Meliadine Gold Project
NWB Water Licence 2AM-MEL1631
2017 Annual Report

Prepared for:
Nunavut Water Board, Kivalliq Inuit Association

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March 31, 2018

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SECTION 1 • INTRODUCTION

Type A water license 2AM-MEL1631 (the License) was issued to Agnico-Eagle Mines Limited for Meliadine Gold Project (the Project) on April 1, 2016.
As required under Part B Item 2 and Schedule B of the License, this report documents the water management and monitoring activities at Agnico Eagle Meliadine for 2017.
In 2017, the Project was in advanced construction stage. The production at Meliadine is expected to commence in 2019.

SECTION 2 • CONSTRUCTION

For structures constructed to withhold Water or Waste:

a. **An overview of methods and frequency used to monitor deformations, Seepage and geothermal responses**
   and
b. **A comparison of measured versus predicted performance**
   and
c. **A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk**

Monitoring of the structures, constructed to withhold Water[1] or Waste[2] consists of periodic visual inspections and review of the instrumentation data.

Visual inspections are undertaken by both Agnico Eagle employees and third party consultants. In 2017 Agnico Eagle's construction department personnel conducted periodic visual inspections of water retaining structures, frequency of those inspections increased before and during freshet.
In addition to the inspections, undertaken by Agnico Eagle staff, at least once a year a third party consultant conducts a comprehensive annual geotechnical inspection at Meliadine. In 2017 the annual geotechnical inspection was completed by Golder Associates; the complete report on the results of this inspection is provided in the Appendix I.

Instrumentation includes thermistors to monitor permafrost, settlement survey monuments to monitor displacements and flow meters to monitor and measure seepage.

[1] Existing in 2017 structures constructed to withhold water include water collection ponds CP-1 and CP-5 and associated dikes DCP-1 and DCP-5, Saline Pond, diversion channel 2, diversion channel 5 and associated berm 3.

[2] Structures, constructed to withhold waste include Type A (operation) and Type B (exploration) landfarms, Type A and Type B landfills

a) Thermistors

Permafrost monitoring is based on the data collected from thermistors. Approximately 20 thermistors are in working condition and are being used to collect the data. Two types of thermistors are present on site:

- Thermistors to monitor the base of permafrost and geothermal gradient - cables, placed in deep (100 m – 600 m) vertical boreholes.
- Thermistors to monitor the active layer of permafrost – cables, placed in shallow vertical (<25 m) or horizontal boreholes.

Frequency of data collection depends on the thermistor priority; Agnico designated three levels of priority, from highest to lowest:

1) thermistors located in close proximity to the mine infrastructure: most frequent readings;
2) thermistors in the vicinity of the future Tiriganiaq open pit: less frequent readings;
3) Other thermistors, used to monitor deep permafrost: least frequent readings since the temperature at high depth is not susceptible to seasonal fluctuations.

Data from the thermistors was used to generate temperature profiles, provided in Appendix C to the 2017 Annual Geotechnical Report.

b) Settlement survey monuments

Settlement survey monument, as the name implies, assist with detection of settlements; a total of 9 survey monuments were installed over the liner crest in the central area of the dikes DCP-1 (6 monuments) and DCP-5 (3 monuments).

The survey monitoring monuments indicated 1 to 2 cm of settlement at DCP-1 from late July to late October 2017. Readings prior to this period were completed with a GPS which was not accurate enough for monitoring settlement.

The survey monitoring monument data indicated approximately 3 cm of settlement at M-3 on DCP-5 from late July to late October 2017. The other two survey monitoring points showed less than 1 cm of settlement. The geotechnical inspection concluded that both dikes appeared stable with no significant geotechnical concerns.

d. As-built drawings of all mitigation works undertaken

In 2017 all structures, constructed to withhold water or waste, performed as expected.

The analysis of the HGTC-1 thermistor data, installed at D-CP1 dike, revealed the temperature anomaly, possibly caused by water infiltration. To intercept any surface water flowing down the north abutment towards the downstream key trench, and direct it away from the dike into the sump, the DCP-1 diversion ditch was excavated and connected to DCP-1 channel. The work on the ditch took place between October 6 and October 20; the as-built drawing of the ditch is provided in the Appendix A.

The April 8, 2017 diesel fuel spill resulted in large volume of contaminated snow; to mitigate the spill and to contain the contaminated snow for subsequent treatment, a so-called "snow cell" was built within P-Area.

The snow cell is a bermed rectangular containment, lined with impermeable liner sandwiched between two layers of geotextile. The snow cell was built entirely within P Area, therefore its construction did not increase the disturbed area. Design drawing of the snow cell is provided in Appendix B. In September 2017, contaminated melted water from the snow cell was treated using AquaSweep™ oil separator; treated water was discharged into CP1. The snow cell is a temporary structure, which is currently not actively being used and is planned to be decommissioned in 2018.

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

Water from the containment pond CP1 was planned to be released into the environment through a pipeline leading to a diffusor at the deep portion of Meliadine Lake. Pre-discharge sample, taken in early August 2017, indicated TDS in CP1 at 1,600 mg/L, exceeding the license limit of 1,400 mg/L, therefore Agnico decided not to discharge the water in 2017 and is exploring various water treatment/ discharge options for 2018.

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

Please refer to sections 2 a, b, & c for more information on instrumentation used and interpretation of the collected data.

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

In 2017, only minor settlement of dikes, dams and berms was observed, which did not warrant the maintenance work.

h. The daily, monthly and annual flow volumes of any watercourse diverted during Construction activities

No watercourses were diverted during construction activities in 2017.

i. The daily, monthly and annual quantities of Seepage from dikes, dams and other structures in cubic metres

Four containment pond dikes (DP1-A, DP1-B, DP2-A, and DP3-A) were constructed in the spring of 2016. Daily inspections were conducted and seepage occurrences or indication of seepage were visually observed along the dikes, downstream at DP1-B and DP3-A.

To capture seepage and to provide a more accurate seepage rate, in the fall of 2016 two trenches were excavated downstream of DP1-B and DP3-A.

The quantity of seepage is estimated from the flowmeter data; water, collected from trenches downstream from DP1 and DP3 dikes is metered and pumped back into P-Area ponds, as discussed in the section 2 a). The monthly and annual quantities of seepage are provided in the following Table 2-1:

Table 2-1 Volumes of seepage, pumped from the trenches downstream from DP1 and DP3

	January	February	March	April	May	June	July	August	September	October	November	December	**2017 Total**
Pumped from DP1, m³	-	-	-	-	-	385	5,255	16,490	22,011	10,482	-	-	**54,623**
Pumped from DP3, m³	-	-	-	-	-	521	8,927	32,606	28,800	8,882	-	-	**79,736**
Total DP1 and DP3, m³	-	-	-	-	-	906	14,182	49,096	50,811	19,364	-	-	**134,359**

No seepage from other dams or other structures, constructed to withhold water, was observed in 2017.

SECTION 3 • WATER

2. Monthly and annual volume of fresh Water obtained from Meliadine Lake.

The new fresh water treatment plant was commissioned in March of 2017. The summary of freshwater withdrawals from Meliadine Lake is provided in the following Table 3-1:

Table 3-1: Volume of Fresh Water, withdrawn from Meliadine Lake in 2017

	January	February	March	April	May	June	July	August	September	October	November	December	**2017 Total**
Water withdrawn, m³	-	-	288	676	1,001	1,229	1,781	2,216	2,008	1,975	2,132	1,557	**14,863**

A total of 14,863 m³ of freshwater was withdrawn from Meliadine Lake in 2017, or approximately 24% of the maximum allowed (62,000 m³) under the License.

3. Monthly and annual volume of fresh Water transferred to Meliadine Lake as a result of dewatering activities.

No dewatering activities took place in 2017.

4. Monthly and annual volume of fresh Water obtained from Meliadine River for road dust suppression activities.

In 2017, no water was obtained from the Meliadine River for road dust suppression activities; instead, water was withdrawn from small ponds, proximal to the All-Weather Access Road (AWAR).

5. Summary of reporting results for the Water Balance and Water Quality model as required in Part E Items 11-12.

The Water Balance and Water Quality models can be found in the Water Management Plan, updated in March 2018, and provided in Appendix K to this report.

SECTION 4 • WASTE

6. Geochemical monitoring results including:

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

Geochemical sampling program at Meliadine is comprised of two parts: surface and underground.

Surface rock geochemical sampling

Surface rock was sourced from surface quarries for construction of roads, pads, dikes and other structures. All rock tested was identified as NPAG (with the exception of one sample – G26) and non-metal leaching; the only sample that indicated some potential for acid generation (G26) had been collected from the existing community stockpile, adjacent to the Itivia Quarry. The sample is PAG, however because of substantial amount of NP in the sample it will take a long time for ARD to develop (likely decades in Nunavut) and possibly not at all as sulphur will also deplete to levels that may not pose a concern. More samples, collected from the same location, showed no potential for acid generation. Material from this stockpile was not used and will not be used in the future by Agnico.

Underground rock (waste rock) geochemical sampling

Starting in 2017, underground geochemical sampling is conducted according to Meliadine ARD-ML testing protocol. A total of 12 representative samples are collected quarterly from different geological units (3 from the sedimentary, 8 from volcanic and 1 from iron rock formations). To date, all underground samples were NPAG.

Results of geochemical analyses and geochemical monitoring can be found in Appendix C. In 2017, samples were collected from the Saline Pond overburden (Appendix C1), Emulsion Esker (Appendix C2), Meliadine Esker – East extension (Appendix C3), Itivia Quarry (before and during exploitation), Site D borrow pit, Rankin Fuel Farm Quarry (Appendix C4), and underground waste rock (Appendix C5).

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

In 2017 a total of approximately 240,000 m³ of waste rock (ROM) was produced from the underground development. Some ROM material was crushed and sorted into 3 fractions: 0-30 mm, 0 – 50 mm and 0 – 200 mm. Approximately 200,000 m³ of ROM and crushed material was used for the construction of site infrastructure (roads, pads, berms, dikes etc.).

Around 10,000 m³ of unused ROM and 30,000 m³ of crushed material were stockpiled on site as of December 31, 2017 for future construction.

No waste rock was placed into the waste rock storage facilities to date.
Based on analysis conducted during the Final Environmental Impact Statement process and samples collected in 2017, 100% of the waste rock is NPAG.

c. All monitoring data with respect to geochemical analyses on site and related to roads and quarries

Please refer to the Chapter 4, section 6.a. for the discussion on surface geochemical sampling.

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

No leaching was observed on pit slope in 2017 as the open pit development did not yet commence. No leaching was observed on dike exposure in 2017.

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

In 2017 Agnico conducted geochemical testing on waste rock material from underground development and surface material from approved quarries and eskers. Representative samples of this material were analyzed for ARD and metal leaching at the certified third-party laboratory (SGS). No observations/ results indicated adverse geochemical impact on the environment.

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

There were no tailings, cyanide leach residue or bleed from the cyanide destruction process produced on site in 2017.

g. Results related to the Borrow pits/ Quarries and roads, including the All-weather Access Road.

Please refer to the Chapter 4, sections 6 a., b. and c. and Appendix C for more information.

7. An update on the current capacity of the Tailings Storage Facility.

The Tailings Storage Facility has not been built yet.

8. Summary of quantities and analysis of Seepage and runoff monitoring from the Landfill, Landfarm, Waste Rock Storage Facilities, Borrow pits and Quarries.

Landfill and Landfarm were commissioned in November 2017. No seepage was observed from either due to frozen conditions.

The Waste Rock Storage Facility infrastructures approved under water license 2AM-MEL1631 has not been built yet.
No seepage was observed around operating quarries and borrow pits located on site and along the AWAR as per regular inspections completed by the Environment Department.

9. A summary report of all general waste disposal activities including monthly and annual quantities in cubic metres of waste generated and locations of disposal.

All waste, produced at Meliadine, falls into 4 major categories:
1) Hazardous waste;
2) General (dry, non-hazardous) waste;
3) Food waste;
4) Contaminated soil.

Hazardous waste, such as waste coolant, used oil filters, waste grease, used batteries, sewage sludge etc. is segregated according to material type, stored in sea containers, and shipped south during the sealift season. All hazardous waste on site was shipped by Nunavut Sealink and Supply Inc., to Qikiqtaaluq Environmental Services facility in Quebec, via Port of Bécancour.
In 2017 a total of 148.3 tons of hazardous waste was shipped south in 14 sea containers; documentation for the transfer of hazardous waste can be found in Appendix D.

General waste, such as glass, concrete, non-reusable wood and ash was landfilled on-site and off-site. Type A landfill was commissioned in November 2017; volume of the landfilled waste is being estimated through periodic surveys. An estimated 5,767 m^3 of waste was placed into Type A and Type B landfills as of the end of 2017. A total of 435.3 tonnes of inert construction debris was shipped to the Port of Bécancour; after reaching the port, this waste was taken to an approved landfill for disposal.

Food waste, including food packaging, was incinerated to avoid landfilling the material, and attracting the wildlife. Produced ash was landfilled.

Contaminated soil was placed into the landfarm for treatment. Type A landfram was commissioned in November 2017; an estimated 692 m^3 of contaminated soil was placed there in 2017.

In 2017 a total of 305.4 t of material was shipped south for recycling, including 285 t of scrap steel, 12.4 t of electric cable and 8 t of used tires.

10. **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.**

    The incinerator approved under Water License 2AM-MEL1631 has been commissioned at the end of November 2017; the incinerator test will be undertaken in 2018.

SECTION 5 • SPILLS

11. A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.

In 2017, a total of 14 reportable spills took place at Meliadine, including 6 spills of petroleum hydrocarbons, and 8 spills of non-compliant effluent, originating from the explo camp sewage treatment plant. The table, summarizing all spills, which took place at Meliadine in 2017, is provided in Appendix E.

Several spills, including: all exploration STP effluent exceedances, April 8, 2017 exploration fuel farm diesel fuel release, July 25, 2017 HYSTER roll-over, and December 3, 2017 exploration camp genset diesel fuel release, are reported in the Water License 2BB-1424 2017 Annual report. The rest of the spills are reported in the following section:

I) On May 15, 2017, while drilling near the Lake A8, a leak from the hose on the fuel pump led to the spill of approximately 50 L of diesel fuel (spill report line ID number 2017169). Once the spill was noticed, the area was cleaned up (snow/ice removal) and reported to the Environment department. Containment booms were placed in the water at the shore of Lake A8 to contain any residual fuel to the localized area by the spill site. Since the spill occurrence, weekly inspections at the spill site were completed by the Environment Department in order to secure the booms and to ensure that the localized impacted area is contained until the affected area was considered remediated through visual observations of surface sheen. Samples of the water outside the containment boom ("A8 Lake") and within the contained area ("A8 Shore") were collected. It should be noted that drilling was undertaken by the third party (Orbit Garant Drilling Inc.), contracted by Agnico Eagle.

II) On September 22, 2017, when off-loading totes of oil from a trailer, the fork lift operator was setting two totes together, had his forks set too high and hit the plastic portion of the tote and the forks punctured the tote. The tote was immediately flipped on its back, stopping the spill of the product; a total of approximately 150 L of engine oil was spilled (spill report line ID number 2017359). Spill pads were deployed to absorb the oil; the absorbent pads were disposed of in the Hazmat waste area at the Meliadine site. The contaminated soil was excavated and taken to the exploration landfarm.

III) On October 17, 2017, an excavator was operating downstream of D-CP1 to complete snow removal. A hydraulic hose on the excavator broke, releasing 180 L of hydraulic oil onto the ground. The operator responded quickly by building a berm to contain the spill. The hydraulic oil was cleaned up by absorbent pads and by excavating approximately 5 m^3 of snow/contaminated material. This was placed in containment

at site. Verification samples were collected to confirm if the clean-up is complete. No water body was impacted by the spill.

SECTION 6 • MODIFICATIONS

12. A summary of modifications and/or major maintenance work carried out on all Water and waste related structures and facilities.

No modifications and/or major maintenance work was carried out on water and waste related structures and facilities related to Water License 2AM-MEL1631 in 2017.

SECTION 7 • MONITORING

13. The results and interpretation of the Monitoring Program in accordance with Part D and Part I and Schedule I.

Part D, item 12

No dewatering activities were undertaken in 2017, therefore no sampling at the sampling stations MEL-D-1 through MEL-D-TBD took place.

Part D, item 18

A total of 9 monitoring stations for surface runoff has been designated (MEL-SR1 to MEL-SR9) and sampled between May 12 and October 7, 2017. The summary of the sampling data is provided in the Appendix F.

The sampling criteria, included in Part D, item 18 of the Licence, refers to the qualitative criterion for oil and grease: "no visible sheen". The environmental technicians were instructed to visually assess the presence of oil and grease; in addition, samples were analyzed for oil and grease to confirm the visual assessment. No exceedances of oil and grease were observed/ detected.

The exceedances of TSS were detected on several occasions, which can be attributed to the fine particles/sediment being stirred up during freshet.

ii. As per Part I Item 9:

a. The volume of fresh Water obtained from Meliadine Lake at Monitoring Program Station MEL-01;

All water from Meliadine Lake under the License A was taken at MEL-01 (MEL-11) monitoring station. The summary of the water withdrawals is provided in the following table 7-3.

Table 7-3. The volume of fresh water obtained from Meliadine Lake at MEL-01

	January	February	March	April	May	June	July	August	September	October	November	December	**2017 Total**
Water withdrawn, m³	-	-	288	676	1,001	1,229	1,781	2,216	2,008	1,975	2,132	1,557	**14,863**

b. The volume of fresh Water transferred to the Meliadine Lake during lakes' dewatering activities;

No dewatering activities took place at Meliadine Project in 2017. No lakes' dewatering is expected in the nearest future.

c. The volume of fresh Water obtained along the road and Meliadine River for dust suppression activities;

In 2017, no water was obtained from the Meliadine River for road dust suppression activities; instead, water was withdrawn from small ponds, proximal to the All-Weather Access Road (AWAR). The summary of water withdrawals is presented in the following

Table 7-.

Table 7-4 Monthly and annual water withdrawals for dust suppression

	January	February	March	April	May	June	July	August	September	October	November	December	**2017 Total**
Water withdrawn, m³	-	-	-	-	-	-	-	17	-	-	-	-	**17**

d. The volume of Effluent discharged from Final Discharge Point at Monitoring Program Station MEL-14;

In 2017 no effluent was discharged from Final Discharge Point at Monitoring Program Station MEL-14 (new monitoring station name as per Board's approval), the discharge from this station was postponed until 2018.

e. The volume of reclaim Water obtained from the CP1;

No reclaim water was obtained from the CP1 in 2017.

f. The volume of Effluent discharged onto tundra at Monitoring Program Station MEL-25 or transferred to CP1 from the Itivia Site Fuel Storage and Containment Facility

No effluent was discharged onto tundra at Monitoring Program Station MEL-25 (new monitoring station name as per Board's approval) or transferred to CP1 from the Itivia Site Fuel Storage and Containment Facility.

g. The volume of Effluent and Fresh Water transferred to the pits during pits' flooding

Not applicable as no pits have been developed yet.

h. The volume of Sewage sludge removed from the Sewage Treatment Plant and the locations or methods of Sewage sludge disposal

The Sewage Treatment Plant under Water License 2AM-MEL1631 has been commissioned in the spring of 2017. Total of 43 m³ of sludge was removed from the STP and placed in approximately 250 drums of 205 L each (not filled to the top), for subsequent shipment south.

i. Quantity of waste placed within the Landfill and Landfarm

Both the landfill and landfarm were commissioned in the fall of 2017. The volume of the waste placed in both structures is assessed through periodic surveys. No survey of the new landfill was undertaken yet because of winter conditions. As of December 31, 2017, approximately 800 m³ of contaminated soil was placed in the Type A Landfarm.

j. Tonnes of ore stockpiled and ore processed through the mill

A total of 48,080 tonnes of ore is currently on site. No ore was processed through the mill, which is expected to be commissioned in 2019.

k. Tonnes of waste rocks placed within the Waste Rock Storage Facilities

No waste rock was placed in the waste rock storage facility in 2017. Rock from underground development was used in construction; as of December 31, 2017 around 10,000 m³ of unused ROM and 30,000 m³ of crushed material were stockpiled on site for future construction, as discussed in the Section 4, item 6 b.

l. The daily tonnes of dry combined tailings placed within the Tailings Storage Facility

The Tailings Storage Facility was not yet built in 2017.

14. The results of monitoring related to the Environmental Management and Protection including:

a. Aquatic Effects Monitoring Program;

Please refer to Appendix J for the 2017 Report of the Aquatics Effects Monitoring Program.

b. Metal Mining Effluent Regulation (MMER) Monitoring;

In August 2017 Agnico Eagle submitted to Environment and Climate Change Canada (ECCC) the Cycle 1 Study Design, related to H17 dewatering, as per MMER-EEM regulations.

c. Mine site Water quality monitoring, including groundwater monitoring; and

In 2017, water quality samples were collected on a regular basis, according to the sampling calendar from the following stations: MEL-SR-1 to MEL-SR9, Channel 5, Culvert 2, Culvert 3, DCP1 Downstream, DCP5 Downstream and MEL-17.

The tabular summary of the sampling results is provided in Appendix F.

d. Visual AWAR Water quality monitoring.

In 2017 the environment department visually inspected the All-Weather Access Road (AWAR) during weekly inspections. Water course crossings were inspected for oil and sediment plumes, signs of contamination and erosion. No issues were identified.

SECTION 8 • CLOSURE

15. **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.**

    Construction was underway at Meliadine in 2017, no progressive closure or reclamation work was undertaken during the year.

16. **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.**

    The Tailings Storage Facility and the Waste Rock Storage Facilities have not been built yet, therefore no field trials were conducted in 2017.

17. **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.**

    A permanent closure and reclamation financial security cost estimate was prepared in March 2014 using the RECLAIM model, version 7.0. According to that estimate, the closure and reclamation of all Project facilities amounted to 47,449,337$. This estimate was included in the Preliminary Closure and Reclamation Plan (April 2015) prepared as part of the Type A Water License application. In negotiations between INAC, Agnico and KIA the quantum of security was increased to $49,555,000.

    On July 1, 2017, the Production Lease KVPL11D01 between KIA and Agnico Eagle came into effect; the security was confirmed at $49,555,000. Agnico Eagle posted a Reclamation Security Deposit, equal to 50% of this estimate ($24,777,500) with KIA.

SECTION 9 • PLANS/REPORTS/STUDIES

18. 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, related to Water use, Waste disposal or Reclamation were requested by the Board.

In 2017 Agnico Eagle retained the National Research Council Canada (NRC) to undertake the contaminated soil assessment in the landfarm. NRC performed a feasibility study to determine the potential for biodegradation of the diesel contamination by indigenous microorganisms, present in the soil. The study developed recommendations for bioremediation to address soil contamination with petroleum hydrocarbons. Full text of the study is provided in Appendix G to Type B Water License 2BB-MEL1424 2017 annual report.

Agnico Eagle in partnership with the University of Saskatchewan is planning a tundra revegetation/restoration study, scheduled to commence in the summer of 2018. Both past mineral exploration drilling and proposed operations have and will impact the tundra environment at Meladine; with over 3000 drilling sites in the regional area and further drilling and mine site development expected, there is a strong need for site-specific tundra restoration techniques. Seeding and fertilization is commonly used in many revegetation efforts. However, the ecological and economic feasibility of this approach in northern tundra environments is limited due to the lack of commercial seed stocks for northern native tundra vegetation and isolated site locations. To establish natural successional trajectories and promote key ecosystem processes, the study will develop restoration techniques reliant only on materials available on-site.

19. Where applicable, revisions as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.

The following Type A Management Plans were updated and are included in Appendix K:

1. Borrow Pits and Quarries Management Plan
2. Environmental Management and Protection Plan
3. Explosives Management Plan
4. Freshet Action Plan (included in the Water Management Plan)
5. Groundwater Management Plan

6. Hazardous Materials Management Plan
7. Incineration Management Plan
8. Landfarm Management Plan
9. Landfill Management Plan
10. Mine Waste Management Plan
11. QA/QC Plan
12. Road Management Plan
13. Spill Contingency Plan
14. Water Management Plan

Listed management plans were also submitted to the NIRB as part of the 2017 Annual Report. Changes are indicated in the first section of each management plan.

20. An executive summary in English and Inuktitut of all updated plans, reports, or studies conducted under this Licence.

The executive summaries for all updated Management Plans, listed in the Section 9, Item 19, have been translated to Inuktitut, as requested.

SECTION 10 • GENERAL

21. A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.

A list of inspections/site visits/audits completed by regulators at Meliadine in 2017 is presented in the Table 10-1 below.

Table 10-1. Inspections and site visits by regulators in 2017

Month	Authority	Topic	Feedback/Outcome
March 23	INAC, KIA	Expo STP inspection and sampling – follow up on reported exceedance	Detailed in the item 1)
April 10	INAC, KIA	Follow-up on April 8 fuel spill	Detailed in the item 2)
May 8	INAC	Follow-up on April 8 fuel spill, previous April 10 INAC inspection	No deficiencies
May 18	INAC	Q1 Type A license inspection, Type B License inspection, visit of the diesel fuel spill site, drill sites inspection	No deficiencies
Juy 6	KIA	Water sampling	No deficiencies
July 26	INAC	Type A license inspection of the STP, DCP-1 downstream area	Detailed in the item 4)
August 2-3	ECCC	MMER/EMM discharge points, hazardous material storage, emission standards and reporting, fuel storage at Itivia.	Detailed in the item 3)
August 22	NIRB	Site inspection of the mine site, AWAR, Itivia	No deficiencies
October 19	GN	Excessive presence of foxes on site	Detailed in the item 5)
October 18-20	INAC	STP, DCP-1, DCP-5 performance, snow management, etc.	Detailed in the item 6)
November 17	INAC	Written Warning in response to repeated exceedances of effluent limits at the Explo STP	Detailed in the item 7)

1) INAC March 23, 2017 inspection & Written Warning, dated April 13, 2017

Following the March 23 inspection and sampling, INAC inspector on April 13 issued a Written Warning for the exceedances of effluent quality limits (ammonia). Agnico conducted an internal investigation, contracted the 3rd party water treatment consultant and developed the action plan to improve the effluent quality. The written response was provided to INAC on May 25, 2017.

2) INAC April 10, 2017 Inspection and Water License Inspection Form

Following April 8, 2017 diesel fuel spill, INAC inspector visited the site and inspected the spill location, took pictures and water samples. Following the April 10, 2017 visit, INAC inspector issued the inspection form, requesting additional information regarding, clean-up and mitigation actions. Detailed response was provided on May 5, 2017.

3) ECCC August 2-3, 2017 inspection

The inspector identified a buried portion of the fuel pipe and verbally recommended to excavate/ uncover it and to create a secondary containment. Corrective actions are planned for spring 2018.

4) INAC inspection form issued on October 31, 2017

The Inspector requested Agnico to submit the findings of the investigation into the elevated TDS in CP-1 to the NWB and the Inspector – the memo is being finalized.

5) GN regional manager/ conservation officer site visit on October 19, 2017

GN personnel recommended to raise awareness among the contractors on site towards obligations related to wildlife provided additional training for the environmental department personnel on managing the problem wildlife. Those recommendations have been addressed by Agnico by holding additional toolbox meetings and training for the environment department personnel. Additionally, the GN personnel recommended that all environment technicians be properly trained on use of a firearm. Subsequently, all environment technicians will be following a Firearms course and will complete periodic firing practice in 2018.

6) INAC Inspector visit on October 18-20, 2017

The Inspector communicated the request for more rigorous monitoring program at the exploration STP, decommissioning of the snow cell within P-area, implementation of the Freshet Action Plan for 2018. Agnico put in place additional sampling at the STP, have not been actively using the snow cell with the intention of removing it in 2018 and have updated the Freshet Action Plan for the upcoming freshet.

7) INAC Written Warning, dated November 17, 2017

In response to the repeated exceedances of the effluent limits from the exploration STP, Agnico suspended the discharge of effluent into the environment and treated all the effluent at the main camp STP, and immediately commenced an extensive clean-up, maintenance and upgrade of the plant. As of time of writing of this report (March 2018), quality of the treated effluent has substantially improved and complied with the effluent limits, as confirmed by weekly sampling; treated effluent was discharged into the CP1.

SECTION 11 • OTHER

22. 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.

The 2017 consultation log is provided in the Appendix G.

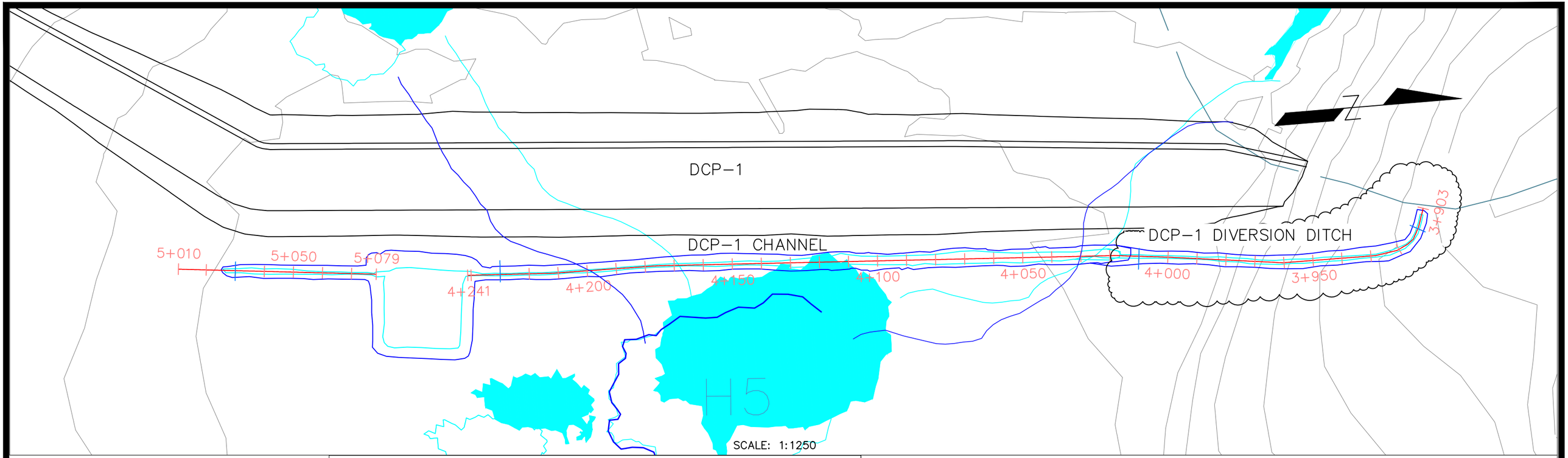
The schedule of consultations, which took place in 2018, prior to the completion of this report, and upcoming events and information sessions, is provided in the table Appendix H.

23. Any other details on Water use or Waste disposal requested by the Board by November 1st of the year being reported.

No other details were requested by the Board by November 1, 2017.

