. Table 5.1 of the 2016 Water Quality Forecast Update report presents the average concentrations of water quality from samples taken in the Vault area in 2016.

With respect to the potential elevated levels of total aluminium, total arsenic, total and dissolved chromium, total and dissolved copper, total iron, fluoride and total nitrogen, treatment could be undertaken at the South Cell Reclaim Pond or in the Portage Pit if the trends shown in the model continue to be noted. A potential treatment option for the removal of the metals prior to discharge in Portage Pit is caustic or lime precipitation, while aeration is recommended for total nitrogen reduction via ammonia volatilization. A coagulation-clarification process could be a potential treatment solution for removal of arsenic and fluoride.

Forecasted selenium concentration also exceeds the CCME guidelines in Portage Pit. Consequently, treatment may be required. This parameter still requires close monitoring.

For the Vault area, ammonia and nitrate are the parameters of concern identified by Environment Canada, but no actual or forecasted concentration exceeds the Type A Water License discharge requirements for this area.

It is important to note that the water quality in the pits will be subject to CCME guidelines or site specific criteria in closure once the water level in the Goose and Portage Pits are equal to the water level in Third Portage Lake. The dikes will only be breached once the water quality in the pits meets CCME guidelines or site specific criteria developed during the closure plan approval process. This applies also for the Vault area.

4.7 ADDITIONAL INFORMATION

As required by Water License 2AM-MEA1525 Schedule B, Item 25: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

No additional information was requested in 2016.

SECTION 5. WASTE ROCK MANAGEMENT ACTIVITIES

5.1 GEOCHEMICAL MONITORING

As required by NIRB Project Certificate No.004 Condition 15: ***Within two (2) years of commencing operations re-evaluate the characterization of mine waste materials, including the Vault area, for acid generating potential, metal leaching and non-metal constituents to confirm FEIS predictions, and re-evaluate rock disposal practices by conducting systematic sampling of the waste rock and tailings in order to incorporate preventive and control measures into the Waste Management Plan to enhance tailing management during operations and closure; results of the re-evaluations shall be provided to the NWB and NIRB's Monitoring Officer.***

And

In accordance with Water License 2AM-MEA1525 Schedule B, Item 7: ***Geochemical monitoring results including:***

a. Operational acid/base accounting and paste pH test work used for waste rock designation (PAG and NPAG rock);

In 2016, Agnico sampled approximately 25% of blast holes and analyzed the percentages of sulphur and carbon. The results from these analyses are used to differentiate Non-Potentially Acid Generating (NPAG) from Potentially Acid Generating (PAG) materials. The Total Sulphur (S) analysis is converted into a Maximum Potential Acidity (MPA) value by multiplying the Total S weight % by 31.25 which yields an MPA value in Kg $CaCO_3$ equivalent. The Total Inorganic Carbon analysis is similarly converted into a Carbonate Neutralization Potential (NP) by multiplying the Total weight % Inorganic Carbon (reported as $\%CO_2$) by 22.7 which yields an NP value in Kg $CaCO_3$ equivalent. The Net Potential Ratio (NPR) for the blast hole drill cutting sample is then calculated as follows: NPR = NP/MPA. See Table 5.1 for a summary of Acid Rock Drainage (ARD) Guidelines used to classify Meadowbank Waste. The operational acid/base accounting used for waste rock designation (PAG and NPAG rock) is described as well as the frequency of sampling in the Operational ARD/ML Testing and Sampling Plan (Agnico, Version 2, 2013).

As per KIA recommendation to the 2015 Annual Report: "*Agnico should provide a summary in the Annual Report of the proportion of PAG, NPAG and uncertain waste rock found in the sampling of 25% of blast holes*." In 2016, Agnico analyzed 31,368 samples from blast hole at Vault at his on-site laboratory. Of this sample, 8.7% are PAG, 10.7% are uncertain and 80.6% are NPAG. For Portage, Agnico analyzed 11,119 samples from blast hole at Vault at his on-site laboratory. Of these samples, 34.4% are PAG, 9.1% are uncertain and 56.5% are NPAG.

Table 5.1. Summary of ARD Guidelines used to classify Meadowbank Waste

Initial Screening Criteria	ARD Potential
NPR< 1	Likely Acid Generating (PAG)
1 < NPR < 2	Uncertain
2 < NPR	Acid Consuming Non Potentially Acid Generating (NPAG)

The mine geology staff uses the derived NPR to characterize the rock in the blast pattern. Mine surveyors use this information to delineate the dig limits within the blasted rock to guide the shovel and loader operators in directing where the rock is to be taken. See Section 5.2 and Table 5.3 for a discussion of the use and location of waste rock.

The results of the NPAG-PAG classification confirmation are logged in the Meadowbank GEMCOM database. Due to the large volume of data, the results are not included in this annual report. These results can be provided upon request.

In 2016, to validate the method used by Agnico, approximately 387 samples (including ultramafic volcanic, intermediate volcanic and iron volcanic rock types) from production drill holes in Portage and Vault Pits were sent to an accredited commercial lab (external lab) for acid base accounting (ABA) analysis using the Modified Sobek Method for determination of NP/AP, metal leaching using the Shake Flask Method, bulk metals analysis and for whole rock analysis. The results from the external laboratory confirmed Agnico's methodology and results to differentiate PAG/NPAG rock.

In its recommendations to the 2014 Annual Report, the NIRB requested that Agnico *provide a comparison of its results with the FEIS predictions and an explanation of how it re-evaluated rock disposal practices in order to incorporate preventative and control measures into the Waste Management Plan*. This information is provided below.

In the FEIS, Vault waste rock was found to be 100% Intermediate Volcanic (IV). Agnico's characterization of the Vault waste rock found that it is mostly comprised of IV group rocks, however a small portion is also iron formation. Ultimately, the FEIS was functionally accurate as the IV provides a high buffering capacity, low leachability and is considered NPAG.

Data collected for internal control during operations at Vault was compared to the Vault geochemical FEIS (Golder, 2005). The Vault and Portage database from Agnico included results for analyzed at the on-site laboratory for total sulphur, buffering capacity (NP) , acid potential (AP), the ratio of NP to AP (NRP) and total carbon. Starting at the end of 2014, Agnico sent quarterly samples to an accredited laboratory to validate Agnico internal determination. The Vault FEIS prediction said that the ARD from Vault rock will be low which was consistent with Agnico findings. In the FEIS, it was determined that 14% of the rock will be PAG, 11% uncertain and 75% NPAG. Analysis from Agnico's internal determination shows that in 2016, as previously said, for Vault material, 8.7% is PAG, 10.7% uncertain and 80.6% is NPAG. Ultimately, there is a higher ratio of NPAG versus what was initially predicted. Similar results were obtained in 2014 and 2015. As a mitigative measure any PAG or uncertain waste rock material is placed in the middle of the Vault Waste Rock Storage Facility while NPAG material is placed on the perimeter to encapsulate the PAG material. Runoff or seepage water monitoring analysis will confirm the effectiveness of this abatement measure. To date water monitoring analysis from run off indicates no concerns related to ARD. For Portage, the waste rock is segregated between PAG and NPAG with the on-site laboratory testing; waste rock is then disposed in the different RSF accordingly to the type of material.

During the completion of the tailings cover with NPAG rock in the North Cell TSF in 2016, a total of 13 samples were collected during the construction to ensure that the material coming from Portage Pit was NPAG. Samples were tested at the on-site laboratory for total sulphur and total carbon content; acid

potential MPA, NP and NPR were calculated using these results. The minimum NPR value obtained was 5.25 and the maximum value was 164.90. The median value of NPR obtained is 22.24. These results confirm that the material coming from Portage Pit, classified as NPAG by the operational testing on site, and deemed suitable for construction of the tailings cover, is composed of NPAG waste rock.

b. As-built volumes of waste rock used in construction and sent to the Waste Rock Storage Facilities with estimated balance of acid generation to acid neutralization capacity in a given sample as well as metal toxicity;

Refer to the Section 5.2 of this report.

c. All monitoring data with respect to geochemical analyses on site and related to roads, quarries, and the All Weather Access Road;

Unless there are significant changes during reclamation, quarry surface water sampling will not be completed in the future as follow-up water sampling has not provided evidence of geochemical issues in the quarries. As in the past, Quarry 4 and 14 are flooded, as noted in the 2016 Annual Geotechnical Inspection (Appendix B1). The water ponding at freshet or during the summer period in the quarries does not drain to any nearby watercourse. During previous summer periods, no mitigation was deemed necessary as no significant amounts of water were observed in the quarries. During winter, the snow could be removed from the quarries to minimize water runoff at freshet. Slope remediation is in progress in some quarries but none of them were totally reclaimed. Some work to clean unstable blocks and loose rocks was completed in 2016. If deemed necessary, additional work will be completed in 2017. Agnico is currently evaluating which quarries can be progressively closed. The quarry reclamation along the AWAR will form part of the Meadowbank Final Closure Plan. Reclamation activities for some quarries may occur during operations. The remaining reclamation activities for the quarries will occur during the closure period.

Given the stability of the structures and the monitoring results of 2011 to 2016, previous annual reports recommended that unless turbidity issues were visually observed, surface water chemistry sampling should not be conducted at fish bearing watercourses. When an erosional issue occurs, it was recommended that detailed monitoring should be conducted and at a minimum, a single water chemistry sample upstream and downstream of the source. If deemed necessary, additional follow-up sampling or monitoring should be conducted and if necessary additional mitigation will be undertaken.

Beginning of June 2016, small streams began flowing and by mid-June all of the streams and rivers along the road opened up. Nine (9) formal erosion inspections were completed by qualified environment technicians on May 20, 26, June 3, 10, 18 and 28, July 1, August 17, September 6, 2016 and weekly visual inspections were made during AWAR inspections. Agnico also conducted daily inspections in collaboration with the Meadowbank Energy and Infrastructures Department (in charge of the road and travel the road daily for ongoing maintenance). No turbidity issues were visually observed so surface water quality sampling was not deemed necessary at non-HADD crossings or quarry contact water pools.

d. Leaching observations and tests on pit slope and dike exposure;

No leaching was observed on the pit slope or dike faces.

e. Any geochemical outcomes or observations that could imply or lead to environmental impact;

In 2013 there was seepage observed at the Portage RSF that had the potential to lead to environmental impacts. Following effective mitigative and management actions in 2013 and 2014, seepage was contained and has continued to be monitored throughout 2016. Refer to Section 8.3.3.11 regarding the seepage event; mitigation and monitoring that occurred in NP2 Lake and other downstream lakes (i.e. NP1, Dogleg, and SPL).

f. Geochemical data associated with tailings solids, tailings supernatant, cyanide leach residue, and bleed from the cyanide destruction process including an interpretation of the data;

Agnico takes throughout the year quarterly samples of tailings that are sent to an accredited laboratory to analyse for ABA and Metal Leaching. Table 5.2 below presents the results. The results indicate that the tailings are PAG but have low metal leaching. These sample results are also integrated in the Water Quality Forecast updated yearly. Tailings samples analyses were also integrated in the design of the TSF cover for closure.

Table 5.2. 2016 Tailings Monitoring

Analysis	Date / Units	14-Jan-16	10-Apr-16	9-July-16	11-Oct-16
NP	t $CaCO_3$/1000 t	45	39	64	65
AP	t $CaCO_3$/1000 t	64.7	58.4	56.9	46.9
Net NP	t $CaCO_3$/1000 t	-19.69	-19.84	7.62	17.80
NP/AP	ratio	0.70	0.66	1.13	1.38
S	%	2.47	1.85	1.95	2.04
Acid Leachable SO4-S	%	0.40	<0.02	0.13	0.54
Sulphide	%	2.07	1.87	1.82	1.50
C	%	0.603	0.460	0.836	0.820
CO_3	%	1.83	1.29	2.91	2.78
Final pH	units	1.61	1.87	1.69	1.67
As	mg/L	0.130	0.091	0.056	0.054
Cu	mg/L	0.055	0.069	0.068	0.043
Ni	mg/L	0.041	0.070	0.036	0.040
Zn	mg/L	0.064	0.073	0.098	0.060

g. Results related to the road quarries and the All Weather Private Access Road.

See Section 5.1c above.

5.2 WASTE ROCK VOLUME

In accordance with Water License 2AM-MEA1525 Schedule B, Item B-8: ***Volumes of waste rock used in construction and placed in the Rock Storage Facilities.***

The total volume of waste rock generated by Portage and Vault pits in 2016 was 29,602,230 tonnes. There is not more mining in Goose Pit so no more waste rock generated in 2016. The use and location of all of the rock, by volume, is presented in Table 5.3 and is identified by the following categories:

- Tailings Dams – used for the construction of dams or dikes adjacent to the tailings pond;
- Other Construction;
    - Roads – used for road construction and maintenance;
    - Crushers – taken to the mobile crusher and used for construction or maintenance purposes;
    - Miscellaneous uses;
    - Tailings cover construction
- Waste Dump – taken to the rock storage facilities;

The Mine Waste Rock and Tailings Management Plan was revised in March 2017 and can be found in Appendix D1. Details of all waste rock deposition and tailings management are contained in the revised Plan.

Table 5.3. 2016 Rock volumes

	Portage and Vault Pit (tonnes)				
	Ore	Waste Rock			
		Tailings Dams	Other Construction	Waste Dump	Total
January	292,365	17,453	243,644	2,353,611	2,614,708
February	234,713	108,151	550,534	1,814,074	2,472,760
March	244,497	51,826	202,800	2,345,902	2,600,527
April	260,323	31,133	187,302	2,491,605	2,710,040
May	327,610	128,385	119,182	2,522,759	2,770,327
June	311,403	68,802	200,505	2,640,740	2,910,047
July	398,530	49,347	146,196	2,571,022	2,766,566
August	410,800	14,305	548,089	2,120,975	2,683,369
September	377,414	79,939	288,056	2,099,627	2,467,621
October	364,792	0	124,473	1,994,464	2,118,937
November	438,954	6,741	41,769	1,834,572	1,883,082
December	370,247	17,092	41,887	1,544,266	1,603,246
TOTAL	4,031,648	573,174	2,694,437	26,333,617	29,601,230

Waste Rock disposed at the waste dump includes overburden stripped for exploitation of Portage Pit & Vault Pit

5.3 TAILINGS STORAGE FACILITY

5.3.1 Tailings Storage Facility Capacity*

As required by Water License 2AM-MEA1525 Schedule B-9: ***An update on the remaining capacity of the Tailings Storage Facility.***

In 2016, a total of 4,173,988 m^3 of tailings slurry was deposited in the tailings storage facilities. A monthly summary of the tailings volume is provided in Table 5.4. From 2010 to 2016, a total of 19,330,000 m^3 of tailings slurry from the mill had been deposited in the TSF's.

To calculate the tailings volume placed within the TSF, the in situ dry density of the tailings is used, as the tailings consolidate in the TSF. As of the end of December 2016 a total of 5,160,000 m^3 of tailings had been deposited in the South Cell TSF. The deposition in the South Cell TSF started at the end of November 2014. In 2016 a total of 4,173,988 m^3 of tailings (associated tailings dry in situ density of 1.43 tons/m^3 for that period) were deposited in the South Cell TSF. A total of 14.17 Mm^3 of tailings was deposited in the North Cell between 2010 and 2015; no deposition occurred in the North Cell in 2016.

As updates to the mine occurred in 2016, Agnico revised the tailings deposition plan (available in Updated Mine Waste Rock and Tailing Management Plan presented in Appendix D1). The deposition model completed is valid until the end of the mining operation in 2018. The model is based on the data collected during previous years of operation. The filling scheme for the two cells of the tailings storage facility is designed for a single point end of pipe discharge which will:

- Avoid ice accumulation on the dike liner;
- Prevent tailings beach to reach the reclaim barge/system;
- Ensure Reclaim water pond maximum elevation of 148m for the North Cell / 141 m for the South Cell (to maintain a minimum freeboard of 2.0 m);
- Tailings beach to reach elevation 149.5 m for the North Cell (completed) / 142.5 m for the South Cell;
- Fill the North Cell to its maximum capacity during summer 2015 (completed);
- Raise the beach on RF1 and RF2 to prevent tailings water from seeping out of the North Cell (completed);
- Raise beaches on all external structures such as the roads around the tailings pond to prevent reclaim water from seeping towards the diversion ditches (completed);
- Promote a tailings beach along the upstream face of Central Dike; and
- Avoiding ice accumulation on the Central Dike liner.

As mill processing rates and tailings characteristics are liable to fluctuate over the life of the mine, the design of the TSF and tailings deposition plan will continue to evolve based on changes in design parameters including mill process rates, tailings beach slopes, ice entrapment, and tailings in-situ densities. As such, a preliminary deposition plan was done in 2009 to provide guidelines for operation of the facility and to schedule the construction of the TSF perimeter dikes. The preliminary deposition plan was initially updated each year to include data collected from the previous year's deposition within the

* TSF- Tailings Storage Facility

TSF. Since 2013 Agnico has assigned dedicated engineers, who regularly review/update the deposition plan incorporating any new and relevant information and changes to mine and operational planning.

Agnico performed a bathymetric analysis in July 2016 of the South Cell to further validate the key variables which influence the water balance as well as the deposition plan. Mainly, those key variables are the tailings dry density (influenced by ice entrapment) and the sub-aerial and sub-aqueous beach angles. Furthermore, a dynamic model was established with parameters influenced in accordance with the real time conditions (i.e. seasonal temperature variation) instead of working with year round estimated average and this allows Agnico to better reflect the actual site conditions.

The 2016 bathymetry was compared to the 2013 to 2015 bathymetries. The analysis revealed that ice entrapment and tailings dry density observed during the winter 2014-2015 was consistent with what was observed during winter 2015-2016. Average tailings dry density measured was down to 1.43t/m³ instead of the average of 1.49t/m³ observed in the South Cell during the previous year. Sub-aerial and sub-aqueous beach angles are also consistent which mean that the global deposition strategy implemented in 2015 is efficient.

Based on that information, Agnico updated last year's model and prepared a new Tailings Deposition Plan. No major change was made on the deposition strategy other than increasing the freshwater consumption during summer 2018 in order to store a larger amount of water in South Cell prior to the last winter of deposition. The model suggests that this plan will reduce global ice entrapment and secure the operation of the tailings pond. North Cell parameters are used for 2018 deposition as they were considered more representative of the tailings deposition occurring in a TSF pond at closure.

In summary, the main parameters of the deposition plan model consist of:

- The water balance used in this model assumes reclaim flow changes as a function deposition parameter used in the model and higher freshwater consumption is required when Agnico forecast higher ice entrapment ratio;
- For the South Cell, the tailings dry density varies from month to month, between 1.08t/m^3 and 1.76t/m^3;
- For the North and South Cells, the average measured in situ tailings dry density of 1.28t/m^3 represents the deposition through the whole deposition life of a cell. Furthermore, it represents an operational capacity rather than a flat geometry i.e. what can actually be placed on the field considering the operational constraints (minimum pond volume, beach angles, dike freeboard etc.);
- For the South Cell, sub aerial tailings slope set at 0.88% and sub aqueous tailings slope set at 3.03% (obtained from summer 2016 bathymetric analysis).

The main conclusions from the modeling results are:

- The total estimated capacity of the TSF North Cell (structures at El.150m) and South Cell (structures at El.143m) is 32.0 Mt (25.0 Mm^3);
- The total capacity of the North Cell is estimated at: 18.2 Mt (14.2 Mm^3);
- The total capacity of the South Cell is estimated at: 15.0 Mt (11.7 Mm^3);
- The estimated remaining capacity in the TSF (in the South Cell only) as of end of December 2015 is 6.9 Mm^3 (5.4 Mm³);

- The second phase of South cell deposition started at the end of October 2015 and will proceed until the end of operations planned in September 2018;
- The reclaim water system is located in the South Cell;
- The South cell reclaim road and the peripheral infrastructures of the South Cell (Central Dike, Saddle Dams 3, 4 and 5) needed for the tailings deposition are planned to be raised during summer season of 2017 and 2018 to provide the required tailings storage capacity.

Table 5.4. 2016 Tailings Volumes

	Total Tailings Slurry (tonnes)	Density of Tailings (% Solid)	Density of Slurry (tonnes/m^3)	Slurry pumped to TSF (m^3)
January	643,582	54%	1.57	409,189
February	537,685	56%	1.61	333,813
March	540,878	55%	1.60	338,633
April	569,122	58%	1.65	344,989
May	600,009	59%	1.66	361,603
June	527,180	59%	1.66	316,704
July	601,628	59%	1.67	360,116
August	550,102	59%	1.67	329,508
September	474,396	59%	1.66	285,227
October	577,186	59%	1.66	347,435
November	558,197	59%	1.66	336,789
December	646,188	54%	1.58	409,981
Total				4,173,988

5.3.2 Tailings Freezeback and Capping Thickness

As required by NIRB Project Certificate No.004, Condition 19: ***Provide for a minimum of two (2) metres cover of tailings at closure, and shall install thermistor cables, temperature loggers, and core sampling technology as required to monitor tailing freezeback efficiency. Report to NIRB's Monitoring Officer for the annual reporting of freezeback effectiveness.***

And

As required by Water License 2AM-MEA1525 Schedule B, Item 18: ***A summary of on-going field trials to determine effective capping thickness for the Tailings Storage Facility and Waste Rock Storage Facilities for the purpose of long term environmental protection.***

Description of the instrumentation (thermistors) installed within the tailings storages facilities structures, the tailings, the rock storage facility and the pits are described below, along with the presentation of the latest results for 2016. The research project on going at Meadowbank including test pads for cover trials on the TSF is also described below.

In the 2012-2013 Annual Monitoring report NIRB (recommendation 14) "*The Board requests that AEM provide a plan of action and a discussion on its permafrost monitoring program that would include Second Portage Lake, Portage Pit and Bay Goose Pit as outlined in the FEIS*". The action plan and permafrost

monitoring program for Second Portage Lake, Portage Pit and Goose Pits were submitted to NIRB previously in response to the above mentioned recommendation. Below is an update with the 2016 data.

Instrumentation in North Cell Tailings Storage Facility (TSF) Structures

This section shows temperature monitoring in each geotechnical structures along the perimeter of the North Cell TSF. Most of them are presenting frozen conditions of their foundation. Stormwater Dike is not included into this list as this structure is still in operation as tailings deposition in occurring in the South Cell.

Saddle Dam 1

Agnico started to determine capping thickness in 2009 by installing thermistor SD1-T2, SD1-T3 and SD1-T4 on Saddle Dam 1 to monitor the thermal condition within the structure and its foundation. The results are illustrated on Figure 6 to 9. Thermistor data from within the structure indicates that the dike foundation remained frozen since the installation of the instrumentation. The foundation remained in a frozen state with temperatures ranging from about -2°C to -10°C. No seepage has been observed since the beginning of service of the structure. The structure is performing as expected.

The SD1-T1 thermistor string is installed in the centre of the upstream face of the dike underneath the liner to monitor temperatures the deposited tailings adjacent to the dike. During the year 2016, thermistor SD1-T1 recorded value from 0 to -3°C. From elevation 133 to 142, temperatures are stable at 0°C being in the state called the zero curtains. Above elevation 142, the temperatures are colder varying from 0 to -3°C. This thermistor shows a great example of freezeback of the tailings entering a state of permanent frozen condition. The SD1-T2 thermistor string was installed vertically through the upstream Stage 1 crest in the centre of the dike at El. 140 m. The data show that the dike foundation remained frozen during the past year with temperatures fluctuating between -2°C and -4.5°C. It can be observed that the foundation is close to have reached the equilibrium state after modification of is frontier condition (surface of the tailings at this specific emplacement). The top part of this thermistor (from elevation 132 to 140) show temperatures consistent with temperatures of the thermistor SD1-T1 being in the zero curtain state. The SD1-T3 thermistor string was installed vertically in the center of the dike at El. 150 m. It can be observed that the dike foundation and dike rockfill remained frozen during the past year with temperatures fluctuation between -4°C and -10°C. The readings showed that the foundation at this specific emplacement has reached the state of equilibrium. The SD1-T4 thermistor string was installed vertically through the upstream toe of the dike near the centre of the dike. It indicates that the dike foundation on the upstream toe, including the liner tie-in till plug, remained frozen during the past year. As same as SD1-T2, the temperature in the foundation is really close to the state of equilibrium in a frozen condition. It is important to state that tailings deposition was completed in the North Cell in summer 2015 and that no deposition occurred in 2016.

Additional information on instrumentation results for Saddle Dam 1 can be found in the 2016 Annual Geotechnical Inspection (Appendix B1).

Figure 6. Thermistor Results SD1-T1

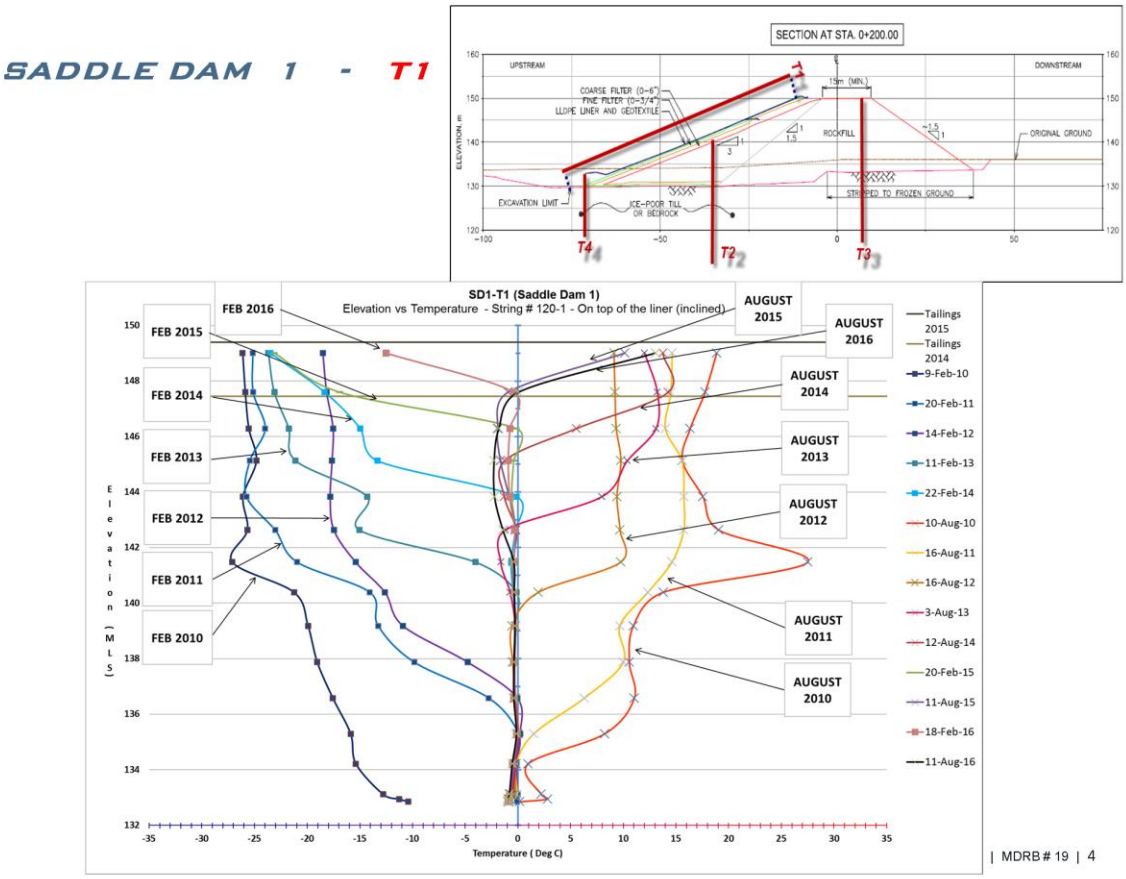


Figure 7. Thermistor Results SD1-T2

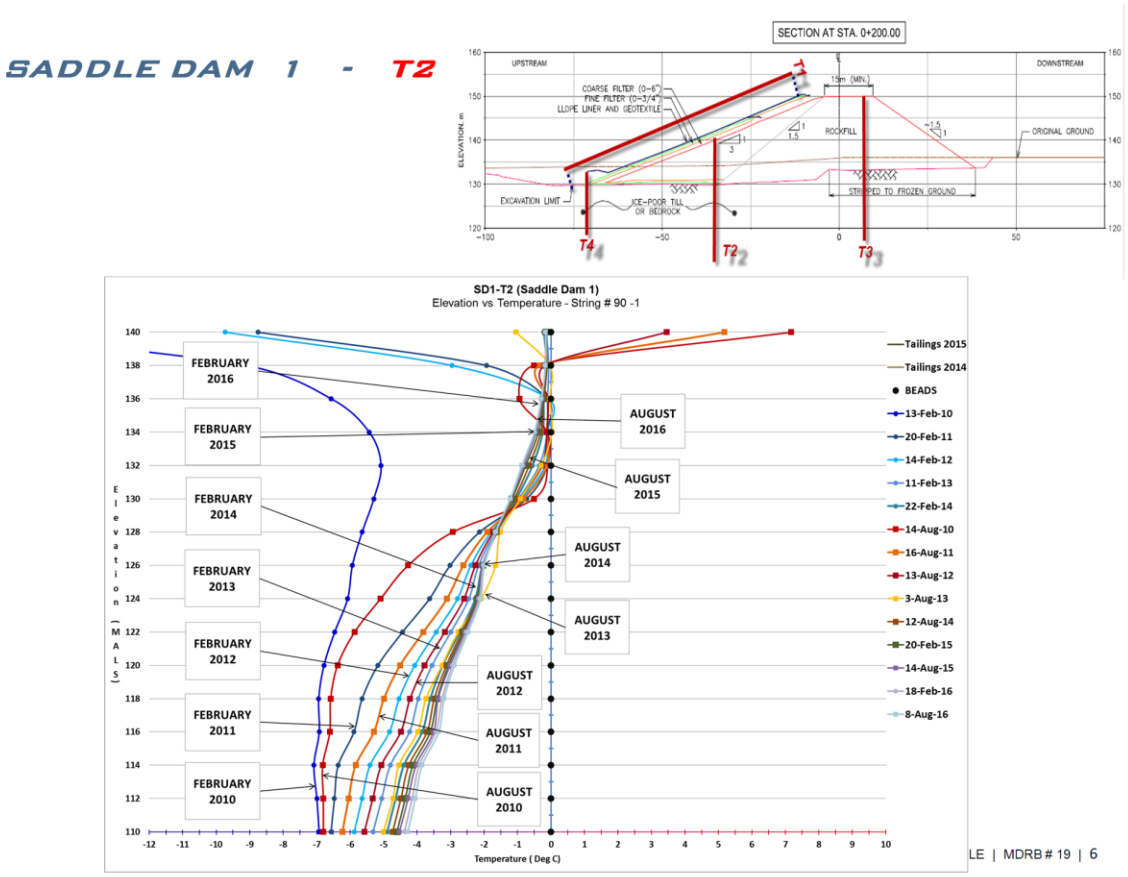


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Figure 8. Thermistor Results SD1-T3

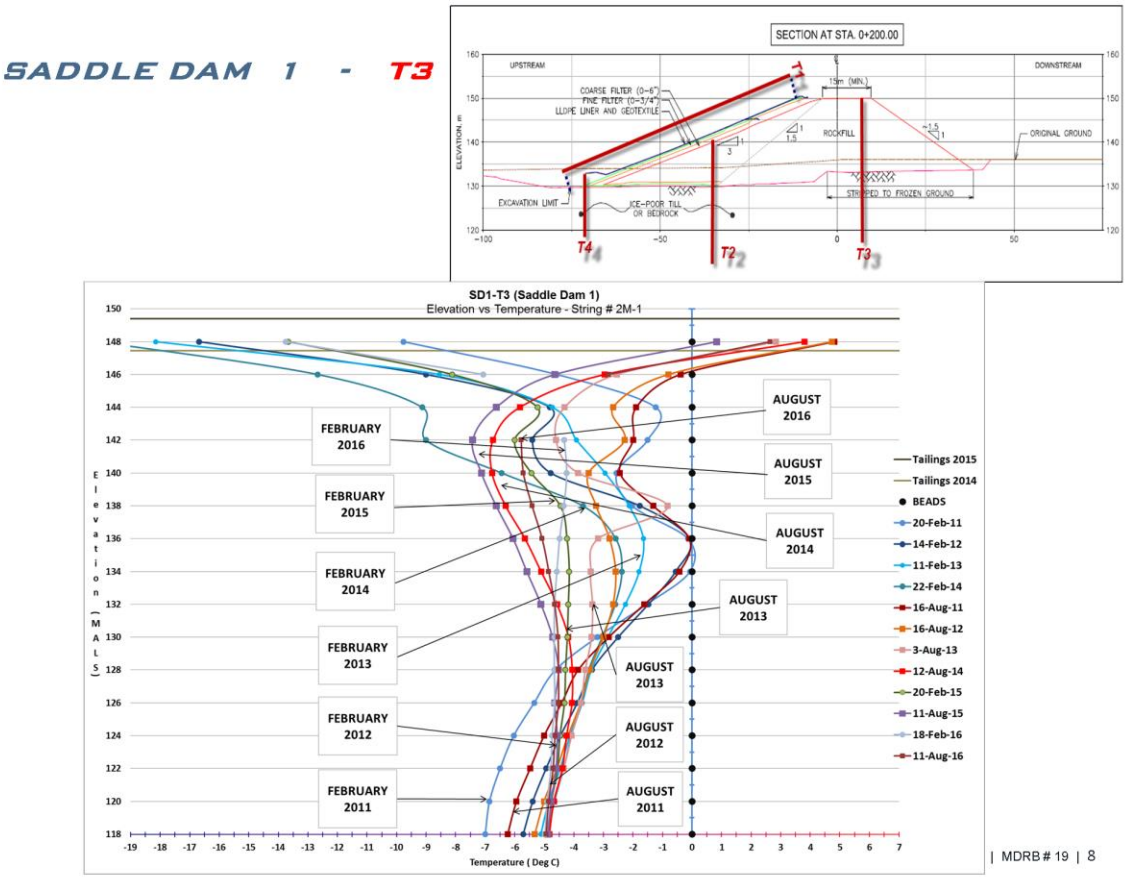
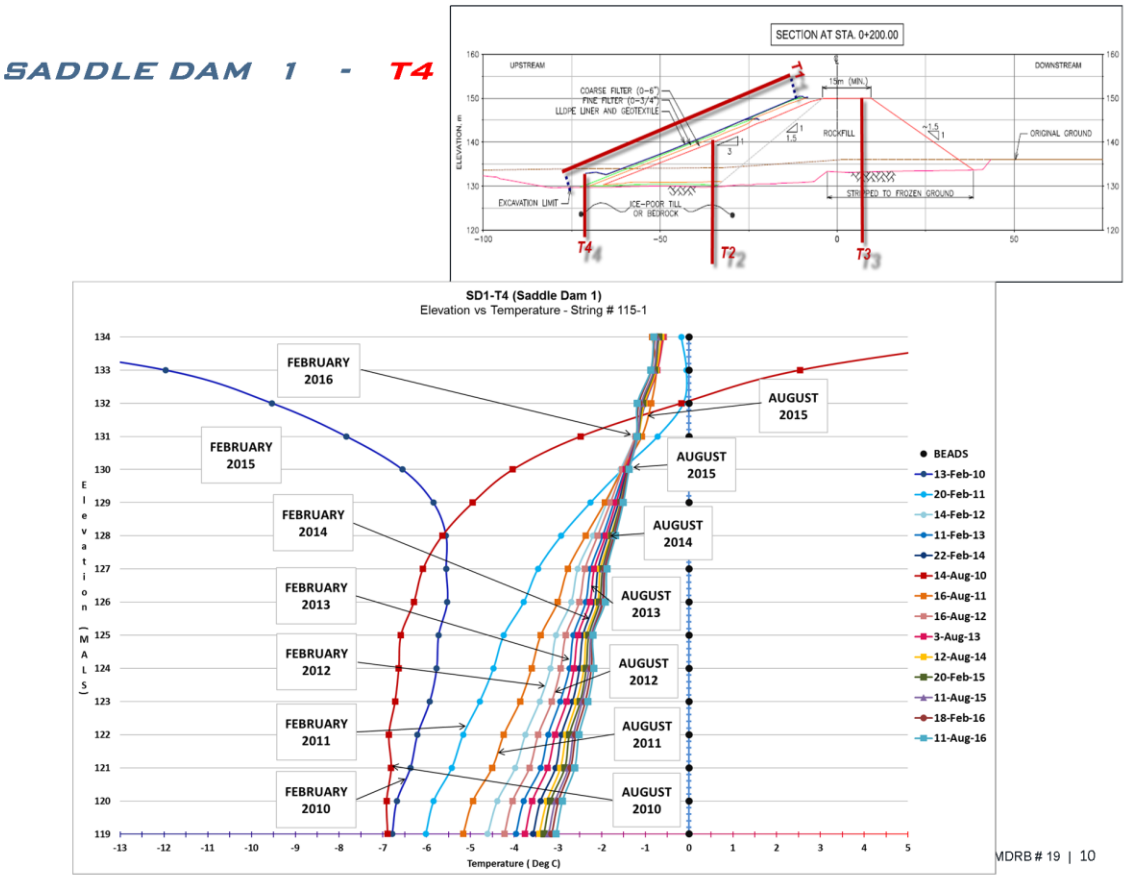


Figure 9. Thermistor Results SD1-T4



Saddle Dam 2

Agnico also installed thermistors SD2-T1, SD2-T2, SD2-T3 and SD2-T4 on Saddle Dam 2. The results are illustrated on Figure 10 to 13. Thermistor data from within the structure indicates that the dike foundation remained frozen all year long in 2016 with temperatures ranging from about -5°C to -8°C. The SD2 dike shows temperature already similar to permafrost condition and even colder and so both for the foundation and the embankment. No signs of seepage or thawing of the foundation soil were observed. The structure is performing as expected. The SD2-T1 thermistor string was installed in 2012 in the centre of the upstream face of the dike immediately on top of the geomembrane liner to monitor the thermal regime of the tailings in contact with the structure. Value between 0°C and -5°C were recorded during the year (in the winter and in the summer) below El. 147m. It is anticipated that data collected from this location will be useful in monitoring the freezing of the tailings in the coming years. The SD2-T2 thermistor string was installed vertically through the upstream crest in the centre of the dike at El. 140 m. It shows that the dike foundation and rockfill shell remained frozen during the past year (temperature varying from -1.5°C to -7.5°C). The SD2-T3 thermistor string was installed vertically through the upstream liner tie-in trench near the centre of the dike at about El. 144 m. It shows that the dike foundation and the semi-pervious backfill placed on top of the compacted till remained frozen during the past year

(temperature of the foundation between -5.5°C and -7.5°C). The range of temperature recorded is smaller than in past year at this location. The SD2-T4 thermistor string was installed vertically through the upstream toe about mid-way between the centre of the dike and the northwestern abutment. It shows that the dike foundation remained frozen during the past year along with the compacted till base material below the geomembrane liner in this area. The semi-pervious backfill placed on top of the compacted till also remained frozen during the summer of 2016. The temperature varied between -3°C to -6°C. It is important to state that tailings deposition was completed in the North Cell in summer 2015 and that no deposition occurred in 2016.

Additional information on instrumentation results for Saddle Dam 2 can be found in the Annual Geotechnical Inspection (Appendix B1).

Figure 10. Thermistor Results SD2-T1

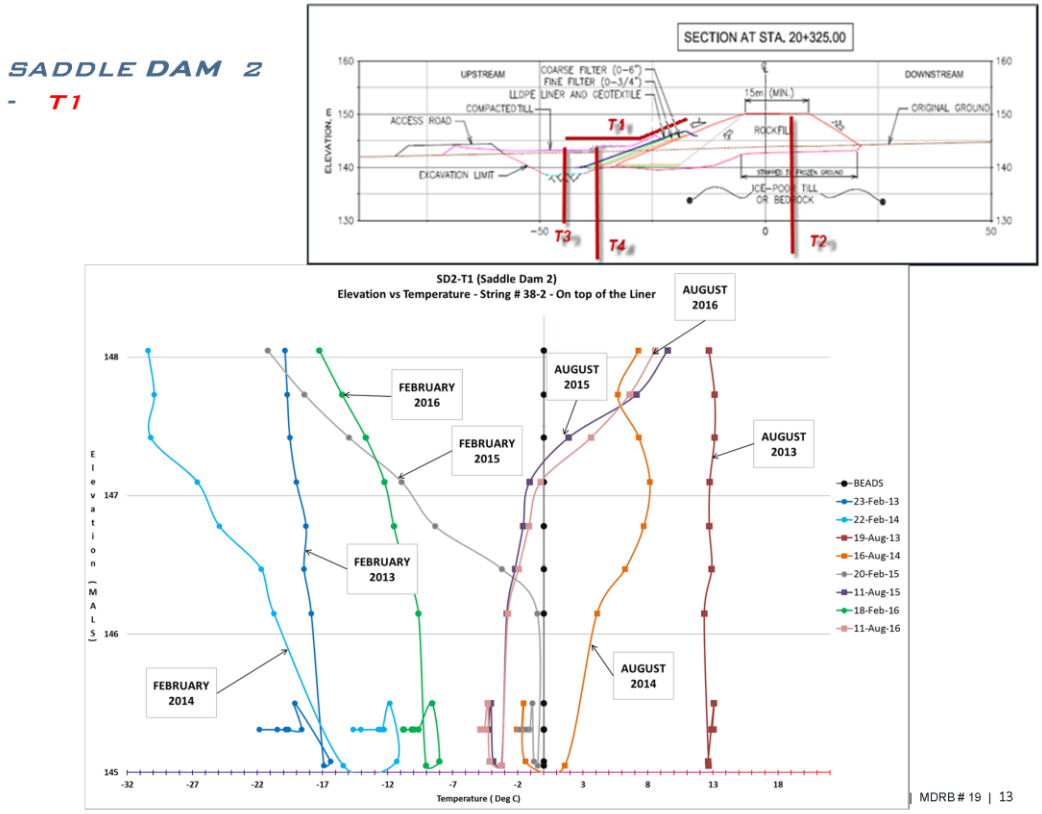


Figure 11. Thermistor Results SD2-T2

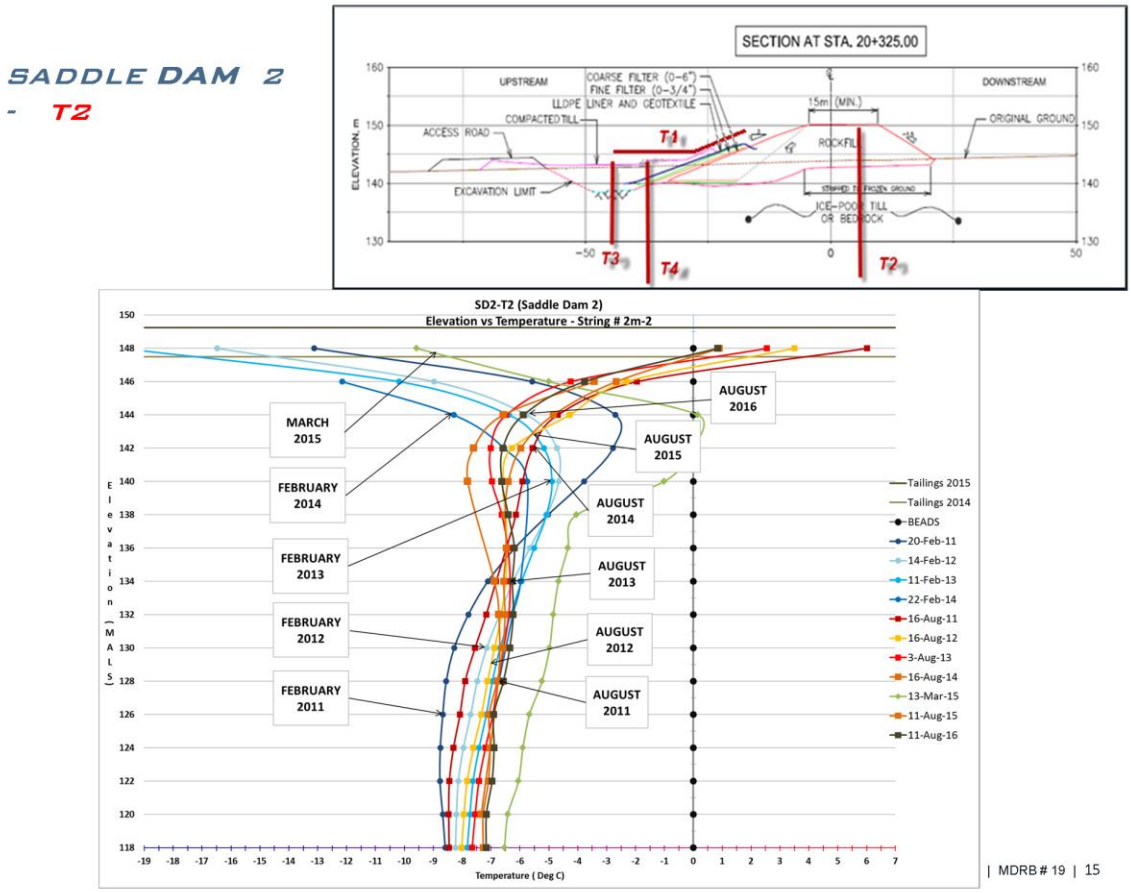


Figure 12. Thermistor Results SD2-T3

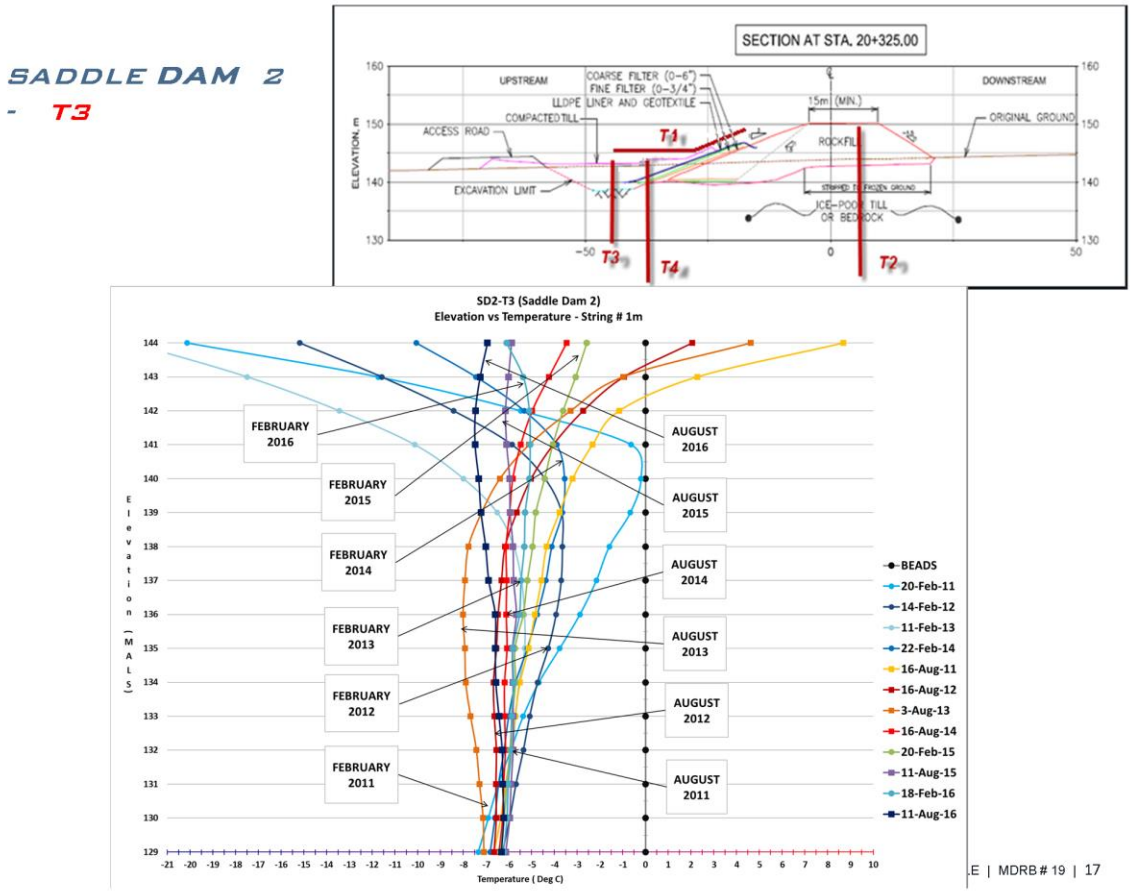
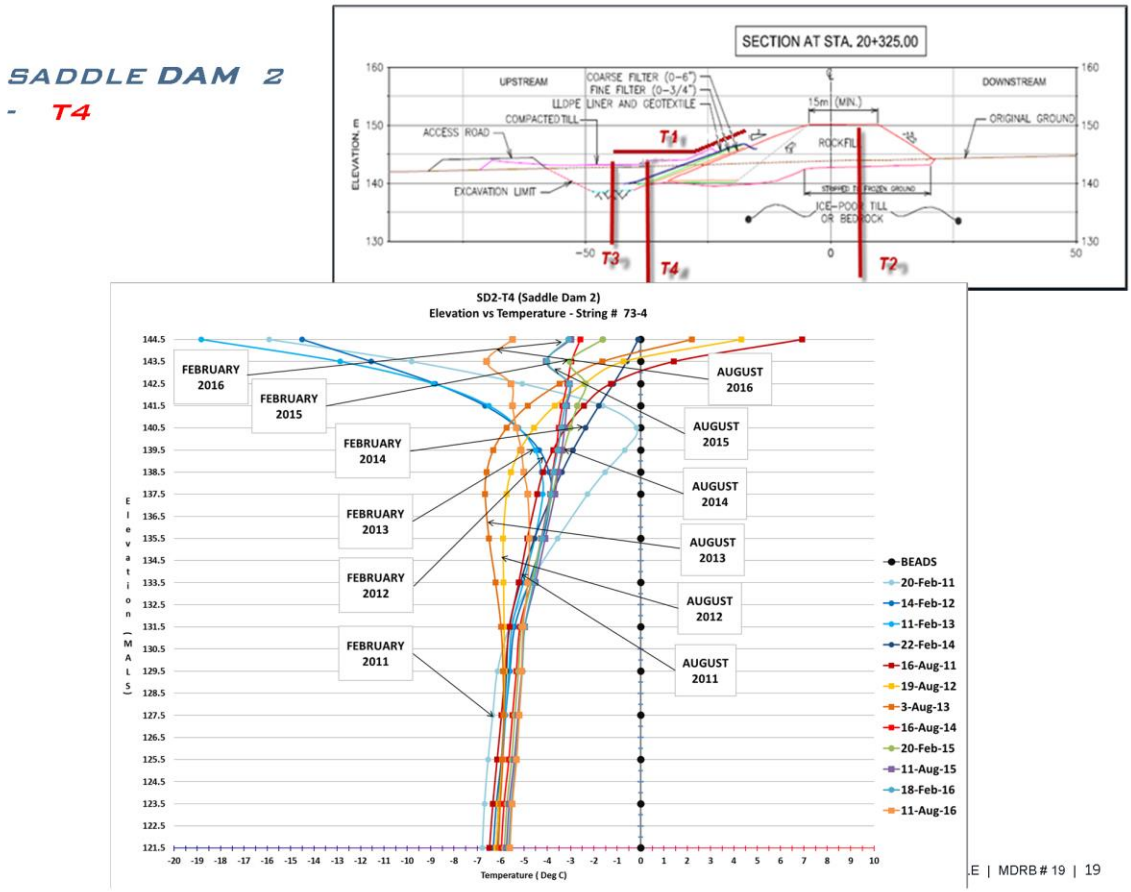


Figure 13. Thermistor Results SD2-T4



Instruments in RF1, RF2

Other thermistors were installed in 2012 in the TSF to monitor the temperature of the tailings as well as the temperature of RF1 and RF2 (which delineates the eastern side of the North Cell TSF). Plots of these thermistors data are presented in Figure 14 to 17. Three thermistors are installed on RF1 (T121-1, T73-6, and RF1-3). Thermistor T121-1 shows temperatures which vary from -0.8°C to -5.4°C. Thermistor T73-6 shows a wide range of temperatures above El. 145 m, but below that elevation the temperature fluctuates between 0.2°C and -0.5°C. A similar trend was observed last year. This trend indicates the presence of an active zone within the upper elevation of the deposited tailings. RF1-3 shows frozen conditions all year long below El. 147 m with temperatures varying between 0°C and -4°C. Above that elevation, the temperature seems to fluctuate seasonally between 11°C and -11°C. This trend indicates the presence of an active zone within the upper elevation of the deposited tailings. One thermistor is installed on RF2 (T122-1) and shows temperatures which vary from -2°C to -6.5°C, indicating that the RF2 foundation is in a frozen state. It is important to state that tailings deposition was completed in the North Cell in summer 2015 and that no deposition occurred in 2016.

Additional information on instrumentation results for RF1-RF2 can be found in the Annual Geotechnical Inspection (Appendix B1).

Figure 14. Thermistor Results RF1-T121-1

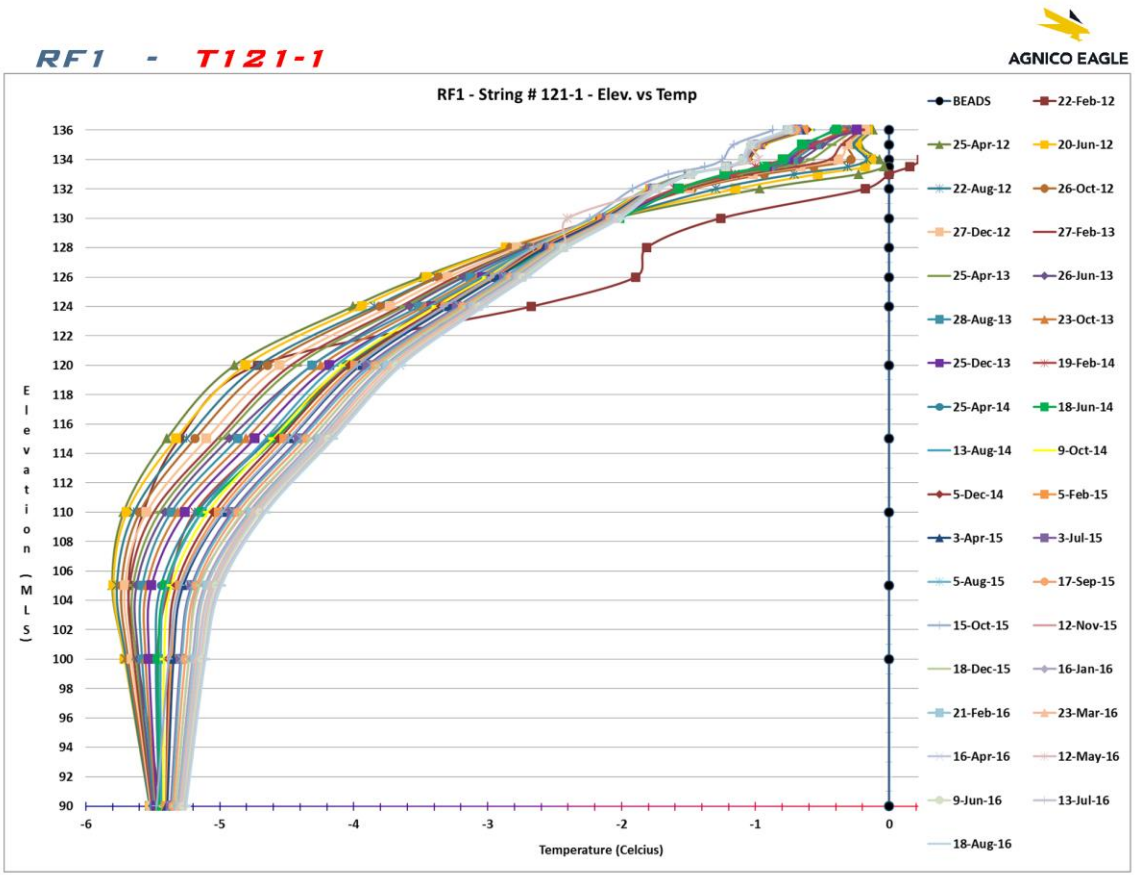


Figure 15. Thermistor Results RF1-T73-6

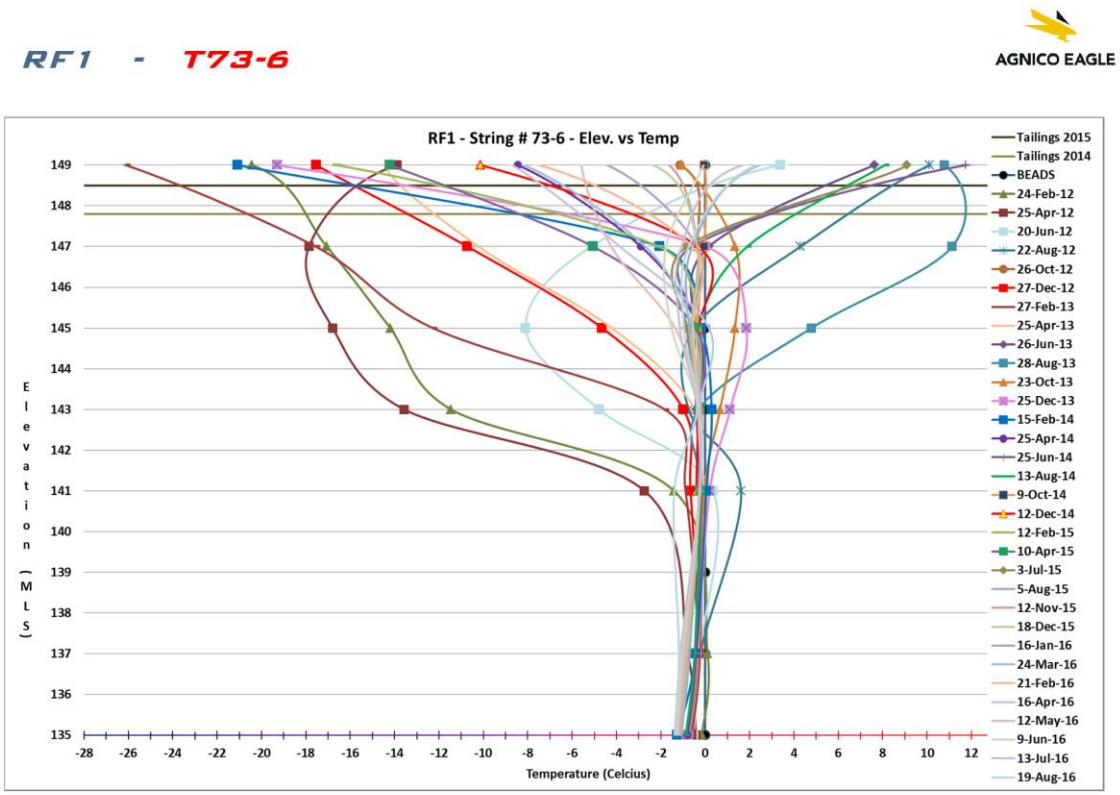


Figure 16. Thermistor Results RF1-RF1-3

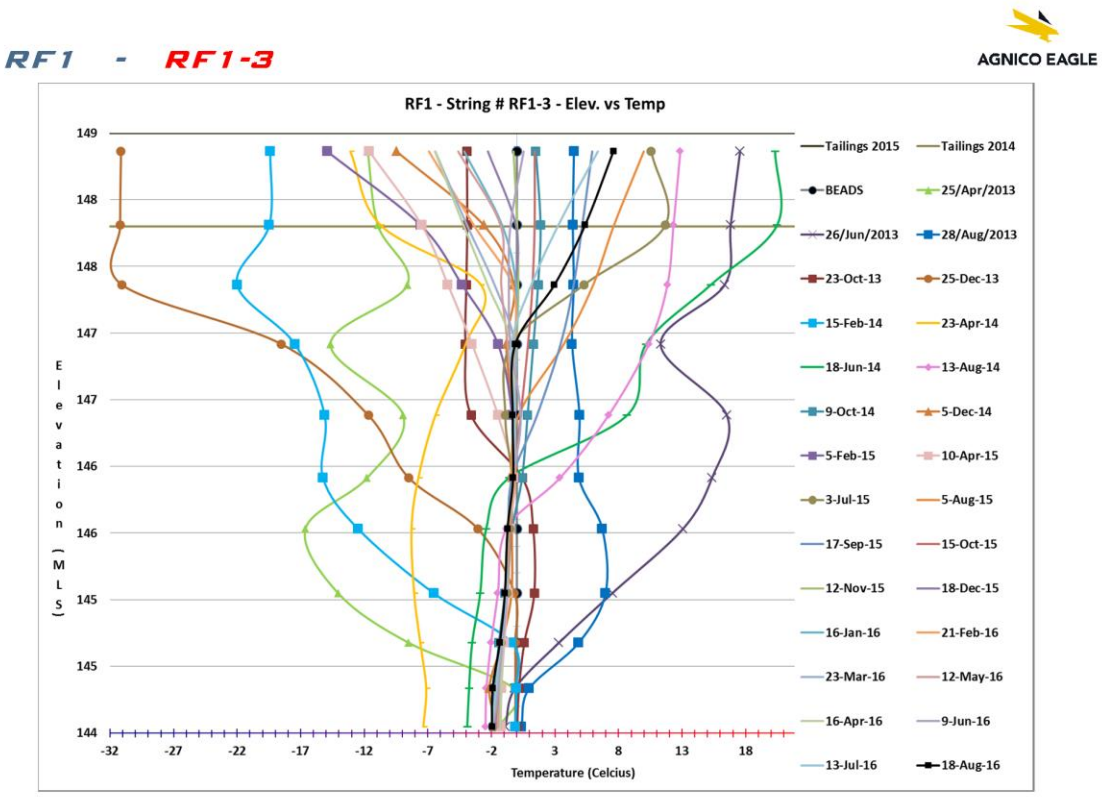
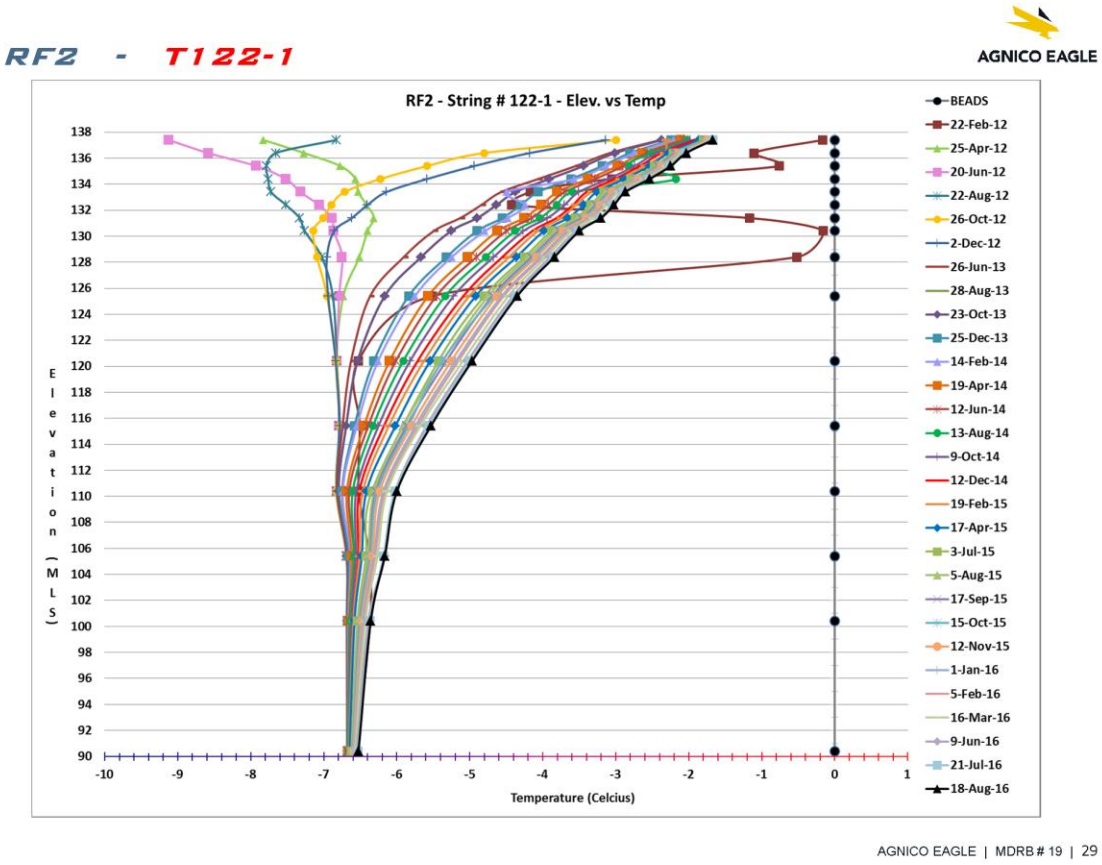


Figure 17. Thermistor Results RF2-T122-1



Instrumentation inside the tailings of the North Cell TSF

To monitor the permafrost aggradation and talik beneath Second Portage Lake, Aginco installed a thermistor (SD1-1 T90-2) in the North Cell tailings, beside Saddle Dam 1 in 2012. Thermistor SD2-1 was installed upstream of the Saddle Dam 2 and SWD-1 was installed upstream of the Stormwater Dike in April 2014, both directly in the tailings

Thermistor SD1-1 was installed in 2012 in the tailings upstream of SD1. All the nodes from SD-1 are covered by more than 6.0 m of tailings. The thermal results from this thermistor show that the tailings are frozen until elevation 139m. The foundation (till from the tundra) showed temperature close or below 0 Celsius. Plot of this thermistor data for 2016 are presented in Figure 18.

Additional thermistors were installed in the tailings in April 2014. Thermistor SD2-1 was installed upstream of Saddle Dam 2 and SWD-1 was installed upstream of the Stormwater Dike. For thermistors SD2-1 and SWD-1, thermal data show that tailings are completely frozen in the winter and from approximately 1.2 m down to the tailings surface during summer period. For the thermistor SD2-1, the foundation (till from the tundra) showed temperature below 0 Celsius. For the thermistor SWD-1, the

foundation (till and bedrock) show temperatures above 0 Celsius, as expected since this thermistor is located in the talik portion of Second Portage Arm. Due to technical difficulties to protect the thermistor cables from excessive tension, thermistors SD2-1 and SWD-1 were operational respectively until July 2014 and October 2014. Figures 19 and 20 are presenting data recorded during that time Agnico installed in winter 2016 two new thermistors in the North Cell TSF to monitor the tailings freezeback, the permafrost aggradation and talik beneath Second Portage Lake. These instruments are located more in the area of the reclaim pond where water is still ponding at elevation 148m and act as a thermal barrier. These thermistors are showing that the center area of North Cell TSF is warmer than the perimeter area. The thermistor NC-T1 shows a frozen layer from the surface to elevation 144 to 147m. Under this elevation, tailings temperatures vary from 0°C (elavation 144m) to 5° elevation 110m). Bedrock is also unfrozen from elevation 87 to 110m. This area of the tailings pond was always covered by the reclaim water pond in operation and the freezing process is affected by the water compared to exposed tailings beaches. However a trend for April 2016 to December 2016 shows temperatures are slowly decreasing.. For NC-T2, tailings temperature is varying around the frozen boundary from elevation 123m to 138m. Under this elevation tailing temperatures reach around 2°C. The difference between both locations is due to the reclaim pond surface which does not extent over the NC-T2 as much than the NC-T1 at the end of the operation of then North Cell TSF. Figures 21 and 22 are presenting data recorded during the last year. This information was used by Agnico to review the water management strategy of the North Cell to promote freezeback of this area until capping is completed which consist of minimizing the water ponding inside the North Cell TSF. As previously mentioned, tailings deposition was completed in the North Cell in summer 2015 and that no deposition occurred in 2016.