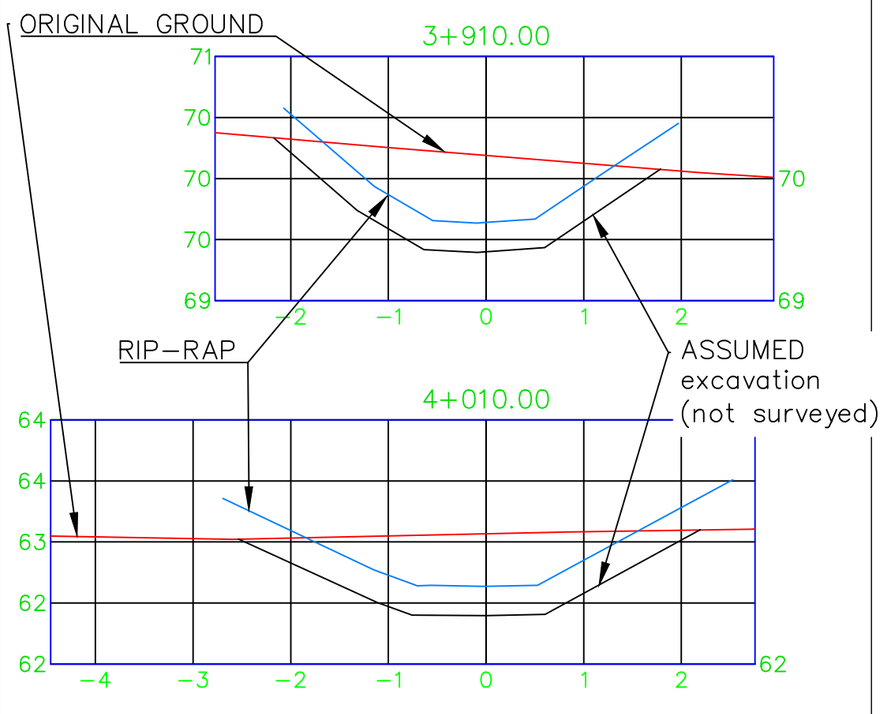
Appendix A

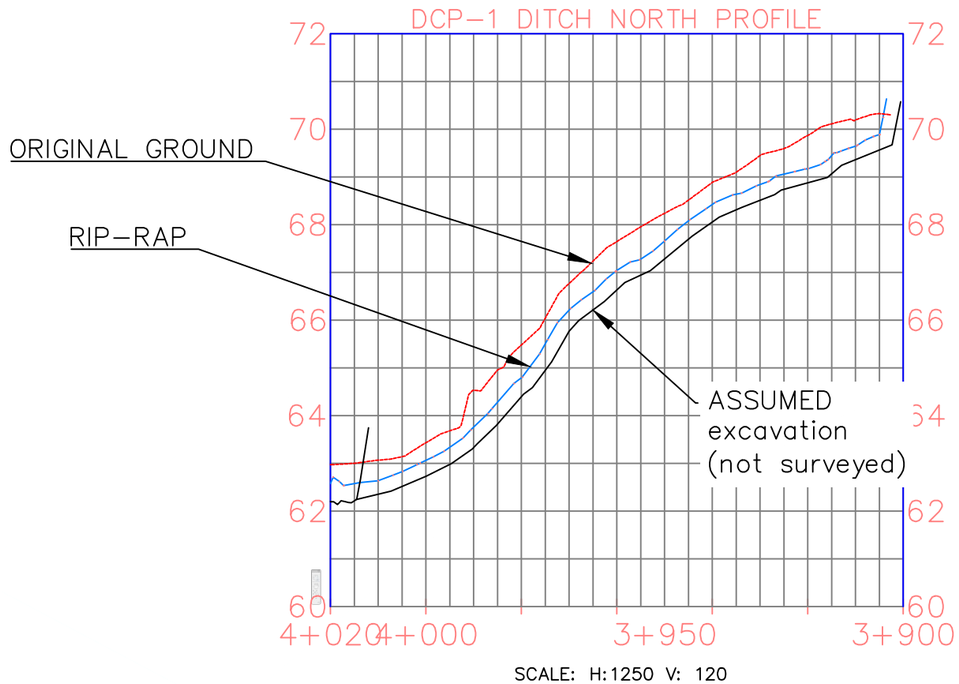
As-built Report for DCP-1 Diversion Ditch



VOLUMES

GEOTEXTILE	626 M^2	(APPROX)
EXCAVATION	344 M^3	(APPROX.)
RIP–RAP	188 M^3	(APPROX.)





SCALE: H:1250 V: 120

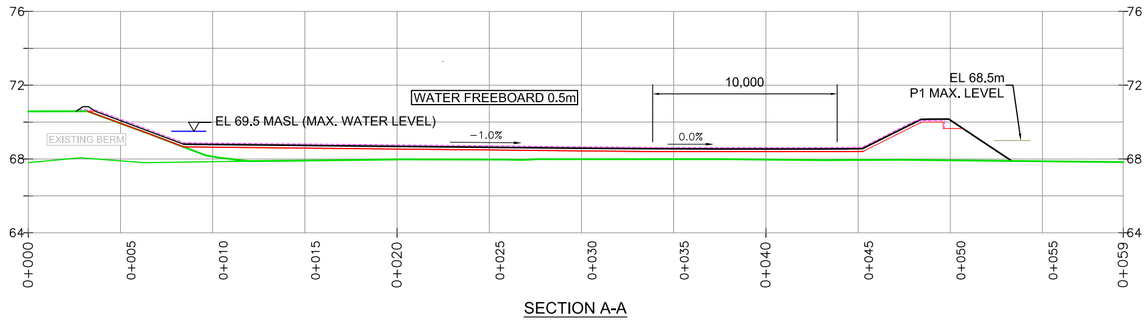
HA HAMELARPENTAGE	Système de Coord.: NAD83–UTM15 Echelle: 1:1250	No plan: 65–685–142–200–R0–ABD	AS BUILT DCP–1 DITCH	AGNICO EAGLE	Date des travaux : 2017–10–22 Date d'envoi : 2017–10–26	Dessine par: R.CLOUATRE Approuve par: C. Hamel

Appendix B

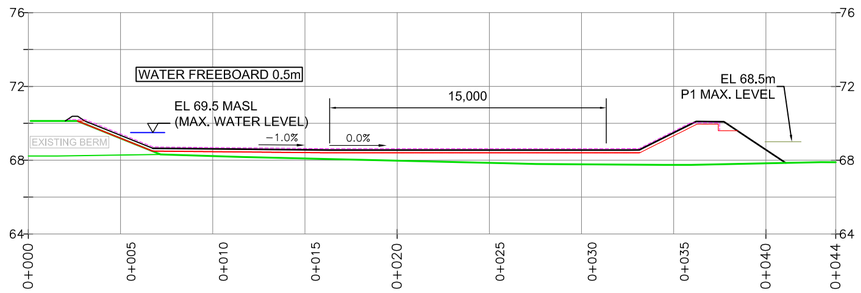
As-built Report for the Snow Cell

NO. DESSIN
DRAWING NO.

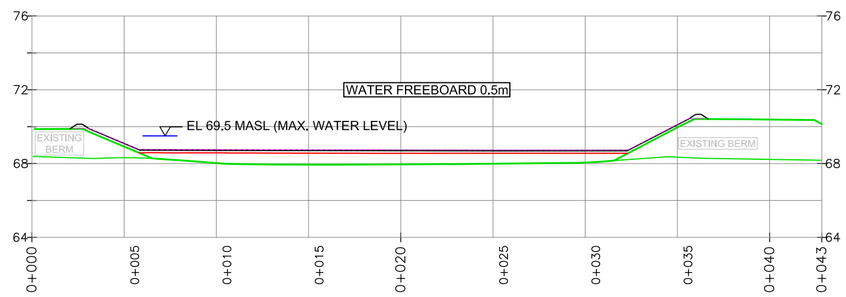
FORMAT ANSI C



SECTION A-A

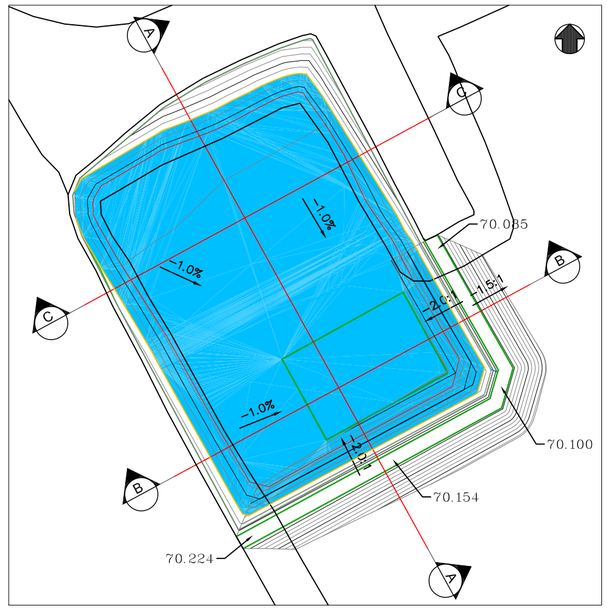


SECTION B-B



SECTION C-C

LEGEND:
- ORIGINAL GROUND
- FINE FILL
- LINERS

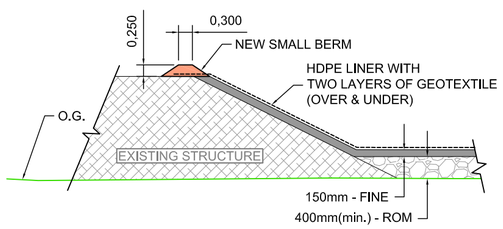


TOP VIEW (N.T.S.)

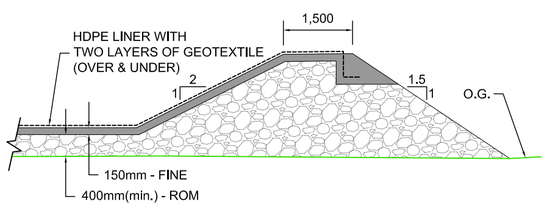
NOTES FOR CONSTRUCTION

1) This cell is for temporary storage of contaminated snow during summer 2017. Depending on its performance and condition, it could be used for other usages beyond summer 2017. If so, the liner need to be weighted to prevent liner lift up.
2) Placement of snow will have to be done carefully to avoid damage to the liner.
3) Water level in the snow containment cell should be maintained 0.5 m below the minimum liner elevation.
4) The maximum elevation of P1 pond should be ajusted to prevent water inflow in the snow all and should not exceed the elevation 68.5 MASL.
5) Geotextile : TEXEL 160E (or equivalent) placed with an overlap of 0.3m between each width. Needlepunched nonwoven short staple fibers geotextile; polypropylene made
6) Liner : HDPE 1.5mm, TYPE SOLMAX 460 (or equivalent) placed with proper overlap to allow welding to take place. The installer is to provide detailed QC information describing the placement and welding.

REGISTERED PROFESSIONAL ENGINEER
M. JULIEN
LICENSEE
NWT/NU

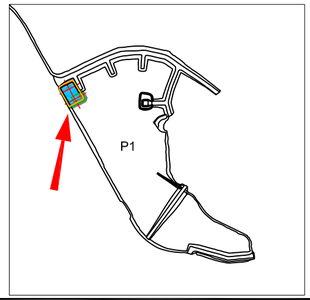


DETAIL #1 - INFRASTRUCTURE WITH EXISTING BERM



DETAIL #2 - NEW BERM & INFRASTRUCTURE DETAILS

PLAN CLÉ
KEY PLAN



NOTES GÉNÉRALES / GENERAL NOTES

POUR APPROBATION
FOR APPROVAL
AGNICO EAGLE
DATE : 2017-05-24

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DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
–	–
–	–
–	–
–	–

AGNICO EAGLE
MELIADINE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
2	2017-05-24	ISSUED FOR APPROBATION	J.C.	T.L.	M.R.J.
1	2017-05-10	ISSUED FOR APPROBATION	J.C.	T.L.	M.R.J.

REVISIONS

TITRE / TITLE
AGNICO-EAGLE – MELIADINE DIVISION
695 – WATER MANAGEMENT
230 – EARTH WORK
PLAN , SECTION & DETAILS
SNOW CONTAINMENT

DESSINÉ PAR DRAWN BY	JOCELYN CRETE	DATE 2017-05-04
VERIFIÉ PAR CHECKED BY	THOMAS LEPINE	2017-05-08
APPROUVÉ PAR APPROVED BY	MICHEL JULIEN	2017-05-08
ÉCHELLE SCALE	N/A	DATE 2017-05-04

NO. DESSIN
DRAWING NO.
65-695-230-001

NO. PROJET PROJECT NO.	REVISION	FEUILLE / SHT
65	2	1 / 1

AE-CART-ANSI C

I:\Regional\Groupe\Meliadine\020 Operation support\Snow Containment\65-695-230-001_R2(SnowCont)(C3D).dwg 24 Mai 2017

I:\Regional\Groupe\Meliadine\020 Operation support\Snow Containment\65-695-230-001_R2(SnowCont)(C3D).dwg-2017-05-24 08:05:38

FILE NO. .DWG

Appendix C1

Geochemical Monitoring Results – Saline Pond overburden

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

ABA - Modified Sobek

Project : PO# 598591

14-September-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 23 August 2017
LR Report: **CA15638-AUG17**
Reference: AEM-Meliadine Gold Project

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: "001"	6: "002"	7: "003"
Sample Date & Time			27-Jul-17	27-Jul-17	27-Jul-17
Paste pH	07-Sep-17	15:12	7.98	8.10	7.94
Fizz Rate [---]	07-Sep-17	15:12	3	3	3
Sample weight [g]	07-Sep-17	15:12	2.00	1.99	2.00
HCl Added [mL]	07-Sep-17	15:12	20.00	22.00	20.00
HCl [Normality]	07-Sep-17	15:12	0.10	0.10	0.10
NaOH [Normality]	07-Sep-17	15:12	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	07-Sep-17	15:12	11.03	9.22	11.92
Final pH	07-Sep-17	15:12	1.43	1.77	1.42
NP [t CaCO3/1000 t]	07-Sep-17	15:12	22	32	20
AP [t CaCO3/1000 t]	---	---	1.56	2.19	2.19
Net NP [t CaCO3/1000 t]	---	---	20.8	29.9	18.0
NP/AP [ratio]	---	---	14.3	14.7	9.23
Sulphur (total) [%]	07-Sep-17	15:19	0.071	0.096	0.093
Acid Leachable SO4-S [%]	---	---	0.02	0.03	0.02
Sulphide [%]	01-Sep-17	16:09	0.05	0.07	0.07
Carbon (total) [%]	07-Sep-17	15:19	0.629	0.660	0.564
Carbonate [%]	01-Sep-17	16:07	0.565	1.18	0.470

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001133878

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : PO# 598591

07-September-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 23 August 2017
LR Report: **CA15639-AUG17**
Reference: AEM-Meliadine Gold Project

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: "001"	6: "002"	7: "003"
Sample Date & Time			27-Jul-17	27-Jul-17	27-Jul-17
Silver [µg/g]	06-Sep-17	10:38	0.20	0.18	0.18
Aluminum [µg/g]	06-Sep-17	16:13	67000	68000	69000
Arsenic [µg/g]	06-Sep-17	10:38	43	43	45
Barium [µg/g]	06-Sep-17	10:38	640	640	680
Beryllium [µg/g]	06-Sep-17	10:38	1.3	1.3	1.3
Bismuth [µg/g]	06-Sep-17	10:38	0.20	0.17	0.19
Calcium [µg/g]	06-Sep-17	16:13	18000	20000	16000
Cadmium [µg/g]	06-Sep-17	10:38	0.92	0.91	0.94
Cobalt [µg/g]	06-Sep-17	10:38	12	14	14
Chromium [µg/g]	06-Sep-17	10:38	53	66	54
Copper [µg/g]	06-Sep-17	10:38	32	34	30
Iron [µg/g]	06-Sep-17	16:13	28000	29000	29000
Potassium [µg/g]	06-Sep-17	16:13	19000	20000	21000
Lithium [µg/g]	06-Sep-17	10:38	20	22	24
Magnesium [µg/g]	06-Sep-17	16:13	9700	10000	10000
Manganese [µg/g]	06-Sep-17	10:38	330	380	350
Molybdenum [µg/g]	06-Sep-17	10:38	2.7	2.4	2.7
Sodium [µg/g]	06-Sep-17	16:13	24000	22000	23000
Nickel [µg/g]	06-Sep-17	10:38	39	39	39
Phosphorus [µg/g]	06-Sep-17	16:13	570	520	570
Lead [µg/g]	06-Sep-17	10:38	16	16	16
Antimony [µg/g]	06-Sep-17	10:38	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	06-Sep-17	10:38	< 0.7	< 0.7	< 0.7
Tin [µg/g]	06-Sep-17	10:38	< 6	< 6	< 6
Strontium [µg/g]	06-Sep-17	10:38	340	320	310
Titanium [µg/g]	06-Sep-17	10:38	1800	1700	1900
Thallium [µg/g]	06-Sep-17	10:38	0.44	0.43	0.47
Uranium [µg/g]	06-Sep-17	10:38	1.7	1.5	1.7
Vanadium [µg/g]	06-Sep-17	10:38	75	70	75

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0001125191

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : PO# 598591

LR Report : **CA15639-AUG17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: "001"	6: "002"	7: "003"
Yttrium [µg/g]	06-Sep-17	10:38	9.2	8.6	9.1
Zinc [µg/g]	06-Sep-17	10:38	54	51	56

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

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P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : PO# 598591

30-August-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 23 August 2017
LR Report: **CA15640-AUG17**
Reference: AEM-Meliadine Gold Project

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	5: "001"	6: "002"	7: "003"
Sample Date & Time	27-Jul-17	27-Jul-17	27-Jul-17
SiO2 [%]	68.2	67.7	67.7
Al2O3 [%]	13.7	13.7	14.1
Fe2O3 [%]	4.18	4.28	4.44
MgO [%]	1.72	1.79	1.82
CaO [%]	2.63	2.88	2.39
Na2O [%]	3.36	3.11	3.30
K2O [%]	2.10	2.18	2.25
TiO2 [%]	0.48	0.47	0.50
P2O5 [%]	0.14	0.13	0.14
MnO [%]	0.05	0.06	0.05
Cr2O3 [%]	0.02	0.02	0.02
V2O5 [%]	0.01	0.01	< 0.01
LOI [%]	3.30	3.47	3.21
Sum [%]	99.9	99.8	100.0

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001117233

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SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

Project : PO# 598591

14-September-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 23 August 2017
LR Report: **CA15641-AUG17**
Reference: AEM-Meliadine Gold Project

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: "001"	6: "002"	7: "003"	8: "003"
Sample Date & Time			27-Jul-17	27-Jul-17	27-Jul-17	
Sample weight [g]	31-Aug-17	13:09	250	250	250	250
Volume D.I. Water [mL]	31-Aug-17	13:09	750	750	750	750
Final pH	31-Aug-17	13:09	8.16	8.29	8.12	8.17
pH [no unit]	01-Sep-17	13:53	7.93	7.97	7.90	7.97
Conductivity [uS/cm]	01-Sep-17	13:53	1050	1020	1100	1070
Alkalinity [mg/L as CaCO3]	01-Sep-17	13:53	42	39	42	53
Sulphate [mg/L]	31-Aug-17	16:58	110	110	130	120
Mercury [mg/L]	14-Sep-17	07:44	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	05-Sep-17	13:03	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	05-Sep-17	13:03	0.090	0.086	0.054	0.062
Arsenic [mg/L]	05-Sep-17	13:03	0.0091	0.0122	0.0082	0.0087
Barium [mg/L]	05-Sep-17	13:03	0.0477	0.0425	0.0549	0.0545
Boron [mg/L]	05-Sep-17	13:03	0.037	0.040	0.035	0.036
Beryllium [mg/L]	05-Sep-17	13:03	0.000016	0.000016	0.000013	0.000015
Bismuth [mg/L]	05-Sep-17	13:03	0.000057	0.000032	0.000033	0.000013
Calcium [mg/L]	05-Sep-17	13:03	86.7	72.4	99.1	92.4
Cadmium [mg/L]	05-Sep-17	13:03	0.000011	0.000017	0.000020	0.000015
Cobalt [mg/L]	05-Sep-17	13:03	0.00143	0.00135	0.00168	0.00155
Chromium [mg/L]	05-Sep-17	13:03	0.00010	0.00009	0.00011	0.00009
Copper [mg/L]	05-Sep-17	13:03	0.00359	0.00251	0.00348	0.00404
Iron [mg/L]	05-Sep-17	13:03	0.013	0.010	0.012	0.011
Potassium [mg/L]	05-Sep-17	13:03	19.9	17.1	16.0	16.6
Lithium [mg/L]	05-Sep-17	13:03	0.0112	0.0103	0.0163	0.0163
Manganese [mg/L]	05-Sep-17	13:03	0.0964	0.0707	0.192	0.164
Magnesium [mg/L]	05-Sep-17	13:03	21.3	20.1	22.7	21.8
Molybdenum [mg/L]	05-Sep-17	13:03	0.00947	0.0112	0.0109	0.0108
Sodium [mg/L]	05-Sep-17	13:03	86.3	93.2	81.7	81.4
Nickel [mg/L]	05-Sep-17	13:03	0.0029	0.0027	0.0037	0.0036
Phosphorus [mg/L]	05-Sep-17	13:03	0.019	0.012	0.014	0.012

OnLine LIMS

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0001133875

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

Project : PO# 598591

LR Report : **CA15641-AUG17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: "001"	6: "002"	7: "003"	8: "003"
Lead [mg/L]	05-Sep-17	13:03	0.00005	0.00008	0.00005	0.00009
Antimony [mg/L]	05-Sep-17	13:03	0.0010	0.0012	0.0008	0.0007
Selenium [mg/L]	05-Sep-17	13:03	0.00017	0.00022	0.00019	0.00018
Silicon [mg/L]	05-Sep-17	13:03	2.65	3.10	3.13	3.29
Tin [mg/L]	05-Sep-17	13:03	0.00022	0.00016	0.00022	0.00027
Strontium [mg/L]	05-Sep-17	13:03	0.516	0.432	0.613	0.578
Titanium [mg/L]	05-Sep-17	13:03	0.00024	0.00025	0.00030	0.00024
Thallium [mg/L]	05-Sep-17	13:03	0.000027	0.000021	0.000022	0.000022
Uranium [mg/L]	05-Sep-17	13:03	0.00198	0.00201	0.00165	0.00185
Vanadium [mg/L]	05-Sep-17	13:03	0.00042	0.00051	0.00034	0.00036
Zinc [mg/L]	05-Sep-17	13:03	< 0.002	< 0.002	< 0.002	0.002
Zirconium [mg/L]	05-Sep-17	13:03	< 0.002	< 0.002	< 0.002	< 0.002

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001133875

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Appendix C2

Geochemical Monitoring Results – Emulsion Esker Quarry

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

25-October-2017

Date Rec. : 28 September 2017
LR Report: **CA12600-SEP17**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: 490-Explosive Plant-1	6: 490-Explosive Plant-2	7: 490-Explosive Plant-3	8: 490-Explosive Plant-4	9: 490-Explosive Plant-5	10: 490-Explosive Plant-6	11: 490-Explosive Plant-7	12: 490-Explosive Plant-8	13: 490-Explosive Plant-9	14: 490-Explosive Plant-10
Sample Date & Time			20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17
Paste pH	24-Oct-17	16:41	9.20	8.78	8.81	8.82	9.06	8.82	8.57	8.83	8.66	8.39
Fizz Rate [---]	24-Oct-17	16:41	1	1	1	2	2	2	2	2	1	1
Sample weight [g]	24-Oct-17	16:41	2.05	2.03	1.99	2.01	2.02	2.00	2.00	1.97	1.99	2.02
HCl Added [mL]	24-Oct-17	16:41	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
HCl [Normality]	24-Oct-17	16:41	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	24-Oct-17	16:41	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	24-Oct-17	16:41	14.38	14.26	14.77	13.43	13.50	11.78	14.85	14.52	15.23	16.42
Final pH	24-Oct-17	16:41	1.35	1.35	1.37	1.38	1.38	1.48	1.33	1.34	1.36	1.29
NP [t CaCO3/1000 t]	24-Oct-17	16:41	14	14	13	16	16	20	13	14	12	8.9
AP [t CaCO3/1000 t]	---	---	0.62	0.62	0.62	0.62	0.94	0.94	0.62	0.62	0.62	0.62
Net NP [t CaCO3/1000 t]	---	---	13.1	13.5	12.5	15.7	15.2	19.6	12.3	13.3	11.4	8.28
NP/AP [ratio]	---	---	22.1	22.7	21.1	26.3	17.2	21.9	20.8	22.4	19.4	14.4
Sulphur (total) [%]	12-Oct-17	09:35	0.037	0.020	0.034	0.024	0.044	0.056	0.027	0.021	0.019	0.023
Acid Leachable SO4-S [%]	---	---	0.037	0.02	0.034	0.024	< 0.02	0.03	0.027	0.021	< 0.02	0.023
Sulphide [%]	12-Oct-17	09:35	< 0.02	< 0.02	< 0.02	< 0.02	0.03	0.03	< 0.02	< 0.02	< 0.02	< 0.02
Carbon (total) [%]	12-Oct-17	11:35	0.157	0.140	0.124	0.163	0.249	0.344	0.185	0.152	0.130	0.306
Carbonate [%]	12-Oct-17	11:35	0.365	0.350	0.285	0.440	0.545	0.709	0.360	0.350	0.225	0.155

OnLine LIMS

00011777730

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SGS Canada Inc.
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Phone: 705-652-2000 FAX: 705-652-6365

ABA - Modified Sobek

LR Report : **CA12600-SEP17**

Analysis	15: 490-Explosive Plant-11	16: 490-Explosive Plant-12	17: 490-Explosive Plant-13	18: 490-Explosive Plant-14
Sample Date & Time	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17
Paste pH	8.93	8.64	9.77	8.96
Fizz Rate [---]	1	1	2	1
Sample weight [g]	2.02	2.01	1.99	2.02
HCl Added [mL]	20.00	20.00	49.50	20.00
HCl [Normality]	0.10	0.10	0.10	0.10
NaOH [Normality]	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	13.55	14.94	27.32	15.55
Final pH	1.44	1.24	1.71	1.26
NP [t CaCO3/1000 t]	16	13	56	11
AP [t CaCO3/1000 t]	0.62	0.62	2.19	0.62
Net NP [t CaCO3/1000 t]	15.4	12.0	53.5	10.4
NP/AP [ratio]	25.8	20.3	25.5	17.6
Sulphur (total) [%]	0.032	0.017	0.151	0.024
Acid Leachable SO4-S [%]	0.032	< 0.02	0.08	< 0.02
Sulphide [%]	< 0.02	< 0.02	0.07	0.02
Carbon (total) [%]	0.310	0.104	0.705	0.258
Carbonate [%]	0.520	0.210	2.18	0.295

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001177730

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13-October-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Date Rec. : 28 September 2017
LR Report: **CA12601-SEP17**

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: 490-Explosive Plant-1	6: 490-Explosive Plant-2	7: 490-Explosive Plant-3	8: 490-Explosive Plant-4	9: 490-Explosive Plant-5	10: 490-Explosive Plant-6	11: 490-Explosive Plant-7	12: 490-Explosive Plant-8
Sample Date & Time					20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17
Silver [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	0.05	0.06	0.03	0.05	0.04	0.05	0.06	0.03
Aluminum [µg/g]	12-Oct-17	12:49	12-Oct-17	13:40	77000	73000	74000	76000	76000	72000	73000	76000
Arsenic [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	9.4	18	23	13	18	18	20	19
Barium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	850	680	680	760	680	670	680	620
Beryllium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	1.2	1.2	1.3	1.4	1.2	1.5	1.3	1.3
Bismuth [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	0.12	0.23	0.16	0.17	0.14	0.20	0.18	0.29
Calcium [µg/g]	12-Oct-17	12:49	12-Oct-17	15:08	23000	24000	20000	21000	20000	22000	19000	20000
Cadmium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	0.08	0.04	0.08	0.04	0.05	0.05	0.05	0.04
Cobalt [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	12	20	18	17	11	13	14	14
Chromium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	76	92	93	85	80	85	97	83
Copper [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	21	50	43	42	22	26	39	34
Iron [µg/g]	12-Oct-17	12:49	12-Oct-17	13:40	32000	37000	33000	33000	30000	29000	33000	30000
Potassium [µg/g]	12-Oct-17	12:49	12-Oct-17	13:40	23000	22000	18000	21000	18000	19000	19000	18000
Lithium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	19	18	20	24	20	20	19	19
Magnesium [µg/g]	12-Oct-17	12:49	12-Oct-17	13:40	11000	16000	12000	13000	11000	11000	12000	11000
Manganese [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	470	750	720	560	420	440	540	600
Molybdenum [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	7.3	3.2	1.9	3.3	1.4	2.1	3.8	2.4
Sodium [µg/g]	12-Oct-17	12:49	12-Oct-17	13:40	29000	27000	26000	28000	28000	27000	25000	28000
Nickel [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	25	66	41	39	29	32	35	34
Phosphorus [µg/g]	12-Oct-17	12:49	12-Oct-17	13:40	500	520	590	620	590	730	570	550

OnLine LIMS

0001166010

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SGS Canada Inc.
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Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA12601-SEP17**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: 490-Explosive Plant-1	6: 490-Explosive Plant-2	7: 490-Explosive Plant-3	8: 490-Explosive Plant-4	9: 490-Explosive Plant-5	10: 490-Explosive Plant-6	11: 490-Explosive Plant-7	12: 490-Explosive Plant-8
Lead [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	14	13	13	15	13	19	15	14
Antimony [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	440	410	480	490	510	470	400	450
Titanium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	2500	2500	2700	2600	2300	2300	2300	2300
Thallium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	0.42	0.35	0.33	0.34	0.33	0.35	0.36	0.37
Uranium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	1.2	1.3	1.2	1.3	1.3	1.4	1.9	1.2
Vanadium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	65	79	73	71	72	68	78	68
Yttrium [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	8.8	11	11	10	9.4	10	11	9.5
Zinc [µg/g]	11-Oct-17	17:00	12-Oct-17	15:08	58	63	61	64	61	55	59	55

Analysis	13: 490-Explosive Plant-9	14: 490-Explosive Plant-10	15: 490-Explosive Plant-11	16: 490-Explosive Plant-12	17: 490-Explosive Plant-13	18: 490-Explosive Plant-14
Sample Date & Time	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17
Silver [µg/g]	0.03	0.04	0.05	0.04	0.06	0.04
Aluminum [µg/g]	75000	78000	71000	75000	78000	76000
Arsenic [µg/g]	17	21	22	18	23	23
Barium [µg/g]	660	700	650	690	480	670
Beryllium [µg/g]	1.4	1.3	1.4	1.3	1.1	1.3
Bismuth [µg/g]	0.19	0.17	0.50	0.16	0.15	0.17
Calcium [µg/g]	22000	17000	26000	23000	16000	16000
Cadmium [µg/g]	0.04	0.04	0.09	0.04	0.06	0.07
Cobalt [µg/g]	14	13	17	17	10	12
Chromium [µg/g]	87	92	120	78	140	100
Copper [µg/g]	30	22	23	31	40	22
Iron [µg/g]	34000	32000	37000	31000	34000	32000
Potassium [µg/g]	20000	21000	19000	18000	19000	20000
Lithium [µg/g]	20	25	21	18	22	21
Magnesium [µg/g]	12000	11000	16000	11000	14000	11000
Manganese [µg/g]	540	470	600	620	480	470
Molybdenum [µg/g]	1.7	2.0	2.5	2.8	6.3	1.8
Sodium [µg/g]	29000	29000	25000	28000	29000	27000
Nickel [µg/g]	32	29	41	33	57	34

OnLine LIMS

00011660l0

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LR Report : **CA12601-SEP17**

Analysis	13: 490-Explosive Plant-9	14: 490-Explosive Plant-10	15: 490-Explosive Plant-11	16: 490-Explosive Plant-12	17: 490-Explosive Plant-13	18: 490-Explosive Plant-14
Phosphorus [µg/g]	610	510	700	630	510	520
Lead [µg/g]	15	12	13	14	7.3	14
Antimony [µg/g]	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	< 6	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	420	410	440	460	410	390
Titanium [µg/g]	2600	2500	2800	2500	2200	2300
Thallium [µg/g]	0.41	0.41	0.37	0.29	0.46	0.37
Uranium [µg/g]	1.2	1.4	1.5	1.2	1.3	1.4
Vanadium [µg/g]	71	73	87	72	84	82
Yttrium [µg/g]	11	11	13	10	7.7	10
Zinc [µg/g]	58	62	69	56	68	61

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001166010

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11-October-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Date Rec. : 28 September 2017
LR Report: **CA12602-SEP17**

Baker Lake,
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Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

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CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	V2O5 %	LOI %	Sum %
5: 490-Explosive Plant-1	20-Sep-17	66.7	14.7	4.53	1.88	3.29	3.78	2.40	0.50	0.12	0.06	0.02	0.01	1.64	99.6
6: 490-Explosive Plant-2	20-Sep-17	65.6	14.2	5.42	2.76	3.51	3.53	2.26	0.46	0.13	0.11	0.03	0.02	1.76	99.8
7: 490-Explosive Plant-3	20-Sep-17	66.3	14.8	4.96	2.07	3.03	3.83	2.03	0.50	0.16	0.11	0.02	0.02	1.86	99.8
8: 490-Explosive Plant-4	20-Sep-17	65.9	15.1	4.94	2.20	3.03	3.81	2.25	0.48	0.16	0.08	0.02	0.02	1.93	99.8
9: 490-Explosive Plant-5	20-Sep-17	66.7	15.0	4.45	1.91	3.02	3.93	2.02	0.48	0.15	0.06	0.02	0.01	2.04	99.9
10: 490-Explosive Plant-6	20-Sep-17	68.1	14.0	4.35	1.95	3.27	3.74	2.02	0.46	0.18	0.06	0.03	0.01	2.12	100.3
11: 490-Explosive Plant-7	20-Sep-17	67.7	14.3	4.79	2.03	2.78	3.54	2.04	0.48	0.14	0.08	0.03	0.02	1.87	99.8
12: 490-Explosive Plant-8	20-Sep-17	67.3	14.7	4.51	1.85	2.93	3.89	1.99	0.44	0.14	0.09	0.02	0.01	1.76	99.7
13: 490-Explosive Plant-9	20-Sep-17	67.4	14.5	4.93	1.98	3.19	3.81	2.12	0.49	0.15	0.07	0.03	< 0.01	1.50	100.2
14: 490-Explosive Plant-10	20-Sep-17	67.0	14.8	4.55	1.87	2.43	3.86	2.21	0.47	0.12	0.08	0.02	0.02	2.07	99.5
15: 490-Explosive Plant-11	20-Sep-17	65.1	13.9	5.52	2.83	3.74	3.43	2.01	0.54	0.18	0.09	0.03	0.01	2.05	99.4
16: 490-Explosive Plant-12	20-Sep-17	66.8	14.7	4.69	1.94	3.33	3.86	2.01	0.44	0.16	0.08	0.02	0.02	1.47	99.6
17: 490-Explosive Plant-13	20-Sep-17	64.6	15.0	4.88	2.33	2.30	3.87	1.96	0.52	0.12	0.06	0.04	0.02	4.32	100.0
18: 490-Explosive Plant-14	20-Sep-17	67.5	14.7	4.69	1.94	2.24	3.64	2.11	0.50	0.13	0.06	0.02	0.01	2.26	99.8

OnLine LIMS

0001161846

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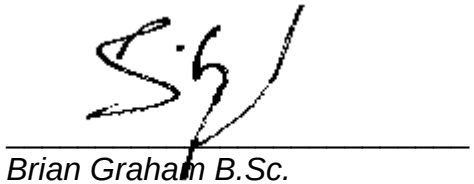
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA12602-SEP17**



Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001161846

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16-October-2017

Agnico Eagle Mines Limited
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Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 28 September 2017
LR Report: **CA12603-SEP17**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: 490-Explosive Plant-1	6: 490-Explosive Plant-2	7: 490-Explosive Plant-3	8: 490-Explosive Plant-4	9: 490-Explosive Plant-5	10: 490-Explosive Plant-6
Sample Date & Time					20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17
Sample weight [g]	05-Oct-17	07:56	10-Oct-17	09:49	250	250	250	250	250	250
Volume D.I. Water [mL]	05-Oct-17	07:56	10-Oct-17	09:49	750	750	750	750	750	750
Final pH	06-Oct-17	08:00	10-Oct-17	09:49	9.10	9.05	8.84	9.41	8.82	8.49
pH [no unit]	10-Oct-17	12:59	16-Oct-17	10:52	7.87	7.90	7.65	8.63	7.85	7.70
Conductivity [uS/cm]	10-Oct-17	12:59	16-Oct-17	10:52	134	187	166	236	156	188
Alkalinity [mg/L as CaCO3]	10-Oct-17	12:59	16-Oct-17	10:52	34	31	32	35	42	46
Sulphate [mg/L]	06-Oct-17	16:18	10-Oct-17	13:07	15	20	19	35	22	28
Mercury [mg/L]	10-Oct-17	17:23	11-Oct-17	09:57	< 0.00001	0.00003	0.00002	0.00002	0.00003	0.00003
Silver [mg/L]	10-Oct-17	15:25	12-Oct-17	16:56	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	10-Oct-17	15:25	12-Oct-17	16:56	0.874	0.322	0.264	0.303	0.641	0.984
Arsenic [mg/L]	10-Oct-17	15:25	12-Oct-17	16:56	0.0132	0.0279	0.0220	0.0336	0.0286	0.0256
Barium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:56	0.0148	0.00459	0.00388	0.00502	0.0104	0.0225
Boron [mg/L]	10-Oct-17	15:25	12-Oct-17	16:56	0.017	0.056	0.053	0.070	0.018	0.022
Beryllium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:56	0.000012	< 0.000007	< 0.000007	< 0.000007	< 0.000007	0.000020
Bismuth [mg/L]	10-Oct-17	15:25	12-Oct-17	16:56	0.000011	< 0.000007	< 0.000007	< 0.000007	0.000007	0.000023
Calcium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:56	8.00	11.0	10.5	16.3	14.5	17.6

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SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

LR Report : **CA12603-SEP17**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: 490-Explosive Plant-1	6: 490-Explosive Plant-2	7: 490-Explosive Plant-3	8: 490-Explosive Plant-4	9: 490-Explosive Plant-5	10: 490-Explosive Plant-6
Cadmium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.000007	0.000025	0.000035	0.000022	0.000014	0.000012
Cobalt [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.000548	0.000160	0.000210	0.000096	0.000560	0.00166
Chromium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.00059	0.00027	0.00015	0.00055	0.00042	0.00155
Copper [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.00951	0.00541	0.00658	0.00730	0.0121	0.0175
Iron [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.286	0.090	0.098	0.031	0.187	0.907
Potassium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	9.34	9.44	8.71	10.5	8.15	9.61
Lithium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.0026	0.0047	0.0048	0.0022	0.0014	0.0022
Manganese [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.00883	0.00539	0.00722	0.00164	0.00811	0.0284
Magnesium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.912	1.78	1.67	1.51	1.34	1.88
Molybdenum [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.00360	0.0551	0.0753	0.0435	0.00439	0.00476
Sodium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	10.4	17.0	14.7	18.8	10.3	10.5
Nickel [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.0013	0.0012	0.0016	0.0008	0.0019	0.0041
Phosphorus [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.044	0.058	0.053	0.073	0.037	0.056
Lead [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.00058	0.00011	0.00013	0.00007	0.00058	0.00154
Antimony [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.0009	0.0008	0.0011	0.0012	0.0008	0.0006
Selenium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.00024	0.00046	0.00049	0.00058	0.00031	0.00042
Silicon [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	3.30	2.97	2.99	3.28	2.43	3.89
Tin [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.00013	0.00010	0.00011	0.00018	0.00012	0.00017
Strontium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.0457	0.0591	0.0557	0.0909	0.0687	0.0908
Titanium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.0130	0.00199	0.00152	0.00067	0.00459	0.0300
Thallium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.000006	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.000010
Uranium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.000680	0.000633	0.000817	0.000716	0.00157	0.00184
Vanadium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	0.00744	0.00208	0.00133	0.00580	0.00339	0.00356
Zinc [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.004
Zirconium [mg/L]	10-Oct-17	15:25	12-Oct-17	16:57	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA12603-SEP17**

Analysis	11: 490-Explosive Plant-7	12: 490-Explosive Plant-8	13: 490-Explosive Plant-9	14: 490-Explosive Plant-10	15: 490-Explosive Plant-11	16: 490-Explosive Plant-12	17: 490-Explosive Plant-13	18: 490-Explosive Plant-14	19: 490-Explosive Plant-14
Sample Date & Time	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	20-Sep-17	
Sample weight [g]	250	250	250	250	250	250	250	250	250
Volume D.I. Water [mL]	750	750	750	750	750	750	750	750	750
Final pH	8.57	8.83	8.59	8.02	8.40	9.24	8.90	8.24	8.27
pH [no unit]	7.82	7.93	7.76	8.04	7.91	8.23	7.88	7.95	7.97
Conductivity [uS/cm]	316	283	208	148	145	117	289	127	123
Alkalinity [mg/L as CaCO3]	34	34	37	66	45	54	34	60	55
Sulphate [mg/L]	54	38	26	< 2	17	< 2	38	< 2	< 2
Mercury [mg/L]	0.00001	0.00004	0.00004	0.00002	0.00003	< 0.00001	0.00002	< 0.00001	0.00002
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.718	0.221	0.400	0.213	0.485	0.587	0.253	0.421	0.495
Arsenic [mg/L]	0.0193	0.0150	0.0200	0.0081	0.0234	0.0273	0.0185	0.0123	0.0128
Barium [mg/L]	0.0261	0.00685	0.0175	0.0228	0.0133	0.00163	0.00634	0.0166	0.0165
Boron [mg/L]	0.080	0.086	0.069	0.006	0.013	0.007	0.105	0.005	0.005
Beryllium [mg/L]	0.000018	< 0.000007	0.000007	< 0.000007	0.000008	< 0.000007	< 0.000007	0.000009	0.000012
Bismuth [mg/L]	0.000032	< 0.000007	0.000014	0.000010	0.000016	< 0.000007	< 0.000007	0.000013	0.000013
Calcium [mg/L]	24.7	18.0	11.9	19.6	17.5	7.42	14.8	14.7	13.1
Cadmium [mg/L]	0.000039	0.000034	0.000009	0.000014	0.000006	< 0.000003	0.000020	0.000007	0.000011
Cobalt [mg/L]	0.00278	0.000115	0.000780	0.000738	0.000956	0.000034	0.000105	0.000927	0.000973
Chromium [mg/L]	0.00132	0.00018	0.00035	0.00045	0.00058	0.00008	0.00018	0.00052	0.00067
Copper [mg/L]	0.0180	0.00674	0.0135	0.00891	0.0243	0.00124	0.00740	0.00904	0.00823
Iron [mg/L]	1.16	0.018	0.346	0.310	0.363	0.012	0.027	0.404	0.504
Potassium [mg/L]	10.1	10.1	9.98	8.50	8.52	8.30	10.4	8.17	7.79
Lithium [mg/L]	0.0040	0.0049	0.0029	0.0010	0.0014	0.0005	0.0056	0.0010	0.0010
Manganese [mg/L]	0.0834	0.0109	0.0166	0.0467	0.0153	0.00114	0.00435	0.0293	0.0250
Magnesium [mg/L]	3.94	3.46	2.12	2.80	1.79	1.70	3.20	2.04	1.79
Molybdenum [mg/L]	0.0565	0.0765	0.0329	0.00403	0.00347	0.00325	0.0614	0.00333	0.00305
Sodium [mg/L]	25.1	26.3	19.9	5.00	6.21	9.44	28.2	5.22	4.73
Nickel [mg/L]	0.0058	0.0014	0.0023	0.0020	0.0033	0.0002	0.0011	0.0019	0.0019

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

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Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

LR Report : **CA12603-SEP17**

Analysis	11: 490-Explosive Plant-7	12: 490-Explosive Plant-8	13: 490-Explosive Plant-9	14: 490-Explosive Plant-10	15: 490-Explosive Plant-11	16: 490-Explosive Plant-12	17: 490-Explosive Plant-13	18: 490-Explosive Plant-14	19: 490-Explosive Plant-14
Phosphorus [mg/L]	0.061	0.026	0.043	0.030	0.042	< 0.003	0.033	0.017	0.012
Lead [mg/L]	0.00188	0.00004	0.00047	0.00040	0.00099	0.00003	0.00005	0.00059	0.00071
Antimony [mg/L]	0.0008	0.0013	0.0008	0.0004	0.0004	0.0007	0.0009	0.0004	0.0005
Selenium [mg/L]	0.00049	0.00046	0.00048	0.00024	0.00040	0.00009	0.00062	0.00021	0.00015
Silicon [mg/L]	3.66	2.74	2.51	2.58	2.23	2.05	2.77	2.69	2.57
Tin [mg/L]	0.00008	0.00012	0.00014	0.00015	0.00034	0.00010	0.00012	0.00015	0.00031
Strontium [mg/L]	0.152	0.115	0.0807	0.0758	0.0823	0.0347	0.101	0.0620	0.0627
Titanium [mg/L]	0.0245	0.00031	0.00625	0.00795	0.00775	0.00194	0.00077	0.00995	0.0136
Thallium [mg/L]	0.000016	0.000007	0.000008	0.000006	< 0.000005	0.000006	0.000005	0.000011	0.000012
Uranium [mg/L]	0.00118	0.000834	0.000863	0.000928	0.00163	0.000187	0.000672	0.000933	0.00102
Vanadium [mg/L]	0.00217	0.00104	0.00135	0.00090	0.00165	0.00248	0.00110	0.00120	0.00128
Zinc [mg/L]	0.003	< 0.002	< 0.002	< 0.002	0.007	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

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Project Specialist
Environmental Services, Analytical

OnLine LIMS

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Appendix C3

Geochemical Monitoring Results – Meliadine Esker

SGS Canada Inc.
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05-May-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 17 April 2017
LR Report: **CA15314-APR17**
Reference: PO# 533041

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: ARP-ME-ESK-006	6: ARP-ME-ESK-007	7: ARP-ME-ESK-008
Sample Date & Time			09-Apr-17	09-Apr-17	09-Apr-17
Paste pH	03-May-17	10:05	9.65	8.90	9.38
Fizz Rate [---]	03-May-17	10:05	1	3	3
Sample weight [g]	03-May-17	10:05	2.00	1.91	2.08
HCl Added [mL]	03-May-17	10:05	20.00	30.00	26.50
HCl [Normality]	03-May-17	10:05	0.10	0.10	0.10
NaOH [Normality]	03-May-17	10:05	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	03-May-17	10:05	14.50	12.08	15.31
Final pH	03-May-17	10:05	1.40	1.79	1.55
NP [t CaCO3/1000 t]	03-May-17	10:05	14	47	27
AP [t CaCO3/1000 t]	---	---	0.94	0.62	0.62
Net NP [t CaCO3/1000 t]	---	---	12.9	46.3	26.3
NP/AP [ratio]	---	---	14.7	75.6	43.4
Sulphur (total) [%]	05-May-17	08:54	0.048	0.030	0.022
Acid Leachable SO4-S [%]	---	---	< 0.02	0.03	0.02
Sulphide [%]	05-May-17	08:54	0.03	< 0.02	< 0.02
Carbon (total) [%]	03-May-17	16:28	0.100	0.678	0.310
Carbonate [%]	03-May-17	16:28	0.305	2.41	1.04

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

6606860000

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28-April-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 17 April 2017
LR Report: **CA15315-APR17**
Reference: PO# 533041

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: ARP-ME-ESK-006	6: ARP-ME-ESK-007	7: ARP-ME-ESK-008
Sample Date & Time			09-Apr-17	09-Apr-17	09-Apr-17
Silver [µg/g]	28-Apr-17	13:47	0.05	0.05	0.02
Aluminum [µg/g]	28-Apr-17	13:47	74000	66000	73000
Arsenic [µg/g]	28-Apr-17	13:47	3.0	35	6.4
Barium [µg/g]	28-Apr-17	13:47	590	570	670
Beryllium [µg/g]	28-Apr-17	13:47	0.91	0.80	0.93
Bismuth [µg/g]	28-Apr-17	13:47	0.15	0.11	0.11
Calcium [µg/g]	28-Apr-17	13:47	26000	30000	28000
Cadmium [µg/g]	28-Apr-17	13:47	0.04	0.07	0.06
Cobalt [µg/g]	28-Apr-17	13:47	13	15	10
Chromium [µg/g]	28-Apr-17	13:47	100	150	120
Copper [µg/g]	28-Apr-17	15:52	31	28	20
Iron [µg/g]	28-Apr-17	13:48	34000	36000	32000
Potassium [µg/g]	28-Apr-17	13:48	17000	16000	17000
Lithium [µg/g]	28-Apr-17	13:48	23	21	21
Magnesium [µg/g]	28-Apr-17	13:48	12000	14000	11000
Manganese [µg/g]	28-Apr-17	13:48	470	620	450
Molybdenum [µg/g]	28-Apr-17	13:48	1.3	1.4	1.1
Sodium [µg/g]	28-Apr-17	13:48	30000	24000	31000
Nickel [µg/g]	28-Apr-17	13:48	25	38	23
Phosphorus [µg/g]	28-Apr-17	13:48	500	370	550
Lead [µg/g]	28-Apr-17	13:48	11	11	11
Antimony [µg/g]	28-Apr-17	13:48	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	28-Apr-17	13:48	< 0.7	< 0.7	< 0.7
Tin [µg/g]	28-Apr-17	13:48	< 6	< 6	< 6
Strontium [µg/g]	28-Apr-17	13:48	410	360	400
Titanium [µg/g]	28-Apr-17	13:48	2300	2400	2100
Thallium [µg/g]	28-Apr-17	13:48	0.39	0.34	0.34
Uranium [µg/g]	28-Apr-17	13:48	1.1	1.0	1.1
Vanadium [µg/g]	28-Apr-17	13:48	82	98	70
Yttrium [µg/g]	28-Apr-17	13:48	9.1	10.0	8.7
Zinc [µg/g]	28-Apr-17	13:48	49	55	46

OnLine LIMS

0000983019

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LR Report : **CA15315-APR17**

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OnLine LIMS

0000983019

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28-April-2017

Agnico Eagle Mines Limited
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Date Rec. : 17 April 2017
LR Report: **CA15316-APR17**
Reference: PO# 533041

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: ARP-ME-ESK-006	6: ARP-ME-ESK-007	7: ARP-ME-ESK-008
Sample Date & Time			09-Apr-17	09-Apr-17	09-Apr-17
Sample weight [g]	28-Apr-17	15:14	1.52	1.50	1.50
Vol H2O2 [mL]	28-Apr-17	15:14	150	150	150
Final pH	28-Apr-17	15:14	8.02	10.72	10.74
NaOH [Normality]	28-Apr-17	15:14	0.10	0.10	0.10
Vol NaOH to PH 4.5 [mL]	28-Apr-17	15:14	0.00	0.00	0.00
Vol NaOH to PH 7.0 [mL]	28-Apr-17	15:14	0.00	0.00	0.00
NAG (pH 4.5) [kg H2SO4/tonne]	28-Apr-17	15:14	0.0	0.0	0.0
NAG (pH 7.0) [kg H2SO4/tonne]	28-Apr-17	15:14	0.0	0.0	0.0

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Project Specialist
Environmental Services, Analytical

OnLine LIMS

00000983028

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

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P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

02-May-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 17 April 2017
LR Report: **CA15317-APR17**
Reference: PO# 533041

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: ARP-ME-ESK-006	6: ARP-ME-ESK-007	7: ARP-ME-ESK-008	8: ARP-ME-ESK-008
Sample Date & Time			09-Apr-17	09-Apr-17	09-Apr-17	
Sample weight [g]	28-Apr-17	10:49	2.47	2.47	2.46	2.46
Vol H2O2 [mL]	28-Apr-17	10:49	250	250	250	250
pH [no unit]	01-May-17	13:14	8.30	11.1	11.0	10.9
Conductivity [uS/cm]	01-May-17	13:14	149	380	332	291
Acidity [mg/L as CaCO3]	01-May-17	13:14	< 2	< 2	< 2	< 2
Sulphate [mg/L]	02-May-17	13:01	17	6	5	5
Mercury [mg/L]	02-May-17	09:47	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Aluminum [mg/L]	02-May-17	13:25	1.30	2.99	3.29	3.18
Arsenic [mg/L]	02-May-17	13:25	0.0092	0.0034	0.0043	0.0041
Boron [mg/L]	02-May-17	13:25	0.011	0.156	0.042	0.040
Barium [mg/L]	02-May-17	13:25	0.0159	0.0255	0.0319	0.0298
Beryllium [mg/L]	02-May-17	13:25	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	02-May-17	13:25	0.000019	0.000011	0.000007	< 0.000007
Cadmium [mg/L]	02-May-17	13:25	0.000005	0.000005	0.000007	0.000007
Cobalt [mg/L]	02-May-17	13:25	0.000013	0.000008	0.000006	0.000006
Chromium [mg/L]	02-May-17	13:25	0.0279	0.0263	0.0344	0.0307
Copper [mg/L]	02-May-17	13:25	0.00120	0.00137	0.00035	0.00031
Iron [mg/L]	02-May-17	13:25	0.008	< 0.007	< 0.007	< 0.007
Lithium [mg/L]	02-May-17	13:25	0.0127	0.0013	0.0039	0.0037
Manganese [mg/L]	02-May-17	13:25	0.00228	0.00012	0.00013	0.00010
Molybdenum [mg/L]	02-May-17	13:25	0.00303	0.00374	0.00546	0.00369
Nickel [mg/L]	02-May-17	13:25	0.0002	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	02-May-17	13:25	0.050	< 0.003	< 0.003	< 0.003
Lead [mg/L]	02-May-17	13:25	0.00004	0.00003	0.00002	0.00002
Antimony [mg/L]	02-May-17	13:25	0.0012	0.0005	0.0004	0.0003
Selenium [mg/L]	02-May-17	13:25	0.00104	0.00079	0.00081	0.00078
Silicon [mg/L]	02-May-17	13:25	7.83	10.3	14.6	15.1
Tin [mg/L]	02-May-17	13:25	0.00040	0.00017	0.00017	0.00013
Strontium [mg/L]	02-May-17	13:25	0.0746	0.199	0.137	0.126
Titanium [mg/L]	02-May-17	13:25	0.00351	0.00017	0.00028	0.00030

OnLine LIMS

00000885396

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LR Report : **CA15317-APR17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: ARP-ME-ESK-006	6: ARP-ME-ESK-007	7: ARP-ME-ESK-008	8: ARP-ME-ESK-008
Thallium [mg/L]	02-May-17	13:25	0.000097	0.000114	0.000035	0.000028
Uranium [mg/L]	02-May-17	13:25	0.000112	0.000006	0.000012	0.000015
Vanadium [mg/L]	02-May-17	13:25	0.0211	0.0177	0.0272	0.0242
Zinc [mg/L]	02-May-17	13:25	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	02-May-17	13:25	< 0.002	< 0.002	< 0.002	< 0.002

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0000985396

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03-May-2017

Agnico Eagle Mines Limited
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, X0C 0A0
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Date Rec. : 17 April 2017
LR Report: **CA15319-APR17**
Reference: PO# 533041

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: ARP-ME-ESK-006	6: ARP-ME-ESK-007	7: ARP-ME-ESK-008
Sample Date & Time			09-Apr-17	09-Apr-17	09-Apr-17
Sample weight [g]	01-May-17	13:56	250	250	250
Volume D.I. Water [mL]	01-May-17	13:56	750	750	750
Final pH	01-May-17	13:56	9.39	8.90	9.27
Alkalinity [mg/L as CaCO3]	02-May-17	15:52	91	42	34
pH [no unit]	02-May-17	15:52	8.16	8.22	8.21
Conductivity [uS/cm]	02-May-17	15:52	642	222	157
Sulphate [mg/L]	02-May-17	13:02	50	49	16
Mercury [mg/L]	03-May-17	10:54	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	03-May-17	10:54	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	03-May-17	10:54	0.543	0.433	0.569
Arsenic [mg/L]	03-May-17	10:54	0.0091	0.0242	0.0268
Barium [mg/L]	03-May-17	10:54	0.0143	0.0119	0.0210
Boron [mg/L]	03-May-17	10:54	0.012	0.029	0.021
Beryllium [mg/L]	03-May-17	10:54	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	03-May-17	10:54	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	03-May-17	10:54	16.5	24.3	12.4
Cadmium [mg/L]	03-May-17	10:54	0.000008	0.000026	0.000005
Cobalt [mg/L]	03-May-17	10:54	0.000186	0.000183	0.000163
Chromium [mg/L]	03-May-17	10:54	0.00019	0.00010	0.00023
Copper [mg/L]	03-May-17	10:54	0.00232	0.00460	0.00397
Iron [mg/L]	03-May-17	10:54	0.047	0.020	0.085
Potassium [mg/L]	03-May-17	10:54	9.69	9.62	8.38
Lithium [mg/L]	03-May-17	10:54	0.0013	0.0012	0.0021
Manganese [mg/L]	03-May-17	10:54	0.00145	0.00186	0.00233
Magnesium [mg/L]	03-May-17	10:54	0.905	2.92	1.32
Molybdenum [mg/L]	03-May-17	10:54	0.00323	0.00896	0.00530
Sodium [mg/L]	03-May-17	10:54	8.55	14.6	11.7
Nickel [mg/L]	03-May-17	10:54	0.0004	0.0006	0.0005
Phosphorus [mg/L]	03-May-17	10:54	0.033	0.013	0.035
Lead [mg/L]	03-May-17	10:54	0.00010	0.00024	0.00020

OnLine LIMS

00009869206

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LR Report : **CA15319-APR17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: ARP-ME-ESK-006	6: ARP-ME-ESK-007	7: ARP-ME-ESK-008
Antimony [mg/L]	03-May-17	10:54	0.0006	0.0005	0.0005
Selenium [mg/L]	03-May-17	10:54	0.00020	0.00041	0.00029
Silicon [mg/L]	03-May-17	10:54	3.38	2.21	3.22
Tin [mg/L]	03-May-17	10:54	0.00012	0.00003	0.00005
Strontium [mg/L]	03-May-17	10:54	0.0575	0.105	0.0677
Titanium [mg/L]	03-May-17	10:54	0.00305	0.00059	0.00326
Thallium [mg/L]	03-May-17	10:54	0.000007	0.000009	0.000005
Uranium [mg/L]	03-May-17	10:54	0.000345	0.000857	0.000837
Vanadium [mg/L]	03-May-17	10:54	0.00995	0.00160	0.00632
Zinc [mg/L]	03-May-17	10:54	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	03-May-17	10:54	< 0.002	< 0.002	< 0.002

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

00009869206

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25-April-2017

Agnico Eagle Mines Limited
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Baker Lake,
, X0C 0A0
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Date Rec. : 17 April 2017
LR Report: **CA15318-APR17**
Reference: PO# 533041

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	**5: ARP-ME-ESK-006**	**6: ARP-ME-ESK-007**	**7: ARP-ME-ESK-008**
Sample Date & Time	09-Apr-17	09-Apr-17	09-Apr-17
SiO2 [%]	66.1	65.0	66.9
Al2O3 [%]	15.0	13.6	14.3
Fe2O3 [%]	5.07	5.42	4.57
MgO [%]	2.15	2.44	1.86
CaO [%]	3.81	4.58	3.92
Na2O [%]	4.07	3.32	4.05
K2O [%]	1.96	1.78	1.83
TiO2 [%]	0.47	0.49	0.44
P2O5 [%]	0.13	0.10	0.14
MnO [%]	0.06	0.06	0.06
Cr2O3 [%]	0.01	0.02	0.03
V2O5 [%]	0.01	0.02	0.01
LOI [%]	1.67	3.76	2.21
Sum [%]	100.5	100.6	100.3

Brian Graham B.Sc.
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Environmental Services, Analytical

OnLine LIMS

0000877455

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Appendix C4

Geochemical Monitoring Results – Itivia Quarry and Site D Borrow Pit

SGS Canada Inc.
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10-February-2017

Agnico Eagle Mines Limited
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Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 26 January 2017
LR Report: **CA13653-JAN17**
Reference: PO# 533041

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Itivia Esker Sample 1	6: Itivia Esker Sample 2	7: Itivia Esker Sample 3	8: Itivia Esker Sample 4
Sample Date & Time			19-Jan-17	19-Jan-17	19-Jan-17	19-Jan-17
Paste pH	07-Feb-17	12:53	9.81	9.67	9.84	9.87
Fizz Rate [---]	07-Feb-17	12:53	1	1	2	3
Sample weight [g]	07-Feb-17	12:53	2.02	2.00	2.00	1.99
HCl Added [mL]	07-Feb-17	12:53	20.00	20.00	20.00	29.00
HCl [Normality]	07-Feb-17	12:53	0.10	0.10	0.10	0.10
NaOH [Normality]	07-Feb-17	12:53	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	07-Feb-17	12:53	15.88	13.01	8.33	11.24
Final pH	07-Feb-17	12:53	1.43	1.28	1.80	1.55
NP [t CaCO3/1000 t]	07-Feb-17	12:53	10	18	29	45
AP [t CaCO3/1000 t]	10-Feb-17	13:43	4.38	1.56	2.81	4.06
Net NP [t CaCO3/1000 t]	10-Feb-17	13:43	5.82	15.9	26.4	40.5
NP/AP [ratio]	10-Feb-17	13:43	2.33	11.2	10.4	11.0
Sulphur (total) [%]	10-Feb-17	13:43	0.174	0.073	0.142	0.163
Acid Leachable SO4-S [%]	10-Feb-17	13:43	0.03	0.02	0.05	0.03
Sulphide [%]	10-Feb-17	13:40	0.14	0.05	0.09	0.13
Carbon (total) [%]	10-Feb-17	10:00	0.077	0.160	0.355	0.539
Carbonate [%]	10-Feb-17	10:00	0.270	0.595	1.03	2.25

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0000909635

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03-August-2017

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Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 11 July 2017
LR Report: **CA14272-JUL17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	5: Itivia Quarry H48 Blast-2	6: Itivia Quarry K43 Blast-2	7: Q18 ELV20	8: IQ12 001 N19 ELV14	9: G26	10: G31	11: AK38	12: AB44	13: X36	14: I26	15: AG38	16: L1000	17: H27	18: U38
Sample Date & Time	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17
Paste pH	9.46	9.43	9.68	9.65	8.57	8.93	8.90	9.08	9.14	8.85	9.16	9.22	8.97	9.20
Fizz Rate [---]	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Sample weight [g]	2.00	2.01	1.99	1.98	2.02	1.99	2.00	2.05	2.02	2.01	2.05	2.02	2.01	2.04
HCl Added [mL]	20.00	26.00	26.00	32.20	54.00	20.00	30.00	33.00	20.00	31.00	65.40	46.00	20.00	30.00
HCl [Normality]	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	12.83	13.50	18.81	21.03	20.89	13.90	14.30	11.78	8.08	14.14	26.90	18.76	10.41	12.29
Final pH	1.76	1.73	1.56	1.57	1.69	1.31	1.50	1.65	1.90	1.74	1.55	1.57	1.57	1.60
NP [t CaCO3/1000 t]	18	31	18	28	82	15	39	52	30	42	94	67	24	43
AP [t CaCO3/1000 t]	0.62	1.25	0.62	0.94	34.4	2.81	15.6	10.3	3.44	6.25	6.56	6.25	1.25	3.44
Net NP [t CaCO3/1000 t]	17.3	29.8	17.5	27.3	47.6	12.5	23.7	41.5	26.1	35.6	87.3	61.2	22.6	40.0
NP/AP [ratio]	28.6	24.9	29.2	30.1	2.39	5.44	2.52	5.02	8.58	6.70	14.3	10.8	19.0	12.6
Sulphur (total) [%]	0.031	0.060	0.022	0.060	1.32	0.110	0.542	0.362	0.141	0.244	0.278	0.238	0.076	0.127
Acid Leachable SO4-S [%]	< 0.02	0.02	0.02	0.03	0.22	0.02	0.04	0.03	0.03	0.04	0.07	0.04	0.04	< 0.02
Sulphide [%]	0.02	0.04	< 0.02	0.03	1.10	0.09	0.50	0.33	0.11	0.20	0.21	0.20	0.04	0.11
Carbon (total) [%]	0.067	0.275	0.139	0.236	1.14	0.209	0.496	0.711	0.361	0.525	1.22	0.908	0.300	0.578
Carbonate [%]	0.240	1.10	0.485	0.869	2.37	0.540	1.26	2.72	1.27	1.14	4.72	3.35	0.824	2.10