Figure 18. Thermistor Results SD1-90-2

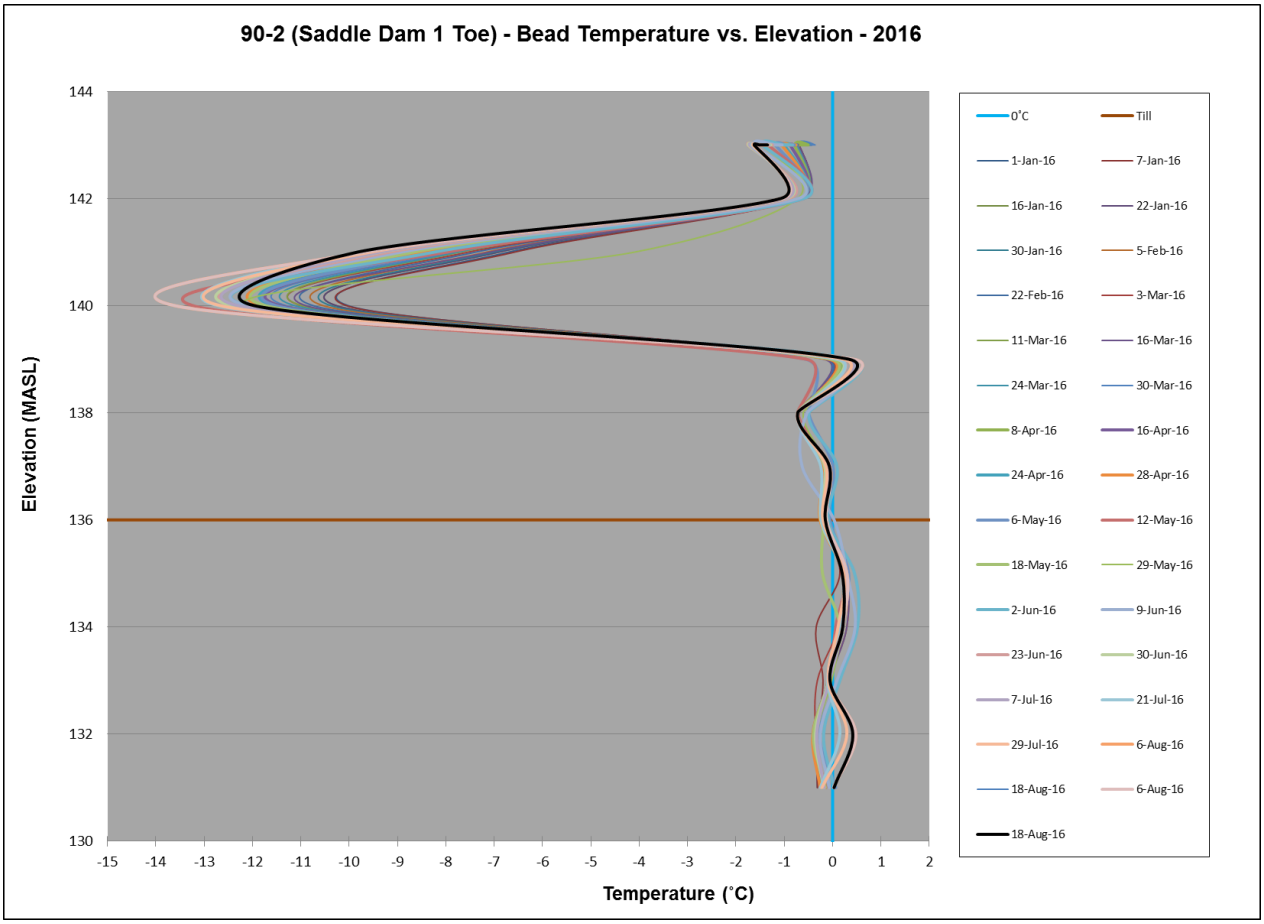


Figure 19. Thermistor Results TSF-SWD-1

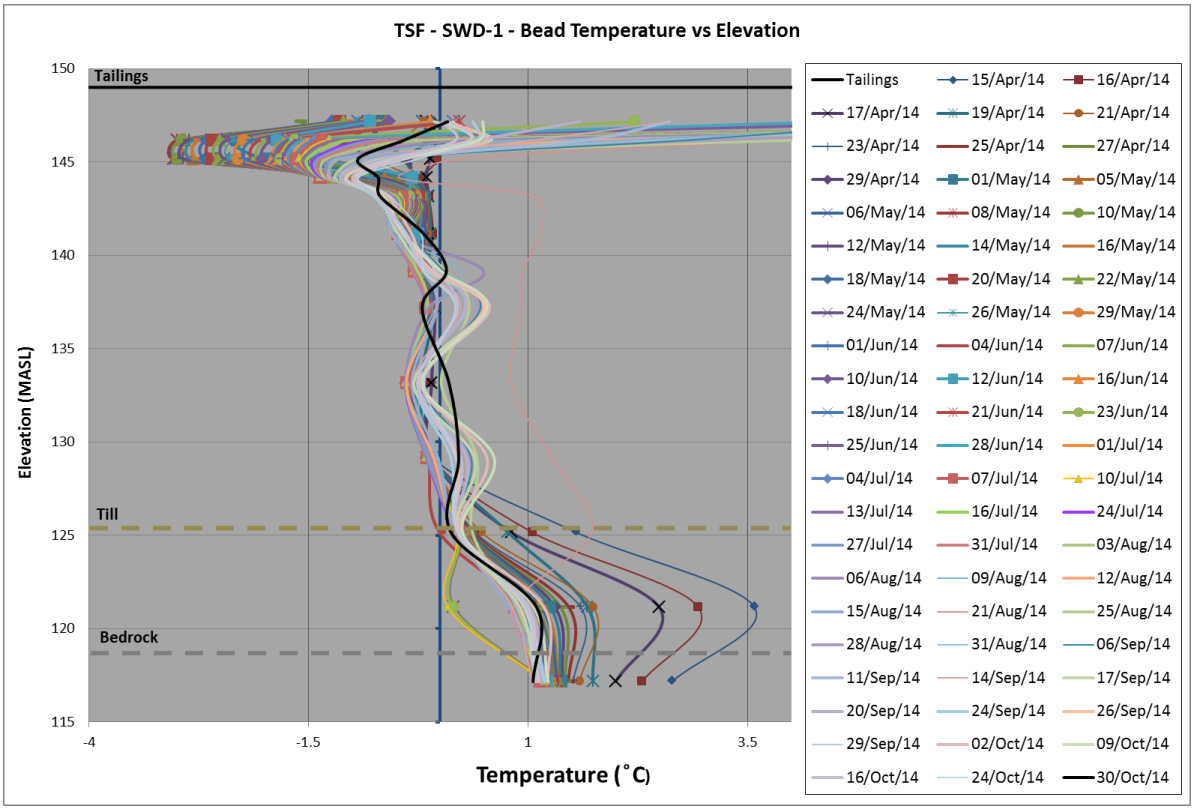


Figure 20. Thermistor Results TSF-SD2-1

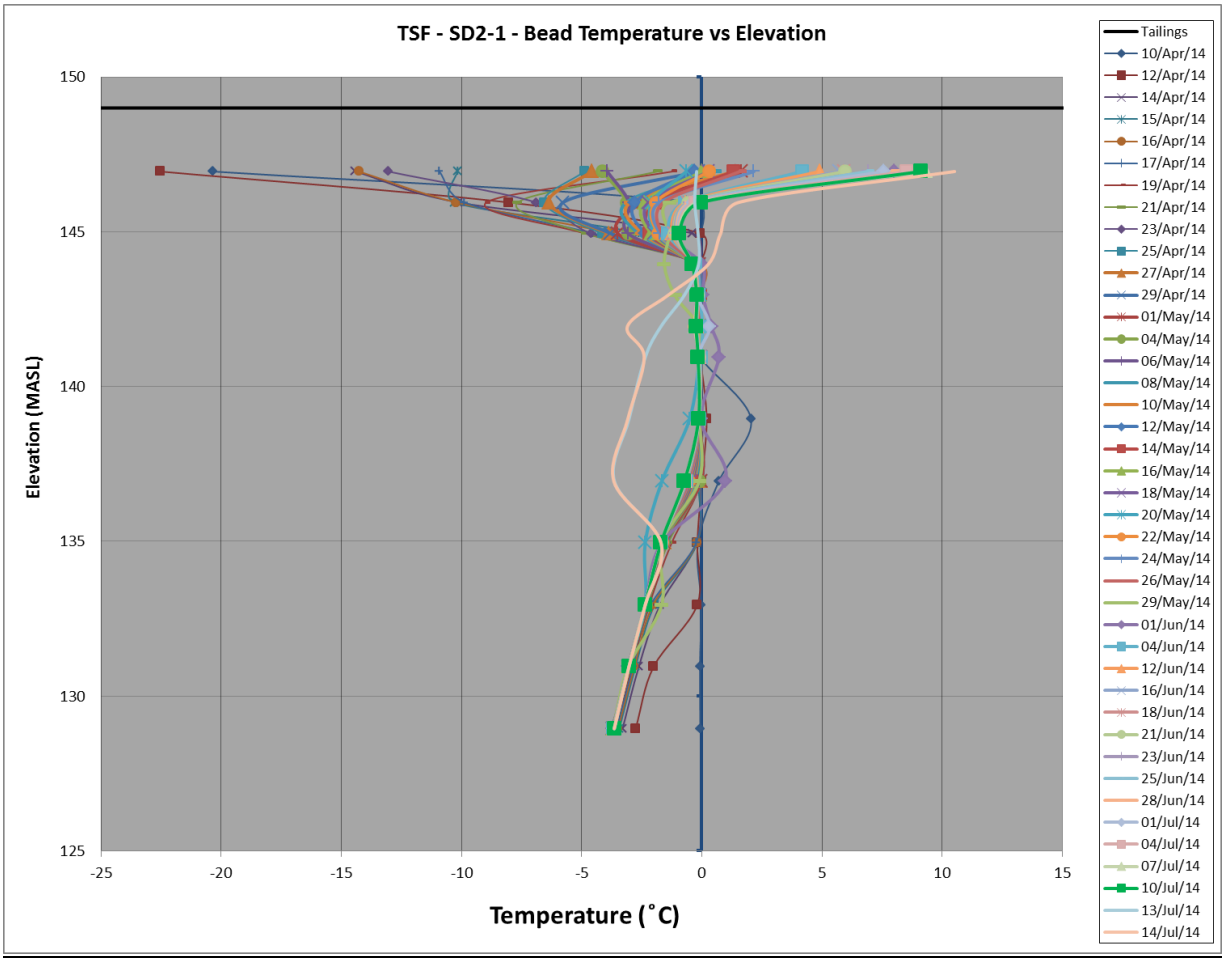


Figure 21. Thermistor Results NC-T1

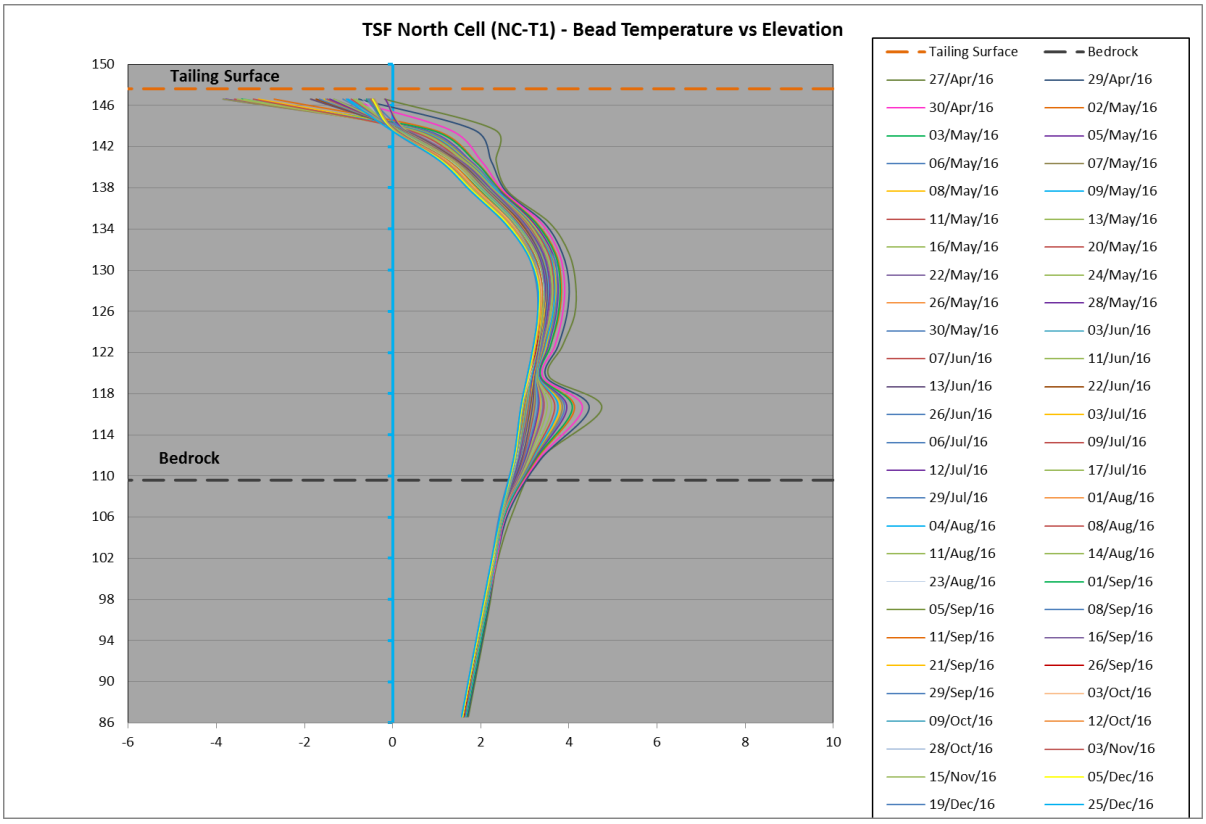
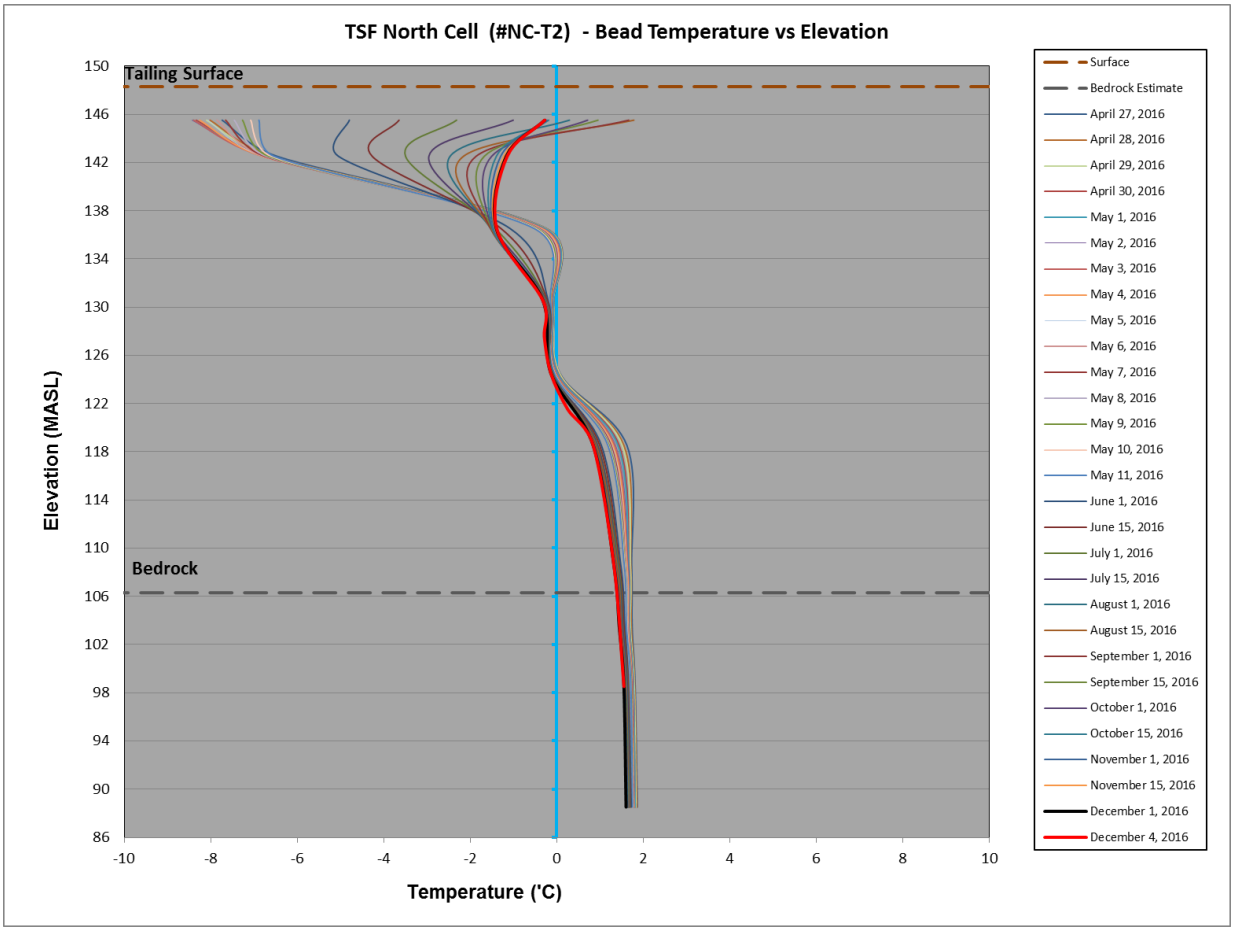


Figure 22. Thermistor Results NC-T2

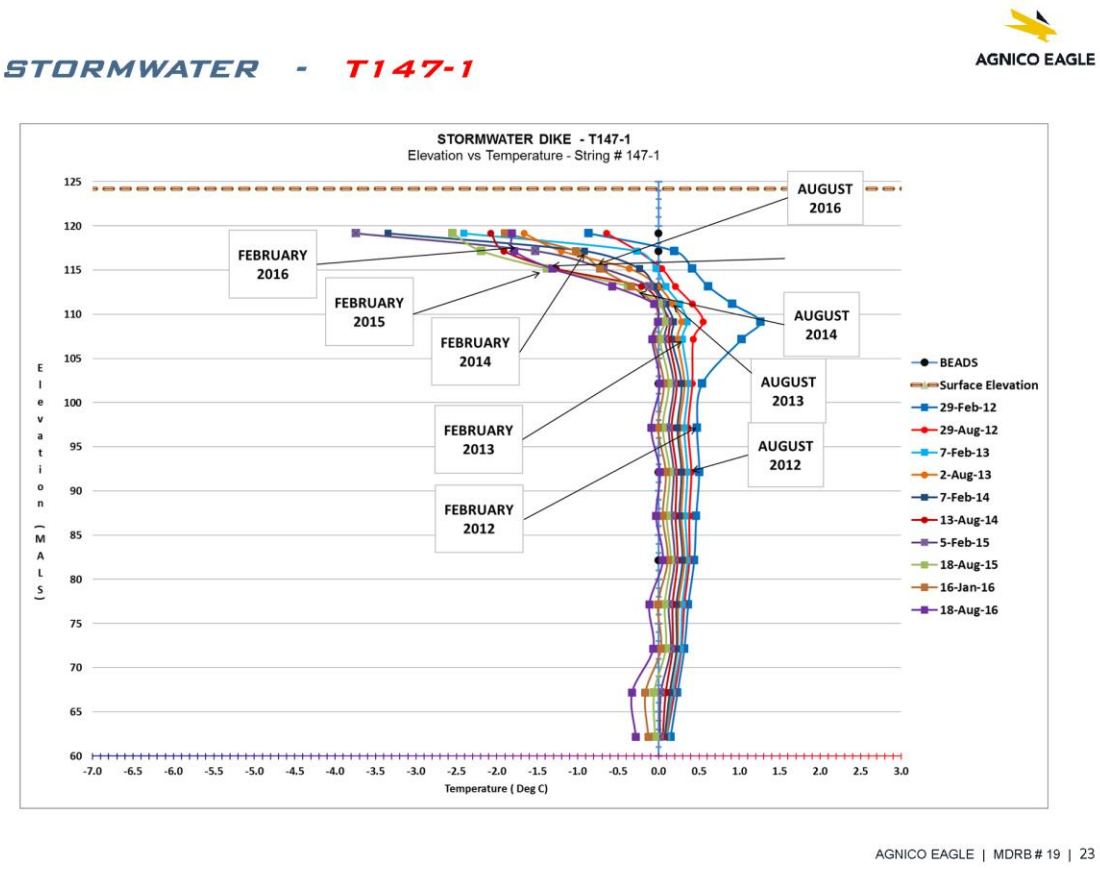


Stormwater Dike

In 2012, Agnico installed a thermistor (T147-1) at the downstream toe of Stormwater Dike. Results for this thermistor can be found in Figure 23. This thermistor is being used to monitor the freezeback of the talik, and in the future will be used to monitor the thermal regime beneath the tailings in the South Cell. Thermistor T147-1 shows the existence of a frozen crust of material from El. 120 m to El. 110 m that stayed frozen during the summer of 2016. Below El. 110 m, the temperature varied between -0.3°C and 0.1°C. This thermistor is located under the active reclaim pond of the South Cell and was not exposed to freezeback conditions since the beginning of the operation of the South Cell. Freezeback will occur once the operation of the South Cell deposition will be completed.

Additional information on instrumentation results for Stormwater dike can be found in the Annual Geotechnical Inspection (Appendix B1).

Figure 23. Thermistor Results SWD-147-1



Central Dike and Second Portage Lake Arm

Thermistors were installed on Central Dike in the winter of 2013 to monitor the dike's performance, and provide information on the permafrost aggradation of Second Portage Lake Arm, along and following construction, operation, and into closure. The instruments installed along the central key trench show thawed conditions within the till and the bedrock and most of the rockfill (except for the presence of an active layer in the upper portion of the dike). The instruments installed along the downstream toe of the final Central Dike footprint indicate that permafrost conditions are developing. Additional thermistors were installed in the area of Central Dike at the end of 2015.

Results and additional information on instrumentation results for Central Dike can be found in the Annual Geotechnical Inspection (Appendix B1).

The thermistor (T147-1) located at the downstream toe of Stormwater Dike is also being utilized to monitor the freezeback of the talik.

Saddle Dams 3, 4, 5

The construction of these structures was initiated in 2015. Instruments were installed in SD3 and SD4 in March 2016 and more are planned to be installed in the following years. The thermal data so far are showing good performance of these structures.

During the construction season 2015 of SD-3, Agnico identify a fault zone under the foundation and the 2016 instrumentation campaign was done in order to evaluate performance of the foundation. It is important to mention that no tailings or reclaim water is ponding so far against the upstream face of SD3. All thermistor are showing that the foundation is frozen from around elevation 123m to 134m. Over this elevation, SD3 is exposed to freeze and taw cycle as showed on Figures 24 to 27. SD3-T4 is showing warmer temperature from elevation 130 to 132m. Investigation will be done by Agnico to understand the thermal behavior. .

SD4 presents the same behavior than SD3 as no tailings or reclaim water is ponding so far against this structure. All thermistor are showing that the foundation is frozen from around elevation 127m to 135m. Over this elevation, SD4 is exposed to freeze and thaw cycle as showed on Figures 28 and 29.

Figure 24. Thermistor Results SD3-T2

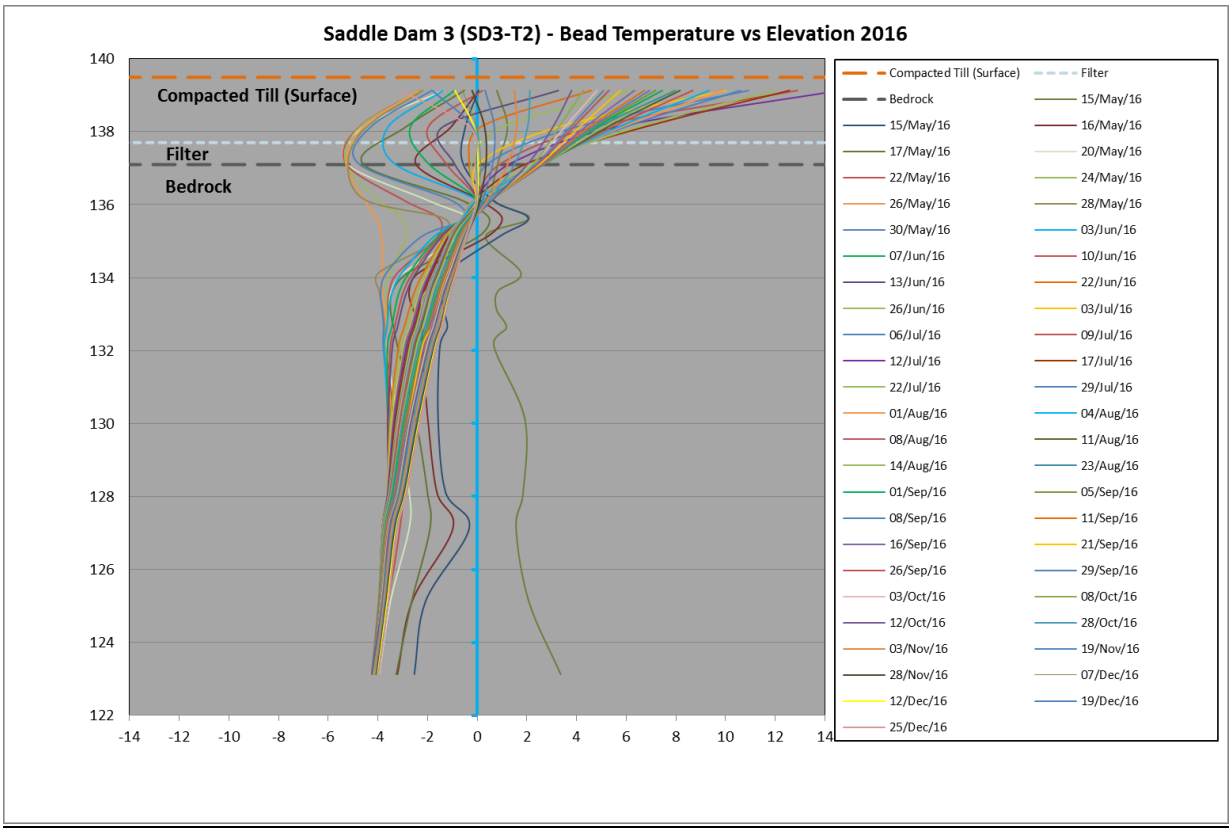


Figure 25. Thermistor Results SD3-T3

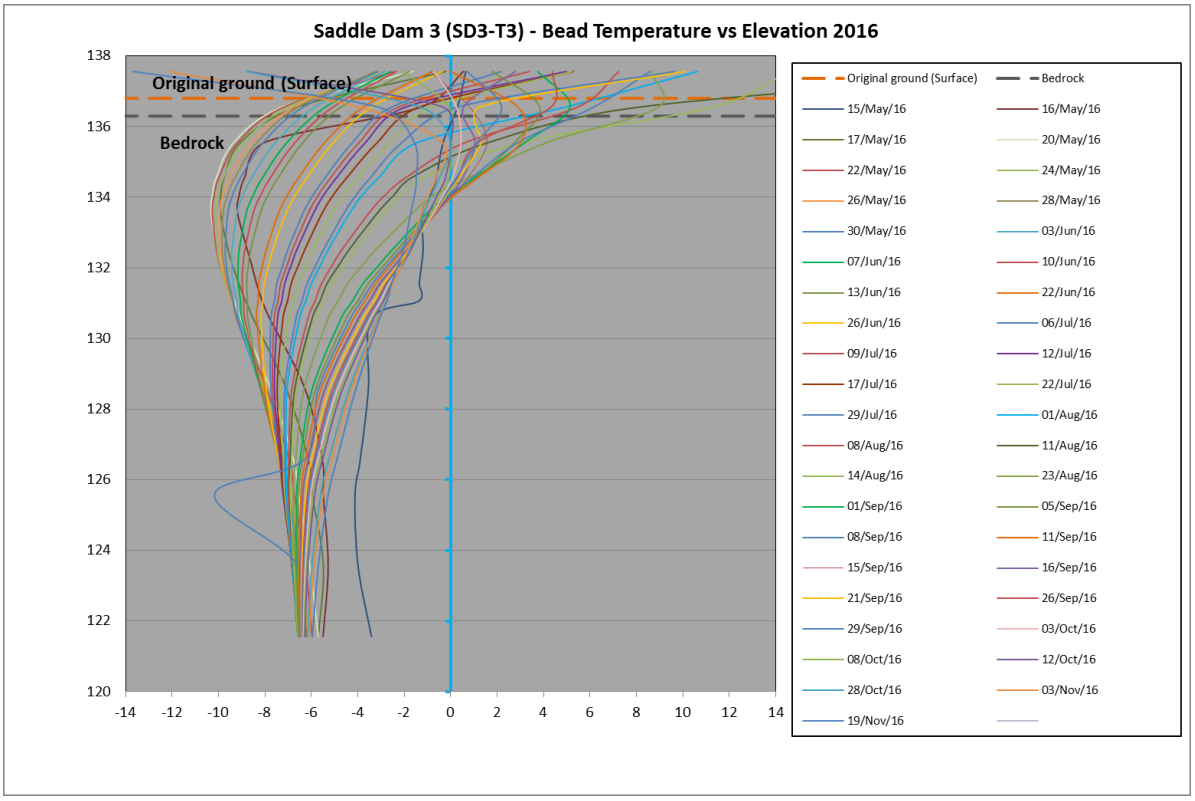


Figure 26. Thermistor Results SD3-T4

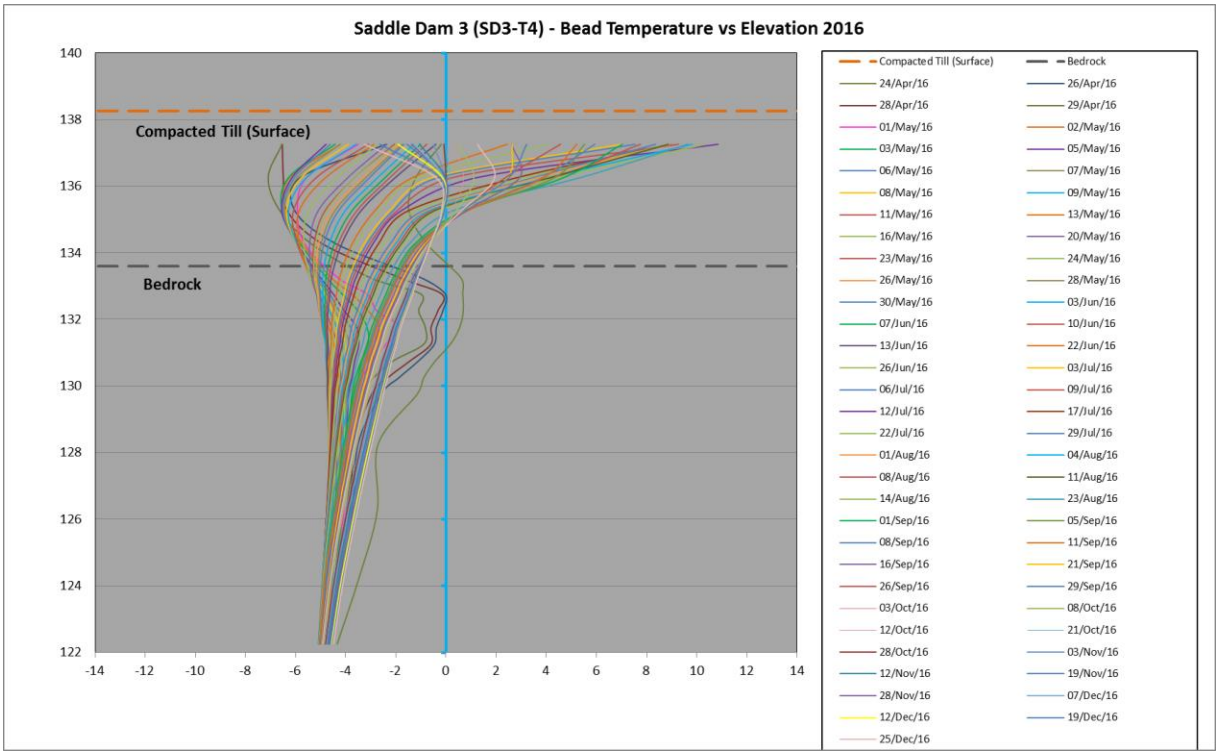


Figure 27. Thermistor Results SD3-T5

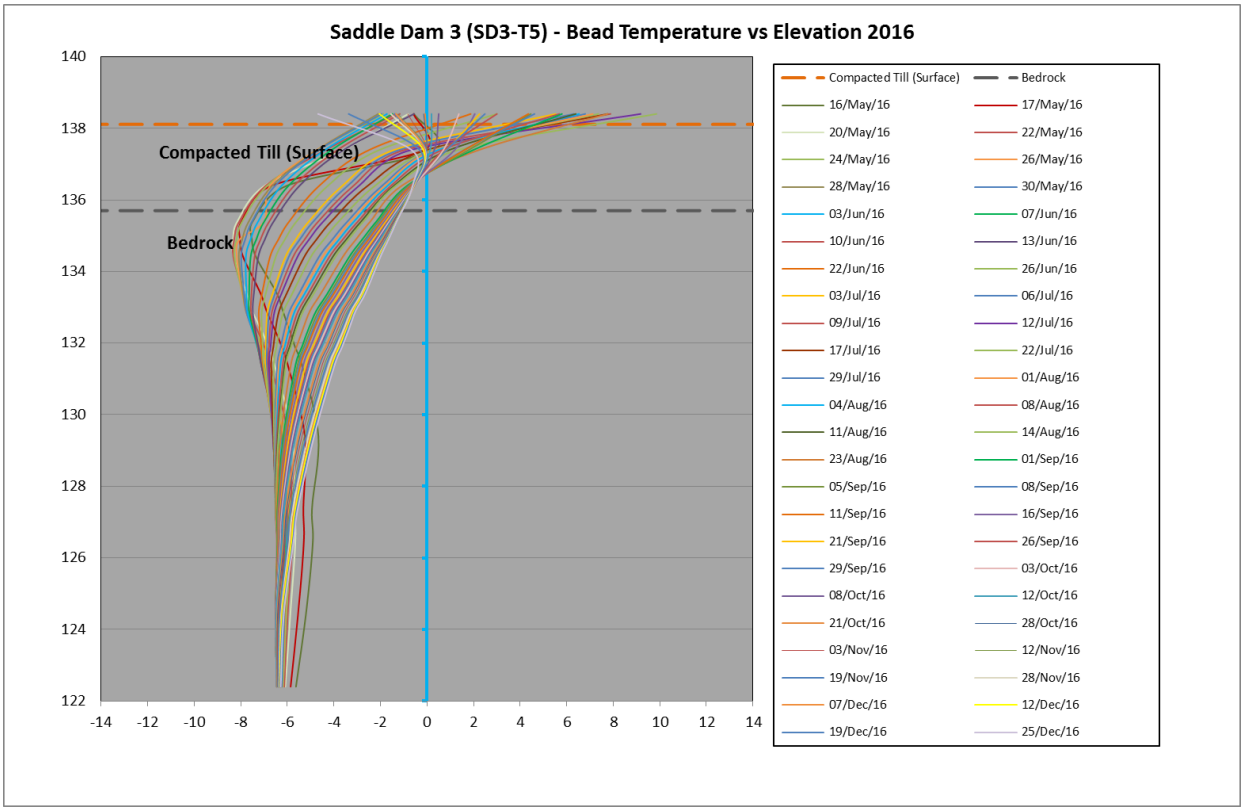


Figure 28. Thermistor Results SD4-T2

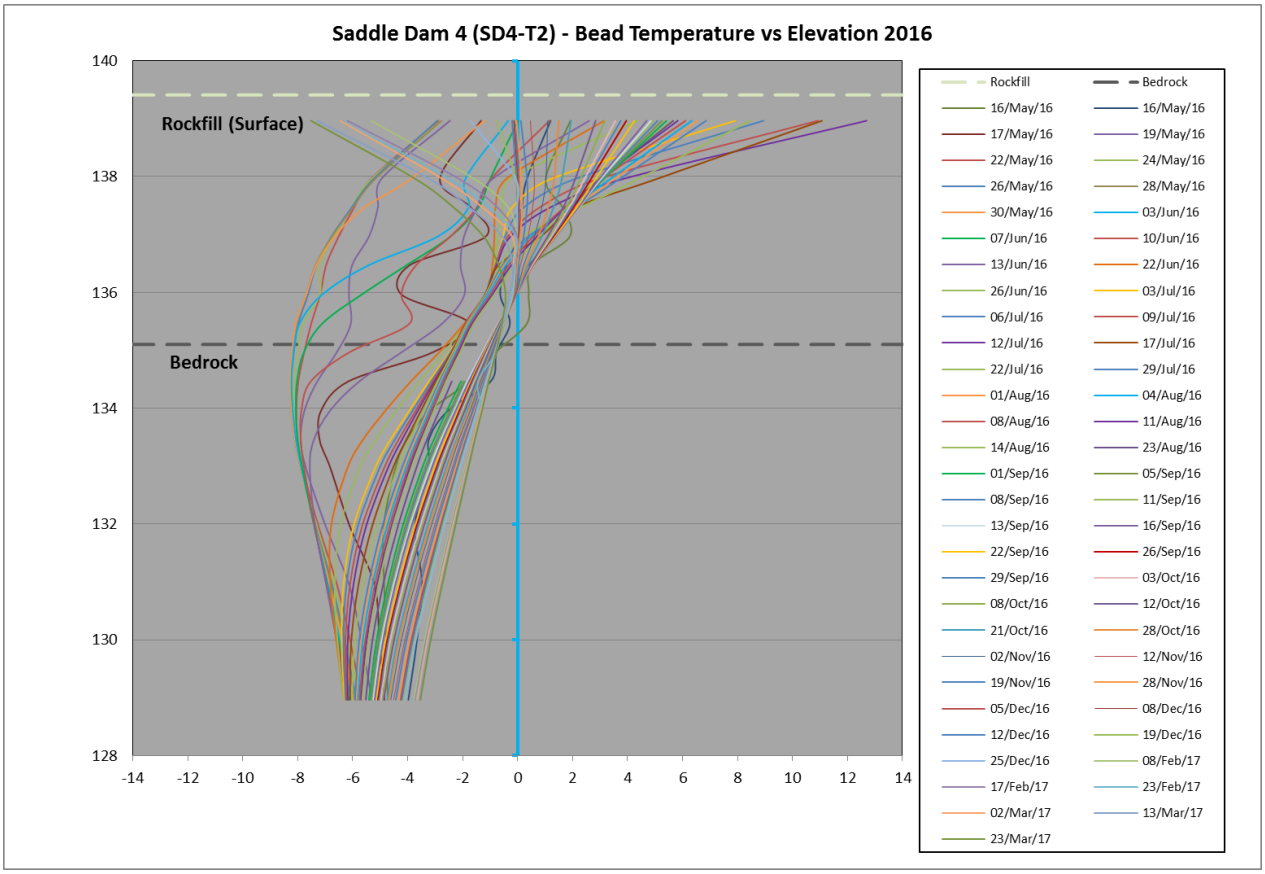
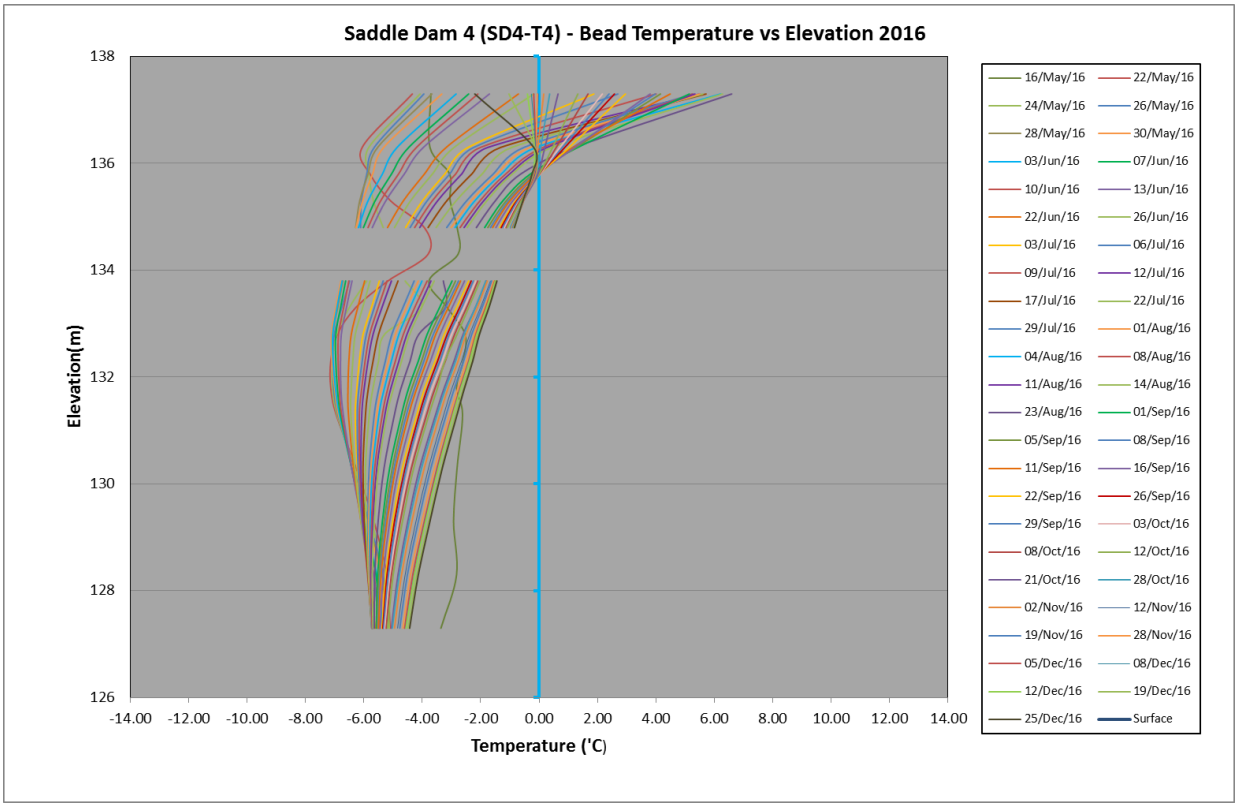


Figure 29. Thermistor Results SD4-T4



Instruments in Rock Storage Facility

Thermistors are also installed in the Waste Rock Storage Facility, to measure the freezeback of the waste rock pile and also to verify the performance of the NAG cover placed over the PAG material in the RSF. Thermistor RSF-1 was installed in February 2013 and RSF-3, RSF-4, RSF-5 and RSF-6 were installed on the RSF in November 2013. Plots of these thermistor data are presented in Figure 30 to Figure 34. No major differences were observed since last year. The results of the thermistor RSF-1 for 2016 indicate that below approximately 5.5 m from the surface, the temperature remains below 0 Celsius all year long. The results of the thermistor RSF-3 for 2015 indicate that below approximately 3.0 m from the surface, the temperature remains below 0 Celsius all year long. Between approximately 28.0 m to 39.0 m from the surface, the temperatures can get close to 0 Celsius and then decrease with depth. The results for the thermistor RSF-3 indicates that below approximately 5.5 m from the surface, the temperature remains below 0 Celsius all year long. The results of the thermistor RSF-4 for 2014-2015 indicate that below approximately 3.0 m from the surface, the temperature remains below 0 Celsius all year long. Between approximately 35.0 m to 65.0 m from the surface, the temperatures are between -1 and 0 Celsius and then decrease with depth. This instrument was damaged in spring 2015. The results of the thermistor RSF-5 for 2015 indicates that below approximately 2.0 m from the surface the temperature remains below 0 Celsius all year long, and at further depth, the temperature remains between 0 and -9 Celsius all year long. The results of the thermistor RSF-6 for 2015 indicates that below approximately 4.5 m from the surface the temperature remains below 0 Celsius all year long, and at further depth, the temperature remains between -1 and -18 Celsius all year long. Agnico will refer you the 2016 Annual Geotechnical Inspection found in Appendix B1.

Figure 30. Thermistor Results RSF1

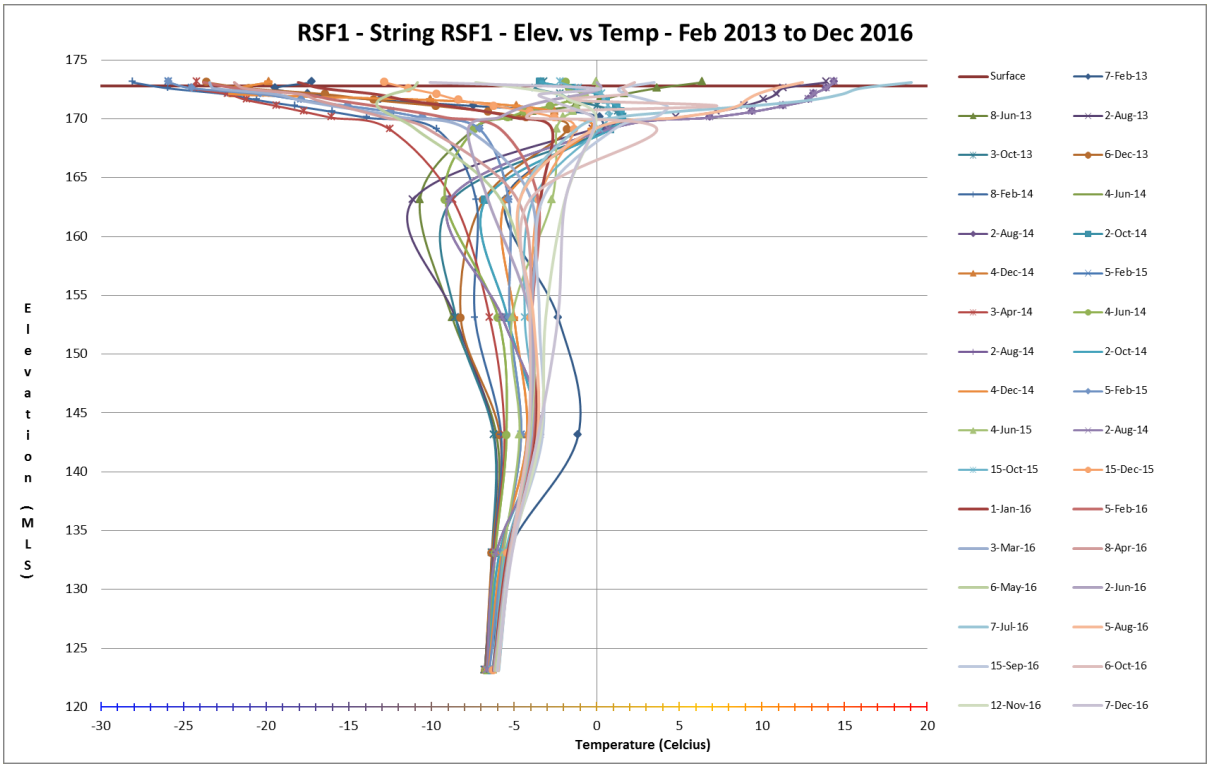


Figure 31. Thermistor Results RSF-3

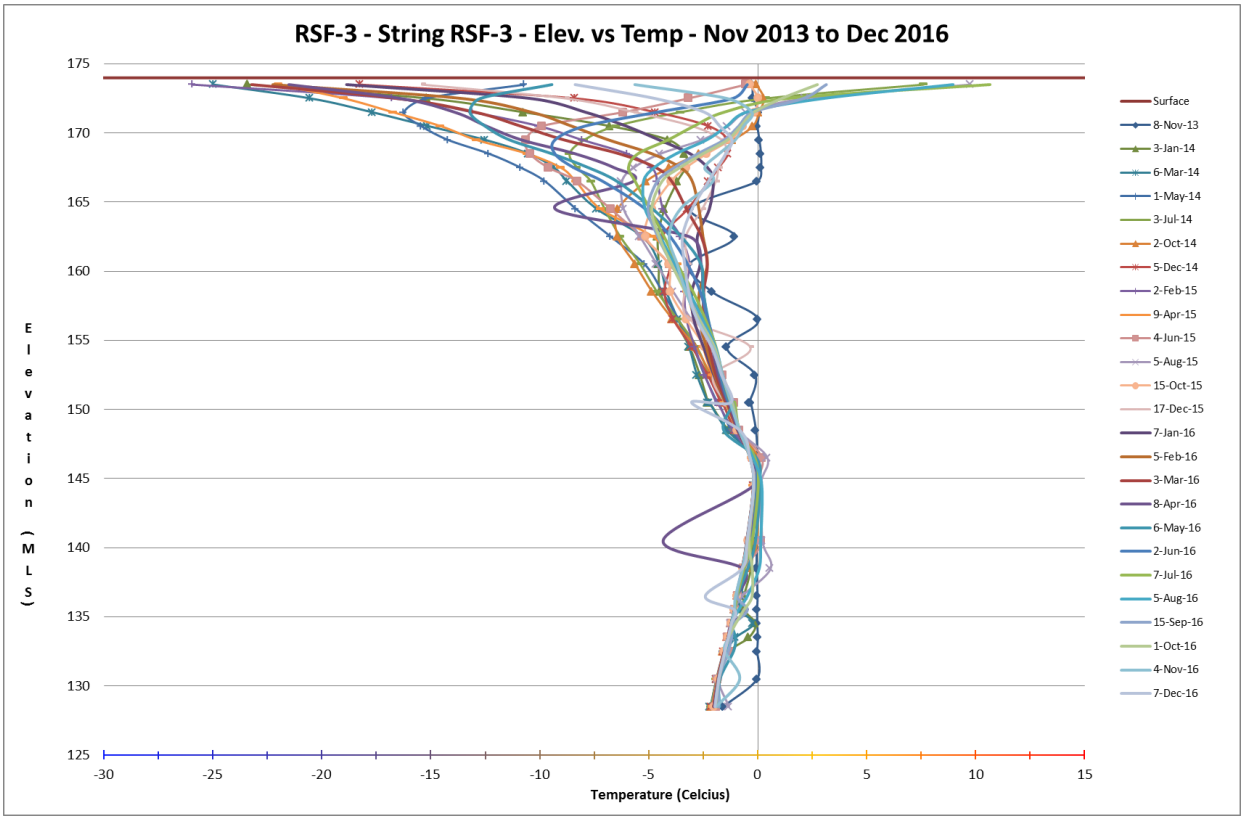


Figure 32. Thermistor Results RSF-4

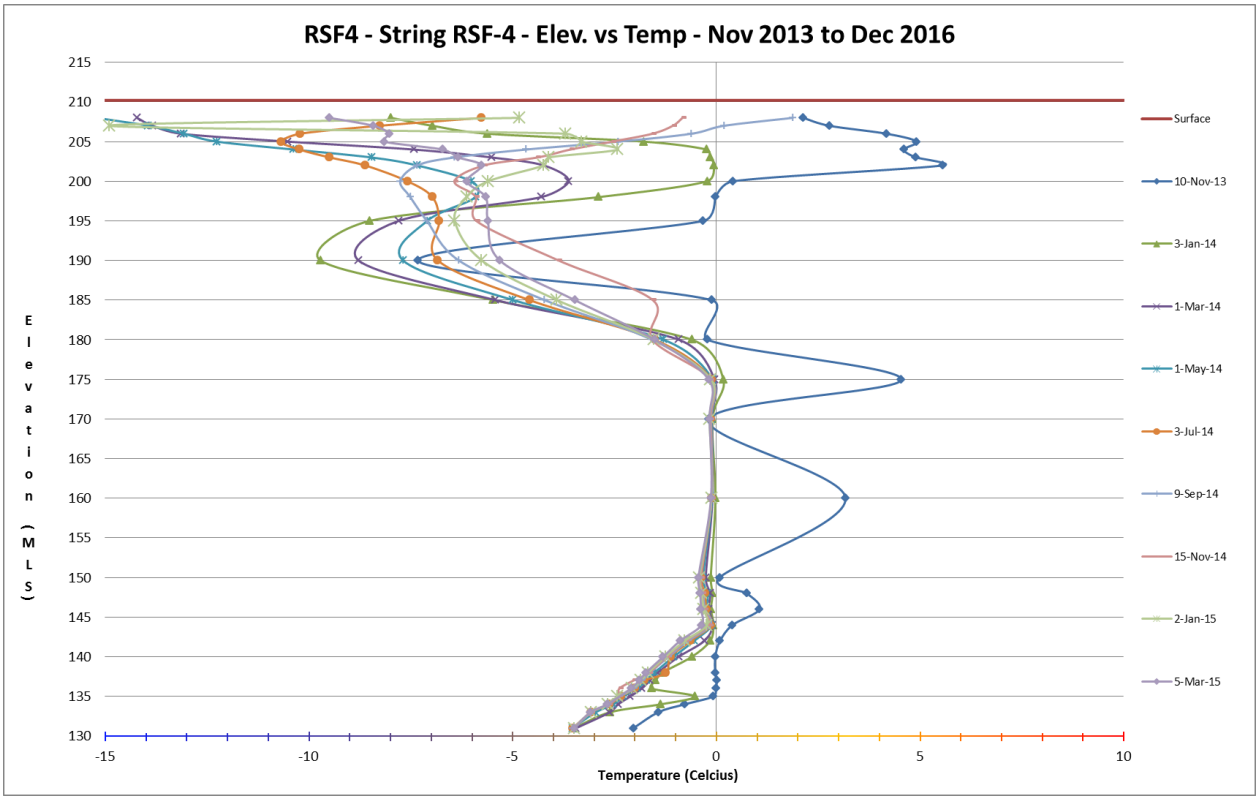


Figure 33. Thermistor Results RSF-5

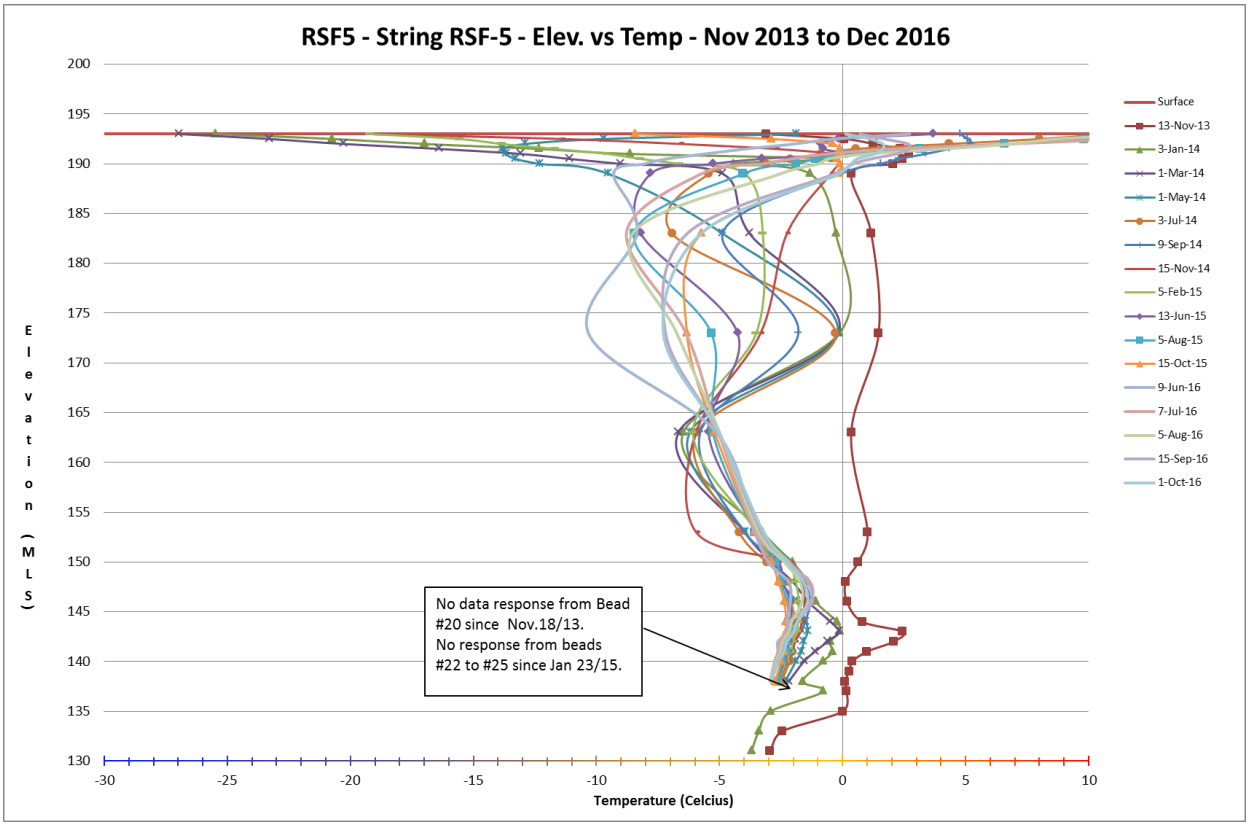
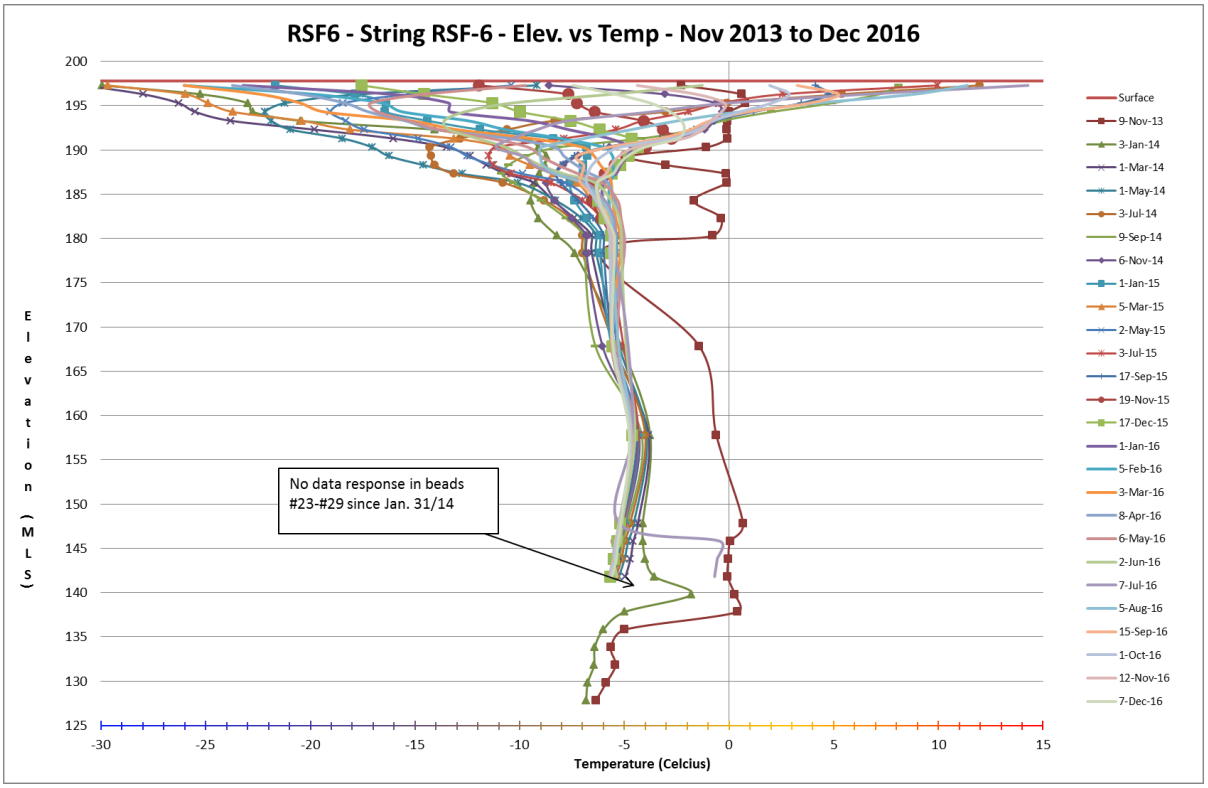


Figure 34. Thermistor Results RSF-6



Instruments in Pits

Portage Pit

No thermistors were installed directly in Portage Pit because of the mining and rock backfilling activities. However, the permafrost aggradation can be monitored with the thermistors installed in the East Dike and Central Dike.

Five thermistors have been installed on East Dike. Since different observations were made for each thermistors please refer to Section 4.1.2 of the 2016 Annual Geotechnical Inspection found in Appendix B1.

As part of the instrumentation in the Central Dike, thermistors, as mentioned, were installed during the winter of 2013 to monitor the dike's performance. These were installed along the west side of Portage Pit. The instruments along the Portage Pit limit show variable results. The bedrock temperature decreases from -6 °C (El. 105 m) to -3.5°C (El. 50 m) at 465-P3, decreases from -8 °C (El. 105 m) to -0.5 °C (El. 60 m) at 650-P3 and is about 1°C at 875-P3. This seems to indicate that a permafrost condition is still developing along the Portage Pit west wall perimeter.

Two additional thermistors were added in the south east section of Portage Pit (Portage Pit E) in June 2016. The instruments show similar bedrock temperature from 0.4°C (El. 12m) to 1.8°C (El. 95m) which is expected due to the presence of the talik prior to mining in this area of the Portage Pit.

Goose Pit

The permafrost in Goose pit can be monitored by the thermistor SD-09-A which is located on South Camp Dike approximately 20 m further upstream within Third Portage Lake. As mentioned in Section 4.2 of the 2016 Annual Geotechnical Inspection found in Appendix B1, this thermistor showed that the temperature profile at SD-09 on the upstream side of the dike shows that the soils located beneath the dike foundation and liner appear to have remained frozen (permafrost) below El. 128 m.

Also, thirty-three thermistors (from T1 to T30 and T3' to T5') are installed on Bay-Goose Dike. Please refer to Section 4.3.2 of the 2016 Annual Geotechnical Inspection in Appendix B1 for a complete review. New thermistors were installed in 2012 between Bay Goose Dike and Bay Goose Pit to monitor aggradation of permafrost. To date, result show that the freezeback is occurring.

Summary of On-Going Field Trials

A research project in collaboration with the Research Institute of Mines and Environment (RIME) was initiated in 2014 at Meadowbank. The Research Institute on Mines and Environment, through the NSERC-UQAT Chair on Mine Site Reclamation, is mandated to evaluate the performance of three field experimental cells constructed in 2014 and 2015 on Meadowbank's North Cell TSF. The three experimental cells that were built on Meadowbank's TSF are two insulation covers and one thermal cover with capillary barrier effects (CCBE).

The tested experimental cells are a 2m and a 4m thick insulation cover as well as a 2m thick cover with capillary barrier effects. The cells were built with coarse and fine non-potentially acid generating (NAG) ultramafic waste rock (soapstone) and are instrumented in order to follow their thermal and hydrogeological behaviors.

Results have been reviewed by the RIME and Agnico. The results of the experimental cells have been used so far in the work for the cover design of the TSF North and South Cell.. Data collection is still ongoing and results will be used in future studies as needed.

Also in collaboration with the RIME, in 2016 a laboratory testing program was developed to obtain a good overview of the effects of freeze/thaw (F/T) and wet/dry (W/D) cycles on the soapstone. The developed experimental program is primarily focused towards the evaluation of the resistance to F/T and W/D of the soapstone to be used as cover materials for the TSF and RSF. Testing was completed to evaluate the effects of F/T and W/D on rock cores and rock slabs, the effects of F/T on various soapstone grain size fractions, and the effects of F/T on the permeability of a compacted soapstone layer. Based on the testing results and weathering criteria available in the literature, it seems that Meadowbank's soapstone has a good resistance to F/T and W/D cycles.

Other laboratory work (such as frost heave or bearing capacity tests) could be conducted in the future if required for other engineering purposes.

SECTION 6. WASTE MANAGEMENT ACTIVITIES

6.1 LANDFILL MONITORING, WASTE ROCK STORAGE FACILITY AND CENTRAL DIKE

As required by Water License 2AM-MEA1525 Schedule B, Item 10*: Summary of quantities and analysis of seepage and runoff monitoring from the Landfills, Waste Rock Storage Facility and Central Dike*.

Seepage and runoff monitoring of the Landfill is discussed below in Sections 8.3.3.17. Seepage and runoff from the Rock Storage Facility and Central Dike are discussed in Sections 8.3.3.11 and 8.3.7.2, respectively.

6.2 GENERAL WASTE DISPOSAL ACTIVITY

As required by Water License 2AM-MEA1525 Schedule B, Item 11: *A summary report of general waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal.*

And

NIRB Project Certificate No.004 Condition 74*: Provide annual report of the quantity and type of waste generated at the mine site distinguishing landfilled, recycled and incinerated streams.*

A monthly summary of the amount of waste transferred to the incinerator in 2016 is included in Table 6.1. More details regarding quantities incinerated can be found in Section 6.3.

Table 6.2 below indicates the volume of waste in m^3 disposed of in each sub-landfill and Figure 35 indicates the location of each sub-landfill used to date. Sub-landfill #8 is currently in operation and sub-landfill #1 to #7 were closed and covered with NPAG waste rock. Based on surveys conducted at the end of each quarter, Agnico landfilled 9,576 m^3 between January 1st 2016 and December 31st 2016.

The waste consists primarily of plastics, fiberglass, wood, cardboard, rubber, clothing and some metal that was not recycled.

Table 6.1. 2016 Volume of waste transferred to the incinerator

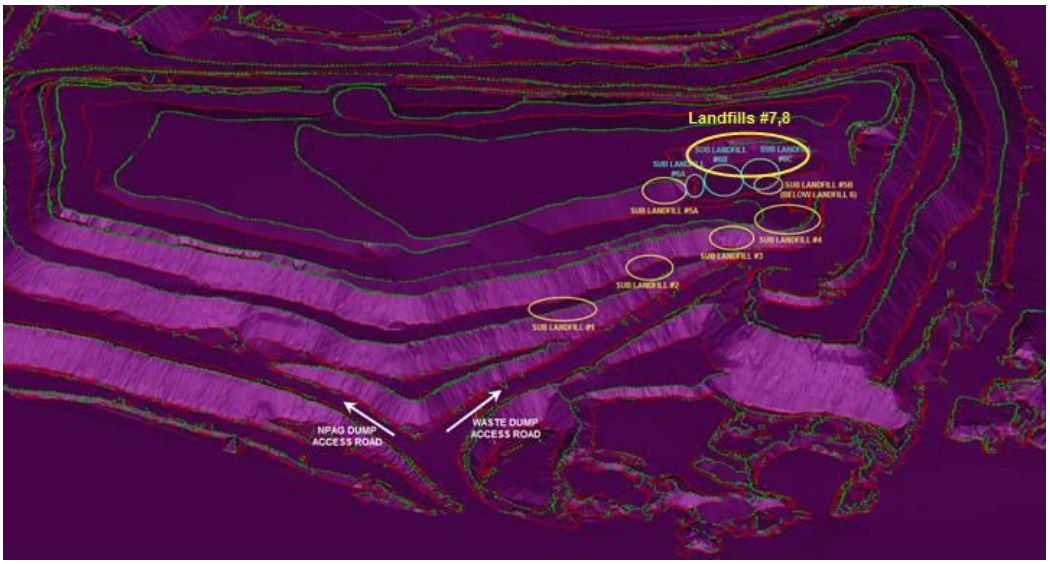
Month	Volume of Waste Sent to Incinerator (m^3)
January	332
February	277
March	210
April	332
May	332
June	310
July	342

August	332
September	332
October	310
November	332
December	342
Total	**3,783**

Table 6.2. Volume of waste disposed in each sub-landfill (from survey)

Landfill	Coordinates (UTM)			Volume (m^3)	Date Covered
	Northing	Easting	Elevation		
#1	7215715.6	638601.5	160	3650	Dec-12-2012
#2	7215795.8	638711.4	186	840	Feb-27-2013
#3	7215743.1	638827.8	195	1656	May-14-2013
#4	7215796.5	638890.9	200	9507	Jan-19-2014
#5A	7206586.1	643115.9	210	3870	Nov-30-2014
#5B	7206586.1	643115.9	210	2768	Mar-13-2015
#6A	7215788.8	638793.3	212	278	Mar-21-2015
#6B	7215789.3	638853.1	212	3260	Sept-05-2015
#6C	7215790.8	638878.1	212	9290	May-20-2016
#7	7215790.8	638878.1	217	4560	Dec 20 2016
#8	7215790.1	638878.4	217	946	In use

Figure 35. Sub-landfill location.



In 2016, a total of 44 sea cans filled with hazmat waste and recyclable material was shipped to an approved waste disposal facility in Quebec. The total weight was 161.05 tonnes. This amount of sea can and total weight do not include the scrap metal, scrap tire and batteries. The sea cans were shipped from the spud barge at Agnico's Baker Lake marshalling facilities to Bécancour, Quebec by sealift. These materials were transported under Waste Manifest #'s HL55788-4 in accordance with the GN Guidelines for the shipment of such waste. Agnico Eagle notices some problems with the manifest tracking during the 2016 shipping season. For this reason, an investigation is ongoing and an explanation letter will be sent to GN by the end of Q2 2017 detailing the conclusion of the investigation and action plan for the next 2017 shipping season. A description of the types of waste, packaging and volume is provided in Table 6.3.

Table 6.3. Waste shipped to licensed hazardous waste companies.

Waste	Drum	Tote	Quatrex	Mass (Kg)
Empty plastic drum	92			2,000
Glycol		28		28,000
Glycol and oil mix		11		11,000
Oil filters	201		1	20,400
Oily solids waste	12		260	78,900
Oily water		1		1,000
Plastic pail lids (SO)			1	100
Sodium Tetra-borate	2			400
Vegetal grease (cooking)	38	1		4,400
Waste grease	103		3	10,650
Waste paint			14	4,200
TOTAL	**448**	**41**	**279**	**161,050**

In 2016, Agnico Eagle generated approximately 11,343 tonnes of waste. This represents 76.5% of general waste disposed in the landfill, 4.8% of organic waste disposed in the incinerator, 17.3% of waste recycled on and off-site, and 1.4% of industrial/hazardous waste sent to an approval facility off-site. As shown of Table 6.4 below the percentage of waste recycle, disposed on site or off-site are very similar to last year.