OnLine LIMS

00010881184

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ABA - Modified Sobek

LR Report : **CA14272-JUL17**

Analysis	19: M34	20: J39	21: AG44	22: A137
Sample Date & Time	May-17	May-17	May-17	May-17
Paste pH	9.11	9.19	9.12	9.09
Fizz Rate [---]	3	3	3	3
Sample weight [g]	2.05	1.98	2.00	2.04
HCl Added [mL]	201.00	80.00	20.00	28.00
HCl [Normality]	0.10	0.10	0.10	0.10
NaOH [Normality]	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	45.14	19.42	8.09	16.17
Final pH	1.76	1.76	1.82	1.53
NP [t CaCO3/1000 t]	380	153	30	29
AP [t CaCO3/1000 t]	2.81	2.50	1.88	3.44
Net NP [t CaCO3/1000 t]	377	150	27.9	25.6
NP/AP [ratio]	135	61.2	15.9	8.44
Sulphur (total) [%]	0.101	0.108	0.067	0.162
Acid Leachable SO4-S [%]	< 0.02	0.03	< 0.02	0.05
Sulphide [%]	0.09	0.08	0.06	0.11
Carbon (total) [%]	4.81	2.04	0.417	0.314
Carbonate [%]	22.0	8.81	1.31	0.734

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001088184

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03-August-2017

Agnico Eagle Mines Limited
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Date Rec. : 11 July 2017
LR Report: **CA14273-JUL17**
Reference: OL-617203

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Itivia Quarry H48 Blast-2	6: Itivia Quarry K43 Blast-2	7: Q18 ELV20	8: IQ12 001 N19 ELV14	9: G26	10: G31	11: AK38	12: AB44	13: X36	14: I26	15: AG38	16: L1000
Sample Date & Time			21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17
Silver [µg/g]	25-Jul-17	15:36	0.05	0.05	0.05	0.12	0.11	0.14	0.07	0.90	0.11	0.06	0.10	0.03
Aluminum [µg/g]	26-Jul-17	11:51	64000	66000	72000	69000	23000	8000	12000	8400	24000	23000	28000	13000
Arsenic [µg/g]	25-Jul-17	15:36	0.9	0.6	< 0.5	< 0.5	13	3.5	16	18	22	5.6	10	7.4
Barium [µg/g]	25-Jul-17	15:36	50	34	200	270	190	120	110	63	190	210	250	110
Beryllium [µg/g]	25-Jul-17	15:36	0.36	0.33	0.33	0.32	0.41	0.21	0.22	0.16	0.45	0.50	0.54	0.30
Bismuth [µg/g]	25-Jul-17	15:36	< 0.09	< 0.09	< 0.09	< 0.09	0.33	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.09	< 0.09
Calcium [µg/g]	26-Jul-17	11:51	63000	68000	59000	67000	25000	5900	9900	14000	12000	15000	26000	18000
Cadmium [µg/g]	25-Jul-17	15:36	0.15	0.10	0.08	0.23	0.09	0.11	0.07	0.09	0.11	0.07	0.13	0.03
Cobalt [µg/g]	25-Jul-17	15:36	55	48	46	45	11	5.3	5.4	12	6.5	8.3	9.6	5.5
Chromium [µg/g]	25-Jul-17	15:36	530	390	360	370	280	170	190	160	39	200	150	160
Copper [µg/g]	25-Jul-17	15:36	86	91	92	110	50	11	15	15	15	21	24	12
Iron [µg/g]	26-Jul-17	11:52	82000	78000	80000	79000	32000	6800	13000	10000	14000	16000	17000	12000
Potassium [µg/g]	26-Jul-17	11:52	2400	1500	5800	7700	6500	2500	4900	2500	7400	7100	8900	3900
Lithium [µg/g]	25-Jul-17	15:36	16	13	18	17	8	4	6	5	8	9	11	5
Magnesium [µg/g]	26-Jul-17	11:52	66000	56000	53000	55000	14000	3000	5700	7000	6900	8400	15000	10000
Manganese [µg/g]	25-Jul-17	15:36	1100	1000	1000	1000	300	110	130	190	210	220	330	250
Molybdenum [µg/g]	25-Jul-17	15:36	0.5	0.6	0.7	1.0	16	1.8	2.3	1.9	2.2	2.3	3.1	2.5
Sodium [µg/g]	26-Jul-17	11:52	17000	20000	17000	15000	6700	2000	1800	1600	5400	6700	7800	3600
Nickel [µg/g]	25-Jul-17	15:36	220	160	110	110	34	13	16	12	17	23	26	16

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LR Report : **CA14273-JUL17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Itivia Quarry H48 Blast-2	6: Itivia Quarry K43 Blast-2	7: Q18 ELV20	8: IQ12 001 N19 ELV14	9: G26	10: G31	11: AK38	12: AB44	13: X36	14: I26	15: AG38	16: L1000
Phosphorus [µg/g]	26-Jul-17	11:52	260	260	290	290	210	74	230	170	310	230	230	190
Lead [µg/g]	25-Jul-17	15:36	1.1	1.2	1.0	1.3	6.0	1.9	3.5	5.2	3.7	4.3	6.4	2.8
Antimony [µg/g]	25-Jul-17	15:36	< 0.8	< 0.8	< 0.8	< 0.8	1.6	< 0.8	1.6	2.5	< 0.8	< 0.8	3.2	1.0
Selenium [µg/g]	25-Jul-17	15:36	< 0.7	< 0.7	< 0.7	< 0.7	1.1	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	1.1
Tin [µg/g]	25-Jul-17	15:36	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	25-Jul-17	15:36	130	140	79	73	78	28	34	30	65	71	84	47
Titanium [µg/g]	25-Jul-17	15:36	3700	3800	4200	4000	850	330	320	260	880	850	900	540
Thallium [µg/g]	25-Jul-17	15:36	< 0.02	< 0.02	0.09	0.12	0.12	0.04	0.09	0.04	0.15	0.14	0.15	0.06
Uranium [µg/g]	25-Jul-17	15:36	0.18	0.18	0.19	0.19	1.5	0.51	1.1	0.85	0.74	0.86	1.4	0.90
Vanadium [µg/g]	25-Jul-17	15:36	150	170	180	180	18	7	2	9	27	17	30	17
Yttrium [µg/g]	25-Jul-17	15:36	15	15	16	17	5.5	30	7.7	5.9	4.6	4.9	5.9	3.8
Zinc [µg/g]	25-Jul-17	15:36	87	79	85	87	20	6.0	8.8	11	17	18	24	11

Analysis	17: H27	18: U38	19: M34	20: J39	21: AG44	22: A137
Sample Date & Time	May-17	May-17	May-17	May-17	May-17	May-17
Silver [µg/g]	0.05	0.02	0.04	0.73	0.04	0.15
Aluminum [µg/g]	18000	5900	6700	12000	6200	27000
Arsenic [µg/g]	6.0	20	5.9	5.4	5.6	7.0
Barium [µg/g]	180	61	77	110	56	250
Beryllium [µg/g]	0.33	0.21	0.24	0.31	0.20	0.47
Bismuth [µg/g]	< 0.09	< 0.09	< 0.09	0.19	< 0.09	< 0.09
Calcium [µg/g]	10000	10000	82000	37000	7400	16000
Cadmium [µg/g]	0.05	0.03	0.10	0.08	0.03	0.10
Cobalt [µg/g]	8.6	3.0	2.8	4.6	4.0	11
Chromium [µg/g]	160	180	130	130	160	220
Copper [µg/g]	16	10	9.1	13	13	28
Iron [µg/g]	12000	7100	9000	8900	7400	18000
Potassium [µg/g]	4900	2500	2700	4500	2100	7800
Lithium [µg/g]	7	3	3	5	3	9
Magnesium [µg/g]	6100	5000	41000	18000	4100	9700
Manganese [µg/g]	180	200	650	340	170	270
Molybdenum [µg/g]	1.4	2.7	1.5	3.3	3.8	3.4
Sodium [µg/g]	5200	870	1200	2000	1600	7100

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LR Report : **CA14273-JUL17**

Analysis	17: H27	18: U38	19: M34	20: J39	21: AG44	22: A137
Nickel [µg/g]	21	11	8.4	14	14	34
Phosphorus [µg/g]	180	82	330	360	72	250
Lead [µg/g]	3.4	2.7	5.6	4.2	2.2	4.8
Antimony [µg/g]	< 0.8	1.2	2.5	1.4	1.0	0.8
Selenium [µg/g]	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	< 6	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	59	24	64	54	23	90
Titanium [µg/g]	740	190	190	390	240	1200
Thallium [µg/g]	0.10	0.04	0.04	0.09	0.04	0.16
Uranium [µg/g]	0.71	0.60	4.4	2.6	0.62	0.88
Vanadium [µg/g]	19	< 1	17	18	7	31
Yttrium [µg/g]	5.2	2.6	6.1	5.3	2.8	5.9
Zinc [µg/g]	16	5.1	12	11	5.7	23

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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20-July-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 11 July 2017
LR Report: **CA14274-JUL17**
Reference: OL-617203

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	V2O5 %	LOI %	Sum %
5: Itivia Quarry H48 Blast-2	21-Jun-17	49.2	11.8	12.0	11.6	9.17	2.21	0.23	0.82	0.06	0.17	0.12	0.04	3.47	100.9
6: Itivia Quarry K43 Blast-2	21-Jun-17	49.1	12.3	11.7	9.78	10.2	2.70	0.16	0.85	0.07	0.17	0.09	0.05	3.54	100.7
7: Q18 ELV20	21-Jun-17	49.5	13.6	12.0	9.37	8.81	2.24	0.59	0.92	0.07	0.17	0.08	0.05	3.25	100.7
8: IQ12 001 N19 ELV14	21-Jun-17	49.3	12.6	11.7	9.42	9.71	1.95	0.80	0.87	0.07	0.18	0.09	0.05	3.16	99.9
9: G26	May-17	78.6	4.10	4.43	2.31	3.56	0.83	0.65	0.20	0.05	0.03	0.08	0.01	5.07	100.0
10: G31	May-17	94.3	1.42	0.99	0.54	0.82	0.25	0.25	0.07	0.02	0.01	0.06	< 0.01	1.25	100.0
11: AK38	May-17	91.2	2.28	1.92	1.01	1.46	0.24	0.50	0.10	0.06	< 0.01	0.07	< 0.01	2.35	101.2
12: AB44	May-17	90.6	1.49	1.51	1.22	1.98	0.21	0.24	0.11	0.04	0.03	0.06	< 0.01	2.66	100.1
13: X36	May-17	87.8	4.33	2.10	1.21	1.82	0.69	0.77	0.20	0.07	< 0.01	0.01	< 0.01	2.03	101.1
14: I26	May-17	84.8	4.18	2.34	1.48	2.18	0.85	0.73	0.19	0.05	0.03	0.06	0.01	3.02	99.9
15: AG38	May-17	78.3	5.16	2.54	2.67	3.81	1.01	0.94	0.20	0.06	0.05	0.04	< 0.01	4.89	99.7
16: L1000	May-17	87.1	2.42	1.82	1.81	2.62	0.47	0.41	0.12	0.05	0.03	0.06	< 0.01	3.57	100.5
17: H27	May-17	89.2	3.36	1.91	1.14	1.55	0.68	0.52	0.16	0.05	0.02	0.06	< 0.01	1.80	100.4
18: U38	May-17	93.4	1.07	1.05	0.90	1.48	0.11	0.26	0.05	0.02	0.02	0.08	< 0.01	2.18	100.6
19: M34	May-17	59.6	1.23	1.36	7.32	12.3	0.17	0.29	0.06	0.09	0.09	0.04	< 0.01	18.0	100.5
20: J39	May-17	78.7	2.38	1.40	3.21	5.75	0.28	0.51	0.11	0.09	0.04	0.04	0.01	7.48	100.0
21: AG44	May-17	94.1	1.22	1.16	0.76	1.14	0.23	0.23	0.06	0.03	0.02	0.07	< 0.01	1.70	100.7
22: A137	May-17	83.5	5.32	2.85	1.76	2.45	0.95	0.85	0.26	0.07	0.03	0.09	0.02	2.28	100.4

OnLine LIMS

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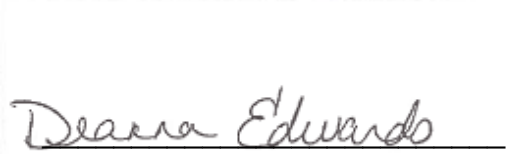
LR Report : **CA14274-JUL17**



Deanna Edwards, B.Sc, C.Chem
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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03-August-2017

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Date Rec. : 11 July 2017
LR Report: **CA14275-JUL17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Itivia Quarry H48 Blast-2	6: Itivia Quarry K43 Blast-2	7: Q18 ELV20	8: IQ12 001 N19 ELV14	9: G26	10: G31	11: AK38	12: AB44
Sample Date & Time			21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	May-17	May-17	May-17	May-17
Sample weight [g]	21-Jul-17	14:09	250	250	250	250	250	250	250	250
Volume D.I. Water [mL]	21-Jul-17	14:09	750	750	750	750	750	750	750	750
Final pH	21-Jul-17	14:09	9.77	9.41	9.95	9.84	8.17	9.08	8.89	9.07
pH [no unit]	24-Jul-17	15:36	9.30	8.94	9.54	9.51	8.02	8.42	8.22	8.24
Conductivity [uS/cm]	24-Jul-17	15:36	129	116	175	162	890	234	382	179
Alkalinity [mg/L as CaCO3]	24-Jul-17	15:36	55	42	69	60	58	32	33	40
Sulphate [mg/L]	21-Jul-17	15:14	2	10	3	3	160	31	49	28
Mercury [mg/L]	24-Jul-17	10:24	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	25-Jul-17	15:23	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00009	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	25-Jul-17	15:23	0.585	0.257	0.944	0.612	0.066	0.088	0.058	0.024
Arsenic [mg/L]	25-Jul-17	15:23	0.0019	0.0024	0.0009	0.0028	0.0015	0.0244	0.0201	0.0354
Barium [mg/L]	25-Jul-17	15:23	0.00140	0.00206	0.00325	0.00337	0.0387	0.0203	0.0108	0.00990
Boron [mg/L]	25-Jul-17	15:23	0.050	0.030	0.084	0.077	0.076	0.021	0.050	0.011
Beryllium [mg/L]	25-Jul-17	15:23	< 0.000007	< 0.000007	0.000008	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	25-Jul-17	15:23	< 0.000007	0.000007	< 0.000007	< 0.000007	0.000025	< 0.000007	< 0.000007	< 0.000007

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA14275-JUL17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: Itivia Quarry H48 Blast-2	6: Itivia Quarry K43 Blast-2	7: Q18 ELV20	8: IQ12 001 N19 ELV14	9: G26	10: G31	11: AK38	12: AB44
Calcium [mg/L]	25-Jul-17	15:23	1.75	4.65	1.03	1.73	61.7	14.8	17.8	17.3
Cadmium [mg/L]	25-Jul-17	15:23	0.000009	0.000009	0.000006	0.000003	0.000037	0.000017	0.000016	0.000003
Cobalt [mg/L]	25-Jul-17	15:23	0.000432	0.000181	0.000632	0.000498	0.000159	0.000722	0.000047	0.00232
Chromium [mg/L]	25-Jul-17	15:23	0.00601	0.00154	0.00707	0.00484	0.00096	0.00053	0.00027	0.00029
Copper [mg/L]	25-Jul-17	15:23	0.00084	0.00101	0.00120	0.00113	0.00054	0.00233	0.00134	0.0108
Iron [mg/L]	25-Jul-17	15:23	0.549	0.215	0.992	0.697	0.009	0.094	0.011	0.016
Potassium [mg/L]	25-Jul-17	15:23	2.37	2.05	7.14	10.0	18.9	5.69	8.15	4.40
Lithium [mg/L]	25-Jul-17	15:23	0.0003	0.0002	0.0005	0.0003	0.0064	0.0065	0.0079	0.0153
Manganese [mg/L]	25-Jul-17	15:23	0.00829	0.00343	0.0158	0.0110	0.0192	0.00286	0.00166	0.00172
Magnesium [mg/L]	25-Jul-17	15:23	0.816	1.57	0.860	0.746	30.4	5.71	8.67	6.60
Molybdenum [mg/L]	25-Jul-17	15:23	0.00126	0.00204	0.00281	0.00558	0.149	0.0292	0.0206	0.0155
Sodium [mg/L]	25-Jul-17	15:23	26.5	17.7	34.9	29.3	67.2	18.1	38.4	6.01
Nickel [mg/L]	25-Jul-17	15:23	0.0020	0.0007	0.0018	0.0013	0.0013	0.0009	0.0004	0.0010
Phosphorus [mg/L]	25-Jul-17	15:23	0.012	0.008	0.032	0.020	0.006	0.009	0.036	0.018
Lead [mg/L]	25-Jul-17	15:23	0.00005	0.00009	0.00003	0.00004	0.00006	0.00011	0.00002	0.00005
Antimony [mg/L]	25-Jul-17	15:23	0.0007	0.0009	0.0014	0.0019	0.0097	0.0050	0.0142	0.0537
Selenium [mg/L]	25-Jul-17	15:23	0.00023	0.00055	0.00018	0.00048	0.00271	0.00041	0.00257	0.00079
Silicon [mg/L]	25-Jul-17	15:23	6.26	5.58	8.53	8.36	4.17	17.9	7.13	14.1
Tin [mg/L]	25-Jul-17	15:23	0.00009	0.00010	0.00006	0.00010	0.00003	0.00010	0.00010	0.00003
Strontium [mg/L]	25-Jul-17	15:23	0.00401	0.00928	0.00190	0.00311	0.174	0.0504	0.0647	0.0468
Titanium [mg/L]	25-Jul-17	15:23	0.0201	0.00770	0.0218	0.0187	0.00035	0.00243	0.00038	0.00039
Thallium [mg/L]	25-Jul-17	15:23	0.000005	0.000008	0.000007	0.000010	0.000018	0.000008	0.000015	0.000006
Uranium [mg/L]	25-Jul-17	15:23	0.000051	0.000023	0.000017	0.000011	0.002698	0.000380	0.000838	0.001084
Vanadium [mg/L]	25-Jul-17	15:23	0.0430	0.0249	0.0896	0.0730	0.00043	0.00512	0.00268	0.00299
Zinc [mg/L]	25-Jul-17	15:23	< 0.002	< 0.002	0.002	0.002	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	25-Jul-17	15:23	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

OnLine LIMS

00010888225

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Test method information available upon request. “Temperature Upon Receipt” is representative of the whole shipment and may not reflect the temperature of individual samples.

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Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

LR Report : **CA14275-JUL17**

Analysis	13: X36	14: I26	15: AG38	16: L1000	17: H27	18: U38	19: M34	20: J39	21: AG44	22: A137
Sample Date & Time	May-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17	May-17
Sample weight [g]	250	250	250	250	250	250	250	250	250	250
Volume D.I. Water [mL]	750	750	750	750	750	750	750	750	750	750
Final pH	9.13	8.85	9.07	9.17	9.09	9.33	9.48	9.21	9.24	9.09
pH [no unit]	8.36	7.96	8.56	8.88	7.52	9.04	9.36	8.82	9.10	8.31
Conductivity [uS/cm]	284	581	286	238	346	237	343	348	200	391
Alkalinity [mg/L as CaCO3]	29	30	38	45	33	47	68	48	38	29
Sulphate [mg/L]	52	91	59	46	39	25	32	39	16	55
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00002	0.00004	0.00003	0.00003	0.00002
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.097	0.048	0.120	0.017	0.067	0.025	0.043	0.028	0.043	0.110
Arsenic [mg/L]	0.0407	0.0161	0.0274	0.0229	0.0220	0.0524	0.0155	0.0253	0.0357	0.0314
Barium [mg/L]	0.0215	0.0394	0.0228	0.0131	0.0247	0.0107	0.0167	0.0151	0.0129	0.0195
Boron [mg/L]	0.039	0.065	0.033	0.016	0.038	0.028	0.031	0.028	0.027	0.055
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	16.2	29.1	16.3	17.0	15.4	13.9	9.47	15.8	12.0	15.7
Cadmium [mg/L]	< 0.000003	0.000006	0.000006	0.000003	< 0.000003	< 0.000003	0.000005	0.000006	0.000012	0.000018
Cobalt [mg/L]	0.000036	0.000117	0.000031	0.000170	0.000323	0.000046	0.000025	0.000112	0.000191	0.000036
Chromium [mg/L]	0.00016	0.00018	0.00018	0.00031	0.00038	0.00021	0.00012	0.00013	0.00022	0.00046
Copper [mg/L]	0.00048	0.00103	0.00122	0.00516	0.00231	0.00165	0.00089	0.00392	0.00433	0.00039
Iron [mg/L]	0.010	0.008	< 0.007	< 0.007	0.046	< 0.007	< 0.007	< 0.007	0.037	0.010
Potassium [mg/L]	9.43	11.4	11.9	6.69	7.72	5.01	6.60	8.34	4.57	12.0
Lithium [mg/L]	0.0026	0.0061	0.0031	0.0046	0.0022	0.0043	0.0061	0.0303	0.0060	0.0014
Manganese [mg/L]	0.00107	0.00393	0.00132	0.00150	0.00191	0.00131	0.00111	0.00121	0.00200	0.00121
Magnesium [mg/L]	6.32	13.0	8.88	9.84	6.27	6.79	19.9	12.0	5.68	6.64
Molybdenum [mg/L]	0.00906	0.0124	0.0106	0.0180	0.00745	0.00678	0.0117	0.0148	0.0141	0.0574
Sodium [mg/L]	23.3	60.3	19.1	10.2	33.7	18.6	27.4	30.7	16.7	46.8
Nickel [mg/L]	0.0002	0.0006	0.0003	0.0006	0.0009	0.0003	0.0001	0.0006	0.0005	0.0003

OnLine LIMS

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA14275-JUL17**

Analysis	13: X36	14: I26	15: AG38	16: L1000	17: H27	18: U38	19: M34	20: J39	21: AG44	22: A137
Phosphorus [mg/L]	0.012	0.010	< 0.003	0.017	0.016	0.013	0.007	0.018	0.031	< 0.003
Lead [mg/L]	0.00001	0.00002	0.00002	0.00001	0.00005	0.00003	< 0.00001	< 0.00001	0.00010	0.00004
Antimony [mg/L]	0.0076	0.0111	0.0443	0.0074	0.0052	0.0212	0.0238	0.0191	0.0353	0.0094
Selenium [mg/L]	0.00044	0.00063	0.00105	0.00102	0.00038	0.00076	0.00133	0.00056	0.00071	0.00055
Silicon [mg/L]	6.77	8.12	5.31	11.5	13.6	13.3	6.90	12.0	16.4	5.86
Tin [mg/L]	0.00004	0.00005	0.00012	0.00003	0.00013	0.00007	0.00004	0.00004	0.00016	0.00004
Strontium [mg/L]	0.0784	0.114	0.0798	0.0474	0.0631	0.0502	0.0481	0.0787	0.0413	0.0745
Titanium [mg/L]	0.00048	0.00049	0.00027	0.00016	0.00196	0.00016	< 0.00005	0.00024	0.00081	0.00058
Thallium [mg/L]	0.000010	0.000017	0.000013	0.000008	0.000013	0.000005	0.000010	0.000005	0.000011	0.000014
Uranium [mg/L]	0.000312	0.000733	0.00105	0.00168	0.000458	0.000831	0.00377	0.00521	0.000757	0.000255
Vanadium [mg/L]	0.00730	0.00430	0.00456	0.00371	0.00531	0.00519	0.00577	0.00601	0.00478	0.00729
Zinc [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

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Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001088225

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28-August-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

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, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

Date Rec. : 02 August 2017
LR Report: **CA15061-AUG17**
Reference: OL-617203

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: J20	6: H19	7: Site D Sand Pit
Sample Date & Time			13-Jul-17	13-Jul-17	15-Jul-17
Paste pH	22-Aug-17	11:40	9.80	9.72	9.39
Fizz Rate [---]	22-Aug-17	11:40	2	2	2
Sample weight [g]	22-Aug-17	11:40	2.01	2.00	1.97
HCl Added [mL]	22-Aug-17	11:40	20.00	20.00	20.00
HCl [Normality]	22-Aug-17	11:40	0.10	0.10	0.10
NaOH [Normality]	22-Aug-17	11:40	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	22-Aug-17	11:40	13.47	16.48	12.58
Final pH	22-Aug-17	11:40	1.51	1.22	1.36
NP [t CaCO3/1000 t]	22-Aug-17	11:40	16	8.8	19
AP [t CaCO3/1000 t]	---	---	0.62	0.94	0.62
Net NP [t CaCO3/1000 t]	---	---	15.6	7.86	18.2
NP/AP [ratio]	---	---	25.9	9.39	30.3
Sulphur (total) [%]	10-Aug-17	14:15	0.035	0.060	0.017
Acid Leachable SO4-S [%]			< 0.02	0.03	< 0.02
Sulphide [%]	10-Aug-17	14:10	0.02	0.03	< 0.02
Carbon (total) [%]	10-Aug-17	14:15	0.127	0.070	0.200
Carbonate [%]	10-Aug-17	14:04	0.520	0.265	0.649

Brian Graham B.Sc.
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OnLine LIMS

0001114418

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18-August-2017

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Date Rec. : 02 August 2017
LR Report: **CA15062-AUG17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: J20	6: H19	7: Site D Sand Pit
Sample Date & Time			13-Jul-17	13-Jul-17	15-Jul-17
Silver [µg/g]	15-Aug-17	09:36	0.11	0.07	0.10
Aluminum [µg/g]	14-Aug-17	09:30	71000	75000	65000
Arsenic [µg/g]	15-Aug-17	09:36	0.6	< 0.5	2.0
Barium [µg/g]	15-Aug-17	09:36	90	70	590
Beryllium [µg/g]	15-Aug-17	09:36	0.26	0.29	1.3
Bismuth [µg/g]	15-Aug-17	09:36	0.18	< 0.09	0.24
Calcium [µg/g]	14-Aug-17	09:30	74000	67000	22000
Cadmium [µg/g]	15-Aug-17	09:36	0.13	0.09	0.08
Cobalt [µg/g]	15-Aug-17	09:36	41	44	8.0
Chromium [µg/g]	15-Aug-17	09:36	300	300	60
Copper [µg/g]	15-Aug-17	09:36	59	61	18
Iron [µg/g]	14-Aug-17	09:30	83000	87000	23000
Potassium [µg/g]	14-Aug-17	09:30	2600	1600	20000
Lithium [µg/g]	15-Aug-17	09:37	12	18	16
Magnesium [µg/g]	14-Aug-17	09:30	52000	57000	8000
Manganese [µg/g]	15-Aug-17	09:37	1100	1200	340
Molybdenum [µg/g]	15-Aug-17	09:37	0.8	0.7	0.9
Sodium [µg/g]	14-Aug-17	09:30	16000	17000	25000
Nickel [µg/g]	15-Aug-17	09:37	100	100	21
Phosphorus [µg/g]	14-Aug-17	09:31	280	270	400
Lead [µg/g]	15-Aug-17	09:37	2.0	1.3	14
Antimony [µg/g]	15-Aug-17	09:37	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	15-Aug-17	09:37	< 0.7	< 0.7	< 0.7
Tin [µg/g]	15-Aug-17	09:37	< 6	< 6	< 6
Strontium [µg/g]	15-Aug-17	09:37	120	110	330
Titanium [µg/g]	15-Aug-17	09:37	4000	4200	1700
Thallium [µg/g]	15-Aug-17	09:37	0.09	0.02	0.48
Uranium [µg/g]	15-Aug-17	09:37	0.45	0.23	1.3

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0001103225

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Lakefield - Ontario - KOL 2HO
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LR Report : **CA15062-AUG17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: J20	6: H19	7: Site D Sand Pit
Vanadium [µg/g]	15-Aug-17	09:37	190	200	55
Yttrium [µg/g]	15-Aug-17	09:37	17	17	7.8
Zinc [µg/g]	15-Aug-17	09:37	69	74	34

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

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13-September-2017

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Date Rec. : 02 August 2017
LR Report: **CA15063-AUG17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	5: J20	6: H19	7: Site D Sand Pit
Sample Date & Time	13-Jul-17	13-Jul-17	15-Jul-17
SiO2 [%]	49.3	48.0	71.4
Al2O3 [%]	13.2	13.7	12.9
Fe2O3 [%]	11.9	12.5	3.38
MgO [%]	9.37	10.2	1.49
CaO [%]	10.7	9.46	3.18
Na2O [%]	2.24	2.39	3.42
K2O [%]	0.27	0.16	2.13
TiO2 [%]	0.88	0.90	0.31
P2O5 [%]	0.07	0.07	0.09
MnO [%]	0.19	0.19	0.04
Cr2O3 [%]	0.07	0.08	0.01
V2O5 [%]	0.05	0.05	< 0.01
LOI [%]	2.92	3.31	1.83
Sum [%]	101.1	101.0	100.3

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001131870

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28-August-2017

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Date Rec. : 02 August 2017
LR Report: **CA15064-AUG17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: J20	6: H19	7: Site D Sand Pit
Sample Date & Time			13-Jul-17	13-Jul-17	15-Jul-17
Sample weight [g]	22-Aug-17	11:41	250	250	250
Volume D.I. Water [mL]	22-Aug-17	11:41	750	750	750
Final pH	22-Aug-17	11:41	10.01	10.00	9.36
pH [no unit]	23-Aug-17	10:13	9.47	9.48	8.19
Conductivity [uS/cm]	23-Aug-17	10:13	186	160	112
Alkalinity [mg/L as CaCO3]	23-Aug-17	10:13	64	50	36
Sulphate [mg/L]	22-Aug-17	12:28	6	5	11
Mercury [mg/L]	23-Aug-17	08:13	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	24-Aug-17	14:18	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	24-Aug-17	14:18	0.426	0.531	0.754
Arsenic [mg/L]	24-Aug-17	14:18	0.0030	0.0008	0.0076
Barium [mg/L]	24-Aug-17	14:18	0.00299	0.00262	0.0108
Boron [mg/L]	24-Aug-17	14:18	0.060	0.070	0.061
Beryllium [mg/L]	24-Aug-17	14:18	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	24-Aug-17	14:18	< 0.000007	< 0.000007	0.000028
Calcium [mg/L]	24-Aug-17	14:18	1.68	1.35	11.0
Cadmium [mg/L]	24-Aug-17	14:18	0.000006	0.000007	0.000006
Cobalt [mg/L]	24-Aug-17	14:18	0.000335	0.000334	0.000130
Chromium [mg/L]	24-Aug-17	14:18	0.00329	0.00328	0.00057
Copper [mg/L]	24-Aug-17	14:18	0.00131	0.00296	0.00659
Iron [mg/L]	24-Aug-17	14:18	0.466	0.518	0.168
Potassium [mg/L]	24-Aug-17	14:18	8.94	6.37	8.77
Lithium [mg/L]	24-Aug-17	14:18	0.0002	0.0003	0.0034
Manganese [mg/L]	24-Aug-17	14:18	0.00740	0.00859	0.00162
Magnesium [mg/L]	24-Aug-17	14:18	0.534	0.616	1.20
Molybdenum [mg/L]	24-Aug-17	14:18	0.00649	0.00172	0.00197
Sodium [mg/L]	24-Aug-17	14:18	35.2	31.7	6.14
Nickel [mg/L]	24-Aug-17	14:18	0.0010	0.0008	0.0005
Phosphorus [mg/L]	24-Aug-17	14:18	0.020	0.024	0.041
Lead [mg/L]	24-Aug-17	14:18	0.00012	0.00028	0.00030