Table 6.4. Percentage of Waste disposed in 2015-2016

Waste	2015 Weight (tonne)	2016 Weight (tonne)	2015 % of total waste	2016 % of total waste	Disposal / Recycling location
General	8,561	8,672	74.9	76.5	Landfill On-site disposal
Organic	545	541	4.8	4.8	Incinerator On-site disposal
Industrial/Hazardous	289	161	2.5	1.4	Off-site disposal + recycling
Waste oil	358	280	3.1	2.5	On-site recycling
Steel	1,449	1,550	12.7	13.6	Off-site recycling
Wood	88	55	0.8	0.5	Baker Lake recycling
Batteries	38	17	0.3	0.1	Off-site recycling
Tire	97.3	67	0.9	0.6	Off-site recycling
Total	**11,425**	**11,343**	**100**	**100**	

Several projects for waste reduction/recycling were undertaken or were ongoing in 2016 at Meadowbank:

- Recycling of used protective personnel equipment (PPE) ongoing
    - The objective of the Used PPE Project is to provide a second life to reusable PPEs. With the collaboration of all departments, Agnico collected used PPE around the Meadowbank site to create a used PPE inventory. This used PPE is now reused instead of ordering new equipment and disposing of reusable materials in the landfill. This initiative has been successful in reducing waste sent to landfill and as an overall cost saving measure.
- Waste oil recycling plan
    - Agnico has an existing waste oil reuse plan. In 2016 Agnico reused approximately 317,660L of waste oil as a fuel source in the on-site incinerator (49,890L) and in waste oil heaters (267,770L). Table 6.6 provides a breakdown of the volume of waste oil incinerated by month. All waste oil produced in 2015 was kept onsite, filtered and reused. Agnico is planning on continuing to reuse all waste oil produced in 2016 during 2017. The project to separate glycol and water from waste oil was integrated into standard practice and as contributed to increase waste oil availability for re-use on site.
- Steel Recycling
    - A total of 1,550 tonnes of steel was packaged and transported south for recycling. This material was removed from our solid waste stream and not landfilled on site.

- Aluminum Recycling

    - In 2016, aluminum pop cans were donated to local groups as was done in 2014. It is anticipated that these will be donated in 2017 to a local charity or shipped south for recycling.

- Wood Recycling

    - In 2016 the Meadowbank Environmental Committee continued an initiative to start a used wooden recycling program with the community of Baker Lake. Used pallets and wood that were free of contamination, were stored at the Meadowbank site in sea cans. Sea cans, once full, were taken to the local high school's Carpentry department (Jonah Amitnaaq Secondary School). The teacher of this department planned projects for students, utilizing the free wood supplied by Meadowbank. In 2015, a mini-golf course was built. In 2016, student is being built cabin with recycled wood as show on Figure 36 below. In 2016, a total of 55 tonnes of used wood were sent to the community of Baker Lake.

- Battery recycling

    - In 2016, 16.8 tonnes of batteries were shipped south and recycled in an accredited facility.

- Tire recycling

    - In 2016, 66.6 tonnes of scrap tire were shipped south and recycled in an accredited facility.

Figure 36. Cabin being built by carpentry students of Jonah Amitnaaq Secondary school with recycled wood.

6.3 INCINERATOR

As per Water License 2AM-MEA1525 Schedule B, Item 12: ***Report of Incinerator test results including the materials burned and the efficiency of the Incinerator as they relate to water and the deposit of waste into water.***

And

NIRB Project Certificate No.004 Condition 72: ***On-site incinerators shall comply with Canadian Council of Ministers of Environment and Canada-Wide Standards for dioxins and furan emissions, and Canada-wide Standards for mercury emissions, and AEM shall conduct annual stack testing to demonstrate that the on-site incinerators are operating in compliance with these standards. The results of stack testing shall be contained in an annual monitoring report submitted to GN, EC and NIRB's Monitoring Officer.***

The incinerator was in operation throughout 2016. The incinerator daily report logbook is included in Appendix E1 and covers all months of the year. Based on the data, approximately 50% of the material incinerated was food waste; the other 50% was dry waste comprised of food containers, cardboard boxes, paper and absorbent rags. In 2016, a total of 545 tonnes burn in the incinerator. The location of the incinerator is highlighted in Figure 1.

Maintenance work was conducted at the incinerator in 2014 and 2015. Work conducted was designed to maximise heat in the primary and secondary chambers to enhance gas burning. In June 2014, maintenance was conducted on both chambers of the incinerators. In the primary chamber, ceramic fiber blocks used as refractory material were replaced by firebricks on all walls excluding the ceiling. In February 2015, the first phase of the secondary chamber renovation was conducted. Firebricks were installed at the burner end of the chamber and on portions of the inner wall of the chamber. This work was continued in October 2015. In 2016, no major work other that regular maintenance was conducted on the incinerator.

In 2016, there were no recorded temperatures below 1,000ºC in the secondary chamber. Agnico considers that maintenance work conducted at the incinerator in 2014, 2015 and 2016 was effective in improving efficiency of the unit. Agnico will continue monitoring temperatures in the secondary chamber and conduct additional improvements at the incinerator if necessary.

As per discussions with Environment Canada, the frequency of stack testing changed in 2012 to every other year. Results from the 2014 test indicated that mercury level average (64.09 µg / Rm³ @ 11 % v/v O_2) exceeded the Environment Canada guideline (20 µg / Rm³ @ 11 % v/v O_2) during the incinerator stack testing. As a result an investigation with Meadowbank's Energy and Infrastructure department was performed to determine the potential sources of this exceedance. Although Agnico had an alkaline battery recycling program, the investigation revealed that there could be a significant volume of batteries disposed of along with regular solid waste destined for the onsite incinerator. As a result, Agnico committed to conduct confirmatory stack testing in the summer of 2015 and implemented a comprehensive site wide information program to reinforce the requirements of the battery recycling program. It was also determined that a possible source of batteries going to the wrong disposal route was ones used around the living/camp facilities. Thus, the information provided to employees included flow chart on disposal within camp use. Information was posted on the Agnico intranet site, was discussed during meetings conducted by the Environmental Department and copies of the proper batteries disposal charts were distributed in all the dorm wings. This flowchart describes how batteries should properly be disposed of onsite. Eighteen (18) meetings were held regarding this issue. Waste management technical memos were also published on Agnico intranet and sent to all contractors and employees.

The number of quatrex of batteries backhauled in 2016 (Table 6.5) confirms the ongoing segregation efforts were effective at reducing the number of batteries burnt in the incinerator.

Table 6.5. Number of quatrex of batteries backhauled

Year	Quantity (unit)
2013	29
2014	12
2015	34
2016	20

In accordance with Agnico's Incinerator Waste Management Plan, stack testing was conducted from June 30 to July 3, 2016 by Consulair. The "Stack sampling tests Report" is provided in Appendix E2. Results from the 2016 test indicated that mercury level average (of 3 tests) were well below (<0.46 µg / Rm³ @ 11 % v/v O_2) the Environment Canada guideline (20 µg / Rm³ @ 11 % v/v O_2) during the incinerator stack testing. Agnico is of the opinion that actions taken were effective at addressing high mercury levels in stack testing. Agnico will continue its efforts to ensure batteries used on site are recycled adequately. The dioxin and furans results (0.033 ng TEQ / Rm³ @ 11 % v/v O2) are well below the ECCC guideline (0.08 ng TEQ / Rm³ @ 11 % v/v O_2). However, even if the applicable standard for dioxins and furans (PCDD/F) were met during tests # 1 and # 3 and the average test result met the standard, test result #2 did not meet the standard. Since it didn't exceed 20% of the standard, the results is considered within limits by the specialized consultant hired to proceed to the testing and analyse results. The average being below criteria for the three tests, it was considered valid by their assessment.

As per KIA recommendation regarding the 2015 Annual report: "*Agnico should implement more frequent stack testing if the biennial monitoring reveals exceedances in mercury, dioxin and/or furan emissions*". Agnico Eagle agrees and already increased the stack testing frequency when the mercury exceedance occurred in 2014. Additional stack testing were done in 2015 and 2016 and results are all below the emission standard. Canada-wide Standards (CWS) for Dioxins and Furans and the CWS for Mercury Emissions states that "where five years data has been accumulated with all results reported below the Level of Quantification (emission standard), the stack testing frequency may be revised to a biennial schedule". In order to be compliant with these recommendations, Agnico Eagle will complete stack testing in 2017, 2018 and 2019. The stack testing frequencies will then return to biennial if all results are below the emission standard following ECCC approbation. Agnico Eagle will include clarification on stack testing frequency into the next revision of the Incinerator Waste Management Plan.

In 2016 Agnico monitored the ash quality twice a year as stated in the Incinerator Waste Management Plan. The purpose of sampling ash is to determine its acceptability for disposal in the landfill, pursuant to the GN Environmental Guidelines for Industrial Discharge. Following sampling conformity, ash was disposed of in the landfill instead of TSF for the whole 2016. Samples were collected from the incinerator on January 4 and June 13. Results contained in Table 6.6 indicate no exceedance of Environmental Guidelines for Industrial Discharge. Agnico will continue to monitor the ash quality bi-annually in 2017.

In 2016, approximately 49,890 L of waste oil was burned in the incinerator. Volumes of waste oil reused as fuel in 2016 are presented in Table 6.7.

No sampling frequency for waste oil is specified in the GN Environmental Guideline for Used Oil and Waste Fuel (2012). To ensure compliance with the Guideline parameters, Agnico sample the waste oil feedstock twice a year. This data is presented in Table 6.8. In 2016, Agnico take 3 samples of waste oil as the one taken in February 2016 show an exceedance of Total Halogen. As all of the other regulatory parameters are within the historic range, Agnico believes that there is a laboratory analysis error. For this reason, another sample was taken in June 2016. With the exception of the February Total Halogen result, all metals and PCB parameters met the GN Environmental Guideline.

Table 6.6. 2016 Incinerator Ash Monitoring

Parameters	Units	Guideline for Industrial Waste Discharge*	Mine Site Incinerator	Mine Site Incinerator
			1/4/2016	6/13/2016
Arsenic	mg/L	2.5	0.0151	0.0409
Barium	mg/L	100	2.0480	0.0314
Cadmium	mg/L	0.5	0.0092	0.0023
Chromium	mg/L	5	1.4480	0.0286
Lead	mg/L	5	0.4167	<0.0005
Mercury	mg/L	0.1	0.00016	0.00188
Selenium	mg/L	1	0.002	0.010
Silver	mg/L	5	<0.0005	<0.0005
Zinc	mg/L	500	0.835	<0.001

Footnotes: * Government of Nunavut Environmental Guideline for Industrial Waste Discharges (D of SD, 2011).

Table 6.7. Volume of waste oil incinerated or consumed at the Meadowbank site.

Month	Volume of Waste Oil Incinerated at the Incinerator (m^3)	Volume of Waste Oil Consumed in the Furnace (m^3)*
January	1.75	50.63
February	2.85	37.70
March	1.50	40.29
April	1.95	31.80
May	4.60	16.73
June	2.40	3.95
July	6.75	0
August	5.84	0
September	6.65	0
October	4.80	5.00
November	5.50	45.00
December	5.30	36.68
Total	**49.89**	**267.77**

Table 6.8. 2016 waste oil monitoring

Parameters	Units	Maximum Allowable Concentration *	12-Jan-16	2-Feb-16	6-June-16
Cadmium	mg/L	2	< 1	< 1	< 1
Chromium	mg/L	10	< 1	< 1	< 1
Lead	mg/L	100	< 5	< 5	< 5
PCB	mg/L	2	< 1	< 1	< 1
Total Halogen	mg/L	1000	113	1408**	392
Flash point	^{o}C	≥ 37.7	> 80	> 80	> 80

Footnotes: * GN Environmental Guideline for Used Oil and Waste Fuel (GN, 2012)
** Exceedance probably related to laboratory analysis error

6.4 ADDITIONAL INFORMATION

As required by Water License 2AM-MEA1525 Schedule B, Item 25: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

The Board did not request any additional details on waste disposal in 2016.

SECTION 7. SPILL MANAGEMENT

As per Water License 2AM-MEA1525 Schedule B, Item 13 ***A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.***

A summary of all unauthorized discharges that were reported to the GN Spill hotline in 2016 is presented in Table 7.1. Non–reportable spills can be found in Table 7.2 This data was also included in monthly monitoring reports submitted to the NWB. GN Spill Reporting Forms and the follow up report as requested by the Water License 2AM-MEA1525 Part H, Item 8 for reported spills are included in Appendix F1.

In 2016, thirty-four (34) spills were reported to the GN Spill hotline. Eighteen (18), twelve (12), sixteen (16), seven (7) and, nine (9) spills were reported in 2011, 2012, 2013, 2014 and, 2015 respectively. Agnico also see a significant increase in the non-reportable spills between 2014 and 2015 and between 2015 and 2016. Sixty-eight (68), eighty-two (82), eighty-five (85), sixty-three (63), one hundred forty-eight (148) and three hundred seventy-four (374) non-reportable spills were reported internally to the Environment Department in 2011, 2012, 2013, 2014, 2015 and 2016 respectively. Agnico acknowledges that there is a significant increase in the number of reported spills. All spills reported internally and to regulators are managed appropriately on site according to Agnico's Spill Contingency Plan. Spills are contained and cleaned, contaminated material is disposed of in the appropriate area (landfarm, TSF, if required), and the clean-up actions are monitored closely by the Environment Department. There was no off site impact to any watercourses as a result of spills in 2016. As mentioned in the 2015 annual report, the spill frequency increase was addresses within a Spill Reduction Action Plan started in 2016 and is still ongoing. To the initial factors identified was also added equipment wear to explain the overall spill increase, in addition to improvement in reporting and monitoring of the spills. Operator awareness and pre-operational checking of equipment may also be contributing to the increase in spills. The combination of the mentioned contribution factors serves as the basis of the rationale behind the variations noted in 2015 and 2016. Within the action plan, increased data gathering needed for proper assessment was initiated. The involvement of the concerned stakeholders was provided and regular meetings held. This includes a review of current practices, operations and any other relevant matters the action plan may reveal. A team of personnel from the Maintenance, Mine operations, Environment and Strategic Optimization departments is investigating ways to reduce spills at Meadowbank. A KPI was developed to monitor and follow the situation. The action plan detail is provided in Appendix F2.

All spills reported internally and to regulators are managed appropriately on site according to our spill contingency plan. Spills are contained and cleaned, contaminated material is disposed to the appropriate area (landfarm, TSF if required) and the clean-up actions are monitored closely by the Environment team.

To prevent and ensure all spills are reported internally, spill prevention training was provided to employees in 2016. Training activities include the following:

- All employees and contractors must participate in an induction session online prior to the arrival at the mine site, which includes a training section on spill management (prevention, reporting and cleaning). In 2016, 803 induction training was given to new employees, visitor and contractors;

- Every employee and contractor who operates a vehicle on site must participate in training on vehicle operation. Spill management is a component of this training session;

- 14 toolbox meetings were given by the Environmental Department to different departments at Meadowbank. Topics during the meetings included spill reporting, spill response. Departments receiving these toolbox sessions included security, powerhouse, warehouse, mine, mill, maintenance, site services, camp, kitchen, FGL maintenance and others (housekeeping, Arctic Fuels, etc.);

- Personnel at the Baker Lake Marshalling facility were given an information/training session on how to react to a major spill at the Baker Lake Bulk Fuel Storage & Marshalling Facility in July 2016. Among these personnel were Marshalling Area Supervisors, Warehouse Technicians, Environmental Technicians, and contractors from Intertek. This training was provided by the Environment Department.

- A mock spill exercise was complete in October 2016 at the Baker Lake Marshaling facility. The scenario was a leaking flange at the transfer valve. The secondary containment under the transfer valve had overflowed and was leaking diesel fuel into the tundra and towards the shoreline. The exercise was conducted with Agnico crew and Intertek staff. From this, much knowledge was gained and several action items and changes were implemented to ensure a better reaction but above all to ensure better prevention.

Table 7.1. 2016 spills reported to the GN 24Hr spill OnLine.

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Spill report number
January 1, 2016	High Calcium Quick Lime	400 kg	Lime sea-container, outside by mill door B	Lime bag felt on the ground during transportation with tele handler because of uneven ground. When trying to pick the lime bag back, the handle of the bag ripped and lime spilled on the ground (1/4 of the bag).	Lime on the ground was picked up by the skid steer bucket and remainder was shoveled. The lime was put in the tailings area in mill and washed into the sump. The bag was taped and the rest of the lime was used at the mill.	2016-002
January 2, 2016	Grey Water	Over 100L	Underneath Kitchen	Broken 4" fernco coupling on the steam pot drain p-trap (not enough support on piping) underneath the kitchen (drain for grey water)	The sucker truck was used to remove contaminated soil. The broken coupling was fixed and support was added. Javex was vaporized to eliminate odours. On the road, contaminated snow was picked up and brought to the TSF. A containment berm was built.	NA
January 23 2016	Hydraulic oil	300 L	Pit E3	Broken hydraulic hose on backhoe.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin. Hose was fixed.	2016-025
January 24 2016	Diesel fuel	150 L	Portage Pit E3	Roll off truck operator backed up in rock puncturing fuel tank.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.	2016-027
January 25 2016	Coolant	250 L	Vault dump phase 2	One of the major coolant hoses had a failure and the coolant system flushed on the ground while going uphill on the Vault hauling road.	Contaminated material was contained, collected, and brought to the tailings storage facility.	2016-028
February 4, 2016	Hydraulic oil and diesel fuel	150L/80L	Vault Ring road	An incident involving a tow truck caused a spill due to a punctured fuel tank and broken hydraulic hose.	Absorbent pads and secondary containment put and after that, the soil was scraped and brought to the landfarm	2016-034
March 12, 2016	Sewage	625 m^3	Stormwater Management Pond	Broken flange on piping system.	None. Spill occurred near Stormwater Management Pond where treated sewage is normally discharged during spring and fall. Environmental Department will monitor the area during spring.	2016-078
March 13, 2016	Fuel	700 L	Baker Lake fuel farm	Tanker was overfilled during re-filling operations. Truck driver miscalculated the compartment capacity.	Contaminated snow was picked up and brought to the Meadowbank landfarm.	2016-081
March 29, 2016	Hydraulic oil	250 L	Vault Pit	Failure on hydraulic oil gage causing oil leakage.	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.	2016-098
April 1, 2016	Hydraulic Oil	180 L	Vault Pit	Hydraulic pump failure	Contaminated material was picked up and brought to the yellow roll off bin at Vault	2016-106

April 2, 2016	Hydraulic oil	250 L	Vault Pit	Broken hydraulic hose	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.	2016-107
April 3, 2016	Hydraulic oil	175 L	Vault Pit	Broken hydraulic hose	Contaminated material was picked up and brought to the yellow roll off bin.	2016-108
April 12, 2016	Hydraulic oil	230 L	Vault pit	Mechanical issue on hydraulic system	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.	2016-117
April 12, 2016	Diesel fuel	350 L	Meadowbank tank farm	Tank over-filling during refueling operations	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.	2016-116
April 14, 2016	Hydraulic Oil	300 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	2016-120
May 3, 2016	Hydraulic oil	250 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	2016-150
May 11, 2016	Hydraulic Oil	200 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	2016-162
May 14, 2016	Hydraulic Oil	150 L	Vault camp parking	Broken hydraulic pump	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.	2016-168
May 15, 2016	Hydraulic Oil	210 L	Vault Pit	Broken hydraulic pump	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.	2016-174
May 19, 2016	Hydraulic oil	200 L	Vault pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.	2016-183
June 12, 2016	Hydraulic oil	150 L	Vault pit	O' ring failure	Contaminated soil was picked up and disposed of adequately.	2016-219
June 23, 2016	Hydraulic oil	150 L	Vault pit	Broken hydraulic hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container. Mechanical issue was fixed.	NA
June 23, 2016	Hydraulic oil	150 L	Portage Pit	O' ring failure	Contaminated soil was picked up and disposed of adequately.	2016-235
July 4, 2016	Engine Oil	800 L	Warehouse	Zoom boom hit bottom of oil tote	Oil spilled in the seacan was pumped into drums and will be disposed of in the Hazmat are. Oil spilled on the ground mixed with water was pumped into the truck, brought to the tailings storage facility, and the contaminated soil was removed and sent to the landfarm	2016-250
August 7, 2016	Copper Sulphate	60 Kg	Transit Laydown	In the process of moving a c-can in the transit area, product was noticed spilling from the bottom of the container (bulk bag was leaking inside of c-can; small hole)	The majority of product was left inside the c-can and collected and placed in an empty drum. The product that first spilled on the ground and during moving process was collected with a loader and contaminated material	2016-286

					was disposed at the tailings storage facility.	
September 19, 2016	Hydraulic oil	300 L	Portage pit	Hydraulic fan motor failure	Contaminated soil was picked up and disposed of at the landfarm	2016-354
September 22, 2016	Hydraulic oil	120 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm	2016-357
October 2, 2016	Glycol	12000 L	Mill	During routine inspections, an operator noticed glycol leaking from a pipe in the underground access tunnel from the crusher to the dome area.	Quickly the valve of the system was closed to prevent more spillage. The glycol within the tunnel was immediately started to be collected and pumped. On first assessment the majority of the glycol was contained within the tunnel area.	2016-366
October 19, 2016	Hydraulic oil	120 L	Portage pit	Broken hydraulic hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.	2016-383
October 23, 2016	Diesel fuel	300 L	AWAR	Hauling containers from the Baker Lake laydown area to the Meadowbank site, a tractor-trailer went uphill at km 102 of the AWAR, apparently could not engage shifting gear and started moving backwards, as it did not have enough momentum to go up the hill. The tractor slid and rolled over off the side of the road. The operator was uninjured and was taken out of the equipment. Diesel fuel was spilling from the truck tanks. The containers, filled with Ammonium Nitrate 1000 kg bags, were damaged in the incident and some product leaked outside by an opening. Products (diesel and nitrate) were never in contact.	Spill contained and stopped. Cleanup operations on going.	2016-388
November 16, 2016	Sewage	100 L	Camp	Broken pipe sewage transfer from the Nova Camp lift station to the STP	Stop the transfer pump and use the sewage truck until the repair is done	NA
November 17, 2016	Hydraulic oil	350 L	Portage pit	Broken hydraulic hose	Spill was picked up as it was on a ore pattern, it went in the primary crusher	NA

November 28, 2016	Coolant	60 L	MBK AWAR KM 65	Hauling containers (2) from the Baker Lake laydown area to the Meadowbank site, a tractor-trailer rolled-over when taking a curve at km 65. Upon first assessment the driver mentioned that the load (containers) shifted during the turn causing the trailer to lift, bringing the tractor and trailer to roll-off on the side of the road. The operator was uninjured and was taken out of the equipment. The containers, filled with Ammonium Nitrate 1000 kg bags, appear undamaged in the incident. Antifreeze from the tractor was spilled on the ground, quantity will be determined upon removal of equipment. Recovery operations will begin as soon as possible. There were no off site impact or discharge to any receiving watercourses. Distance to closest lake is estimated at 3,4 kilometers.	Contaminated soil was picked up and disposed of adequately in the TSF Meadowbank	2016-412
December 23, 2016	Transmission oil	340 L	Portage pit	Transmission failed on equipment	Contaminated soil was picked up and disposed of adequately.	NA

Table 7.2. 2016 Non-reportable spills

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken
January 1, 2016	Fuel	5-10L	Pushback parking	Broken fuel hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
January 2, 2016	Hydraulic oil	15L	Vault pit	Haul truck was parked at the same spot for 16 hrs due to 2 flat tires. It leaked hydraulic oil on the ground due to leaking hose.	Pads were put on the ground; oil was scrapped and disposed of in a roll off bin.
January 3, 2016	Diesel fuel	10L	Primary crusher, outside by CV19	Skid steer stuck beside CV19. When trying to get free with telehandler, the steel belly pan of the skid steer was punctured by the telehandler fork.	After the skid-steer was removed by site service the rest of the spill was shoveled into pails. They were disposed of in roll off bin.
January 4, 2016	Coolant	25 L	Vault pit	Broken coolant hose on haul truck.	Contaminated soil was picked up and disposed of in a roll off bin.
January 4, 2016	Hydraulic oil	2 L	Vault Ring Road East	Auxiliary hydraulic line ruptured on loader.	Contaminated soil was picked up and disposed of in a roll off bin.
January 5, 2016	Coolant	50 L	Portage Pit E3	Broken coolant hose on loader.	Hose was fixed and contaminated soil was picked up and adequately disposed of.
January 5, 2016	Coolant	50 L	Vault dump	Broken coolant hose on haul truck.	Hose was fixed and contaminated soil was picked up and adequately disposed of.
January 5, 2016	Coolant	50 L	Portage Pit E3	Broken coolant hose on loader.	Hose was fixed and contaminated soil was picked up and adequately disposed of.
January 6, 2016	Hydraulic oil	24 L	Portage Pit E3	Mechanic was working on Rotary Head and broke the hydraulic fitting.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
January 7, 2016	Hydraulic oil	75 L	Vault Road/Sana Crusher Intersection	Steering hose broke while operating.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin. Contaminated soil was picked up.
January 7, 2016	Hydraulic oil	25 L	Baker Lake Cold shed	Broken hydraulic hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin. Contaminated soil was picked up.
January 8, 2016	Hydraulic oil	70 L	Portage Pit A	Broken hydraulic hose on backhoe.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 9, 2016	Hydraulic oil	20 L	Vault pit	Broken hydraulic hose on loader.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 12, 2016	Hydraulic Oil	80 L	Portage Pit E3	Broken hydraulic hose on loader	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 13, 2016	Hydraulic oil	83 L	Winter Parking	Broken hydraulic hose on maintenance truck.	Contaminated soil was picked up and brought to the landfarm.

January 13, 2016	Hydraulic oil	20 L	Portage Pit E4	Broken steering line on grader.	Contaminated soil was picked up and brought to the landfarm.
January 14, 2016	Hydraulic oil	40 L	Vault pit	Broken hydraulic hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 16, 2016	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 17, 2016	Hydraulic oil	30 L	Vault Pit	Broken hydraulic hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 18, 2016	Hydraulic oil	30 L	Goose Dump	Hydraulic hose leaking on dozer.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 19 2016	Hydraulic/Coolant	10L Coolant / 4L Hydraulic oil	Vault pit	Coolant hose leaking on loader.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 19 2016	coolant	50L	Vault Ring Road	Broken coolant hose on haul truck.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 20 2016	Hydraulic oil	30 L	Vault Pit	Broken hydraulic hose on backhoe.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 20 2016	Hydraulic oil	30 L	Vault Pit	Broken hydraulic hose on drill.	Contaminated soil was picked up and brought to the landfarm. Hose was fixed.
January 20 2016	Hydraulic oil	80 L	Vault Pit	Broken hydraulic hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin. Hose was fixed.
January 20 2016	Coolant	15 L	Portage Pit	Broken coolant hose.	Contaminated soil was picked up and was brought to the landfarm.
January 20 2016	Hydraulic oil	8 L	Vault Parking	Broken hydraulic hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin. Hose was fixed.
January 20 2016	Hydraulic oil	45 L	Outside Maintenance shop dome parking	Broken hydraulic hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin. Hose was fixed.
January 21 2016	Coolant	80 L	Vault Pit	Broken coolant hose on backhoe.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin. Hose was fixed.
January 22 2016	Hydraulic oil	10 L	Vault	Maintenance operations on hydraulic hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
January 22 2016	Hydraulic oil	20 L	Maintenance Shop	Broken hydraulic hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
January 23 2016	Hydraulic oil	40 L	Vault pit	Broken hydraulic hose on backhoe.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin. Hose was fixed.
January 23 2016	Fuel	50 L	Vault pit	Fuel vent plugged up and fuel went on the ground after the shovel was filled up.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 23 2016	Hydraulic oil	30 L	Vault pit	Broken hydraulic hose on backhoe.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin. Hose was fixed.

January 23 2016	Fuel	30 L	Vault Pit	Blocked vent on drill.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 23 2016	Engine oil	35 L	Maintenance shop	Broken O Ring at engine oil cooler.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 23 2016	Engine oil	20 L	Portage Pit E3	Oil line in engine compartment on Dozer came apart and the engine oil emptied itself on the dump floor.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 24 2016	Hydraulic oil	7 L	Pushback parking	Leaking hydraulic hose on haul truck.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 25 2016	Engine oil	20 L	Vault dump Phase 2	Frozen blow-by pipe on dozer caused overpressure in the engine block that resulted in the oil filler cap being blown out and engine oil to blow out by the filler tube.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 26, 2016	Hydraulic Oil	30 L	Maintenance Shop	Haul truck was parked outside maintenance for repair. A broken seal was the cause of the leak.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 27, 2016	Hydraulic oil	10 L	Vault Camp	Haul truck was parked. A small pool of oil was under the truck when it moved.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 28, 2016	Diesel fuel	70 L	Vault Fuel Farm	While filling bus, the operator overfilled the tank and spilled some diesel fuel on the ground.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 28, 2016	Engine Oil	3 L	Vault Pit	Engine oil leaking.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 29, 2016	Hydraulic oil	10 L	Portage Pit E3	Broken engine oil hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 29, 2016	Hydraulic Oil	10 L	Vault Ring Road	Broken hydraulic hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 30, 2016	Coolant	20 L	Pushback parking	Leaking coolant hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
January 31, 2016	Hydraulic oil	2+ L	Top of Primary Crusher	Maintenance operations on hydraulic hose.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
February 1, 2016	Hydraulic oil	2 L	Vault Pit	Hydraulic hose leaking.	Contaminated soil was picked up and was adequately disposed of in yellow roll-off bin.
February 2, 2016	Hydraulic oil	80 L	Vault Pit	Broken hydraulic hose on drill.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 2, 2016	Hydraulic oil	80 L	Vault Pit	Oil tank over filled.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 4, 2016	Hydraulic oil	50 L	Vault Pit	An engine failure caused the spill.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
February 9, 2016	Hydraulic oil	15 L	Vault Pit	Hydraulic hose broken on piece of heavy equipment.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
February 9, 2016	Steering fluid	90 L	Vault Pit	Broken steering fluid hose on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 9,	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose in engine compartment.	Contaminated soil was picked up and was adequately

2016					disposed of in yellow roll off bin.
February 10, 2016	Fuel	20 L	Pushback parking	Oil tank over filled due to mechanical issue.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
February 13, 2016	Hydraulic Oil	90 L	Vault Parking	Broken hydraulic hose on piece of heavy equipment.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
February 16, 2016	Hydraulic Oil	60 L	Vault Pit	Broken hydraulic hose on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 17, 2016	Fuel	80 L	Vault Ramp	Fuel leaked out of frozen air vent.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin.
February 18, 2016	Hydraulic Oil	60 L	Vault Pit	Broken hydraulic hose leaking.	HTR 02 was put on the down line until Maintenance could replace hydraulic pump and hose
February 18, 2016	Transmission Oil	90 L	Vault Dump	Transmission Leak on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 18, 2016	Hydraulic Oil	10 L	Vault Pit	Broken fitting on piece of heavy equipment.	Contaminated soil was picked up and brought to the landfarm
February 18, 2016	Hydraulic Oil	90 L	Vault Pit	Broken hydraulic hose on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 18, 2016	Diesel fuel	80 L	Site Service Coverall	Loose plug underneath the fuel tank on Fuel Truck	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 18, 2016	Hydraulic Oil	60 L	Vault Pit	Broken hydraulic hose on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 19, 2016	Coolant	40 L	Vault Pit	Coolant hose failure on piece of heavy equipment.	Contaminated soil was picked up and brought to the Tailings Storage Facility.
February 21, 2016	Transmission Oil	10 L	Pushback parking	Transmission hoses rubbing together on piece of heavy equipment causing a leak.	Contaminated soil was picked up and brought to the landfarm
February 21, 2016	Hydraulic Oil	10 L	Pit E3	Broken hydraulic hose on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 21, 2016	Hydraulic Oil	40 L	Vault Pit	"O" ring failure causing an hydraulic oil spill on piece of heavy equipment.	Contaminated soil was picked up and was adequately disposed of in yellow roll off bin. Mechanical issue was fixed.
February 22, 2016	Coolant	60 L	Vault Pit	Broken coolant hose.	Contaminated soil was picked up and brought to the Tailings Storage Facility.
February 23, 2016	Hydraulic Oil	60 L	Vault Pit	Hydraulic pump failure on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 24, 2016	Hydraulic Oil	80 L	Marginal Stockpile	Broken hydraulic hose on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 24, 2016	Hydraulic Oil	80 L	Vault Pit	Broken hydraulic hose on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.

February 27, 2016	Hydraulic oil	50 L	Winter Parking	Hydraulic Oil spill during maintenance operations.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 29, 2016	Coolant	90 L	Vault Pit	Broken coolant hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
February 29, 2016	Hydraulic Oil	20 L	Vault Parking	Hydraulic hose leaking on piece of heavy equipment.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
March 1, 2016	Engine oil	12 L	Vault Ramp	Hole in the engine oil filter.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin. Mechanical issue was fixed.
March 2,2016	Hydraulic oil	5 L	Portage Pit E	Broken hydraulic hose on drill.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin. Mechanical issue was fixed.
March 3, 2016	Hydraulic oil	90 L	Vault Pit	Broken hydraulic hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
March 5, 2016	Fuel	30 L	Vault Pit	Fuel tank overflowed due to fuel truck going down pit ramp with tank being full.	Contaminated soil was picked up and brought to the landfarm.
March 5, 2016	Coolant	25 L	Vault Pit	Broken coolant hose.	Contaminated soil was picked up and adequately disposed of.
March 6, 2016	Coolant	15 L	Vault parking	Coolant hose leaking.	Contaminated soil was picked up and adequately disposed of.
March 7, 2016	Transmission fluid	4 L	Vault	Mechanical issue during maintenance operations.	Contaminated soil was picked up and adequately disposed of.
March 9, 2016	Hydraulic Oil	15 L	Vault pit	Hydraulic oil leaked during maintenance operations.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
March 9, 2016	Fuel	50 L	Vault camp parking	Cap was missing on fuel tank.	Contaminated soil was picked up and adequately disposed of.
March 12, 2016	Hydraulic oil	85 L	Vault	Broken hydraulic hose on haul truck.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
March 13, 2016	Hydraulic oil	15 L	AWAR km 100	Mechanical failure on the parking brake. Broken hydraulic hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
March 13, 2016	Hydraulic oil	30 L	Portage Pit	Broken hydraulic hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
March 13, 2016	Hydraulic oil	10 L	Marginal Stock pile	Broken hydraulic hose.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
March 14, 2016	Coolant	40 L	Vault	Broken hydraulic hose.	Contaminated soil was picked up and adequately disposed of. Mechanical issue was fixed.
March 14, 2016	Fuel	4 L	Vault	Defective breather on dozer.	Contaminated soil picked up and disposed of adequately.

March 16, 2016	Engine oil	1 L	Mill	Mechanical issue on skid steer.	Absorbent pads were used to clean-up the spill. Pads were adequately disposed of in the yellow roll off bin.
March 16, 2016	Diesel fuel	3 L	Vault	Defective breather on dozer.	Contaminated soil picked up and disposed of adequately.
March 17, 2016	Diesel fuel	4 L	Vault dump	Defective breather on dozer.	Contaminated soil picked up and disposed of adequately.
March 18, 2016	Hydraulic oil	10 L	Vault pit	Broken hydraulic hose on piece of heavy equipment.	Contaminated soil picked up and disposed of adequately. Mechanical issue was fixed.
March 18, 2016	Diesel fuel	2 L	Vault dump	Defective breather on dozer.	Contaminated soil picked up and disposed of adequately.
March 19, 2016	Hydraulic	85 L	Vault Pit	Main hydraulic hose failure.	Contaminated soil picked up and disposed of adequately. Mechanical issue was fixed.
March 20, 2016	Coolant	10 L	Winter Parking	Tank was overfilled.	Contaminated soil picked up and disposed of adequately.
March 20, 2016	Fuel	5 L	Vault Parking	Fuel handle would not turn off at re-filling station.	Contaminated soil picked up and disposed of adequately.
March 21, 2016	Coolant	20 L	Portage Pit	Broken hydraulic hose.	Spill was contained and contaminated soil picked up and disposed of adequately.
March 22, 2016	Hydraulic oil	5 L	Marginal pad waste dump	Broken hydraulic hose.	Spill was contained and contaminated soil picked up and disposed of adequately.
March 23, 2016	Hydraulic oil	90 L	Vault Pit	Broken hydraulic hose.	Spill was contained and contaminated soil picked up and disposed of adequately. Mechanical issue was fixed.
March 23, 2016	Hydraulic Oil	10 L	Vault Pit	Broken hydraulic hose.	Contaminated soil picked up and disposed of adequately.
March 24, 2016	Fuel	20 L	Portage Pit	Breather plug on compressor failed.	Spill was contained using absorbent pads and contaminated soil picked up and disposed of adequately.
March 24, 2016	Hydraulic Oil	10 L	Vault Sana Crusher	Broken hydraulic hose on backhoe.	Spill was contained using absorbent pads and contaminated soil picked up and disposed of adequately.
March 25, 2016	Fuel	15 L	Central Dike	Mechanical issue during re-filling operations causing tank overfill.	Spill was contained using absorbent pads and contaminated soil picked up and disposed of adequately.
March 25, 2016	Diesel fuel	20 L	Vault pit	Crack on top of fuel tank.	Tank is slowly leaking all around site. Maintenance Department notified.
March 26, 2016	Diesel fuel	10 L	Vault pit	Crack on top of fuel tank.	Tank is slowly leaking all around site. Maintenance Department notified.
March 26, 2016	Diesel fuel	10 L	Vault pit	Crack on top of fuel tank. Not same piece of equipment as two previous spills (March 25 and 26).	Tank is slowly leaking all around site. Maintenance Department notified.
March 26, 2016	Hydraulic oil	80 L	Vault parking	Quadrex containing oil during mechanical operations was leaking.	Quadrex was picked up and soil was collected and adequately disposed of.
March 27, 2016	Fuel	20 L	Vault pit	Crack on top of fuel tank.	Tank is slowly leaking all around site. Maintenance Department notified.
March 28, 2016	Fuel	20 L	Vault pit	Crack on top of fuel tank.	Tank is slowly leaking all around site. Maintenance

					Department notified.
March 28, 2016	Hydraulic oil	8 L	Truck shop	Improper cam lock installed on tote in lube truck.	Spill was contained and soil was picked up and adequately disposed of.
March 30, 2016	Hydraulic oil	80 L	Vault pit	Broken hydraulic hose.	Spill was contained using absorbent pads. Spill was cleaned up.
March 31, 2016	Compressor oil	40 L	Vault pit	Mechanical issue on piece of heavy equipment. Oil coming out by air filter.	Spill was contained using absorbent pads. Spill was cleaned up.
April 1, 2016	Engine oil	10 L	Parking area - Dome side	Mechanical failure	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.
April 2, 2016	Hydraulic oil	10 L	Vault Pit	Broken hydraulic hose	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.
April 3, 2016	Transmission oil	80 L	North cell capping	Broken transmission line	Contaminated material was picked up and brought to the yellow roll off bin at Vault
April 3, 2016	Antifreeze	15 L	Vault refuge parking	Engine mechanical issue	Contaminated material was picked up and brought to the yellow roll off bin.
April 4, 2016	Hydraulic oil	80 L	Truck shop	Mechanical failure	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.
April 5, 2016	Coolant	15 L	Portage Pit	Broken coolant hose	Contaminated material was picked up and brought to the yellow roll off bin.
April 5, 2016	Hydraulic oil	20 L	Vault coverall	Broken hydraulic hose	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.
April 7, 2016	Engine oil	4 L	Pushback parking	Engine oil leak	Contaminated soil was picked up and disposed of in a proper bin located at the incinerator
April 8, 2016	Hydraulic oil	15 L	Vault pit	Broken hydraulic pump	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.
April 9, 2016	Coolant	10 L	Pushback parking	Coolant leaking from water pump.	Contaminated soil was picked up and disposed of adequately.
April 9, 2016	Hydraulic oil	40 L	Portage Pit	Broken hydraulic hose.	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.

April 10, 2016	Hydraulic oil	15 L	Vault Parking	Broken hydraulic hose.	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.
April 10, 2016	Sewage	90 L	Sewage Treatment Plan	Defective pump	Tank was emptied and contaminated material disposed of adequately
April 13, 2016	Diesel fuel	20 L	Vault Fuel Farm	Tank over-filling during refueling operations	Contaminated soil was picked up and disposed of adequately.
April 14, 2016	Diesel fuel	2 L	Vault Fuel Farm	Mechanical issue causing fuel spill during refueling operations	Contaminated soil was picked up and disposed of adequately.
April 14, 2016	Hydraulic Oil	20 L	Vault Pit	Broken power steering hose	Contaminated soil was picked up and disposed of adequately.
April 15, 2016	Hydraulic Oil	30 L	Portage Pit	Loose oil filter causing oil pan to spill on the ground	Contaminated soil was picked up and disposed of adequately.
April 15, 2016	Hydraulic Oil	40 L	Portage Pit	Hydraulic oil spilled during maintenance operations	Contaminated soil was picked up and disposed of adequately.
April 16, 2016	Hydraulic Oil	10 L	Pushback parking	Hydraulic oil spilled during maintenance operations	Contaminated soil was picked up and disposed of adequately.
April 16, 2016	Diesel fuel	20 L	Vault Pit	Fuel tank leaking	Spill was contained with absorbent pads and spill kits. Oil soaked pads were removed and contaminated material soil/ground was picked up and disposed of in yellow contaminated soil roll off container.
April 17, 2016	Compressor oil	5 L	Truck shop	Broken pressure gage	Contaminated soil was picked up and disposed of adequately.
April 17, 2016	Hydraulic Oil	95 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
April 17, 2016	Hydraulic Oil	90 L	Portage Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
April 17, 2016	Coolant	25 L	Portage Pit	Loose fitting on the Radiator	Contaminated soil was picked up and disposed of adequately.
April 18, 2016	Hydraulic Oil	2 L	Vault Pit	Hydraulic oil spilled during maintenance operations	Contaminated soil was picked up and disposed of adequately.
April 21, 2016	Coolant	20 L	Vault Parking	Coolant leak	Contaminated soil was picked up and disposed of adequately.
April 21, 2016	Diesel fuel	95 L	Vault Pit	Fuel filter cracked	Contaminated soil was picked up and disposed of adequately.
April 21, 2016	Hydraulic Oil	15 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
April 21, 2016	Diesel fuel	10 L	Primary Crusher Pad	Mechanical issue causing fuel spill during refueling operations	Contaminated soil was picked up and disposed of adequately.
April 24, 2016	Hydraulic Oil	4 L	Vault Kitchen Parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
April 22, 2016	Diesel fuel	5 L	Primary Crusher	Mechanical issue causing fuel spill during refueling	Contaminated soil was picked up and disposed of

			Pad	operations	adequately.
April 24, 2016	Coolant	20 L	Vault Kitchen Parking	Broken coolant hose	Contaminated soil was picked up and disposed of adequately.
April 24, 2016	Hydraulic Oil	50 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
April 24, 2016	Hydraulic Oil	20 L	Vault Kitchen Parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
April 28, 2016	Hydraulic Oil	30 L	Portage Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 1, 2016	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 3, 2016	Hydraulic oil	20 L	Vault Parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 5, 2016	Hydraulic oil	60 L	Vault pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 5, 2016	Hydraulic oil	35 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 5, 2016	Hydraulic oil	45 L	Vault Parking	Hydraulic Oil spill during maintenance operations.	Contaminated soil was picked up and disposed of adequately.
May 6, 2016	Hydraulic oil	75 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
May 7, 2016	Hydraulic oil	95 L	Vault	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
May 6, 2016	Hydraulic oil	35 L	Primary Crusher pad	Hydraulic hose leaking	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
May 7, 2016	Fuel	30 L	Vault Camp	Fuel leaking out of the breather	Contaminated soil was picked up and disposed of adequately.
May 7, 2016	Hydraulic oil	10 L	Vault Pit	Leak from secondary containment during maintenance operations	Contaminated soil was picked up and disposed of adequately.
May 8, 2016	Fuel	2 L	Primary crusher stockpile	Fuel leaking out of the breather	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
May 8, 2016	Fuel	2 L	Vault parking	Fuel leaking out of the breather	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
May 10, 2016	Hydraulic Oil	20 L	Pushback parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 13, 2016	Diesel fuel	38 L	Pushback parking	Connector when refueling not connected properly	Contaminated soil was picked up and disposed of adequately.
May 13, 2016	Coolant	4 L	Maintenance Shop	"O" ring failure on engine cooler	Contaminated soil was picked up and disposed of adequately.
May 14, 2016	Hydraulic Oil	20 L	Vault Parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
May 14, 2016	Hydraulic Oil	50 L	Vault Parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of

					adequately. Mechanical issue was fixed.
May 15, 2016	Hydraulic Oil	2 L	Maintenance Shop	Leak on equipment stored during winter	Contaminated soil was picked up and disposed of adequately.
May 16, 2016	Hydraulic oil	95 L	Vault pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 16, 2016	Grease	10 L	Hazmat pad	Grease container fell when being moved by a loader on unleveled ground	Contaminated soil was picked up and disposed of adequately.
May 16, 2016	Hydraulic Oil	50 L	Winter Parking	Oil spill during maintenance operations. Containment not efficient.	Contaminated soil was picked up and disposed of adequately.
May 16, 2016	Hydraulic Oil	20 L	Maintenance Shop	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 18, 2016	Coolant	80 L	Vault Haul Truck Parking	Mechanical issue on radiator	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
May 19, 2016	Coolant	30 L	Maintenance Shop	Mechanical issue on radiator	Contaminated soil was picked up and disposed of adequately.
May 19 2016	Hydraulic Oil	75 L	Vault Dump	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 20 2016	Hydraulic Oil	7 L	Vault pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 21 2016	Hydraulic Oil	50 L	Portage Pit	Hydraulic pump leaking	Contaminated soil was picked up and disposed of adequately.
May 21 2016	Hydraulic Oil	65 L	Vault pit	Hydraulic pump leaking	Contaminated soil was picked up and disposed of adequately.
May 22 2016	Coolant	35 L	Vault parking	Broken coolant hose	Contaminated soil was picked up and disposed of adequately.
May 23 2016	Hydraulic Oil	5 L	Vault fuel farm	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 23 2016	Hydraulic Oil	30 L	Vault dump	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 24 2016	Hydraulic Oil	10 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 24 2016	Hydraulic Oil	30 L	Marginal Stock pile	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
May 26, 2016	Hydraulic Oil	10 L	Winter Parking	Oil spill during maintenance operations.	Contaminated soil was picked up and disposed of adequately.
May 27, 2016	Hydraulic Oil	40 l	Vault Pit	Mechanical issue on hydraulic tank	Contaminated soil was picked up and disposed of adequately.
May 27, 2016	Diesel fuel	60 L	Vault Pit	Cap on fuel tank was not clipped properly	Contaminated soil was picked up and disposed of adequately.
May 29, 2016	Hydraulic Oil	40 L	Vault Parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.

June 1, 2016	Engine oil	35 L	Maintenance shop	Hole in engine block	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
June 3, 2016	Hydraulic Oil	20 L	Vault Pit	Broken hydraulic hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
June 4, 2016	Hydraulic Oil	30 L	Vault Parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
June 4, 2016	Engine oil	5 L	Portage Pit	Engine oil filter was knocked off when it hit a rock on the ramp	Contaminated soil was picked up and disposed of adequately.
June 7, 2016	Hydraulic oil	10 L	Pushback parking	While performing maintenance repairs oil was spilled on the ground.	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
June 8, 2016	Hydraulic oil	30 L	Portage Pit	Blown o'ring on the hydraulic pump	Contaminated soil was picked up and disposed of adequately.
June 8, 2016	Diesel fuel	10 L	MBK Tank Farm	Tank over-filling during refueling operations	Contaminated soil was picked up and disposed of adequately.
June 10, 2016	Hydraulic oil	45 L	Portage Pit	Broken pump hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
June 10, 2016	Hydraulic oil	6 L	Maintenance Shop	Leaking cylinder	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
June 10, 2016	Hydraulic oil	95 L	Vault pit	O' ring failure	Contaminated soil was picked up and disposed of adequately.
June 11, 2016	Hydraulic Oil	30 L	Vault Pit	While performing maintenance repairs oil was spilled on the ground.	Contaminated soil was picked up and disposed of adequately.
June 11,2016	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
June 12, 2016	Diesel fuel	50 L	Portage Pit	Fuel spilled out during refueling operations.	Contaminated soil was picked up and disposed of adequately.
June 12, 2016	Fuel	5 L	Vault camp parking	Fuel spilled out from breather during refuelling	Contaminated soil was picked up and disposed of adequately.
June 12, 2016	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately. Mechanical issue was fixed.
June 14 2016	Hydraulic oil	20 L	Portage Pit	O' ring failure	Contaminated soil was picked up and disposed of adequately.
June 14, 2016	Hydraulic Oil	20 L	Vault camp parking	Hydraulic hose failure	Contaminated soil was picked up and disposed of adequately.
June 15, 2016	Engine oil	2 L	Portage Pit	Rock was hidden under mud; hit the pan of truck causing leak.	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
June 16, 2016	Engine oil	4 L	Maintenance Shop	Engine oil pan was cracked from hitting a rock	Contaminated soil was picked up and disposed of

					adequately.
June 19, 2016	Hydraulic Oil	50 L	Vault pit	Broken hydraulic stick cylinder	Contaminated soil was picked up and disposed of adequately.
June 20, 2016	Hydraulic Oil	90 L	Vault pit	Hydraulic line feeding the pump failure	Contaminated soil was picked up and disposed of adequately.
June 23, 2016	Coolant	20 L	Vault pit	Coolant leak	Contaminated soil was picked up and disposed of adequately.
June 24, 2016	Coolant	40 L	Vault pit	Coolant leak	Contaminated soil was picked up and disposed of adequately.
June 25, 2016	Coolant	40 L	Vault pit	Coolant leak	Contaminated soil was picked up and disposed of adequately.
June 25, 2016	Engine oil	25 L	Vault pit	Broken engine oil pan	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 2, 2016	Hydraulic oil	50 L	Vault pit	Broken hydraulic hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 2, 2016	Hydraulic oil	90 L	Vault pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of adequately.
July 3, 2016	Hydraulic oil	80 L	Vault parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
July 3, 2016	Hydraulic oil	15 L	Vault parking	Hydraulic hose leak during maintenance operations	Contaminated soil was picked up and disposed of adequately.
July 4, 2016	Hydraulic oil	5 L	Vault pit	Hydraulic hose leak during maintenance operations	Contaminated soil was picked up and disposed of adequately.
July 4, 2016	Transmission oil	40 L	Push back parking	Transmission oil leak	Contaminated soil was picked up and disposed of adequately.
July 5, 2016	Rock drill oil	20 L	Vault pit	Worker dropped the pail while filling tank	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 6, 2016	Coolant	20 L	Vault pit	Coolant hose failure	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 6, 2016	Diesel fuel	15 L	Vault pit	Fuel tank breather failure	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 7, 2016	Hydraulic oil	20 L	Vault pit	O'ring failure on hydraulic line	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 9, 2016	Diesel fuel	3 L	Vault pit	Loose fuel filter	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.

July 9, 2016	Coolant	90 L	Portage pit	Broken hydraulic hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 9, 2016	Hydraulic oil	15 L	Vault pit	Broken body valve	Contaminated soil was picked up and disposed of adequately.
July 10, 2016	Hydraulic oil	40 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
July 10, 2016	Hydraulic oil	15 L	Vault pit	O'ring failure	Contaminated soil was picked up and disposed of adequately.
July 11, 2016	Coolant	15 L	Vault pit	Broken coolant line	Contaminated soil was picked up and disposed of adequately.
July 11, 2016	Diesel fuel	15 L	Vault pit	Fuel cap missing	Contaminated soil was picked up and disposed of adequately.
July 12, 2016	Coolant	20 L	Portage pit	Broken hydraulic hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 15, 2016	Hydraulic oil	35 L	Portage pit	Pin hole on hammer hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 15, 2016	Hydraulic oil	40 L	Site Service Coverall	Bumps on the road and improper storage of material carried	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
July 16, 2016	Coolant	25 L	Portage pit	Broken coolant hose	Contaminated soil was picked up and disposed of adequately.
July 16, 2016	Hydraulic oil	60 L	Vault pit	O-ring failure	Contaminated soil was picked up and disposed of adequately.
July 16, 2016	Hydraulic oil	70 L	Vault pit	O-ring failure	Contaminated soil was picked up and disposed of adequately.
July 17, 2016	Engine oil	20 L	Vault pit	Engine failure	Contaminated soil was picked up and disposed of adequately.
July 24, 2016	Diesel fuel	60 L	MB Fuel farm	Fuel arm slip off the fuel man's hands causing the excess of fuel left in the arm to go on the ground and not in the tank	Contaminated soil was picked up and disposed of adequately.
July 28, 2016	Hydraulic oil	15 L	Vault parking	Leaking hose	Contaminated soil was picked up and disposed of adequately.
July 29, 2016	Hydraulic oil	50 L	Vault pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
July 30, 2016	Diesel fuel	35 L	Saddle dam 3	Fuel truck was not on level ground with a full tank. Employee opened the air traps causing the tank to spill.	Contaminated soil was picked up and disposed of adequately.
July 30, 2016	Hydraulic oil	25 L	Vault pit	Hydraulic hose failure during re-fuelling	Contaminated soil was picked up and disposed of adequately.
July 30, 2016	Coolant	45 L	Vault pit	Broken coolant hose	Contaminated soil was picked up and disposed of

					adequately.
July 30, 2016	Hydraulic oil	40 L	Vault parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
July 31, 2016	Hydraulic oil	30 L	Vault pit	Blown steering hose	Contaminated soil was picked up and disposed of adequately.
July 31, 2016	Hydraulic oil	40 L	Vault Pit	O'ring failure.	Contaminated soil was picked up and disposed of adequately.
July 31, 2016	Hydraulic oil	80 L	Vault pit	Hydraulic hose failure	Contaminated soil was picked up and disposed of adequately.
August 1, 2016	Hydraulic oil	30 L	Vault Waste Dump	Broken hydraulic hose.	Contaminated soil was picked up and disposed of adequately.
August 1, 2016	Hydraulic oil	90 L	Vault Pit	Broken hydraulic line on brake release.	Contaminated soil was picked up and disposed of adequately.
August 4, 2016	Hydraulic oil	40 L	Vault Pit	Broken hydraulic hose.	Contaminated soil was picked up and disposed of adequately.
August 7, 2016	Coolant	14 L	Vault Kitchen Parking	Broken coolant line.	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
August 8, 2016	Hydraulic oil	90 L	Portage Pit	Hydraulic line failure.	Contaminated soil was picked up and disposed of adequately.
August 10, 2016	Hydraulic oil	75 L	Pushback parking	Hydraulic hose failure.	Contaminated soil was picked up and disposed of adequately.
August 10, 2016	Hydraulic oil	63 L	Vault Pit	Hydraulic hose failure.	Contaminated soil was picked up and disposed of adequately.
August 13, 2016	Transmission Oil	15 L	Vault Dump	Transmission line leaking.	Contaminated soil was picked up and disposed of adequately.
August 13, 2016	Coolant	83 L	Vault Dump	Engine fan fell in radiator (failed fan bearing).	Contaminated soil was picked up and disposed of adequately.
August 15, 2016	Hydraulic oil	90 L	Vault Pit	Cracked final drive cover	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
August 15, 2016	Diesel fuel	10 L	Truck Shop	Spill occurred during fuel transfer between two trucks.	Contaminated soil was picked up and disposed of adequately.
August 16, 2016	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose.	Contaminated soil was picked up and disposed of adequately.
August 21, 2016	Steering oil	20 L	Vault Pit	Spill during maintenance operations	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
August 22, 2016	Hydraulic oil	90 L	Vault Pit	Broken steering hose fitting	Contaminated soil was picked up and disposed of adequately.
August 25, 2016	Jet A fuel	90 L	Baker Lake tank farm	Air problem on the tanker truck trailer	Contaminated soil was picked up and disposed of adequately.

August 27, 2016	Steering oil	60 L	Pushback Parking washroom	Steering hose failure	Contaminated soil was picked up and disposed of adequately.
August 27, 2016	Hydraulic oil	80 L	Vault Pit	O'ring failure	Contaminated soil was picked up and disposed of adequately.
August 29, 2016	Hydraulic oil	25 L	Vault Pit	Broken hydraulic hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
August 30, 2016	Hydraulic oil	45 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
August 31, 2016	Hydraulic oil	5 L	Vault Camp Parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
August 31, 2016	Hydraulic oil	14 L	Vault Road	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
September 1, 2016	Hydraulic oil	80 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
September 1, 2016	Jet A fuel	50 L	Baker Lake Jet-A tank farm	Tank over-filling during refueling operations	Contaminated soil was picked up and disposed of at the landfarm
September 3, 2016	Coolant	50 L	Portage pit	Broken coolant line.	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 3, 2016	Hydraulic oil	25 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
September 5, 2016	Hydraulic oil	50 L	Pushback parking	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm
September 6, 2016	Hydraulic oil	75 L	Pushback parking	Brake valve failure	Contaminated soil was picked up and disposed of at the landfarm
September 6, 2016	Diesel fuel	25 L	Vault ramp	Tank over-filling during refueling operations	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 7, 2016	Diesel fuel	5 L	MBK Tank Farm	Unknown	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 7, 2016	Hydraulic oil	30 L	Vault Pit	Cap hub failure	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 7, 2016	Hydraulic oil	70 L	Vault Pit	Broken hydraulic hose	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 8, 2016	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
September 10, 2016	Hydraulic oil	25 L	Vault Pit	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 10, 2016	Hydraulic oil	40 L	Vault Pit	Spill during maintenance operations	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 15, 2016	Hydraulic oil	75 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm

September 16, 2016	Hydraulic oil	80 L	Vault parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
September 17, 2016	Hydraulic oil	30 L	Portage pit	O'ring failure	Contaminated soil was picked up and disposed of at the landfarm
September 22, 2016	Hydraulic oil	25 L	Portage pit ramp	O'ring failure	Contaminated soil was picked up and disposed of at the landfarm
September 22, 2016	Hydraulic oil	35 L	Portage pit ramp	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm
September 22, 2016	Coolant	4 L	MBK Tank Farm	Broken coolant line.	Contaminated soil was picked up and disposed of at the landfarm
September 23, 2016	Hydraulic oil	15 L	Portage pit	Broken hydraulic cylinder	Contaminated soil was picked up and disposed of adequately.
September 24, 2016	Coolant	16 L	Vault Camp Parking	Broken coolant line.	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 24, 2016	Coolant	25 L	MBK waste rock dump	Broken coolant line.	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 24, 2016	Coolant	70 L	Vault Pit	Broken coolant line.	Spill was contained with absorbent pads. Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
September 25, 2016	Diesel fuel	1 L	Site Service parking	Broken diesel line	Contaminated soil was picked up and disposed of at the landfarm
September 25, 2016	Hydraulic oil	23 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
September 26, 2016	Hydraulic oil	40 L	Vault Dump	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
September 26, 2016	Hydraulic oil	20 L	MBK waste rock dump	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm
September 27, 2016	Hydraulic oil	25 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
September 27, 2016	Hydraulic oil	25 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
October 1, 2016	Hydraulic oil	70 L	Vault Road	O'ring failure on hydraulic line	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 2, 2016	Hydraulic oil	80 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
October 2, 2016	Diesel fuel	5 L	Portage Washroom	Equipment failure	Contaminated soil was picked up and disposed of adequately.
October 3, 2016	Hydraulic oil	50 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
October 3, 2016	Hydraulic oil	8 L	Vault parking	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 4, 2016	Hydraulic oil	25 L	Portage pit	Hydraulic filter came loose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.

October 4, 2016	Diesel fuel	50 L	Vault Pit	Broken diesel line	Can't be picked up as it is on the blasting floor
October 4, 2016	Diesel fuel	50 L	Vault Pit	Broken diesel line	Can't be picked up as it is on the blasting floor
October 5, 2016	Hydraulic oil	40 L	Vault Pit	Broken hydraulic hose	Talked with maintenance and discussed issue; maintenance is sending a tech to observe and fix the issue
October 5, 2016	Diesel fuel	50 L	Vault Pit	Broken diesel line	Can't be picked up as it is on the blasting floor
October 6, 2016	Hydraulic oil	50 L	Vault Pit	Broken hydraulic hose	Talked with maintenance and discussed issue; maintenance is sending a tech to observe and fix the issue
October 7, 2016	Hydraulic oil	90 L	Vault Pit	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 9, 2016	Hydraulic oil	80 L	Vault Pit	O'ring failure on hydraulic line	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 11, 2016	Hydraulic oil	30 L	Portage pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of adequately.
October 15, 2016	Coolant	50 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
October 16, 2016	Coolant	10 L	Vault kitchen	Broken coolant line.	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 19, 2016	Hydraulic oil	80 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
October 21, 2016	Hydraulic oil	8 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
October 21, 2016	Hydraulic oil	90 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
October 21, 2016	Coolant	20 L	Vault Pit	Broken coolant line.	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 23, 2016	Hydraulic oil	10 L	Pushback parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
October 24, 2016	Coolant	40 L	Portage pit	Broken coolant line.	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 25, 2016	Hydraulic oil	95 L	Vault Pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of adequately.
October 25, 2016	Hydraulic oil	25 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
October 27, 2016	Hydraulic oil	35 L	Vault Pit	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 27, 2016	Coolant	35 L	Vault parking	Broken coolant line.	Contaminated soil was picked up and disposed of adequately.
October 27, 2016	Hydraulic oil	10 L	Vault parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
October 28,	Hydraulic oil	95 L	Portage pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the

2016					landfarm
October 29, 2016	Hydraulic oil	3 L	Warehouse	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
October 29, 2016	Diesel fuel	15 L	Portage pit	Spill during maintenance operations	Contaminated soil was picked up and disposed of at the landfarm
October 29, 2016	Hydraulic oil	50 L	Vault Pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm
October 29, 2016	Hydraulic oil	45 L	Portage pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of adequately.
October 31, 2016	Hydraulic oil	15 L	Maintenance Shop	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
November 1, 2016	Hydraulic oil	30 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
November 1, 2016	Hydraulic oil	40 L	Vault Pit	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
November 2, 2016	Hydraulic oil	40 L	Vault Pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of adequately.
November 2, 2016	Hydraulic oil	90 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
November 4, 2016	Hydraulic oil	20 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
November 6, 2016	Hydraulic oil	30 L	Vault Pit	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
November 10, 2016	Hydraulic oil	15 L	Portage view point	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
November 13, 2016	Hydraulic oil	40 L	Winter Parking	Residual oil from shop repairs was dropped on the ground by accident during maintenance.	Contaminated soil was picked up and disposed of adequately.
November 19, 2016	Hydraulic oil	15 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
November 19, 2016	Engine Oil	20 L	Vault Pit	Residual oil from shop repairs was dropped on the ground by accident during maintenance.	Contaminated soil was picked up and disposed of adequately.
November 20, 2016	Engine Oil	20 L	Vault Pit	While performing maintenance repairs	Contaminated soil was picked up and disposed of adequately.
November 20, 2016	Hydraulic oil	80 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
November 22, 2016	Hydraulic oil	90 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
November 24, 2016	Coolant	65 L	Vault parking	Mechanical Repair	Material was picked up and brought to tailings
November 26, 2016	Compressor Oil	25 L	Portage pit	Broken coolant line.	Contaminated soil was picked up and disposed of adequately.

November 26, 2016	Hydraulic oil	15 L	Vault Rock Storage Facility	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
November 30, 2016	Hydraulic oil	40 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
November 30, 2016	Hydraulic oil	25 L	Vault Pit	Broken body valve	Contaminated soil was picked up and disposed of adequately.
November 30, 2016	Transmission Oil	50 L	Vault Camp	Broken transmission pump line	Contaminated soil was picked up and disposed of adequately.
November 30, 2016	Hydraulic oil	40 L	Vault Pit	Broken Travel Motor seal	Contaminated soil was picked up and disposed of adequately.
November 30, 2016	Hydraulic oil	30 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
December 4, 2106	Hydraulic oil	20 L	Vault Pit	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.
December 4, 2016	Hydraulic oil	50 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
December 7, 2016	Coolant	50 L	Vault Pit Top bench	Broken coolant line.	Contaminated soil was picked up and disposed of adequately.
December 10, 2016	Coolant	30 L	Primary Crusher	Broken coolant line.	Nothing, material will be process in the crusher.
December 16, 2016	Coolant	10 L	Portage pit	Broken coolant line.	Nothing, contaminated material couldn't be recovered because spilled over a distance too big.
December 16, 2016	Hydraulic oil	10 L	Vault Rock Storage Facility	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
December 17, 2016	Hydraulic oil	50 L	Winter parking	Wind blowing during maintenance	Contaminated soil was picked up and disposed of adequately.
December 17, 2016	Hydraulic oil	80 L	Vault Pot	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
December 18, 2016	Hydraulic oil	30 L	South pit View point	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
December 19, 2016	Coolant	9 L	Maintenance Shop	Unknown	Contaminated snow was picked up and disposed of adequately.
December 20, 2016	Hydraulic oil	25 L	Vault parking	Broken transmission line	Contaminated soil was picked up and disposed of at the landfarm
December 21, 2016	Hydraulic oil	20 L	Pushback parking	Sealing wheels leak	Contaminated soil was picked up and disposed of at the landfarm
December 22, 2016	Hydraulic oil	70 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
December 23, 2016	Hydraulic oil	22 L	Pushback parking	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
December 23, 2016	Engine oil	15 L	Vault Pit	Engine overheated	Contaminated soil was picked up and disposed of at the landfarm

December 23, 2016	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.
December 24, 2016	Hydraulic oil	5 L	Vault Pit	Hydraulic pan leak	Contaminated soil was picked up and disposed of at the landfarm
December 24, 2016	Hydraulic oil	50 L	Portage pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm
December 25, 2016	Hydraulic oil	35 L	Vault Camp	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
December 26, 2016	Engine oil	5 L	Pushback parking	Leak on equipment	Contaminated soil was picked up and disposed of at the landfarm
December 27, 2016	Coolant	20 L	Vault parking	Hub cap damaged	Contaminated soil was picked up and disposed of adequately.
December 28, 2016	Hydraulic oil	90 L	Vault Pit	O'ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm
December 30, 2016	Hydraulic oil	19 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm
December 30, 2016	Coolant	73 L	Vault Pit	Broken coolant line.	Contaminated soil was picked up and disposed of adequately.
December 31, 2016	Hydraulic oil	50 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.

Landfarm

The existing landfarm is located on the north-west side of the South Tailings Cell (Tailing Storage Facility). The South Tailings Cell is currently active; tailings are deposited and water is reclaimed from the cell. The tailings and water level in the South Tailings Cell are increasing in elevation over time. With the current tailings deposition plan and water balance models, the existing landfarm location (Landfarm 1) is predicted to be flooded with reclaim water in summer 2017. For this reason, Agnico decided to find an alternate location for a new landfarm (Landfarm 2), in order to continue the treatment of contaminated soil. Landfarm 2 was constructed in 2016. Due to operational work at the buttress of Stormwater Dike an extension of the Landfarm 1 was also constructed in 2016 to a higher elevation in order to continue treatment of soil in the Landfarm 1.

The majority of material deposited in the Landfarm was generated through the clean-up of spills at the Meadowbank site with additional material generated from spills occurring in Baker Lake locations and along the AWAR. A summary of spills occurring in 2016 including those sent to the landfarm are provided in Table 7.2.

It is estimated that approximately 710 m^3 of soil were added to Landfarm 1 from October 2015 – July, 2016. Approximately 125 m^3 of coarse material was removed from the landfarm through screening. Based on the results of sampling in 2016, no fine soil was remediated and removed from the landfarm.

Sewage sludge continues to be used in the landfarm as a soil amendment. Sewage sludge was added to all piles as a nutrient amendment on June 24, 2016 (13.6 m^3), and 4 time in August (54.4 m^3) for a total of 68 m^3. The sludge was spread across all piles. Landfarm piles were aerated in August 2016 by mixing the top half of each windrow with a front-end loader or excavator, and again with the modification work done at both landfarms.

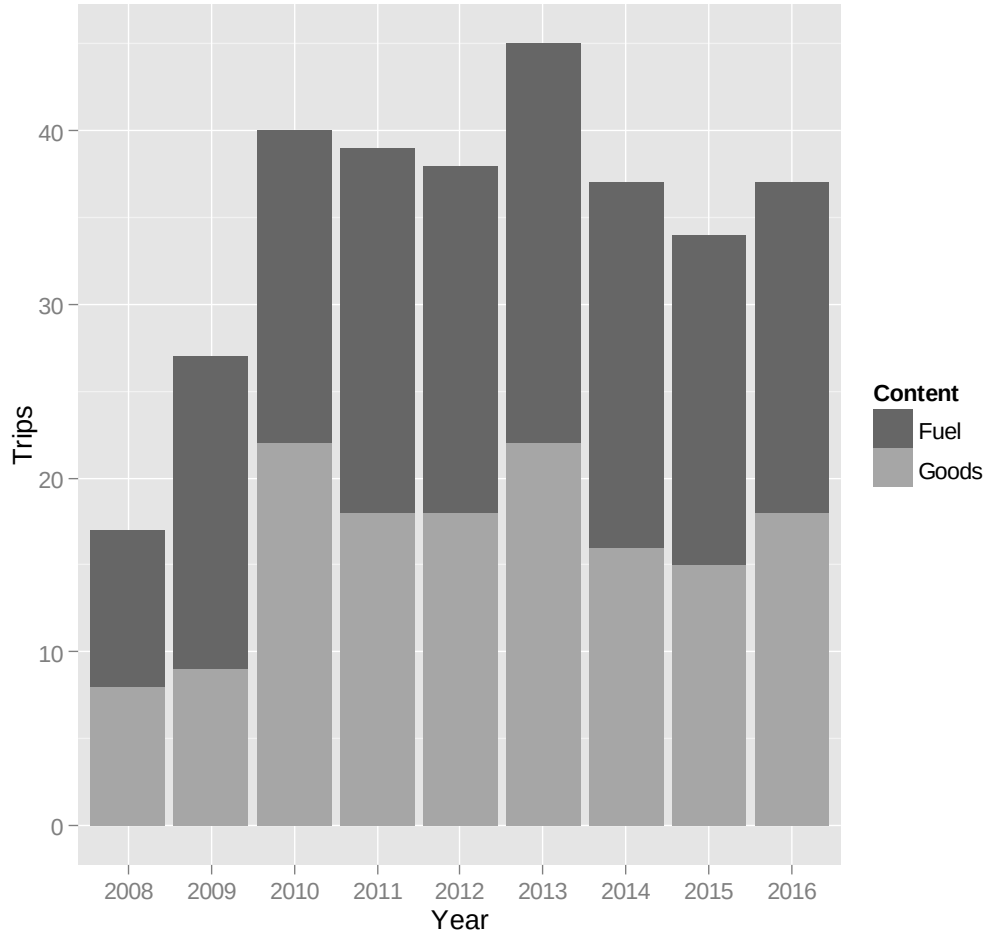
In September 2016, Landfarm 1 held a total of 1258 m^3 of contaminated soil, based on survey results. Currently production will continue through 2018 for an expected additional required landfarm capacity of 692 m^3. With an additional 30% for contingency, and conservatively assuming that no soil will be remediated in Landfarm 1 in 2017 and before closure, the total estimated required landfarm capacity is 2,535 m^3. For Landfarm 2, the useful area is 3,815 m^2, which is similar to the useful area of the Landfarm 1 before the 2016 extension (3,712 m^2). Accounting for a 25% loss of area due to sloping at that windrow height, the landfarm area will allow for the storage of a maximum of 11,445 m^3. This will readily accommodate the estimated total of 2,535 m^3 of contaminated soil, should all of it needs to be stored until closure.