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0001114421

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Lakefield - Ontario - KOL 2HO
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LR Report : **CA15064-AUG17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: J20	6: H19	7: Site D Sand Pit
Antimony [mg/L]	24-Aug-17	14:18	0.0014	0.0007	0.0004
Selenium [mg/L]	24-Aug-17	14:18	0.00117	0.00026	0.00055
Silicon [mg/L]	24-Aug-17	14:18	9.62	8.24	2.98
Tin [mg/L]	24-Aug-17	14:18	0.00015	0.00247	0.00023
Strontium [mg/L]	24-Aug-17	14:18	0.00338	0.00338	0.0721
Titanium [mg/L]	24-Aug-17	14:18	0.0143	0.0122	0.00498
Thallium [mg/L]	24-Aug-17	14:18	< 0.000005	< 0.000005	< 0.000005
Uranium [mg/L]	24-Aug-17	14:18	0.000036	0.000009	0.00143
Vanadium [mg/L]	24-Aug-17	14:18	0.0700	0.0524	0.0120
Zinc [mg/L]	24-Aug-17	14:18	< 0.002	0.005	< 0.002
Zirconium [mg/L]	24-Aug-17	14:18	< 0.002	< 0.002	< 0.002

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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Appendix C5

Geochemical Monitoring Results – Underground Waste Rock

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11-October-2017

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Date Rec. : 04 July 2017
LR Report: **CA14000-JUL17**
Reference: OL-617203

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: 317001-FW225W VOL	6: 317002-FW225W VOL	7: 317003-FW250W VOL	8: 317004-FW250W VOL	9: 317005-VT225 SED	10: 317006-VT225 SED	11: 317007-UP RAMP SED	12: 317008-UP RAMP SED	13: 317009-DRAW pt 350 171 VOL
Sample Date & Time			21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17
Paste pH	24-Jul-17	10:35	8.78	9.01	9.23	9.05	8.41	8.53	8.40	8.88	8.42
Fizz Rate [---]	24-Jul-17	10:35	4	4	4	4	4	4	4	4	4
Sample weight [g]	24-Jul-17	10:35	2.01	2.01	2.01	1.98	1.95	2.04	2.00	2.00	1.98
HCl Added [mL]	24-Jul-17	10:35	140.00	160.00	120.00	178.00	90.00	122.00	40.00	40.00	112.00
HCl [Normality]	24-Jul-17	10:35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	24-Jul-17	10:35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	24-Jul-17	10:35	47.94	51.06	47.03	79.37	20.38	36.66	21.70	18.28	27.75
Final pH	24-Jul-17	10:35	1.63	1.78	1.64	1.60	1.88	1.68	1.55	1.75	1.84
NP [t CaCO3/1000 t]	24-Jul-17	10:35	229	271	182	249	178	209	46	54	213
AP [t CaCO3/1000 t]	---	---	1.88	7.81	15.0	10.3	2.19	1.88	2.19	2.81	2.19
Net NP [t CaCO3/1000 t]	---	---	227	263	166	239	176	207	43.6	51.5	211
NP/AP [ratio]	---	---	122	34.7	12.1	24.2	81.6	112	20.9	19.3	97.3
Sulphur (total) [%]	28-Jul-17	14:23	0.129	0.367	0.747	0.439	0.117	0.093	0.124	0.145	0.113
Acid Leachable SO4-S [%]	---	---	0.07	0.12	0.27	0.11	0.05	0.03	0.05	0.06	0.04
Sulphide [%]	28-Jul-17	14:23	0.06	0.25	0.48	0.33	0.07	0.06	0.07	0.09	0.07
Carbon (total) [%]	27-Jul-17	10:51	3.02	3.74	2.55	3.83	2.16	2.52	0.624	0.725	2.74
Carbonate [%]	27-Jul-17	10:51	14.2	17.3	10.8	16.6	10.1	11.9	1.71	2.37	12.8

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ABA - Modified Sobek

LR Report : **CA14000-JUL17**

Analysis	14: 317010-DRAW pt 350 171 VOL	15: 317011-FW350E VOL	16: 317012-FW350E VOL
Sample Date & Time	21-Jun-17	21-Jun-17	21-Jun-17
Paste pH	8.49	8.56	8.68
Fizz Rate [---]	4	4	4
Sample weight [g]	2.01	2.00	2.06
HCl Added [mL]	160.00	136.00	126.00
HCl [Normality]	0.10	0.10	0.10
NaOH [Normality]	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	43.56	50.71	49.24
Final pH	1.63	1.60	1.63
NP [t CaCO3/1000 t]	290	213	186
AP [t CaCO3/1000 t]	8.75	2.19	1.56
Net NP [t CaCO3/1000 t]	281	211	185
NP/AP [ratio]	33.1	97.5	119
Sulphur (total) [%]	0.355	0.107	0.069
Acid Leachable SO4-S [%]	0.08	0.04	< 0.02
Sulphide [%]	0.28	0.07	0.05
Carbon (total) [%]	3.20	2.79	2.30
Carbonate [%]	14.7	13.1	10.8

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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11-October-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake
, Nunavut
X0C 0A0,

Phone: (819) 759-3555 x3928
Fax:(819) 759-3663

Date Rec. : 04 July 2017
LR Report: **CA14001-JUL17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: 317001-FW225 W VOL	6: 317002-FW225 W VOL	7: 317003-FW250 W VOL	8: 317004-FW250 W VOL	9: 317005-VT225 SED	10: 317006-VT225 SED	11: 317007-UP RAMP SED	12: 317008-UP RAMP SED	13: 317009-DRAW pt 350 171 VOL	14: 317010-DRAW pt 350 171 VOL
Sample Date & Time			21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17
Silver [µg/g]	21-Jul-17	16:32	0.25	0.77	0.20	0.16	0.15	0.14	0.22	0.24	0.11	0.18
Aluminum [µg/g]	21-Jul-17	15:46	77000	76000	81000	68000	53000	48000	77000	87000	71000	72000
Arsenic [µg/g]	21-Jul-17	16:32	15	100	87	380	24	13	310	150	30	57
Barium [µg/g]	21-Jul-17	16:32	91	88	67	140	310	210	590	680	50	330
Beryllium [µg/g]	21-Jul-17	16:32	0.44	0.32	0.39	0.37	0.50	0.39	1.1	1.2	0.26	0.56
Bismuth [µg/g]	21-Jul-17	16:32	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.12	0.16	< 0.09	< 0.09
Calcium [µg/g]	21-Jul-17	15:47	94000	110000	72000	82000	84000	95000	12000	14000	86000	94000
Cadmium [µg/g]	21-Jul-17	16:32	0.17	0.22	0.17	0.20	0.15	0.17	0.16	0.18	0.21	0.22
Cobalt [µg/g]	21-Jul-17	16:32	42	50	55	44	49	47	22	18	43	41
Chromium [µg/g]	21-Jul-17	16:32	110	100	97	98	170	200	100	110	100	100
Copper [µg/g]	21-Jul-17	16:32	91	99	140	90	150	160	47	42	94	81
Iron [µg/g]	21-Jul-17	15:47	63000	63000	77000	67000	87000	84000	38000	41000	77000	74000
Potassium [µg/g]	21-Jul-17	15:47	5400	7300	4600	9200	1400	670	21000	25000	3200	14000
Lithium [µg/g]	21-Jul-17	16:32	47	38	45	28	22	18	28	28	39	36
Magnesium [µg/g]	21-Jul-17	15:47	22000	21000	18000	21000	43000	42000	14000	15000	27000	23000
Manganese [µg/g]	21-Jul-17	16:33	1300	1500	1300	1400	1500	1600	320	340	1200	1600
Molybdenum [µg/g]	21-Jul-17	16:33	0.3	0.4	0.3	0.3	0.6	0.5	1.8	2.2	0.7	0.6
Sodium [µg/g]	21-Jul-17	15:47	19000	18000	20000	19000	12000	12000	24000	25000	24000	12000
Nickel [µg/g]	21-Jul-17	16:33	100	100	110	100	110	130	62	62	100	94

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LR Report : **CA14001-JUL17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: 317001-FW225 W VOL	6: 317002-FW225 W VOL	7: 317003-FW250 W VOL	8: 317004-FW250 W VOL	9: 317005-VT225 SED	10: 317006-VT225 SED	11: 317007-UP RAMP SED	12: 317008-UP RAMP SED	13: 317009-DRAW pt 350 171 VOL	14: 317010-DRAW pt 350 171 VOL
Phosphorus [µg/g]	21-Jul-17	15:47	310	270	330	300	320	280	420	480	230	330
Lead [µg/g]	21-Jul-17	16:33	5.2	13	20	31	7.5	8.1	15	12	4.9	7.3
Antimony [µg/g]	21-Jul-17	16:33	< 0.8	< 0.8	< 0.8	< 0.8	0.8	< 0.8	< 0.8	< 0.8	1.1	0.8
Selenium [µg/g]	21-Jul-17	16:33	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	21-Jul-17	16:33	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	21-Jul-17	16:33	110	120	120	110	250	190	230	260	130	130
Titanium [µg/g]	21-Jul-17	16:33	2600	2200	3700	2800	4000	3600	2200	2400	3300	3400
Thallium [µg/g]	21-Jul-17	16:33	0.21	0.25	0.14	0.35	0.22	0.09	0.48	0.55	0.11	0.58
Uranium [µg/g]	21-Jul-17	16:33	0.081	0.071	0.098	0.078	0.15	0.15	1.6	1.8	0.15	0.30
Vanadium [µg/g]	21-Jul-17	16:33	170	160	210	180	160	150	88	97	180	190
Yttrium [µg/g]	21-Jul-17	16:33	7.0	7.1	6.2	5.8	14	14	5.9	6.5	9.7	10
Zinc [µg/g]	21-Jul-17	16:33	70	58	71	50	91	80	64	65	85	91

Analysis	15: 317011-FW350 E VOL	16: 317012-FW350 E VOL
Sample Date & Time	21-Jun-17	21-Jun-17
Silver [µg/g]	0.15	0.14
Aluminum [µg/g]	73000	73000
Arsenic [µg/g]	78	77
Barium [µg/g]	230	120
Beryllium [µg/g]	0.49	0.30
Bismuth [µg/g]	< 0.09	< 0.09
Calcium [µg/g]	82000	72000
Cadmium [µg/g]	0.21	0.16
Cobalt [µg/g]	41	45
Chromium [µg/g]	99	96
Copper [µg/g]	66	78
Iron [µg/g]	82000	87000
Potassium [µg/g]	11000	6000
Lithium [µg/g]	48	41
Magnesium [µg/g]	25000	24000
Manganese [µg/g]	1300	1200
Molybdenum [µg/g]	0.5	0.3
Sodium [µg/g]	8000	18000

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LR Report : **CA14001-JUL17**

Analysis	15: 317011-FW350 E VOL	16: 317012-FW350 E VOL
Nickel [µg/g]	91	93
Phosphorus [µg/g]	250	270
Lead [µg/g]	7.6	4.0
Antimony [µg/g]	< 0.8	< 0.8
Selenium [µg/g]	< 0.7	< 0.7
Tin [µg/g]	< 6	< 6
Strontium [µg/g]	110	98
Titanium [µg/g]	3800	3900
Thallium [µg/g]	0.45	0.22
Uranium [µg/g]	0.13	0.072
Vanadium [µg/g]	200	190
Yttrium [µg/g]	8.7	9.1
Zinc [µg/g]	120	100

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11-October-2017

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Date Rec. : 04 July 2017
LR Report: **CA14001-JUL17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: 317001-FW225 W VOL	6: 317002-FW225 W VOL	7: 317003-FW250 W VOL	8: 317004-FW250 W VOL	9: 317005-VT225 SED	10: 317006-VT225 SED	11: 317007-UP RAMP SED	12: 317008-UP RAMP SED	13: 317009-DRAW pt 350 171 VOL	14: 317010-DRAW pt 350 171 VOL
Sample Date & Time			21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17
Silver [µg/g]	21-Jul-17	16:32	0.25	0.77	0.20	0.16	0.15	0.14	0.22	0.24	0.11	0.18
Aluminum [µg/g]	21-Jul-17	15:46	77000	76000	81000	68000	53000	48000	77000	87000	71000	72000
Arsenic [µg/g]	21-Jul-17	16:32	15	100	87	380	24	13	310	150	30	57
Barium [µg/g]	21-Jul-17	16:32	91	88	67	140	310	210	590	680	50	330
Beryllium [µg/g]	21-Jul-17	16:32	0.44	0.32	0.39	0.37	0.50	0.39	1.1	1.2	0.26	0.56
Bismuth [µg/g]	21-Jul-17	16:32	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.12	0.16	< 0.09	< 0.09
Calcium [µg/g]	21-Jul-17	15:47	94000	110000	72000	82000	84000	95000	12000	14000	86000	94000
Cadmium [µg/g]	21-Jul-17	16:32	0.17	0.22	0.17	0.20	0.15	0.17	0.16	0.18	0.21	0.22
Cobalt [µg/g]	21-Jul-17	16:32	42	50	55	44	49	47	22	18	43	41
Chromium [µg/g]	21-Jul-17	16:32	110	100	97	98	170	200	100	110	100	100
Copper [µg/g]	21-Jul-17	16:32	91	99	140	90	150	160	47	42	94	81
Iron [µg/g]	21-Jul-17	15:47	63000	63000	77000	67000	87000	84000	38000	41000	77000	74000
Potassium [µg/g]	21-Jul-17	15:47	5400	7300	4600	9200	1400	670	21000	25000	3200	14000
Lithium [µg/g]	21-Jul-17	16:32	47	38	45	28	22	18	28	28	39	36
Magnesium [µg/g]	21-Jul-17	15:47	22000	21000	18000	21000	43000	42000	14000	15000	27000	23000
Manganese [µg/g]	21-Jul-17	16:33	1300	1500	1300	1400	1500	1600	320	340	1200	1600
Molybdenum [µg/g]	21-Jul-17	16:33	0.3	0.4	0.3	0.3	0.6	0.5	1.8	2.2	0.7	0.6
Sodium [µg/g]	21-Jul-17	15:47	19000	18000	20000	19000	12000	12000	24000	25000	24000	12000
Nickel [µg/g]	21-Jul-17	16:33	100	100	110	100	110	130	62	62	100	94

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LR Report : **CA14001-JUL17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: 317001-FW225 W VOL	6: 317002-FW225 W VOL	7: 317003-FW250 W VOL	8: 317004-FW250 W VOL	9: 317005-VT225 SED	10: 317006-VT225 SED	11: 317007-UP RAMP SED	12: 317008-UP RAMP SED	13: 317009-DRAW pt 350 171 VOL	14: 317010-DRAW pt 350 171 VOL
Phosphorus [µg/g]	21-Jul-17	15:47	310	270	330	300	320	280	420	480	230	330
Lead [µg/g]	21-Jul-17	16:33	5.2	13	20	31	7.5	8.1	15	12	4.9	7.3
Antimony [µg/g]	21-Jul-17	16:33	< 0.8	< 0.8	< 0.8	< 0.8	0.8	< 0.8	< 0.8	< 0.8	1.1	0.8
Selenium [µg/g]	21-Jul-17	16:33	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	21-Jul-17	16:33	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	21-Jul-17	16:33	110	120	120	110	250	190	230	260	130	130
Titanium [µg/g]	21-Jul-17	16:33	2600	2200	3700	2800	4000	3600	2200	2400	3300	3400
Thallium [µg/g]	21-Jul-17	16:33	0.21	0.25	0.14	0.35	0.22	0.09	0.48	0.55	0.11	0.58
Uranium [µg/g]	21-Jul-17	16:33	0.081	0.071	0.098	0.078	0.15	0.15	1.6	1.8	0.15	0.30
Vanadium [µg/g]	21-Jul-17	16:33	170	160	210	180	160	150	88	97	180	190
Yttrium [µg/g]	21-Jul-17	16:33	7.0	7.1	6.2	5.8	14	14	5.9	6.5	9.7	10
Zinc [µg/g]	21-Jul-17	16:33	70	58	71	50	91	80	64	65	85	91

Analysis	15: 317011-FW350 E VOL	16: 317012-FW350 E VOL
Sample Date & Time	21-Jun-17	21-Jun-17
Silver [µg/g]	0.15	0.14
Aluminum [µg/g]	73000	73000
Arsenic [µg/g]	78	77
Barium [µg/g]	230	120
Beryllium [µg/g]	0.49	0.30
Bismuth [µg/g]	< 0.09	< 0.09
Calcium [µg/g]	82000	72000
Cadmium [µg/g]	0.21	0.16
Cobalt [µg/g]	41	45
Chromium [µg/g]	99	96
Copper [µg/g]	66	78
Iron [µg/g]	82000	87000
Potassium [µg/g]	11000	6000
Lithium [µg/g]	48	41
Magnesium [µg/g]	25000	24000
Manganese [µg/g]	1300	1200
Molybdenum [µg/g]	0.5	0.3
Sodium [µg/g]	8000	18000

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LR Report : **CA14001-JUL17**

Analysis	15: 317011-FW350 E VOL	16: 317012-FW350 E VOL
Nickel [µg/g]	91	93
Phosphorus [µg/g]	250	270
Lead [µg/g]	7.6	4.0
Antimony [µg/g]	< 0.8	< 0.8
Selenium [µg/g]	< 0.7	< 0.7
Tin [µg/g]	< 6	< 6
Strontium [µg/g]	110	98
Titanium [µg/g]	3800	3900
Thallium [µg/g]	0.45	0.22
Uranium [µg/g]	0.13	0.072
Vanadium [µg/g]	200	190
Yttrium [µg/g]	8.7	9.1
Zinc [µg/g]	120	100

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Project Specialist
Environmental Services, Analytical

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Shake Flask Leach (3:1 Ratio)

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11-October-2017

Date Rec. : 04 July 2017
LR Report: **CA14003-JUL17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: 317001-FW225W VOL	6: 317002-FW225W VOL	7: 317003-FW250W VOL	8: 317004-FW250W VOL	9: 317005-VT225 SED	10: 317006-VT225 SED	11: 317007-UP RAMP SED	12: 317008-UP RAMP SED	13: 317009-DRAW pt 350 171 VOL
Sample Date & Time			21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17	21-Jun-17
Sample weight [g]	21-Jul-17	14:09	250	250	250	250	250	250	250	250	250
Volume D.I. Water [mL]	21-Jul-17	14:09	750	750	750	750	750	750	750	750	750
Final pH	21-Jul-17	14:09	8.62	8.52	8.50	8.45	8.84	8.93	8.60	8.61	8.53
pH [no unit]	24-Jul-17	15:36	8.29	8.28	8.30	8.37	8.26	8.50	8.09	8.23	8.21
Conductivity [uS/cm]	24-Jul-17	15:36	173	230	235	467	747	504	1310	1230	858
Alkalinity [mg/L as CaCO3]	24-Jul-17	15:36	64	78	84	96	31	35	43	49	50
Sulphate [mg/L]	21-Jul-17	15:13	< 2	3	< 2	7	8	3	31	28	9
Mercury [mg/L]	24-Jul-17	10:24	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	25-Jul-17	15:22	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	25-Jul-17	15:22	0.592	0.530	0.482	0.399	0.175	0.190	0.317	0.367	0.323
Arsenic [mg/L]	25-Jul-17	15:22	0.0014	0.0201	0.0136	0.0324	0.0027	0.0010	0.0603	0.0375	0.0018
Barium [mg/L]	25-Jul-17	15:22	0.00068	0.00060	0.00041	0.00188	0.395	0.399	0.0189	0.0167	0.00492
Boron [mg/L]	25-Jul-17	15:22	0.011	0.009	0.005	0.011	0.051	0.091	0.039	0.037	0.030
Beryllium [mg/L]	25-Jul-17	15:22	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	25-Jul-17	15:22	< 0.000007	< 0.000007	0.000013	0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	25-Jul-17	15:22	13.5	15.8	17.3	22.1	28.7	20.6	45.5	43.3	37.1
Cadmium [mg/L]	25-Jul-17	15:22	0.000006	< 0.000003	< 0.000003	< 0.000003	0.000003	< 0.000003	0.000003	< 0.000003	0.000005
Cobalt [mg/L]	25-Jul-17	15:22	0.000019	0.000079	0.000069	0.000144	0.000188	0.000206	0.000535	0.000739	0.000100
Chromium [mg/L]	25-Jul-17	15:22	0.00012	0.00016	0.00010	0.00009	0.00012	0.00008	0.00019	0.00009	0.00019

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA14003-JUL17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: 317001-FW225W VOL	6: 317002-FW225W VOL	7: 317003-FW250W VOL	8: 317004-FW250W VOL	9: 317005-VT225 SED	10: 317006-VT225 SED	11: 317007-UP RAMP SED	12: 317008-UP RAMP SED	13: 317009-DRAW pt 350 171 VOL
Copper [mg/L]	25-Jul-17	15:22	0.00037	0.00018	0.00033	0.00009	0.00018	0.00023	0.00012	0.00029	0.00021
Iron [mg/L]	25-Jul-17	15:22	< 0.007	< 0.007	0.015	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	25-Jul-17	15:22	3.00	4.48	2.31	9.80	6.23	4.22	27.1	29.6	8.73
Lithium [mg/L]	25-Jul-17	15:22	0.0045	0.0047	0.0056	0.0075	0.0015	0.0009	0.0111	0.0100	0.0044
Manganese [mg/L]	25-Jul-17	15:22	0.00400	0.00592	0.00780	0.0102	0.00300	0.00266	0.00581	0.00514	0.00883
Magnesium [mg/L]	25-Jul-17	15:22	5.16	8.51	7.15	14.1	8.88	5.98	18.4	16.7	13.0
Molybdenum [mg/L]	25-Jul-17	15:22	0.00173	0.00051	0.00030	0.00023	0.00060	0.00037	0.00132	0.00165	0.00095
Sodium [mg/L]	25-Jul-17	15:22	13.7	18.9	20.4	45.8	91.7	52.0	158	139	93.8
Nickel [mg/L]	25-Jul-17	15:22	< 0.0001	0.0004	0.0008	0.0009	< 0.0001	< 0.0001	0.0007	0.0006	< 0.0001
Phosphorus [mg/L]	25-Jul-17	15:22	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.004	0.005	< 0.003
Lead [mg/L]	25-Jul-17	15:22	0.00006	0.00005	0.00003	0.00001	0.00001	0.00002	0.00003	0.00003	0.00002
Antimony [mg/L]	25-Jul-17	15:22	0.0025	0.0023	0.0024	0.0020	0.0014	0.0015	0.0030	0.0034	0.0017
Selenium [mg/L]	25-Jul-17	15:22	0.00005	0.00021	0.00012	0.00037	0.00007	0.00007	0.00017	0.00020	0.00018
Silicon [mg/L]	25-Jul-17	15:22	1.20	1.20	1.10	1.41	2.15	2.03	2.06	1.92	1.17
Tin [mg/L]	25-Jul-17	15:22	0.00065	0.00010	0.00010	0.00005	0.00007	0.00006	0.00012	0.00012	0.00011
Strontium [mg/L]	25-Jul-17	15:22	0.0302	0.0337	0.0365	0.0781	0.732	0.395	0.821	0.666	0.461
Titanium [mg/L]	25-Jul-17	15:22	0.00017	< 0.00005	0.00005	< 0.00005	< 0.00005	< 0.00005	0.00008	< 0.00005	< 0.00005
Thallium [mg/L]	25-Jul-17	15:22	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.000087	0.000069	0.000028	0.000025	0.000051
Uranium [mg/L]	25-Jul-17	15:22	0.000021	0.000006	0.000003	0.000004	0.000003	< 0.000002	0.000066	0.000077	0.000004
Vanadium [mg/L]	25-Jul-17	15:22	0.00060	0.00058	0.00046	0.00058	0.00077	0.00068	0.00091	0.00085	0.00035
Zinc [mg/L]	25-Jul-17	15:22	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	25-Jul-17	15:22	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

Analysis	14: 317010-DRAW pt 350 171 VOL	15: 317011-FW350E VOL	16: 317012-FW350E VOL	17: 317012-FW350E VOL
Sample Date & Time	21-Jun-17	21-Jun-17	21-Jun-17	
Sample weight [g]	250	250	250	250
Volume D.I. Water [mL]	750	750	750	750
Final pH	8.57	8.56	8.61	8.58
pH [no unit]	8.10	8.12	8.16	8.18
Conductivity [uS/cm]	518	445	396	413
Alkalinity [mg/L as CaCO3]	57	57	53	53
Sulphate [mg/L]	4	4	4	4
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA14003-JUL17**

Analysis	14: 317010-DRAW pt 350 171 VOL	15: 317011-FW350E VOL	16: 317012-FW350E VOL	17: 317012-FW350E VOL
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.385	0.410	0.457	0.447
Arsenic [mg/L]	0.0139	0.0137	0.0110	0.0106
Barium [mg/L]	0.00345	0.00258	0.00335	0.00210
Boron [mg/L]	0.020	0.019	0.015	0.014
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	23.7	22.1	21.6	21.3
Cadmium [mg/L]	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	0.000190	0.000117	0.000078	0.000083
Chromium [mg/L]	0.00011	0.00006	0.00006	0.00016
Copper [mg/L]	0.00019	0.00012	0.00008	0.00019
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	14.0	11.7	8.34	8.39
Lithium [mg/L]	0.0026	0.0029	0.0019	0.0019
Manganese [mg/L]	0.00640	0.00597	0.00461	0.00462
Magnesium [mg/L]	8.21	7.24	6.07	6.12
Molybdenum [mg/L]	0.00050	0.00027	0.00040	0.00034
Sodium [mg/L]	52.8	42.5	42.3	42.5
Nickel [mg/L]	0.0002	0.0002	0.0001	0.0001
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	0.00001	0.00002	0.00001	0.00002
Antimony [mg/L]	0.0020	0.0023	0.0016	0.0016
Selenium [mg/L]	0.00012	0.00013	0.00016	0.00012
Silicon [mg/L]	1.14	1.03	1.06	1.10
Tin [mg/L]	0.00007	0.00007	0.00004	0.00009
Strontium [mg/L]	0.164	0.122	0.129	0.129
Titanium [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium [mg/L]	0.000032	0.000023	0.000025	0.000020
Uranium [mg/L]	0.000002	0.000003	< 0.000002	< 0.000002
Vanadium [mg/L]	0.00041	0.00034	0.00041	0.00043
Zinc [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA14003-JUL17**

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Project Specialist
Environmental Services, Analytical

OnLine LIMS

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ABA - Modified Sobek

Agnico Eagle Mines Limited
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10-October-2017

Date Rec. : 18 September 2017
LR Report: **CA13713-SEP17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: CAEXD317013-UP Ramp 225	6: CAEXD317014-UP Ramp 225	7: CAEXD317015-DD200	8: CAEXD317016-DD2200	9: CAEXD317017-FW2-300W	10: CAEXD317018-DP-350-151	11: CAEXD317019-FW350W	12: CAEXD317020-FW350W	13: CAEXD251474-PR425-400
Sample Date & Time			13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17
Paste pH	28-Sep-17	15:42	8.34	8.76	8.62	8.86	8.75	8.03	8.38	8.30	9.50
Fizz Rate [---]	28-Sep-17	15:42	3	3	3	3	3	3	3	3	3
Sample weight [g]	28-Sep-17	15:42	2.03	2.04	2.00	2.04	2.00	1.98	2.03	1.98	1.98
HCl Added [mL]	28-Sep-17	15:42	31.00	32.00	125.00	112.00	55.00	71.00	161.00	132.00	44.00
HCl [Normality]	28-Sep-17	15:42	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	28-Sep-17	15:42	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	28-Sep-17	15:42	16.50	16.73	51.50	32.58	26.36	30.46	72.66	52.29	26.34
Final pH	28-Sep-17	15:42	1.72	1.84	1.62	1.90	1.68	1.67	1.55	1.57	1.65
NP [t CaCO3/1000 t]	28-Sep-17	15:42	36	37	184	195	72	102	218	201	45
AP [t CaCO3/1000 t]	---	---	5.00	5.94	2.19	6.56	2.81	4.06	2.50	1.56	2.50
Net NP [t CaCO3/1000 t]	---	---	30.7	31.5	182	188	68.8	98.3	215	200	42.1
NP/AP [ratio]	---	---	7.14	6.30	84.0	29.7	25.5	25.2	87.0	129	17.8
Sulphur (total) [%]	28-Sep-17	12:16	0.193	0.234	0.100	0.240	0.106	0.179	0.096	0.053	0.130
Acid Leachable SO4-S [%]	---	---	---	0.04	0.03	0.03	< 0.02	0.05	< 0.02	< 0.02	0.05
Sulphide [%]	28-Sep-17	12:16	0.16	0.19	0.07	0.21	0.09	0.13	0.08	0.05	0.08
Carbon (total) [%]	28-Sep-17	12:16	0.435	0.478	2.42	2.66	1.02	1.39	2.98	2.63	0.393
Carbonate [%]	28-Sep-17	12:16	0.465	1.40	11.2	12.4	3.83	4.44	13.9	12.3	1.44

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ABA - Modified Sobek

LR Report : **CA13713-SEP17**

Analysis	14: CAEXD251475-R P425-400	15: CAMLD160902-FW400E	16: CAMLD160903-FW400E
Sample Date & Time	13-Sep-17	13-Sep-17	13-Sep-17
Paste pH	9.16	8.55	9.14
Fizz Rate [---]	3	3	3
Sample weight [g]	2.00	1.99	1.97
HCl Added [mL]	28.00	131.00	125.00
HCl [Normality]	0.10	0.10	0.10
NaOH [Normality]	0.10	0.10	0.10
NaOH to pH=8.3 [mL]	19.98	39.21	50.81
Final pH	1.66	1.79	1.58
NP [t CaCO3/1000 t]	20	231	188
AP [t CaCO3/1000 t]	2.19	7.19	3.44
Net NP [t CaCO3/1000 t]	17.9	223	185
NP/AP [ratio]	9.19	32.1	54.8
Sulphur (total) [%]	0.106	0.390	0.128
Acid Leachable SO4-S [%]	0.04	0.16	< 0.02
Sulphide [%]	0.07	0.23	0.11
Carbon (total) [%]	0.086	2.92	2.49
Carbonate [%]	0.090	13.8	11.9

Brian Graham B.Sc.
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10-October-2017

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Date Rec. : 18 September 2017
LR Report: **CA13714-SEP17**
Reference: OL-617203