Appendix F3, “2016 Landfarm Report”, contains more information on landfarm activities in 2016.

As required by NIRB Project Certificate No.004 Condition 82: ***Monitor the ingress/egress of ship cargo at Baker Lake and report any accidents or spills immediately to the regulatory agencies as required by law and to NIRB’s Monitoring Officer annually.***

In 2016, Agnico monitored the ingress/egress of ship cargo at Baker Lake and the results are summarized in the below Figure 37.

Figure 37. Barge traffic (number of trips/year) arriving in Baker Lake from Chesterfield Inlet since 2008



In 2016, no spills occurred during the ship cargo ingress/egress.

As required by NIRB Project Certificate No.004 Condition 75: ***provide a complete list of possible accidents and malfunctions for the Project; it must consider the all-weather road, shipping spills, cyanide and other hazardous material spills, and pitwall/dikes /dam failure, and include an assessment of the accident risk and mitigation developed in consultation with Elders and potentially affected communities***

A list of possible accidents and malfunctions are included in the following Meadowbank Gold Project management plans provided in Appendix I1 of the 2013, 2014, 2015 and 2016 Annual Report:

- *Hazardous Materials Management Plan, v3, October 2013;*
- *Spill Contingency Plan, v6, March 2016;*
- *Emergency Response Plan, v11, January 2017;*
- *Oil Pollution Emergency Plan v7, May 2016;*
- *OMS Manual for TSF v7, March 2017;*
- *OMS Manual for the dewatering dikes v6; March 2017.*

Table 7.2 shows all spills that occurred on site, in Baker Lake and along the AWAR in 2016. Most spills were between 10 and 80L and were due to mechanical issues (e.g. broken hydraulic hoses).

As per NIRB Recommendation 14 found in "*NIRB's 2014-2015 Annual Monitoring Report for the Meadowbank Gold Project and Board's Recommendation*": Condition 75 requires that the Proponent provide a complete list of possible accidents and malfunctions for various Project components which includes an assessment of the accident risk and mitigation developed in consultation with Elders and Meadowbank Gold Project – 2014 Annual Report potentially affected communities. Although it is unclear in the submitted management plans whether and how these were developed in consultation with Elders and potentially affected communities. The Board requests that Agnico provide within its 2014 annual reporting, further discussion as to how various management plans relating to accident risk and mitigation have been developed in consultation with Elders and potentially affected communities.

In the 2014 Annual Report, Agnico complied with most of this condition, including the provision of a list of possible accidents and malfunctions as contained in the Spill Contingency and Emergency Response Plans. These Plans were originally reviewed as part of the NIRB and NWB License application process. As such there was extensive public review which included elders' participation at the associated hearings.

Furthermore, Agnico has consulted, yearly, with Elder representation as part of the Baker Lake Liaison Committee. Agnico hosted meetings quarterly in 2016. No significant spills occurred in 2016 and therefore possible accidents and malfunctions were not specifically discussed at the committee meetings in 2016. Although there were no concerns raised regarding this issue, Agnico did reassure the committee that the company would respond adequately to any spills occurring on the road. Agnico holds the yearly meeting with the community at large to discuss the AWAR Safety (December 14, 2016).

In 2016, as part of the International Cyanide Management Code (ICMC), no specific meeting were held with Baker Lake Community. However, notices have been posted on social media and radio announcements. In 2017, Agnico planned to include the ICMC in one of the community meeting.

To prevent and ensure accidents and malfunctions are dealt appropriately the following activities were held in 2016:

- Two crisis management training was held at the Meadowbank site to test Agnico ability to respond to a crisis. Personnel from all departments participated in the crisis scenario. Also, 4 session training regarding the role and responsibility were given to management people in 2016.

- Personnel at the Baker Lake Marshalling facility were given an information/training session on how to react to a major spill at the Baker Lake Bulk Fuel Storage & Marshalling Facility in July 2016. Among these personnel were Marshalling Area Supervisors, Warehouse Technicians, Environmental Technicians, and contractors from Intertek. This training was provided by the Environment Department.

SECTION 8. MONITORING

As required by Water License 2AM-MEA1525 Schedule B, Item 16: ***The results of monitoring under the Aquatic Effects Management Plan (AEMP) including:***

- ***Core Receiving Monitoring Program (CREMP);***
- ***Metal Mining Effluent Regulation (MMER) Monitoring;***
- ***Mine Site Water Quality and Flow Monitoring (and evaluation of NP-2);***
- ***Visual AWAR water quality monitoring;***
- ***Blast Monitoring;***
- ***Groundwater Monitoring.***

8.1 CORE RECEIVING MONITORING PROGRAM (CREMP)*

The CREMP 2016 report can be found in Appendix G1. Please take note that the following is just a summary of the CREMP report and Agnico will refer you to the whole report in Appendix G1 for an exhaustive comprehension of the program and results for 2016. The CREMP focuses on identifying changes in limnological parameters, water and sediment chemistry, or changes to primary (phytoplankton) and secondary (benthic invertebrate community) aquatic producers that may be associated with mine development activities. This is accomplished through the application of a temporal/spatial trend assessment that includes application of quantitative decision criteria (i.e., early warning "triggers" and action "thresholds") to facilitate immediate and objective decision-making regarding appropriate management actions. This information is integrated annually into the Aquatic Ecosystem Monitoring Program (AEMP) for holistic environmental management and decision making.

Meadowbank Study Lakes

CREMP monitoring started in 2006 and in-water mine development started in 2008. Key mine development activities that could result in changes to the aquatic receiving environment include: East Dike construction (2008), Bay-Goose Dike construction (2009-10), dewatering of both lakes and impoundments (2009-11, 2013, 2014), effluent discharge (2012 to present), and general site-related mining activities that mostly generate dust (e.g., rock crushing, blasting, ore and waste hauling; 2008 to present). Key findings for 2016:

- Water Chemistry – As in the past, there were some statistically significant mine-related changes relative to baseline/reference conditions identified in 2016 at one or more near-field (NF) areas that exceeded their respective triggers: alkalinity (SP); conductivity (TPN, TPE, SP, WAL); hardness (TPN, TPE, SP, WAL); major cations (i.e., calcium, potassium, magnesium, and sodium [TPN, TPE, SP, WAL]); and TDS (TPN, TPE, SP, WAL). In the absence of effects-based thresholds (e.g., CCME water quality criteria) for these parameters, their triggers were set at the 95th percentile of baseline data. While these results represent mine-related changes, the observed concentrations are still relatively low and unlikely to adversely affect aquatic life. These trends will be reviewed again in 2017.

* TSM- Biodiversity Conservation

- Sediment Chemistry – Quantitative trigger analysis for sediment is based on coring results, which are conducted on a three-year cycle to coincide with MMER EEM field studies. This program is scheduled for completion in 2017. Grab samples submitted for analysis in 2016 showed similar concentrations to previous years based on visual comparison of the data. With the exception of chromium at TPE, none of the grab samples exceeded the trigger values in 2016. The 2016 chromium concentrations at TPE are lower than peak concentrations observed in 2014 and 2015. This "apparent" decrease may be an artifact of spatial variability within the sediment area, rather than an actual reduction in sediment chromium concentrations. Nonetheless, the 2016 results are within the range of concentrations reported in 2015. A few PAHs were detected in the composite sediment samples from SP (naphthalene), TPE (acenaphthylene, naphthalene), WAL (2-methylnaphthalene, naphthalene), and INUG (phenanthrene). These results are somewhat anomalous given that most PAHs have been measured below the MDL dating back to the start of the CREMP. The concentrations were all within 5-times the MDL, and the absolute concentrations are unlikely to pose risk to benthic invertebrates at the NF locations. PAH concentrations will be monitored in 2017, consistent with previous reporting cycles. No additional studies are recommending beyond continued evaluation of the temporal trends in sediment metals concentrations in 2017 using BACI analysis of sediment core chemistry results. Sediment grab chemistry results will be monitored for PAHs as per the routine CREMP sediment sampling program.

- Phytoplankton Community – There were no statistically significant ($p<0.1$) adverse effects (i.e., >20% reduction) to phytoplankton biomass or taxa richness at the NF study areas in 2016. Biomass and richness were lower at TPE relative to baseline/reference conditions, but the results were either not significant (biomass) or the effect size was less than the trigger value of 20% (taxa richness). The trends in phytoplankton biomass and richness will be reviewed again in 2017.

- Benthic Invertebrate Community – WAL had particularly high abundance in 2016 relative to previous years. There was an "apparent" reduction (>20%) in total abundance at TPE, when compared to INUG, but none of the results were statistically significant. Furthermore, when compared to previous years the results are well within the range of natural variability. In summary, there were no statistically significant short-term (i.e., past year) or longer-term (i.e., past two to four years) trends in reduced abundance or richness at the NF locations in 2016. The trends in benthic invertebrate abundance and richness will be reviewed again in 2017.

Baker Lake

CREMP monitoring at Baker Lake started in 2008. Key mine-related activities include barge/shipping traffic and general land-based activities associated with the tank farm area. No spills of fuels, hydrocarbons or any other materials were reported in the vicinity of the barge dock or jetty in 2016. There were no cases where water quality parameters exceeded the triggers in 2016. Overall, no changes in the aquatic receiving environment were observed that were attributable to Agnico's activities in Baker Lake, and as such, no follow-up management actions are required for 2017 beyond routine monitoring.

8.2 MMER AND EEM SAMPLING

This section includes the results of the monitoring programs conducted under the Metal Mining Effluent Regulations (MMER) and its Schedule 5 Environmental Effects Monitoring (EEM) Studies. A list of the sampling location GPS coordinates is provided in Table 8.1. Figures 1, 2, 3 and 4 illustrate the location of sampling stations at the Meadowbank mine site, EEM receiving environment monitoring program, the Vault Site, and Baker Lake marshalling facilities, respectively. Certificates of Analysis are included in Appendix G2.

8.2.1 Portage Attenuation Pond Discharge

On November 19, 2014 tailings deposition commenced in the South Cell (Portage Attenuation Pond) and this represented the end of use of the Portage Attenuation Pond. There has been no further effluent discharge to Third Portage Lake since November, 2014. Therefore sample locations ST-9 (Portage Attenuation Pond effluent discharge point) or ST-MMER-1 are no longer active.

On February 13, 2014, Agnico submitted the EEM Biological Study Design 2 to Environment Canada. On August 11, the approval letter from ECCC Canada (dated July 21, 2014) was received. On August 12 2015, Agnico provided ECCC the updated schedule for the EEM Cycle 2 as outlined in the approval letter. The sampling for the EEM successfully took place at the end of August and was completed during the first week of September. As per MMER requirements, the interpretive report was submitted to Environment Canada in June 26 2015. Agnico received from the EEM Cycle 2 Interpretative report's comments from ECCC on January 20, 2016. On February 21, 2017, Agnico sent his response to ECCC's comments (Appendix G3 for ECCC comments and Agnico' s response)

The next Biological Monitoring Study will be conducted in the summer of 2017. Agnico will conduct an EEM Cycle 3 study evaluating Wally Lake (Vault Discharge) as requested by ECCC. Refer to Section 8.2.2 below for details.

8.2.2 Vault Attenuation Pond Discharge

The Vault Discharge became subject to the Metal Mines Effluent Regulations (MMER) on June 27, 2013 during the dewatering of Vault Lake. Vault Discharge (sampling station ST-10, also named ST-MMER-2) from the Vault Attenuation Pond to Wally Lake occurred from July 17 to October 11, 2016. The total amount discharged in 2016 was 1,008,457 m^3.

In 2016, the TSS removal water treatment plant was not required as the contact water from the Vault Attenuation Pond was compliant with section 4 (1) of the of the MMER regulation as well as the Type A Water License criteria for TSS. Discharge monitoring samples were collected weekly and acute toxicity was sampled monthly. Agnico Eagle sent a requested to ECCC in February 2016 to reduce the testing frequency of the Ra226 to once per quarter. On March 15, 2016, the request has been approved by ECCC (Appendix G4). Results are provided in Table 8.2. The volume of water discharged to the environment was reported on a weekly basis under the MMER monitoring program and can be found in Table 8.3.

Under the Environmental Effects Monitoring (EEM) program, Agnico was required in 2016 to collect sub-lethal toxicity samples at this discharge point. As per subsection 6(1) *"[…] sub-lethal toxicity test under Section 5 shall be conducted two times each calendar year for three years and once each year after the*

third year […]" because the Vault Lake Attenuation Pond Discharge became, in 2015, the mine's final discharge point that has potentially the most adverse environmental impact on the environment. The sub-lethal toxicity samples were collected, for the second year, on July 18 and August 22, 2016. The water quality samples were taken from the discharge location, the receiving environment exposure area (WLE or ST-MMER-2-EEM-WLE) and reference area (TPS or ST-MMER-1-EEM-TPS). These sampling locations are highlighted on Figures 3 and 2. Results of the EEM water quality monitoring programs is presented in Table 8.4. The EEM effluent characterization, water quality from the exposure (WLE) and reference (TPS) monitoring samples were collected in July, August and September 2016. Given the short duration of discharge only three samples were collected. This data was previously reported to Environment Canada via the RISS electronic database reporting system.

The next Biological Monitoring Study will be conducted in the summer of 2017. Agnico will conduct an EEM Cycle 3 study evaluating Wally Lake (Vault Discharge) as requested by ECCC. The Vault discharge is currently the effluent which has the greatest potential to have an adverse effect on the receiving environment. While discharge is occurring, plume/effluent mixing in the exposure area has been assessed during the summer of 2016 in support of the Cycle 3 study design. The study design has been submitted to ECCC on February 17, 2017 and the next Interpretive Report will be provided to ECCC by July 2018.

8.2.3 East Dike Discharge

The East Dike Seepage Discharge became subject to the Metal Mines Effluent Regulations (MMER) on January 6, 2014. In 2016, Agnico continue to pumped water from the two seepage collection points (North and South) on the west side of the East dike which collect Second Portage Lake seepage. Water was pumped from both South and North seepage and discharged through a common header through a diffuser into Second Portage Lake. The seepage water was released into the environment, prior to contact with mining activity, without treatment as it is compliant with section 4 (1) of the regulation. Discharge monitoring samples were collected weekly and acute toxicity was sampled monthly. Agnico Eagle sent a requested to ECCC in February 2016 to reduce the testing frequency of the Ra226 to once per quarter. On March 15, 2016, the request has been approved by ECCC (Appendix G4). Agnico sent a second request in August 2016 to ECCC to reduce the sampling frequency of Item 1 to 6 in column 1 of the Schedule 4, reduce acute lethality and Daphnia magna testing to not less than once per quarter. On September 15, 2016, ECCC approved the Agnico Eagle's request. The reduced frequency has started on October 1, 2016. Results are provided in Table 8.5.

East Dike Seepage (sampling station ST-8, also named ST-MMER-3) was discharged into the receiving environment, Second Portage Lake (SPL), from January 1 to December 31, 2016. The total volume discharged in 2016 was 180,416 m^3. In 2016, no seepage water was directed to the Portage Pit sumps as concentrations were approaching TSS MMER and Water License criteria.

The volume of water discharged to the environment was reported on a weekly basis pursuant to the MMER monitoring program requirements. Table 8.6 provides a daily breakdown of volumes of water pumped.

Under the Environmental Effects Monitoring (EEM) program, Agnico was not required to collect sub-lethal toxicity samples at this discharge point as per subsection 5(2) of MMER regulation. Sub-lethal are collected at the Vault Attenuation Pond discharge as discussed in Section 8.2.2 above. The water quality samples were taken from the discharge location (ST-MMER-3), the receiving environment exposure area

(SPLE or ST-MMER-3-EEM-SPLE) and reference area (TPS or ST-MMER-1-EEM-TPS). These sampling locations are highlighted on Figures 1 and 2. Results of the EEM water quality monitoring program are presented in Tables 8.7. The EEM effluent characterization monitoring samples were collected in January, March, June and September. Samples were also collected from the exposure (SPLE) and reference (TPS) areas in April, July, August and September. This data was previously reported to Environment Canada via the RISS electronic database reporting system.

8.2.4 EEM interpretive Report Cycle 2 and EEM Study Design Cycle 3

The Meadowbank Mine began discharging treated effluent (TSS removal during dewatering activity) during 2009, and was subsequently required under the Metal Mining Effluent Regulations (MMER) to monitor effects of that effluent on fish and fish habitat. The second EEM Interpretive Report was submitted to Environment and Climate Changes Canada on June 26, 2015 (Appendix G3 of the 2015 Annual Report). This report documents the results of the adult fish population survey and the benthic invertebrate community survey completed for the mine`s Cycle 2 EEM biological monitoring studies, as well as the sub-lethal toxicity testing carried out on the Meadowbank Division effluent since the drafting of the Cycle 2 Study Design. Agnico received from the EEM Cycle 2 Interpretative report's comments from ECCC on January 20, 2017. On February 21, 2017 Agnico sent the response to ECCC's comments (Appendix G3 for ECCC comments and Agnico' s response)

The next Biological Monitoring Study will be conducted in the summer of 2017. Agnico will conduct an EEM Cycle 3 study evaluating Wally Lake (Vault Discharge) as requested by ECCC. The Vault discharge is currently the effluent which has the greatest potential to have an adverse effect on the receiving environment. While discharge is occurring, plume/effluent mixing in the exposure area has been assessed during the summer of 2016 in support of the Cycle 3 study design. The study design has been submitted to ECCC on February 17, 2017 and the next Interpretive Report will be provided to ECCC by July 2018.

8.3 MINE SITE WATER QUALITY AND FLOW MONITORING (AND EVALUATION OF NP2)

As required by Water License 2AM-MEA1525 Schedule B-15: ***The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.***

And

As required by DFO Authorizations NU-03-0191.3 Condition 3.1 (Second and Third Portage Lakes), NU-03-0191.4 (Vault Lake) Condition 3.1; NU-03-0190 Condition 5 (AWPAR), NU-14-1046 (Phaser Lake) Condition 3; ***Submit written report summarizing monitoring results and photographic record of works and undertakings.***

This section includes the aquatic monitoring requirements as detailed under the Water Quality and Flow Monitoring Plan (Agnico, 2016). A list of the sampling location GPS coordinates for aquatic monitoring programs conducted by Agnico is provided in Table 8.1. Summaries of associated aquatic monitoring reports are presented in the following section of this report and supporting documents are located in the listed appendices. Figures 1, 2, 3 and 4 illustrate the location of sampling stations at the Meadowbank mine site, EEM receiving environment monitoring program, Vault Site, and Baker Lake marshalling facilities respectively. Certificates of Analysis are included in Appendix G2.

8.3.1 Construction Activities

As required by DFO Authorization NU-03-0191.3 Condition 3.1: ***The Proponent shall undertake monitoring and report to DFO annually, by March 31st, whether works, undertakings, activities or operations for the mitigation of potential impacts to fish and fish habitat were conducted according to the conditions of this Authorization.***

And

As required by DFO Authorization NU-03-0191.4 Condition 3.1: ***The Proponent shall undertake monitoring and report to DFO annually, by December 31st, whether works, undertakings, activities or operations for the mitigation of potential impacts to fish and fish habitat were conducted according to the conditions of this Authorization.***

In 2016, there were no occurrences where runoff water from any work, undertaking, activity or operation would flow directly or indirectly into a water body. No mitigation action was necessary.

8.3.2 Dewatering Activities

In 2016, following approbation from all regulators (DFO, NIRB, NWB), Agnico Eagle started the dewatering and fishout of Phaser Lake in prevision of starting mining in Q2, 2017.

Phaser Lake dewatering started on August 26 and was completed on October 4. A total of 407,666 m^3 of water was transferred to the Vault Attenuation Pond. Table 8.8 below shows the break down per month of pumped water from Phaser Lake. Water was managed according to NWB Water License 2AM-MEA1525 Part D, Item 8 and is directed through the approved Vault Attenuation Pond. Table 8.9 provide monitoring results for Phaser Lake pumped water (ST-DD-6 on Figure 3) to Vault Attenuation Pond. The monitoring consists of daily reading for Turbidity and TSS and weekly for pH and total aluminium for Phaser Lake dewatered water (ST-DD-6a). Agnico also conduct on a weekly basis a monitoring of Wally Lake (ST-DD-6c) for Turbidity and pH. It should be note that this water from Phaser Lake was not discharge directly to the environment but rather in the Vault Attenuation Pond so the results are presented for indicative purpose only. During dewatering and operations, Agnico Eagle continue to meet approved license discharge limits of effluent from the Vault Attenuation Pond prior to discharge through Wally Lake diffuser (See Section 8.2.2 and Table 8.2). Water discharged during dewatering and operations follow Part F, Item 4 and 5 effluent discharge limits, monitoring and acute lethality testing. The approved monitoring of Wally Lake receiving environment as part of the CREMP and MMER monitoring continue.

Phaser Lake Fishout started August 14, 2016 and was completed on September 26 with DFO approbation. A total of 1,357 fish were caught and 72% has been successfully transferred to Wally Lake. See Section 8.8 for more details on Phaser Lake Fishout.

Table 8.8. 2016 Phaser Lake dewatering pumped water

Month	Volume pumped (m^3)
January	0
February	0
March	0
April	0
May	0

June	0
July	0
August	77,616
September	315,330
October	14,720
November	0
December	0
Total	**407,666**

Table 8.9. 2016 Phaser Lake dewatering monitoring results

Date	ST-DD-6a				ST-DD-6c		License Requirements							
	Turbidity	TSS	pH	Total Aluminium	Turbidity	TSS	NTU 24-hour Maximum	NTU 30-day Average	TSS 24-hour Maximum	TSS 30-day Average	pH 24-hour Maximum	pH 30-day Average	Al 24-hour Maximum	Al 30-day Average
	NTU	mg/L		mg/L	NTU	mg/L	30	15	22.5	15	6.0 - 9.0	6.0 - 9.0	1.5	3.0
2016-08-26	NA	2.4						0.00	2.40	1.20				0.00
2016-08-28	0.15	3.2	7.04	0.031			0.15	0.08	3.20	1.87	7.04	3.52	0.03	0.02
2016-08-29	1.07	0.4		0.029	0.03	< 1.0	1.07	0.41	0.40	1.50		3.52	0.03	0.02
2016-08-30	NA	NA						0.41		1.50		3.52		0.02
2016-08-31	0.04	0.1					0.04	0.32	0.10	1.22		3.52		0.02
2016-09-01	NA	0.6						0.32	0.60	1.12		3.52		0.02
2016-09-02	NA	1.2						0.32	1.20	1.13		3.52		0.02
2016-09-03	NA	0.5						0.32	0.50	1.05		3.52		0.02
2016-09-04	NA	1.8	7.49	< 0.006	0.00	3		0.32	1.80	1.13	7.49	4.84	0.01	0.02
2016-09-05	NA	5.0						0.32	5.00	1.52		4.84		0.02
2016-09-06	NA	5.2						0.32	5.20	1.85		4.84		0.02
2016-09-07	NA	6.3						0.32	6.30	2.23		4.84		0.02
2016-09-08	NA	4.8						0.32	4.80	2.42		4.84		0.02
2016-09-09	NA	3.9						0.32	3.90	2.53		4.84		0.02
2016-09-10					No pumping			0.32		2.53		4.84		0.02
2016-09-11					No pumping			0.32		2.53		4.84		0.02
2016-09-12					No pumping			0.32		2.53		4.84		0.02
2016-09-13					No pumping			0.32		2.53		4.84		0.02
2016-09-14					No pumping			0.32		2.53		4.84		0.02
2016-09-15	5.50	3.6		0.087			5.50	1.35	3.60	2.60		4.84	0.09	0.03
2016-09-16	4.50	NA	7.09				4.50	1.88		2.60	7.09	5.41		0.03
2016-09-17	4.45	NA			3.50	5.0	4.45	2.24		2.60		5.41		0.03
2016-09-18	4.26	0.4					4.26	2.50	0.40	2.46		5.41		0.03
2016-09-19	4.90	7.6					4.90	2.76	7.60	2.76		5.41		0.03
2016-09-20	8.40	6.8		0.088	NA	17.0	8.40	3.33	6.80	2.99		5.41		0.04
2016-09-21	4.80	4.8					4.80	3.46	4.80	3.08		5.41		0.04
2016-09-22	9.15	6.8					9.15	3.94	6.80	3.27		5.41		0.04

2016-09-23					No pumping			3.94		3.27		5.41		0.04
2016-09-24					No pumping			3.94		3.27		5.41		0.04
2016-09-25					No pumping			3.94		3.27		5.41		0.04
2016-09-26	2.58						2.58	3.83		3.32		5.41		0.04
2016-09-27					No pumping			4.14		3.32		4.86		0.04
2016-09-28	3.57	9.9					3.57	4.35	9.90	3.85		4.86		0.05
2016-09-29	8.30	65.3					8.30	4.65	65.30	7.08		4.86		0.05
2016-09-30	38.20	30.4		0.182	4.56	< 1.0	38.20	7.59	30.40	8.68		4.86	0.18	0.07
2016-10-01	8.60	8.6	7.56				8.60	7.66	8.60	9.10	7.56	5.54		0.07
2016-10-02	23.80	29.7					23.80	8.73	29.70	10.60		5.54		0.07
2016-10-03					No pumping			8.73		11.16		5.54		0.07
2016-10-04	NA	NA						8.73		11.71		4.88		0.09

NA: Technician didn't take the reading

8.3.3 Mine Site Water Collection System

A water collection system comprised of the Stormwater Management Pond, attenuation ponds, tailings storage facilities, diversion ditches and sumps has been developed to control surface and groundwater at the Meadowbank project. The following section reviews the water quality monitoring conducted around the mine site. Volumes of water transferred around the mine site are also discussed (Table 8.10). Specific details regarding water transfers can be found in the 2016 Water Management Plan and Report (Appendix C2).

8.3.3.1 Stormwater Management Pond

The Stormwater Management Pond collects runoff water as well as the STP treated effluent. A total of 46,338 m^3 of water was transferred from the Stormwater Management Pond to the South Cell TSF in June and August (Table 8.10). No water was released into the environment.

8.3.3.2 Portage Attenuation Pond (ST-9)

As of November 19, 2014 when tailings deposition began in the South Cell TSF, the Portage Attenuation Pond ceased operation as an effluent discharge pond. Water in the South Cell TSF is currently used as reclaim water for the mill. There was no discharge from ST-9 into Third Portage Lake in 2016. The location of sampling station ST-9 is illustrated on Figure 1.

Channel crossing inspections will not be undertaken in 2017 as no further discharge is planned from the Portage Attenuation Pond into Third Portage Lake.

8.3.3.3 Vault Attenuation Pond (ST-25)

The dewatering of Vault Lake was officially completed on June 29, 2014. The dewatered Vault Lake became the Vault Attenuation Pond. Sampling of ST-25 (Vault Attenuation Pond) as per Water License 2AM-MEA1525 started in July 2014.

Surface water was sampled monthly during open water from the Vault Attenuation Pond as per the requirements in the NWB Type A Water License (sampling station ST-25). There are no applicable license limits. The data is presented in Table 8.11 for information purposes only. The location of sampling station ST-25 is illustrated on Figure 3.

8.3.3.4 Vault Discharge (ST-10, ST-MMER-2)

The water collected in the Vault Attenuation Pond was discharged through the diffuser to Wally Lake as effluent from July 17 to October 11, 2016 for a total of 1,008,457 m^3. Prior to discharge (June 20, 2016), samples were collected to confirm that no regulatory limits would be exceeded. The water was not treated at the onsite WTP for TSS removal as the water quality was in compliance with Water License Part F, Item 4 and MMER. Samples were collected weekly from the final discharge point (ST-10) as per the requirements of the Water License and MMER. Results are detailed in Table 8.12 and the location of ST-10 is shown on Figure 3. All results were in compliance with the Water License Part F, Item 4 for effluent quality limits as well as MMER criteria (Section 8.2.2 above).

8.3.3.5 East Dike Discharge (ST-8, ST-MMER-3)

As mentioned in Section 3.1.1 c, seepage rates and volumes through the East dike have been stable for the past five years. In 2016, 180,416 m^3 of water collected from the seepage at the East dike was pumped to Second Portage Lake through the diffuser.

Results from samples collected in 2016 at the final discharge point (ST-8) can be found in Table 8.13. Effluent water is analyzed as per NWB Water License Schedule I. In 2016, all results were compliant with Water License Part F, Item 6 for TSS and MMER criteria. The sampling location is illustrated on Figure 1.

8.3.3.6 Tailings Storage Facility (ST-21)

The North Cell Tailings Storage Facility became operational in February 2010. On November 17, 2014 the reclaim water intake was transferred from the North Cell TSF to the South Cell TSF. Tailings deposition was also stopped in the North Cell TSF and commenced in the South Cell TSF at that time. As per the NWB Water License, sampling station ST-21 changed location from the North to the South Cell. Sampling was conducted monthly as per the requirements of the NWB Water License. There are no applicable license limits for this station as the water is used as reclaim water at the mill. Sample results are presented in Table 8.14. The location of sampling station ST-21 (South Cell TSF) is illustrated on Figure 1. As per the water license, no more monitoring in the TSF North Cell is required.

8.3.3.7 North Portage Pit Sump (ST-17)

In 2011 a sump was constructed in the North Portage pit in an area of water accumulation. Water from the North Portage Pit sump was sampled monthly during open water as per the requirements in the NWB water license (sampling station ST-17). There are no applicable license limits. The sampling location is illustrated on Figure 1 and results are presented in Table 8.15.

In 2016, 83,415 m^3 of water was transferred from the North Portage Pit Sump to the South Cell TSF. See Table 8.10 for a breakdown per month.

8.3.3.8 South Portage Pit Sump (ST-19)

In 2016, water from the South Portage Pit sump was sampled monthly during open water as per the requirements in the NWB Water License (sampling station ST-19 on Figure 1). Results are presented in Table 8.16. There are no applicable license limits.

In the past, seepage water (ST-S-1) from East Dike was pumped in this sump and ultimately pumped to the Portage Attenuation Pond or the Stormwater Management Pond. However, as of January 2014, water from the East Dike Seepage (ST-8) was pumped back to Second Portage Lake. By discharging the seepage water back to the lake, the volume of water to be pumped from the Portage Pit sumps has significantly decreased.

In 2016, 48,944 m^3 of water was transferred from the South Portage Pit Sump to the South Cell TSF.

8.3.3.9 Goose Island Pit Sump/Lake (ST-20)

In 2012 a sump was constructed in the Bay Goose pit in an area of water accumulation. Water that was collected in the Goose Pit sump was transferred to the South Cell TSF from January to June 2015. Mining activities have ceased in the Goose pit in April 2015. Starting in June 2015, no additional water was pumped out of the Bay Goose Pit; instead runoff and groundwater were kept in the pit to contribute to natural re-flooding of the pit. Artificial re-flooding of Goose Pit with water from Third Portage Lake could start during the summer of 2017. Agnico will provide at least thirty (30) days' notice to the NWB and Inspector prior to the re-flooding as per Water License 2AM-MEA1525 Part E Item 12.

As mentioned in Section 3.1.1 c, seepage rates and volumes through the Bay Goose dike are not significant. No seepage collection system has been implemented because there is no evidence of significant seepage that had affected the mining operation or the dike integrity, and that warrants a collection system.

In 2016, Agnico collected monthly water quality samples (4) from July to October at the bottom of the pit at station ST-20 Goose Pit Lake. In 2016, it has been possible to take more than one sample, as it was the case in 2015, because the access was cleared and secured in Goose Pit. Results of sampling conducted at station ST-20 Goose Island Pit Lake are presented in Table 8.17; the sampling location is illustrated on Figure 1. Samples were collected monthly during open water as per the requirements in the NWB water license at a sump a top of Bay Goose Pit (sampling station ST-20 Goose Pit Sump). The data are presented in Table 8.18; the sampling location is illustrated on Figure 1. There are no applicable license limits for ST-20 Goose Pit Sump and ST-20 Goose Pit Lake as the water was not directly released into the environment; the data is presented for information purposes only. Data analysis for samples collected at ST-20 Goose Island Pit Lake is presented in the 2016 Meadowbank Water Quality Forecasting Update (Appendix C of 2016 Water Management Report and Plan in Appendix C2).

8.3.3.10 Vault Pit Sump (ST-23)

In 2014 a sump was constructed in the Vault pit in an area of water accumulation. Water from the Vault Pit is to be sampled monthly during open water as per the requirements in the NWB water license (Figure 3). However, in 2016 due to safety issues (no secure access), no water samples were collected in July and October (Table 8.19). Agnico Eagle will make sure that water sample will be collected in all open water season month. To do this, Agnico is currently developing an action plan with the mine operation to assist in safe sampling of sumps during the next open water season, in order to get more sampling results for the pit sumps. The water accumulated in the Vault Pit sump was pumped to the Vault Attenuation Pond. A total volume of 54,964 m^3 was transferred in 2016; the monthly breakdown is provided in Table 8.10. There are no applicable license limits for ST-23.

8.3.3.11 Portage Rock Storage Facility (ST-16)

The Portage Waste Rock Storage Facility (PRSF) has been in operation since 2009. In 2013, ponded water was observed at the south-east base of the PRSF (sampling station ST-16). This was first reported in the 2013 Annual Report (as well as to regulators in July 2013) as a small volume of the seepage, with elevated levels of Cyanide, Nickel and Copper (among other constituents) had migrated, through a rockfill perimeter road, to the near shore area of NP-2 Lake. Agnico determined, in 2013, that the seepage contained reclaim water from the North Cell TSF that had flowed under the PRSF to a sump area designated as sampling station ST-16 (refer to RSF Seepage Golder Report in Appendix G5 of the 2013 Annual Report).

Mitigation measures were implemented in since 2013 and this included daily inspections during the freshet period, the installation of a pumping system in ST-16 to direct accumulated water back to the North Cell TSF, installation of four thermistors to analyse freezing in the PRSF and installation of a filter barrier along RF-1 and 2 to prevent water and tailings egress from the North Cell (tailings water) through the PRSF to ST-16. As part of progressive reclamation capping of the North Cell tailings commenced in winter 2015 and continued in 2016. The North portion on the North Cell was capped in 2015 and a 30m strip was placed in front of RF1 and RF2 in 2016 to eventually connect to the 2015 capping in winter 2017. Capping of the North Cell is continuing in 2017. The tailings are capped in the area of RF-1 and RF-2 which assist to prevent any seepage migration from the North Cell. Also in 2016, 342,538 m^3 of North Cell water was transferred to the South Cell reclaim pond minimizing the water contained in this cell. Thermistors installed in 2013 indicate that freezeback is occurring along the seepage path. Since 2014, a permanent pumping system has been operating at ST-16, to collect water and pump it to the TSF North Cell. Water volumes pumped from ST-16 and deposited in the North Cell TSF are provided in Table 8.10. Water volumes pumped in 2016 at ST-16 (20,844 m^3) was similar to the pumped volume of 2015 (19,236 m^3) and still lower than volume in 2014 (32,169 m^3). The installation of the filters at RF-1 and RF-2, capping of tailings and decreased water volume in the North Cell likely contributed to maintain low the volumes pumped. It is also an indication that mitigation measures have been effective in controlling and minimizing seepage from the North Cell.

In accordance with the 2016 Freshet Action Plan (see Appendix D of the 2016 Water Management Report and Plan (Appendix C2)), Agnico continued in 2016 to monitor water quality and contain the ST-16 Seepage. This is conducted to assess and prevent any impact to the receiving environment (NP2) and to downstream lakes (NP-1, Dogleg and Second Portage). Monitoring stations are illustrated on Figure 1. Water quality results can be found in Table 8.20 for ST-16, Table 8.21 for NP2, Table 8.22 for downstream lakes (NP-1, Dogleg and Second Portage Lake). 2014, 2015 and 2016 averages for parameters of concern can be found in Tables 8.23, 8.24 and 8.25, respectively. Results are presented for information purposes only as there are no applicable license limits at this location.

The 2014, 2015 and 2016 average analysis results for applicable parameters confirmed no impacts to downstream lakes (NP-1, Dogleg, Second Portage Lake). The average Nickel, Cyanide Free, Cyanide Total, Ammonia (NH3) and Ammonia Nitrogen results are all below CCME, Water Licence and MMER criteria in NP-2 Lake. No cyanide in any form has been detected in NP-2 or downstream lakes for the past 3 years. Copper is slightly elevated above CCME at NP-2 South, East, West, and NP1-West but has decreased from 2014 results. Under ice samples collected at NP2 show a similar trend. Also, the 2016 results slightly decreased from 2015 analysis results for contaminants of concern at the receiving environment and the downstream lakes monitoring stations. From the results, the action plan implemented by Agnico has been very successful in preventing any further seepage into NP-2 Lake and into the ST-16 sump itself. The MDRB has commented on the success of this action plan. The till plug, pumping system, installation of filters and effective tailings beaches at RF-1 and RF-2, progressive tailings capping at RF-1 and RF-2 and the dewatering of the North Cell in 2015 and 2016 have effectively mitigated this problem. In addition, thermistors installed in the RSF indicate freezing in the former seep path is occurring (which would mean that no water is migrating), as described in Section 5.3.2.

Table 8.23. 2014 Monitoring Results for ST-16, NP2, NP1, Dogleg and Second Portage Lake

Parameters	Regulatory limit			Unit	2014 Average							
	Water License	MMER	CCME		ST-16	NP-2 South	NP-2 East	NP-2 West	NP-1 West	Dogleg North	SPL-RSF Seep	NP-2 Winter
Ammonia (NH3)	NA	NA	2.33 as N	mg N/L	0.62	0.02	0.03	0.03	**0.01**	**0.01**	**0.01**	
Ammonia nitrogen (NH3-NH4)	32	NA	NA	mg N/L	28.85	2.90	2.93	3.19	0.22	0.01	0.02	7.10
CN total	1.00	1.00	NA	mg/L	1.38	0.02	0.01	0.01	0.003	**0.003**	**0.003**	0.03
CN Free (SGS)	NA	NA	0.005	mg/L	0.18	0.004	0.004	0.004	0.004	0.004	0.004	
CN WAD	NA	NA	NA	mg/L	1.12	0.02	0.004	0.01	0.004	0.003	0.003	0.05
Copper	0.2	0.60	0.002	mg/L	0.4871	0.0085	0.0076	0.0107	0.0021	0.0008	0.0006	0.0340
Nickel	0.4	1.00	0.025	mg/L	0.4934	0.0134	0.0126	0.0138	0.0043	0.0010	0.0006	0.0360

Bold values correspond to half detection limits.

Table 8.24. 2015 Monitoring Results for ST-16, NP2, NP1, Dogleg and Second Portage Lake

Parameters	Regulatory limit			Unit	2015 Average							
	Water License	MMER	CCME		ST-16	NP-2 South	NP-2 East	NP-2 West	NP-1 West	Dogleg North	SPL-RSF Seep	NP-2 Winter
Ammonia (NH3)	NA	NA	2.33 as N	mg N/L	0.01	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
Ammonia nitrogen (NH3-NH4)	32	NA	NA	mg N/L	1.1	**0.005**	0.027	**0.005**	**0.005**	**0.005**	**0.005**	0.007
CN total	1.00	1.00	NA	mg/L	0.02	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**
CN Free (SGS)	NA	NA	0.005	mg/L	**0.0025***	**0.0025***	**0.0025***	**0.0025***	**0.0025***	**0.0025***	**0.0025***	**0.0025**
CN WAD	NA	NA	NA	mg/L	0.007	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**
Copper	0.2	0.60	0.002	mg/L	0.047	0.005	0.006	0.005	0.0025	0.0004	**0.00025**	0.006
Nickel	0.4	1.00	0.025	mg/L	0.05	0.005	0.009	0.005	0.0025	0.0005	**0.00025**	0.006

Bold values correspond to half detection limits.
**Cn Free sample collected on August 18, 2015 was damaged during transportation. Therefore, it was not analysed. When Agnico noticed the situation, it was too late to collect another sample for the month.*

Table 8.25. 2016 Monitoring Results for ST-16, NP2, NP1, Dogleg and Second Portage Lake

Parameters	Regulatory limit			Unit	2016 Average							
	Water License	MMER	CCME		ST-16	NP-2 South	NP-2 East	NP-2 West	NP-1 West	Dogleg North	SPL-RSF Seep	NP-2 Winter
Ammonia (NH3)	NA	NA	2.33 as N	mg N/L	0.0063	**0.0050**	**0.0050**	**0.0050**	**0.0050**	**0.0050**	0.0063	**0.0050**
Ammonia nitrogen (NH3-NH4)	32	NA	NA	mg N/L	0.2775	0.0275	0.0325	0.0700	0.0438	0.0438	0.0250	0.1350
CN total	1.00	1.00	NA	mg/L	0.0020	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	0.0016	**0.0022**
CN Free (SGS)	NA	NA	0.005	mg/L	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	**0.0025**	0.0031	**0.0025**
CN WAD	NA	NA	NA	mg/L	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	**0.0015**	0.0016	**0.0022**
Copper	0.2	0.60	0.002	mg/L	0.0259	0.0050	0.0031	0.0034	0.0027	0.0013	0.0011	0.0062
Nickel	0.4	1.00	0.025	mg/L	0.0369	0.0083	0.0056	0.0074	0.0047	0.0027	0.0066	0.0104

Bold values correspond to half detection limits.

The KIA requested that Agnico continue monitoring until there is a 5 year period of non-detect cyanide results. To date (previous 3 years) the monitoring has indicated no CN levels in NP-2, NP-1 and downstream lakes, Dogleg and Second Portage. Thus the current program will continue in 2017 and 2018. In 2017, Agnico will assess the data after the sampling season as required.

8.3.3.12 PRSF – Waste Extension Pool (WEP/ ST-30 and sT-31)

In 2014, as per inspections conducted within the framework of the Freshet Action Plan, run off was noted at the northeast side of the NPAG waste rock extension pile in a natural depression (WEP). Agnico contained this run off and pumped it back to the North Cell TSF as a precaution and to prevent egress to the East Diversion non-contact water ditch. In 2016, 5,496 m^3 of water was pumped from the WEP collection system to the North Cell TSF which includes 3,694 m^3 of water from WEP1 and 1,802 m^3 from WEP2 (Table 8.10). The water from the WEP collection system is pumped to the ST-16 sump system, and the pumped to the North Cell TSF. In 2015, 15,569 m^3 of water was pumped from the WEP collection system to the North Cell TSF. Because the freshet in 2016 was more progressive and less sudden than in 2015, less water needed to be pumped from the sump because of evaporation.

WEP1 and WEP2 sumps were constructed in September 2015 (Appendix G4 of the 2015 Annual Report) to better manage water around the northeast side of the PRSF and to ensure that all water ponding behind the PRSF is transferred back to the North Cell TSF (and eventually transferred to the South Cell). The sumps WEP1 and WEP2 have replaced the natural depression forming the former WEP for the water management in this area. Sumps locations are illustrated on Appendix G4 of the 2015 Annual Report. Sampling have commence in 2016 at sumps WEP1 and WEP2 as per NWB Water License 2AM-MEA1525. There are no applicable license limits. The sampling location is illustrated on Figure 1 and results are presented in Table 8.26 for WEP1 and Table 8.27 for WEP 2.

Results of samples collected in 2016 at station ST-5 (East Diversion ditch discharge point into NP2) are documented in Table 8.28. The results from summer 2016 show that no water coming from the former WEP collection system was in contact with the East Diversion ditch. Agnico will continue to monitor the area and will ensure that water collected in WEP1 and WEP2 sumps are pumped back into the North Cell TSF.

8.3.3.13 Vault Rock Storage Facility (ST-24)

The Vault Waste Rock Storage Facility (VRSF) has been in operation since 2013. In 2016, ponded water was observed at the base of the VRSF (sampling station ST-24) in June, July and September. As per NWB Water License, samples were collected to assess water quality and the results are presented in Table 8.29. No water was pumped from this location as it is mainly a ponding area without flow. There are no applicable license limits at this location as there is no discharge to the environment; the data is presented for information purposes only. The location of this sampling station (ST-24) is illustrated on Figure 3.

8.3.3.14 Saddle Dam 1 (ST-S-2)

Water accumulated at the base of Saddle Dam 1 was pumped into the North Cell TSF (15,960 m^3 in 2016 – Table 8.10). This water originates from non-contact surface runoff from the surrounding terrain because of the topography. Water samples were collected during the open water season to assess water quality. There are no applicable license limits for this location as the water was not being released into the

environment; the data is presented in Table 8.30 for information purposes only. The sampling location (ST-S-2) is illustrated on Figure 1. The water accumulation at the toe of Saddle Dam 1 does not have any major consequence on the integrity of the TSF infrastructure, as the water is pumped and properly managed. As said previously, waster was pumped back to the North Cell TSF as a mitigation measure. Inspection continues to be held at this location on a weekly basis to ensure conformity.

8.3.3.15 Central Dike Seepage (ST-S-5)

Sampling was conducted monthly as per the requirements of the NWB water license. There are no applicable license limits for this station as the water is pumped back to the South Cell TSF. Sample results are presented in Table 8.31. See Figure 1 for the location of ST-S-5. As show on Table 8.10, in 2016, 4,597,688 m^3 of water was transferred from the Central Dike Seepage Sump to the South Cell TSF. Refer to Section 8.3.7.2 for details on the Central Dike seepage regarding consequence and mitigation measure in place.

8.3.3.16 Saddle Dam 3 (ST-32)

Water accumulated at the base of Saddle Dam 3 was pumped into the South Cell TSF (22,095 m^3 in 2016 – Table 8.10). This water originates from non-contact surface runoff from the surrounding terrain. Water samples were collected during the open water season to assess water quality. There are no applicable license limits for this location as the water was not being released into the environment; the data is presented in Table 8.32 for information purposes only. The sampling location (ST-32) is illustrated on Figure 1. Water accumulation at the toe of Saddle Dam 3 does not have any consequence on the integrity of the TSF infrastructure. As said previously, water was pumped back to the South Cell TSF as a mitigation measure. Inspections continue to be held at this location on a weekly basis to ensure conformity.

8.3.3.17 Landfarm

The Meadowbank landfarm was constructed at the end of 2012. In 2016, following the freshet a very small pool of water was identified in the landfarm. One sample was collected in June 6, 2016 to assess water quality and the results are presented in Table 8.33. There are no applicable license limits for this location as the water was not being released into the environment. No seepage of water outside of the landfarm was observed in 2016. Refer to the Landfarm management Plan (Appendix I1) for the new location of the landfarm and the monitoring station.

8.3.3.18 Landfill

No water quality monitoring was completed at the landfill in 2016 as no leachate was observed. The total volume of waste transferred to the landfill in 2016 was 9,576 m^3. A monthly summary of the solid waste disposed at the landfill is presented in Table 6.2.

8.3.3.19 Sewage Treatment Plant

The Meadowbank mine site has one Seprotech L333 sewage treatment plant (STP) and three Little John 100 units in operation; the equipment operates together with one sewage discharge effluent stream directed to the Stormwater Management Pond (SMP). Water is pumped from the SMP twice yearly

during the spring and fall to the South Cell TSF. There is no discharge to any receiving waters. The SMP also collects spring runoff from the surrounding area.

Samples are taken in accordance with Operation & Maintenance Manual – Sewage Treatment Plan for the purpose of determining operating efficiency of the units. Sample results are available in Table 8.34. Results of the sample analysis are submitted to the NWB in the monthly monitoring reports.

The total volume of treated sewage discharged in 2016 was 32,154 m^3. In addition, 547 m^3 of sewage sludge was collected and disposed of in the Tailings Storage Facility. A monthly summary of the volume of STP waste is presented in Table 8.35.

8.3.3.20 Meadowbank Bulk Fuel Storage Facility

Water collected in the secondary containment area of the bulk fuel storage tank at the Meadowbank mine site was sampled only one time on June 6, 2016. Results are presented in Table 8.36 and the sampling location (ST-37) is illustrated on Figure 1. No water quality parameters exceeded the water quality limit stipulated in Part F, Item 8 of the 2AM-MEA1525 Water License. Notifications to the INAC Inspector, made in accordance with Part F, Item 12 of NWB License 2AM-MEA1525, were sent June 2, 2015. As a result, 240 m^3 of water was discharged to the Stormwater Management Pond in June via a temporary pipe from the secondary containment area of the Meadowbank bulk fuel storage tank.

8.3.3.21 East and West Diversion Ditches

The East and West Diversion ditches were constructed in 2012 around the North Cell TSF and the Portage RSF. The diversion ditches are designed to redirect the fresh water from the northern area watershed away from the tailings pond and RSF and direct it to Second (via NP2) and Third Portage Lakes. Water from the East diversion ditch (sampling station ST-5) and the West diversion ditch (sampling station ST-6) were sampled monthly during open water as per the requirements in the NWB Water License. Results are presented in Table 8.28 and Table 8.37 respectively; the sampling location is illustrated on Figure 1. Results complied with the Water License criteria - stated in Part E Item 6.

8.3.4 Baker Lake Marshalling Facilities

Water collected in the secondary containment areas of the main (Tanks 1 – 4; ST-40.1) and additional (Tanks 5 - 6; ST-40.2) diesel bulk fuel storage facilities at the Baker Lake Marshalling Facility were sampled on June, July, August and September 2016. Notification to the INAC Inspector, made in accordance with Part F, Item 12 of NWB License 2AM-MEA1525, was sent on June 18, August 23 and September 24, 2016. Beginning of July, approximately 10,380 m^3 of water was discharged from secondary containment Tank 1 to 4 (ST-40.2) to the tundra. No water was discharged from Tank 5-6 and Jet-A containment at this moment as initially mentioned in the 10 days notification, as some parameters (principally TSS) exceeded the regulatory limits. No water discharge was held following the August 23 notification sent to INAC Inspector. A final water discharge took place beginning of October. A total of 5,550 m^3 was discharged from Tank 1 to 4 (ST-40.2). All parameters were below the water quality limits stipulated in Part F, Item 23 in the Water License when discharge to the receiving environment. You should take note that in 2016 no water was directly discharge from Tank 5-6 (ST-40.1). In fact, Agnico used silt bags and transfer water from Tank 5-6 to containment of Tank 1-4. This way, Agnico eliminated TSS and water quality became acceptable for discharge. Following this transfer, no water was discharge

to the receiving environment without another regulatory sampling. The locations of these sampling stations (ST-40.1 and ST-40.2) are illustrated on Figure 4 and results are presented in Table 8.38.

In 2016, the Jet A secondary containment water (ST-38) was sampled at several time prior to discharge in accordance with Water License conditions and the TSS limit always exceeded the regulatory limit of 30 mg/L. For this reason, no water from the secondary containment of the Jet-A was discharged to the receiving environment in 2016. The water was either pumped in a water truck and discharged to the Meadowbank Stormwater Pond or thru a silt bag into secondary containment of diesel tank 5-6. The sampling location is illustrated in Figure 4

As part of the Core Receiving Environment Monitoring Program (CREMP), water quality samples are collected at stations on Baker Lake during the open water season. Four monitoring stations are sampled; one at the Baker Lake community barge dock, one at the Baker Lake marshalling area, and two at upstream reference locations. For more details, please refer to the report entitled ‘’Core Receiving Environment Monitoring Program 2016” prepared for Agnico by Azimuth Consulting Group, attached as Appendix G1. The results indicate no effects from mine related activities.

8.3.5 All Weather Access Road (AWAR) and Quarries*

As required by DFO Authorizations NU-03-0190 Condition 5.3 (AWPAR); ***A photographic record of before, during and after construction, during decommissioning and after restoration, showing that all works and undertakings have been completed according to the approved Plan and conditions of this authorization […]***

A geotechnical structural inspection of the AWAR, including all culverts, bridges and quarries, was conducted by Golder Associates in 2016. This annual inspection is a requirement of the Water License. The findings are presented in the report entitled ‘2016 Annual Geotechnical Inspection, Meadowbank Gold Mine, Nunavut’, attached in Appendix B1. Agnico responses to the recommendations from the inspection are also included in Appendix B1.

According to Fisheries and Oceans Canada (DFO) Authorizations NU-03-0190, NU-03-0191.3, NU-03-0191.4, NU-08-0013 and NU-14-1046 Agnico maintains a Habitat Compensation Monitoring Plan (Agnico, 2017) to ensure that fish habitat compensation features are constructed and functioning as intended. Based on the schedule described in the HCMP, monitoring of compensation features currently occurs every 2 years. As detailed in the HCMP, no monitoring was conducted in 2016 for the constructed spawning pad, located at stream crossing R02 along the all-weather access road. However the constructed spawning pads were visually confirmed to be stable as designed. The next monitoring in planned for the summer of 2017.

8.3.6 QAQC Sampling

As required by NIRB Project Certificate No.004, Condition 23: ***ensure that water quality monitoring performed at locations within receiving waters that allow for an assimilative capacity assessment of concern to regulators, be carried out by an independent contractor and submitted to an independent accredited lab for analysis, on a type and frequency basis as determined by the NWB; results of analysis shall be provided to the NWB and NIRB’s Monitoring Officer.***

* TSM- Biodiversity and Conservation Management

The objective of quality assurance and quality control (QA/QC) is to assure that the chemical data collected are representative of the material being sampled, are of known quality, are properly documented, and are scientifically defensible. Data quality was assured throughout the collection and analysis of samples using specified standardized procedures, by the employment of accredited laboratories, and by staffing the program with experienced technicians.

All chemical analyses were performed by Multi-Lab Direct in Val d'Or, Quebec, an accredited facility. All data from Multi-Lab underwent a vigorous internal QA/QC process, including the use of spiked samples and duplicate samples. All QA/QC data passed the laboratories acceptable limits. The laboratory certificates of quality control are presented in Appendix G2, following the corresponding certificates of analysis.

All toxicity tests were performed by Aquatox in Quebec. Testing was conducted as stipulated in the corresponding Environment Canada Biological Test Methods. QA/QC measures implemented by the lab, including the use of reference toxicants, met the acceptable limits. QA/QC data is presented with the toxicity reports in Appendix G2.

Field blanks are laboratory bottles filled with deionized water in the field, and then treated as a normal sample. They are used to identify errors or contamination in sample collection and analysis. Duplicate field water quality samples are collected simultaneously in the field and used to assess sampling variability and sample homogeneity. The following presents the percentage of duplicate and field samples collected from each of the monitoring programs:

- MMER and EEM monitoring programs: 17 duplicate samples and 17 field blanks were collected from a total of 83 samples, representing 20.5%;
- STP monitoring program: 5 duplicate samples were collected from a total of 36 samples, representing 13.9%;
- Surface water monitoring programs: 37 duplicate samples and 17 field blanks were collected from a total of 142 samples, representing 26.1% and 12.0% respectively; and
- Bulk fuel storage facilities monitoring program: 1 duplicate samples and 1 field blank were collected from a total of 3 samples, representing 33.3%.

This represents approximately 22.7% of the samples collected, which is higher than the QA/QC duplicate program objective of 10%.

Analytical precision is a measurement of the variability associated with duplicate analyses of the same sample in the laboratory. Duplicate results were assessed using the relative percent difference (RPD) between measurements. The equation used to calculate a RPD is:

RPD = (A-B)/ ((A+B)/2)*100; where: A = field sample; B = duplicate sample.

Large variations in RPD values are often observed between duplicate samples when the concentrations of analytes are low and approaching the detection limit. Consequently, a RPD of 20% for concentrations of field and duplicates samples that both exceed 10x the method detection limit (MDL) is considered notable. The analytical precision of one QAQC sampling event is characterized as:

- High, when less than 10% of the parameters have variations that are notable;

- Medium, when 10 to 30% of the parameters have variations that are notable;
- Low, when more than 30% of the parameters have variations that are notable.

Results of the QA/QC data are presented in Tables 8.39 to 8.56 for the MMER and EEM, STP, Surface Water, and Bulk Fuel Storage Facility monitoring programs, respectively. The following is a brief summary of the QA/QC results, per sampling program:

- MMER and EEM (Tables 8.39 and 8.40): All the duplicate samples collected were considered as having high analytical precision.

- STP (Table 8.41): Analytical precision is rated high for three sampling event and medium for 2 sampling event. However, as the number of parameters analysed is low, one sample with notable variation between field and duplicate samples will trigger a medium analytical precision.

- Surface Water (Tables 8.42-8.55 + 8.77): All QAQC sampling events conducted within the surface water quality program are rated as having high analytical precision except one sample having a medium analytical precision (17%) for ST-21 South Cell.

- Bulk Fuel Storage Facility (Table 8.56): Analytical precision is rated high for the duplicate sampling event conducted at the Bulk Storage Facility.

The QA/QC plan was followed and samples were collected by qualified technicians. Given the high number of samples collected in 2016, it is common to have some RPD exceedances as a result of the discrete differences in the original and field duplicates. Given the variability of these exceedances (occurring with different parameters, on different dates for different sampling programs) and the high number of successful samples, it is evident that field QA/QC standards during water sampling were maintained during sampling in 2016. In the future, Agnico technicians will continue to follow standard QA/QC procedures (Agnico, 2014) for surface water sampling that requires the use of sample bottles that are provided by an accredited laboratory, proper handling and storage of bottles to prevent cross-contamination between areas and, if appropriate, thoroughly rinsing the sample containers with sample water prior to sample collection.

For field measurements, the following equipment is used:

- Analite NEP 160 Meter (turbidity);
- Hatch Meter (turbidity);
- Oakton PCS35 Meter (pH and conductivity);
- Hoskin Scientific (pH and conductivity);
- DO Probe (dissolved oxygen); and
- Hanna Multi-Parameter Meter (pH, dissolved oxygen and conductivity).

The calibration data regarding these instruments is presented in Tables 8.57 to 8.65 for Analite Meters #2 and #4, Hatch meter, the Oakton PCS35 Meter #1 and #2, Hoskin Scientific meter, Hanna Meters #1 and #2 and DO Probe, respectively.

QA/QC methods and results for specific field programs are discussed separately in their respective reports; these field programs are presented in the Appendices listed below:

- Appendix G1: *Core Receiving Environment Monitoring Program 2016* – Sections 2.3 and 3.1;
- Appendix G7: *2016 Groundwater monitoring report* – Sections 5.4.
- Appendix G10: *Air Quality and Dustfall Monitoring Report 2014*– Section 4.4;

8.3.7 Seepage

As required by Water License 2AM-MEA1525 Part I, Item 14: ***The results and interpretation of the Seepage Monitoring program in accordance with Part I, Item 13***
The Seepage Monitoring program includes the following locations:

Lake water Seepage Through Dewatering Dikes;
Seepage (of any kind) Through Central Dike;
Seepage and Runoff from the Landfill(s);
Subsurface Seepage and Surface Runoff from Waste Rock Piles;
Seepage at Pit Wall and Pit Wall Freeze/Thaw;
Permafrost Aggradation;
Mill Seepage.

8.3.7.1 Lake water seepage through dewatering dikes

As discussed previously, see Sections 3.1.1 and 8.3.3.5 regarding East Dike seepage interpretation and monitoring.

8.3.7.2 Seepage (of any kind) through Central Dike

As mentioned in Section 3.1.1c of this report, seepage was observed at the downstream toe of Central Dike during the fall period of 2014. The seepage appeared to be of low magnitude and of small volume. Once tailings deposition started in the South Cell in November 2014, daily inspections of the downstream toe of Central Dike were undertaken as part of the geotechnical inspection program. A small volume of water located against the downstream toe of Central Dike was noticed at that time. This water was contained between the West road and the Central Dike downstream toe. Agnico utilized piezometers, thermistors and a ground water well to monitor the dike integrity, the foundation temperatures and the piezometric levels within the structure and its foundation. It is located within the mining footprint, away from the receiving environment and is confined directly downstream.

On April 14 2015, Agnico started pumping at the D/S toe of the dike to lower the water level. The water was pumped back to the South Cell TSF. Water quality was closely monitored to foresee any changes from initial conditions in terms of turbidity and clarity. A flowmeter was also installed to monitor the volume of water pumped. By July 7, 2015 pumping was still on going with a larger pump. The water quality (clarity/turbidity) at the D/S toe is also visually assessed by the Engineering technical personnel during their daily inspection. In 2016, 4,597,688 m^3 of water was pumped back into the South Cell TSF.

The magnitude of the seepage volume pumped to the South Cell confirmed the assumption of the seepage water source being the reclaim water in the South Cell. Pumping this water volume from a different water body will cause a drastic difference in the South Cell TSF operation. Base on this observation, Agnico decided to continue using the 1:1 ratio for future planning of the South Cell TSF water management and judged that extending the water quality investigation to confirm this assumption is not required.

Monthly samples are collected as per the Water license (station ST-S-5) and include analysis for metals, cyanide and major anions. The concentration of some parameters, namely copper, cyanide, sulfates, to name a few, confirms a link between the water ponding at the D/S and the SC reclaim water. Additional to the steady flow test, SNC performed two specific chemical mass balances to evaluate the ratio of reclaim water, ground water and runoff in the water pumped from the Central Dike D/S pond back into the South Cell TSF (SNC, 2015). A transfer to Goose Pit was also done to evaluate the same ratio by monitoring the drawdown in the South Cell during the transfer. SNC identified that 50,000 m^3 of seepage transfer from the downstream toe to Goose Pit was possible without compromising water quality at closure (using CCME guidelines for the protection of aquatic life). The 1:1 ratio was confirmed by this test which meant that the seepage water source was the South Cell reclaim water.

In August 2015, Agnico developed a Central Dike seepage action plan. The main objectives were to validate that the South Cell TSF is safe to operate and to determine if physical remediation of the Central Dike structure and foundation had to be undertaken. The following studies were completed: seepage modelling and stability analysis, geophysical surveying, seepage flow measurement, mitigation plan assessment, instrumentation data analysis and, water quality modelling. Results show that the South Cell TSF can be operated safely. The Meadowbank Dike Review Board (MDRB) has been informed and agrees that no physical mitigation work is required. It was recommended that operations in the South Cell TSF be resumed (Nov, 2015). A series of pumping tests were also performed by Agnico during the summer 2015 to measure the seepage flow according to the head pressure difference between the South Cell and the Central Dike downstream pond (sampling location ST-S-5) where seepage water is collected and pumping infrastructure redirects this seepage water back to the cell. In September 2015, mitigation measures were defined with the support of Golder and it was confirmed that the Central Dike could be operated safely under certain conditions. In early November 2015, the downstream pond operational level was set at 115masl following Golder's recommendations (Golder, 2015) and never changed since then. At the same time, a permanent and winterized pumping system was put in place to manage and track the water volumes through the winter. The deposition in South Cell TSF restarted on October 28, 2015. Within the first two weeks of deposition, the seepage flow dropped from 800m^3/h to 400m^3/h and then has been stable between 400 to 600 m^3/h since that time. These flows closely follow the ones predicted by Golder in the seepage modelling performed in 2015.

Daily visual inspections are also being completed. The monitoring of the Central Dike will continue throughout the operating life of the dike, with analysis of the instrumentation results and water quality monitoring, as required by the Water License. Constant pumping of the downstream pond to the South Cell TSF will continue in order to manage the water and ensure that the seepage water do not reach the receiving environment.

In fall 2016 a new electric pumping system was installed to replace the diesel unit previously installed the prior year, mainly to reduce fuel consumption. Pumping has continued until present day and will continue until pit flooding occurs. The figure below shows the general installation related to Central Dike seepage management.

The Central Dike seepage is also included in the OMS Tailings Storage Facility, available in Appendix I1. The OMS described the specific mitigation actions in response to different scenarios related to Central Dike. Mitigation actions are indicated in order to prevent potential risks related to the environment, water contamination and worker safety.

Following recommendations of the MDRB meeting #19 held in September 2016, Agnico mandated Golder to review the calibration of the seepage model along with a thermal and stability analysis. The impact of

the Central Dike seepage on the South Cell closure freezeback concepts will be address through this study as well. Agnico will also review the Trigger Action Plan based on the outcome of this modeling. The objective is to develop a proactive approach that will limit the impact of this seepage on the short term operation of the mine.

8.3.7.3 Seepage and runoff from the landfill

Results and interpretation of this monitoring program are discussed in Section 8.3.3.17 above.

8.3.7.4 Subsurface seepage and surface runoff from waste rock piles

Sections 8.3.3.11 to 8.3.3.13 provide details regarding seepage monitoring at the Portage and Vault Rock Storage Facilities.

8.3.7.5 Seepage at pit wall and pit wall freeze/thaw and permafrost aggradation

No significant seepage was observed in 2016 in Portage Pit A. Some seepage along the faces were noted along the south/west wall of Portage pit E3. Seepage forces are observed along fracture planes exposed in the bench faces, particularly near the south end of the west wall as this area was originally talik, beneath the previously existing Third Portage Lake. Seepage faces can be expected to contribute to instability of the ultramafic and other rock types during cyclic freeze-thaw.

The Goose pit mining activities were completed in April 2015 prior to any melting or spring shifting. Therefore, the seepage in Goose Pit did not jeopardize any mining activity and now contributes to the re-flooding of the pit.

Water inflows and seepage were noted in a number of areas of the Vault pit in 2016. The locations for water inflows and seepage noted during the 2016 inspection remain the same as for the 2015 inspection. There are three main areas of the pit where water inflow or seepage are noted. These are generally related to the dewatering of Vault Lake, to the current lake level, and to release of water stored in the talik beneath the former lakes.

The “Annual Review of Portage and Goose Pit Slope Performance (2016) - Meadowbank Mine” prepared by Golder provides more details regarding seepage at pit walls (Appendix B3).

8.3.7.6 Mill Seepage

On November 4, 2013, it was observed that water was seeping thru the road in front of the Assay Lab Road. In December 2013, Agnico hired Tetra Tech (formerly EBA) to perform an assessment, drilling delineation program and provide a report with recommendations in early 2014. All recommendations made in this report will be completed, prior to closure. Construction of an interception trench was completed in April-May 2014 and repairs and sealing of containment structures within the mill were completed during the summer of 2014. In November 2015 work was conducted to repair portions of the mill floor and ensure its watertight integrity. Additional elastomeric sealant was applied in the floor joints. Agnico also put in place an internal action plan and monitoring program for this seep in 2014. The monitoring is part of the Freshet Action Plan (2017). Refer to Appendix D of the 2016 Water Management

Report and Plan (Appendix C2) for more details regarding the monitoring and action taken by Agnico before, during and after the freshet at this seepage area.

Water in the interception trench and the original containment berm and sumps was frozen from January to May and from November to December 2016. No water was pumped from well MW-203 back to the mill in 2016 as it was the case for 2015 because there is only minimal water in the well. Water in the interception trench and the original containment berm and sumps was pumped back to the mill from June to October. The total volume pumped back to the mill was 11,078 m^3. Refer to Table 8.66 for a breakdown per month. The increased volume in 2015 was due to increased snow and freshet flows above those seen in 2014. In 2016, the freshet flow was lower than 2015 and similar to the freshet in 2014.

Table 8.66. Assay Road Seepage pumped volume – 2014-2016

Month	Pumped Volume (m^3)		
	2014	2015	2016
January	0	871	0
February	0	306	0
March	0	500	0
April	0	680	0
May	2,450	347	0
June	1,935	10,803	2,588
July	1,158	6,633	2,270
August	3,979	4,467	3,599
September	2,420	4,584	2,109
October	1,043	1,188	512
November	842	164	0
December	871	0	0
Total	**14,698**	**30,543**	**11,078**

Daily visual inspections were conducted during freshet. Prior and after freshet, inspection were conducted weekly and after rain events.