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: CAEXD317013-UP Ramp 225	6: CAEXD317014-UP Ramp 225	7: CAEXD317015-DD200	8: CAEXD317016-DD2200	9: CAEXD317017-FW2-300W	10: CAEXD317018-DP-350-151	11: CAEXD317019-FW350W	12: CAEXD317020-FW350W	13: CAEXD251474-PR425-400
Sample Date & Time			13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17
Silver [µg/g]	03-Oct-17	09:21	0.03	0.03	0.01	0.02	< 0.01	0.02	0.02	0.01	0.02
Aluminum [µg/g]	03-Oct-17	15:24	85000	85000	70000	68000	49000	67000	68000	69000	68000
Arsenic [µg/g]	03-Oct-17	09:21	27	9.7	1.1	1.3	4.1	14	6.9	5.7	9.0
Barium [µg/g]	03-Oct-17	09:21	120	130	5.3	4.8	72	66	21	26	140
Beryllium [µg/g]	03-Oct-17	09:21	0.24	0.25	0.06	0.06	0.17	0.14	0.08	0.09	0.18
Bismuth [µg/g]	03-Oct-17	09:21	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Calcium [µg/g]	03-Oct-17	15:23	9500	9600	71000	73000	24000	40000	89000	74000	54000
Cadmium [µg/g]	03-Oct-17	09:21	0.04	0.04	0.04	0.04	< 0.02	0.03	0.03	0.02	0.05
Cobalt [µg/g]	03-Oct-17	09:21	5.2	4.9	9.1	8.4	1.6	4.1	8.4	7.7	10
Chromium [µg/g]	03-Oct-17	09:21	20	19	23	23	5.3	12	23	25	11
Copper [µg/g]	03-Oct-17	09:21	13	10	18	21	5.3	13	19	14	28
Iron [µg/g]	03-Oct-17	15:23	47000	44000	87000	80000	130000	81000	67000	67000	100000
Potassium [µg/g]	03-Oct-17	15:23	24000	25000	2000	2100	11000	10000	9000	10000	16000
Lithium [µg/g]	03-Oct-17	09:21	10	10	12	10	4	7	11	11	8
Magnesium [µg/g]	03-Oct-17	15:23	18000	16000	26000	19000	8800	16000	24000	27000	24000
Manganese [µg/g]	03-Oct-17	09:21	110	82	360	380	70	150	330	280	270
Molybdenum [µg/g]	03-Oct-17	09:21	0.4	0.3	< 0.1	< 0.1	0.2	0.4	< 0.1	< 0.1	0.3
Sodium [µg/g]	03-Oct-17	15:23	18000	18000	16000	21000	14000	19000	9700	8400	14000
Nickel [µg/g]	03-Oct-17	09:21	19	17	20	20	4.3	11	22	21	18

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LR Report : **CA13714-SEP17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: CAEXD317013-UP Ramp 225	6: CAEXD317014-UP Ramp 225	7: CAEXD317015-DD200	8: CAEXD317016-DD2200	9: CAEXD317017-FW2-300W	10: CAEXD317018-DP-350-151	11: CAEXD317019-FW350W	12: CAEXD317020-FW350W	13: CAEXD251474-PR425-400
Phosphorus [µg/g]	03-Oct-17	15:24	480	520	270	240	520	410	250	280	850
Lead [µg/g]	03-Oct-17	09:21	3.8	2.7	0.91	1.0	0.94	2.1	0.41	0.37	3.2
Antimony [µg/g]	03-Oct-17	09:21	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	03-Oct-17	09:21	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	03-Oct-17	09:21	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	03-Oct-17	09:21	51	54	25	21	46	68	31	30	45
Titanium [µg/g]	03-Oct-17	09:21	150	150	940	990	290	410	780	580	1700
Thallium [µg/g]	03-Oct-17	09:21	0.10	0.11	< 0.02	< 0.02	0.04	0.04	0.05	0.06	0.11
Uranium [µg/g]	03-Oct-17	09:21	0.33	0.34	0.014	0.013	0.16	0.16	0.017	0.019	0.27
Vanadium [µg/g]	03-Oct-17	09:21	25	24	52	53	8	20	48	44	36
Yttrium [µg/g]	03-Oct-17	09:21	1.1	1.1	2.5	2.2	1.1	1.4	2.4	1.5	4.7
Zinc [µg/g]	03-Oct-17	09:21	20	18	28	28	9.8	14	17	16	28

Analysis	14: CAEXD251475-RP425-400	15: CAMLD160902-FW400E	16: CAMLD160903-FW400E
Sample Date & Time	13-Sep-17	13-Sep-17	13-Sep-17
Silver [µg/g]	0.03	0.01	0.02
Aluminum [µg/g]	68000	66000	73000
Arsenic [µg/g]	10	2.8	3.4
Barium [µg/g]	100	39	9.8
Beryllium [µg/g]	0.20	0.09	0.07
Bismuth [µg/g]	< 0.09	< 0.09	< 0.09
Calcium [µg/g]	50000	87000	69000
Cadmium [µg/g]	0.05	0.04	0.03
Cobalt [µg/g]	11	9.2	9.3
Chromium [µg/g]	11	21	24
Copper [µg/g]	32	16	26
Iron [µg/g]	100000	63000	64000
Potassium [µg/g]	11000	7800	5000
Lithium [µg/g]	6	9	10
Magnesium [µg/g]	24000	20000	25000
Manganese [µg/g]	270	330	300
Molybdenum [µg/g]	0.2	0.2	0.2
Sodium [µg/g]	15000	14000	22000

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

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LR Report : **CA13714-SEP17**

Analysis	14: CAEXD251475-R P425-400	15: CAMLD160902-FW400E	16: CAMLD160903-FW400E
Nickel [µg/g]	18	21	23
Phosphorus [µg/g]	870	210	220
Lead [µg/g]	1.9	0.54	0.46
Antimony [µg/g]	< 0.8	< 0.8	< 0.8
Selenium [µg/g]	< 0.7	< 0.7	< 0.7
Tin [µg/g]	< 6	< 6	< 6
Strontium [µg/g]	45	336	33
Titanium [µg/g]	1900	730	750
Thallium [µg/g]	0.07	0.04	0.03
Uranium [µg/g]	0.25	0.028	0.014
Vanadium [µg/g]	38	44	49
Yttrium [µg/g]	4.9	2.2	2.2
Zinc [µg/g]	28	18	16

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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10-October-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake
, Nunavut
X0C 0A0,

Phone: (819) 759-3555 x3928
Fax:(819) 759-3663

Date Rec. : 18 September 2017
LR Report: **CA13715-SEP17**
Reference: OL-617203

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	5: CAEXD317013-UP Ramp 225	6: CAEXD317014-UP Ramp 225	7: CAEXD317015-DD200	8: CAEXD317016-DD2200	9: CAEXD317017-FW2-300W	10: CAEXD317018-DP-350-151	11: CAEXD317019-FW350W	12: CAEXD317020-FW350W	13: CAEXD251474-PR425-400	14: CAEXD251475-RP425-400
Sample Date & Time	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17
SiO2 [%]	58.2	59.6	43.5	43.4	57.0	54.2	42.5	45.0	50.2	51.1
Al2O3 [%]	18.6	18.1	13.5	13.8	9.87	13.2	13.3	13.4	13.4	13.8
Fe2O3 [%]	7.23	6.68	12.9	12.1	19.7	11.9	9.93	10.0	15.8	16.3
MgO [%]	3.22	2.94	4.37	3.39	1.59	2.79	4.08	4.69	4.29	4.34
CaO [%]	1.47	1.45	10.5	11.2	3.44	5.78	13.4	11.2	8.31	7.65
Na2O [%]	2.52	2.50	2.27	3.04	2.04	2.64	1.34	1.14	2.04	2.25
K2O [%]	2.78	2.84	0.22	0.23	1.27	1.14	1.00	1.15	1.80	1.32
TiO2 [%]	0.72	0.69	0.93	0.91	0.28	0.52	0.84	0.81	1.55	1.67
P2O5 [%]	0.13	0.13	0.07	0.07	0.14	0.11	0.06	0.07	0.21	0.22
MnO [%]	0.07	0.05	0.24	0.25	0.04	0.10	0.22	0.18	0.18	0.18
Cr2O3 [%]	0.03	0.02	0.02	0.02	< 0.01	< 0.01	0.03	0.04	0.01	< 0.01
V2O5 [%]	0.03	0.02	0.04	0.05	< 0.01	0.02	0.04	0.05	0.05	0.04
LOI [%]	4.89	4.73	11.7	11.7	4.91	7.61	13.6	12.6	2.58	1.73
Sum [%]	99.8	99.7	100.4	100.1	100.3	100.0	100.4	100.4	100.4	100.6

OnLine LIMS

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LR Report : **CA13715-SEP17**

Analysis	15: CAMLD160902-FW400E	16: CAMLD160903-FW400E
Sample Date & Time	13-Sep-17	13-Sep-17
SiO2 [%]	43.5	45.4
Al2O3 [%]	12.9	14.6
Fe2O3 [%]	9.34	9.49
MgO [%]	3.58	4.37
CaO [%]	13.2	10.5
Na2O [%]	1.99	3.13
K2O [%]	0.88	0.57
TiO2 [%]	0.81	0.88
P2O5 [%]	0.07	0.07
MnO [%]	0.22	0.19
Cr2O3 [%]	0.03	0.03
V2O5 [%]	0.04	0.05
LOI [%]	12.8	11.2
Sum [%]	99.4	100.5

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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10-October-2017

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

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, Nunavut
X0C 0A0,

Phone: (819) 759-3555 x3928
Fax:(819) 759-3663

Date Rec. : 18 September 2017
LR Report: **CA13716-SEP17**
Reference: OL-617203

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: CAEXD317013-UP Ramp 225	6: CAEXD317014-UP Ramp 225	7: CAEXD317015-DD 200	8: CAEXD317016-DD 2200	9: CAEXD317017-FW 2-300W	10: CAEXD317018-DP- 350-151	11: CAEXD317019-FW 350W	12: CAEXD317020-FW 350W
Sample Date & Time			13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17
Sample weight [g]	26-Sep-17	14:37	250	250	250	250	250	250	250	250
Volume D.I. Water [mL]	26-Sep-17	14:37	750	750	750	750	750	750	750	750
Final pH	26-Sep-17	14:37	8.82	8.92	8.76	8.61	8.73	8.20	8.74	8.77
pH [no unit]	26-Sep-17	14:40	8.38	8.14	8.14	8.19	8.13	7.58	8.13	8.19
Conductivity [uS/cm]	26-Sep-17	14:40	736	443	208	214	435	3160	465	474
Alkalinity [mg/L as CaCO3]	26-Sep-17	14:40	49	45	55	69	55	36	43	43
Sulphate [mg/L]	27-Sep-17	12:48	13	8	< 2	2	8	160	7	6
Mercury [mg/L]	28-Sep-17	08:25	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	29-Sep-17	13:22	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	29-Sep-17	13:22	0.473	0.624	0.464	0.453	0.405	0.146	0.437	0.445
Arsenic [mg/L]	29-Sep-17	13:22	0.0181	0.0146	0.0004	0.0004	0.0047	0.0072	0.0042	0.0026
Barium [mg/L]	29-Sep-17	13:22	0.00592	0.00412	0.00042	0.00031	0.00801	0.0714	0.00145	0.00193
Boron [mg/L]	29-Sep-17	13:22	0.029	0.024	0.007	0.008	0.017	0.304	0.020	0.024
Beryllium [mg/L]	29-Sep-17	13:22	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	29-Sep-17	13:22	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	29-Sep-17	13:22	23.3	16.1	14.5	17.1	19.8	170	23.0	22.3
Cadmium [mg/L]	29-Sep-17	13:22	0.000007	0.000003	0.000010	0.000006	0.000003	0.000016	0.000009	0.000007
Cobalt [mg/L]	29-Sep-17	13:22	0.000301	0.000204	0.000034	0.000017	0.000049	0.000293	0.000063	0.000064
Chromium [mg/L]	29-Sep-17	13:22	0.00014	0.00016	0.00015	0.00008	0.00013	0.00013	0.00013	0.00022

OnLine LIMS

0001160202

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA13716-SEP17**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: CAEXD317013-UP Ramp 225	6: CAEXD317014-UP Ramp 225	7: CAEXD317015-DD 200	8: CAEXD317016-DD 2200	9: CAEXD317017-FW 2-300W	10: CAEXD317018-DP- 350-151	11: CAEXD317019-FW 350W	12: CAEXD317020-FW 350W
Copper [mg/L]	29-Sep-17	13:22	0.00020	0.00019	0.00015	0.00014	0.00030	0.00037	0.00011	0.00027
Iron [mg/L]	29-Sep-17	13:22	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	29-Sep-17	13:22	22.5	20.4	2.06	1.96	13.3	30.1	10.1	10.4
Lithium [mg/L]	29-Sep-17	13:22	0.0023	0.0015	0.0029	0.0040	0.0020	0.112	0.0025	0.0028
Manganese [mg/L]	29-Sep-17	13:22	0.00132	0.00113	0.00366	0.00565	0.00154	0.0321	0.00404	0.00311
Magnesium [mg/L]	29-Sep-17	13:22	7.89	4.84	4.55	6.32	5.99	49.8	5.29	5.75
Molybdenum [mg/L]	29-Sep-17	13:22	0.00124	0.00088	0.00022	0.00027	0.00086	0.00540	0.00080	0.00069
Sodium [mg/L]	29-Sep-17	13:22	68.3	42.7	16.4	16.5	47.9	327	44.0	45.7
Nickel [mg/L]	29-Sep-17	13:22	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0007	< 0.0001	< 0.0001
Phosphorus [mg/L]	29-Sep-17	13:22	< 0.003	0.004	< 0.003	< 0.003	< 0.003	0.007	< 0.003	< 0.003
Lead [mg/L]	29-Sep-17	13:22	0.00002	0.00006	< 0.00001	< 0.00001	0.00002	0.00003	< 0.00001	0.00004
Antimony [mg/L]	29-Sep-17	13:22	0.0030	0.0028	0.0015	0.0017	0.0010	0.0016	0.0007	0.0006
Selenium [mg/L]	29-Sep-17	13:22	0.00006	0.00007	0.00004	0.00008	0.00008	0.00019	0.00004	0.00004
Silicon [mg/L]	29-Sep-17	13:22	1.51	1.55	1.08	0.98	1.66	2.00	1.09	1.16
Tin [mg/L]	29-Sep-17	13:22	0.00010	0.00009	0.00010	0.00012	0.00018	0.00026	0.00004	0.00011
Strontium [mg/L]	29-Sep-17	13:22	0.195	0.106	0.0478	0.0407	0.179	4.11	0.119	0.164
Titanium [mg/L]	29-Sep-17	13:22	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00006	< 0.00005	< 0.00005
Thallium [mg/L]	29-Sep-17	13:22	0.000029	0.000014	0.000005	< 0.000005	0.000008	0.000065	0.000037	0.000035
Uranium [mg/L]	29-Sep-17	13:22	0.000012	0.000014	< 0.000002	< 0.000002	0.000010	0.000187	< 0.000002	0.000002
Vanadium [mg/L]	29-Sep-17	13:22	0.00073	0.00129	0.00031	0.00030	0.00020	0.00019	0.00043	0.00043
Zinc [mg/L]	29-Sep-17	13:22	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	29-Sep-17	13:22	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

Analysis	13: CAEXD251474-PR 425-400	14: CAEXD251475-RP 425-400	15: CAMLD160902-FW 400E	16: CAMLD160903-FW 400E	17: CAMLD160903-FW 400E	18:BLK: $D.I. Leachate Blank
Sample Date & Time	13-Sep-17	13-Sep-17	13-Sep-17	13-Sep-17		
Sample weight [g]	250	250	250	250	250	250
Volume D.I. Water [mL]	750	750	750	750	750	750
Final pH	9.66	9.46	9.02	9.05	8.96	5.67
pH [no unit]	8.52	8.42	8.23	8.08	8.01	5.37
Conductivity [uS/cm]	324	450	160	121	133	3
Alkalinity [mg/L as CaCO3]	28	23	45	49	51	< 2
Sulphate [mg/L]	7	11	3	< 2	< 2	< 2
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001

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0001160202

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA13716-SEP17**

Analysis	13: CAEXD251474-PR 425-400	14: CAEXD251475-RP 425-400	15: CAMLD160902-FW 400E	16: CAMLD160903-FW 400E	17: CAMLD160903-FW 400E	18:BLK: $D.I. Leachate Blank
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	0.641	0.411	0.789	0.617	0.589	0.001
Arsenic [mg/L]	0.0123	0.0091	0.0006	0.0010	0.0010	< 0.0002
Barium [mg/L]	0.0329	0.0516	0.00180	0.00032	0.00042	0.00013
Boron [mg/L]	0.025	0.031	0.012	0.006	0.006	< 0.002
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	5.73	11.2	13.2	9.43	10.6	0.08
Cadmium [mg/L]	0.000012	< 0.000003	0.000012	0.000009	0.000011	0.000010
Cobalt [mg/L]	0.000044	0.000066	0.000175	0.000074	0.000089	< 0.000004
Chromium [mg/L]	0.00025	0.00021	0.00022	0.00016	0.00012	0.00017
Copper [mg/L]	0.00032	0.00015	0.00054	0.00022	0.00019	0.00042
Iron [mg/L]	0.008	0.008	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	24.6	21.5	6.90	2.80	2.91	0.119
Lithium [mg/L]	0.0134	0.0074	0.0021	0.0019	0.0021	0.0001
Manganese [mg/L]	0.00029	0.00024	0.00267	0.00150	0.00190	0.00112
Magnesium [mg/L]	0.636	1.72	2.38	3.12	3.63	0.006
Molybdenum [mg/L]	0.00112	0.00138	0.00032	0.00014	0.00014	0.00005
Sodium [mg/L]	35.3	54.2	8.69	8.63	9.89	0.12
Nickel [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Phosphorus [mg/L]	< 0.003	0.010	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	0.00005	0.00004	0.00008	0.00004	0.00003	0.00006
Antimony [mg/L]	0.0099	0.0083	0.0012	0.0010	0.0011	0.0004
Selenium [mg/L]	0.00021	0.00011	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	3.04	2.89	0.92	1.20	1.31	< 0.02
Tin [mg/L]	0.00019	0.00015	0.00025	0.00017	0.00008	0.00010
Strontium [mg/L]	0.0501	0.111	0.364	0.0249	0.0296	0.00011
Titanium [mg/L]	0.00021	0.00035	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Thallium [mg/L]	< 0.000005	0.000007	0.000014	< 0.000005	0.000005	< 0.000005
Uranium [mg/L]	0.000010	0.000012	< 0.000002	< 0.000002	< 0.000002	< 0.000002
Vanadium [mg/L]	0.0105	0.00694	0.00074	0.00106	0.00087	< 0.00001
Zinc [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

OnLine LIMS

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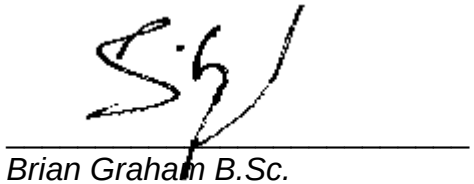
0001160202

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

LR Report : **CA13716-SEP17**



Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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SGS Canada Inc.
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Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake
, Nunavut
X0C 0A0,

Phone: (819) 759-3555 x3928
Fax:(819) 759-3663

ABA - Modified Sobek

Project : PO#617203

17-January-2018

Date Rec. : 04 January 2018
LR Report: **CA12147-JAN18**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: CALM006901-F W325W	6: CALM106904-F W400E	7: CALM106905-F W325W	8: CALM106906-F W350W	9: CALM106907-RP-375-350	10: CALM106908-F W350E	11: CALM106909-C C300-152	12: CALM1069010-D P325-156	13: CALM1069011-F W400E	14: CALM1069012-VA425
Sample Date & Time			30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17
Paste pH	16-Jan-18	12:35	8.49	8.25	8.17	8.54	8.96	8.61	8.51	8.99	8.47	8.42
Fizz Rate [---]	16-Jan-18	12:35	4	4	4	4	4	4	4	4	4	4
Sample weight [g]	16-Jan-18	12:35	2.01	2.02	2.02	2.02	2.02	2.02	2.03	2.04	2.03	1.99
HCl_add [mL]	16-Jan-18	12:35	114.50	131.30	42.60	115.20	40.00	151.70	59.40	50.00	105.50	65.00
HCl [Normality]	16-Jan-18	12:35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
NaOH [Normality]	16-Jan-18	12:35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Vol NaOH to pH=8.3 [mL]	16-Jan-18	12:35	20.17	40.23	20.40	26.91	26.92	64.22	19.79	24.98	32.60	17.90
Final pH	16-Jan-18	12:35	1.63	1.64	1.65	1.90	1.58	1.56	1.81	1.64	1.72	1.85
NP [t CaCO3/1000 t]	16-Jan-18	12:35	235	225	55	218	32	216	98	61	180	118
AP [t CaCO3/1000 t]	---	---	5.31	0.94	7.81	4.38	4.06	5.31	6.88	2.50	4.06	0.62
Net NP [t CaCO3/1000 t]	---	---	229	224	47.1	214	28.3	211	90.7	58.8	175	118
NP/AP [ratio]	---	---	44.2	240	7.03	49.9	7.98	40.8	14.2	24.5	44.2	191
S [%]	11-Jan-18	11:55	0.248	0.047	0.294	0.201	0.185	0.258	0.243	0.121	0.169	0.074
Acid Leachable SO4-S [%]	---	---	0.08	< 0.02	0.04	0.06	0.06	0.09	0.02	0.04	0.04	0.07
Sulphide [%]	11-Jan-18	11:55	0.17	0.03	0.25	0.14	0.13	0.17	0.22	0.08	0.13	< 0.02
C [%]	11-Jan-18	13:11	2.60	2.88	0.848	3.06	0.221	3.09	1.66	0.864	2.29	1.48
CO3 [%]	11-Jan-18	13:11	12.0	13.5	1.56	12.8	0.500	13.9	6.65	3.25	10.4	6.66

OnLine LIMS

00012588 71

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SGS Canada Inc.
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Phone: 705-652-2000 FAX: 705-652-6365

ABA - Modified Sobek

Project : PO#617203

LR Report : **CA12147-JAN18**

Analysis	15: CALM1069013-LA425	16: CALM1069014-RP000-225
Sample Date & Time	30-Dec-17	30-Dec-17
Paste pH	8.56	8.61
Fizz Rate [---]	4	3
Sample weight [g]	2.01	2.00
HCl_add [mL]	136.70	30.00
HCl [Normality]	0.10	0.10
NaOH [Normality]	0.10	0.10
Vol NaOH to pH=8.3 [mL]	41.90	15.92
Final pH	1.73	1.60
NP [t CaCO3/1000 t]	236	35
AP [t CaCO3/1000 t]	1.56	3.12
Net NP [t CaCO3/1000 t]	234	32.1
NP/AP [ratio]	151	11.3
S [%]	0.090	0.143
Acid Leachable SO4-S [%]	0.04	0.04
Sulphide [%]	0.05	0.10
C [%]	2.82	0.455
CO3 [%]	14.0	1.08

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001258871

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Project : PO#617203

07-March-2018

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Date Rec. : 04 January 2018
LR Report: **CA12148-JAN18**

Baker Lake
, Nunavut
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CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: CALM006901-FW 325W	6: CALM106904-FW 400E	7: CALM106905-FW 325W	8: CALM106906-FW 350W	9: CALM106907-RP-375-350	10: CALM106908-FW 350E	11: CALM106909-CC 300-152
Sample Date & Time					30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17
Silver [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	0.061	0.15	0.022	0.064	0.033	0.14	< 0.01
Aluminum [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	74000	72000	79000	69000	66000	77000	33000
Arsenic [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	16	6.7	300	97	80	39	28
Barium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	150	78	710	86	280	100	320
Beryllium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	0.52	0.43	1.5	0.55	1.5	0.71	0.63
Bismuth [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	< 0.09	< 0.09	0.12	< 0.09	0.098	< 0.09	0.13
Calcium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	79000	86000	16000	73000	46000	62000	38000
Cadmium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	0.13	0.12	0.070	0.14	0.14	0.12	0.090
Cobalt [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	49	40	11	47	56	42	3.6
Chromium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	140	460	53	110	74	120	31
Copper [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	94	110	32	77	92	130	15
Iron [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	67000	67000	46000	73000	100000	72000	190000
Potassium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	4700	3100	18000	6600	8300	11000	7800
Lithium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	83	81	22	72	36	66	7.3
Magnesium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	22000	20000	9100	25000	26000	32000	7900
Manganese [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	1600	2000	340	1800	1400	1200	610
Molybdenum [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	0.47	5.5	0.85	0.57	0.93	0.24	0.54
Sodium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	14000	20000	23000	14000	18000	14000	510
Nickel [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	110	120	32	100	99	100	9.1
Phosphorus [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	240	210	340	200	780	230	500

OnLine LIMS

00013034G7

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SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : PO#617203
LR Report : **CA12148-JAN18**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: CALM006901-FW 325W	6: CALM106904-FW 400E	7: CALM106905-FW 325W	8: CALM106906-FW 350W	9: CALM106907-RP-375-350	10: CALM106908-FW 350E	11: CALM106909-CC 300-152
Lead [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	4.4	4.0	5.9	4.3	9.5	10	5.5
Antimony [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	0.80	< 0.8	< 0.8	< 0.8	1.1	< 0.8	< 0.8
Selenium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	200	110	180	140	200	190	420
Titanium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	4500	4200	2400	3900	10000	2400	860
Thallium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	0.19	0.11	0.44	0.20	0.30	0.29	0.14
Uranium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	0.098	0.092	1.2	0.069	1.3	0.052	0.58
Vanadium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	250	240	64	250	190	210	19
Yttrium [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	14	15	6.6	8.5	24	5.8	4.5
Zinc [µg/g]	19-Jan-18	10:25	22-Jan-18	13:02	90	93	62	120	140	87	35

Analysis	12: CALM1069010-DP325-156	13: CALM1069011-FW400E	14: CALM1069012-VA425	15: CALM1069013-LA425	16: CALM1069014-RP000-225
Sample Date & Time	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17
Silver [µg/g]	0.022	0.057	0.051	0.085	0.037
Aluminum [µg/g]	74000	73000	74000	68000	89000
Arsenic [µg/g]	8.4	9.0	11	56	180
Barium [µg/g]	630	47	12	110	670
Beryllium [µg/g]	1.3	0.32	0.27	0.37	1.3
Bismuth [µg/g]	0.098	< 0.09	< 0.09	< 0.09	0.12
Calcium [µg/g]	22000	71000	77000	85000	11000
Cadmium [µg/g]	0.044	0.11	0.12	0.098	0.067
Cobalt [µg/g]	13	45	44	50	25
Chromium [µg/g]	37	120	170	130	88
Copper [µg/g]	21	110	83	110	42
Iron [µg/g]	78000	70000	79000	63000	47000
Potassium [µg/g]	17000	2600	370	4900	21000
Lithium [µg/g]	29	67	54	47	58
Magnesium [µg/g]	8800	21000	34000	26000	18000
Manganese [µg/g]	350	1700	1400	1800	390
Molybdenum [µg/g]	0.69	0.18	0.22	0.14	1.5
Sodium [µg/g]	29000	18000	7200	19000	17000
Nickel [µg/g]	23	110	110	120	85

OnLine LIMS

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Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : PO#617203
LR Report : **CA12148-JAN18**

Analysis	12: CALM1069010-D P325-156	13: CALM1069011-F W400E	14: CALM1069012-V A425	15: CALM1069013-L A425	16: CALM1069014-R P000-225
Phosphorus [µg/g]	420	220	190	140	460
Lead [µg/g]	7.5	2.7	8.3	1.9	12
Antimony [µg/g]	< 0.8	< 0.8	1.2	< 0.8	< 0.8
Selenium [µg/g]	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Tin [µg/g]	< 6	< 6	< 6	< 6	< 6
Strontium [µg/g]	300	100	210	74	290
Titanium [µg/g]	2800	4800	4900	4000	1200
Thallium [µg/g]	0.33	0.080	< 0.02	0.14	0.46
Uranium [µg/g]	1.1	0.052	0.063	0.062	1.6
Vanadium [µg/g]	53	250	240	220	120
Yttrium [µg/g]	5.7	12	15	12	8.1
Zinc [µg/g]	55	100	81	74	99

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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10-January-2018

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Date Rec. : 04 January 2018
LR Report: **CA12149-JAN18**

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

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CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	V2O5 %	LOI %	Sum %
5: CALM006901-FW325W	30-Dec-18	44.8	14.0	9.88	3.84	12.6	2.02	0.56	0.90	0.07	0.20	0.04	0.04	11.4	100.4
6: CALM106904-FW400E	30-Dec-18	42.2	14.0	9.46	3.64	13.8	2.81	0.38	0.87	0.06	0.27	0.04	0.05	12.9	100.5
7: CALM106905-FW325W	30-Dec-18	62.1	15.3	6.91	1.68	2.42	3.35	2.47	0.46	0.10	0.06	0.01	0.01	4.52	99.4
8: CALM106906-FW350W	30-Dec-18	42.8	13.3	11.0	4.39	11.7	2.06	0.83	0.84	0.06	0.24	0.02	0.05	12.7	100.1
9: CALM106907-RP-375-350	30-Dec-18	50.1	13.5	16.4	4.70	7.54	2.66	1.05	1.63	0.22	0.20	0.01	0.04	1.95	100.0
10: CALM106908-FW350E	30-Dec-18	42.3	14.5	10.4	5.68	9.33	1.98	1.32	0.78	0.06	0.16	0.03	0.04	13.1	99.7
11: CALM106909-CC300-152	30-Dec-18	51.8	6.32	28.1	1.40	5.47	0.07	0.96	0.12	0.14	0.09	< 0.01	0.01	5.34	99.9
12: CALM1069010-DP325-156	30-Dec-18	60.0	13.8	11.1	1.47	3.01	3.84	1.95	0.40	0.12	0.04	< 0.01	< 0.01	4.15	99.8
13: CALM1069011-FW400E	30-Dec-18	46.5	13.8	10.2	3.73	11.2	2.49	0.33	0.86	0.06	0.24	0.03	0.05	10.3	99.8
14: CALM1069012-VA425	30-Dec-18	45.5	14.0	11.7	6.15	12.1	1.07	0.05	0.77	0.05	0.19	0.04	0.04	8.76	100.5
15: CALM1069013-LA425	30-Dec-18	41.6	13.2	9.65	4.51	13.4	2.64	0.60	0.63	0.04	0.25	0.03	0.04	13.2	99.8
16: CALM1069014-RP000-225	30-Dec-18	58.1	18.3	7.03	3.22	1.36	2.43	2.85	0.71	0.14	0.05	0.03	0.01	4.46	98.7

OnLine LIMS

0001252165

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LR Report : **CA12149-JAN18**

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

0001252165

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Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

Agnico Eagle Mines Limited
Attn : Jeffrey Pratt

Baker Lake,
, X0C 0A0
Phone: (819) 759-3555 x3928, Fax:(819) 759-3663

12-January-2018

Date Rec. : 04 January 2018
LR Report: **CA12150-JAN18**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: CALM006901-FW 325W	6: CALM106904-FW 400E	7: CALM106905-FW 325W	8: CALM106906-FW 350W	9: CALM106907-RP- 375-350	10: CALM106908-FW 350E	11: CALM106909-CC 300-152
Sample Date & Time					30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17
Sample weight [g]	08-Jan-18	08:12	09-Jan-18	09:31	250	250	250	250	250	250	250
Volume D.I. Water [mL]	08-Jan-18	08:12	09-Jan-18	09:31	750	750	750	750	750	750	750
Final pH	09-Jan-18	08:51	09-Jan-18	09:31	8.57	8.43	8.39	8.56	9.11	8.58	8.44
pH [no unit]	09-Jan-18	08:20	10-Jan-18	12:01	7.96	8.10	7.94	8.11	8.42	8.24	8.00
Conductivity [uS/cm]	09-Jan-18	08:20	10-Jan-18	12:01	491	1140	1640	390	706	382	411
Alkalinity [mg/L as CaCO3]	09-Jan-18	08:20	10-Jan-18	12:01	31	33	37	51	17	66	55
Sulphate [mg/L]	10-Jan-18	08:23	10-Jan-18	15:52	15	23	19	3	25	2	21
Mercury [mg/L]	10-Jan-18	12:14	10-Jan-18	13:36	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.476	0.280	0.267	0.345	0.223	0.320	0.209
Arsenic [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.0011	0.0007	0.0122	0.0280	0.0134	0.0039	0.0016
Barium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.00380	0.0185	0.0420	0.00138	0.0475	0.00145	0.00916
Boron [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.055	0.083	0.151	0.033	0.054	0.045	0.021
Beryllium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	31.3	67.4	87.6	22.3	34.8	21.9	28.5
Cadmium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.000003	< 0.000003	0.000006	< 0.000003	< 0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.000038	0.000073	0.000133	0.000072	0.000057	0.000022	0.000006
Chromium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.00003	0.00004	0.00005	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.00002	< 0.00002	0.00038	< 0.00002	< 0.00002	< 0.00002	< 0.00002