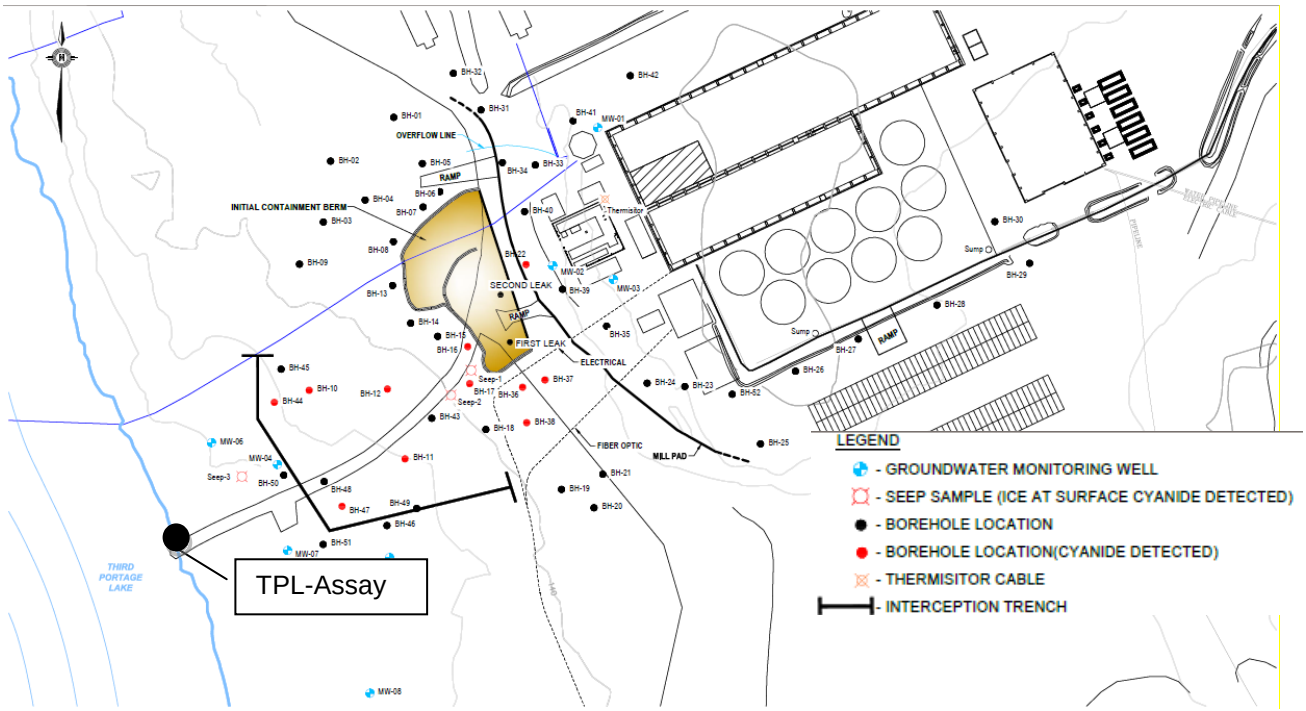
Weekly water samples were collected for CN WAD in well and trench. In addition, as per the Freshet Action Plan, monthly CN Free, CN total, copper and iron samples were collected when water was present at the interception trench and Third Portage Lake as well as Monitoring Wells 4, 5, 6, 7 and 8 (on Figure 38 below). At KIA's request, additional monitoring was also conducted monthly during open water at TPL. Table 8.67, 8.68 and 8.69 contain regulatory guidelines, and monitoring results from the seepage and Third Portage Lake (TPL-Assay), respectively. It should be noted that wells MW-04 and MW-06 were dry in 2016.

CN Free results at MW-203, MW-07 and MW-08 in 2016 were all below the CCME guideline for the Protection of Aquatic Life. Concentrations of CN total are below regulatory water license and MMER guidelines. Concentrations of copper are below MMER and/or water licence guidelines at the trench and monitoring wells but all higher than the CCME guideline. Iron concentrations are higher than the CCME guideline at monitoring wells MW-203, MW-05, MW-07 and MW-08. Agnico observed an increase in the

iron and copper concentration in 2016 comparatively to 2015. Agnico will continue to monitored these location as per the Freshet Action Plan in 2017 to see if the trend is still observed. Even if the concentration in copper and iron in well downstream of the trench have increase since 2015, copper, iron and CN concentrations at TPL are all below the CCME guideline for the Protection of Aquatic Life.

In summary, monitoring in TPL indicates that there has been no impact to the near shore receiving waters. The seepage appears to be effectively contained and the source area has been repaired. Follow up monitoring will continue in 2017 in accordance with the 2017 Freshet Action Plan which includes requests made by KIA in 2014 at the Water Licence renewal hearing.

Figure 38. General Layout of the Assay Road Seepage



8.4 VISUAL AWAR WATER QUALITY MONITORING

Pre-freshet and freshet inspections were conducted at crossings along the AWAR in 2016. These inspections are conducted to document the presence/absence of flow, erosional concerns and turbidity plumes. No flow was observed during the two (2) pre-freshet inspections conducted on May 20 and 26, 2016. Flow was observed, but no erosional concern or visual turbidity plumes were observed during the freshet inspections conducted on June 3, 10 and 17, July 1 and August 17. Inspection reports can be found in Appendix G5.

Weekly inspections are also conducted along the AWAR on a year round basis. During the freshet and open water season, any visual turbidity plumes or erosion along the AWAR, culverts or HADD crossings are documented by Environmental Technicians. In 2016, no visual turbidity plumes or erosion was observed.

8.5 BLAST MONITORING*

As required by NIRB Project Certificate No.004, Condition 85*: develop a detailed blasting program to minimize the effects of blasting on fish and fish habitat, water quality, and wildlife and terrestrial VECs.*

In accordance with NIRB Project Certificate No.004, Condition 85, Agnico Meadowbank Division developed a blasting program which complies with The Guidelines for the Use of Explosives In or Near Canadian Fisheries Water (Wright and Hopky, 1998) as modified by the DFO for use in the North. As a result, Agnico conducts monitoring to evaluate blast related peak particle velocity and overpressure to protect nearby fish bearing waters.

The results of the 2016 blast monitoring program are available in the report entitled "2016 Blast Monitoring Report for the Protection of Nearby Fish Habitat" prepared by Agnico, attached as Appendix G6.

Peak particle velocity (PPV) and overpressure monitoring data was recorded throughout 2016 during blasting activities at the North Portage Pit, South Portage Pit, and Vault Pit. The locations of the blast monitoring stations are illustrated in Figure 1 and Figure 2 of the report Blast monitoring Report found in Appendix G6. The Portage stations are located near the shoreline of Second Portage Lake. The Vault Pit station #2 is located near Wally Lake.

No more blast monitoring was conducted at Goose Pit in 2016 as mining has ceased in this pit since April 2015. Vault Pit station #1, located between the Vault Attenuation Pond (dewatered Vault Lake) and the Vault Pit, was also not monitored in 2016 as the nearest potential fish habitat is in Wally Lake and the Vault Pit station #2 is used to monitored the potential impact. These monitoring stations are also illustrated in Figure 1 and Figure 2 of the report Blast monitoring Report found in Appendix G6.

In 2016, the average PPV was 1.18 (CI +/- 0.20) with a maximum of 9.54 (maximum in 2015, 2014 and 2013 were 16.5, 23.8 and 32.7 mm/s respectively). The average in 2016 was lower than 2015 (2.38 mm/s), 2014 (3.93 mm/s) and 2013 (5.39 mm/s) averages. This difference can be explained by the fact that mining ceased at Goose Pit in April 2015. Goose Pit was the closest pit to blast monitoring stations. As there were less blasts occurring in this area, the probability of exceeding the DFO guidelines was reduced. Also, blasting activities at Portage Pit and Vault Pit were conducted deeper this year reducing vibrations recorded at the monitoring station. The upper 95% confidence limit for all of the annual data was 4.53 mm/s. In 2016, 276 blasts were monitored and none PPV concentrations exceeded the DFO limit of 13 mm/s. The number of PPV exceedances has decreased significantly since 2013. In 2013, 2014 and 2015 the number of exceedances recorded were 16, 8 and 2, respectively. IPC measurements were all below the DFO limit of 50 kpa. The blast monitoring results are reviewed after each blast and the blast mitigation plan was implemented immediately if the vibrations or the overpressure exceed the guidelines. This plan includes a retroactive analysis to determine what caused the higher than expected results.

8.6 GROUNDWATER

As required by NIRB Project Certificate No.004 Condition 8: Continue to undertake semi-annual groundwater samples and re-evaluate the groundwater quality after each sample collection; report the results of each re-evaluation to NIRB's Monitoring Officer, INAC and EC.

* TSM – Biodiversity and Conservation Management

The full results of the 2016 groundwater monitoring program are available in the report entitled '2016 Groundwater Monitoring Report' prepared by Agnico Eagle, attached as Appendix G7.

The 2016 groundwater monitoring program at Meadowbank was conducted in accordance with the Groundwater Monitoring Plan (Agnico Eagle, 2015). The objective of this program is to document any effects of mining on groundwater quality, particularly with respect to tailings deposition. This is done by monitoring the salinity of shallow and deep groundwater. The recorded data is also used to update water quality predictions at the site.

In 2016, wells MW-08-02 and a new well, MW-16-01, were each sampled in the fall. As recommended by Golder (2012), attempts were also made to supplement the groundwater sampling program using alternative sources such as production drill holes. In 2016, the alternate sources included three geotechnical drill holes that were successfully sampled: Portage pit E3 (B6 and B7), North Pit A and a temporary well installed at Pit E4-24. Analysis of key parameters indicated this to be groundwater. Therefore, these results are included in the 2016 report.

Concentrations of all parameters measured in groundwater samples in 2016 are provided in the 2016 Groundwater Monitoring report (Appendix G7) along with a year-over-year comparison of salinity-related results that are relevant to the site water quality model. All current and historical results are provided in Appendix C of the report.

As in 2015, any pit water is pumped to the South Cell and the water quality considered for predictions and modeling is that of the South Cell. Pit sumps are sampled during open water periods as a component of the Water Quality and Flow Monitoring Plan, and could contain groundwater. These results are also used as input parameters for overall South Cell water quality modelling (SNC, 2017).

Concentrations of total dissolved solids (TDS), chloride and conductivity, results for MW-08-02 are higher than the values recorded in 2015 but similar to past values for this location. Values recorded in the new well, MW-16-01, are comparable to 2015 values recorded at MW-14-01 (located in the same zone) and other stations. Salinity results for the Pit E3 drill holes were generally equivalent of those observed historically onsite in groundwater samples, at the exception of B6 with a higher recorded conductivity. However, salinity results in groundwater are no longer considered a significant factor, since discharge to the environment from the Portage Attenuation Pond has ceased, and based on water quality modelling (SNC, 2017), pit water will not exceed CCME guidelines for chloride at closure. Moreover, chloride concentrations range from 35 mg/L to a maximum concentration of 360 mg/L.

Total cyanide and copper, which are parameters indicative of tailings water movement into groundwater, were below NWB license limits at all locations, and were similar to historical results, indicating no measured movement of water from the TSF into groundwater at these locations. For the new well (MW-16-01), total cyanide values were recorded in the range of 0.1 mg/L, which is slightly lower than or similar to the 2014 concentrations at this location and lower than NWB limits for discharge to surface water, but higher than concentration observed in groundwater elsewhere onsite historically (<0.005 mg/L). At the toe of Central Dike, recent seepage observations are being a possible cause for higher concentrations. Additional investigation for the Central Dike seepage is ongoing and will continue in 2017. Results for dissolved copper were similar than those observed at this location in 2015. Concentrations of tailings-related parameters will continue to be closely monitored at this location to ensure that concentrations in groundwater are not rising, with two sampling events planned for 2017 (late spring and early fall).

All measured concentrations of other metals were below NWB license limits for discharge to surface water for all locations, and were within the range of historical results.

8.7 HABITAT COMPENSATION MONITORING PROGRAM

As required by DFO Authorizations NU-03-0191.3 Condition 3 and 6 (Second and Third Portage Lakes), NU-03-0191.4 (Vault Lake) Condition 3 and 6; NU-03-0190 Condition 5 (AWPAR), NU-14-1046 (Phaser Lake) Condition 3 and 5; ***Submit written report summarizing monitoring results and photographic record of works and undertakings.***

According to Fisheries and Oceans Canada (DFO) Authorizations NU-03-0190, NU-03-0191.3, NU-03-0191.4, NU-08-0013, and NU-14-1046, Agnico maintains a Habitat Compensation Monitoring Plan (HCMP; Agnico, 2017) to ensure that fish habitat compensation features are constructed and functioning as intended. Based on the schedule described in the HCMP, monitoring of compensation features currently occurs every 2 years. In 2017, the HCMP was revisited to include offsetting for Phaser Lake that was dewatered in summer 2016 (DFO authorization NU-14-1046).

In 2015, monitoring was conducted for several mine site habitat compensation features (East Dike, Bay-Goose Dike and Dogleg Ponds). The onsite monitoring included an assessment of interstitial water quality, periphyton growth, and fish use. The full report is attached as Appendix G8 of the 2015 Annual Report. The next Habitat Compensation Monitoring as per the HCMP 2017 will be held in summer 2017 and result of this monitoring will be provide with the 2017 Annual report.

8.8 FISH-OUT PROGRAM SUMMARY*

As required by NIRB Project Certificate No.004 Condition 49: ***develop, implement and report on the fish-out programs for the dewatering of Second Portage Lake, Third Portage Lake and Vault Lake.***

And

As required by DFO Authorizations NU-14-1046 (Phaser Lake) Condition 3.2.2; ***Submit a fish-out report written report summarizing monitoring results and photographic record of works and undertakings. […] As per the NIRB #49, the reporting of the fish-out data shall be done in consultation with elders and the Baker Lake Hunter's and Trapper's Organization***

The fish-out of Phaser Lake at the Meadowbank site took place from August 14 – September 26, 2016, and followed protocols developed in the Phaser Lake Fishout Work Plan (May, 2016) in consultation with the retained fisheries consultant (North/South Consultants Ltd.) and Fisheries and Oceans Canada (DFO).

The fish-out project consisted of two phases. During the CPUE phase, fish removal was undertaken during the daytime only, using a standard unit of effort, in order to collect population data and maximize successful transfer of fish to the adjacent Wally Lake. During the final removal phase, the focus was on removing as many fish as possible. Water levels were drawn down during this time, and nets were set day and night to maximize total catch.

Initial abundance was estimated daily during the CPUE phase based on decline in catch-per-unit effort, using both the Leslie and DeLury methods. Estimates of initial population abundance using all data collected during the CPUE phase indicated approximately 410 fish (Leslie method) - 414 fish (DeLury Method). At the end of the fish-out, these estimates were found to be low, representing 30% of the actual captured population. However, similar estimates were observed in previous fish-outs (e.g. 30-34% for Vault Lake in 2013).

By the end of the final removal phase, a total of 1357 fish were captured, with a total weight of 335 kg. Of these, 975 fish (72%) were successfully transferred to Wally Lake. Abundance and biomass for each species are shown in Table 8.70. Nearly the total population of Phaser Lake was represented by lake trout and round whitefish combined (35% and 56%, respectively). One Arctic char was reported, which may have entered Phaser Lake from Vault Lake during a historical high water event.

Table 8.70. Total abundance and biomass by species for the fishout of Phaser Lake

Species	Abundance		Biomass	
	# Fish	%	kg	%
Arctic char	1	<0.01	0.65	<0.01
Lake trout	479	35	140	42
Round whitefish	761	56	168	50
Burbot	116	9	26	8
TOTAL	**1357**	**100**	**335**	**100**

Length and weight were recorded for nearly all fish captured. Gender and maturity were also recorded for most fish that did not survive capture or transfer (311 fish). A subset of fish (65) that did not survive underwent a detailed biological assessment including stomach fullness, and examination for obvious deformities, erosions, lesions, and tumors (DELTs) and parasites. Tissue samples (gonads, liver, muscle) as well as aging structures (otoliths, finrays) were collected and stored. Fish were generally determined to be in good health, with average condition factors >1 for all species except burbot (similar to previous fish-outs), and a 15% incidence of DELTs and parasites.

The complete Phaser Lake Fish-out Report can be found in Appendix G8 for a more detailed analysis of the fish-out program and results.

Agnico held on July 5. August 17 and November 2016 meetings with the HTO in Baker Lake to provide information regarding the Phaser Lake Fishout. Meeting before fishout were to discuss the best way to deliver fish to the community and give information on the method to be use. HTO also come for a field site visit during the fishout on 2 occasions. On February 10, 2017, as required NIRB Condition 49, a meeting with the HTO was held to present the result of the Phaser Lake fish-out (Appendix G9). The HTO did not have any question regarding this program as we can see on meeting minutes provide in Appendix G9. The presentation as well as the meeting minute was provided to DFO on March 22, 2017 as it was done with the fishout data on September 26, 2016.

8.9 AEMP

8.9.1 Introduction

The Aquatic Effects Management Program (AEMP) for the Meadowbank Gold Mine site was developed in 2005 as part of the project's Final Environmental Impact Statement (FEIS) (AEMP 2005), and has been formally implemented since 2006. In December 2012, the AEMP was restructured to serve as an

overarching “umbrella” program that conceptually provides an opportunity to integrate results of individual, but related, monitoring programs in accordance with the Type A Water License requirements (Azimuth, 2012). The scope of the 2005 AEMP, which was essentially the core receiving environment monitoring, is now one of the monitoring programs that is integrated under the restructured AEMP, and has been renamed the Core Receiving Environment Monitoring Program (CREMP).

The 2016 AEMP synthesis report aims to:

- Identify potential sources of impact to the receiving environment and develop a conceptual site model;
- Summarize the results of each of the underlying monitoring programs, including the CREMP (the cornerstone broad-level monitoring program);
- Review the inter-linkages among the monitoring programs;
- Integrate the results for each component program;
- Identify potential risks to the receiving aquatic ecosystem; and
- Provide conclusions and recommend additional management actions that should be considered in future monitoring.
-

8.9.2 Potential Sources of Impacts and the Conceptual Site Model (CSM)

The framework for the AEMP is founded on a conceptual site model, which is used in ecological risk assessment to help understand potential relationships between site activities and the environment (e.g., water quality or certain ecological receptors). The foundation of the 2012 conceptual site model (CSM) is presented in Table 8.71 and consists of the following elements (Azimuth, 2012):

- Stressor sources –the sources of chemical (e.g., metals) or physical (e.g., total suspended solids) stressors that can potentially impact the environment.
- Stressors –the actual agents that have the potential to cause adverse effects to the receiving environment.
- Transport pathways –the ways in which a stressor is released from the source to the receiving environment.
- Exposure media –the media where a stressor occurs in the receiving environment. A single stressor might actually end up in multiple exposure media, with different ones being most important at different times. For example, if an effluent contained mercury, it would initially be found in the water column, and then most likely would settle to sediments where it would then enter the food chain (i.e., biota tissue).
- Receptors of concern –ecological entities selected for a variety of reasons, usually including sensitivity to relevant stressors and perceived ecological importance (i.e. could be determined to be valued ecosystem components).

In 2016, all of the potential pathways, exposure media and receptors of concern listed in Table 8.71 were relevant to the AEMP analysis and were evaluated with the exception of tissue. In 2015, there was no requirement to conduct a fish tissue survey during the Cycle 2 EEM Biological Monitoring as mercury concentrations have remained below or near the detection limit of 0.01 µg/L. The next EEM Biological Monitoring study will take place in 2017.

Table 8.71. Primary transport pathways, exposure media, and receptors of concern for the AEMP

Transport Pathways	Exposure Media	Receptors of Concern
g,i Effluent	a,d,f,g,h,i,k,m Water	a, g Phytoplankton
f Groundwater	a Sediments	g Zooplankton
i,k Surface water	Tissue	d,g,h Fish
m Air		a,h Benthic community
NA Direct		d Periphyton
		a,d,k Fish habitat

Notes:

a Core Receiving Environment Monitoring Program
~~b Effects Assessment Studies~~
~~c Dike Construction Monitoring~~
d ~~Habitat Compensation Monitoring Program~~
e Dewatering Monitoring (Phaser Lake)
f Groundwater Monitoring
g MMER Monitoring
h ~~EEM Biological Monitoring Studies~~
i Water Quality and Flow Monitoring
j Fish-Out Studies (Phaser Lake)
k AWAR and Quarry Water Quality Monitoring
l Blast Monitoring
m Air Quality Monitoring
NA Direct, so measured in exposure medium.

Note: ~~strikethrough~~ text is an "AEMP" monitoring program that was not required to be completed in 2016

8.9.3 Summary of Results of AEMP- Related Monitoring Programs

In 2016, in accordance with the Type A Water License, the AEMP-related monitoring programs included:

- Core Receiving Environment Monitoring Program (CREMP);
- Metal Mining Effluent Regulation (MMER) Monitoring;
- Fishout studies (Phaser Lake);
- Dewatering Monitoring (Phaser Lake);
- Minesite Water Quality and Flow Monitoring (and evaluation of NP-2);
- Visual AWAR Water Quality Monitoring;
- Air Quality Monitoring;
- Blast Monitoring; and
- Groundwater Monitoring.

The results of the monitoring programs are integrated in the AEMP, and assist in the evaluation of potential effects of mining activities on the aquatic environment.

Air quality, the EEM Biological Studies and the Habitat Compensation Monitoring Program were considered as part of the conceptual site model and are included in the AEMP discussion to inform the process, but these programs are not a requirement of the Type A Water License; Part I-1. In 2016, no EEM or Habitat Compensation Monitoring Program activities were required to be conducted.

Table 8.72 summarizes the results of the AEMP programs in 2016. Summaries of the monitoring programs are provided in Sections 8.1 to 8.8 of this annual report. For detailed results on individual monitoring programs, refer to the appended reports.

Table 8.72. Summary of aquatic effect monitoring program results in 2016

	AEMP Programs											
	Core Receiving Environment Monitoring Program	Effects Assessment Studies	Dike Construction Monitoring	Habitat Compensation Monitoring Program	Dewatering Monitoring	MMER Monitoring	EEM Biological Monitoring Studies	Water Quality and Flow Monitoring	Fish-Out Studies	AWPAR and Quarry Water Quality Montoring	Blasting Monitoring	Groundwater Monitoring
Monitoring completed in 2016?	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Stressor Variables												
suspended solids	○	NA	NA	NA	○	○	NA	○	○	○	NA	○
sediment deposition	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
water-borne toxicants	●	NA	NA	NA	○	○	NA	○	○	NA	NA	○
sediment toxicants	●	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nutrients	○	NA	NA	NA	○	○	NA	○	○	NA	NA	○
other physical stressors	○	NA	NA	NA	○	○	NA	○	○	○	○	○
Effects Variables												
Phytoplankton	○	NA	NA	NA	NA	○	NA	NA	NA	NA	NA	NA
Zooplankton	NA	NA	NA	NA	NA	○	NA	NA	NA	NA	NA	NA
Fish	NA	NA	NA	NA	NA	○	NA	NA	○	NA	NA	NA
Benthic invertebrate community	○	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Periphyton	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fish habitat	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

○ No observed effects

● Trigger or guideline exceedance - early warning explained in report

● Observed effects explained in report

The following section discusses the stressor and effects based results of the monitoring programs presented in Table 8.72.

Overall, none of the site specific stressors, effects based triggers or guideline exceedances monitored onsite had the potential to cause significant risks to the aquatic environment.

CREMP

The CREMP determined that as in the past, there were some statistically significant mine-related changes relative to baseline/reference conditions identified in 2016 at one or more near-field (NF) areas that exceeded their respective triggers: alkalinity (SP); conductivity (TPN, TPE, SP, WAL); hardness (TPN, TPE, SP, WAL); major cations (i.e., calcium, potassium, magnesium, and sodium [TPN, TPE, SP, WAL]); and TDS (TPN, TPE, SP, WAL). In the absence of effects-based thresholds (e.g., CCME water quality criteria) for these parameters, their triggers were set at the 95th percentile of baseline data. While these results represent mine-related changes, the observed concentrations are still relatively low and unlikely to adversely affect aquatic life. These trends will be reviewed again in 2017. Quantitative trigger analysis for sediment was not scheduled to be conducted in 2016, but grab samples were analyzed to review general trends. With the exception of chromium at TPE, none of the grab samples exceeded the trigger values in 2016. The 2016 chromium concentrations at TPE are lower than peak concentrations observed in 2014 and 2015. This "apparent" decrease may be an artifact of spatial variability within the sediment area, rather than an actual reduction in sediment chromium concentrations. Nonetheless, the 2016 results are within the range of concentrations reported in 2015. A few PAHs were detected in the composite sediment samples from SP (naphthalene), TPE (acenaphthylene, naphthalene), WAL (2-methylnaphthalene, naphthalene), and INUG (phenanthrene). These results are somewhat anomalous given that most PAHs have been measured below the MDL dating back to the start of the CREMP. The concentrations were all within 5-times the MDL, and the absolute concentrations are unlikely to pose risk to benthic invertebrates at the NF locations. The fact that PAHs were measured at reference and exposure areas suggests the results are false-positives rather than "real" indications of increases in sediment PAH concentrations related to activities at the mine. PAH concentrations will be monitored in 2017, consistent with previous reporting cycles. Lastly, effects for phytoplankton or benthic invertebrate community metrics were either not statistically significant or were below the trigger value i.e. could not be identified as mine-related. The results of the CREMP are summarized in Table 8.73 and these results are subsequently evaluated in the AEMP.

Please refer to Appendix G1 for the complete 2016 CREMP Report.

Dewatering Monitoring (Phaser Lake)

Phaser Lake dewatering started on August 26 and was completed on October 4, 2016. A total of 407,666 m^3 of water was transferred to the Vault Attenuation Pond. Monitoring consisted of daily reading for Turbidity and TSS and weekly for pH and total aluminium. Agnico also conducted on a weekly basis monitoring of Wally Lake for Turbidity and pH. During dewatering and operations, Agnico Eagle continued to meet approved license discharge limits of effluent from the Vault Attenuation Pond prior to discharge through Wally Lake diffuser.

MMER Monitoring/Water quality and Flow Monitoring (including NP-2 and mill seepage)

All sampling events conducted at final discharge points and non-contact diversion ditches within the Water Quality and Flow Monitoring Program and MMER Monitoring Program complied with NWB license limits and MMER criteria.

In 2016 Agnico continued monitoring in NP-2 (see Section 8.3.3) during freshet and completed additional monitoring at stations requested by the KIA (which included monitoring at NP-1, Dogleg and Second Portage Lake). The 2014, 2015 and 2016 average analysis results for applicable parameters confirmed no impacts to downstream lakes (NP-1, Dogleg, Second Portage Lake). The 2016 results continue to show a decreasing trend from 2015 analyses for contaminants of concern at the receiving environment and the downstream lakes monitoring stations. A valid case can be made that the action plan implemented by Agnico has been very successful in preventing any further seepage into NP-2 Lake and into the ST-16 sump itself. Monitoring will continue in 2017.

Monitoring in Third Portage Lake in response to the mill seepage through the assay road continues to indicate that there has been no impact to the near shore receiving waters. The seepage appears to be effectively contained and the source area has been repaired. Follow up monitoring will continue in 2017.

Fish-out Studies (Phaser Lake)

The fish-out of Phaser Lake at the Meadowbank site took place from August 14 – September 26, 2016, and followed protocols developed in the Phaser Lake Fishout Work Plan (May, 2016) in consultation with the retained fisheries consultant (North/South Consultants Ltd.) and Fisheries and Oceans Canada (DFO). By the end of the final removal phase, a total of 1357 fish were captured, with a total weight of 335 kg. Of these, 975 fish (72%) were successfully transferred to Wally Lake. Fish were generally determined to be in good health, with average condition factors >1 for all species except burbot (similar to previous fishouts), and a low (15%) incidence of DELTs and parasites.

AWAR and Quarries Water Quality Monitoring

Pre-freshet and freshet inspections were conducted at crossings along the AWAR in 2016. These inspections are conducted to document the presence/absence of flow, erosional concerns and turbidity plumes. No flow was observed during the two (2) pre-freshet inspections conducted on May 20 and 26, 2016. Flow was observed, but no erosional concern or visual turbidity plumes were observed during the freshet inspections conducted on June 3, 10 and 17, July 1 and August 17. Weekly inspections are also conducted along the AWAR on a year round basis. During the freshet and open water season, any visual turbidity plumes or erosion along the AWAR, culverts or HADD crossings are documented by Environmental Technicians. In 2016, no visual turbidity plumes or erosion was observed.

Blast Monitoring

In 2016, 276 blasts were monitored and no peak particle velocity (PPV) measurements exceeded the DFO limit of 13 mm/s and instantaneous pressure change (IPC) measurements were all below the DFO limit of 50 kpa.

Groundwater Monitoring

In 2016 one new groundwater monitoring well was installed, and two wells were sampled, along with three alternative groundwater sampling points (e.g. production drill holes). No regulatory guidelines or limits apply to groundwater quality in this monitoring program. For illustrative purposes, results are compared to limits established in the NWB Water License for discharge of effluent to Third Portage Lake. While groundwater is not currently being discharged in this manner, this comparison provides a conservative estimate of any potential for effects on biota, since the pit area will eventually be returned to aquatic habitat. Parameters indicative of tailings movement into groundwater (total cyanide and copper) were

below NWB license limits at all locations. With the exception of TSS in one monitoring well (very common historically and prior to operations) and nitrate in one geotechnical borehole (in pit; likely due to blast residue), all other analytes were below the conservative comparison to NWB license limits for discharge to surface water.

Table 8.73. Summary of 2016 CREMP results (Appendix G1: 2016 CREMP Report, Table ES-1)

Variable Type & Variable	Magnitude[1]	Spatial Scale[2]	Causation[3]	Permanence[4]	Uncertainty[5]	Comments	Management Action[6]
Exposure - Limnology							
Oxygen	0	n/a	n/a	n/a	?	All stations - consistent with previous years	0
Temperature	0	n/a	n/a	n/a	?	All stations - consistent with previous years	0
Conductivity	0	Small	Low	n/a	???	Sp. conductivity readings at SP (January) and WAL (March) were elevated relative to historical conductivity readings in each lake. The results are highly uncertain because of possible issues with the probe. Conductivity readings for the rest of the year were within the normal historical range for each lake. No action required.	0
Exposure - Water Chemistry							
Conventionals	1	Large	High	Low	?	The following parameters (conventionals and nutrients) were elevated relative to reference/baseline conditions. However, concentrations suggest low potential for adverse effects: **Alkalinity** (SP); **Conductivity** (TPN, TPE, SP, WAL); **Hardness** (TPN, TPE, SP, WAL); **Ca/K/Mg/Na** (TPN, TPE, SP [not Na], WAL [not Na or K]); **TDS** (TPN, TPE, SP, WAL)	1
Nutrients	0	n/a	n/a	n/a	?	No trigger exceedances.	0
Total Metals	0	n/a	n/a	n/a	?	No trigger exceedances.	0
Dissolved Metals	0	n/a	n/a	n/a	?	No trigger exceedances.	0
Total Suspended Solids	0	n/a	n/a	n/a	?	No trigger exceedances.	0
Exposure - Sediment Chemistry							
Physical	0	n/a	n/a	n/a	?		0
Total Metals	1	Moderate	High	Moderate	??	Sediment chromium concentrations continue to exceed the trigger at TPE. Concentrations appear to be stabilizing based on the results from 2015 and 2016.	1
Organics	0	n/a	n/a	n/a	?	Acenaphthylene exceeded the threshold at TPE. The concentration at TPE was less than 5-times the MDL. Acenaphthylene is not considered a risk to the benthic invertebrate community at TPE.	0
Effects - Phytoplankton							
Chlorophyll-a*	0	n/a	n/a	n/a	?	Continued data quality issue for chlorophyll-a (temperature control in transit).	0
Total Biomass	0	n/a	n/a	n/a	?	No statistically significant adverse effects were detected in 2016.	0
Taxa Richness	0	n/a	n/a	n/a	?	16% lower richness was reported at TPE in 2016 relative to baseline/reference. The trigger for adverse effects to phytoplankton richness is a reduction of 20% or more.	0
Effects - Benthic Invertebrates							
Total Abundance	0	n/a	n/a	n/a	?	Decreased abundance at TPE relative to INUG in the past four years, but the differences are primarily driven by increased abundance at INUG while abundance at TPE has been relatively stable. None of the results are statistically significant.	0
Total Richness	0	n/a	n/a	n/a	?	Richness continues to track higher for most stations. The benthic communities are dominated by chironomids, and the relative proportion of major taxa remains stable at all stations.	0

Notes:

[1] Magnitude Ratings (narrative in brackets used in the absence of specific triggers/thresholds):
- 0 – no exceedances of triggers or thresholds (or no apparent changes from baseline of concern)
- 1 – early warning trigger exceeded (or change from baseline warranting concern)
- 2 – threshold exceeded (or change from baseline exceeding magnitude of concern)

[2] Spatial Scale Ratings:
- n/a – no magnitude of effect, therefore not evaluated
- Small – localized scale
- Moderate – sub-basin to basin scale
- Large – basin to whole lake scale

[3] Causation Ratings:
- n/a – no magnitude of effect, therefore not evaluated
- Low – no evidence for a mine-related source
- Moderate – some likelihood of a mine-related source
- High – the source of the problem is very likely to be mine-related

[4] Permanence Ratings:
- n/a – no magnitude of effect, therefore not evaluated
- Low – rapidly reversible (e.g., months to years)
- Moderate – slowly reversible (e.g., years to decades)
- High – largely irreversible (e.g., decades +)

[5] Uncertainty Ratings:
- ? – low uncertainty
- ?? – moderate uncertainty
- ??? – high uncertainty

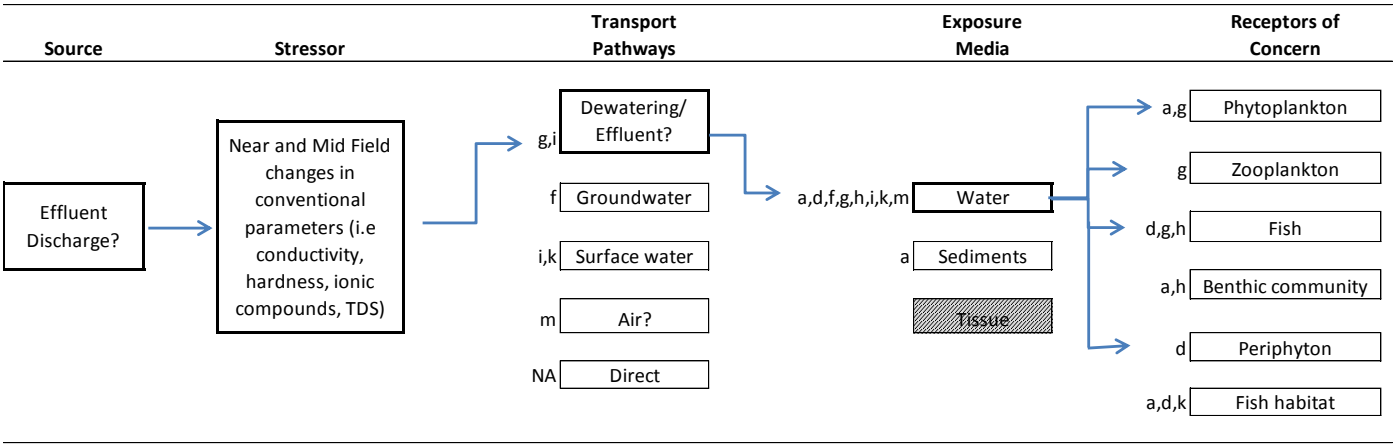
[6] Management Actions:
- 0 – no action beyond routine CREMP monitoring
- 1 – continued trend monitoring in 2017
- 2 – active follow-up with more detailed quantitative assessment in 2017

8.9.4 Integration of Monitoring Results

The 2016 AEMP monitoring programs were integrated into the conceptual site model which assists in the evaluation of the transport pathways, provides information on specific media (identifies stressors) and evaluates receptors of concern (effects variables). As previously discussed, fish tissue data were not reported nor collected in 2016 in the mine site area and therefore are not included in the conceptual model (shaded grey in the table).

As per Azimuth (2012), the results of the monitoring programs were integrated in a mechanistic fashion that required a thorough review of the results to identify any patterns among the relevant receiving water monitoring programs. Although the receiving environment water quality changes at TPN, TPE, SP and WAL in 2016 were similar to findings in previous years and are considered unlikely to cause any adverse environmental effects, conceptual site models were developed to assist in linking possible incremental changes in the receiving environment that are evaluated in separate monitoring reports. Review of the conceptual models ensures all mine activities and sources are accounted for and are not resulting in receiving environment impacts. As per Azimuth (2012), the potential source, stressor, transport pathways, exposure media, and effects measures were evaluated for exceedances with potential for mine-related impacts in 2016 (see Figure 39 – evaluation of TDS, conductivity, ionic and nutrient parameters; Figure 40 – evaluation of elevated chromium in TPE sediment).

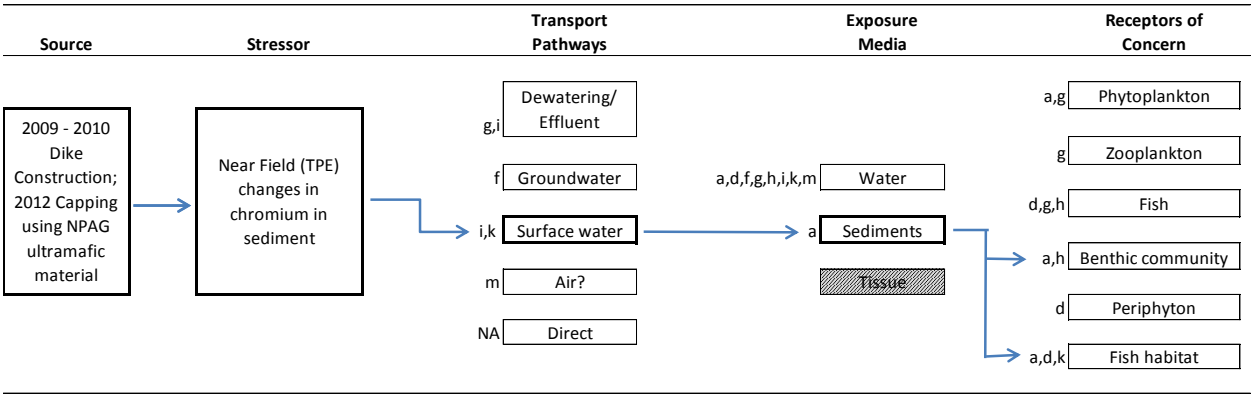
Figure 39. Integrated conceptual site model for 2016 AEMP – Near Field changes in conventional parameters



Notes:

a	Core Receiving Environment Monitoring Program
~~b~~	~~Effects Assessment Studies~~
~~c~~	~~Dike Construction Monitoring~~
d	~~Habitat Compensation Monitoring Program~~
e	Dewatering Monitoring
f	Groundwater Monitoring
g	MMER Monitoring
h	~~EEM Biological Monitoring Studies~~
i	Water Quality and Flow Monitoring
j	Fish-Out Studies
k	AWPAR and Quarry Water Quality Montoring
l	Blasting
m	Air quality monitoring
NA	Direct, so measured in exposure medium.

Figure 40. Integrated conceptual site model for 2016 AEMP – Elevated Chromium in TPE sediment



Notes:

a	Core Receiving Environment Monitoring Program
~~b~~	~~Effects Assessment Studies~~
~~c~~	~~Dike Construction Monitoring~~
d	~~Habitat Compensation Monitoring Program~~
e	Dewatering Monitoring
f	Groundwater Monitoring
g	MMER Monitoring
h	~~EEM Biological Monitoring Studies~~
i	Water Quality and Flow Monitoring
j	Fish-Out Studies
k	AWPAR and Quarry Water Quality Montoring
l	Blasting
m	Air quality monitoring
NA	Direct, so measured in exposure medium.

8.9.5 Identification of Potential Risks and Discussion

Assessment of Changes in Water Quality Due to Effluent Discharge

The mine-related activities undertaken in 2016 with point-source discharges were effluent discharges to Second Portage (SP) and Wally (WAL). In addition, the Waste Rock seepage event in July 2013 from the Waste Rock Storage Facility which migrated through the perimeter rockfill road at sample station ST-16 into NP-2 Lake was considered a potential source of impacts to NP-2 and ultimately Second Portage Lake. In 2013, elevated copper, nickel and total cyanide were noted; monitoring results in 2014 confirmed that this seepage was short in duration and isolated to the nearshore area of NP-2. Decreasing trend in contaminants of concern were confirmed in 2015 and 2016. Based on the monitoring data, it was evident that appropriate actions undertaken in 2013, 2014 and 2015 were effective in stopping any further seepage to the NP-2 lake. Furthermore, mitigative and management control measures that were put in place in 2014 and 2015 to protect TPL from mill seepage through the assay road were effective (including sealing up cracks in the mill floor, collecting and pumping water from the temporary berms and constructing an interception trench). Downgradient groundwater analytical results and TPL water quality results substantiate these conclusions.

In 2016, as reported in the CREMP, receiving environment water quality changed relative to baseline/ reference conditions for alkalinity (SP), conductivity (TPN, TPE, SP, WAL), hardness (TPN, TPE, SP, WAL), Ca/K/Mg/Na (TPN, TPE, SP [not Na], WAL [not Na or K]) and TDS (TPN, TPE, SP, WAL)

However, these results do not suggest any risk to aquatic life. Notwithstanding, consideration was taken in the AEMP for all of the potential mine-related sources (effluent release, fugitive dust, and seepage) that may contribute to changes in general water quality parameters. The conceptual site model presented in Figure 39 assisted in understanding the possible linkages (i.e., effect to stressor from the source). Based on the monitoring results for 2016, it was determined that the most likely source of changes to conventional parameters is effluent discharge (as in previous years). Another possible contributer, albeit not likely based on air monitoring results to date, could be fugitive dust migration. Based on receiving water quality monitoring in nearshore TPL and NP-2, historical seepage events were not considered as a source of changes to the surface water quality observed in the CREMP.

Review of historical air quality monitoring results indicated that dustfall, total suspended particulates (TSP), PM10, and PM2.5 (potential sources of changes to conventional parameters) rarely exceed available standards or guidelines at minesite monitoring stations. Therefore it is unlikely that dust generation has been great enough to cause the observed changes in water quality parameters.

Although the observed changes in water chemistry may be a result of effluent discharge, all water quality samples collected in 2016 at final discharge points complied with MMER criteria and water license limits. Furthermore, TPN, which experienced some changes in conventional water quality parameters was not a discharge point in 2015 or 2016. Effects of TPN effluent on lake trout were assessed in the EEM Cycle 2 Interpretive Report (2015). Lake trout size and weight were observed to have changed compared to reference areas which were not reported in the Cycle 1 and may be due to an inherent difference between TPN and the reference lakes and an artifact of using lake trout as a sentinal species. The CREMP results did not detect significant changes in phytoplankton or benthic invertebrates in these basins. Final discharge from the Vault Attenuation Pond to Wally Lake in 2016 was not acutely toxic to fish (rainbow trout) or invertebrates (*Daphnia magna*). Similarly, analyses of sub-lethal toxicity samples collected at the Vault final discharge point in 2016 were reported to Environment Canada, and no sub-lethal toxicity issues were identified for fish (fathead minnow), invertebrates (*Cerodaphnia dubia*), algae (*Pseudokirchneriella subcapitata*) and macrophytes (*Lemna minor*). Discharge from the Portage Attenuation Pond into Third Portage North stopped in 2014. Therefore, no more effluent will be discharged in this area. The next EEM Biological Monitoring studies (Cycle 3) will be conducted at the Vault discharge into Wally Lake in 2017. Effluent effects on Wally Lake water quality, sediment, fish and benthos will continue to be assessed.

Assessment of the Changes in Chromium in TPE Sediment

The trigger exceedance for chromium in sediment at TPE was identified in 2013 and coring samples in 2014 determined that there was a temporal trend in chromium concentration increases within a localized area of TPE and mine related. Although elevated chromium levels have also been found in reference areas of PDL and TPS (PEL exceedances have been previously observed in reference areas) the chromium exceedance is likely related to mine activities, more specifically due to Bay-Goose dike capping and construction activity. This may be explained by the fact that ultramafic rock, which is commonly found in the region and was used to construct the Bay-Goose dike, is generally known to contain elevated concentrations of chromium (e.g., on the order of 2000 mg/kg) relative to other rock types (Motzer and Engineers, 2004).

Figure 40 provides the conceptual site model of impacts due to capping and construction of the Bay-Goose dike. Upon review of the sediment data and historical water quality data, effluent and dust were ruled out the most likely source of change, as the discharge point is nearest to TPN, where water quality

changes in chromium have not been found. Furthermore, review of the construction monitoring data in the CREMP indicated elevated chromium in water quality data and sediment traps. Sequential extraction tests conducted in 2015, demonstrated that the majority of sediment chromium is sequestered in the mostly non-bioavailable sediment matrix. Furthermore, the fractions that are bioavailable occur at concentrations below effects-based threshold concentrations. This was further demonstrated by toxicity tests conducted on benthic invertebrates; no evidence of contaminant-related effects was noted. CREMP results showed no evidence that the changes in chromium has impacted the benthic community nor fish habitat in TPE (no statistically significant difference or decline in total abundance, taxa richness). Therefore, there is likely no impact on benthic communities and fish habitat at TPE due to dike construction. In 2016, only sediment grab samples were collected so no formal statistical analysis of data was conducted. However, the 2016 results are within the range of concentrations reported in 2015, suggesting that concentrations are stabilizing. A full analysis coring study is scheduled to be completed in 2017.

8.9.6 Recommended Management Actions

Overall, based on the integration of results from the monitoring programs, the AEMP evaluation did not find an apparent excess risk to the aquatic environment due to mine-related activities. Although some threshold or trigger levels were exceeded, likely due to mine-related impacts (chromium in TPE sediment; conductivity, hardness, TDS, ionic parameters in water quality at near field stations) no supplementary management actions are recommended beyond continued trend analysis under existing programs in 2017.

Based on the 2017 AEMP evaluation, the following monitoring actions related to AEMP programs are planned for 2017:

- CREMP
    - Per the CREMP: 2015 Plan Update (Azimuth, 2015), monitoring of the receiving environment in 2017 has been planned based on results of the 2016 program (see 2016 CREMP Table 4.2-1).

- Water Quality and Flow Monitoring - will continue as per the license and MMER requirements in 2017
    - An action plan will be developed to facilitate safe sump sampling to ensure a complete dataset.
    - Regarding mill seepage, follow up monitoring will continue in 2017 in accordance with the 2017 Freshet Action Plan.
    - Water quality samples will continue to be collected in NP-2, NP-1, Dogleg pond, and Second Portage Lake in accordance with the 2017 Freshet Action Plan.

- EEM Biological Monitoring Studies
    - The Cycle 3 EEM Biological Monitoring Study is planned for 2017.

- Habitat Compensation Monitoring
    - Monitoring will be conducted according to the existing plan and DFO Fisheries Act Authorizations in 2017.

- Dewatering Monitoring
    - N/A - No lake dewatering is planned for 2017.

- Fish-out Monitoring
    - N/A - No fish-outs are planned for 2017.

- Blast Monitoring
    - No changes are proposed for blast monitoring methods in 2017.

- Groundwater Monitoring
    - Agnico Eagle will continue to pursue opportunities for sampling groundwater from alternative sources as well as the existing wells.

8.10 NOISE MONITORING

As required by NIRB Project Certificate No.004 Condition 62: ***Develop and implement a noise abatement plan to protect wildlife from significant mine activity noise, including blasting, drilling, equipment, vehicles and aircraft; sound meters are to be set up immediately upon issuance of the Project Certificate for the purpose of obtaining baseline data, and monitoring during and after operations.***

The 2016 noise monitoring program at Meadowbank was conducted according to the Noise Monitoring and Abatement Plan (Agnico, 2014). The complete noise report can be found in Appendix G12 please refer to the report for a complete review of the program and results. The objective of this program is to measure noise levels at five previously determined monitoring locations around the Meadowbank site, over at least two 24 h periods. Since high winds in the area tend to substantially reduce the quantity of available valid data, Agnico Eagle aims to conduct a minimum of two monitoring rounds of 2-4 days per station. In 2016, over 30 days of noise monitoring were conducted, and the total usable amount of data for each station ranged from 39 - 80 hours. Daytime, night-time, 10-11pm, and 24 h L_{eq} values were calculated from recorded 1-min L_{eq} values for each monitoring event and location, and are shown in Table 8.74.

The daytime target sound level (55 dBA) was exceeded during one of three monitoring events at R5, with a recorded value of 58.1 dBA. This value is well within the range of those observed in previous years, and sound peaks were associated with helicopter activity, since this station is located within 500 m of the helicopter pad at the former exploration camp.

One value at R2 and one value at R5 slightly exceeded the night-time target sound level (45 dBA), with recorded $L_{eq,night}$ values of 45.7 dBA and 48.0 dBA, respectively. An examination of the data indicated that as in previous years, 1-h L_{eq} values only exceeded 45 dBA on a few occasions in the early morning hours (4 – 7 am). Sound recordings indicated peaks occurred as a result of helicopter start-up, take-off, landing, or fly-over, and generally occurred once or twice per hour, for 5 – 15 min.

Overall, since targets were exceeded only occasionally, during peak helicopter season, and by a maximum of 3.1 dB, significant impacts to wildlife beyond impact predictions are not anticipated.

Furthermore, regular wildlife monitoring continues to indicate that monitoring thresholds related to site activity are not being exceeded (see 2016 Wildlife Summary Report available in Appendix G13).

Noise monitoring will continue in 2017.

Table 8.74. Daytime, night-time, 10-11 pm, and 24-h Leq values for monitoring locations R1 – R5, and percentage of the corresponding time period for which valid data was available (% coverage). Day- and night-time periods with fewer than 3 hours of valid data are excluded (-), and those exceeding corresponding target sound levels are shaded grey.

Site	Dates (2016)	$L_{eq,\ day}$ 7am-11pm (dBA)	% coverage	$L_{eq,\ night}$ 11pm-7am (dBA)	% coverage	$L_{eq,\ 1\ h}$ 10-11pm (dBA)	$L_{eq,\ 24\ h}$ (dBA)	% coverage
R1	Jul. 1 – 2	-	6%	-	13%	-	43.3	8%
	Aug. 31 – Sept. 3	42.6	100%	32.8	100%	28.3	41.0	100%
R2	Jul. 4 – 7	43.7	94%	33.1	100%	27.8	42.0	96%
	Jul. 24 – 26	37.5	94%	45.7	88%	32.2	42.0	92%
R3	Jul. 8 – 10	31.9	100%	35.5	100%	34.3	33.4	100%
	Aug. 7 – 10	32.3	56%	-	0%	28.1	32.3	38%
R4	Jul. 12 – 14	34.2	44%	44.2	88%	-	41.6	58%
	Aug. 15 - 17	-	13%	34.9	50%	38.0	35.9	25%
	Sept. 16 - 18	-	0%	-	0%	-	-	0%
R5	Jul. 17 - 19	49.6	56%	48.0	38%	27.1	49.3	50%
	Aug. 12 - 14	58.1	56%	29.5	88%	25.2	55.6	67%
	Sept. 7 - 10	33.5	25%	-	0%	34.9	33.5	17%

8.11 AIR QUALITY MONITORING

As required by NIRB Project Certificate No.004 Condition 71*: In consultation with EC, install and fund an atmospheric monitoring station to focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported annually to NIRB.*

Onsite Monitoring

The 2016 air quality and dustfall monitoring program at Meadowbank was conducted according to the Air Quality and Dustfall Monitoring Plan - Version 2 (November, 2013). The 2016 Air Quality and Dustfall Monitoring Report is provided in Appendix G10 and presented a complete review of the program and 2016 results.

The objective of the 2016 program was to measure dustfall, NO_2, and/or suspended particulates (TSP, PM_{10}, $PM_{2.5}$) at four monitoring locations around the Meadowbank site. Locations were established in 2011 in consultation with Environment Canada.

Results obtained for the measured parameters were compared to Government of Nunavut (GN) Environmental Guidelines for Ambient Air Quality (October, 2011) for TSP, $PM_{2.5}$ and NO_2; BC Air Quality Objectives (August, 2013) for PM_{10}; and Alberta Ambient Air Quality Guidelines (August, 2013) for dustfall. The Canadian Ambient Air Quality Standards for $PM_{2.5}$ (2015) are also referenced.

No TSP samples exceeded the relevant 24-h GN standard of 120 µg/m^3, nor did annual average TSP values exceed the GN guideline of 60 µg/m^3. For PM_{10}, no samples exceeded the BC Air Quality Objective of 50 µg/m^3 for the 24-h average. For $PM_{2.5}$, no samples exceeded the GN guideline of 30 µg/m^3 or the Canadian Ambient Air Quality Standard of 28 µg/m^3 for the 24-h average.

The Alberta recreational area guideline for dustfall was exceeded in one out of 47 samples. While the applicability of these guidelines is not well defined, there are no recreational or residential users within vicinity of the mine site and exceedance of one sample is not expected to result in significant aesthetic or nuisance concerns. The industrial area guideline was not exceeded in any sample.

The GN annual average standard for NO_2 of 32 ppb was not exceeded, with a maximum monthly average of 2.4 ppb.

Weather data collected onsite in 2016 are provided in Appendix A of the 2016 Air Quality and Dustfall Monitoring Report (Appendix G10).

Estimated greenhouse gas emissions for the Meadowbank site as reported to Environment Canada's Greenhouse Gas Emissions Reporting Program in 2016 were 184,223 tonnes CO_2 equivalent, which is similar to the value obtained in 2015 (187,280 tonnes CO_2 equivalent).

A summary of incinerator stack testing results is provided. The average concentration of mercury was <0.46 µg/Rm^3 @11%O_2, which is below the GN standard of 20 µg/Rm^3. Measured concentrations of dioxins and furans met the GN standard (80 pg TEQ / Rm³ @ 11 % v/v O_2) in two of three tests, and exceeded this value by 12.5% in one test.

Overall, there are no apparent trends towards increasing air quality concerns at the Meadowbank site. Incinerator stack testing will be conducted again in 2017, 2018, and 2019 to confirm the source of the SVOC exceedance has been correctly identified and remediated.

AWAR Monitoring

In response to community concerns of dust generation, Agnico Eagle has conducted studies of dustfall along the Meadowbank AWAR since 2012. These studies characterize dust deposition rates to help determine the potential for impacts to wildlife in excess of those predicted in the Final Environmental Impact Statement (FEIS).

In 2016, Agnico Eagle initiated a dust suppression pilot study along the AWAR, in addition to the regular dustfall monitoring program. This study aimed to compare the effectiveness of three dust suppression techniques in several test locations.

The 2016 All-weather Access Road Dust Monitoring Report can be found in Appendix G11.

The objectives of the study conducted in 2016 were to:

1. Characterize the dustfall gradient in relation to distance from the Meadowbank AWAR.
2. Compare rates of dustfall with background concentrations and regulatory guidelines.
3. Identify inter-annual trends in rates of dustfall.
4. Relate results to impact predictions as described in the Terrestrial Ecosystem Impact Assessment (Cumberland, 2005).

As in previous years, dustfall samples were collected in open vessels containing a purified liquid matrix provided by an accredited laboratory (Maxxam Analytics). Particles are deposited and retained in the liquid, which is then filtered to remove large particles (e.g. leaves, twigs) and analyzed by the accredited laboratory for total and fixed (non-combustible) dustfall.

Two sets of dustfall samples were collected in 2016. The first round of sampling was conducted immediately after dust suppressant application, from July 10 – August 11 (32 days). The second set of samplers were installed from August 11 – September 10 (29 days). Calculated dustfall rates were normalized to 30 days (mg/cm2/30 days, per ASTM 1739-98). Both rounds of sampling included a single transect at the three locations with dust suppressants (km 11, 25, 49), as well as a reference transect (km 18) and previously sampled area at km 78. Dustfall sampling was conducted in the driest months with a high volume of traffic (i.e. at the peak of the shipping season at Meadowbank.

All samples were compared to available regulatory guidelines from Alberta Environment, as well as to the range of background dustfall rates (samples collected at the Inuggugayualik Lake reference site in 2014). No regulatory standards for dustfall are available for the territory of Nunavut, and those available elsewhere are based on aesthetic or nuisance concerns. On this basis, Alberta Environment has published a guideline for recreational/residential areas of 0.53 mg/cm2/30d, and a guideline for commercial/industrial areas of 1.58 mg/cm2/30d. Total dustfall results are compared to these guidelines to provide context.

Cumulative results to date indicate that without dust suppressant application, average rates of dustfall decline below Alberta Environment's guideline for recreational areas within 100 m of the AWAR, and meet the range of background rates within 200 m. Based on these results, it is unlikely that impacts to VECs (vegetation community productivity and wildlife) due to dust are occurring beyond FEIS assumptions. As described in past reports (2015 AWAR Dustfall Monitoring Report), these conclusions are supported by wildlife monitoring conducted under the Terrestrial Ecosystem Management Plan, including the 2015 Breeding Bird Study and the most recent (2014) Wildlife Screening Level Risk Assessment.

Nevertheless, Agnico Eagle plans to apply a dust suppressant in a number of locations along the AWAR in 2017, based on results of the 2016 dust suppression pilot study. Results of the visual assessment and dust sampling program indicated that TETRA Flake is the optimal product for use in this program. Agnico Eagle plans to apply TETRA Flake to the three areas of concern along the AWAR identified by the HTO, as well as to the locations treated annually in the hamlet of Baker Lake and near the Meadowbank site.

One application of TETRA Flake is planned for the summer 2017. The planned locations and rationale are detailed in Appendix G11.

Wildlife monitoring to date has indicated no significant road-related effects, dust monitoring has indicated no trend towards increasing rates of dustfall, and risk assessment has indicated no incremental risk for wildlife from chemical contaminants near the AWAR. Therefore, impacts of Meadowbank AWAR road dust to not appear to be exceeding predictions made in the FEIS.

8.12 CREEL SURVEY RESULTS

As required by DFO Authorization NU-03-0190 (AWPAR) Condition 5.2.4: ***Engage the local Hunter Trapper Organization(s) in the development, implementation and reporting of annual creel surveys within the water bodies affected by the Plan.***

And

NIRB Project Certificate No.004 Condition 51: ***engage the HTOs in the development, implementation and reporting of creel surveys within waterbodies affected by the Project to the GN, DFO and local HTO.***

In March 2007, a harvest study was initiated by Agnico Eagle in association with the Baker Lake Hunters and Trappers Organization (HTO) in order to monitor and document the spatial distribution, seasonal patterns and harvest rates of hunter kills before and after construction of the Meadowbank All-Weather Access Road (AWAR). The harvest study was conducted annually and is open to Inuit and non-Inuit residents of Baker Lake who are at least 16 years of age. The harvest study focuses primarily on terrestrial wildlife harvests; however, fishing results are also recorded by the harvest study administrator in support of on-going creel surveys.

In 2016, Agnico suspended the harvest data collection as participation rates were decreasing. Considering possible participants fatigue and overall need for renewal, it was intended to draft improved methodology that would involve the stakeholders within the program. Thus, discussions were held throughout the year. In all, 5 meetings were held to initiate discussions on past experiences and path forward for the Hunter Harvest Study (HHS). Parties involved included community agents, the BL HTO, GN and KIA. The process also included the Community affairs department from Agnico Eagle. This department will play a greater role in ensuring that proper communication channels are taken and that a stronger link is present in the community of Baker Lake, increasing the chances of success in the future development of a collaborative HHS. Included in the meetings was a workshop held in Winnipeg on November 18th, 2016 to discuss the Hunter Harvest Study. Overall, the general consensus was the need to collect useful and meaningful data, with consistency with previous data. Community involvement was also mentioned in being essential to making the program a success.

Moving forward Agnico Eagle intends to continue working with the GN, KIA and HTO to ensure a representative number of participants and long term success of the program. The HHS would be implemented at fall migration 2017 with the collaborative approach.

8.13 WILDLIFE MONITORING*

8.13.1 Annual Monitoring

As Required by NIRB Project Certificate No.004, Condition 55: ***Provide the Annual Wildlife Summary Monitoring Report.***

As a requirement of the NIRB Project Certificate, the 2016 Wildlife Monitoring Summary Report represents the 11th of a series of annual Wildlife Monitoring Summary Reports for the Agnico Eagle Mines Ltd. (Agnico Eagle) Meadowbank Mine (the project). Below is a summary of the program for 2016. The complete report presenting the whole program and complete analysis of the result is presented in Appendix G13. Baseline and monitoring programs were first initiated in 1999 and will continue throughout the life of the mine. Details of the wildlife monitoring program for the project are provided in the Terrestrial Ecosystem Management Plan (Cumberland 2006). The 2016 report provides the objectives, methodology, historical and current year results, and management recommendations for each monitoring program. Each subsequent Wildlife Monitoring Summary Report builds on data presented in the previous year's report, and monitoring incorporates recommendations from the previous reports.

Six active Peregrine Falcon (*Falco peregrinus*) nests were observed and monitored at quarry sites along the AWAR in 2016, with successful nesting confirmed at four nests. No nesting activity was observed at Portage Pit in 2016 but a Rough-legged Hawk (*Buteo lagopus*) nest was observed in Goose Pit, although nesting success could not be determined. Raptor nest management plans were not warranted at any of the active nest sites as no project-related effects on raptor nesting success were observed.

The Government of Nunavut (GN) Caribou (*Rangifer tarandus*) collaring program, ongoing for the past eight years in the Baker Lake area, continued in 2016 with monitoring of existing collared animals and 13 additional collars deployed in 2016. Seasonal Caribou movements within and adjacent to the Meadowbank Regional Study Area (RSA) were tracked and mapped throughout the year. In 2016, collared Caribou were present in the RSA during the spring, late summer, fall, and early winter seasons. Movement of collared Caribou in proximity to the AWAR appeared to be more restricted in 2016, especially during spring and fall migration. Only one collared animal briefly crossed the AWAR in early October before turning back and heading east. Agnico Eagle continues to work with the GN to evaluate the collaring and monitoring data to ensure the protection of regional caribou movements.

A Hunter Harvest Study (HHS) was conducted from 2009 to 2015, but declining participation was making interpretation of hunting data increasingly difficult. Agnico Eagle suspended the program for 2016, but has begun discussions with the Baker Lake HTO and GN representatives regarding potential options for collecting hunting and fishing data in the Baker Lake area, and facilitating greater involvement of the local community, including the HTO. The program is planned to resume in 2017.

Typically during Caribou fall migration, road closure is required to ensure safe passage to migrating herds, but this was not required during the fall of 2016 (although one closure of the Vault Haul Road was required during the spring of 2016 because of Caribou presence). Sections of road were closed on four occasions during the spring, in all but one case for a herd of Muskox (*Ovibos moschatus*). More actions to

* TSM- Biodiversity and Conservation Management

deter Caribou presence around the mine site were required in January and February than in recent winter seasons. No Caribou or large predatory mammal fatalities occurred as a result of activities at the mine or along the AWAR in 2016. Improved food-handling practices and employee awareness programs at the mine site helped ensure that there was no mine-related Wolf (*Canis lupus*) or Wolverine (*Gulo gulo*) fatalities. With the Authorization of the GN officer, one Arctic Fox (*Vulpes lagopus*) needed to be euthanized after attempts to deter the animal were unsuccessful.

8.13.2 Harvest Study Results

As required by NIRB Project Certificate No.004 Condition 54

a. Updated terrestrial ecosystem baseline data

See "Meadowbank Mine 2016 Wildlife Monitoring Summary Report" attached in Appendix G13.

e. Details of a comprehensive hunter harvest survey to determine the effect on ungulate populations resulting from increased human access caused by the all-weather private access road, including establishing preconstruction baseline harvesting data, to be developed in consultation with local HTOs, the GN-DOE and the Nunavut Wildlife Management Board.

As required in the TEMP (Cumberland 2006), the Baker Lake Hunter Harvest Study (HHS) was initiated in March 2007 by Agnico Eagle in association with the Baker Lake HTO to monitor and document the spatial distribution, seasonal patterns, and harvest rates of hunter kills and angler catches before and after construction of the AWAR.

After low participation during the first year of the study, methods were strategically adapted, participation increased steadily, and valuable information on harvest patterns in the Baker Lake area was collected. Data from the HHS were provided annually in monitoring reports from 2007 to 2015; however, declining participant rates in 2014 and 2015, likely due to participant fatigue, led to reconsideration of the HHS approach in 2016. Lower participant rates and reduced data made it increasingly difficult to determine hunting patterns in the Baker Lake area and along the AWAR, and to answer fundamental questions on the effect of the mine on regional Caribou populations. Agnico Eagle suspended the program for 2016, but has begun discussions with the Baker Lake HTO and GN representatives to interpret the findings of the study to date, explore other options for collecting hunting and fishing data in the Baker Lake area, and facilitate greater involvement of the local community, including the HTO, in future years of the study. The program should resume in 2017.

f. Details of annual aerial surveys to be conducted to assess waterfowl densities in the regional study area during the construction phase and for at least the first three (3) years of operation, with the data analyzed and compared to baseline data to determine if significant effects are occurring and require mitigation.

Given the low densities of waterbird nests identified at the mine site and along the AWAR from 2005 - 2012 (i.e., too low to determine whether changes in nest abundance or success have occurred), and the absence of data suggesting that mine or road-related effects are occurring, the waterbird nest survey program has been discontinued.

g. Details of an annual breeding bird plot surveys and transects along the all-weather road to be conducted during the construction phase and for at least the first three (3) years of operation.

Details of the breeding bird plot surveys are provided in Section 4 of the "Meadowbank Mine 2016 Wildlife Monitoring Summary Report" (Appendix G13). The breeding bird plot monitoring program is to continue every year during the construction period, for at least the first three full years of mine operation (2010 to 2012) in accordance with the TEMP (Cumberland 2006). The most recent PRISM plot survey was conducted in 2015, and the next survey is planned for 2018.

The objective of the breeding bird plot monitoring program is to confirm that a mine-related change of 20% function, determined by an increase or decrease in local breeding bird abundance, richness, and diversity, has not occurred. The program uses the widely accepted Canadian Wildlife Service's (CWS) PRISM protocols (CWS 2005). A secondary objective of the monitoring program is to determine more effective ways to prevent disturbance to nesting birds based on feedback from mitigation measures and observations.

For the breeding bird PRISM plots, data analysis in 2015 showed that most bird community indices were variable with little difference in overall trends between mine and control plots. Thresholds had not been exceeded and no additional management or mitigation considerations were necessary. The next set of PRISM plot surveys is planned for 2018.

The objective of the breeding bird transects monitoring program is to confirm that an AWAR-related reduction in local breeding bird abundance, richness, and diversity will not occur beyond a threshold level. A secondary objective of the monitoring program is to determine more effective ways to prevent disturbance to nesting birds based on feedback from mitigation measures and observations. For the bird transect monitoring program, a detailed analysis of transect data in 2011 indicated that no road-related effects have been documented; therefore, the breeding bird transect monitoring program had been suspended indefinitely. Surveys of a subset of transects in 2015 were conducted in support of a dustfall monitoring program conducted since 2012. Given the results of the 2015 survey, which reflect data collected in previous years, annual transect surveys do not need to be reinstated in future years.

8.13.3 Caribou Migration Corridor Information Summary

As required by NIRB Project Certificate No.004 Condition 56: ***Maps of caribou migration corridors shall be developed in consultation with Elders and local HTOs, including Chesterfield Inlet and placed in site offices and upgraded as new information on corridors becomes available. Information on caribou migration corridors shall be reported to the GN, KIA and NIRB's Monitoring Officer annually.***

Caribou telemetry data are provided in Section 9 of the "Meadowbank Mine 2016 Wildlife Monitoring Summary Report" (Appendix G13).

8.13.4 Caribou Collaring Study

As required by NIRB Project Certificate No.004 Condition 57*: participate in a caribou collaring program as directed by the GN-DOE*

Agnico Eagle is participating in the GN DoE Caribou satellite-collaring program that includes data collected within the Meadowbank RSA. The GN biologists discuss collar deployments with hunters and elders, and get approval prior to proceeding. Discussions are ongoing between Agnico Eagle, GN, and other partners on the best path forward to ensure caribou maps continue to integrate elders and local HTO input. Detailed results can be found in Section 9 of the "Meadowbank Mine 2016 Wildlife Monitoring Summary Report" (Appendix G13).

The satellite-collaring program was developed to provide information on the distribution of Caribou occurring within the Meadowbank RSA and contribute data to other ongoing satellite-collaring programs for the Ahiak, Qamanirjuaq, and other herds. The satellite-collaring program, along with GN DoE regional data, is an important monitoring and management tool that provides a regional perspective on Caribou activity near mine operations.

As of December 2016, 24 collars were active, including six from the 2013 deployment, six from the 2015 deployment, and 12 from the 2016 deployment. From January to May 2016 (prior to the 2016 deployment), only 12 collars were active. General trends in seasonal distribution are evident and are in most cases comparable to findings from previous years for animals collared in this area. Collared Caribou calved (medium green symbol) in four distinct areas: 1) McLoughlin Bay (Ahiak herd); 2) the base of the Boothia Peninsula, between Rasmussen Basin and Kugaaruk (Ahiak herd); 3) between Chesterfield Inlet and Wager Bay (Lorillard herd); and 4) south of Chesterfield Inlet in the traditional calving grounds of the Qamanirjuaq herd. As in most monitoring years to date, no collared Caribou were found within the Meadowbank RSA during the calving or post-calving seasons. In winter, animals were either north of the Thelon River system from east of Baker Lake to east of Bathurst Inlet, or on Qamanirjuaq wintering grounds

Within the Meadowbank RSA, collared Caribou were present during the spring, late summer, fall, and early winter, but their movements appeared more restricted than in previous monitoring years (Figure 9.2 for the Wildlife Monitoring Summary Report). Collared Caribou moved across the northern edge of the Meadowbank RSA (and LSA) during spring migration, moving up and around the mine site but not across the AWAR. Limited to no movement of collared Caribou across the Meadowbank RSA and AWAR was observed during the fall migration, and some collared animals displayed a deflection pattern away from the AWAR during this period. Agnico Eagle continues to work with the GN to evaluate the collaring and monitoring data to ensure the protection of regional caribou movements.

The AWAR and Vault Road survey results for 2016 suggest that Caribou migration across the road was minimal in 2016, an observation supported by collar data (Section 9.6 of the Wildlife Monitoring Summary Report). Caribou movement patterns require close monitoring and analysis in 2017.

8.13.5 Raptor Nest Survey

The raptor nest survey monitoring program has been designed to confirm that mine-related activities do not result in inadvertent negative effects on nesting raptors. Raptor surveys along the proposed AWAR alignment in 2005 (i.e., prior to construction) indicated that only low suitability habitat for nesting raptors was available. To construct the AWAR in 2007/2008, excavated and blasted rock materials were used from numerous quarries along the alignment, resulting in the creation of some moderate and high suitability raptor nesting habitat areas characterized by steep rock walls. Established nests within some of these quarries are monitored on an annual basis to evaluate occupancy. Detailed results can be found in Section 5 of the "Meadowbank Mine 2015 Wildlife Monitoring Summary Report" (Appendix G13).

The primary objectives of the raptor nest survey monitoring program are to:

1. Confirm that raptor nest failures are not be caused by mine-related activities. The threshold level is one nest failure per year; and

2. Confirm that no project-related mortality of raptors occurs. The threshold level of mortality is one individual per year.

In 2016, six active Peregrine Falcon nests were documented in Quarries 3, 7, 16, 18, 19, and 21 along the AWAR. One previous nest site at Quarry 2 (i.e., in 2014) was not active in 2016, while nesting was observed for the first time at Quarry 7. Cumulative information on Peregrine Falcon nests from 2009 to 2016 is summarized in Table 5.1 and Figure 5.1 of the 2016 Wildlife Monitoring Summary Report. In addition to the six active nest sites in 2016, Peregrine Falcon activity was also observed at four additional quarry sites (i.e., Quarries 13, 15, 17, 22) during the monitoring program.

A Rough-legged Hawk (*Buteo lagopus*) nest was observed this year in Goose Pit, although eggs and/or chick presence could not be confirmed due to its location.

Observations made throughout the nesting season on raptor activity and nest success are detailed in Table 5.2 of the 2016 Wildlife Monitoring Summary Report. Nesting success was confirmed through identification of maturing chicks at four out of six active nesting sites along the AWAR in 2016, all of which were previous nesting sites. Nesting success was not confirmed at Quarry 16, where a successful nest was observed for the first time in 2015. Nesting success was also not confirmed at the new site at Quarry 7, or the Rough-legged Hawk nest at Goose Pit. Specific raptor nest management plans were not warranted at any of the active nest sites. No nesting activity in more active areas of the mine (e.g., pits, waste rock piles) was observed; therefore, no steps were required to avert nesting activities.

Some additional observations on raptor activity around the mine site are included in Appendix A of the 2016 Wildlife Monitoring Summary Report. Peregrine Falcon was observed flying over the mine site in May and June, as were Rough-legged Hawk. A Gyrfalcon (*Falco rusticolus*) was recorded in May, and a Bald Eagle (*Haliaeetus leucocephalus*) was observed feeding on a carcass in May at the old Portage WTP plant. Bald Eagle, Peregrine Falcon, Rough-legged Hawk, and Snowy Owl (*Bubo scandiacus*) were observed during AWAR surveys.

8.14 COUNTRY FOOD

As required by NIRB Project Certificate No.004 Condition 67: ***Develop and implement a program to monitor contaminant levels in country foods in consultation with HC; a copy of the plan shall be submitted to NIRB's Monitoring Officer.***

In keeping with Agnico's Terrestrial Ecosystem Monitoring Plan and Nunavut Impact Review Board Project Certificate, Condition 67, a Wildlife Screening Level Risk Assessment (WSLRA) and Human Health Risk Assessment for the Consumption of Country Foods (HHRA) were completed in 2014 to evaluate risks to wildlife and human health from contaminant exposure during operation of the Meadowbank mine. The full WSLRA and HHRA reports for 2014 are provided in Appendix G15 and G16 of the 2014 Annual Report, respectively. Sampling activities will resume in 2017.

8.15 ARCHAEOLOGY

As required by NIRB Project Certificate No.004 Condition 69: carry out the Project to minimize the impacts on archeological sites, including conducting proper archeological surveys of the Project area (including the all-weather road and all quarry sites); [Cumberland] shall provide to the GN an updated baseline report for archeological sites in the Project area.

In 2016, there were no additional impact assessments carried out at Meadowbank.

In 2016, archaeological impact assessments and mitigation within the Amaruq exploration property were conducted at the Whale Tail zone and along the proposed exploration road between the Meadowbank mine area and the Amaruq property. Archaeological studies were conducted to identify sites that could potentially be impacted by project components and to ensure avoidance and/or to recommend mitigation measures for sites that cannot be avoided. Mitigative activities were conducted at various sites along the road and no grave sites were impacted. On February 28th, 2017, Agnico Eagle submitted to the GN Cultural and Heritage department the "Archaeological Site Status Report to 2016 Meadowbank Gold Project and Exploration Activities, Nunavut." (This report and the information contained in it are confidential and therefore were submitted directly to the GN Cultural and Heritage department. Requests for information should be made directly to the GN.)

8.16 CLIMATE

During the technical meeting and pre-hearing conference held in Baker Lake on January 14 -15, 2015 regarding the NWB Water License renewal, INAC mentioned that *climate data provide important input for interpreting site-specific geothermal aspects, such as the rate of mine waste freezeback and active layer thicknesses, for permafrost encapsulation of the mine wastes. In addition, the previous year's climate is useful for interpreting the hydrology and water balance for the site.*" It was recommended that the annual monitoring report summarize monthly climatic conditions at the Meadowbank site over a 12-month period. Table 8.75 includes average, minimum and maximum air temperatures, average and maximum wind speed as well as daily average, total and maximum volume of precipitation (rainfall / snowfall) on site. It should be noted that Agnico does not have a snow gauge but rather a rain gauge. For this reason, snow precipitations are reported as mm of rain.

In 2016, temperatures and winds recorded were similar to annual trends observed from 2009-2015. The maximum wind speed recorded in 2016 was 22.03 m/s. The maximum wind speed recorded between 2008 and 2015 was 29.22 m/s in 2015. Total precipitation in 2016 (299.45mm) were similar to 2015 (303mm), near the double of 2013 and 2014. You can found on Table 8.76 a summary table of all data from 2009 to 2016.

Table 8.75 – 2016 Monthly climate data

Date	Temperature Average	Temperature Max	Temperature Min	Wind Speed Average	Wind Speed Max	Total Precipitation	Daily average Precipitation	Max Precipitation
	^{0}C	^{0}C	^{0}C	m/s	m/s	mm	mm	mm
Jan-16	-27.33	-10.69	-40.63	4.12	19.42	13.90	0.45	6.00
Feb-16	-32.75	-24.45	-39.57	4.96	21.56	5.30	0.18	3.00
Mar-16	-26.24	-12.82	-35.40	4.29	18.35	7.05	0.23	2.30
Apr-16	-21.04	-1.99	-33.70	5.97	18.68	19.05	0.64	8.40
May-16	-5.34	3.09	-3.47	5.52	17.52	7.30	0.24	7.30
Jun-16	5.73	22.75	-5.94	5.20	17.88	20.15	0.67	6.95
Jul-16	13.73	25.83	3.52	4.70	16.35	20.10	0.65	9.00
Aug-16	11.07	22.79	1.31	5.43	17.39	62.80	2.03	35.50
Sep-16	4.26	15.90	-1.82	5.67	22.03	61.90	2.06	16.60
Oct-16	-6.26	2.57	-24.79	5.78	21.95	31.40	1.01	4.20
Nov-16	-13.79	-2.47	-24.17	5.62	17.89	41.05	1.37	7.05
Dec-16	-26.40	-2.91	-38.80	3.83	15.64	9.45	0.30	2.00

SECTION 9. CLOSURE

9.1 PROGRESSIVE RECLAMATION

9.1.1 Mine Site

As required by Water License 2AM-MEA1525 Schedule B, Item 17: ***A summary of any progressive closure and reclamation work undertaken including photographic records of site conditions before and after completion of operations, and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.***

And

As required by KIA KVPL08D280 Production Lease Condition 6.01 (9): ***Reclaim and remediate the Leased Land in accordance with the Closure and Reclamation Plan, on an ongoing basis through the Term and deliver to KIA, not later than March 31 of each year of the Term, beginning five years after the effective date, an amended C&R Plan detailing the activities taken in the last year and to be undertaken in the next year and planned for the balance of the Term, that includes, but is not limited to the proposed methods and procedures for progressive reclamation.***

In January 2014, Agnico updated the 2008 site closure plan using revised life of mine calculations. The report "Interim Closure and Reclamation Plan for Meadowbank" can be found in Appendix H1 of the 2013 Annual report. This document was provided to the NWB in support of the Type A Water License renewal. The Plan was approved during the renewal process.

The current mine plan includes progressive closure associated with the following mine components: Portage and Goose open pits, Portage Waste Rock Storage Facility, Tailings Storage Facilities, water management infrastructure, and site infrastructure (limited structures).

Progressive reclamation of Goose and Portage will start once the mining activities in each pit has ceased, 2015 and 2018 respectively. For Goose Pit, mining activities were completed in April 2015. There is no pumping activity to dewater the pit anymore and natural reflooding with inflows such as seepage and natural runoff is occurring. No active pumping system is operating in Goose pit and part of the system has been decommissioned. Active reflooding of the Goose Pit could possibly be undertaken in 2017, by pumping water from the Third Portage Lake into Goose Pit. The reflooding of Goose Pit will be completed in accordance with the requirements of the Water License. Overall, progressive closure for the pits will consist of decommissioning and removing the pumping systems and actively (and passively) reflooding the pits.

Water management infrastructure to be decommissioned consists of all the pumping systems that had served for the dewatering of Second Portage Arm and the Bay Goose impoundment, as well as the reclaim water system. Following conversion of the Portage Attenuation Pond into the Reclaim Pond (South Tailings Cell) in 2014, all of the dewatering equipment from the North Cell reclaim system (i.e.

dewatering pipelines, reclaim barge, effluent diffuser pipelines, and pumps) has been dismantled and removed. This activity occurred in 2015. Following the cessation of operations, all reclaim pipelines and pumps will be dismantled. The tailings pumping system including pipelines will also be decommissioned at the end of mining operations.

Under the current design plans, waste rock from Portage and Goose Pits (ceased mining in April, 2015) is currently being stored in the Portage Rock Storage Facility, in the Goose NPAG Rock Storage Facility (NPAG for reuse at closure – capping of South Cell TSF) or in the Central Portage Pit (as fish habitat structure – mining completed in this area). For more detail please refer to the 2016 Mine Waste Rock and Tailings Management Plan, Appendix D1. The Portage waste rock storage facility (PRSF) was constructed to minimize the disturbed area and restrict runoff to the Tailings Storage Facility. The PRSF is composed of an internal sector comprising potentially acid generating (PAG) waste rock and a cover comprising of non-acid generating (NPAG) waste rock. The PAG rock portion of the PRSF has subsequently been capped, around the perimeter as the facility has risen, progressively, during operations with a 4m layer of NPAG rock to constrain the active layer within relatively inert materials. The control strategy to minimize the onset of oxidation and the subsequent generation of acid rock drainage includes freeze control of the waste rock through permafrost encapsulation and capping with an insulating convective layer of NPAG rock. The waste rock below the capping layer is expected to freeze, resulting in low rates of acid rock drainage (ARD) generation in the long term. Instrumentation has been installed in the PRSF to monitor the freeze back in the waste rock. Results to date from the thermistors indicate that freeze back is occurring in the PRSF structures, as described in Section 5.3.2 of this report. Monitoring will continue during operations and closure. The placement of the NPAG rock cover over the PAG rock has been progressively completed during operations and has been ongoing since 2012. As mentioned, there has been placement of a 4m NPAG rock cover over the exterior slopes, around the perimeter, as the PRSF is filled in lifts. As of January 2016, 80% of the area of the Portage PRSF had been covered with NPAG rock. Additional cover will be completed on the PRSF in 2017. The capping of the top of the facility will be completed during final closure operations after mining in Portage Pit has been completed.

A similar principle will be used for the Tailings Storage Facility. Thermal modelling indicates that the tailings will freeze in the long term, and that the talik that currently exists below 2PL Arm will freeze before seepage from the TSF will reach the groundwater below the permafrost. The tailings are potentially acid generating (PAG); therefore a cover of NPAG material will be placed over the tailings to physically isolate the tailings and to confine the active layer within relatively inert materials. The control strategy to minimize water infiltration into the TSF and the migration of constituents out of the facility includes freeze control of the tailings through permafrost encapsulation. Please refer to the Waste Rock and Tailings Management Plan in Appendix D1 for additional details on the tailings cover design for closure. The final design of the tailings cover will be presented in the final closure and reclamation plan presented one year prior to the end of mine operations.

Progressive reclamation by capping the tailings in the North Cell was undertaken in winter of 2015 following the completion of the tailings deposition in this cell. The construction continued in 2016Capping occurred in sections (perimeter areas) where the tailings were at elevation 149.5m (design level). This consisted of capping with 2.0m of NPAG material. Site inspection during the construction as well as Quality Control sampling were completed to ensure that material used for the cover was NPAG, as discussed in section 5.1 of this report. A total of 144,741m^3 of NPAG material was placed on the tailings North Cell between in 2016. Photos 1 below show the 2016 TSF Cover Construction. Progressive

closure is planned to continue on the North Cell in winter 2017. As the tailings deposition is completed in the North Cell, additional areas of the tailings can be covered with NPAG material.

Photos 1: 2016 TSF Cover Construction

As part of the closure and reclamation planning, Agnico has undertaken a research program in collaboration with the RIME (Research Institute in Mine and Environment). As discussed in Section 5.3.2, the focus of this research program is the reclamation of the tailings storage and waste rock storage facilities. Refer to this section of the report for additional details on the research project.

As per the Meadowbank No Net Loss Plan (NNLP) (October, 2012), compensation measures will have to be applied on site for closure. The NNLP quantifies the losses to fish habitat that will occur throughout the mine development and operational phase, and the gains that will be achieved through compensation measures. As part of the compensation measures, creation of fish habitat features within the mined out pits (Portage and Goose) is ongoing. The creation of fish reefs has been undertaken in the Central Portage Pit since the completion of mining. The construction of finger dikes in Third Portage Lake was initiated in 2016 to develop construction methods for these structures. The test was completed along Bay Goose dike at one location. . The dikes faces (East Dike, Bay Goose Dike, South Camp Dike, Central Dike) are also considered as compensation features in the NNLP and have been completed during operations.

For more information regarding these activities, refer to the *Interim Closure and Reclamation Plan* found in Appendix H1 of the 2013 Annual Report.

9.1.2 AWAR

As required by INAC Land Lease 66A/8-71-2, Condition 33: ***The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with the approved Abandonment and Restoration Plan, as well as any variations from the said Plan.***

And

As required by KIA Right of Way KVRW06F04, Condition 26: ***File annually a progress report for the preceding year, outlining any ongoing restoration completed, in conformity with the Abandonment and Restoration plan***.

No extensive progressive reclamation has been completed on the AWAR or associated quarries in 2016.

9.1.3 Quarries

As required by INAC Land Lease 66A/8-72-2, Condition 33: ***The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with C&R Plan, as well as any variations from the said Plan.***

No restoration work was completed in 2016. Before the construction of the landfarm facility at the mine site in 2012, contaminated soils from spills occurring on the AWAR were stored in Quarry 5 and 22 along the AWAR. In 2014, Agnico completed assessments in Quarry 5 and 22 to verify if the substrate where contaminated materials (with petroleum hydrocarbons (PHC"S)) were stored met CCME Remediation Criteria for Industrial use of Coarse Material. Quarry 5 was deemed remediated and details were provided in the 2014 Annual Report. Please refer to Section 3.2 for more details regarding Quarry 22.

9.2 RECLAMATION COSTS

9.2.1 Project Estimate

As required by Water License 2AM-MEA1525 Schedule B, Item 19: ***An updated estimate of the current restoration liability based on project development monitoring, results of restoration research and any changes or modifications to the Appurtenant Undertaking.***

And

As required by NIRB Project Certificate No.004, Condition 80: ***File annually with NIRB's Monitoring Officer an updated report on progressive reclamation and the amount of security posted, as required by KivIA, INAC, and/or the NWB.***

Refer to Section 9.1 for the progressive reclamation completed in 2016 and in previous years. Progressive reclamation measures undertaken to date, which are reflected in the financial security cost estimate, include perimeter cover of the Portage Waste Rock Storage Facility with 4m of NPAG material. The financial security cost estimate from 2014 has been conservatively developed assuming no further progressive rehabilitation activities are completed through the remaining life of the mine, and all remaining reclamation costs are incurred at the onset of permanent closure. For this reason the financial security cost estimate should be revisited as progressive reclamation measures are completed.

A financial security cost estimate of the closure and reclamation activities for the Project, based on the current end of mine life configuration, was previously prepared using the RECLAIM template (Version 6.1, March 2009); details of this estimate are provided in Section 4.0, Appendix I1 and I2 of the closure plan found in Appendix H1 of the 2013 Annual Report. An update of the financial security cost presented in the Interim Closure and Reclamation Plan was prepared in December 2014 and is available in Appendix H1 of the 2014 Annual Report. The updated financial security cost estimate has been prepared using a more recent version of RECLAIM template (Version 7.0, March 2014). This updated closure cost was approved during the Type A Water License renewal process and forms part of the renewed Water License (July, 2015). The updated closure and reclamation cost estimate for the Meadowbank Gold Project using RECLAIM version 7.0 is $84,869,488. Indigenous and Northern Affairs Canada requested, during the Type A water license renewal process, that this amount be increased should Agnico be unable to take care of the closure and reclamation activities itself. Therefore, the agreed reclamation liability is C$86,519,614.

Agnico Eagle has provided a Letter of Credit to the Government of Canada (Indigenous and Northern Affairs Canada) for C$71.1 million effective October 1, 2015 against site reclamation liability at Meadowbank for the mine plan. Agnico Eagle has also provided a Letter of Credit to the Kivalliq Inuit Association for C$78,834.710$ effective December 2015 against decommissioning and reclamation of the Mine site phase. Consequently as of the writing of this report Agnico Eagle has posted Letters of Credit of a combined value of C$150,534,710 against reclamation liability at Meadowbank (174% of estimated liability). On February 12, 2016 Agnico sent a request to the NWB to consider a change to the amount of security under the License to remove the overabounding. On June 6, 2016, NWB issue the Amendment no1 to the Water License 2AM-MEA1525. The amendment said "furnish and maintain security with the Minister in the amount of $43,259,807. As set out in the Meadowbank Security Management Agreement, May 17, 2016, the amount secured under this Part constitutes 50% of the total global security amount of

$86,519,614 that is required to reclaim the Undertaking and reflects that the other 50% of the global security amount will be held outside the License by the Kivalliq Inuit Association, in accordance with the terms and conditions of the Meadowbank Security Management Agreement."

No additional work on the financial security cost estimate of the closure and reclamation activities with RECLAIM was completed in 2016.

9.2.2 AWAR and Quarries

As required by INAC Land Lease 66A/8-71-2, Condition 19: ***The lessee shall submit to the Minister every two years after the commencement date of this lease (January 2007), a report describing any variations from the Abandonment and Restoration Plan and updated cost estimates.***

And

As required by INAC Land Lease 66A/8-72-2, Condition 37: ***The lessee shall submit to the Minister every 2 years after the commencement date of this lease (January 2007), a report describing cumulative variations from the C&R Plan with updated cost estimates.***

And

As required by KIA Right of Way KVRW06F04, Condition 14: ***Submit to KIA every two years on each anniversary of the commencement date (February 2007), a report describing any variations from the Abandonment and Restoration Plan and updated cost estimates.***

No extensive progressive reclamation has been completed on the AWAR or associated quarries in 2016.

No major modifications were made in the updated interim closure plan from 2014 compared to with the 'AEM Closure and Reclamation Plan, September 2008'. The cost estimate for the reclamation of the AWAR and quarries in the December 2014 cost estimation is 991,072$ with RECLAIM 7.0 instead of $1,061,664 estimated previously with Reclaim 6.1. The difference in cost is explained by 8.6 % increase in scarifying unit rate and by the drill/blast unit rate removed and replaced with drill/blast/load/short haul which represented a 28% decrease. No change to this estimate based on RECLAIM 7.0 was made in 2016.

SECTION 10. PLANS / REPORTS / STUDIES

10.1 SUMMARY OF STUDIES

As required by Water License 2AM-MEA1525 Schedule B, Item 20: ***A summary of any studies requested by the Board that relate to Water use, Waste disposal or Reclamation, and a brief description of any future studies planned.***

No studies were requested by the NWB in 2016.

10.2 SUMMARY OF REVISIONS

As required by Water License 2AM-MEA1525 Schedule B, Item 21: ***Where applicable, revisions will be completed as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.***

The following monitoring and management plans were revised in 2016:

- Incinerator Waste Management Plan, Version 7;
- Landfarm Design and Management Plan, Version 4;
- Operation & Maintenance Manual - Sewage Treatment Plant, Version 6;
- Mine Waste Rock and Tailings Management Plan, Version 6 (Appendix D1);
- Tailings Storage Facility – Operation, Maintenance and Surveillance Manual, Version 7;
- Dewatering Dikes – Operation, Maintenance and Surveillance Manual, Version 6;
- 2016 Water Management Report and Plan (Appendix C2) including the Ammonia Management Plan and the Freshet Action Plan;
- Groundwater Monitoring Plan, Version 7;
- Fish Habitat Offsetting Plan : Phaser Lake Addendum, Version 1;
- Blast monitoring Program, Version 2;
- Oil Handling Facility: oil Pollution Emergency Plan, Version 7;
- Transportation Management Plan: All Weather Access Road, Version 5;
- Landfill Design and Management Plan, Version 3;
- Meadowbank Habitat Compensation Monitoring Plan, Version 4; and
- Emergency Response Plan, Version 11.

The above listed plans are included in Appendix C2, D1, and I1. A brief description of revisions made to each of plans is provided in Appendix I2.

10.3 EXECUTIVE SUMMARY TRANSLATIONS

As required by Water License 2AM-MEA1525 Schedule B, Item 22: ***An executive summary in English, Inuktitut and French of all plans, reports, or studies conducted under this Licence.***

Appendix I2 includes an executive summary in English, French and Inuktitut for the following documents:

- All monitoring and management plans listed in Section 10.2 above.

- Reports or studies submitted in 2016:
    - 2016 Annual Geotechnical Inspection;
    - Annual Review of Portage and Goose Pit Slope Performance (2016);
    - 2016 Independent Geotechnical Expert Review Panel Reports;
    - 2016 Landfarm Report;
    - 2016 Core Receiving Environment Monitoring Program Report;
    - 2016 Groundwater Monitoring Report;
    - 2016 Wildlife Monitoring Summary Report;
    - 2016 Q22 Report
    - 2016 All-weather Access Road Dust Monitoring Report;
    - 2016 Blast Monitoring Report;
    - 2017 Mine Plan;
    - 2016 Phaser Lake Fishout Report;
    - 2016 Stack Testing Report;
    - 2016 Air Quality and Dustfall Monitoring Report; and
    - 2016 Noise Monitoring Report.

SECTION 11. MODIFICATIONS / GENERAL / OTHER

11.1 MODIFICATIONS

As required by Water License 2AM-MEA1525 Schedule B, Item 14: ***A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.***

In accordance with Water License 2AM-MEA1525, Part D, Item 14, Agnico submitted on March 28, 2017 a copy of the final design and construction drawings for Stage 2 Saddle Dams 3, 4 and 5 and Stage 5 Central Dike (Appendix B6).

Agnico also submitted as part of the 2016 Annual report the Stormwater dike Buttress As-built report (Appendix B4) for modification conducted from September 3, 2016 to September 30, 2016. Work carried out during construction of the buttress included access road construction, placement of a first lift of rockfill 1 meter above water level, and placement of the second lift of rockfill at final elevation. This construction report issued by Agnico presents the general construction procedure for the buttress.

In accordance with Water License 2AM-MEA1525, Part D, Item 14, Agnico submitted on November 18, 2016 the as-built drawings for modification made to the current landfarm and for the implementation of a new landfarm located north of Central Dike. Refer to Appendix J1 for the complete as-built report.

11.2 INTERNATIONAL CYANIDE MANAGEMENT CODE

As required by NIRB Project Certificate No.004, Condition 28: ***Cumberland shall become a signatory to the International Cyanide Management Code, communicate this to shippers, and do so prior to Cumberland storing or handling cyanide for the Project.***

In 2014 and 2015 audits and completion work were completed and assessed. A management of change process was implemented and put forward. From the status of Substantial Compliance in 2014, Agnico received full ICMC certification in March 2016. The full certification is posted on the ICMC website at http://www.cyanidecode.org/media-room/press-releases/2016/agnico-eagle%E2%80%99s-meadowbank-mine-and-supply-chain-fully-certified-under

As in previous years, a cyanide information brochure was made available to employees and the public. Copies are available at the Agnico Eagle's office in Baker Lake. A copy of this can be found in Appendix J2.

During the transport of cyanide in 2016 a nurse and an Emergency Response Team (ERT) member escorted each convoy of cyanide up to the Meadowbank mine site. In addition, they were present at the Baker Lake Marshalling facility for the removal of cyanide from the barge and the loading of the tractor trailers for hauling. As well, the road was completely closed for other traffic during cyanide transportation.

11.3 INSPECTIONS, COMPLIANCE REPORTS AND NON-COMPLIANCES ISSUES

As required by Water License 2AM-MEA1525 Schedule B, Item 23: ***A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.***

And

As required by NIRB Project Certificate Condition 4: ***Take prompt and appropriate action to remedy any noncompliance with environmental laws and regulations and/or regulatory instruments, and shall report any noncompliance as required by law immediately and report the same to NIRB annually.***

ECCC conducted an inspection on June 20-21, 2016. The purpose was to conduct an inspection of the Meadowbank Site and Amaruq Site for any non-compliance under Environment Canada's inspector jurisdiction (fishery act, MMER, E2, NPRI) and to review relevant documents of interest. MMER active discharge (East Dike) was also sampled. No concern was expressed by ECCC and no inspection report was received.

On July 6, 2016, KIA conducted the seasonal surface water sampling at the Meadowbank site. Agnico did not receive any follow up report or the sample results in 2016 for this event.

Transport Canada Inspector visited Meadowbank on July 18, 2016 for the Transportation of Dangerous Goods inspection. An inspection report was received and Agnico issued responses on August 18th, 2016.

DFO did not conduct any site inspection at Meadowbank in 2016.

On August 6 and 7, 2016, an inspection was conducted on the Meadowbank Site by Nunavut Impact Review Board (NIRB). Purpose of this visit was to conduct an inspection of the Meadowbank Site (including Baker Lake Marshalling facilities) for any non-compliance items related to the project certificate and to review relevant documents of interest. Agnico received the 2016 NIRB Annual monitoring report and the 2014-2015 Monitoring Report and Board Recommendations on November 4, 2016. Agnico responses to this report were submitted on December 9, 2016. Documents can be found in Appendix J3.

INAC conducted an inspection of the Meadowbank site on August 8 to 10, 2016. Purpose of this visit was to conduct a Geotechnical inspection of the Meadowbank Site (including Baker Lake Marshalling facilities) for any non-compliance items related to the project certificate and to review relevant documents of interest. The inspector did not produce a report and therefore all items were in compliance.

On August 18, 2016 an inspection was conducted on the Meadowbank Site and Amaruq Site by a Regional Environmental Health Officer from the Government of Nunavut (GN). Purpose of this visit was to conduct a Health and Safety inspection of the Meadowbank Site facilities (Camp, laundry, kitchen, gymnasium, medical clinic, WTP, fresh water barge and the tailings storage facilities) and Amaruq Site for any non-compliance items related to health and safety. A copy of the report can be found in Appendix J3.

On September 6, 2016, 3 members of the Government of Nunavut (GN) visited the Meadowbank and Amaruq site. The visit was to familiarize the GN with the Meadowbank site and an open discussion about planning of the permitting process with the GN and Agnico. No issues were mentioned and no report was received.

On September 12, 2016, KIA conducted another seasonal surface water sampling at the Meadowbank site. Agnico did not receive any follow up report or the sample results in 2016 for this event.

A Transport Canada Inspector visited Meadowbank on September 27, 2016 regarding the OUMF Certification for the Baker Lake facilities.

On November 28, 2016, the INAC inspector Christine Wilson and an officer in training came on Meadowbank site to perform an inspection. No major concern was identified in the inspection report (Appendix J3). Some information asked by the INAC inspector was sent at the end of November and one item will be address in the current annual report.

DFO didn't conduct any site inspections in 2016.

In 2016, all water quality results complied with Water License and MMER authorized limits. In addition, results from Incinerator stack testing, incinerator ash testing and waste oil testing complied with the applicable regulatory and guideline criteria. All results can be found in Section 6.3.

11.4 AWAR USAGE REPORTS

11.4.1 Authorized and Unauthorized Non-Mine Use

As required by NIRB Project Certificate Condition 32g: ***Record all authorized non-mine use of the road, and require all mine personnel using the road to monitor and report unauthorized non-mine use of the road, and collect and report this data to NIRB one (1) year after the road is opened and annually thereafter.***

And

As required by NIRB Project Certificate Condition 33: ***Cumberland shall update the Access and Air Traffic Management Plan to: 1. Include an All-weather Private Access Road Management Plan, including a right-of-way policy developed in consultation with the KivIA, GN, INAC and the Hamlet of Baker Lake, for the safe operation of the all-weather private access road; and 2. To facilitate monitoring of the environmental and socio-economic impacts of the private road and undertake adaptive management practices as required, including responding to any concerns regarding the locked gates.***

The security department at the Meadowbank Gold Project maintains fully staffed security gatehouse at Baker Lake on a 24/7 schedule. The Security staff monitors the safety, traffic and security of all personnel and the public using the road. Agnico procedures for non-mine uses of the road require that any local users report to the Baker Lake Gatehouse and sign a form that describes the safety protocol while on the road. The road is used primarily by local hunters using ATV's and snowmobiles. Daily records are kept. A summary of the non-mine authorized road use for 2016 is provided in Table 11.1. In 2016, 1504 non-mine authorized road uses were recorded. This is similar to previous year except 2015 which have a utilization of the road higher. In 2012, 2013, 2014 and 2015, respectively 1456, 1958, 1319 and 2366 non-mine authorized road uses were recorded respectively. In 2016, no incident involving non-mine authorized use occurred. Agnico is confident that the current procedures and protocols provide for the

safety of the local public while using the road either for hunting access or for general recreational opportunities.

Table 11.1 2016 AWAR ATVs and Snowmobile Usage Records

Month	# of ATV's
January	0
February	0
March	0
April	0
May	53
June	438
July	128
August	315
September	226
October	344
November	0
December	0
Total 2016	1504

Agnico's Project Certificate 004 was issued in 2006. Following the approval of the All Weather Access Road (AWAR) in 2007, the Project Certificate was revised in 2009 to address concerns regarding access to the AWAR. Pursuant to condition 33, Agnico prepared the Transportation Management Plan: All weather Private Access Road in 2009. It was submitted and later approved by INAC and GN. Therefore no revision of the 2005 Access and Air Traffic Management Plan was undertaken. Agnico is of the opinion that the Transportation Management Plan replaced the Access and Air Traffic Management Plan in 2009. The AWAR Transportation Management Plan was last updated in March 2017 and can be found in Appendix I1.

11.4.2 Safety Incidents

As required by NIRB Project Certificate Condition 32e: ***Prior to opening of the road, and annually thereafter, advertise and hold at least one community meeting in the Hamlet of Baker Lake to explain to the community that the road is a private road with non-mine use of the road limited to approved, safe and controlled use by all-terrain-vehicles for the purpose of carrying out traditional Inuit activities.***

And

As required by NIRB Project Certificate Condition 32f: ***Place notices at least quarterly on the radio and television to explain to the community that the road is a private road with non-mine use of road limited to authorized, safe and controlled use by all-terrain-vehicles for the purpose of carrying out traditional Inuit activities.***

And

As required by NIRB Project Certificate Condition 32h: ***Report all accidents or other safety incidents on the road, to the GN, KivIA [KIA], and the Hamlet immediately, and to NIRB annually.***

On December 14, 2016, Agnico held a meeting in the Hamlet of Baker Lake to explain to the community the Policies and Procedures of the All Weather Access Road from Baker Lake to the Meadowbank Mine site. The presentation is attached in Appendix J3. Agnico also placed a notice on the local radio station describing the Policies and Procedures for use of the All Weather Access Road from Baker Lake to the Meadowbank Mine site. Agnico also conducts quarterly meetings with the Baker Lake Community Liaison Committee and issues related to the use of the AWAR are discussed regularly.

No incident involving non-mine authorized use occurred in 2016.

There have been no accidents to date involving mine related truck traffic and locals using ATV's.

A total of three (3) environmental spills occurred along the AWAR in 2016. Table 7.2 provides details on each of these spills. All spills were managed appropriately according to Agnico's spill contingency plan. The spills were remediated and contaminated material was deposited at the Meadowbank Landfarm. There were no impacts to any watercourses.

In 2016, two (2) arctic fox road kills and one (1) Rock Ptarmigan fatality were reported along the AWAR. To avoid further incidents, messages are continually provided to employees and contractors to reinforce the procedures for wildlife protection during road use.

11.5 ON-BOARD VESSEL ENCOUNTER REPORTS

As required by NIRB Project Certificate Condition 36: ***Inuit observation and encounter reports for on-board vessels transporting goods and fuel through Chesterfield Inlet.***

Agnico hired five local representatives from Chesterfield Inlet to act as a marine mammal monitors for the transport of fuel during the 2016 shipping season. The monitors boarded the barges in July and October 2016.

In fulfillment of NIRB Condition 36, Table 11.2 summarizes the observations made by the local marine mammal monitors onboard contractor vessels transporting fuel for the Meadowbank Mine through Chesterfield Inlet. The observation reports from the monitors are located in Appendix J4. There were no adverse incidents reported. No marine mammals were observed. Rabbits, fox, muskox and caribou were observed on the land.

Table 11.2: 2016 Summary of local area marine mammal monitor's observations

Name	Direction/Location	Observation Date	Observations	Comments
Trevor Autut	Baker Lake to Helicopter Island	July 26	Flock of Birds	Observed across the Bay
Roger Tautu	Baker Lake to Helicopter Island	July 31	18 Muskox, 14 seagulls, 1 crow	Muskox are sitting and eating; Seagull are flying and sitting on an island; Crow is flying

Richard Arnauyok	Baker Lake to Helicopter Island	October 2	5 rabbits, 1 fox	Rabbit and fox have normal behaviour
Richard Arnauyok	Baker Lake to Helicopter Island	October 3	5 seagulls, 2 rabbits, 1 fox, 4 small bird	Seagull are flying; fox are walking; rabbit are eating and small bird flying
Richard Arnauyok	Helicopter Island to Baker Lake	October 4	7 seagulls, 12 rabbits, 1 raven	Seagull are flying; rabbit are eating/running and raven have a normal behaviour
Cyril Nanaout	Baker Lake to Helicopter Island	October 6	5 seagulls, 5 rabbits	Seagull are on water; Rabbit are eating
Cyril Nanaout	Baker Lake to Helicopter Island	October 7	4 seagulls, 4 fox, more than 50 caribous	Seagull are flying; fox are looking for food; caribou are walking South and eating
Cyril Nanaout	Helicopter Island to Baker Lake	October 8	11 seagulls, 1 fox, 8 ptarmigan, 1 Loon	Seagull are flying and in water; fox are looking for food; ptarmigan are flying South and Loon is in water
Brian Ikoe	Helicopter Island to Baker Lake	October 13	40 ptarmigan	Ptarmigan are flying

11.6 TRADITIONAL KNOWLEDGE, CONSULTATION WITH ELDERS AND PUBLIC CONSULTATION

As required by NIRB Project Certificate No.004, Condition 39: ***annually advertise and hold a community information meeting in Chesterfield Inlet to report on the Project and to hear from Chesterfield Inlet residents and respond to concerns; a consultation report shall be submitted to NIRB's Monitoring Officer within one month of the meeting.***

And

As required by NIRB Project Certificate No.004, Condition 40: ***Gather Traditional Knowledge from the local HTOs and conduct a minimum of a one-day workshop with residents of Chesterfield Inlet to more fully gather Traditional Knowledge about the marine mammals, cabins, hunting, and other local activities in the Inlet. Report to the KIA and NIRB's Monitoring Officer annually on the Traditional Knowledge gathered including any operational changes that resulted from concerns shared at the workshop.***

And

As required by NIRB Project Certificate No.004, Condition 58: "*in consultation with Elders and the HTOs and subject to safety requirements, design the lighting and use of lights at the mine site to minimize the disturbance of lights on sensitive wildlife and birds*"

And

As required by NIRB Project Certificate No.004, Condition 59: ***In consultation with Elders and the HTOs, design and implement means of deterring caribou from the tailing ponds, such as temporary ribbon placement or Inukshuks, with such designs not to include the use of fencing"***

And

As required by Water License 2AM-MEA1525 Schedule B, Item 24: ***A summary of public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events and information sessions.***

11.6.1 Community Meetings in Chesterfield Inlet

In accordance with NIRB Project Certificate No. 004, Condition 39 and 40, Agnico conducts a minimum of one community meeting a year in Chesterfield Inlet. During these meetings IQ is gathered and reported annually. Traditional knowledge is defined by the NIRB as a "cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission." (NIRB, 2007). Meeting were held with Chesterfield Hamlet representatives. Concerns on shipping issues were also discussed at his meeting. In November 2016, Agnico also host a Environment WTP Open House. in Nov 2106.

11.6.2 Community Meetings in Baker Lake

Agnico held a community meeting in Baker Lake on December 14, 2016. The meeting focused on the AWAR and included discussions on safety rules, procedures to access road, wildlife and road closure.

More details regarding Baker Lake Community meeting can be found in in Appendix J5.

11.6.3 Meetings with Baker Lake HTO

In 2016, quarterly meetings were held with the Baker Lake HTO at the mine site and at Baker Lake. A site visit was also organized for 4 days in August 2016. These meetings were general in nature and will be used to develop a better relationship with HTO in 2017. Agnico intends to work continue work started in 2016 with the HTO to develop a revised Hunter Harvest methodology for implementation in 2017.

On July 5. August 17 and November 2016 meetings were held with the HTO in Baker Lake to provide information regarding the Phaser Lake Fishout. Meeting before fishout were to discuss the best way to deliver fish to the community.

11.6.4 Community Liaison Committee Meetings

During 2016, Agnico Eagle continued to facilitate meetings with the Meadowbank Community Liaison Committee in Baker Lake, which was established to inform stakeholders on the activities at the mine and to consult them on specific issues and projects.

The Community Liaison Committee's objective is to favour dialogue and exchange between Agnico Eagle and its local stakeholders such that all parties gain a better understanding of the issues associated with mining activities and provides a venue for stakeholders to provide advice to Management for solutions. The Committee consists of various representatives including Agnico Eagle, the Elders Society, youth, the business community, adult education committee, the Hamlet, the Nunavut Arctic College, the RCMP and

the Hunters and Trappers Organization of Baker Lake. The meetings are chaired by the Agnico Eagle Community Liaison Coordinator.

Meetings are scheduled quarterly in both English and Inuktitut, with the understanding that the minimum number of meetings is two (2) annually. During 2016, two Community Liaison Committee meetings were held.

11.6.5 Meeting with the Kivalliq Wildlife Board

On November 18, 2016, a meeting regarding the Caribou monitoring and management workshop was held in Winnipeg and include Government agencies, HTO, and Agnico. The meeting was for a discussion on best practices with stakeholder and Federal and territorial agencies.

11.6.6 Site Tours for Baker Lake Residents

Each year, Agnico Eagle offers a variety of ways for the residents of Baker Lake, as well as various other groups or individuals from the Kivalliq, to visit Meadowbank Site. The list below outlines the major visits to the site during 2016:

- Each year in August, Agnico Eagle invites the residents of Baker Lake to come on a site tour at Meadowbank Mine. In 2016, Meadowbank welcomed four (4) tours, for a total of 100 visitors.
- In June 2016, the mine welcomed the Mayor of Baker Lake on a site tour with his guests.
- In October 2016, Meadowbank welcomed a group of 15 people from the Baker Lake Disability Awareness Committee.
- A new initiative in 2016, the Human Resources department organized Country Food Nights. The goal of these events was to introduce employees to the different food that Inuit enjoy, creating a social event based on cultural sharing. The event was open to all employees, and during the event in fall 2016 the mine also invited and hosted elders from Baker Lake to attend and share stories.

11.6.7 Community Engagement Initiatives

Community initiatives that Agnico participated in during 2016 and including work readiness training, donations, mine site tours, school training week, etc. are summarized in Appendix J5.

11.6.7.1 Community Coordinators Program

The Community Coordinators program was revised in 2015, and in 2016 the program expanded to sponsor part-time Agnico Eagle Coordinators in all Hamlets in the Kivalliq Region with the addition of Chesterfield Inlet, Arviat, Whale Cove, Naujaat, and Coral Harbour. Agnico Eagle's offices in the communities of Rankin Inlet and Baker Lake already had Agnico Eagle staff working full and part-time to provide community relations support.

The objective of the community-based Agnico Eagle Coordinators is to provide a point of contact in each community to facilitate communications, provide services, and coordinate activities in the following areas:

- Support to the HR department by:
    - Assisting HR and other Agnico Eagle departments to locate employees or potential employees as required
    - Contact employees in advance of their shift departure times
- Support to the Recruitment team by guiding interested individuals in the application process outlined by the Labour Pool Process
- Provide advice and assistance to Agnico Eagle to organize and hold information sessions in the community on Agnico Eagle projects and initiatives, including those Labour Pool and business opportunities initiatives outlined in the Meliadine IIBA
- Provide updates to the Hamlet Council on Agnico Eagle activities
- Distribute Agnico Eagle information and promotional materials

The increase of community involvement requirements for Agnico Eagle to achieve recruitment goals and the obligations for the NIRB and IIBA renders the Community Coordinators essential for Agnico Eagle's Nunavut operations. In 2017, the Community Coordinators will attend Agnico Eagle training to ensure they have the proper tools and resources to fulfill their responsibilities

11.6.7.2 Summer Student Employment Program

Agnico's companywide policy offers summer employment programs to the children of all Agnico employees (both Inuit and non-Inuit) that are undertaking postsecondary education. Summer job opportunities were also offered to Inuit students who are participating in post-secondary activity, even if they had no family relative working at the mine. Historically, there have been no applications to Agnico Eagle's Summer Student program by the children of Inuit employees. The program will continue to be offered in 2017.

In 2016, Agnico advertised a new summer student program to attract Inuit post-secondary students from Kivalliq communities, including students enrolled in trades with the Nunavut Arctic College and with the Nunavut Sivuniksavut program. This program was offered and advertised in each Kivalliq Community, but there were no applications in 2016.

11.6.7.3 Community Funding Agreements

In 2015, Agnico Eagle initiated new community agreements called *Community Initiatives Fund* agreements with the hamlets of Baker Lake, Rankin Inlet, Arviat and Chesterfield Inlet. In 2016, Agnico Eagle established Community Initiatives Fund agreements will all hamlets in the Kivalliq, with the exception of Whale Cove.

The purpose of the fund is to invest in community-based activities that will enrich the cultural and social wellbeing of the community. Each hamlet is responsible for the allocation of the funds in alignment with the purpose and is guided by the *Donations Policy Agreement* where Agnico Eagle and the hamlet jointly agree to focus donations towards events that meet the following criteria:

1. Community Activities
2. Recreation Activities
3. Youth Education and Development

Agnico Eagle plans to renew the agreements for all hamlets in 2017, including establishing a Community Initiatives Fund agreement with Whale Cove.

In 2016, Agnico Eagle also entered into funding agreements with hamlets for specific purposes or activities.

- Family Days Events with Baker Lake, Arviat and Rankin Inlet to invest in a community-based event that provides community residents and their families an opportunity to enjoy a recreational event.

- Harvesters Initiatives funding with Chesterfield Inlet to support local harvesters to promote safe hunting practices, educate youth and support the distribution of country foods within the community.

- Annual Charity Ball (Rankin Inlet): Agnico Eagle and the Hamlet partnered to sponsor the first annual Charity Ball in Rankin Inlet during December, 2016. The event raised $40,000 to benefit local charities.

- Clean Communities Program with Baker Lake and Rankin Inlet: This program sees agreements with the Hamlets of Baker and Rankin Inlet to remove solid and hazardous waste from the community. Agnico Eagle offered both communities a grant to organize and manifest waste products for backhaul shipping during Agnico Eagle's annual re-supply.

  During 2016 Baker Lake chose to defer their program to 2017. In Rankin Inlet the Hamlet has begun sorting their waste and storing it for shipping in 2017.

In 2017, Agnico Eagle plans to provide Baker Lake, Rankin Inlet and Chesterfield Inlet with funding for Family Day Events as outlined in the IIBAs, as well as one other hamlet in the Kivalliq annually on a rotational basis.

11.7 MINE EXPANSION

As required by NIRB Project Certificate Condition 29: ***report to NIRB if and when [Cumberland] develops plans for an expansion of the Meadowbank Gold Mine, and in particular if those plans affect the selection of Second Portage Lake as the preferred alternative for tailings management.***

11.7.1 Vault Pit Expansion into Phaser Lake

On July 15, 2014 Agnico submitted an application (which included supporting documents that described the project) to NIRB and DFO for the Vault Pit Expansion into Phaser Lake. NIRB determined that Vault Pit Expansion into Phaser Lake application required more information and NIRB requested that Agnico

prepare a comprehensive addendum to the FEIS and submit it to NIRB. The Agnico EIS Addendum was submitted to NIRB on July 3, 2015. Agnico Eagle received Information requests (IRs) and comments from NIRB on September 4, 2015. Community sessions were held in Baker Lake and Chesterfield Inlet on September 9 and 11, 2015. On October 1 2015, Agnico submitted its IRs response package to NIRB. A Technical Review meeting hosted by NIRB was held on December 1, 2015. Agnico received the final NIRB Technical Review Comments on December 8. Agnico's responses were sent on December 22, 2015 to NIRB. The final Public Hearing took place in Baker Lake on March 1 and 2, 2016. On February 18, 2016 Agnico advised the NWB of Agnico's planned modification to the Vault Pit and ancillary works. As noted in that correspondence, under Part G, Item 1 of Type "A" Water License 2AM-MEA1525 Agnico may, without written consent from the Board, carry out modifications (as defined in the License) provided that such modifications are consistent with the terms of the License and meet the requirements of Part G, Item 1, including providing at least 60 days' notice prior to undertaking the modifications. On April 25, 2016, the Board accepts that the changes as proposed in Agnico's February 18, 2016 letter do constitute modifications that are consistent with the existing terms and conditions of the License but the Licensee will need to await the Minister's decision and conclusion of the NIRB process before these aspects of the Modifications can proceed. On July 27, 2016, Agnico Eagle received from DFO the Authorization NU-14-1046 to dewatered and conduct a fishout in Phaser Lake. Please refer to Section 8.3.2 and 8.8 for a complete overview of the dewatering and fishout activities. On August 2016, Agnico received the NIRB Project certificate amendment approval to include Vault Pit Expansion into Phaser Lake. Agnico is currently in the process to increase the NTI leased area to include a part of BB Phaser in the NTI Vault Production Lease BL14-001-PL. Agnico planned to start the mining in Phaser and BB Phaser in Q2 2017.

11.8 INSURANCE

As required by NIRB Project Certificate No.004 Condition 45: ***"[Cumberland] shall carry, and require contracted shippers to carry adequate insurance to fully compensate losses arising from a spill or accident, including but not limited to the loss of resources arising from the spill or accident; any claims are to be reported to proper officials with a copy to NIRB's Monitoring Officer"***

All shipping contractors have insurance to fully compensate losses arising from a spill or accident, including but not limited to the loss of resources arising from spill or accident for all marine transport vessels and vehicles travelling on the AWAR.

No claim was reported by our marine or trucking shippers in 2016.

11.9 SEMC

As required by NIRB Project Certificate Condition 63: ***the GN and INAC shall form a Meadowbank Gold Mine Socio-Economic Monitoring Committee ("Meadowbank SEMC") to monitor the socio-economic impacts of the Project and the effectiveness of the Project's mitigation strategies; the monitoring shall supplement, not duplicate, the monitoring required pursuant to the IIBA negotiated for the Project, and on the request of Government or NPC, could assist in the coordination of data collection and tracking data trends in a comparable form to facilitate the analysis of cumulative effects; the terms of reference shall focus on the Project, include a plan for ongoing consultation with KivIA and affected local governments and a funding formula jointly submitted by GN, INAC and [Cumberland]; the terms of reference shall be submitted to NIRB for review and***

subsequent direction within six (6) months of the issuance of a Project Certificate; [Cumberland] is entitled to be included in the Meadowbank SEMC

And

As required by NIRB Project Certificate No.004, Condition 64: ***[Cumberland] shall work with the GN and INAC to develop the terms of reference for a socio-economic monitoring program for the Meadowbank Project, including the carrying out of monitoring and research activities in a manner which will provide project specific data which will be useful in cumulative effects monitoring (upon request of Government or NPC) and consulting and cooperating with agencies undertaking such programs; [Cumberland] shall submit draft terms of reference for the socio-economic monitoring program to the Meadowbank SEMC for review and comment within six (6) months of the issuance of a Project Certificate, with a copy to NIRB's Monitoring Officer.***

Agnico has retained Stratos Inc, a qualified socio-economic consultant, to work with the GN, AANDC and Agnico on the development of a socio-economic monitoring report. Officials from the GN and AANDC provided input and advice through-out the process. A draft of the report was presented to the Socio Economic Monitoring Committee (SEMC) in Baker Lake on December 6th and 28th, 2016. This SEMC workshop was attended by officials from NIRB, the GN, AANDC and Kivalliq Community leaders. The final report included their input and was submitted to the SEMC, KIA and NIRB in December 2016 (Appendix J6). The socio-economic monitoring report will be updated yearly and submitted with the annual report.

The socio-economic indicators and associated metrics in this report are categorized according to the following valued socio-economic components, or VSECs.

1. Employment
2. Income
3. Contracting and Business Opportunities
4. Education and Training
5. Culture and Traditional Lifestyle
6. Migration
7. Individual and Community Wellness
8. Health and Safety
9. Community Infrastructure and Services
10. Nunavut Economy

Agnico will continue to actively participate in the Kivalliq Regional SEMC and will meet its socio-economic reporting requirements to NIRB through the SEMC annual report. Agnico has complied with all of the requests for data made by the SEMC and is current with all commitments made to the SEMC.

11.10 SOCIO ECONOMIC

As required by NIRB Project Certificate No.004, Condition 65: ***Cumberland shall include in its socio-economic monitoring program for the Meadowbank Project the collection and reporting of data of community of origin of hired Nunavummiut.***

11.10.1 Meadowbank Workforce

The workforce at Meadowbank on December 31, 2016 was 1,201 people (contractors, Agnico Eagle permanent, temporary and on-call) broken down as follow:

- Agnico Eagle Employees: 834
- Contractors' Employees: 367

The total Agnico Eagle workforce (not including contractors) at the end of 2016 was 834. The breakdown according to job status is shown below.

Table 11.3: Total Workforce at Meadowbank Mine on December 31, 2016

	Inuit		Non-Inuit	
	#	%	#	%
Permanent	210	70%	503	95%
Temporary with Benefits	1	0%	6	1%
Temporary	4	1%	2	0%
On-Call	87	29%	0	0%
Coop	0	0%	12	2%
Student	0	0%	9	2%
TOTAL	**302**	**100%**	**532**	**100%**

Table 11.4: Female Workforce Breakdown at Meadowbank Mine on December 31, 2016

	Inuit Female		Non-Inuit Female	
	#	%	#	%
Permanent	71	70%	41	77%
Temporary with Benefits	0	0%	3	6%
Temporary	1	1%	0	0%
On-Call	30	29%	0	0%
Coop	0	0%	4	8%
Student	0	0%	5	9%
TOTAL	**102**	**100%**	**53**	**100%**

Table11.5: Male Workforce Breakdown at the Meadowbank Mine as of December 31, 2016

	Inuit Male		Non-Inuit Male	
	#	%	#	%
Permanent	139	69%	462	96%
Temporary with Benefits	1	0%	3	1%
Temporary	3	2%	2	0%
On-Call	57	29%	0	0%
Coop	0	0%	8	2%
Student	0	0%	4	1%
TOTAL	**200**	**100%**	**479**	**100%**

At the end of December 2016, 302 Inuit were employed at Meadowbank. Out of those, 87 of were on-call employees, 210 permanent employees and 5 temporary employees.
Agnico Eagle defines job statuses as follows:

- Permanent employee: an employee whose current job is not specifically tied to a short-term project and the position is expected to be required throughout the life of mine (LOM).
- Temporary employee: an employee whose current job will not continue beyond a specified period of time.
- On-call employee: an employee who has an undefined contract and is called upon when the need arises. It is expected that on-call employees will move to temporary or permanent positions as they become available.

It is important to understand that the 210 permanent employees and 5 temporary employees are enrolled on the payroll system and are expected to work full time hours as of January 1st, 2017. The 87 on-call employees are also enrolled in the payroll system, but are not guaranteed to be employed as of January 1st, 2017. These employees are called on an as-needed basis depending demand.

Table 11.6 lists the types of jobs held by Temporary and Permanent Inuit employed at Meadowbank on December 31st 2016 and Table 11.7 lists the types of jobs held by On-Call Inuit employed at Meadowbank on December 31st 2016.

Table 11.6 - Types of job positions held by Temporary and Permanent-Inuit on Dec 31, 2016

Job Position	Skill Level	Total	
		#	%
Apprentice	Semi-Skilled	13	6%
Auxiliary Equipment Operator	Semi-Skilled	13	6%
Cook Helper	Unskilled	3	1%
Counselor	Semi-Skilled	2	1%
Crusher Operator	Semi-Skilled	1	0%
Dishwasher	Unskilled	10	5%
Driller and Blaster	Semi-Skilled	2	1%
Guest Services Leader	Semi-Skilled	2	1%
Haul Truck Operator	Semi-Skilled	77	36%
Heavy Duty Equipment Technician	Skilled	2	1%
Heavy Equipment Operator	Semi-Skilled	10	5%
Helper	Unskilled	25	12%
Janitor	Unskilled	34	16%
Labourer	Unskilled	3	1%
Millwright	Skilled	1	0%
Production Loading Equipment Operator	Semi-Skilled	2	1%
Security Guard	Semi-Skilled	4	2%
Sharpener	Semi-Skilled	1	0%
Technician	Skilled	1	0%
Trainee	Unskilled	1	0%
Trainer	Semi-Skilled	1	0%
Utility Person	Semi-Skilled	6	3%
Welder	Skilled	1	0%
	TOTAL	**215**	**100%**

Table 11.7 - Types of job positions held by Inuit On-Call at Meadowbank as of Dec 31, 2016

Job Position	Skill Level	Total	
		#	%
Dishwasher	Unskilled	2	2%
Helper	Unskilled	3	3%
Janitor	Unskilled	68	78%
Labourer	Unskilled	4	5%
Security Guard	Semi-Skilled	3	3%
Trainee	Unskilled	7	8%
TOTAL		**87**	**100%**

As of the end of 2016, the Inuit employees working at Meadowbank in unskilled, semi-skilled or skilled occupations are described in Table 11.8 and 11.9 by percentage.

Table 11.8 - Skill Level of Positions held by Inuit in Temporary and Permanent Positions at Meadowbank on December 31, 2016

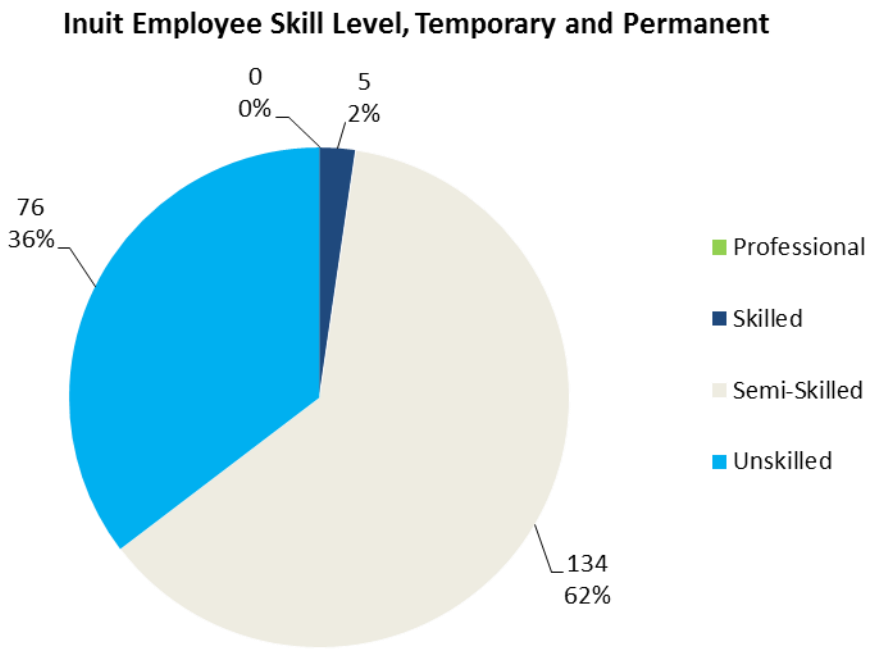
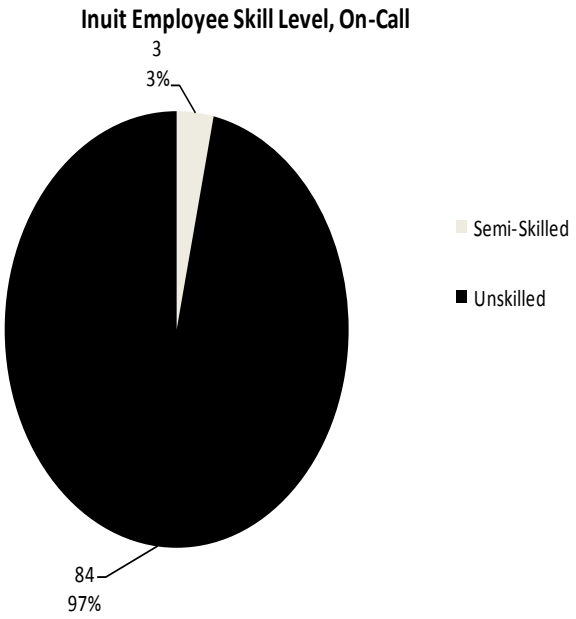


Table 11.9 - Skill Level of Positions Held by Inuit in On-Call Positions at Meadowbank on December 31, 2016



11.10.2 Hours Worked by Agnico Employees at Meadowbank

Agnico Eagle reports on Inuit employment by measuring the total number of person hours that all persons are expected to work, expressed as a percentage. The tables shown below are exclusively for Agnico Eagle employees working in all departments at the Meadowbank site.

Table 11.10 shows the total hours that employees were expected to work during 2016. It includes expected hours worked, vacation leave hours, sick leave hours and unapproved leave hours. In comparison to 2015, there was an increase of 2% in the total hours expected for our Inuit workforce.

Table 11.10. Total Hours that Agnico Employees were Expected to Work in 2016

Total Hours Expected				
	2016		2015	
	Inuit	Non-Inuit	Inuit	Non-Inuit
Total Hours	596,416	1,241,125	565,483	1,303,065
Inuit & Non-Inuit Content (%)	32%	68%	30%	70%

Table 11.11 shows the actual work and benefit hours worked by all employees at Meadowbank in 2015 and 2016, which are actual hours worked and hours of paid benefit, such as vacations and other paid leaves. Actual hours worked by Inuit in 2016 decreased by 1% compared to 2015.

Table 11.11. Actual hours worked & paid benefit hours

Actual Work & Benefit Hours				
	2016		2015	
	Inuit	Non-Inuit	Inuit	Non-Inuit
Total Hours	483,200	1,192,251	481,758	1,250,648
Inuit & Non-Inuit Content (%)	27%	73%	28%	72%

Table 11.12 shows hours of work lost due to unapproved leave of absence for all Agnico Eagle employees at Meadowbank. Unapproved leave occurs when an employee decides not to show up for work and provides no notice. In such cases, employees lose hours of expected work, pay and benefit opportunities.

In 2016, the Inuit content of hours of work missed increased by 9% compared to 2015.

Table 11.12. Hours of work missed

Hours of Work Missed				
	2016		2015	
	Inuit	Non-Inuit	Inuit	Non-Inuit
Total Hours	113,216	48,874	83,725	52,417
Inuit & Non-Inuit Content (%)	70%	30%	61%	39%

11.10.3 Employee retention

Based on Agnico Eagle's past experience and testimonies of former employees, it was noted that many Inuit have never had full time work in their home communities, where full time employment opportunities are potentially limited. Many such individuals want a job, but working away from home for two weeks at a time in a structured industrial environment is a change that many have difficulty adapting to.
Exit interviews support this assumption and the following provides the most common reasons given for voluntary terminations and turnover rates:

- Found another job
- Conflict with employee
- Does not like the job
- No babysitter
- Family situation

Agnico Eagle developed a new approach and has rolled out new initiatives with a focus on providing information, skills, and education to job applicants to ensure that they are better informed about what working life is like at a remote mine site, and to be better prepared to adapt, cope, and be successful in employment. The result is the development and implementation of a Labour Pool Program that consists of a linked series of activities, including:

- Community-based information sessions
- Community-based Work Readiness training
- E-learning for mandatory training
- Site Readiness training at Meadowbank
- On-Call Contract Program

The Labour Pool Program consists of a suite of activities that provide future employees with information, skills, and education for working life and conditions in a remote, fly in/fly out, industrial workplace. The On-Call Contract Program allows new employees opportunities to experience and adapt to a new work environment by practicing camp life for short periods of time.

Supervisors have commented that due to the suite of Labour Pool activities, on-call employees are better prepared to cope with the mine employment environment. The On-Call Program allows participants to discuss employment and upward mobility opportunities, gain a variety of employment experiences and decide if the mining work life is for them. The program also allows Agnico Eagle to assess employees to ensure proper placement within the Company.

Table 11.13. Turnover Rate per Department for all Permanent Employees

2016 Turnover Rate per Department – Permanent Employees			
Department	**# of Terminations**	**Average # of employees for the year**	**Turnover Rate**
Camp	28	78	36%
Energy and Infrastructure	2	80	3%
Engineering	3	30	10%
Environment	1	10	10%
Finance	2	5	40%
Human Resources	5	32	16%
Maintenance	3	82	4%
Mine	32	225	14%
Process Plant	9	88	10%
Procurement and Logistics	1	23	4%
GLOBAL TURNOVER	**86**	**705**	**12%**

Employee Turnover = (# of terminations / (avg.# of employees for the year)) X 100

Table 11.14. Turnover Rate per Department for Permanent Inuit Employees

2016 Turnover Rate per Department – Permanent Inuit Employees			
Department	**# of Terminations**	**Average # of employees for the year**	**Turnover Rate**
Camp	26	78	33%
Human Resources	1	32	3%
Mine	27	225	12%
Process Plant	5	88	6%
Procurement and Logistics	1	23	4%
GLOBAL TURNOVER	**60**	**705**	**9%**

Employee Turnover = (# of terminations / (avg.# of employees for the year)) X 100

Table 11.15. Turnover Rate per Department for all Temporary Employees

2016 Turnover Rate per Department – Temporary Employees			
Department	**# of Terminations**	**Average # of Employees for the year**	**Turnover Rate**
Camp	3	3	100%
Energy and Infrastructure	2	2	100%
Environment	1	2	50%
Human Resources	3	4	75%
GLOBAL TURNOVER	**9**	**94**	**10%**

Please note that in Table 11.15 above, Inuit employees represented 100% of temporary employee turnover.

Turnover for Inuit permanent employees has decreased from 12% in 2015 to 9% in 2016. Similarly, for temporary Inuit employees, turnover has decreased from 26% to 10% in 2016. Although the Inuit turnover rate remains higher than the southern-based employee rate this is a significant improvement.

Table 11.16. Inuit Employee Turnover Experience

Turnover Experience – Inuit Employees	
Reason	**# of Terminations**
Dismissal	29
End of Contract	1
Permanent Disability	1
Resignation	38
TOTAL	**69**

In 2016, Agnico Eagle saw a total of 69 employee terminations (voluntary and involuntary), down from 80 in 2015.

The decline in Inuit turnover and termination rates are attributed with the improved Labour Pool Program. This program will continue to be delivered throughout the Kivalliq region during 2017.

11.10.4 Employment Demographics for Nunavut Based Employees

Table 11.17 shows a comparative breakdown of the home communities of temporary and permanent Inuit employees. Table 11.18 shows the breakdown of the home communities of on-call Inuit employees.

Table 11.17. Home Communities of Inuit in Temporary and Permanent Positions

	On December 31, 2016		On December 31, 2015	
Arviat	38	18%	34	16%
Baker Lake	113	53%	120	56%
Chesterfield Inlet	4	2%	4	2%
Coral Harbor	2	1%	2	1%
Rankin Inlet	31	14%	31	14%
Naujaat	4	2%	3	1%
Whale Cove	3	1%	1	1%
Others[3]	20	9%	20	9%
TOTAL	**215**	**100%**	**215**	**100%**

Table 11.18. Home Communities of Inuit in On-Call Positions

	On December 31, 2016		On December 31, 2015	
Arviat	21	24%	23	26%
Baker Lake	43	50%	36	41%
Chesterfield Inlet	6	7%	4	5%
Coral Harbor	1	1%	1	1%
Rankin Inlet	10	11%	11	13%
Naujaat	0	0%	3	3%
Whale Cove	5	6%	8	9%
Others	1	1%	1	1%
TOTAL	**87**	**100%**	**87**	**100%**

[3] The “Others” category refers to Inuit employees whose home base is not in Nunavut (i.e. Ontario)

Agnico Eagle pays for the transportation of all Kivalliq-based employees from their home community to the mine for each work rotation. For employees coming from Arviat, Chesterfield Inlet, Rankin Inlet and/or Whale Cove, Agnico Eagle has a service contract with Calm Air to transport employees by charter plane from Rankin Inlet directly to and from the Meadowbank mine airstrip. For employees coming from Coral Harbour and/or Naujaat, a commercial ticket is bought from their home communities to the Baker Lake airport. Once in Baker Lake, they are transported by bus to and from the mine site via a daily ride. For all other employees not located in the Kivalliq region, transportation is provided from Mirabel and Val-d'Or via a charter flight operated by Nolinor Aviation.

11.10.5 Education & Training

Agnico Eagle's Training Management System (TMS) and the Learning Management System (LMS) ensure records of training activities, monitor e-learning training, and provide training reports. As per the 2014 GN request for increased information on training programs, both systems were modified in 2015. The systems are now capable of producing more detailed reports: by training program, by participation level, by graduation level and by hour.

11.10.5.1 Training Hours

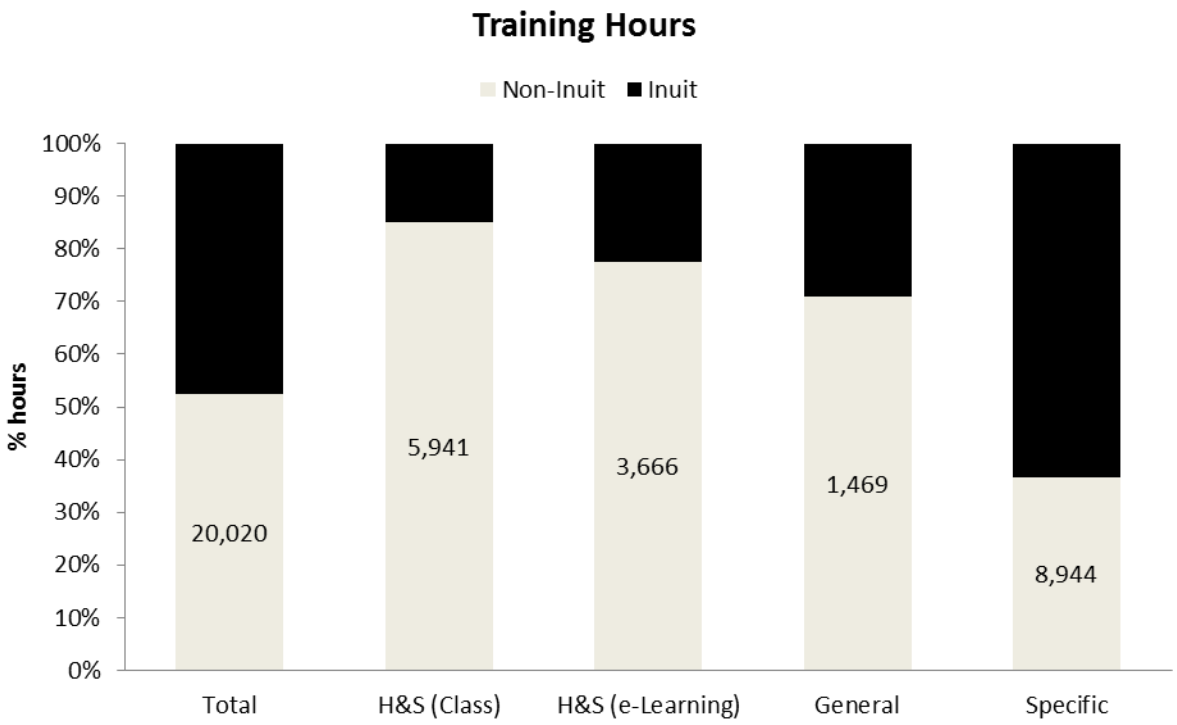
There are currently three main categories of training: Health and Safety, General, and Specific training. Part of the Health and Safety training are the mandatory courses that can be found in an e-learning format. General and Specific training consists of job-related training that is provided both on the job and in class.