OnLine LIMS

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

LR Report : **CA12150-JAN18**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Approval Date	4: Analysis Approval Time	5: CALM006901-FW 325W	6: CALM106904-FW 400E	7: CALM106905-FW 325W	8: CALM106906-FW 350W	9: CALM106907-RP- 375-350	10: CALM106908-FW 350E	11: CALM106909-CC 300-152
Iron [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	6.75	7.78	29.2	8.09	18.6	10.4	9.44
Lithium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.0090	0.0272	0.0835	0.0048	0.0135	0.0075	0.0008
Manganese [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.00699	0.0183	0.0100	0.00520	0.00091	0.00227	0.00297
Magnesium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	4.70	12.6	18.8	6.61	5.15	10.1	4.35
Molybdenum [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.00033	0.00060	0.00128	0.00014	0.00107	< 0.00001	0.00091
Sodium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	40.0	107	149	28.7	62.1	22.8	31.2
Nickel [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.0001	0.0002	0.0003	0.0003	0.0002	0.0001	< 0.0001
Phosphorus [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.00001	0.00001	0.00003	< 0.00001	0.00003	< 0.00001	0.00002
Antimony [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.0005	0.0003	0.0010	< 0.0002	0.0057	0.0005	0.0004
Selenium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.00006	< 0.00004	0.00006	< 0.00004	0.00006	0.00004	0.00005
Silicon [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.91	1.04	1.17	0.87	2.44	0.99	1.06
Tin [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.00001	0.00004	0.00002	< 0.00001	0.00003	< 0.00001	0.00001
Strontium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.304	1.27	1.90	0.205	0.591	0.255	0.560
Titanium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.00013	0.00006	0.00008	< 0.00005	0.00009	< 0.00005	< 0.00005
Thallium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.000026	0.000058	0.000015	0.000009	0.000007	0.000013	< 0.000005
Uranium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.000006	0.000003	0.000074	0.000002	0.000008	< 0.000002	0.000027
Vanadium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	0.00058	0.00039	0.00029	0.00042	0.00289	0.00030	0.00003
Zinc [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	09-Jan-18	15:13	10-Jan-18	16:07	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

Analysis	12: CALM1069010-DP325-156	13: CALM1069011-FW400E	14: CALM1069012-VA425	15: CALM1069013-LA425	16: CALM1069014-RP000-225
Sample Date & Time	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17	30-Dec-17
Sample weight [g]	250	250	250	250	250
Volume D.I. Water [mL]	750	750	750	750	750
Final pH	8.61	9.02	8.75	8.73	8.73
pH [no unit]	8.10	8.29	7.69	8.32	8.54
Conductivity [uS/cm]	472	200	1150	692	714
Alkalinity [mg/L as CaCO3]	37	53	11	37	38
Sulphate [mg/L]	4	3	380	11	5
Mercury [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Silver [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005

OnLine LIMS

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Phone: 705-652-2000 FAX: 705-652-6365

Shake Flask Leach (3:1 Ratio)

LR Report : **CA12150-JAN18**

Analysis	12: CALM1069010-DP325-156	13: CALM1069011-FW400E	14: CALM1069012-VA425	15: CALM1069013-LA425	16: CALM1069014-RP000-225
Aluminum [mg/L]	0.416	0.503	0.286	0.384	0.345
Arsenic [mg/L]	0.0006	0.0006	0.0022	0.0234	0.0032
Barium [mg/L]	0.00168	0.00540	0.0326	0.00721	0.00429
Boron [mg/L]	0.028	0.009	0.032	0.075	0.025
Beryllium [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Bismuth [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Calcium [mg/L]	30.0	8.63	173	32.7	31.1
Cadmium [mg/L]	0.000005	< 0.000003	0.000003	< 0.000003	< 0.000003
Cobalt [mg/L]	0.000018	0.000004	0.000041	0.000120	0.000047
Chromium [mg/L]	< 0.00003	< 0.00003	< 0.00003	< 0.00003	< 0.00003
Copper [mg/L]	< 0.00002	< 0.00002	0.00006	0.00016	0.00010
Iron [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium [mg/L]	4.16	10.2	2.53	22.5	8.72
Lithium [mg/L]	0.0061	0.0014	0.0069	0.0083	0.0021
Manganese [mg/L]	0.00770	0.00096	0.0152	0.00153	0.00423
Magnesium [mg/L]	5.31	1.97	8.16	6.92	6.43
Molybdenum [mg/L]	0.00626	0.00053	0.00609	0.00546	0.00057
Sodium [mg/L]	42.1	21.3	41.1	58.7	68.9
Nickel [mg/L]	< 0.0001	< 0.0001	0.0002	0.0003	0.0001
Phosphorus [mg/L]	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Lead [mg/L]	< 0.00001	< 0.00001	0.00003	0.00002	0.00004
Antimony [mg/L]	0.0005	0.0008	0.0016	0.0035	0.0012
Selenium [mg/L]	< 0.00004	0.00006	< 0.00004	< 0.00004	< 0.00004
Silicon [mg/L]	0.83	1.46	1.14	1.18	0.91
Tin [mg/L]	0.00002	0.00002	0.00005	0.00004	0.00002
Strontium [mg/L]	0.271	0.0750	3.04	0.431	0.241
Titanium [mg/L]	< 0.00005	0.00012	< 0.00005	< 0.00005	< 0.00005
Thallium [mg/L]	0.000012	0.000006	0.000038	0.000012	0.000095
Uranium [mg/L]	0.000002	0.000043	0.000002	0.000018	< 0.000002
Vanadium [mg/L]	0.00039	0.00047	0.00065	0.00070	0.00036
Zinc [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Zirconium [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

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Shake Flask Leach (3:1 Ratio)

LR Report : **CA12150-JAN18**

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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Appendix D

Hazardous Materials Shipment Documentation

MOVEMENT DOCUMENT / MANIFEST
DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial transport and environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement et le transport.

PC55999-9

Movement Document / Manifest Reference No. / N° de référence du document de mouvement/manifeste

1 of 16

A Generator / consignor / Producteur / expéditeur

Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial 1: NUG 100066

Company name / Nom de l'entreprise: AGNICO-EAGLE MINES LTD

Mailing address / Adresse postale: 145 KING ST E, SUITE 400, TORONTO, ON, M5C 2Y7

City / Ville:

Province:

Postal code / Code postal:

E-mail / Courrier électronique:

Tel. No. / N° de tél.: 416 9471512

Shipping site address / Adresse du lieu de l'expédition: MEADOWBANK SITE

City / Ville: RANKIN INLET

Province: NU

Postal code / Code postal: X0C0G0

Intended Receiver / consignee / Réceptionnaire / destinataire prévu 2: QIKIQTAALUK ENVIRONMENTAL

Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial: 1162026159

Mailing address / Adresse postale: 9935 CHATEAUNEUF AV. SUITE 200, BROSSARD, QC, J4Z3V4

City / Ville:

Province:

Postal code / Code postal:

E-mail / Courrier électronique:

Tel. No. / N° de tél.: 514940 3332

Receiving site address / Adresse du lieu de destination: PORT OF BECANCOUR

City / Ville: BECANCOUR

Province: QC

Postal code / Code postal: G9Y2Y7

B Carrier / Transporteur

Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial 23: NUG 20002

Company name / Nom de l'entreprise: NUNAVUT SEALIFT & SUPPLY INC.

Mailing address / Adresse postale: 6565 HEBERT BLVD, STE-CATHERINE, QC, J5C1B5

City / Ville:

Province:

Postal code / Code postal:

E-mail / Courrier électronique:

Tel. No. / N° de tél.: 450 6350833

Vehicle / Véhicule

Trailer - Rail car No. 1 / 1re remorque - wagon

Trailer - Rail car No. 2 / 2e remorque - wagon

Registration No. / N° d'immatriculation

Prov. 24

Port of entry / Point d'entrée — International use only

Port of exit / Point de sortie — International use only 25

Carrier Certification: *I certify that I have received waste or recyclable material from the generator / consignor for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct.* 26
Attestation du transporteur : J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.

Name of authorized person (print): / Nom de l'agent autorisé (caractères d'imprimerie):

Tel. No. / N° de tél.: 450 6350833

Year / Année | Month / Mois | Day / Jour | Signature

C Receiver / consignee / Réceptionnaire / destinataire

Reference Nos. of other movement document(s)/manifest(s) used / N° de référence des autres documents de mouvement/manifestes utilisés 27: QE17-143-2

Registration No. / Provincial ID No. / N° d'immatriculation - d'id. provincial 28

Receiver / consignee information same as in Part A / Les renseignements du réceptionnaire / destinataire sont les mêmes qu'à la Partie A

☐ Yes / Oui ☐ No, complete the box below / Non, remplir la case ci-dessous

Company name / Nom de l'entreprise

Mailing address / Adresse postale

City / Ville | Province | Postal code / Code postal

E-mail / Courrier électronique | Tel. No. / N° de tél. ( )

Receiving site address / Adresse du lieu de destination

Date received / Date de réception: Year / Année | Month / Mois | Day / Jour

Time / Heure 29: ☐ A.M. ☐ P.M.

If waste or recyclable material to be transferred, specify intended company name/ Si les déchets ou matières recyclables doivent être transférés, préciser le nom du destinataire 30

Registration No./Provincial ID No. / N° d'immatriculation/d'id provincial

	Prov. code / Code prov. 3	Shipping name / Appellation réglementaire 4	Class / Classe Sub. class(es) / Classe(s) sub. 5	UN No. / N° NU 6	Packing / risk gr. / Gr. d'emballage/ de risque 7	Quantity shipped / Quantité expédiée	Units / L or / ou Kg / Unités 8	Packaging / Contenant No. / N° 9	Codes Int. – ext.	Phys. state / État phys. 10
(i)		SEE ANNEX ATTACHED								
(ii)										
(iii)										
(iv)										

	Notice No. / N° de notification 11	Notice Line No / N° de ligne de la notification	Shipment / Envoi 12	Of / De	D or R code / Code D ou R 13	C code / Code C 14	Basel Annex VIII or OECD Code / Annexe VIII de Bâle ou Code OCDE 15	H code / Code H 16	Y code / Code Y 17	National code in country of / Code du pays 18: Export / Exportation	Import / Importation	Customs code(s) / Code(s) de douanes 19
(i)												
(ii)												
(iii)												
(iv)												

International use only

	Quantity received / Quantité reçue	Units / L or / ou Kg / Unités 31	Comments / Commentaires 32	Handling Code / Code de manutention 33	Shipment / Envoi: Accepted / Accepté 34	Refused / Refusé	Decont. 35: Pack. Cont.	Veh.
(i)								
(ii)								
(iii)								
(iv)								

If handling code "Other" (specify) / Si code de manutention « autre » (spécifier) 36

Receiver / consignee certification: *I certify that the information contained in Part C is correct and complete. / Attestation du réceptionnaire / destinataire : J'atteste que tous les renseignements à la partie C sont exacts et complets.*

Name of authorized person (print) / Nom de l'agent autorisé (caractère d'imprimerie) 37

Signature | Tel. No. / N° de tél. ( )

Special handling / Manutention spéciale 22: 1-613-996-6666

☐ Attached /Ci-joint: ☒ As follows/ Ci-contre: IN CASE OF EMERGENCY 24 HRS CALL CANUTEC

21 Date shipped / Date d'expédition: Year / Année | Month / Mois | Day / Jour

Time / Heure: ☐ A.M. ☐ P.M.

Scheduled arrival date / Date d'arrivée prévue: Year / Année | Month / Mois | Day / Jour

Generator / consignor certification: *I certify that the information contained in Part A is correct and complete.* 20
Attestation du producteur / expéditeur: J'atteste que tous les renseignements à la partie A sont exacts et complets.

Name of authorized person (print) / Nom de l'agent autorisé (caractère d'imprimerie): YVON BEAUDOIN

Signature

Tel. No. / N° de tél.: 514 444 9512

MOE 04-1917 (12/13)

Instructions for completion and distribution on reverse / Instructions pour compléter et distribuer au verso

Copy / Copie 1 (white / blanche)

IMDG DECLARATION

Shipper/consignor
AGNICO-EAGLE MINE LTD - MELIADINE PROJECT
RANKIN INLET, NUNAVUT, X0C 0G0
TEL: 1-819-759-3555

Reference number(s) MANIFEST #C55999-4
Project: QE17-143-2
Page 1 of 6 Pages

Consignee
QIKIQTAALUQ ENVIRONMENTAL
355, BOUL ALPHONSE-DESHAIES
BECANCOUR, QC, G9H 2Y7
TEL: 514-940-3332

Carrier NUNAVUT SEALIFT AND SUPPLY INC,
6565 HEBERT BLVD
STE-CATHERINE, QC, J5C 1B5
TEL: 1-450-635 0833

CONTAINER/VEHICLE PACKING CERTIFICATE

DECLARATION

It is declared that the packing of the goods into the container/vehicle has been carried out in accordance with the applicable provisions.

TO BE COMPLETED FOR SHIPMENTS IN CONTAINERS OR VEHICLES

Container/Vehicle #:

Name/status, company/organization of signatory
YVON BEAUDOIN / PROJECT MANAGER / Q.E.

Place and date
MELIDOINE SITE, RANKIN INLET, NU SEPT 7, 2017

Signature on behalf of packer

Vessel No. and Date

Port of loading
RANKIN INLET

Port of discharge
BECANCOUR

(Reserved for text, instructions or other matter)

No. & Kind of Packages	DESCRIPTION OF GOODS (UN Number, PSN, Hazard Class, Packing Group, Flash Point, Marine Pollutant)	QUANTITY Gross mass (kg)	Net mass (kg)	Cube (m^3)
	SEE ANNEX ATTACHED			

Additional Information / Seal Number(s):

Emergency Telephone No. / 24-Hour Number: CALL CANUTEC 1-613 996 6666

SHIPPER'S DECLARATION

I hereby declare that the contents of this consignment are fully and accurately described above by the Proper Shipping Name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national government regulations.

Name/status of declarant
YVON BEAUDOIN / PROJECT MANAGER

Place and date
MELIADINE SITE / RANKIN INLET SEPT 7, 2017

Signature on behalf of shipper

2017 09 07 - MELIADINE PROJECT - HAZMAT CONTAINERS		
#	CONTAINER NO.	PLACARDS
1	GATU 052603-6	NO
2	GATU 069679-4	NO
3	MSCU 105804-5	class 8
4	MIGU 154819-7	NO
5	ITAU 216984-1	class 2.1
6	GLDU 223244-9	NO
7	TEXU 244404-5	NO
8	TBCU 306123-1	NO
9	MSCU 310277-0	NO
10	IPXU 331483-3	class 8
11	TRIU 382868-7	NO
12	CBHU 386438-5	NO
13	FSCU 395369-0	NO
14	TDRU 723349-6	NO

AGNICO EAGLE

A.E.M. MELIADINE 2017
Shipper's Declaration of Dangerous Goods
Form for each container containing dangerous goods as per TDGA or IMDG Code

AGNICO EAGLE

Shipper's Declaration For Dangerous Goods

Shipper :	**Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063**
Transporter :	**Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002**
Consignor	**Qikiqtaaluk Environmental - Port Of Becancour - Prov ID n°. : 1162926159**
CONTAINER #	**MSCU 105804-5**
Size and Type :	**20 FT marine container** **Reference : manifest PC55999-9**

line	No. & Kind of packages		DESCRIPTION OF GOODS UN Number, Shipping Name, Hazard Class (Sub), Packing Group, F.P. (deg. C), Marine Pollutant, Add technical name (s.p. 274 for primary and sub. classes and M.P.)	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	1	Drum 205 L	UN 3028 BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE, SOLID, CLASS 8	205	250
b.	2	Drum 205 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	410	250
c.	3	Drum 205 L	Not Regulated under T.D.G.A. - USED OIL FILTERS	615	300
d.	4	Drum 205 L	Not Regulated under T.D.G.A. - OILY SLUDGE AND DEBRIS	820	400
e.	17	Drum 205 L	Not Regulated under T.D.G.A. - OILY WATER	3485	3400
f.	1	Drum 205 L	Not Regulated under T.D.G.A. - HYDROCARBONS CONTAMINATED SOIL	205	2050
g.	10	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	7650	2000
h.	1	Tote 1000 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	1000	800
i.	2	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	2000	600
j.					
k.					

placards required : Class 8

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition

for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations. It is declared that the packing of the goods into the unit has been carried out in accordance the provisions of 5.4.2.1

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M., Rankin Inlet, Nunavut Place & Date : AEM - Meliadine site, September 7, 2017

Port of Discharge : Port de Becancour Signature:

AGNICO EAGLE

Shipper's Declaration For Dangerous Goods

Shipper :	**Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063**
Transporter :	**Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002**
Consignor	**Qikiqtaaluk Environmental - Port Of Becancour - Prov ID n°. : 1162926159**
CONTAINER #	**ITAU 216984-1**
Size and Type :	**20 FT marine container** **Reference : manifest PC55999-9**

line	No. & Kind of packages		DESCRIPTION OF GOODS UN Number, Shipping Name, Hazard Class (Sub), Packing Group, F.P. (deg. C), Marine Pollutant, Add technical name (s.p. 274 for primary and sub. classes and M.P.)	QUANTITY Net Qty (L)	QUANTITY Gross mass(kg)
a.	7	Drum 205 L	UN 1950, AEROSOLS, FLAMMABLE Class 2.1 - *EMPTY SPRAY CANS*	1435	385
b.	3	Quatrex Bags 765 L	UN 1950, AEROSOLS, FLAMMABLE Class 2.1 - *EMPTY SPRAY CANS*	2295	750
c.	5	Drum 205 L	Not Regulated under T.D.G.A. - HYDROCARBON CONTAMINATED SOIL	1025	1250
d.	5	Drum 205 L	Not Regulated under T.D.G.A. - OILY WATER	1025	1025
e.	4	Drum 205 L	Not Regulated under T.D.G.A. - USED OIL FILTERS	820	400
f.	1	Drum 205 L	Not Regulated under T.D.G.A. - OILY SLUDGE AND DEBRIS	205	100
g.	9	Drum 205 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	1845	900
h.	4	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	3060	800
i.	2	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	2000	600
j.					
k.					

placards required : CLASS 2.1

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition

for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations. It is declared that the packing of the goods into the unit has been carried out in accordance the provisions of 5.4.2.1

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M., Rankin Inlet, Nunavut Place & Date : AEM - Meliadine site, September 7, 2017

Port of Discharge : Port de Becancour Signature :

AGNICO EAGLE

Shipper's Declaration For Dangerous Goods

Shipper :	**Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063**
Transporter :	**Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002**
Consignor	**Qikiqtaaluk Environmental - Port Of Becancour - Prov ID n°. : 1162926159**
CONTAINER #	**IPXU331483-3**
Size and Type :	**20 FT marine container** **Reference : manifest PC55999-9**

line	No. & Kind of packages		DESCRIPTION OF GOODS UN Number, Shipping Name, Hazard Class (Sub), Packing Group, F.P. (deg. C), Marine Pollutant, Add technical name (s.p. 274 for primary and sub. classes and M.P.)	QUANTITY Net Qty (L)	QUANTITY Gross mass(kg)
a.	10	Quatrex Bags 380 L	UN 2794 BATTERIES, WET, FILLED WITH ACID, CLASS 8 - *LEAD BATTERIES*	3800	3000
b.	5	Drum 205 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	1025	625
c.	2	Drum 205 L	Not Regulated under T.D.G.A. - USED OIL FILTERS	410	200
d.	5	Drum 205 L	Not Regulated under T.D.G.A. - OILY SLUDGE AND DEBRIS	1025	500
e.	12	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	9180	2400
f.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - SOLID RESIN	765	600
g.	1	Tote 1000 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	1000	800
h.					
i.					
j.					
k.					

placards required : Class 8

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition

for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations. It is declared that the packing of the goods into the unit has been carried out in accordance the provisions of 5.4.2.1

Ship's Name :

Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M., Rankin Inlet, Nunavut

Place & Date : AEM - Meliadine site, September 7, 2017

Port of Discharge : Port de Becancour

Signature :

AGNICO EAGLE

A.E.M. - MELIADINE PROJECT
MARINE BILL OF LADING
FOR HAZMAT C-CANS
WITHOUT
DANGEROUS GOODS

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG10006**3**
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	GATU 052603-6
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	56	Drum 205 L	Not Regulated under T.D.G.A. - SEWER WATER	11480	11200
b.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	600	500
c.	1	Pallet	Not Regulated under T.D.G.A. - SOLID RESIN	765	200
d.	1	Tote 1000 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	1000	800
e.	1	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	1000	300
f.					
g.					
h.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	GATU 069679-4
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	56	Drum 205 L	Not Regulated under T.D.G.A. - SEWER WATER	11480	11200
b.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	600	500
c.	1	Pallet	Not Regulated under T.D.G.A. - SOLID RESIN	765	200
d.	1	Tote 1000 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	1000	800
e.	1	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	1000	300
f.					
g.					
h.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport

Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	MIGU 154819-7
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	8	Drum 205 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	1640	1600
b.	4	Drum 205 L	Not Regulated under T.D.G.A. - USED OIL FILTER	820	500
c.	4	Drum 205 L	Not Regulated under T.D.G.A. - OILY WATER	820	800
d.	14	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	8400	7000
e.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - USED ELECTRONIC PARTS	765	200
f.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - EMPTY PAILS	765	125
g.					
h.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

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Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	GLDU 223244-9
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	7	Drum 205 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	1435	1400
b.	1	Drum 205 L	Not Regulated under T.D.G.A. - FIRE EXTINGUISHER MEDIA	205	180
c.	16	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	9600	8000
d.	2	Pallet	Not Regulated under T.D.G.A. - SOLID RESIN	1200	1000
e.	1	Tote 1000 L	Not Regulated under T.D.G.A. - USED OIL FILTER	765	400
f.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	765	300
g.					
h.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature :

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	TEXU 244404-5
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	4	Drum 205 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	820	800
b.	13	Drum 205 L	Not Regulated under T.D.G.A. - OILY SLUDGE AND DEBRIS	2665	3250
c.	1	Drum 205 L	Not Regulated under T.D.G.A. - USED OIL FILTER	205	125
d.	2	Drum 205 L	Not Regulated under T.D.G.A. - OILY WATER	410	400
e.	11	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	6600	5500
f.	2	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	1530	600
g.	2	Tote 1000 L	Not Regulated under T.D.G.A. - OILY SLUDGE AND DEBRIS	1530	2000
h.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

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Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature :

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	TBCU 306123-1
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	17	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	10200	8500
b.	2	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - SOLID RESIN	1200	1000
c.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - CONTAMINATED EMPTY PAILS	765	100
d.	1	Tote 1000 L	Not Regulated under T.D.G.A. - OILY WATER	1000	800
e.	1	Tote 1000 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	765	800
f.					
g.					
h.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport

Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	MSCU 310277-0
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	39	Drum 205 L	Not Regulated under T.D.G.A. - SEWER WATER	7995	7800
b.	1	Drum 205 L	Not Regulated under T.D.G.A. - OILY WATER	205	200
c.	3	Drum 205 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	615	540
d.	1	Drum 205 L	Not Regulated under T.D.G.A. - USED GREASE	205	100
e.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	600	500
f.	1	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	765	300
g.	4	Tote 1000 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	4000	3200
h.	3	Tote 1000 L	Not Regulated under T.D.G.A. - OILY WATER	3000	2400
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	TRIU 382868-7
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	4	Drum 205 L	Not Regulated under T.D.G.A. - HYDROCARBON CONTAMINATED SOIL	820	1000
b.	15	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	11475	7500
c.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - MIX LABPACK WASTE	765	300
d.	2	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	2000	600
e.	1	Tote 1000 L	Not Regulated under T.D.G.A. - OILY WATER	1000	800
f.					
g.					
h.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	CBHU 386438-5
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	61	Drum 205 L	Not Regulated under T.D.G.A. - SEWER WATER	12505	12200
b.	1	Drum 205 L	Not Regulated under T.D.G.A. - USED GREASE	205	100
c.	2	Drum 205 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	410	360
d.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	600	500
e.	1	Pallet	Not Regulated under T.D.G.A. - SOLID RESIN	600	500
f.	1	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	765	300
g.	1	Tote 1000 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	1000	800
h.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	FSCU 395369-0
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	1	Drum 205 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	205	100
b.	1	Drum 205 L	Not Regulated under T.D.G.A. - OILY WATER	205	180
c.	1	Drum 205 L	Not Regulated under T.D.G.A. - USED GREASE	205	100
d.	14	Drum 205 L	Not Regulated under T.D.G.A. - USED OIL FILTERS	2870	1750
e.	1	Drum 205 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	205	180
f.	1	Drum 205 L	Not Regulated under T.D.G.A. - BROKEN GLASS	205	150
g.	2	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - KITCHEN GREASE	1530	800
h.	10	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	7650	2000
i.	2	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - WASTE POLY-INSULATION	1530	400
j.	1	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - MIX LABPACK WASTE	1000	400

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

AGNICO EAGLE

Agnico Eagle Mines - Meliadine Project - Bill of Lading - Marine Transport	
Reference no. :	Manifest : PC55999-9
Shipper :	Agnico Eagle Mines ltd - Rankin Inlet, Nunavut - Prov ID n°. : NUG100063
Transporter :	Nunavut Sealink And Supply Inc. - Prov ID n°. : NUG200002
Consignor	Qikiqtaaluk Environmental - Port of Becancour - Prov ID n°.: 1162926159
Container n°.	TDRU 723349-6
Size and Type :	20 FT marine container Reference : manifest PC55999-9

line	No. & Kind of packages		DESCRIPTION OF GOODS	QUANTITY	
				Net Qty (L)	Gross mass(kg)
a.	5	Drum 205 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	1025	500
b.	5	Drum 205 L	Not Regulated under T.D.G.A. - OILY WATER	1025	900
c.	5	Drum 205 L	Not Regulated under T.D.G.A. - OILY SLUDGE AND DEBRIS	1025	1250
d.	5	Drum 205 L	Not Regulated under T.D.G.A. - USED OIL FILTERS	1025	625
e.	13	Quatrex Bags 765 L	Not Regulated under T.D.G.A. - OILY CONTAMINATED SOLID	9945	2600
f.	2	Tote 1000 L	Not Regulated under T.D.G.A. - USED HYDRAULIC HOSES	1530	600
g.					
h.					
l.					
i.					

placards required : NONE

In case of emergency (24 hours) call : CANUTEC 1-613-996-6666

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the IMDG Code and the Transportation of Dangerous Goods Regulations

Ship's Name : Name, Title, Firm of signatory : Yvon Beaudoin, Project Manager, Qikiqtaaluk Environmental

Port of Loading : A.E.M. Rankin Inlet, Nunavut Place & Date : Agnico Eagle Mines - Meliadine, NU. September 7, 2017

Port of Discharge : Port de Bécancour Signature:

Appendix E

List of Spills That Have Occurred in 2017

Date and time	Contaminant	Est. Qty, L	Location of the spill	Description of incident	Probable cause	Clean-up actions
1/3/2017 1:00	Anti-freeze	1	539200 / 6989870	During the holiday shutdown, spill trays and pads had been placed under the 740 haul trucks. Antifreeze hadbeen leaking from 5360 truck, and while the majority of the antifreeze/contaminated snow was contained, there was some antifreeze found outside the spill tray.	Other	
1/6/2017 1:00	Anti-freeze	1	539200 / 6989870	During the holiday shutdown, spill trays and pads had been placed under the 740 haul trucks. Antifreeze had been leaking from 5360 truck, and while the majority of the antifreeze/contaminated snow was contained, there was some antifreeze found outside the spill tray.	Other	Contaminated snow was collected and placed in plastic bags to be disposed of in the Hazmat sea can. Saturated pads were also collected, and new pads were placed. Trays will be monitored frequently
1/6/2017 1:00	Anti-freeze	1	539200 / 6989870	During the holiday shutdown, spill trays and pads had been placed under the 740 haul trucks. Antifreeze had been leaking from 5362 truck, and while the majority of the antifreeze/contaminated snow was contained, there was some antifreeze found outside the spill tray.	Other	Contaminated snow was collected and placed in plastic bags to be disposed of in the Hazmat sea can. Saturated pads were also collected, and new pads were placed. Trays will be monitored frequently.
1/6/2017 1:00	Anti-freeze	1	539200 / 6989870	During the holiday shutdown, spill trays and pads had been placed under the 740 haul trucks. Antifreeze had been leaking from 5361 truck, and while the majority of the antifreeze/contaminated snow was contained, there was some antifreeze found outside the spill tray.	Other	Contaminated snow was collected and placed in plastic bags to be disposed of in the Hazmat sea can. Saturated pads were also collected, and new pads were placed. Trays will be monitored frequently.
1/7/2017 1:00	Anti-freeze	1	539200 / 6989870	During the holiday shutdown, spill trays and pads had been placed under the 740 haul trucks. Antifreeze had been leaking from 5397 truck, and while the majority of the antifreeze/contaminated snow was contained, there was some antifreeze found outside the spill tray.	Other	
1/7/2017 19:00	Other	5	Camp	Power steering fluid leak due to hose line rupture (cold weather related)	Equipment failure	Contaminated snow picked up and disposed of appropriately
1/8/2017 19:00	Antifreeze	1	Portal	Because of cold weather and long term inactivity, W045 welder has a slow leak of antifreeze results in some antifreeze to come into contact with the snow outside the MTKSL shop	Equipment malfunction	Contaminated soil picked up and disposed of appropriately
1/8/2017 19:00	Antifreeze	1	Portal	5362 Haul has had a known slow antifreeze leak due to cold weather and inactivity. Trays and pads were placed to contain this leak. It was found on Jan 9th that an additional hose on the truck had also started leaking antifreeze for similar reasons.	Equipment failure	Contaminated snow picked up and disposed of appropriately
1/10/2017 1:00	Hydraulic Oil	40	Industrial Pad	When starting the man lift at the batch plant, the operator went o get tools and when he returned the hydraulic pump was leaking	Equipment failure	Contaminated snow picked up and disposed of adequately
1/10/2017 1:00	Other	0.15	Portal	After Holiday break, the fuel truck had snow and ice inside the control box. A heater was put on this area to thaw the control box, and knowing that this may cause some dirty water to hit the ground, maintenance crews placed spill containment under the box. While the majority of the dirty water was contained, a few drops did hit the ground.	Other	Contaminated snow picked up and disposed of appropriately
1/10/2017 1:00	Hydraulic Fluid	1	Batch Plant	Usual check up on loader and hydraulic hose was loose and leaked	Other	Report
1/10/2017 1:00	hydraulic fluid	40	Batch Plant	When the man lift was started, operator when to get tools, and the equipment was leaking	Equipment malfunction	stopped equipment
1/12/2017 1:00	Hydraulic Oil	88	Portal	The rock truck was dumping is load at the transfer pad, but the box wouldn't lift after two attempts, he found oil leaking from the cylinder	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of appropriately
1/12/2017 1:00	Other	1	Industrial Pad	Portland cement bag fell off of zoom boom during transport and broke open on the road way	Other	Contaminated snow picked up and disposed of adequately
1/13/2017 1:00	Hydraulic Oil	1	Industrial Pad	When starting the loader the quick attach hose leaked.	Equipment malfunction	Contaminated snow picked up and disposed of adequately, The machine was stopped and fitting replace
1/14/2017 1:00	Hydraulic Oil	2	Industrial Pad	Differential leaking by the bleeder	Equipment failure	Contaminated snow picked up and disposed of adequately
1/20/2017 1:00		15	Tank no.3	WHILE PREPARING TO FIL LUP TANK 3 FROM THE M&T FUEL TRUCK, KENNY SECURED THE NOZZEL TO THE TANK COVER. HOWEVER WHEN TURNING ON THE FUEL PUMP, THE NOZZLE JERKED OUT OF THE TANK AND SPILLED FUEL ON THE SIDE OF THE TANK. THE FUEL ACCUMULATED UNDER THE TANK.	Human error	SPILL PADS WERE PLACED ON THE CONTAMINATED AREA AND HELD IN PLACE WITH ROCKS. BECAUSE OF THE HARD TO REACH AREA AND THE FROZEN GROUND, I DON'T THINK IT WILL BE POSSIBLE TO CLEAN UP THAT AREA UNTIL SPRING
1/29/2017 1:00	Diesel	2	Portal	On January,29 2017 at 1:00pm MTKSL worker was walking past Nuna Winch tractor Unit#0039 at the construction-MTKSL shop when he noticed a small leak under the passenger side fuel tank. The worker contacted the mechanic in the shop immediately to look at the unit. Upon observation the mechanic believes the source of the leak is due to moisture freezing in the fuel line/fitting causing a small crack this allowing diesel fuel to contact the ground. (snow-ice)	Equipment malfunction	Contaminated snow picked up and disposed of adequately
1/30/2017 11:30	Antifreeze	1	Industrial Pad	Antifreeze leaking from the engine compartment on the haul truck	Equipment malfunction	Contaminated snow picked up and disposed of adequately
2/5/2017 1:00	Waste oil	15	Portal	A valve was removed from a used oil tote in the Gen Set corridor, as it was needed for another purpose. The tote was placed on its side to prevent leakage, but the message was not relayed to the other staff working in the area, and the tote was tipped back to its standard orientation, causing the contents to spill on to the floor and under the corridor on t the ground beneath.	Human error	Contaminated snow picked up and disposed of adequately
2/6/2017 1:00	Diesel	0.5	Industrial Pad	Fuel overflowed during refueling because the new nozzle doesn't have an automatic shut off	Human error	Contaminated snow picked up and disposed of adequately
2/7/2017 1:00	Diesel	0.5	Camp	On February MTKSL fuel/Lube truck operator was fueling MTKSL fuel/lube truck unit #1273 by means of transferring fuel from AEM fuel truck into MTKSL unit. As the operator pressurized the AEM fuel system and began the transfer process another employee possibly for AEM or Fountain Tire was walking past and noticed a drip coming from the back of the AEM unit. MTKSL operator immediately stopped fueling and placed an absorbent pad where drip was. MTKSL supervisor and Safety were called scene to assess. AEM unit seems to drip diesel fuel from the fitting on the drivers side hose reel- Red hose.	Equipment malfunction	Contaminated snow picked up and disposed of adequately
2/18/2017 1:00	Engine Oil	3	Industrial Pad	Mechanical part broke under the pick up	Equipment failure	Contaminated snow picked up and disposed of adequately
2/18/2017 10:00	engine oil	1	Maintenance Shop	The pick up was parked outside in the parking we used for equipement and he had leak motor we bring the pick up in the shop and we clean the little leak outside put the contaminated snow in the oily waste solid quatrex bag	Equipment failure	Contaminated snow picked up and disposed of adequately