During 2016, a total of 38,194 hours of training were provided to all Meadowbank employees. Of these hours, 18,174 hours were received by Inuit employees. Please see Table 11.19 below for more information and refer to Figure 41for more detailed tables on the training hours for 2016.

Table 11.19. Variation of Successful Hours of Training from 2015 to 2016

	Hours of Successful Training Hours for Meadowbank – 2015 vs 2016					
	Training Hours (January 1 – December 31, 2015)	**Training Hours (January 1 – December 31, 2016)**				
		Health & Safety		**General**	**Specific**	**Total**
		In-Class	**E-Learning**			
Inuit Employees	13,606	1,047	1,060	603	15,464	18,174
Non-Inuit Employees	20,598	5,941	3,666	1,469	8,944	20,020
TOTAL	**34,204**	**6,988**	**4,726**	**2,072**	**24,408**	**38,194**

Figure 41: 2016 Training Hours by Employee



At Agnico Eagle Mines Ltd., it is imperative that the training programs developed add value to the employability and careers of our employees. Consequently, every program is constantly monitored and improved accordingly to ensure employees are able to retain the training content and be successful in the program.

In 2016, 326 Inuit employees enrolled in a training program. Of the employees who were trained this past year, 97% graduated from their training program.

11.10.5.2 E-Learning Training Hours Provided to Inuit

Before coming on site for the first time, newly hired employees must complete their Mandatory Training online. The General Induction consists of online chapters that provide general information about Agnico Eagle and working life in camp. Once completed, employees are invited to access the online training that includes health and safety training. The e-learning training material has been translated into English, French, and Inuktitut. Lesson plans have been created and updated in order to improve the quality and the consistency of the training.

In 2016, 4,276 hours of e-learning were provided to all Agnico Eagle – Meadowbank employees. Among those hours, 23% were given to Inuit employees.

11.10.5.3 Health and Safety Training Hours Provided to Inuit

Health and Safety training includes mandatory training related to compliance with the Nunavut Mine Act, as well as training that is required according to Agnico Eagle's health and safety policies. The majority of mandatory training sessions are offered via e-learning prior to an employee's arrival on site.
Health and Safety training is provided to employees to ensure that all employees are aware of the potential risks, within the mine site and in their line of work, and are trained in proper procedure to avoid accidents.

In 2016, 2,107 hours (19%) of Health and Safety training was provided to Inuit employees. This combines both in-class and e-learning training.

11.10.5.4 General Training Hours Provided to Inuit

General training consists of training activities required by departments and includes training in such areas as light duty equipment, enterprise software systems and cross-cultural training.

Of the total training hours, 2,072 general training hours were provided to all employees in 2016, of which 603 hours (29%) were provided to Inuit employees.

11.10.5.5 Specific Training Hours Provided to Inuit

Specific training is focused on developing individual competencies related to a specific position. This training qualifies individual workers for promotion following their progression through a Career Path. These training programs are provided in classroom learning (theory) as well as practical learning (one on one).

In 2016, 24,408 hours (63% of total training hours) of specific training was provided to Agnico Eagle employees. Among those hours, 63% (15,464 hours) was dedicated to Inuit employees.

11.10.5.6 Career Path

In 2012, with the intention of supporting the upward mobility of Inuit employees, a Career Path Program was designed by the Meadowbank training team. This program is designed to provide the opportunity to Inuit employees who have limited formal skills or education to progress in their careers. The program identifies the incremental steps that an employee is required to accomplish to advance in their chosen career of interest. The path directs a combination of work experiences, hours of completion, training, and skills development for an employee to achieve each step.

The Career Path system is currently available in seven (7) areas of activity; Building Mechanic, Drill, Field Services, Mine Operations, Process Plant, Road Maintenance, and Maintenance. The objective is to have only internal promotions of employees, with no external candidates being hired to fill a position that is part of the program.

11.10.5.7 Haul Truck Trainee Program

As part of Agnico Eagle's initiatives to encourage employees to reach higher positions within the company, a Haul Truck Trainee Program was developed and implemented in 2012. Since then, more than 100 employees have been employed by the Mine Department as Haul Truck operators. The great majority of the Company's haul truck drivers started in an entry level position such as dish washer, janitor, guest room attendant, etc. The Haul Truck Trainee Program is popular among Inuit employees, who appreciate an opportunity to gain a career in the mining industry.

This year, 34 employees were enrolled in the Haul Truck Trainee Program. Among those, a total of 23 trainees successfully completed the Program (18 men, 5 women). In order to provide the best training possible to all the trainees, there is a maximum of 4 trainees at a time with one trainer.

Although Agnico Eagle's expenses related to training have increased, the Company believes that increasing the training period reduces the level of pressure and stress on trainees, lowers the risk of accidents, and results in a more confident, productive and competent employee.

11.10.5.8 Process Plant Trainee Program

With the success of the Haul Truck Trainee Program, a new program was developed in 2015: the Process Plant Trainee Program. This program is designed to ensure the trainees acquire necessary knowledge to fulfill the positions of Process Plant Helper and Utility Person. Due to the technical nature of the content, the program is delivered to a maximum of two (2) employees with one (1) trainer, thus each wave of the Process Plant Trainee Program delivers a maximum of two (2) new employees to the Process Plant Department.

This trainee program allows the employee to have an understanding of the mining and milling process and to be fully competent and certified with Agnico Eagle to perform the tasks related to the Process Plant Helper and Utility Person positions, which are the first rungs of the Process Plant Career Path ladder. It will allow Inuit employees to be more successful in their progression along the Career Path. In 2016, a total of eight (8) employees were delivered to the Process Plant.

Implemented in the second half of 2016, the Super Operator Program is an extension of the Process Plant Trainee Program. This 168-hour training is provided to employees who have successfully completed the Process Plant Trainee Program. The extension of the Process Plant Trainee Program will consist in teaching the basics of maintenance principles in order to have employees with more diversified skills in the Process Plant Department. These employees will eventually be able to perform specific basic maintenance repairs throughout the plant. By having this addition, we are confident that trained employees will acquire an important skill set to progress through the career path system. This year, every Inuit employee that was trained as a Process Plant Trainee received the Super Operator Training.

11.10.5.9 Apprenticeship Program at Meadowbank

The Apprenticeship Program combines on-the-job learning and in-school technical instruction to allow Inuit employees the opportunity to be educated and trained in the trade of their choice. By the end of the program, the apprentice is able to challenge their Certificate of Qualification (COQ) to become a Journeyperson and will also have the opportunity to challenge their Red Seal Exams. This certification

allows the employee to reach the highest position available in their selected Career Path and grants them interprovincial recognition in their trade.

When the Company started reporting apprentices at Meadowbank in 2012, 4 Inuit were registered in the program. As of the end of 2016, there were 12 apprentices and 1 pre-apprentice alternating between school and work (refer to Table 11-21) with four (4) vacant positions to be filled in the beginning of 2017. The decrease from the previous year (2015) can be explained by the fact that two apprentices graduated the program in 2016. Since the program has the potential to deliver graduates on a yearly basis, such a decrease is to be expected.

Currently, we offer seven (7) trades: cook, carpenter, millwright, electrician, heavy duty equipment technician, welder, and plumber. Please see Table 11.20 for the distribution of apprenticeship program participants by trade.

In 2015, two (2) employees completed their apprenticeship training within the company. Between January 1st and December 31st 2016, two (2) employees completed their apprenticeship training within the company. They challenged their COQ exam and are now all certified journey people. Here is the breakdown of the graduates and their trade:

- Nathaniel Kusugak – Heavy Duty Equipment Technician
- Devon Killulark – Heavy Duty Equipment Technician

Table 11.20. Number of Apprentices per Level per Trade in 2016

Trade	Pre Apprentice	Apprentice Level 1	Apprentice Level 2	Apprentice Level 3	Apprentice Level 4	Graduate
Carpenter		1				
Cook		1				
Electrician		1	1			
Heavy Duty Equipment Technician	1	2		1		2
Millwright		1				1
Plumber				1		
Welder		3				1
TOTAL	1	9	1	2		4

Table 11.21. Evolution of the Apprenticeship Program participants.

Evolution of the Apprenticeship Program	
Year	**Number of Active Apprentices and Pre-Apprentices**
2012	4
2013	8
2014	6
2015	17
2016	13

11.10.5.10 Labor Pool Initiative

The Labour Pool initiative is based on the Inuit Impact and Benefit Agreements with the KIA to offer pre-employment opportunities to Inuit from all Kivalliq communities. The program, which started its development phase in 2014, was fully implemented in 2016.

The goal of the program is to pre-qualify candidates from Kivalliq communities. Agnico Eagle will visit communities to provide employment information sessions where residents can attend to receive information on Agnico Eagle's projects in Nunavut as well as information on how to access a job with Agnico Eagle or its contractors.

All applicants that have the minimal requirements to be hired (must be at least 18 years old and have a clean record of employment with Agnico Eagle) are required to complete mandatory training by e-learning as well as participate in the 5-day Work Readiness and Site Readiness training programs. The objective is to create a pool of candidates ready to work that Agnico Eagle and its contractors can draw future employees from.

As part of the Labour Pool initiative, employment information sessions are conducted every quarter in all Kivalliq communities. The information sessions are a new event which serves the purpose of giving information about the mines, the work lifestyle, and career opportunities as well as knowing how to apply to be part of the Agnico Eagle family. Figure 42 shows the process flow of the entire Labour Pool process at Agnico Eagle's Nunavut divisions:

Figure 42. Labour Pool Process

11.10.5.11 Work Readiness Training Program

The Work Readiness training program is a pre-employment requirement. Implemented in April 2013, the program is delivered over a 5-day period at the community level throughout the year.

During 2016, the program was delivered to 151 participants from which 87 (58%) graduated from the program. The table below shows the breakdown of participants per community including total participants that were enrolled and the number that successfully completed the program:

Table 11.22. Number of Participants in the Work Readiness Program in 2016

Work Readiness Participation – 2016			
Community	**Number of Participants that Enrolled**	**Number of Participants that Completed the Program**	
Arviat	25	24	96%
Baker Lake	35	17	49%
Chesterfield Inlet	24	7	29%
Coral Harbour	17	7	41%
Naujaat	13	10	77%
Rankin Inlet	20	12	60%
Whale Cove	17	10	59%
TOTAL	**151**	**87**	**58%**

Many employees that benefited from the program were able to obtain positions and continue to improve their skills at work. The Work Readiness Program provides coaching in the following areas:

(1) Insight into personal beliefs that drive behaviors in participants' social lives;
(2) Awareness of employer's unspoken expectations;
(3) Self-control skills for managing strong emotions;
(4) Communication skills for dealing with difficult social interactions; and

(5) Problem solving skills for logically resolving interpersonal workplace issues.

11.10.5.12 Site Readiness

Participants that have successfully completed the Work Readiness Program will be retained for the Site Readiness Program and then will become part of the Labour Pool.

The Site Readiness Program is a five-day training provided at the Meadowbank site. Throughout the week, participants are enrolled in diverse activities such as mandatory training sessions, site visits, job initiation, information sessions on training and career opportunities, as well as interviews and discussions on employment opportunities with a Human Resource representative to assess career ambitions and identify work interest.

Afterwards, candidates wanting to work for the Camp Department are given short term on-call assignments. All other applicants become part of the Labour Pool list until a job opportunity matching their interest and competencies becomes available.

Site Readiness participants came from the following communities and Table 11.23 shows the breakdown of participants for the year per community, by participants that enrolled and participants that successfully completed the program:

Table 11.23. Number of People who Participated in the Site Readiness Program in 2016

Site Readiness Participation – 2016			
Community	**Number of Participants that were Enrolled**	**Number of Participants that Completed the Program**	
Arviat	25	23	92%
Baker Lake	62	56	90%
Chesterfield Inlet	5	4	80%
Coral Harbor	3	1	33%
Naujaat	0	0	0%
Rankin Inlet	30	26	87%
Whale Cove	3	3	100%
TOTAL	**128**	**113**	**88%**

11.10.5.13 Emergency Response Team (ERT) training

At Agnico Eagle Mines Ltd., the most important priority is to keep employees safe. At Meadowbank, an Emergency Response Team (ERT) is well trained and is always ready to assist and help in any type of situation. To join the team, a candidate must show signs of interest in safety, prove good attendance and behavior at work, and also be in good physical condition.

An ERT practice takes place every Sunday and each member must attend at least six (6) practices throughout the year. As of the end of June 2016, there were a total of 50 ERT members. Among them, two (2) were Inuit members (1 man, 1 woman).

Throughout the year, ERT members were trained in first aid, firefighting, extraction, search and rescue, rope rappelling, etc. This training includes practical aspects as well written exams. There were no Inuit ERT members during the second half of 2016.

11.10.5.14 Cross Cultural training program

Implemented in 2010, the Cross-Cultural Training Program has been provided to many Agnico Eagle employees. The 5-hour course allows employees from different cultures and background to understand each other's culture in order to improve understanding and communication in the workplace.

The program was reviewed with the assistance of the Nunavut Literacy Council in 2013, and revised again in 2014. Throughout 2016, 59 employees successfully completed the training. Among them, 27 were Inuit employees (46%), including 8 women (30%) and 19 men (70%).

11.10.5.15 Agnico Eagle Role Model Program

The Role Model program, started in 2015, serves to identify and support exemplary Inuit employees in order to:

- Recognize the hard work of individual Inuit employees
- Identify examples to inspire Inuit employees, community members, youth, etc. on how to achieve personal and/or work success
- Identify future Inuit leadership in the company

In 2016, seven (7) Role Models were nominated by their supervisors for the Role Model Program. These Role Models share their stories on posters which are used in the communities to inspire future employees at events in communities and create awareness for the different career path and training programs that are available at the mine site.

11.10.5.16 TASK Week

The Trades Awareness Skills and Knowledge Week (TASK week) was initiated in 2012, and has since evolved. During the first year over 20 trades were represented; each was featured in a half-day session. Since then, TASK week has focused on a smaller number of trades to allow the students to be properly introduced to them.

TASK week is now a full week program that allows students to focus on one trade for the entire week. The 2016 TASK Week, held in Baker Lake from April 25th to April 29th saw approximately 70 of the 300 students at Jonah Amitnaaq Secondary School (JASS) involved in the program. The students, along with

Chris Snow (the project facilitator), determined which trade they should participate in, based on their own interest level.

11.10.5.17 Memorandum of Understanding (MOU) with Department of Education

In the 2015 GN Development Partnership Agreement report, Agnico Eagle indicated that the MOU between the Company and the Department of Education was under review and a renewed agreement was expected in 2016. The MOU with the Department of Education was not renewed in 2016.

Agnico Eagle is still looking forward to renewing the partnership under the shared belief that developing the capacity of Inuit students to pursue skilled trades and professional careers will lead to confident, responsible, and capable individuals who are prepared to join the labour force and pursue relevant trades and professional careers.

11.10.5.18 Kivalliq Science Educations Community

In 2016, Agnico Eagle once again invested $25,000 for the KSEC 2016-2017 financial year (ends March 2017) for the following programs:

- Regional Science Culture Camp: the camp was once again organized just outside of Baker Lake in September 2016 and the week-long program included a mix of traditional, cultural and educational studies related to sciences and a visit to Meadowbank Mine, including a pit tour. Student participants who successfully complete the camp objectives receive CTS high school credits.

- Kivalliq Regional Science Olympics – Science-Engineering-Technology (SET) Challenge: this program delivered to all Kivalliq communities and across a spectrum of age groups focuses on creative problem solving within scientific concepts.

- Kivalliq Regional Science Fair: Held in Naujaat in 2016, the Kivalliq Regional Science Fair brings together students from the region to display science projects, exchange ideas, and compete for spots to represent the Kivalliq at the Canada-wide Science Fair. In 2016, 27 students participated in this event.

- Math Month: KSEC develops and promotes math-related activities, resources and contests for Kivalliq schools targeted at youth and community members during the month of March.

The KSEC annual report for 2016 activities will be provided to Agnico Eagle after their year-end on March 31st, 2017.

11.10.5.19 Arviat Community Training Programs

Due to a long-term requirement for diamond core drilling to support Agnico's exploration activities as well as other mining companies with active exploration projects in the Nunavut territory, in 2011 the Hamlet of Arviat proposed a partnership to invest in a community-based drilling school that would provide Inuit with

the skills needed to work in diamond drilling, to fill the demand for a pool of locally available diamond driller's helpers.

With advice and support of Agnico, the Hamlet brought together a range of partners to acquire the drilling equipment, develop the curriculum and operate the training program. Government training agencies, the KIA and drilling companies provided partnership investments.

The curriculum of Arviat's drillers' school has been modeled based on a well-developed and successful program offered by Northern Ontario College. The program is taught by experienced trainers and includes both in-class theory and practical hands-on training. Graduates receive a certificate that is recognized by the diamond drilling industry across
Canada. The program is steered by an Advisory Group that is comprised of colleges, drilling contractors, Agnico Eagle, the KMTS, the Hamlet and the GN ED&T. In 2015, the driller's program operated between April and June adding to a cumulative 65 trained driller's helpers, all of whom have found employment.

In 2013, the program was expanded to include a welder's helper program. Renovations to the Hamlet's training facility included the addition of two welding bays. The 8-week program is delivered using curriculum and instructors from the Northern Ontario College. The welder's helper program is delivered every two years, with the interim years delivering the drilling program. In 2016, the Mechanical Welding Program graduated 8 students.

In addition to technical training, Arviat runs its own Work Readiness training sessions as part of the overall Labour Pool Process.

Agnico Eagle invested $190,000 in the Arviat training programs in 2016. The Advisory Group will meet in April 2016 to consider programs for 2017-18.

11.10.5.20 Kivalliq Mine Training Society

In May 2012, Agnico Eagle was invited by Employment Skills Development Canada (ESDC) to participate in discussions with KMTS members on a new mine training initiative. ESDC proposed a two-year "Northern pilot project" program that would see five of Canada's program areas bundled in a seamless application and delivery program. The parties agreed to proceed and a proposal has since been approved by ESDC.
The KMTS program was valued at approximately $9.5 million over a two year period, from April 2013 to the end of March 2015, of which Agnico has provided $6.8 million in cash and in kind support towards the overall initiative. The KMTS also received financial support from the GN, Department of Economic Development and Transportation.
A one year extension of the program for 2015-16 has been approved by ESDC. The 2015-16 KMTS program is valued at $3.65 million until the end of March 2016, of which Agnico will contribute $2.18 Million.
For the 2016-17 agreement, Agnico Eagle will receive $1,463,964 in subsidies for various upward mobility initiatives. A major focus of the KMTS program has been to support Agnico Eagle's mine training initiatives, such as the Career Path, Haul Truck Trainee Program and Process Plant Trainee Program.

SECTION 12. POST-ENVIRONMENTAL ASSESSMENT MONITORING PROGRAM (PEAMP) – EVALUATION OF IMPACT PREDICTIONS

As per Meadowbank's NIRB Project Certificate, Appendix D (Post-Environmental Assessment Monitoring Program (PEAMP)), the following provides a review of monitoring conducted in 2015 in relation to impacts described in the Final Environmental Impact Statement (FEIS; Cumberland, 2005). As stated in the NIRB Project Certificate, the PEAMP is a conceptual program designed "*to work as an instrument of the proponent's overall monitoring efforts and should provide feedback to the NIRB and other agencies regarding ongoing project monitoring*." The overall goal of this program is to provide the NIRB and other regulatory agencies with information on how current environmental and socioeconomic effects of the Meadowbank mine site compare to impacts predicted in the FEIS.

More specifically, the objectives of the PEAMP as specified in the Project Certificate Appendix D are to:

a) Measure the relevant effects of the project on the ecosystemic and socioeconomic environment(s). These effects may be measured through biophysical and socioeconomic monitoring programs undertaken by the Proponent or by other means as described in the Project Certificate;
b) Assess the accuracy of the predictions made within the FEIS;
c) Evaluate the effectiveness of project monitoring procedures and plans;
d) Identify impacts requiring additional mitigation or adaptive management; and
e) Provide relevant data and information to support regional monitoring initiatives where feasible.

In addition, in response to NIRB comments on the 2015 Annual Report PEAMP section, a discussion of year-over-year trends is provided for any monitoring components where an exceedance of impact predictions was observed.

The methods, objectives, results and recommendations of the specific monitoring reports and results are discussed in greater detail in the preceding annual report or in attached appendices.

It should be noted that the monitoring programs as described in the FEIS were developed at a conceptual level to assist in evaluating the overall potential impacts of the project. These were supporting documents in the FEIS and assisted in informing predictions, establishing regulatory limits, and forecasting management and mitigation actions to assist in the impact prediction process. Monitoring plans and sampling locations have since undergone changes and revisions to reflect actual mine operations. Monitoring and Management Plan revisions have been approved by the Nunavut Water Board, most recently during the renewal process for the Meadowbank Type A Water License which was completed in 2015. These differences are taken into account when making comparisons to FEIS predictions.

This section has been organized into 6 main categories: Aquatic Environment, Wildlife and Terrestrial Environment, Noise Quality, Air Quality, Permafrost, and Socio-Economics. For each of these categories, Table 12.1 summarizes the valued ecosystem components (VECs) identified in the FEIS, the original impact predictions and the management plans/mitigative measures submitted as part of the FEIS. This

review focuses on the potential impacts for which monitoring were recommended, for the phase of mine activity currently underway (i.e. operations).

Agnico is currently working with various researchers in multiple disciplines (i.e. tailings storage and optimization, wildlife and aquatic researchers, socio-economic researchers, etc.) and would be interested in discussing other opportunities with the NIRB to advance regional monitoring initiatives as requested.

Table 12.1. Summary of FEIS VECs, assessment endpoints and references for the predictions, management and mitigative measures.

VEC	Summary of Potential Impacts	Reference for Impact Predictions	Reference for Management and Mitigative Measures
Aquatic Environment			
Surface water quantity	Reduced water level and flow in receiving lakes	FEIS, Section 4.21.2.3 FEIS App B, Table B4	FEIS, Section 4.24.2.5
Surface water quality	Contamination of receiving lakes	FEIS, Section 4.21.2.3 FEIS App B, Table B5 FEIS App E FEIS - WQ	FEIS, Section 4.24.2.5
Fish populations	Direct impacts through blasting. Indirect impacts through habitat changes.	FEIS, Section 4.21.2.7 FEIS App B, Table B13	
Fish habitat	Direct impacts through habitat destruction or alteration. Indirect impacts through introduction of contaminants.	FEIS, Section 4.21.2.7 FEIS App B, Table B14	FEIS, Section 4.24.2.3 NNL
Terrestrial Environment			
Vegetation (wildlife habitat)	Removal of plant cover, abrasion/grading, salt, dust, grey water release	FEIS, Section 4.21.2.4 FEIS App B, Table B6	FEIS, Section 4.24.2.1 TEMP
Ungulates	Habitat loss, mortality	FEIS, Section 4.21.2.5 FEIS App B, Table B7	FEIS, Section 4.24.2.2 TEMP
Predatory mammals	Habitat loss, mortality	FEIS, Section 4.21.2.5 FEIS App B, Table B8	FEIS, Section 4.24.2.2 TEMP
Small mammals	Habitat loss, mortality	FEIS, Table 4.24 FEIS App B, Table B9	FEIS, Section 4.24.2.2 TEMP

VEC	Summary of Potential Impacts	Reference for Impact Predictions	Reference for Management and Mitigative Measures
Raptors	Habitat loss, mortality	FEIS, Section 4.21.2.6 FEIS App B, Table B10	FEIS, Section 4.24.2.2 TEMP FEIS App B, Table B10
Waterfowl	Habitat loss, ingestion of contaminants, mortality	FEIS, Section 4.21.2.6 FEIS App B, Table B11	FEIS, Section 4.24.2.2 TEMP
Other breeding birds	Habitat loss, mortality	FEIS, Section 4.21.2.6 FEIS App B, Table B12	FEIS, Section 4.24.2.2 TEMP
Air Quality	Contamination of aquatic environment by dust. Contamination of terrestrial environment by dust. Poor air quality. Odours may attract scavengers. Production of greenhouse gases, other gaseous contaminants and particulate matter.	FEIS, Section 4.21.2.2 FEIS App B, Table B2	FEIS, Section 4.24.2.3
Noise	General disturbance of wildlife as a result of regular noises (behavioural changes, displacement). Reduced habitat effectiveness.	FEIS, Section 4.21.2.2 FEIS App B, Table B3	FEIS, Section 4.24.2.3
Permafrost	Thaw instability. Changes in permafrost depth in various areas (increase/decrease). Ice entrapment in tailings/reclaim.	FEIS, Section 4.21.2.1 FEIS App B, Table B1	FEIS, Section 4.24.2.4
Socio-economic		FEIS, Section 4.21.4 FEIS App B, Table B15	FEIS, Section 4.24.3
Traditional Ways of Life (personal and community)	Reduced access to land. Reduction in traditional activities including harvesting. Undervaluing traditional ways and loss of knowledge.	FEIS Section 4.21.4.4 FEIS App B, Table B15	FEIS Section 4.24.3 FEIS App B, Table B15

VEC	Summary of Potential Impacts	Reference for Impact Predictions	Reference for Management and Mitigative Measures
Employment, Training, and Business	Financial expenditures of $23 million annually for 10 years. Employment of at least 60 workers. Goods and services contracts for local businesses. Overall increased economic activity, including indirect and induced effects. Increased capacity of local labour force to participate in formal economy. Increase in interest of school on part of youth. Increased individual, family, and community wellness.	FEIS Section 4.21.4.3 FEIS App B, Table B15	FEIS Section 4.24.3 FEIS App B, Table B15
Wellness (personal and community)	Poor financial decision making. Increased income disparity. Increased public health and safety risks. Stress from rotational employment. Increased traffic accidents and emergencies. Disturbance by project activities.	FEIS Section 4.21.4.5 FEIS App B, Table B15	FEIS Section 4.24.3 FEIS App B, Table B15
Infrastructure and social services	Shortage of housing and other infrastructure. Increased demand for social services.	FEIS Section 4.21.4.6 FEIS App B, Table B15	FEIS Section 4.24.3 FEIS App B, Table B15
Sites of heritage significance	Potential degradation of historically significant sites.	FEIS Section 4.21.4.7 FEIS App B, Table B15	FEIS Section 4.24.3 FEIS App B, Table B15
Contributions to economy of Nunavut and Canada	$92M annually during operations phase.	FEIS Section 4.21.4.8	None

12.1 AQUATIC ENVIRONMENT

The results of the 2016 aquatic ecosystem and physical environment monitoring programs were evaluated and a comparison was made to the impacts predicted in the FEIS. The aquatic environment VECs identified in the FEIS were: surface water quantity, surface water quality, and fish/fish habitat. The following sections summarize the predicted impacts to the aquatic environment VECs, assess the accuracy of the predictions, discuss the effectiveness of the monitoring program at targeting predicted impacts and provide recommendations for any additional required mitigation or adaptive management. Any use of the monitoring data in regional monitoring initiatives is described.

12.1.1 Accuracy of Predictions

In general, Meadowbank's water quality and quantity monitoring programs intend to meet the requirements of the NWB (Type A license) and Environment Canada MMER criteria. As anticipated, the mine lay-out and infrastructure have changed since the FEIS was produced, and sampling locations have been adjusted accordingly. Overall, observed impacts to water quantity, water quality, fish and fish habitat measured in 2016 are within FEIS predictions or, if not, are not expected to result in adverse environmental impacts. See Tables 12.2, 12.3 and 12.4 for summaries.

12.1.1.1 Water Quantity

A summary of predictions for impacts to water quantity and the accuracy of these predictions (measured impacts) are provided in Table 12.2.

Water usage predictions were made during the FEIS to predict potential impacts to water levels in Third Portage Lake, Second Portage Lake, and Wally Lake. Modeling predicted the natural range of water levels in Third Portage Lake to be 133.82 – 134.19 masl, and the impact assessment indicated that this range would not be exceeded (Physical Environment Impact Assessment Report, 2005). Although these values accounted for 1-in-100 yr precipitation or drought events, prior to operation, water levels were already below this range when monitoring began (prior to any significant freshwater consumption) in 2009. Although rates of dewatering (i.e. pumping rates) were underestimated during the FEIS, water levels continue to remain within the range of baseline values and model predictions. Similarly, discharge volumes from the Vault Attenuation Pond to Wally Lake were underestimated in the FEIS (potentially due to changes in site designs since that time) but impacts to water levels in Wally Lake have not been observed, as anticipated.

Table 12.2. Predicted and measured impacts to water quantity. *when monitoring began in 2009, prior to significant freshwater use, the water level in TPL was already outside this range at 133.5 masl.

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted (2016)	Predicted Impact	Measured Impact (2016)
Altered (reduced) water levels in Third Portage Lake	Potentially high seepage rates (from lakes into pits)	Monitor pit seepage rates	Lake levels monitored	No change in lake level (modeled range = 133.82 – 134.19 masl*; 2009 measured = 133.5 masl)	133.580 – 133.721 masl (average = 133.636 masl)

	Freshwater consumption	Monitor freshwater use	Freshwater use monitored	0.53 M m^3/yr (Year 5 – 8; FEIS) NWB renewed water license and approved 2.35 Mm^3/yr until 2017 and 9.12 Mm^3/yr in 2018 through to expiry of license.	608,308 m^3
	Discharge from Portage Attenuation Pond	Monitor discharge volumes and timing	Discharge volumes monitored	458,400 m^3/yr (max)	No discharge in 2016
	Non-contact water diverted from Second Portage Lake drainage into TPL	Monitor discharge volumes of non-contact water	Lake levels monitored	No change in lake level (modeled range = 133.82 – 134.19 masl*; 2009 measured = 133.5 masl)	133.580 – 133.721 masl (average = 133.636 masl)
Altered water levels in Second Portage Lake	Potentially high seepage rates (from lakes into pits)	Monitor pit seepage rates	Lake levels monitored	Dike seepage rates predicted at 10^{-2} – 10^{-4} L/s/m of dike; Minor effect on lake level (baseline = 133.1 masl)	132.831 – 133.135 masl (average = 132.945 masl)
	Non-contact water diverted from Second Portage Lake drainage	Monitor discharge volumes of non-contact water	Lake levels monitored	Minor effect on lake level (baseline = 133.1 masl)	132.831 – 133.135 masl (average = 132.945 masl)
Increased water levels in Wally Lake	Discharge from Attenuation Pond	Monitor discharge rates	Monitored discharge rates	Minimal increase in water levels. Total average annual discharge is approximately 456,450 m^3 during open water months	Water levels = 139.434 - 139.628 masl (avg. = 139.466 masl) 1,008,457 m^3 discharged, however highest water level occurred prior to discharge commencing (July 2, 2016) so no anticipated impact.

12.1.1.2 Water Quality

There are many monitoring programs conducted to evaluate water quality at Meadowbank. These are mainly a requirement of the Type A Water License as well as the federal MMER program. They are designed to provide immediate feedback such that mitigation or adaptive management can be implemented. As outlined in the FEIS, the Core Receiving Environment Monitoring Program is intended to monitor large-scale (e.g. basin-wide) changes in physical and biological variables to evaluate potential impacts from all mine related sources in the receiving environment. It therefore serves as the most important monitoring program for evaluating short term and long term potential impacts to the aquatic environment. In 2016, Agnico implemented an updated CREMP plan in accordance with the terms of their renewed NWB water license (2AM-MEA1525) for the Meadowbank site. Each year, information from the CREMP and other targeted programs is evaluated in an integrated manner and reported as the AEMP (Section 8.9 of this document) to determine any required changes to mitigation practices. The AEMP summarizes the results of each of the underlying monitoring programs, including the CREMP, reviews the inter-linkages among the monitoring programs; integrates the results, and recommends management actions. The AEMP did not detect any significant mine-related changes in the water quality that had the potential to cause risks to the aquatic environment. This is consistent with FEIS predictions.

Aspects of the mine that were identified in the FEIS as potentially leading to significant impacts during operations are summarized Table 12.1 along with results of the monitoring programs aimed at assessing these impacts. Note that this assessment focuses on comparing current measured effects with predictions made in the Physical Environment Impact Assessment Report (2005); it does not attempt to compare effects of all aquatic environment monitoring programs with respective threshold or trigger values developed for AEMP programs or to regulatory criteria imposed. For results of those assessments, see individual monitoring reports, or the summary provided under Section 8.7 of this report. Overall, the FEIS predicted a low impact on the receiving environment water quality, designated by <1x change in CCME Water Quality Guidelines, and no exceedances of MMER/NWB Water License criteria. As described in Table 12.3, these predictions were not exceeded in 2016 for any location. Further comparison of CREMP results to specific FEIS water quality model predictions is provided in the 2016 CREMP report (Appendix G1).

Table 12.3. Predicted and measured impacts to water quality

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted (2016)	Predicted Impact	Measured Impact (2016)
Impaired Wally Lake water quality	Vault attenuation pond effluent discharge; dike leaching	Effluent and receiving environment monitoring	Receiving environment: CREMP Effluent: MMER, Water License	Receiving environment: CREMP results <CWQG except arsenic and cadmium Effluent: <MMER	Receiving environment: CREMP results <CWQG, including arsenic and cadmium Effluent: <MMER and Water License Criteria
Impaired Second Portage	Portage Attenuation pond effluent	Effluent and receiving environment	Receiving environment: CREMP	Receiving environment: CREMP results	Receiving environment: CREMP results

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted (2016)	Predicted Impact	Measured Impact (2016)
Lake water quality	discharge; dike leaching; (East Dike seepage)	monitoring	Effluent: MMER, Water License	<CWQG except cadmium Effluent: <MMER, Water License	<CWQG Effluent: <MMER and Water License Criteria
Impaired Third Portage Lake water quality	Portage Attenuation pond effluent; dike leaching	Effluent and receiving environment monitoring	Receiving environment: CREMP (MMER effluent monitoring not required)	CREMP results <CWQG except cadmium	Receiving environment: CREMP results <CWQG including cadmium Effluent: <MMER and Water License Criteria

12.1.1.3 Fish and Fish Habitat

In addition to water quality and quantity, site specific monitoring programs were developed to address the impacts of mining activities to fish and fish habitat. These are primarily guided by Fish Habitat Offsetting/ No Net Loss Plans (NNLP) and associated fisheries monitoring (e.g. CREMP, Habitat Compensation Monitoring Plan, blast monitoring) as set out in the DFO Fisheries Act Authorization for the mine-site. Results of these programs are summarized in relation to FEIS predictions in Table 12.4, below. Again, only predictions for which monitoring was proposed are discussed. All measured impacts to fish and fish habitat were within FEIS predictions.

Table 12.4. Predicted and measured impacts to fish and fish habitat

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted (2016)	Predicted Impact in FEIS	Observed Impacts (2016)
Loss/impairment of fish habitat	Construction of temporary and permanent in-water features (e.g. TSF, dikes, pits).	Monitoring of compensation features per NNLP (targeted studies under AEMP for dike "pore water" (interstitial water) quality, periphyton growth, fish use).	Not required – next monitoring in 2017	Dikes will provide a medium for lower trophic growth; habitat for non-spawning life functions except Goose Island dike where spawning may occur.	N/A
	Construction of barge facility in Baker Lake	Annual monitoring of shoreline stability and integrity	CREMP monitoring at Baker Lake barge dock	Negligible impact	No impacts of barge activity on water quality, sediment quality, phytoplankton, benthic invertebrates observed to date (CREMP)
Reduced fish egg survival	Metals and particulates from dike leachate, effluent, and road dust. Blasting	Dike leachate: Targeted studies under AEMP ("pore water" (interstitial water) sampling during year 1 Effluent: Water quality monitoring under MMER. Dust: Whole-lake water quality under CREMP	Dike leachate: Not required (next sampling 2017) Effluent: MMER monitoring Dust: Whole-lake water quality under CREMP Blasting: Blast monitoring	Dike leachate: Dissolved metals may reduce fish egg survival and larval development during overwinter incubation. Effluent: < MMER (2002) regulations Dust (whole-lake water quality under CREMP): negligible ecological effect, <CWQG for aquatic life (CCME) except cadmium (TPL), and arsenic and	Dike leachate: N/A Effluent: < MMER, Water License Dust (whole-lake water quality under CREMP): CREMP results <CWQG Blasting: No exceedances of DFO overpressure guideline (50 kPa); no exceedances of PPV guideline (13 mm/s)

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted (2016)	Predicted Impact in FEIS	Observed Impacts (2016)
		Blasting: Blast monitoring		cadmium (Wally Lake) Blasting: Most blasts will not exceed DFO overpressure guideline (50 kPa); no exceedances of PPV guideline (13 mm/s)	
Mortality of fish and fish eggs	Blasting	Blast monitoring	Blast monitoring	Most blasts will not exceed DFO overpressure guideline (50 kPa); no exceedances of PPV guideline (13 mm/s)	No exceedances of DFO overpressure guideline (50 kPa); no exceedances of PPV guideline (13 mm/s)
	Worker fishing in project area, despite no-fishing policy; increased fishing in area due to AWAR	Worker fishing: Staff interviews AWAR fishing: Creel survey	Next monitoring in 2017	Unknown	N/A
	Accidental spills (e.g. fuel)	Event-based monitoring; spill emergency response plan	Spill Contingency Plan: All spills reported to Environment Department; monitoring spills during site inspections	Not defined	No offsite impact to any watercourses as a result of spills in 2016.
Fish stress, behavioural changes, avoidance	Increased concentrations of dissolved metals and TSS from dust	Dust: Whole-lake water quality monitoring under CREMP	Dust: Whole-lake water quality under CREMP	Dust (whole-lake water quality under CREMP): negligible ecological effect; <CWQG for aquatic life	Dust (whole-lake water quality under CREMP): CREMP results <CWQG

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted (2016)	Predicted Impact in FEIS	Observed Impacts (2016)
	and effluent discharge	Effluent: Monitoring under MMER program	Effluent: MMER monitoring	(CCME) except cadmium (TPL), and arsenic and cadmium (Wally Lake) Effluent: < MMER criteria	including cadmium and arsenic Effluent: < MMER, Water License
Impaired lower trophic levels (incl. loss of phytoplankton, periphyton and benthos)	Leaching of metals from dikes	Targeted studies under AEMP ("pore water" sampling; periphyton sampling) during year 1	Not required in 2016 (next monitoring 2017)	Dike faces will provide a medium for periphyton growth	N/A
	Sedimentation through dust/particulate dispersion (road dust, wind dispersal, terrain disturbance) and effluent discharge	Dust: Water quality monitoring through CREMP Effluent: MMER monitoring	Dust: CREMP (water quality and lower trophic level monitoring) Effluent: MMER monitoring	Dust: negligible ecological effect; CREMP results <CWQG for aquatic life (CCME) except cadmium (TPL), and arsenic and cadmium (Wally Lake) Effluent: Settling of TSS and altered sediment chemistry may impact benthos.	Dust (water quality and lower trophic level monitoring under CREMP): CREMP results <CWQG including cadmium and arsenic, no observed impacts to phytoplankton, benthic invertebrates Effluent: < MMER, Water License
Increased fish biomass	Release of nutrients in treated sewage	Nutrients, chlorophyll a, and phytoplankton	Nutrients, chlorophyll a, and	Increase in nitrogen concentrations; change in phytoplankton species in	No mine-related changes in nutrient (nitrogen/phosphorus)

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted (2016)	Predicted Impact in FEIS	Observed Impacts (2016)
		monitoring through CREMP in TPL	phytoplankton monitoring through CREMP in TPL	TPL	measurements, chlorophyll concentrations, or phytoplankton community metrics in TPL
Impaired fish passage along AWAR streams	Culvert installation	AWAR Fish Monitoring Report: (targeted monitoring study under AEMP - hoopnets at culvert crossings only; 1 year minimum)	Not required – program complete in 2011 after 5 years	Negligible residual impact on fish and their movements within streams and channels	N/A

12.1.2 Effectiveness of Monitoring Programs

The aquatic monitoring programs at Meadowbank were originally designed as part of the FEIS and adapted to meet the requirements of the NWB Type A License, Environment Canada regulations and DFO Fisheries Act Authorizations for the protection of the aquatic system. Beyond meeting the regulatory requirements, the numerous 2016 aquatic monitoring programs addressed nearly all relevant potential impacts to water quantity, water quality and fish/fish habitat identified in the FEIS, as demonstrated in Tables 12.2, 12.3, and 12.4. Two components that will be further documented start in 2017 or 2018 to support this analysis include annual monitoring of shoreline stability and integrity at Agnico's Baker Lake barge facility, as well as documentation regarding any onsite fishing (although this practice is not permitted under Agnico's policies for the Meadowbank site, and no incidents have been observed by or reported to the Environment Department to date).

12.1.3 Recommendations for Additional Mitigation or Adaptive Management

Overall, the measured impacts to water quantity, water quality, fish and fish habitat appear to be within the FEIS predictions, or were not expected to result in adverse effects, indicating that the original predictions were conservative. In the case where water levels in Third Portage Lake are occasionally below predicted levels, it is not clear that this impact is mine-related, since significant changes in water levels have not occurred since prior to dewatering and freshwater use began (2009). Based on this comparison to FEIS predictions, there are no additional recommendations for mitigation of impacts to water quality, water quantity, or fish/fish habitat.

12.1.4 Contributions to Regional Monitoring

Agnico is working closely with University of Guelph and University of Alberta researchers, who are extending terrestrial modelling to include linkages to aquatic food webs, and initiating a study on use of eDNA for predicting fish presence, which will assist in developing future aquatic habitat productivity models. Furthermore, Agnico continues to discuss current methods of evaluating fish habitat and productivity of a fishery under the new DFO Fisheries Act and fisheries protection policy with consultants, academic researchers and have provided all of the raw fishout data and habitat mapping to DFO scientists. At a regional level, the information, monitoring tools, monitoring data and modelling that is used at Meadowbank has been applied by Agnico and other consultants at other proposed projects in Nunavut including, the Meliadine Gold Project and Amaruq Whale Tail Pit project.

Furthermore, Agnico is contributing to the Baker Lake Watershed Monitoring Organization to assist in developing and engaging in the development of the Baker Lake Aquatic Cumulative Effects Monitoring Program. The Baker Lake Basin includes watershed that encompass a large portion of the southern Kivalliq region of Nunavut and feeds into estuaries of Chesterfield. In 2012, KivIA and AANDC partnered with the Nunavut General Monitoring Program (NGMP) to develop a high-level aquatic cumulative effect monitoring framework and preliminary program for the Baker Lake Basin. In 2014, an Agnico representative participated in the design workshops and participated in the development of the program as a member of the Technical Advisory Group. Agnico provided assistance to KIA in 2015 during their sampling program in Baker Lake.

12.2 TERRESTRIAL AND WILDLIFE ENVIRONMENT

In accordance with the PEAMP objectives, the results of the 2016 wildlife monitoring programs were evaluated and a comparison was made to the thresholds for adaptive management established for each VEC (vegetation (wildlife habitat), ungulates, predatory mammals, small mammals, raptors, waterfowl and breeding birds). Thresholds, as developed in the Terrestrial Ecosystem Management Plan (a component of the FEIS), were used in this comparison because most impact predictions in the Terrestrial Ecosystem Impact Assessment were qualitative (other than loss of habitat area).

The following sections summarize the thresholds for terrestrial and wildlife VECs, provide an assessment of any exceedances of thresholds, and discuss the effectiveness of the monitoring program at targeting predicted impacts. Additional recommendations are made for any required mitigation or adaptive management. Any use of the monitoring data in regional monitoring initiatives is described.

12.2.1 Accuracy of Predictions

For each VEC, a summary of predicted impacts and the accuracy of those predictions (observed impacts) as determined through various monitoring programs is provided in Table 12.5.

Overall, two Terrestrial Ecosystem Monitoring Program thresholds were exceeded or potentially exceeded in 2016 (waterfowl mortalities; and potentially, sensory disturbance of caribou related to the AWAR).

Table 12.5. Terrestrial impacts and associated effects predicted in the FEIS, proposed monitoring, actual monitoring (2016) and any observed impacts (2016). Adapted from Table 10.1 in the 2015 Wildlife Monitoring Summary Report (Appendix G13). Measured impacts exceeding or potentially exceeding impact predictions/thresholds are indicated in grey.

Potential Impact	Potential Cause(s)	Proposed Monitoring Methods	Monitoring Conducted (2016)	Threshold/ Prediction	Measured Impact (2016)
Vegetation (Wildlife Habitat)					
Habitat Loss	Mine site footprint, pits, roads, water management and collection systems	Ground Surveys, Mapping, GIS Analysis	Next scheduled in 2017	Various, per VEC	N/A
Habitat Degradation by Contamination	Dust from roads, TSF, airstrip	Vegetation and Soil Samples (SLRA)	Next scheduled in 2017	Various, per VEC	N/A
Ungulates					
Sensory Disturbance	Avoidance due to noise and activity (roads, airstrip, mine site)	Ground Surveys, Satellite-collaring	Ground Surveys, AWAR Road Surveys, Satellite-	Avoidance of habitat more than 500 m from site; 1000 m from	Ground surveys: no avoidance AWAR surveys/Satellite

Potential Impact	Potential Cause(s)	Proposed Monitoring Methods	Monitoring Conducted (2016)	Threshold/ Prediction	Measured Impact (2016)
			collaring	AWAR	collaring: Possible – further analysis to be conducted by GN in partnership with Agnico
Vehicle Collisions	Vehicular or air traffic collisions	Ground surveys, Collision Reporting System	Ground surveys, Collision Reporting System, AWAR Road Surveys	One mortality per year	No mortalities onsite or AWAR.
Hunting by Baker Lake Residents	Improved access to hunting along the AWAR	Hunter Harvest Study	Not schedule in 2016 - will resume in 2017	< 20% increase of historical harvest activities within the RSA; no significant impact to herds	N/A
Other Mine-related Mortality	Falling into pits, TSF or other means	Ground surveys	Ground surveys	One mortality per year	No mortalities
Exposure to Contaminated Water or Vegetation	Consumption of contaminated dust deposited on vegetation	Vegetation and Soil Samples (SLRA)	Not scheduled in 2016	No excess mine-related risk	N/A
Predatory Mammals					
Project-related Mortality	Vehicular or air traffic collisions, falling into pits, TSF or other means	Ground Surveys, Collision Reporting System	Ground Surveys, Collision Reporting System, AWAR Road Surveys	One mortality per year for large predatory mammals	One fox euthanized after not responding to deterrents; one killed on mine road; one killed on AWAR
Small Mammals					
Project-related Mortality	Vehicular or air traffic collisions, falling into pits, TSF or other	Ground Surveys, Collision Reporting	Ground Surveys, AWAR Road Surveys	Mortality of 100 individuals per year	No mortalities

Potential Impact	Potential Cause(s)	Proposed Monitoring Methods	Monitoring Conducted (2016)	Threshold/ Prediction	Measured Impact (2016)
	means	System			
Exposure to Contaminated Water or Vegetation	Consumption of contaminated dust deposited on vegetation	Vegetation and Soil Samples	Not scheduled in 2016	No excess mine-related risk	N/A
Raptors					
Healthy Prey Populations	Mine Footprint, dust and exhaust, noise (road, airstrip, mine site, Baker Lake barge area)	Vegetation and Soil Samples; PRISM plot surveys; ELC habitat mapping	Not scheduled in 2016	Thresholds are qualitative, and can be achieved through management and maintenance of vegetation and healthy prey communities.	-
Disturbance of Nesting Raptors	Noise and Activity	Active Nest Monitoring	Active Nest Monitoring	One nest failure per year	7 nests observed, nesting success assessed and confirmed for 4 nests
Project-related Mortality	Vehicle/ bird collisions	Ground Surveys, Collision Reporting System	Ground Surveys, AWAR Road Surveys, Collision Reporting System	One mortality per year	No mortalities
Waterbirds					
Disturbance of Nesting Waterfowl	Noise and Activity; dewatering	Waterfowl Nest Surveys	Waterfowl Nest Surveys; Ground Surveys	One nest failure per year	No waterfowl nesting onsite identified
Exposure to Contaminated Water or Vegetation	Mine site dust; Secondary containment structures and tailings storage facilities	Vegetation and Soil Samples	Not scheduled in 2016	No excess mine-related risk	N/A

Potential Impact	Potential Cause(s)	Proposed Monitoring Methods	Monitoring Conducted (2016)	Threshold/ Prediction	Measured Impact (2016)
Project-related Mortality	Vehicle/ bird collisions	Ground Surveys, Collision Reporting System	Ground Surveys, AWAR Road Surveys	One mortality per year	One duck entrapped in gill nets and killed during Phaser Lake fishout
Other Breeding Birds					
Project-related Mortality	Vehicle/ bird collisions	Ground Surveys, Collision Reporting System	Ground Surveys, AWAR Road Surveys	50 project-related mortalities per year	One Ptarmigan was killed when it flew into a window; one killed on AWAR
Exposure to Contaminated Water or Vegetation	Mine site dust	Vegetation and Soil Samples	Not scheduled	No excess mine-related risk	N/A
Changes in Breeding Bird Populations	Mine Footprint, dewatering dust and exhaust, noise (road, airstrip, mine site, Baker Lake barge area)	Breeding Bird Prism Plots and Transects	Next scheduled for 2018	For PRISM plots, threshold is > 20% from control plots. For transect surveys, threshold is reduced use beyond 100 m of road centreline.	N/A

12.2.2 Assessment of Trends

Since waterfowl mortality occurred beyond FEIS thresholds in 2016 (death of one duck caught in nets during the Phaser Lake fishout), an assessment of historical trends for this component was conducted. In 2015, one Canada Goose was confirmed as dying after getting stuck in the tailings pond, so increased monitoring and deterrent use was employed in 2016. In 2014, one duck was found dead onsite, after potentially falling into the leach tank. No waterbird mortalities were reported in 2013, 2012, or 2011. Based on this data, there is no clear trend towards increasing waterfowl mortalities on the Meadowbank site. Furthermore, no waterfowl mortalities have repeatedly occurred in the same manner, suggesting that adaptive management techniques have been successful.

Potential disruption of caribou movements due to the Meadowbank AWAR was first reported in 2015, and analysis of the data are ongoing, with no confirmation at this point of whether this threshold has been exceeded.

12.2.3 Effectiveness of Monitoring

Current monitoring programs are effectively able to measure impacts as they relate to established threshold levels.

12.2.4 Recommendations for Additional Mitigation or Adaptive Management

As summarized in Table 12.5, two Terrestrial Ecosystem Monitoring Program thresholds were exceeded or potentially exceeded in 2016 (waterfowl mortalities; and potentially, sensory disturbance of caribou related to the AWAR). Additional mitigation to reduce waterfowl mortalities was implemented in 2016, including increased monitoring of the tailings storage facility (daily) during the waterfowl migratory period, and increased frequency of deterrent use if required. These management actions successfully reduced mortalities related to the TSF. Similar mitigation will be implemented to reduce the possibility of further mortalities during any future fish-out programs.

Agnico will continue to closely monitor caribou movement in the weeks leading up to these annual migrations using the latest available satellite-collaring and AWAR survey data as well as incidental reports from staff utilizing the AWAR on a regular basis (e.g., security personnel). Notification and announcements, staff re-education, specific dispatch protocols, and temporary road closures will continue to be implemented as in previous years, as a proactive management strategy. In 2016, Agnico Eagle supported additional caribou satellite-collaring to help ensure that information on caribou movements and distribution are accessible to Agnico Eagle for monitoring purposes.

12.2.5 Contributions to Regional Monitoring

In 2016, Meadowbank continued to contribute to the GN DOE caribou collaring which started in 2009. Six deployments have been completed in the area around Baker Lake since Agnico Eagle became involved in the collaring program. Nine (2008), twenty one (2009; shared with AREVA), thirteen (2011), fifteen (2013; shared with AREVA), ten (2015) and 13 (2016) caribou collars were deployed (greater than $250 000). In early 2011, Meadowbank contributed additional funding toward the GN-led program to estimate the number of breeding females in the Beverly herd of taiga-wintering barren-ground caribou. In 2013, Agnico finalized discussions with the GN and entered into a new Memorandum of Understanding (MOU) to commit to another long term (3 year) contribution in support of the regional GN caribou monitoring program. This agreement will continue to assist the GN- DOE- Wildlife branch in directing the implementation, data analysis and management of caribou populations in the Kivalliq region. Agnico will be working with the GN to renew the MOU in early 2017.

12.3 NOISE

While noise generation was predicted in the FEIS for many minesite components, a significant effect of noise (disturbance of wildlife; reduced habitat effectiveness) was only associated with three components: pit development, the mine plant and the airstrip. Noise monitoring was therefore proposed in association with pit development, waste rock, tailings handling and the mill.

The following section summarizes the predicted sources of significant noise impacts at the Meadowbank site, identifies predicted sound levels at established monitoring locations, provides an assessment of the accuracy of the predictions and discusses the effectiveness of the monitoring program at targeting

predicted impacts. Furthermore, additional recommendations are made for any required mitigation or adaptive management. Any use of the monitoring data in regional monitoring initiatives is described.

12.3.1 Accuracy of Predicted Impacts

Table 12.6, below, summarizes the causes of noise impacts predicted in the FEIS, identifies the proposed monitoring measures, and indicates the accuracy of predictions based on results of monitoring conducted in 2016 (measured sound level). Since the potential impacts of Project-related noise were all identified as wildlife disturbance, the accuracy of these predictions is also monitored through the terrestrial environment monitoring programs, as discussed in Section 12.2.

As in previous years, measured sound levels exceeded predicted sound levels only on occasion at station R5. Four out of 36 hourly L_{eq} values exceeded the predicted sound level of < 57 dBA for this site, located approximately 350 m from the AWAR and 500 m from the former exploration camp (now helicopter hub). However it should be noted that this FEIS prediction for noise levels at R5 did not include impacts from air traffic, since they were expected to be present on an irregular basis, and of short duration (and presumably, contribute little to the average acoustic environment).

Table 12.6. Potential causes of noise impacts predicted in the FEIS, proposed monitoring, actual monitoring (2016) and observed monitoring results (2016). *at indicated monitoring station, based on FEIS modeling (assumed 24 h L_{eq}). ** for sites ~350 m from the AWAR; excludes noise due to air traffic. * 24 h L_{eq}**

Potential Cause(s)		Proposed Monitoring	Monitoring Conducted (2016)	Predicted Sound Level (FEIS)*	Measured Sound Level (2016)***
Pits	Noise from blasting, etc.	Monitor noise levels and responses of wildlife	Monitored noise levels (see Section 12.2 for wildlife monitoring)	R1 = 58-63 dBA	R1 = 41, 43 dBA
Waste Rock /Tailings Facility	Noise from berm construction, material handling			R2 = 58-63 dBA	R2 = 42, 42 dBA
Roads and Traffic	Noise from maintenance and use			R3 = 49-53 dBA	R3 = 32, 33 dBA
Airstrip	Noise from air traffic			R4 = 58-63 dBA	R4 = 36, 42 dBA
Mine plant and associated facilities	Noise			R5 = $L_{eq(1hr)}$ < 57 dBA dBA**	**R5 = 4/36 $L_{eq(1hr)}$>57 dBA**

Since the FEIS prediction for R5 was exceeded in 4 out of 36 monitoring hours, an analysis of trends over time for this station was performed. As demonstrated in Figure 43, there is no clear trend towards increasing sound levels at R5, with the highest sound levels generally occurring in 2012.

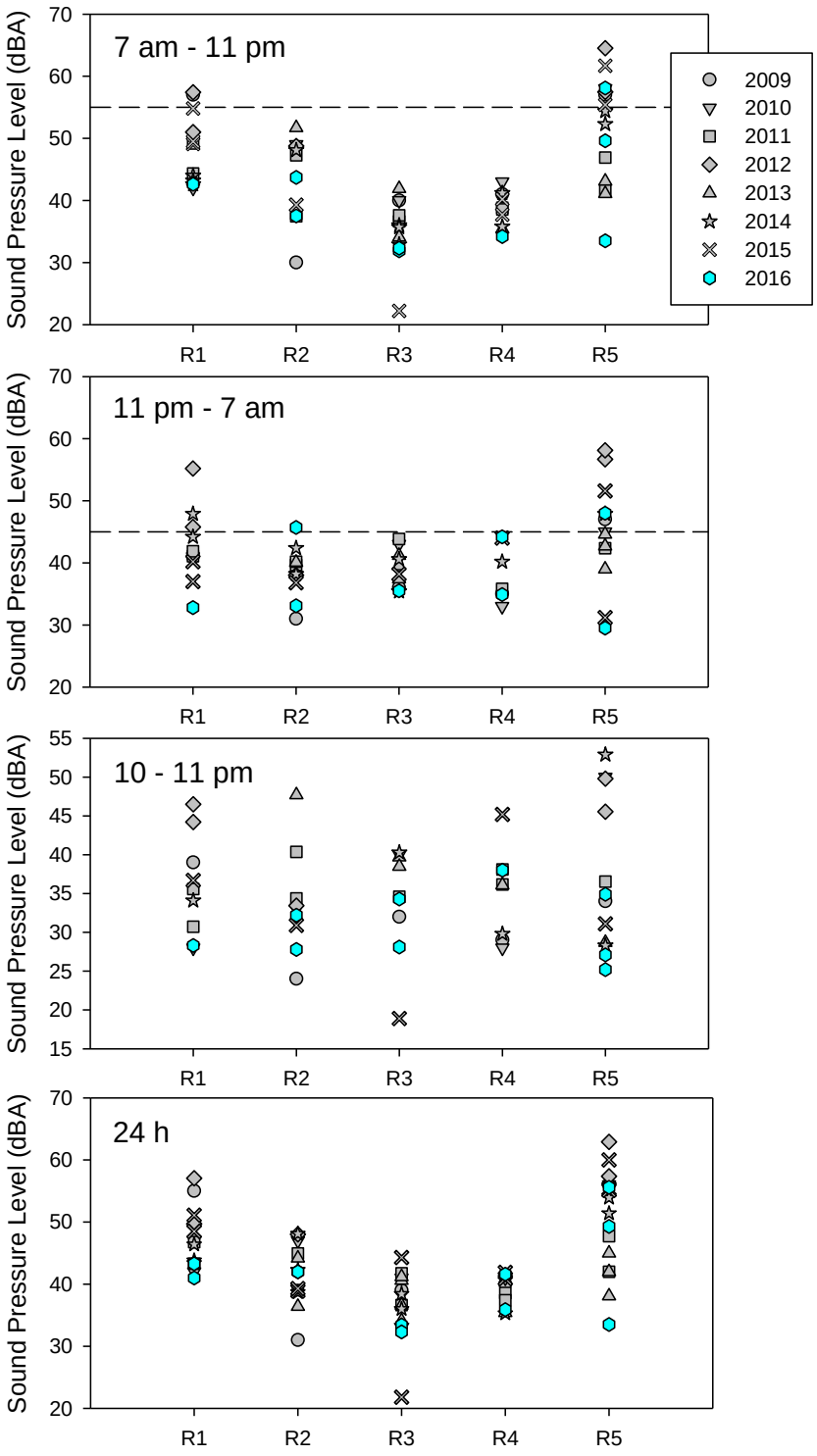


Figure 43. L_{eq} values calculated from filtered data for various time periods at locations R1 – R5 on the Meadowbank site in surveys from 2009 - 2016. Dashed lines indicate target sound levels (day-time and night-time only).

12.3.2 Effectiveness of Monitoring

By monitoring sound levels at five locations around the minesite for two 3-4 day periods annually, the current monitoring program provides a conservative assessment of the accuracy of predicted noise levels. A review of the impact assessment methodology was performed, and it was determined that assumptions of the noise model with respect to site activities remain valid. While it was previously understood that predicted noise levels associated with monitoring location R5 (as presented in the 2015 PEAMP) did not include noise from the AWAR, a specific assessment of AWAR noise was identified upon further review of the FEIS (Meadowbank FEIS Noise Impact Assessment, Section 3.5), which formed a more accurate figure for comparison to measured sound levels at R5. However, modeled noise levels still do not include sounds from air traffic (fixed or rotary wing), since they were expected to be present on an irregular basis, and of short duration. As demonstrated through the noise monitoring results for station R1-R4, Agnico Eagle believes this assessment assumption to remain true for the most part. Although helicopter sounds do contribute significantly to the acoustic environment at location R5 during noise monitoring events, monitoring is typically conducted during peak helicopter season, and FEIS predictions were still only exceeded 11% of the time in 2016. Unfortunately, elevated wind speeds and snow cover tend to preclude monitoring during the rest of the year. However, even results of September monitoring at R5 in 2016 suggest that average sound levels decline substantially outside of the active summer months. Therefore, noise monitoring results are expected to provide a conservative comparison to FEIS predictions.

Impacts of mine-related activities (including noise) on wildlife are monitored through the Terrestrial Ecosystem Monitoring Program (TEMP), as described in Section 12.2.

12.3.3 Recommendations for Additional Mitigation or Adaptive Management

Overall, impact predictions are not being exceeded at four out of five monitoring stations (R1 – R4). Since measurements at station R5 only exceeded FEIS predictions 11% of the time, and monitoring was conducted during peak helicopter season (i.e. results are likely conservative representations of the average acoustic environment), no additional mitigation or adaptive management actions are recommended at this time. This conclusion is further supported by regular wildlife monitoring (see Section 12.2), which indicates no exceedances of thresholds related to impacts from noise on the minesite for wildlife.

12.3.4 Contributions to Regional Monitoring

In 2016, Meadowbank has not contributed to any specific regional monitoring for noise.

12.4 AIR QUALITY

A review was conducted of the predicted impacts to air quality identified in the FEIS. While dust generation or air emissions were predicted for many minesite components, a significant effect on terrestrial and aquatic environments was only associated with three components (pit development, the mine plant and the waste rock and tailings facilities).

The following sections summarize the predicted impacts to air quality, provide an assessment of the accuracy of the predictions and discuss the effectiveness of the monitoring program at targeting predicted impacts. Furthermore, additional recommendations are made for any required mitigation or adaptive management. Any use of the monitoring data in regional monitoring initiatives is described.

12.4.1 Accuracy of Predicted Impacts

Table 12.7, below, summarizes the predicted impacts to air quality, associated effects, monitoring measures proposed in the FEIS, and results of monitoring conducted in 2016.

The main monitoring program for air quality recommended in the FEIS is static dustfall, which is being continuously monitored at four locations around the minesite. In addition, Agnico Eagle conducts monitoring of TSP, PM_{10}, $PM_{2.5}$ and NO_2, in accordance with the Air Quality and Dustfall Monitoring Plan.

In the FEIS, air quality modeling was conducted for fugitive dust in three size fractions ($PM_{2.5}$, PM_{10} and TSP) originating from the TSF, WRSF, and ore stockpile, for 24h and annual averaging times. Deposition rates for dust from these sources were also calculated ($g/m^2/30d$). However, contour plots were only provided for TSP and deposition rates. Otherwise, only maximum ground level concentrations were described.

In addition, modeling was conducted for criteria pollutants (CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$) emitted from the power plant and mobile sources for 1h, 24h and annual averaging times, and concentration contour plots were provided for these analyses.

Carbon monoxide and sulphur dioxide were not required to be monitored as part of the program developed by Agnico Eagle in consultation with regulatory agencies. Therefore, the following predicted values were able to be compared to measured values: NO_2 (annual average), $PM_{2.5}$, $PM_{10,}$ TSP (24 h & annual average), and dust deposition (30 d rate). It should be noted that since field monitoring captures emissions from all sources at once (as well as background sources), while the FEIS presents modeled outputs from combinations of sources as described above, accuracy of these quantitative predictions cannot specifically be assessed through field monitoring. However, if measured concentrations or deposition rates are lower than predicted values, it can be concluded that FEIS predictions are not being exceeded. In some cases, as described below, measured or estimated background concentrations were able to be added to predicted values to facilitate the comparison.

The following specific methods were used:

- Modeled values for suspended particulates and deposition rates were obtained for the two air quality monitoring locations (DF-1 and DF-2) from the FEIS Air Quality Impact Assessment Figures 6.2 – 6.24. PM_{10} values were derived from Figures 6.7 and 6.8, based on references in the text (Table 6.1), although these figures are labelled as SP. Model values for a TSF size of 960x560m were used in the comparison.

- A recent impact assessment for the Whale Tail Pit project at Meadowbank calculated background values for $PM_{2.5}$ of 6.7 and 3.6 $\mu g/m^3$ for 24-h and annual averaging times, respectively (Whale Tail Pit EIS, Appendix 4-A). No background data was available for other size classes of

suspended particulates, but these $PM_{2.5}$ values were added to all predicted concentrations of suspended particulates for the comparison, since $PM_{2.5}$ forms a subset of PM_{10} and TSP.

- For NO_2, modeling results were only provided in the FEIS for the maximum predicted ground-level concentration, which occurred adjacent to the power plant. The closest NO_2 monitoring station (DF-2) is at a distance of approximately 1 km southwest (cross-wind) from this location.

- To compare measured dustfall rates to those predicted in the FEIS, the maximum recorded background value for fixed dustfall collected to date (0.191 $mg/cm^2/30d$ – see 2016 AWAR Dustfall Monitoring Report) was added to the predicted dustfall rate for each monitoring station, and compared to the measured value for fixed dustfall.

Despite the generally conservative nature of these comparisons, the results provided in Table 12.7 indicate that only 7 out of 349 suspended particulate samples exceeded impact predictions in 2016. All 7 exceedances occurred for TSP, which may well have been because the estimated ambient (background) concentrations were knowingly underestimated for this size fraction (as stated above, the TSP-$PM_{2.5}$ size fraction is not included). One of 23 dustfall samples exceeded the predicted deposition rate during peak summer season (i.e. when dust creation is greatest). No exceedances occurred for NO_2, $PM_{2.5}$, PM_{10}, or the annual average TSP. In addition, rates of dustfall along the AWAR fall within impact predictions, and GHG emissions are below the predicted value.

Table 12.7. Potential causes of air quality concerns, monitoring measures proposed in the FEIS, and results of monitoring conducted in 2016. *See explanation in Section 12.4.1. Any exceedances are bolded.

Potential Cause(s)	Proposed Monitoring (FEIS)	Monitoring Conducted (2016)	Max. Predicted Value (FEIS) + Est. Partial Background*	Measured Value (2016)
Generation of dust during placement of dike material	Static dustfall	N/A (no dikes constructed)	-	-
Generation of dust from exposed lake sediment	Static dustfall	Static dustfall, NO_2 (four locations) and suspended particulates (two locations)	NO_2 (ppb; annual avg.) = 4.97 $PM_{2.5}$ (µg/m^3; 24 h avg.): DF-1: 20+6.7 DF-2: 10+6.7 $PM_{2.5}$ (µg/m^3; annual avg.) DF-1: 1+3.6 DF-2: 0.5+3.6 PM_{10} (µg/m^3; 24 h avg.): DF-1: 20+6.7 DF-2: 40+6.7 TSP (µg /m^3; 24 h avg.) DF-1: 4+6.7 DF-2: 52+6.7 TSP (µg /m^3; annual avg.) DF-1: 0.25+3.6 DF-2: 16+3.6 Dustfall (mg/cm^2/30d): DF-1: 0.03+0.191 DF-2: 0.8+0.191	NO_2 (ppb; annual avg.; DF-2) = 1.26 $PM_{2.5}$ (µg/m^3; 24 h avg.): DF-1: 0/57 samples > 26.7 DF-2: 0/61 samples > 16.7 $PM_{2.5}$ (µg/m^3; annual avg.) DF-1: 0.6 DF-2: 1.7 PM_{10} (µg/m^3; 24 h avg.): DF-1: 0/57 samples > 26.7 DF-2: 0/61 samples >46.7 TSP (µg /m^3; 24 h avg.): **DF-1: 6/54 samples >10.7** **DF-2: 1/59 samples >58.7** TSP (µg /m^3; annual avg.) DF-1: 3.8 DF-2: 6.4 Dustfall (mg/cm^2/30d): **DF-1: 1/12 samples > 0.221** DF-2: 0/13 samples > 0.991
Generation of dust and gases from blasting, excavation etc.	Static dustfall			
Generation of dust from material deposited on waste rock pile or tailings	Static dustfall			
Generation of dust and emissions from development, maintenance and use	Static dustfall			
Generation of dust and emissions from development, maintenance and use of roads	Static dustfall	As above, plus AWAR targeted study	As above for site. For AWAR: Majority of dustfall expected to occur within 100 m.	More than 2x reduction in average total dustfall occurred between 25 and 100 m; see 2016 All-Weather Access Road Dust Monitoring Report
Release of pollutants from incineration	Maintain scrubbers; report emissions	GHG emissions reported	190,768 t CO_2 equivalent	184,223 t CO_2 equivalent

Since some measurements of TSP (24 h) and one dustfall sample exceeded FEIS model predictions for project inputs, it cannot be assumed that FEIS predictions are not being exceeded for these parameters. Therefore, an examination of historical trends was performed to determine any tendency towards increasing Project-related effects. As demonstrated in Figure 44 and 45, no trends towards increasing dust generation or deposition are apparent. A slight trend towards decreasing dust deposition at DF-1 may be occurring.

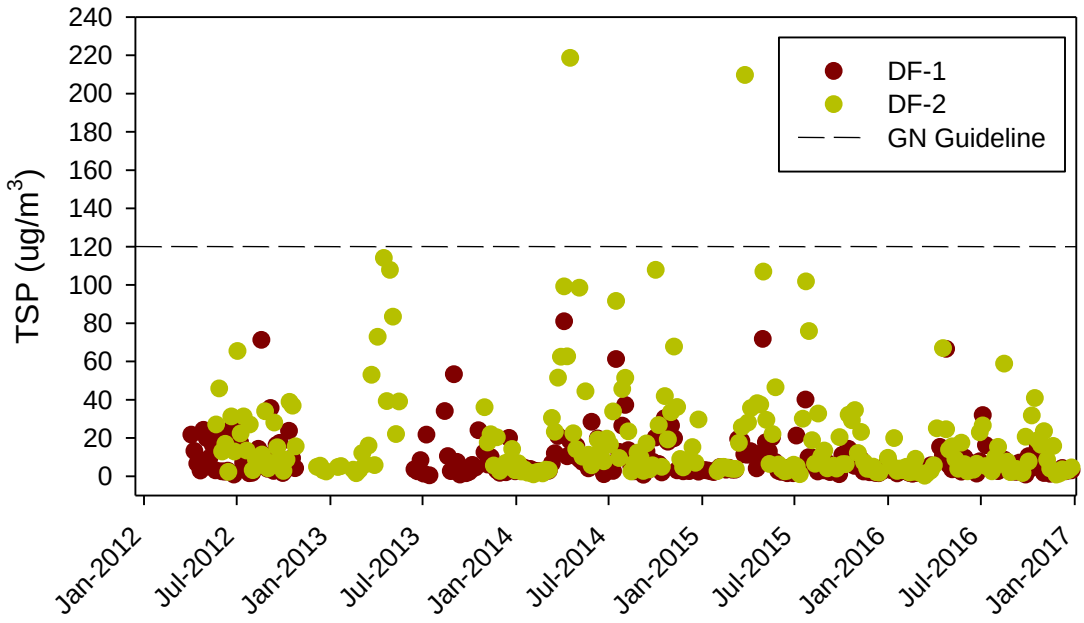


Figure 44. Measured concentrations of total suspended particulates at two monitoring stations on the Meadowbank site since monitoring began in 2012.

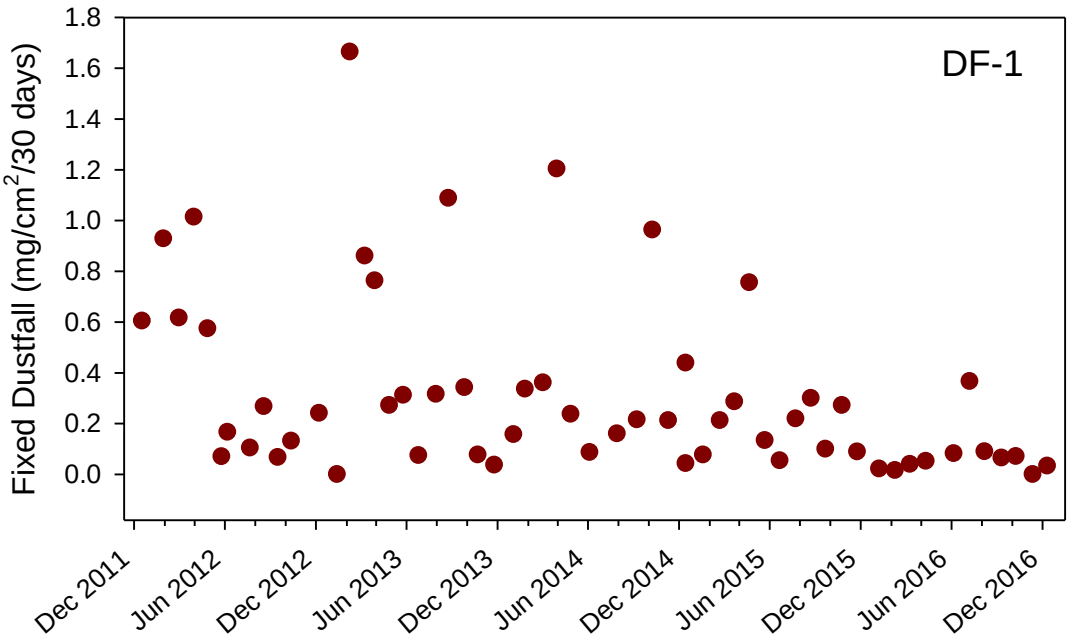


Figure 45. Measured rates of fixed dust deposition at monitoring station DF-1 at the Meadowbank site, since monitoring began in 2012

12.4.2 Effectiveness of Monitoring

Impacts to air quality were predicted in the FEIS through standard modeling procedures, which predict concentrations of criteria contaminants emitted from a designated source. Since field monitoring identifies concentrations occurring from the combination of all sources (including background), it is difficult to compare results of the air quality monitoring program with predicted values. Furthermore, while concentration contour plots were provided in the FEIS for several analyses (allowing for interpolation of predicted values at current monitoring stations), only maximum predicted ground-level concentrations were provided for others.

As a result of these issues, air quality monitoring results are more effectively compared to established regulatory guidelines and standards (as in the 2016 Air Quality Monitoring Report), which in all cases are higher than predicted concentrations at the current monitoring stations.

12.4.3 Recommendations for Additional Mitigation or Adaptive Management

Based on this analysis, no additional mitigation or management actions are recommended.

12.4.4 Contributions to Regional Monitoring

In 2016, Meadowbank has not contributed to specific regional air quality monitoring programs, but all data generated through the air quality monitoring program is publicly available.

12.5 PERMAFROST

The following section summarizes the measured impacts on permafrost due to specific mine activities in 2016 as compared to FEIS predictions, provides an assessment of the accuracy of the predictions, and determined the effectiveness of the monitoring program at measuring predicted impacts. Furthermore, recommendations are made for mitigation or adaptive management.

12.5.1 Accuracy of Predicted Impacts

A summary of potential project effects, as described in the FEIS and results of monitoring in 2016 to assess the accuracy of these predictions is provided in Table 12.8 below.

Table 12.8. Predicted and measured impacts to permafrost

Potential Impact	Potential Cause(s)	Proposed Monitoring	Monitoring Conducted (2016)	Predicted Impact in FEIS	Observed Impacts (2016)
Permafrost aggradation and stabilization of new active layer in dikes	-	Monitor ground temperatures; monitor slopes; monitor sub-permafrost pore pressures (tailings dike)	Thermistor monitoring of permafrost for the dewatering dikes (East Dike, Bay Goose Dike, Vault Dike, and South Camp Dike) and the TSF dikes (Central Dike, Saddle Dam 1-2, Stormwater Dike)	Net increase in permafrost distribution and/or decrease in ground temperatures.	East & Bay-Goose Dike: partially frozen foundations; South Camp & Vault Dike: frozen foundations SD1&2: frozen foundations; SD3&4: constructed in 2015, partially frozen; Stormwater Dike: frozen 10 m layer; Central Dike: partially frozen foundation
Permafrost changes in Second Portage Lake (2PL) NW arm area	Dewatering, reclaim and attenuation pond filling, and tailings deposition	Representative monitoring of ground temperatures; assessment of anticipated ice entrapment (i.e. ground ice development)	Thermistor monitoring in TSF (thermistors NC-T1, NC-T2)	Net increase in permafrost distribution and/or decrease in ground temperatures	Not completely frozen, but overall trend in 2016 shows temperatures are slowing decreasing
Permafrost changes in Third Portage Lake (TPL) north central shoreline and Portage Pit area	Portage pit development	Assessment of suspected ground ice development in conjunction with permafrost aggradation. Assessment of ground ice content of select shoreline polygons.	Thermistor monitoring on South Camp Dike, Bay-Goose Dike, Goose pit area, Central Dike, East Dike	Net increase in permafrost distribution and/or decrease in ground temperatures	General increase in permafrost aggradation due to structures; permafrost is developed in part of the Portage Pit Wall while the part aligned with the south abutment of Central Dike is unfrozen

Permafrost changes in waste rock area	Construction of waste rock facility	Internal and foundation temperatures to be monitored	Thermistor monitoring of internal and foundation temperatures	Fall, winter and spring placement will continue to bury the natural ground surface and permafrost will aggrade into the waste rock where a new and temporary active layer will form. Placement of lifts on natural ground in the summer may continue to cause temporary and localized deepening of the active layer, warming of near surface permafrost and possible subsidence, particularly in low lying areas.	Frozen conditions for all thermistor locations below a max. of 5.5 m from surface
Potential settlement of buildings	Loss of permafrost under heated structures	Ground temperature measurements where there is a need to monitor foundation temperatures	None	Net decrease in permafrost distribution and/or increase in ground temperatures	No ground temperature measurements have been undertaken at or near buildings on site. To date there has been no observed thawing of foundations.

Permafrost changes below pipelines	Stabilization of permafrost temperature and active layer thickness	Monitor pipeline alignment for potential permafrost degradation	None	Minor and undifferentiated net gain or loss of permafrost	No ground temperature measurements but no observations of thawing due to pipelines.

12.5.2 Effectiveness of Monitoring

Aggradation of permafrost and stabilization of the active layer are being consistently monitored for the dikes, tailings storage facility, and waste rock storage facility. Changes in permafrost conditions as a result of these features are therefore effectively compared to FEIS predictions. However it should be noted that these processes are ongoing as site operations continue, and final determinations of the accuracy of many predictions cannot effectively be made until cessation of related site works.

No instrumentation has been installed to date to monitor building or pipeline effects on permafrost. Since the pipelines and infrastructure are observed to be stable, it is considered that the permafrost is lightly impacted by these features.

12.5.3 Recommendations for Additional Mitigation or Adaptive Management

Regular field inspections, monitoring and assessment of the monitoring data will continue on regular basis in 2016. Management and monitoring recommendation's specifically related to permafrost monitoring are identified in the 2016 Geotechnical Inspection Report (Appendix B1) along with Agnico's responses to these recommendations.

12.5.4 Contributions to Regional Monitoring

A research project in collaboration with the Research Institute of Mines and Environment (RIME) was initiated in 2014 at Meadowbank. The Research Institute on Mines and Environment, through the NSERC-UQAT Chair on Mine Site Reclamation, is mandated to evaluate the performance of three field experimental cells constructed in 2014 and 2015 on Meadowbank's North Cell TSF.

Also in collaboration with the RIME, in 2016 a laboratory testing program was developed to obtain a good overview of the effects of freeze/thaw (F/T) and wet/dry (W/D) cycles on the soapstone. The developed experimental program is primarily focused towards the evaluation of the resistance to F/T and W/D of the soapstone to be used as cover materials for the TSF and RSF.

12.5.5 Contributions to Regional Monitoring

In 2016, Meadowbank has not contributed to specific regional permafrost monitoring programs.

12.6 SOCIO ECONOMIC

In 2016, the second report on the Meadowbank Gold Mine Socio-Economic Monitoring Program (SEMP) was submitted to the KIA and NIRB. It was developed in consultation with the Kivalliq Socio-Economic Monitoring Committee (SEMC). Monitoring results were provided on the following valued socio-economic components (VSEC):

1. Employment
2. Income
3. Contracting and Business Opportunities
4. Education and Training
5. Culture and Traditional Lifestyle
6. Migration
7. Individual and Community Wellness
8. Worker Health and Safety
9. Community Infrastructure and Services
10. Nunavut Economy

The Executive Summary of the Socio-Economic Monitoring Report summarizes socio-economic indicators, metrics, trends, observed impacts and observations/impacts vs. predictions. This information is further summarized below.

In the Meadowbank IIBA Agnico has also committed to prepare an annual Baker Lake Wellness Report & Implementation Plan. The KIA has agreed that the report and plan will be community-based and driven. In 2015, Agnico retained Stratos Inc, a reputable Ottawa-based consulting firm, to work with community based stakeholders to identify:

- wellness indicators that are meaningful to the community of Baker Lake,
- priority areas of community wellness,
- opportunities for interagency collaboration,
- potential initiatives to address impacts.

With the initial input from a range of community stakeholders a draft Wellness Report and Implementation plan was developed. During the 1st quarter of 2016, Agnico and Stratos met with community-based stakeholders and relevant organizations to consult on the draft Wellness Report and Implementation Plan and make any adjustments as required. A final Wellness Report and Implementation Plan were presented during a public meeting in Baker Lake in June, 2016.

Implementation Plan activities related to Agnico are to provide financial literacy workshops to the community and the first workshop is planned for May, 2017.

During 2017 the report will be updated in consultation with community-based stakeholders and submitted to the KIA by the fall of 2017.

12.6.1 Accuracy of Predicted Impacts

Based on results of the 2015 Socio-Economic Monitoring Report (December, 2016) and Baker Lake Wellness Report, the accuracy of Project impacts as predicted in the FEIS is assessed for each identified valued socio-economic component (VSEC) in sections 12.6.1.1 to 12.6.1.9.

12.6.1.1 Contracting and Business Expenditures for Nunavut

Predicted Impact (as in FEIS):

- $23 million in annual business expenditures in Nunavut over a ten year operation phase.
- Total expenditures of $224M for Nunavut over the lifetime of the project.
- Goods and service contracts for local businesses - With continuing preferential contracting, local business participation in the project is expected to grow with time.
- Overall increased economic activity.

Monitoring Conducted: Total and contract expenditures on Baker Lake, Nunavut-based, NTI registered, and Inuit-owned businesses (2011 – 2015) (per Table 12.9 below, and SEMP Chart 13 & 14)

Table 12.9. Expenditures for materials and services by vendor type, 2007-2015 (source: 2015 PEAMP)

Vendor type	2007-2015	% Expenditures
Total Expenditures	$ 2,884,539,492	100%
NTI Registered	$ 821,343,194	28%
Nunavut-based	$ 1,163,806,472	40%
Northern-based (NU & NT)	$ 1,355,116,828	47%
Baker Lake-Based	$ 453,746,947	16%

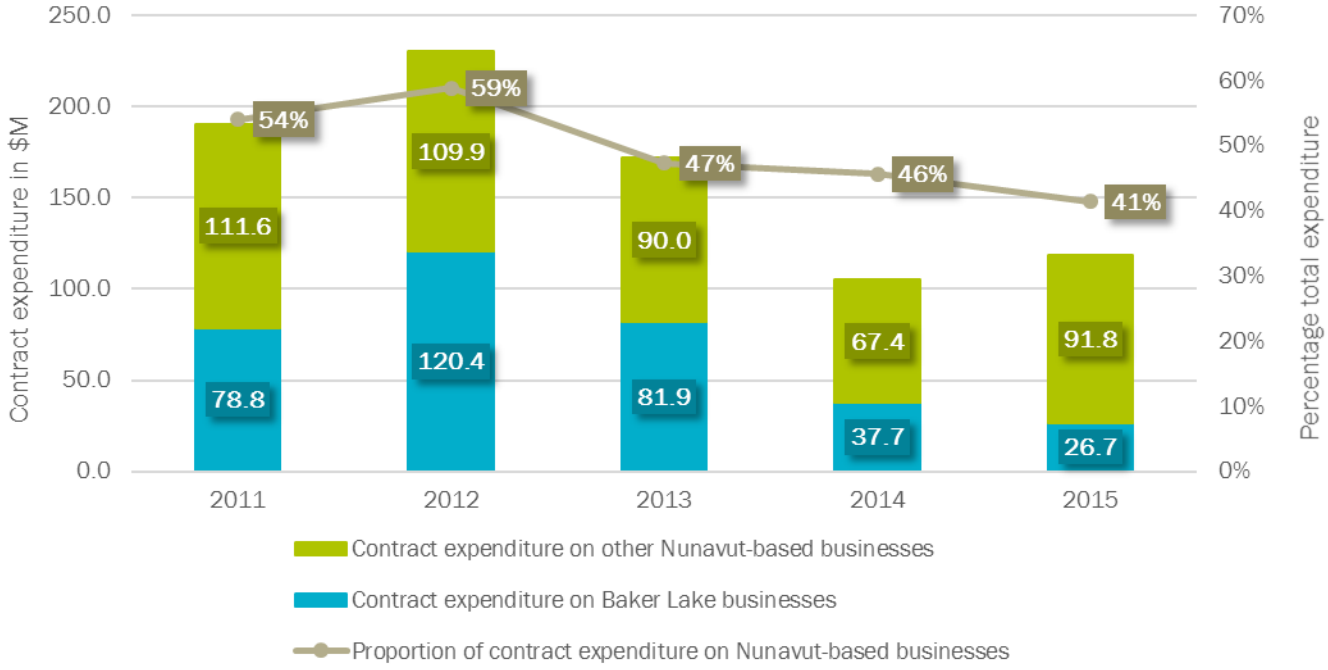


Figure 46. SEMP Chart 13 - Contract Expenditures on Baker Lake and Nunavut-Based Businesses, 2011 – 2015 (source: Agnico Eagle).

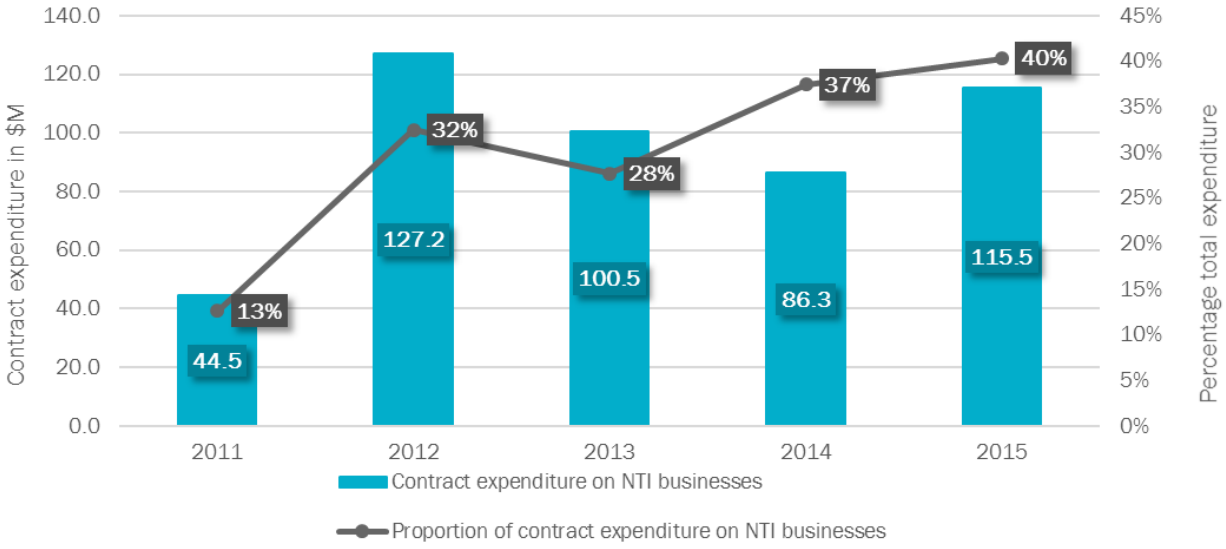


Figure 47. SEMP Chart 14 - Contract Expenditures on NTI Registered Businesses, 2011 – 2015 (source: Agnico Eagle).

Observed impacts as compared to FEIS predictions:

- Expenditures for Nunavut-based businesses have exceeded predictions, with a minimum of 67M in contract expenditures per year since 2011.

- By 2015, the predicted total expenditure for Nunavut over the lifetime of the project had already been exceeded despite being only 4 years in operation.
- In 2015, absolute contract expenditures on Nunavut-based businesses and NTI businesses increased (by $24M and $29M respectively), while those for Baker Lake-based businesses decreased (by $11M). However, expenditures on Inuit-owned businesses (NTI-registered) increased in 2015, consistent with the trend for total contract expenditures. While the recent trend for total contract expenditures had been decreasing prior to 2015, the NTI-registered businesses' relative share of contract expenditures has been on an upward trend since 2013, representing 40% in 2015, which is the highest level yet achieved. The FEIS prediction of a 'high magnitude, positive, and long-term' impact appears to have been realized thus far, despite a long-term trend of declining contract expenditure in Baker Lake-based businesses.

12.6.1.2 Employment

Predicted Impact (as in FEIS):

- During operation phase, employment of at least 60 workers, with the largest fraction of less skilled jobs supplied from Baker Lake residents
- Estimated workforce of 370 people during operation phase
- The potential impacts of employment are likely to take some time to gain full momentum, and overall are considered of high magnitude, positive, long term and of high significance, specifically to those individuals and their families who are able to benefit.

Monitoring Conducted: Number of employees, 2010-2015 (SEMP Chart 1); Meadowbank Inuit Employment by Kivalliq community, 2014-2015 (SEMP Chart 6).

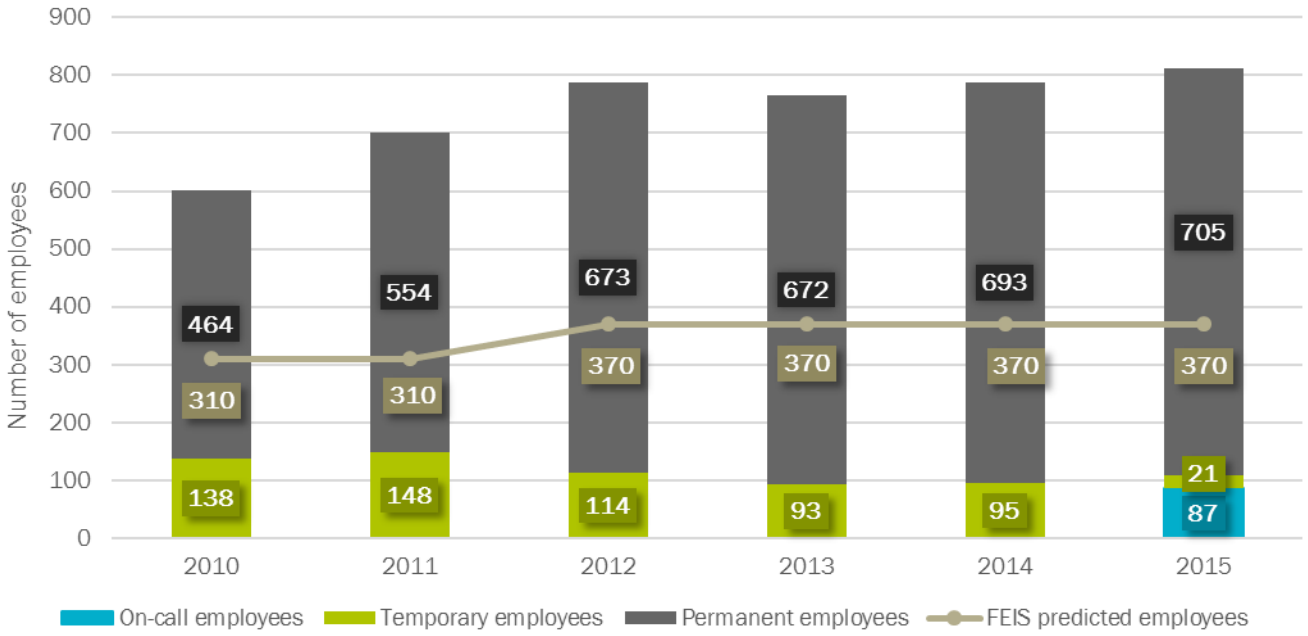


Figure 48. SEMP Chart 1 - Meadowbank employment, 2010 - 2015 (permanent and temporary) (source: Agnico Eagle).

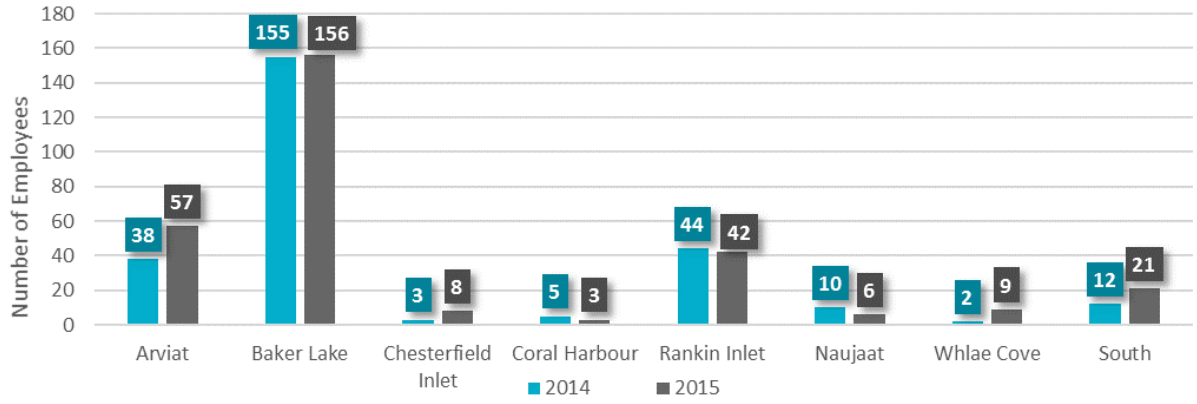


Figure 49. SEMP Chart 6 - Meadowbank Inuit employment by Kivalliq community, 2014 - 2015 (source: Agnico Eagle).

Observed impacts as compared to FEIS predictions:

- Between 2012 and 2015, the percentage of Meadowbank workers coming from Kivalliq communities has seen a steady increase from 30% to 35%. Over half of the total Kivalliq employees are from Baker Lake, which meets FEIS predictions.
- The total employee figures to date have significantly exceeded the values predicted in the FEIS, with a minimum annual workforce of 464 persons since operations began

12.6.1.3 Nunavut Economy

Predicted Impact (as in FEIS):

- If at least 20% of expenditures were spent in the region over the lifetime of the project, there would be a total expenditure in Nunavut of over $224 M. This figure is made up of about $61 M during the 24-month construction phase, $20 M per year over a ten year operation phase, and a further $2.6 M over the closure phase
- During the operations phase, the annual contribution to GDP would be $35.5 M

Monitoring Conducted: Meadowbank contract expenditures by northern and southern business, 2011 – 2015 (Chart 36); Nunavut GDP all industries and mining, quarrying, and oil & gas, 2000 – 2015 (Chart 37)

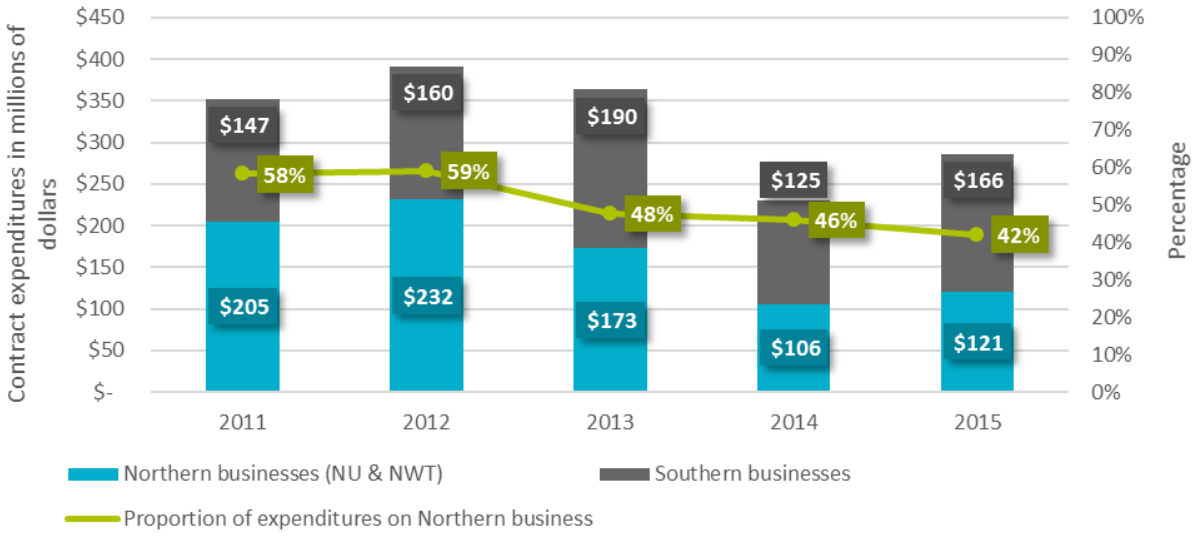


Figure 50. SEMP Chart 36 - Meadowbank contract expenditures in $M, by northern and southern business, 2011 – 2015 (source: Agnico Eagle).

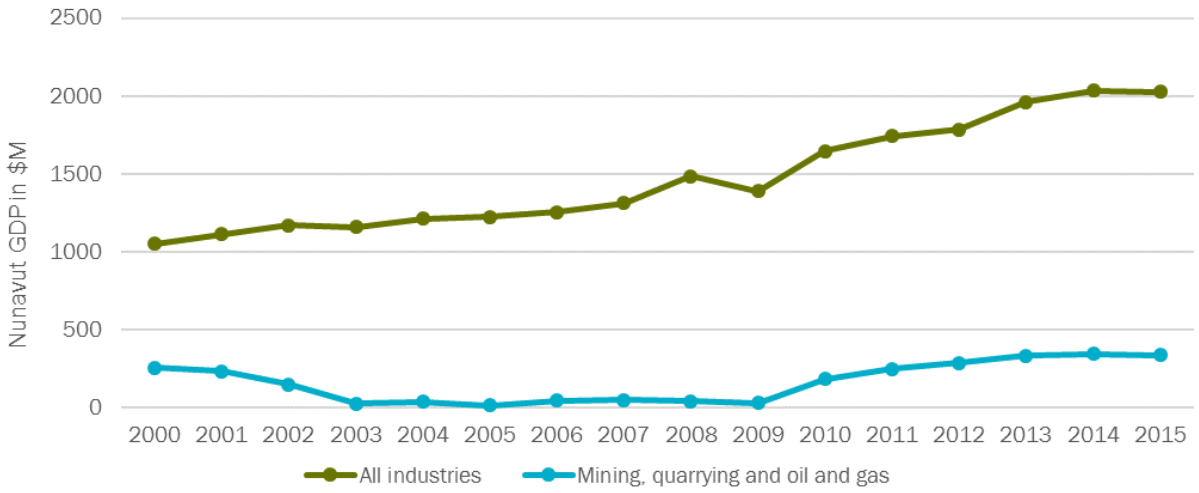


Figure 51 Nunavut GDP all industries and mining, quarrying and oil & gas, 2000– 2015 (source: (Statistics Canada, 2016)

Observed impacts as compared to FEIS predictions:

- The FEIS predicts an expected $20M in annual business expenditures in Nunavut over the operations phase. This prediction has been far exceeded, with over $100M of annual expenditures for Nunavut based businesses.
- The predicted total expenditure for Nunavut over the lifetime of the project ($224M) has already been exceeded, only half-way through the predicted ten-year operational phase.
- Given that Meadowbank was the only operating mine in Nunavut from 2010 to 2015 (when Baffinland's Mary River Project began operations), the GDP growth data suggest that Meadowbank's contribution to GDP has exceeded the FEIS prediction.

12.6.1.4 Income

Potential Impact (as in FEIS):

- Direct project wages paid to people in Kivalliq Region, primarily Baker Lake, could exceed $4 M annually.

Monitoring Conducted: Income paid to Meadowbank Inuit employees, 2010 – 2015 (Chart 10); Income paid to Meadowbank contractors and Inuit employment rate of Meadowbank contractors, 2010 – 2015 (Chart 11)

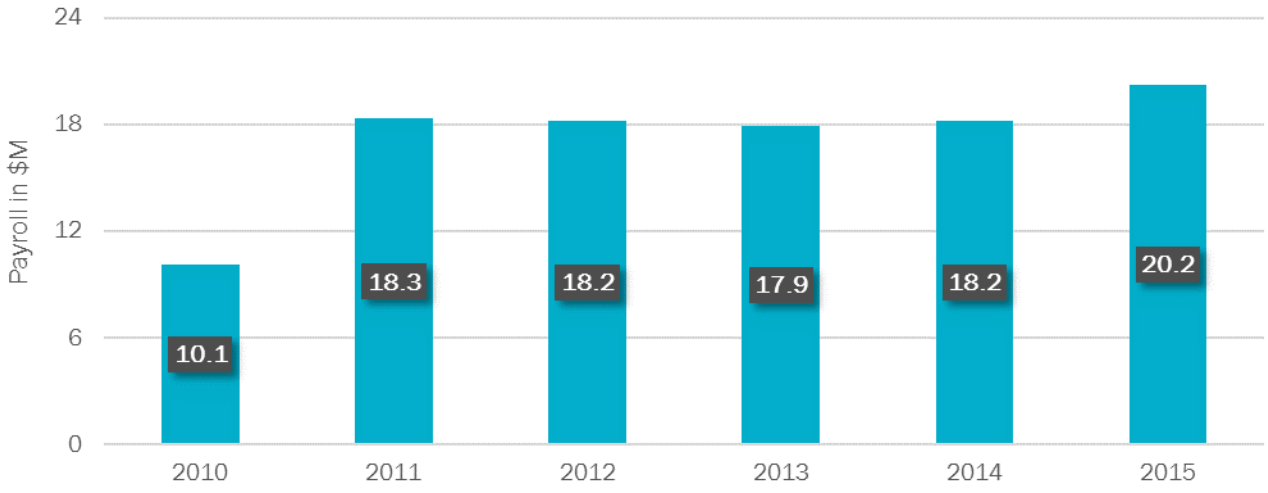


Figure 52. SEMP Chart 10 - Income paid to Meadowbank Inuit employees, 2010 – 2015 (source: Agnico Eagle).

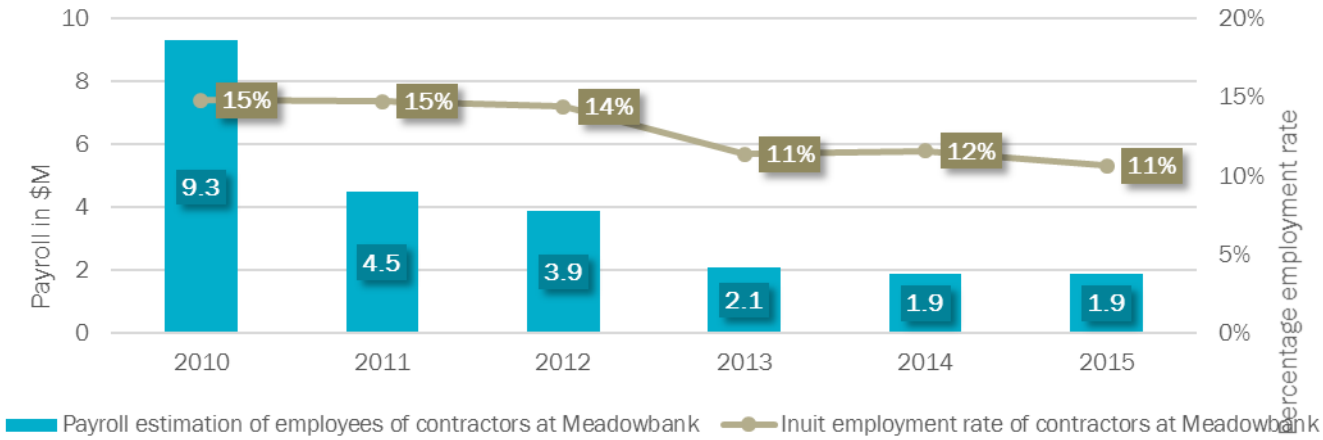


Figure 53. SEMP Chart 11 - Income paid to Meadowbank contractors and Inuit employment rate of Meadowbank contractors, 2010 – 2015 (source: Agnico Eagle).

Observed impacts as compared to FEIS predictions:

- Total income for Inuit employees had been relatively constant at $18 M per year since 2011. With 93% of Meadowbank's Inuit workforce residing in the Kivalliq region (52% in Baker Lake), income in 2015 continues to significantly exceed (by more than four times) the FEIS prediction of $4 million in direct project wages annually to Kivalliq residents.

12.6.1.5 Education and Training

Potential Impact (as in FEIS):

- Agnico and KIA will address the need for a broader based project education and training initiatives to assist those who wish to develop skills that will position them for project employment. This [sic] education and training initiative [sic] will also include an element to address motivational issues around getting children through high school. Such measures would be intended to contribute to encouraging a commitment to education on the part of youth.
- The potential impacts of education and training are considered of medium magnitude, positive, long term and of high significance, specifically to those individuals and their families who are able to benefit.
- Cumberland and KIA will address the need for broader based project education and training initiatives to assist those who wish to develop skills that will position them for project employment.
- Provide on the job training to improve skills towards improved job performance and promotion.

Monitoring Conducted: Secondary School Graduation Rate by Region, 1999-2015 (SEMP Chart 16); Specific Training Hours Provided to Inuit and non-Inuit Employees, 2012-2015 (SEMP Chart 18); Apprenticeships for Inuit Employees, 2010-2015 (SEMP Chart 20).

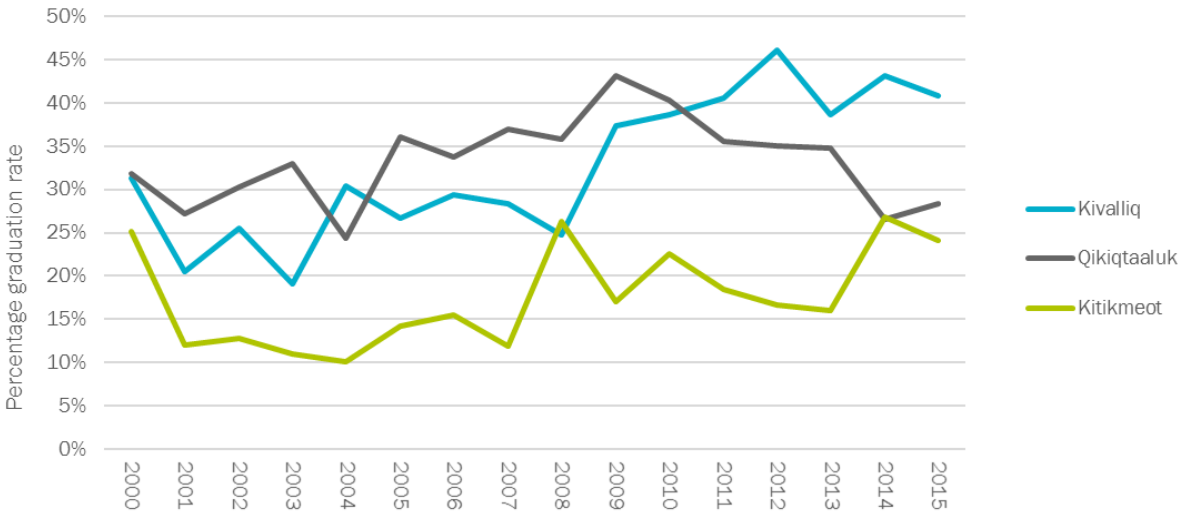


Figure 54. SEMP Chart 16 - Secondary School Graduation Rate by Region, 2000 – 2015 (source: (Government of Nunavut Department of Education, 2016).

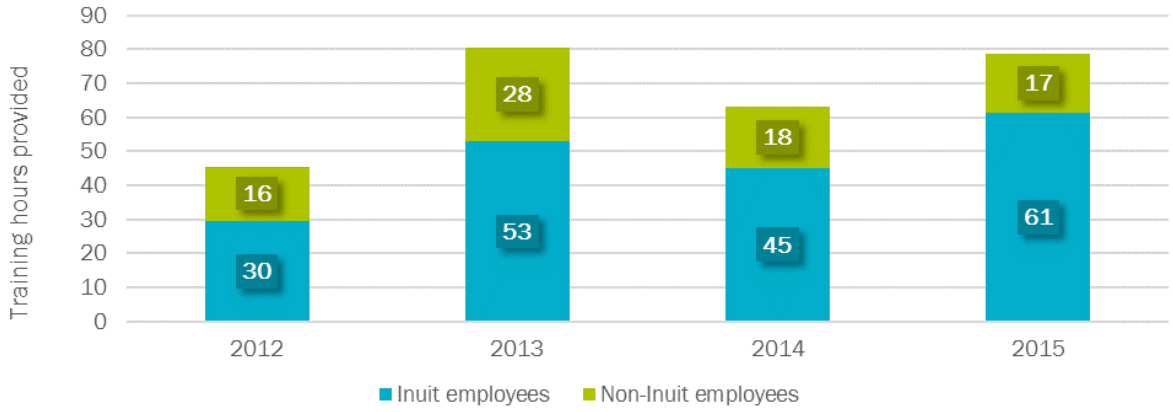


Figure 55. SEMP Chart 18 - Specific Training Hours Provided per Inuit and non-Inuit Employees, 2012 - 2015 (source: Agnico Eagle).

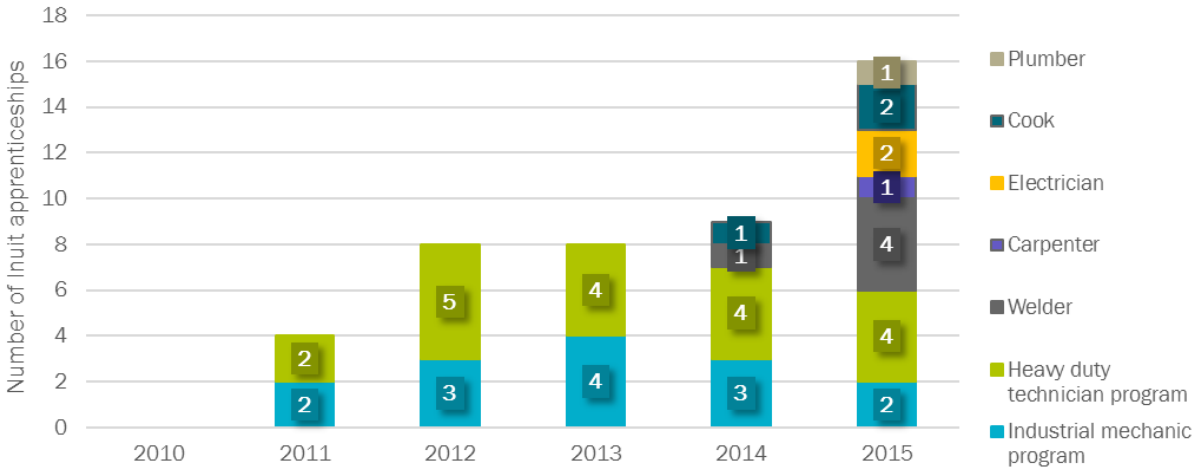


Figure 56. SEMP Chart 20 - Apprenticeships for Inuit Employees, 2010 – 2015 (source: Agnico Eagle).

Observed impacts as compared to FEIS predictions:

- The graduation rate in Kivalliq region has fluctuated since the opening of the Meadowbank mine with no significant trend since 2010. However, graduation rates in Kivalliq region have been at all-time highs for the region, and consistently higher than those in the other two regions, since 2010. A range of complex and interacting factors affect graduation rates, including the housing shortage, household food insecurity, health status, social problems such as high rates of teenage pregnancy and substance abuse, and the legacy of the residential school system. The Meadowbank mine may have an impact on some these factors, as described in subsequent sections, but attribution is a challenge due to the multiple and interacting factors.
- The scope of, and participation in, in-house training and apprenticeship programs has been relatively consistent throughout the mine's operation. Annual fluctuations in the number of specific training hours and haul truck driver program graduates largely reflect changing demand at Meadowbank for additional positions for which specific training is provided. It is noted that in

2015, specific training hours per employee returned to 2013 levels, after declining in 2014, and the number of hours per Inuit employee reached its highest level (61 hours) since 2012.

- The number of Inuit apprenticeships almost doubled in 2015. Agnico cites an increased number of potential apprentice trade areas, increased promotion of the program, and better management as factors for this success. Agnico is the largest employer of apprentices across Nunavut.
- In addition to current apprenticeships, 2015 saw the first two land claim beneficiaries graduate from Agnico Eagle's apprenticeship program, with one receiving a certificate as millwright and the other a welder.

12.6.1.6 Culture and Traditional Lifestyle

Predicted Impact (as in FEIS):

- The project will not significantly restrict access to or productivity of lands used for traditional activity.
- There is potential for both negative and positive impacts, of any magnitude, on traditional ways of life, which could be of high significance. Any net impact, since it would be an impact of cultural change, would be long term and continue beyond the life of the project. The impact would be experienced primarily in Baker Lake.

Monitoring Conducted: Percentage of Nunavut Inuit population 15 years of age and older partaking in traditional activities, 2006 and 2012 (SEMP Table 8).

Table 12.10. SEMP Table 8 - Percentage of Nunavut Inuit population 15 years of age and older partaking in traditional activities, 2006 and 2012 (sources: (Statistics Canada, 2011b; Wallace, 2014)).

Traditional Activity	2006	2012
Hunted in the past 12 months	72%	--
Fished in the past 12 months	76%	--
Gathered wild plants (berries, sweet grass, etc.) in the past 12 months	79%	--
Trapped in the past 12 months	30%	--
Hunted, fished, trapped or gathered in previous 12 months	--	81%

Observed impacts as compared to FEIS predictions:

- Environmental information pertaining to potential impacts of the mine on the productivity of lands used for traditional activities is not addressed in this report. This indicator only addresses the degree to which Inuit still engage in traditional activity.
- Since the 2012 data only includes a composite metric (hunted, fished, trapped, or gathered), no conclusions can be drawn regarding changes in individual activities (including any that relate to changes in lifestyle associated with employment at Meadowbank).
- Other observations made as part of the Wellness Report indicate a shift in caribou migration, and limited time or equipment results in less hunting.

12.6.1.7 Migration

Potential Impact (as in FEIS):

- It is not likely that migration to any other community than Baker Lake would be significant.

Monitoring Conducted: Annual Percentage Change in Population Estimates of Kivalliq Communities 2011 – 2015 (SEMP Table 9)

Table 12.11. SEMP Table 9 - Annual percentage change in population estimates of Kivalliq communities, 2011 - 2015 (source: (Nunavut Bureau of Statistics, 2016)).

Community	2011	2012	2013	2014	2015
Arviat	3%	3%	2%	2%	3%
Baker Lake	3%	2%	3%	1%	2%
Chesterfield Inlet	1%	1%	2%	1%	2%
Coral Harbour	5%	0%	1%	-1%	4%
Rankin Inlet	3%	1%	3%	1%	1%
Naujatt	8%	2%	4%	4%	3%
Whale Cove	2%	0%	2%	0%	2%

Observed impacts as compared to FEIS predictions:

- Population change results from the interaction of three variables: births, deaths, and migration. If other factors are assumed constant, the population data does not indicate any significant migration to Baker Lake (or other communities with high Meadowbank employment), which is a lower impact than the FEIS prediction.

12.6.1.8 Community Infrastructure and Services

Predicted Impact (as in FEIS):

- The impacts on social services and infrastructure, of low to medium magnitude, are considered largely positive in the medium term and of moderate significance. There is some potential for closure to have a negative impact on social service delivery.
- The potential public health and safety impacts of the project, of unknown magnitude, are negative, and, because there is such high impact at the individual level in the event that a risk is realized, the effects must be considered long term and of high significance.
- Increased employment and business opportunities will result in increased income, a measure of economic security, capacity building that will contribute to employability over the long term, and improved self-image of employees and their families. This could result in reducing dependence on government social services.

Monitoring Conducted: Estimates of use of GN infrastructure directly related to Meadowbank, 2015 (described below), Kivalliq Community Health Centre Visits Per Capita, 2006-2014 (SEMP Chart 32); Number of Meadowbank employees referred to their community health centre for personal or work-related reasons, 2010 – 2015 (SEMP Chart 33); Social assistance expenditures by Kivalliq community , 2006 – 2014 (SEMP Chart 34); Department of Family Services average monthly social assistance case load by Kivalliq community, 2001 – 2015 (SEMP Chart 35)

Estimates of use of GN infrastructure directly related to Meadowbank are as follows:

- Use of Baker Lake Airport to access commercial flights: Between 75 and 100 times per year (passenger trips)
- Use of other Nunavut airports to access commercial flights: Between 2000 and 3000 times per year (passenger trips)
- Use of Baker Lake Community Centre: Between 5 and 10 times per year

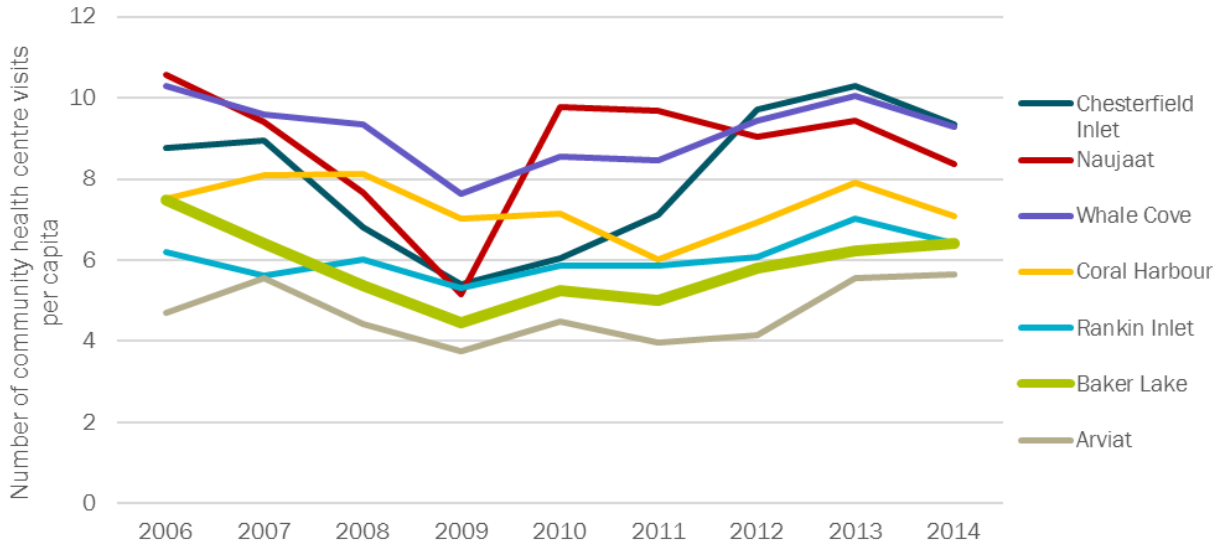


Figure 57. SEMP Chart 32 - Kivalliq community health centre visits per capita, 2006 – 2014 (source: (Government of Nunavut Department of Health, 2016)).

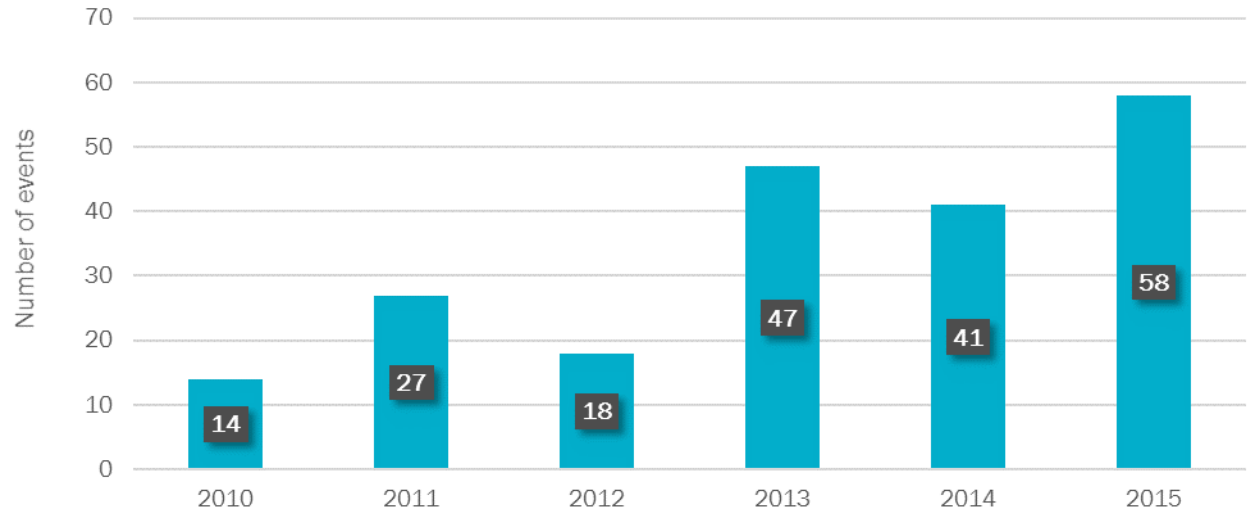


Figure 58. SEMP Chart 33 - Number of Meadowbank employees referred to their community health care centre for personal or work-related reasons, 2010 – 2015 (source: Agnico Eagle).

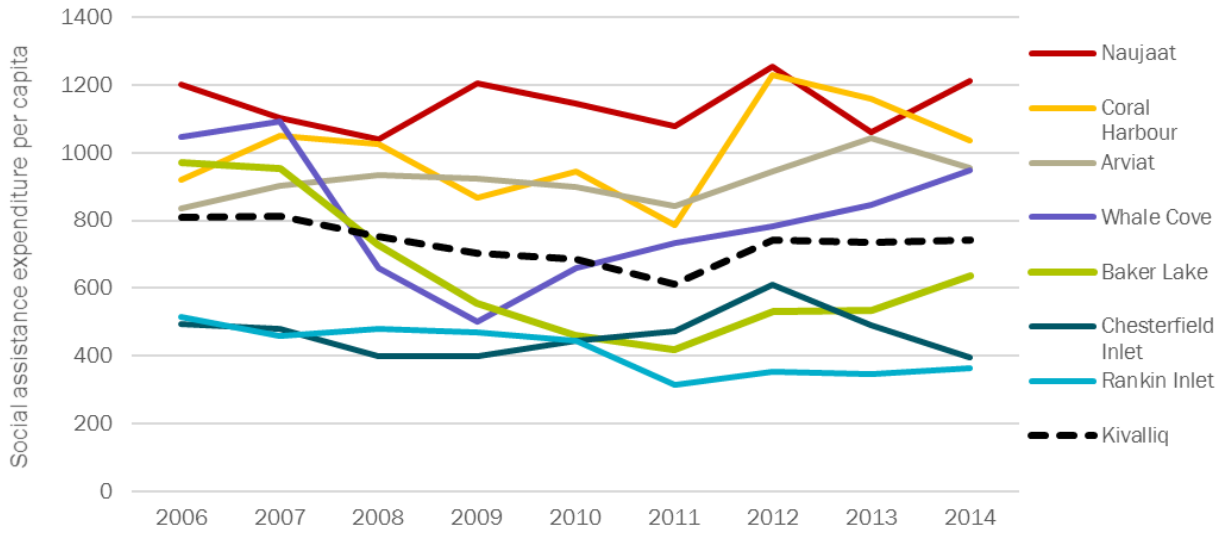


Figure 59. SEMP Chart 34 - Per capita social assistance expenditures by Kivalliq community, 2006 to 2014 (source: (Government of Nunavut Department of Family Services)

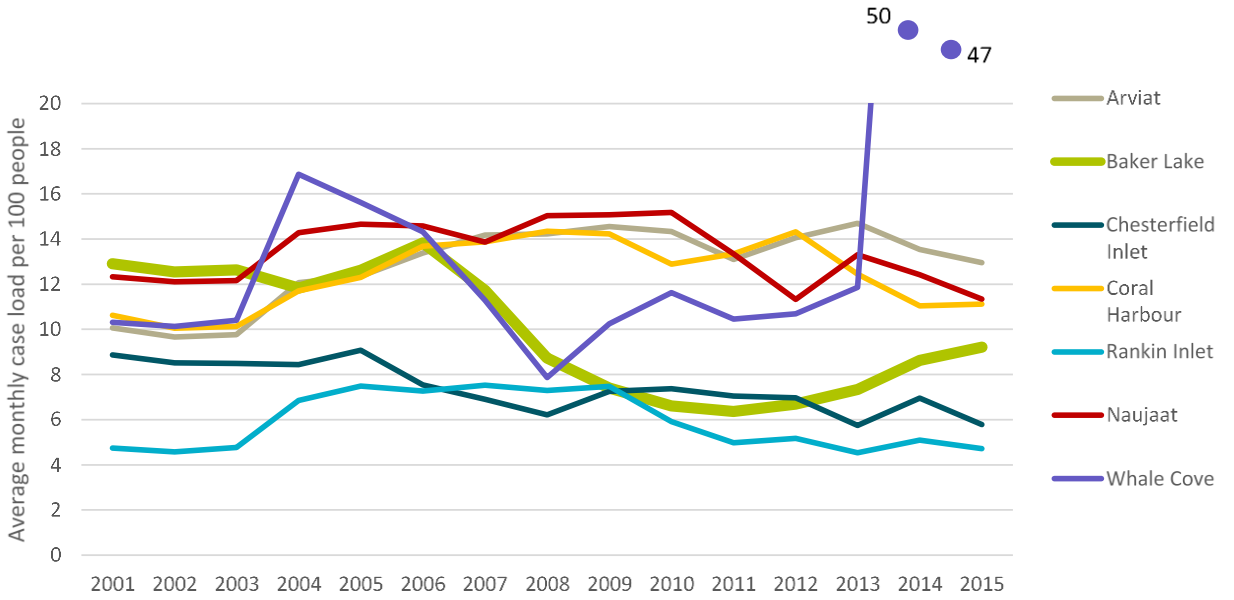


Figure 60. SEMP Chart 35 - Department of Family Services average monthly social assistance case load by Kivalliq community (per 100 people), 2001 – 2015 (sources: Department of Family Services, 2016).

Observed impacts as compared to FEIS predictions:

- The use of public physical infrastructure by Meadowbank and its employees consists primarily of the use of airports and has been relatively consistent since operation began in 2010. There are no indications of significant positive or negative impacts on this infrastructure.
- Overall, per capita health centre visits in communities with the most Meadowbank employees (Baker Lake, Rankin Inlet, and Arviat) have not increased significantly since Meadowbank began operating. Data for future years will indicate whether recent increases in Baker Lake represent a trend. However, rates in Chesterfield Inlet rose sharply, almost doubling between 2010 and 2013. Additional information on the reasons for health centre visits and client demographics may shed more light on the reasons for changes observed in each community, including the noteworthy increase in Chesterfield Inlet and potential linkages to the Meadowbank mine and/or other factors.
- Since the mine began production, between 14 and 58 employees are referred to community health care centres per year. The number of referrals have been highest in recent years (2013-2015). Referrals for work-related reasons may represent increased demand on GN health services. However, it is difficult to draw a relationship between movement of this metric and use of GN Health Services.
- While not definitive, the caseload and expenditure data suggest a positive effect of Meadowbank related employment on social assistance requirements in Baker Lake and Rankin Inlet. Effects in Arviat are less clear.

12.6.1.9 Individual and Community Wellness

Predicted Impact (as in FEIS):

- Potential impacts on individual and community wellness are complex, far reaching, and given human nature, difficult to predict with certainty. Individual and community wellness is intimately associated with potential impacts on traditional ways of life as discussed above. In addition, however, individual decisions on the use of increased income, household management in relation to rotational employment, migration, public health and safety, disturbance particularly during the construction phase, and Cumberland's support for community initiatives are being negotiated in the IIBA are [sic] the other drivers that have the potential to effect individual and community wellness.

Metrics: Since no specific quantitative impact predictions were made regarding individual and community wellness, the following metrics were used to assess the impact of the project on this VSEC.

- Counselling programs and usage at Meadowbank
- Criminal violations
- Suicide

Monitoring Conducted: Number of employees/families accessing counselling programs, 2011 – 2015 (SEMP Table 12); Criminal violations per Hundred People, by Kivalliq Community, 2006-2013 (SEMP Chart 27); Inuit Suicide Rates by Region per Ten Thousand People, 2000 – 2015 (SEMP Chart 29).

Table 12.12. SEMP Table 12 - Number of employees/families accessing family counselling programs, 2011 – 2015 (source: Agnico Eagle).

Family Counselling Program	2011	2012	2013	2014	2015
Family Employee Assistance Program	2	2	3	6	6
Elder Visitation Program	N/A*	12	12	8	4
Work Readiness Program	N/A	N/A	N/A	N/A	155
Making it Work Program	N/A*	N/A	N/A	24	64

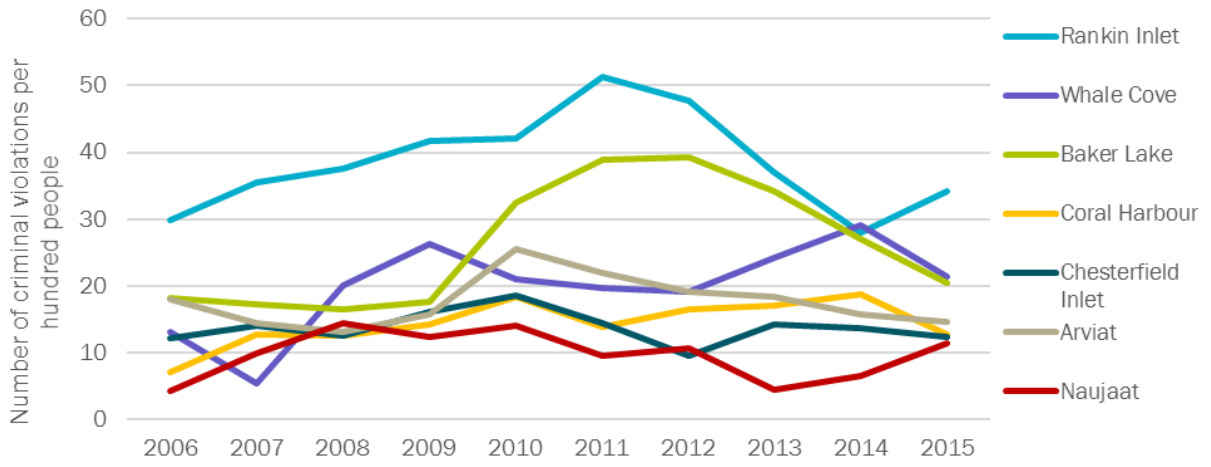


Figure 61. SEMP Chart 27 - Criminal violations per hundred people, by Kivalliq community, 2006 – 2015 (sources: (Statistics Canada, 2016; Nunavut Bureau of Statistics, 2016)).

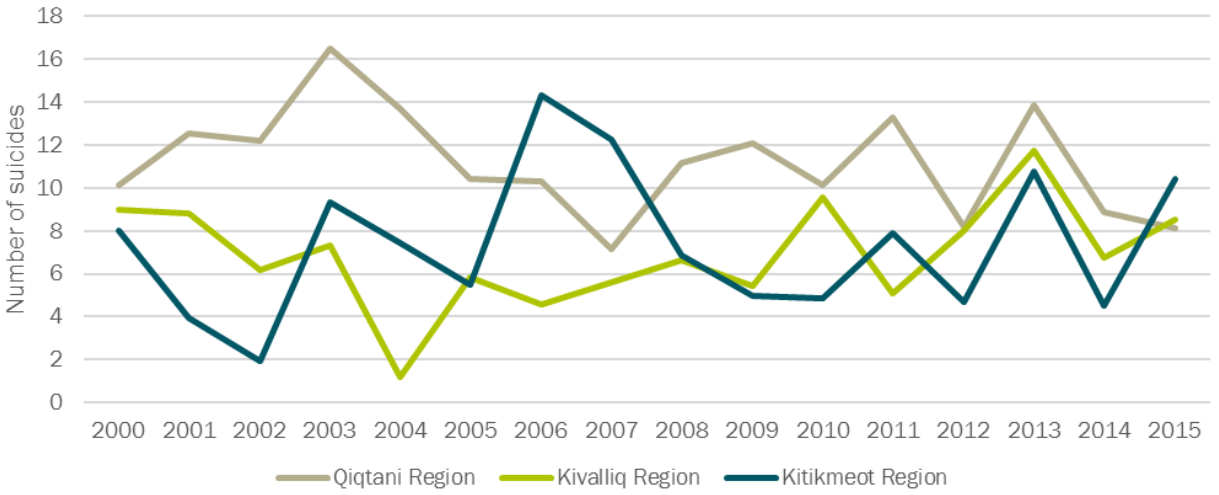


Figure 62. SEMP Chart 29 - Inuit suicides by per 10,000 people by community, 2000 – 2015 (source: (Nunavut Bureau of Statistics, 2016)).

Observed impacts as compared to FEIS predictions:

- Where data can be and are collected, all counselling programs have seen some usage by their intended audience. The Elder Visitation Program was less used in 2015 (falling from 8 to 4 visits), whereas participation in the Making it Work program more than doubled (from 24 to 64 participants). Use of the Family Employee Assistance Program was the same as in 2014. Over the long term, it may be possible to identify a correlation between usage of counselling programs and positive changes in other indicators (e.g. decrease criminal violations, decrease in turnover).
- Baker Lake, Rankin Inlet, and Arviat all experienced significant increases in total criminal violation rates since the Meadowbank mine began production. Additional expendable income can lead to alcohol and drug abuse and intensify existing social problems such as violence; a high percentage of police call-outs are believed to be related to alcohol (Buell, 2006).In Baker Lake, rates of harassment and threats, mischief, disturbing the peace, and theft more than doubled or tripled in the early years following the beginning of mine production (2010 – 2012). The rates of more serious crimes, including assault and sexual assault, also increased significantly (by 65% - 95%) during this same period. With the exception of assault, impaired driving, and drug violations, there was a decrease in all types of violations in Baker Lake in 2013, consistent with the decrease in the rate of total criminal violations. In 2015, there was a continuing downward trend in most criminal offences.
- The suicide rate in Nunavut is at crisis levels, with suicide rates that range from 5 to 25 times the rate of suicide in Canada (NTI, 2016). Underlying risk factors are numerous and long-standing and range from the effects of historical trauma and its symptoms to the high rates of child sexual abuse, alcohol and drug use, poverty, high school dropout rates, and the cultural losses brought about by residential schools and forced relocations. Due to the persistent and territory-wide nature of this crisis, it is difficult to assess the impacts of the mine on suicide rates in Kivalliq communities (Eggerston, 2015). Furthermore, given the small populations of Kivalliq communities and the highly variable numbers of suicides observed in each community, trends are difficult to discern. For example, the number of suicides in the Kivalliq region each year from 2010 to 2015 were: 8, 5, 8, 12, 7, and 9. These numbers alone do not point to a particular trend since the mine began production.
- The Wellness Report outlined other impact from the mine including:
    - Planning and management of personal and family finances continues to be a challenge; many people reportedly live “one paycheque behind”, and do not budget for food, housing or household expenses (e.g. clothing, furniture)
    - Many people are generous with their money, sharing with a wide network of family and friends
    - It was reported that a number of people have increased their spending on alcohol and drugs now that their large purchases (e.g. ATVs, trucks) have already been made
    - Poor financial management contributes to high usage of expensive credit and debt (e.g. very high-cost personal loans, on-line paycheque lending services, and the “We” card at the Northern store)
    - Jobs and income contribute to an increased hierarchical structure in the community, weakening community bonds;
    - Increased disposable income increases access to alcohol and drugs;
    - The work schedule and work stress impact individual and family mental health;

- Employees can struggle to adapt to work stress and schedule, leading to impact on their families
- Some Employees feel conflicted between keeping a job and dealing with family issues and responsibilities (e.g. parenting, caring for sick family members)
- Relationship issues driven by actual or suspected extra-marital affairs, and a resulting lack of trust; increase in sexually transmitted infections (STIs)

12.6.2 Effectiveness of Monitoring

Since most FEIS predictions of impacts of the Meadowbank project on valued socio-economic components are not quantitative or specific, it is difficult to make conclusions regarding the effectiveness of the monitoring programs at assessing these predictions. However, through the implementation of the Socio-economic Monitoring Program, and Baker Lake Wellness Report, Agnico Eagle believes they are able to effectively assess the overall impacts of the project on the VSECs.

Several other potential impacts were not able to be assessed due to lack of available current data (e.g. potential increased shortage of housing – only 2010 data is available), but will continue to be reviewed and discussed in the SEMR.

For future reports, Agnico Eagle looks forward to working with the SEMC to improve data (in both government and Agnico Eagle data sets) and to refine indicator selection and analysis to more clearly identify potential links between socio-economic impacts and Agnico Eagle activities and/or other factors.

12.6.3 Recommendations for Additional Mitigation or Adaptive Management

No specific additional mitigation or adaptive management actions are recommended. Agnico Eagle will continue to implement, support and improve the existing management and mitigation activities described in the SEMR. Agnico Eagle is also working together with the community of Baker Lake to improve community wellness through the Baker Lake Wellness Report and Implementation Plan, as well as working closely with the Kivalliq Inuit Association in the implementation of the Meadowbank IIBA. This report, along with the Baker Lake Wellness Report and Implementation Plan and IIBA Implementation Report, informs Agnico Eagle's efforts in fulfilling best practices in social responsibility, and acting as a resource for communities and other stakeholders, as indicated in the purpose section of this report.

12.6.4 Contributions to Regional Monitoring

Since the Socio-economic Monitoring Report and Baker Lake Wellness Report provide a summary of various regional socio-economic indicators as well as data specific to the Meadowbank project, the results of these studies are a valuable contribution to regional monitoring.