2/24/2017 19:00	Antifreeze	1.5	Portal	Equipment being turned off in order to conserve fuel in cold weather, Seals gaskets and hoses shrink in the cold climate resulting in small leaks as engine temperatures drop. MTKSL vehicle laydown	Equipment malfunction	Contaminated snow picked up and disposed of adequately
2/24/2017 19:00	Antifreeze	1.5	Portal	Equipment being turned off in order to conserve fuel in cold weather, Seals gaskets and hoses shrink in the cold climate resulting in small leaks as engine temperatures drop. Location - DCP1 vehicle laydown	Equipment malfunction	Contaminated snow picked up and disposed of adequately
2/27/2017 1:00	Hydraulic Oil	1	Industrial Pad	After a repair job on the loader, hydraulic fluid on the interior pan leaked onto the ground due to the loader being parked on a slope	Other	Contaminated snow picked up and disposed of adequately
2/28/2017 19:00	Antifreeze	1.5	Site Roads	The fan belt broke and the equipment overheated resulting with an anti-freeze spill (leak) on the ground. ***Road to Tiriganiaq esker	Equipment malfunction	Contaminated snow picked up and disposed of adequately
3/1/2017 1:00	Engine Oil	0.3	Camp	Small oil leak was noticed underneath the truck, originating from the oil pan.	Equipment failure	Contaminated snow picked up and disposed of adequately
3/2/2017 19:00	Hydraulic Oil	0.5	Portal	Pressure test bank under rear window on D8T cat had small hydraulic leak on input hose-Wear and Tear. At KSL/Nuna yard	Equipment malfunction	Contaminated snow picked up and disposed of adequately
3/2/2017 19:00	Diesel	0.3	Portal	Geology and Orbit were preparing to go underground. After the tractor inspection Evens parked the tractor in front of the fuel station entrance located at the mine portal. As I attempted to fuel the tractor Evens noticed that there was a small incision on the fuel hose, fuel was leaking on my coveralls, boots, and on the ground. We stopped fueling and turned the fuel pump off. Evens cleaned up the spill using the spill kit materials in the fuel station. Pierre Luc gathered his tools and proceeded to replace the hose immediately inside the fuel station. As soon as the hose was repaired, we tested the hose for any further leaks, when it was confirmed that the hose was fixed, we continued fueling the tractor.	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately. Hose replaced
3/12/2017 14:30		3	DCP01	Worker was operating unit no.2315 998 Loader at the DCP01 dike when he noticed a stream of fluid spreading out from under his unit. He immediately stopped his unit and deployed containment and absorbent material. Approximately 6 L of radiator coolant was release of which 4 L made contact with the ground. 2L was absorbed into the spill absorbent material within the containment. Both the contaminated snow and the absorbent material was properly disposed of.	Equipment failure	Deployed mean of containments/properly collected and disposed.
3/13/2017 7:30	Fecal Coliform		MEL-7	On March 13th 2017 a sample from MEL-07 (STP effluent) was collected and sent for analysis. The results were received on March 21st 2017 and the fecal coliforms were measured at 7000 CFU/100 mL, which exceeds the permitted discharge limit of 1000 CFU/100 mL set forth in the Water License 2BB-MEL1424.	Equipment malfunction	An investigation is underway to determine the cause of the incident. Upon completion, a follow up report will be issued.
3/13/2017 11:00		4	Nuna Shop Yard	While conducting a formal environmental inspection of the Nuna Shop and yard, a 3x3 area of discolored contaminated snow was discovered. It was assume to be a 3-4 L of engine coolant.	Equipment malfunction	contaminated snow recovered and properly disposed of.
3/22/2017 1:00	Hydraulic Oil	30	Industrial Pad	Busted Hose	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
3/22/2017 1:00	Compressor Oil	1	Industrial Pad	Busted Hoses	Equipment failure	Contaminated soil picked up and disposed of appropriately
3/23/2017 1:00	Hydraulic Oil	10	Portal	Busted Hose	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
3/24/2017 1:00	Antifreeze	1	Portal	While staged at the Nuna construction shop the Hertz Air compressor began to leak coolant (Antifreeze)	Equipment failure	Contaminated snow picked up and disposed of adequately
3/26/2017 1:00	Engine Oil	0.5	Portal	While attempting to transfer a small quantity of used oil in a plastic pail to the proper storage location a small amount spilled onto the snow covered ground.	Human error	Contaminated snow picked up and disposed of adequately
3/27/2017 1:00	Diesel	25	Portal	Overflow on tank; some fuel in snow on top and side of the tank	Human error	Contaminated snow picked up and disposed of adequately
3/27/2017 1:00	Diesel	5	Portal	Overflow on tank; some fuel in snow on top and side of the tank	Human error	Contaminated snow picked up and disposed of adequately
3/27/2017 1:00	Diesel	5	Fuel farm	Overflow on tank; some fuel in snow on top and side of the tank	Human error	Contaminated snow picked up and disposed of adequately
3/27/2017 1:00	Diesel	3	Camp	Overflow on tank; some fuel in snow on top and side of the tank	Human error	Contaminated snow picked up and disposed of adequately
3/28/2017 1:00	Antifreeze	2	Industrial Pad	At the end of the shift a spill was noticed on the ground underneath the welding machine. The machine had to be moved in order to observe the spill.	Equipment failure	Contaminated snow picked up and disposed of adequately
3/30/2017 1:00	Hydraulic Oil	10	Portal	While working at DCP5, hydraulic hose between the boom and the stick fitting broke and caused an oil leak	Equipment failure	Contaminated snow picked up and disposed of adequately
3/31/2017 1:00	Hydraulic Oil	3	Industrial Pad	Traction hydraulic hose broke and caused a spill	Equipment failure	Contaminated snow picked up and disposed of adequately
3/31/2017 1:00	Transmission Fluid	1.5	Industrial Pad	Employee added more oil than was necessary to the chain case of the crane - caused overflow	Human error	Contaminated snow picked up and disposed of adequately
4/1/2017 15:30		0.25	Back of Wing 2	Cedrick unload the pick-up when he come back at the pickup he saw red drops sundk under the pick-up.	Equipment failure	Put spill mat immediately and call the garage and scrape and remove the snow and put in bucket
4/3/2017 1:00	Gear Oil	8	Industrial Pad	While inspecting a leak under a crane, a plate was removed and caused gear oil to spill on the ground.	Equipment failure	Contaminated snow picked up and disposed of adequately
4/3/2017 1:00	Hydraulic Oil	1	Industrial Pad	When changing the bucket to the hammer, the connecting hose leaked	Human error	Contaminated snow picked up and disposed of adequately
4/7/2017 17:00		50	LTP PAD Surface	Haul Truck slide off of road and got stuck by the LTP pad on surface causing brake line to break.	Human error	Shut off the engine, put down spill pads, called mechanics
4/8/2017 16:30		30000	63,1'24" - 92,11'07"	Agnico Eagle reports that a Diesel spill of approximately 30,000 liters has occurred at the fuel tank storage facility at the Meliadine project on Saturday, April 8, 2017. The spill was caused by a leak from a hose on one of the 100,000-litre tanks and occurred between two fuel truck refills.	Equipment failure	At this time, cleaning is still under progress and there is no indication that the spill exceeded the storage tanks' area. No fuel has entered any fresh water system. Investigations remain underway to determine the root cause of the spill.
4/10/2017 15:00		25	Portal Fuel tank	Scoop was fueling up at the start of the shift, Hook up the wiggins nozzle started to fuel up, then went into dome 1 to get washer fluid, then the fuel started to overfill coming out of fuel tank.	Human error	Workers in area immediately shut off the fuel pump, removed the scoop and put down spill pads.
4/17/2017 1:00		40	Waste pad portal	the haul truck has been unloaded, and there was no power hydraulic. He stop the equipment and as call mechanic to verify the leakage and clean the oil with spill pad and shovel	Equipment failure	they put spill pad and clean all of rest with shovel
4/18/2017 1:00	Diesel	20	Other, Wolf Area	Frédérick was refueling units as usual, at the end of the refill, piston in the nozzle did'nt close. Tank was almost full, by the time Federick go to the pump on the tanker outside to shut it down, the tank overfill in the heating unit. Most of the fuel stay in the container and has been clean right away with the spill kit inside this unit. 4 to 5 liters Maximum may have leak by the doors behind and on the side we try to clean the most as possible on the lake this night and the day after. Most of the fuel has been recovered, final clean up will be done today april 20 th after we move all units.	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of appropriately

4/21/2017 1:00	Hydraulic Oil	20	Industrial Pad	Hose on unit broke, resulting in spill	Equipment failure	Contaminated snow picked up and disposed of adequately
4/22/2017 1:00		10	Industrial Pad	hose broken on the excavator	Equipment failure	Contaminated soil picked up and disposed of in the landfarm
4/22/2017 1:00	Hydraulic Oil	20	Industrial Pad	Broken Hose on the equipment (excavator)	Equipment failure	Contaminated soil picked up and disposed of in the landfarm
4/22/2017 1:00		1	Industrial Pad	Overfilling a gaz tank on a truck	Human error	Contaminated soil picked up and disposed of appropriately
4/23/2017 1:00	Diesel	3	Fuel farm	M&T fuel truck wasn't able to unload their truck in our fuel truck. Electrical problem as been solve by Site services electrician, but when power when back, 3 liters of fuel went out ogf the fuel gun	Equipment failure	Contaminated soil picked up and disposed of in the landfarm
4/25/2017 1:00	Hydraulic Oil	1	Itivia Area	Fitting came loose on a hose	Equipment failure	Contaminated soil picked up and disposed of appropriately
4/27/2017 1:00	Antifreeze	2	Industrial Pad	With the vibrations caused by drilling, the hose of a compressor at the process plant location became unplugged resulting in a leak of antifreeze.	Equipment failure	Contaminated snow picked up and disposed of adequately
4/28/2017 1:00	Hydraulic Oil	20	Industrial Pad	a worker was driving a D300 haul truck from the DCP01 dyke to the crusher lay down. When he was half way to his destination, he was alerted on the radio that the truck was leaking fluid. The operator immediately stopped his truck, deployed his spill kit and radioed his supervisor who then contacted the mechanics. Approximately 19 L of hydraulic fluid released to ground. Approximately 10 c.m. of contaminated snow recovered.	Equipment failure	Contaminated snow picked up and disposed of adequately
4/29/2017 1:00	Gasoline	1	Camp	Jerry can fell on its side in the sled and caused a spill inside of the sled - Entire spill was inside sled which also contained snow	Improper storage	Contaminated snow picked up and disposed of adequately
5/1/2017 1:00	Grease		Camp	Samples collected at the MEL-7 sampling point on May 1, 2017 - Lab results showed an exceedance for "Total Oil and Grease" (license limit = 5 mg/L, result = 6.1 mg/L). The exceedance was reported as a spill to the NWB on May 27th. The STP treated 30m3 over a 24 hour period at this time.	Other	***
5/1/2017 1:00	Hydraulic Oil	2	Industrial Pad	Loos hydraulic hose	Equipment failure	Contaminated soil picked up and disposed of appropriately
5/3/2017 12:00		10	Power plant pad	After filling up the air compressor, fuel tank there was a leek noticed up the middle of the tank. On top of the tank.	Human error	The leek was immediately stop. Berm were installed and absorbent pad were used. Fuel was removed from the ground and stored in the HAZMAT seacan.
5/7/2017 1:00		5	546049.116/6963641.392 (ITIVIA)	At approximately 21:15 hrs on May 7th 2017 a hydraulic hose failed on the CAT 325 Excavator resulting in a hydraulic oil spill.	Equipment failure	Shut machine down, placed absorbent pad and drip tray.
5/7/2017 1:00		1	Crusher pad	Fuel man fueled up the 988G and forgot to put the gas cap back on. The operator noticed the fuel kind of spilled out of the fuel tank intake, he stop , notice fuel on the ground and called his supervisor.	Human error	Loader was stopped immediately and fuel (Spill) was cleaned by the operator and the fuel-man using spill bags and shovel. the bags were taken to the containment berm by the fuel farm.
5/8/2017 1:00		20	Process pad	The lincoln electric welding machine was found with a spill surrounding it in the early morning. A break down of the fuel hose tank is the cause.	Equipment failure	- Fournier team put some absorbent pad when they saw the spill. - Forstfighter were installed with tarp in order to unfreeze the spill. - The Lincoln was brought in the dome for repairing with a yellow berm under. - contaminated soil and ice was removed and stored in HAZMAT.
5/11/2017 15:30	SEWAGE	20	NEW STP H20	Foam from the STP get out by over flow piping	Equipment malfunction	cleaning with the sucker truck
5/14/2017 1:00	Hydraulic Oil	20	Portal	THE OPERATOR CALL THE MECHANIC SHOP BECAUSE IS NOT ABLE TO TURN THE STEERING AT THE MUCK PILE AT THE SURFACE. HE STOP THE EQUIPEMENT AND WAIT FOR MECHANIC . ALEXANDRE TREMBLAY BRING ALL TOOL HE NEED AND CHANGE THE STEERING HOSE . AFTER JOB IS DONE HE CLEAN EVERYTHING WITH THE SPILL PAD AND HE PUT ALLS THE SPILL PAD IN THE QUADREX BAG INT THE SHOP MECHANIC	Equipment failure	INSTALL SPILL PAD AND RETENTION TOTE UNDER THE TRUCK
5/15/2017 8:00	Diesel	50	Other	Francis Hachey did not respect proper work procedures with the fuel pump; there was a leak in the hose which caused the spill	Human error	Other- barrier was placed on lake to prevent spill from entering; spill rags and booms put down on spill- contaminated material brought to hazmat
5/21/2017 1:00	Antifreeze	5	Site Roads	The grader reversed in to the truck 13 and broke the radiator; the operator of the truck was not suppose to be there	Human error	Contaminated soil picked up and disposed of in the landfarm
5/23/2017 1:00	Hydraulic Oil	1	Itivia Area	Busted hose on excavator	Equipment failure	Contaminated soil picked up and disposed of appropriately
5/23/2017 1:00	Hydraulic Oil	0.5	Itivia Area	While loading a haul truck a hydraulic hose and a small amount of hydraulic oil went on the ground from the 4574 Excavator; equipment was shut down immediately.	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
5/24/2017 1:00	Hydraulic Oil	1		Hydraulic leak at the winch of equipment- equipment was shut down and reported to environment right away	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
5/24/2017 15:00	Hydraulic Oil	1	Other	ON MAY 23RD, THE DOZER WE RENT FROM INNUKSHUK CONSTRUCTION FOR A MONTH HAS BEEN PICKED UP AT OG GARAGE. DOZER WAS LEAKING HYDRAULIC OIL FROM THE WINCH. ICE FINISH TO MELT AFTER WE MOVE IT, OIL MIX WITH WATER AND A SHEEN APPEAR IN WATER AROUND.	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of appropriately
5/26/2017 1:00	Hydraulic Oil	1	Industrial Pad	Grader on operation on the site road hydraulic hose start to leak, stop operation to fix the leak	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
5/26/2017 1:00	Engine Oil	1	Industrial Pad	The truck was down for maintenance - the turbo was removed and an "out of order" sign was in place, but the driver didn't see the sign and started the truck and in turn caused a spill/leak.	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
5/26/2017 1:00	Hydraulic Oil	1	Industrial Pad	Pump was parked in the yard and a small leak from the hydraulic pump occurred because the nuts were not tight (new pump)	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of appropriately
5/27/2017 1:00	Hydraulic Oil	25	Other	Hyster was stuck in the exit of the Landfill so the operator tried to use the load to move and blew hydraulic hose; the pressure blew oil all over equipment and drip on the ground	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
5/29/2017 1:00	Hydraulic Oil	2	Industrial Pad	Broken O-Ring on hydraulic hose at the body valve	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
5/29/2017 1:00	Antifreeze	10	Industrial Pad	When starting to pour concrete at Dome B, the Prestone hose started to leak and then the hose broke.	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately

5/31/2017 11:30	Grey Water, kitchen grease	25	Industrial Pad	After complaints about odors by the kitchen staff, a verification have been done under the kitchen and a pipe's break have been found. When they opened the trap to find where was the break, some of the used water and grease spilled on the field. Most part of the spill have been capted by the insulating wool and the Styrofoam. The cause of break seen to be freezing and unfreezing of the pipe. Because the insolation material have containing the spill, it is difficult to know when it happened.	Equipment failure	Contaminated soil picked up and disposed of appropriately
6/10/2017 9:00	Other	0.5	Camp	The tar were behind a toolbox was left by Tangmaarvik (3 buckets total- only 1 was knocked over)	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
6/17/2017 1:00	Hydraulic Oil	1	Camp	Presently the dozer is immobilized in the Orbit yard for repair - Hydraulic tank, track, etc. Leak is originating from Hydraulic line	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
6/18/2017 1:00	Engine Oil	1	Portal	Spill was found in front or portal office in the parking area - no equipment in the area to identify the source	Equipment failure	Contaminated soil picked up and disposed of appropriately
6/19/2017 1:00	Engine Oil	5	Camp	During storage of drums, the drums were stored on top of tote. This action resulted in pressure being applied to the container portion of the tote which in turn directed the waste oil to escape from the screwed on cap.	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
6/21/2017 1:00	Engine Oil	0.25	Other	During the refueling of tank 21; Sebastien noticed engine oil leaking on the ground.	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
6/21/2017 1:00	Transmission Fluid	0.1	Other	During the refueling of tank 21; Sebastien noticed Transmssion oil leaking	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
6/21/2017 1:00	Hydraulic Oil,Diesel and Transmission Fluid	1	Other	During the refueling of tank 30; Sebastian noticed fuel, hydraulic and transmission fluids leaking on the ground.	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of appropriately
6/23/2017 1:00	Hydraulic Oil	2	Industrial Pad	Small hydraulic hose for joystick functions broke	Equipment failure	Contaminated soil picked up and disposed of appropriately
6/23/2017 1:00	Hydraulic Oil	90	Waste Rock Storage	As the 988 loader operator was attempting to dump the second bucket of material into a 773 CAT haul truck they felt a bump on the floor of the loader unit. As the operator attempted to curl the bucket of the loader upwards it would not curl and the operator noticed what appeared to be a leak on the ground. At this point the 988 loader operator advised the 773 haul truck operator to move forward so it would be possible to lower the loader bucket. The 988 bucket was lowered to the ground safely and the loader was turned off. Approximately 70-90 liters of Hydraulic fluid leaked out of the 988 due to the hose crimp failing on the main 2.1/2 inch main supply hose	Equipment failure	Spill was contained and contaminated soil picked up and disposed of in the landfarm
6/24/2017 1:00	Hydraulic Oil	1	Industrial Pad	While driving on the industrial pad with the bob cat, the rear left wheel came off and caused a leak	Equipment failure	Contaminated soil picked up and disposed of appropriately
6/26/2017 7:00	Grey water	0	Camp	On June 26th 2017, a sample from Mel-07 (STP effluent) was collected and sent for analysis. The results were received on July 6th 2017, and a pH in the effluent of 5.67 occurred. This is lower than the permitted discharge limit of 6-9.5 set forth in the Water License 2BB-MEL1424. A pH reading was taken at 10:00 am on June 26th and a reading of 6.5 was measured (daily flow rate ~1500 m3/h).	Equipment failure	Other
6/29/2017 15:30	Diesel	30	Fuel farm	The procedure for the fuel transfer has been followed. But when they start the PTO on the M&T fuel truck for fuel transfer in tank # 22, the spring valve wasn't close the right way on the truck. When Brenda was done her inspection after pumping the fuel, she saw the fuel leaking on the ground. So she immediately stops the PTO. A Maximum of 30 liters as leak on the ground.	Equipment malfunction	Contaminated soil picked up and disposed of in the landfarm
7/7/2017 1:00	Diesel	1	Industrial Pad	The frost fighter was filled up with fuel; the fuel line was broken and caused a spill on the ground	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of appropriately
7/15/2017 1:00	Hydraulic Oil	50	Portal	Worker was operating excavator at the portal # 2 site loading blast rock into a haul truck when he noticed fluid on his right track. He immediately lowered his bucket to the ground, shut down his equipment, deployed his spill kit and contacted his supervisor and the maintenance foreman.	Equipment failure	Contaminated soil picked up and disposed of appropriately
7/16/2017 1:00	Hydraulic Oil	4.5	Camp	When doing a check up on rig before moving to parker; Orbit then noticed that a O-ring blown up on the strainer of the hydraulic tank. Strainer has been put upside down during last maintenance and caused a pressure break on the o ring.	Human error	Hydraulic Oil
7/16/2017 1:00	Diesel	0.5	Industrial Pad	During a loading training, one drain fuel valve leaked	Equipment failure	Contaminated soil picked up and disposed of appropriately
7/24/2017 7:00	Fecal Colifroms	2600	Camp	On July 24th 2017, a sample from MEL-07 (STP effluent) was collected and sent for analysis. The results were received on August 1st 2017 and the fecal coliforms were measured at 2600 CFU/100 mL, which exceeds the permitted discharge limit of 1000 CFU/100 mL set forth in the Water License 2BB-MEL1424.	Other	Other- Site service advised- reported to GN
7/26/2017 1:00	Hydraullic OIl	5	Itivia Pad #1	When machine arrived at the storage placed at the beach spill occurred. Hydraulic hose leaked on to Plafolift Unit #01030-001	Equipment failure	They waited by equipment to inform the driver.
7/26/2017 1:00		5	Dome 1	Fuel gun stopped working, fuel starting pouring	Equipment failure	Richard Roy
8/1/2017 1:00	OIl	20	Watering Pad	During drilling, a blue off valve on the compressor broke causing an oil leak.	Equipment failure	Switched off the compressor and checked leak. Contained with spill kit and clean site. Cleaned the compressor with spill matting.
8/4/2017 1:00	Hydraulic Oil	2	Process Plant	Hydraulic hose broke	Equipment failure	Contaminated soil picked up and disposed of appropriately
8/5/2017 11:00	Hydraulic Oil	5	Portal	Rock truck moved to close to a stationary gravel truck - rock truck scraped hydraulic gauge causing tank to leak	Human error	Contaminated soil picked up and disposed of appropriately
8/12/2017 18:00		15	Fuel farm	PTO Pump failure/ Fuel transfer pump leaking failure	Equipment failure	Spill was contained and contaminated soil picked up and disposed of in the landfarm
8/14/2017 1:00	Oil	1	Fuel Farm	A hose broke on compressor spraying oil on the ground.	Equipment failure	Shut engine down and put absorbent pad down to clean. Rocks and soil material were cleared and put in waste drum. Piece of equipment was removed from field and shipped out for repair.
8/14/2017 1:00	Diesel	1	Industrial Pad	A hose broke on the compressor- sprayed oil on the ground	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
8/17/2017 1:00	Transmission Fluid	1	Itivia Area	Equipment was park and dripped over night absorbent pads were install but with the high wind flew near by	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
8/17/2017 1:00	Hydraulic Fluid	5	AWAR KM12 Gravel Pit	During the process of regular crushing operations, a small leak originating from the jaw assembly hydraulic line on the Mitsu Crusher.	Equipment failure	The Faulty hydraulic line was removed from service and replaced. Absorbent pads were applied to the spill and removed from site.

8/22/2017 1:00	Hydraulic Oil	0.5	South	Hydraulic hose on the end of boom started to leak (spray).	Equipment failure	Equipment was shut down. Contaminated soil removed to secondary containment (to be dumped at landfarm).
8/23/2017 1:00	Oil	1	on Mill Crane Pad	O Ring or valve required replacement	Equipment failure	Put down an absorbent pad and a garbage bag a a container to stop more from spilling on ground.
8/25/2017 1:00	Fuel	12	Process Plant	Pump operator was fueling pump with the auxiliary fuel tank operator was asked to go check his boom on the pour and the fuel over flowed willing filling.	Human error	Put diapers down to absorb most of the spill
8/29/2017 12:00	grease	1	MTKSL Shop /Yard	Mechanics were taking the boom off of the excavator and a grease made contact with the ground from extracting the pins and brushing during the boom removal. the mechanics did have a secondary containment however a small amount of grease missed the secondary containment/	Human error	Clean grease/ gravel contaminants and place in steel secondary containment in Hazmat located in the MTKSL Shop.
9/1/2017 12:00	Jet-A	50	JET-A Pump Shack	There is a broken seal on the Jet A fuel pump. Jet A was contained by the berm under the pump until it overflows. Jet A fuel then drop on gravel under the pump Shack The pump leaking connector and pipe was fixed	Equipment malfunction	Jet A fuel has been recovered partially, matting as been put in place, in the pump Shack Gravel dug out and put in 1 Harzard drums. Coreshack technician changes the matting, 2 times per day. Proper planning will be took by Geology and Site Service to complete the clean-up heavy equipment will be involved and pump shack moved.
9/3/2017 1:00	Diesel	12	Fuel farm	Fuel valve malfunction	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of in the landfarm
9/9/2017 1:00	Hydraulic Oil	3	Quarry	worked in this area a long period of time (approx. 2 weeks) and over that period of time hydraulic oil dripped from the hydraulic container	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
9/11/2017 1:00	Hydraulic Oil	2	Other	A small leak occurred on Fournier rock breaker at Itivia quarry. With the vibration a hydraulic fitting came lose and fluid got out of one of the hose on the rock breaker. The operator stop immediately place some absorbent on the and dippers on the contaminated area.	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
9/12/2017 19:30	Fuel	0.5	End of artic corndor	Tank overflow after filling	Human error	Use pad and clean fuel and gravel
9/14/2017 1:00	Hydraulic Oil	4	Rankin Inlet Quarry	An hydraulic spool valve that the cover or casing is breaking on the main body valve for hammer function.	Equipment failure	Put down peat moss and diapers
9/22/2017 1:00	Oil 5W30	150	Warehouse Laydown	During he offload a c-can of tote, he squize 2 tote together but the fork was to high and he hit the one at the back.	Human error	Spill was contained and contaminated soil picked up and disposed of in the landfarm
9/25/2017 15:00	Grey Water	0	Camp	On September 25th 2017, a sample from MEL-07 (STP effluent) was collected and sent for analysis. The results were received on September 29th 2017 and the fecal coliforms were measured at 4200 CFU/100 mL, which exceeds the permitted discharge limit of 1000 CFU/100 mL set forth in the Water License 2BB-MEL1424.	Equipment failure	Other
9/29/2017 1:00	Antifreeze	3	AWAR	Rock flew under front tire damaging a fitting causing the cooling system to leak	Equipment failure	Contaminated soil picked up and disposed of appropriately
9/30/2017 1:00	Hydraulic Oil	4	MSB pad	We start the engine and an hose has broked.	Equipment failure	Absorbent boom used on water spot to retrieve oil spilled.
10/1/2017 1:00	Hydraulic Oil	0.25	Industrial Pad	Eric was testing the rotork and noticed the cap was leaking - cap was replaced	Improper storage	Contaminated soil picked up and disposed of appropriately
10/3/2017 7:30	Diesel	60	Fuel farm	at 630 AM Tuesday Morning Fuel/Lube truck out fueling equipment came to the 740 rock truck started to fuel and for what ever reason he left the nozzle unattended he was check oils on the truck then he realized the fuel was hitting the ground by the time he react he had lost 60 L of fuel and our safety policy is never to leave hose nozzle unattended	Human error	Contaminated soil picked up and disposed of in the landfarm
10/6/2017 1:00	Diesel	1	fuel farm	The worker fill the welding machine with a 5 gallons of diesel and the welding machine was full and splash on the ground	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
10/16/2017 1:00	Diesel	0.01	Itivia Area	Ships coupling connected to the vessel's hose was not fastened tightly enough for a secure connection. Possible snow/ice/dirt in threads.	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of appropriately
10/17/2017 1:00	Engine oil	0.25	Intake Raise Plenum	An equipment malfunction occurred on the Lincoln Welder. The unit is brand new and was assembled as per manufacturers instructions however after approximately 5hrs of run time, the oil resevoir malfunctioned and a leak occurred. Spill was contained to the plenum building and no leaks/drips were made on the ground/earth.	Equipment malfunction	Spill was contained and contaminated soil picked up and disposed of appropriately
10/17/2017 1:00	Hydraulic Oil	180	DCP1	When the operator start his job of snow removal at DCP1 an hydraulic hose of tracks motor in undercariage have busted.	Equipment failure	Spill was contained and contaminated soil picked up and disposed of in the landfarm Contaminated snow picked up and disposed of adequately
10/23/2017 6:30		1	Process Plant	On Oct 23rd, around 5h30 AM, the operator was doing the fueilling of the frossfighters . He was moving a fuel reservoir with his skytrack . The reservoir was strapped with a binder. While moving, the binder suddenly broke and the fuel reservoir fell on his side. The operator retained and collected the fuel immediatly.	Work procedure not followed	Spill was contained and contaminated soil picked up and disposed of appropriately
10/28/2017 1:00	Hydraulic Oil	10	Other	While drilling was in operation, a hydraulic hose broke inside the console	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately
10/30/2017 1:00	Coolant	4	AWAR	Malfunction of the bearing on the cooling fan- tandem truck motor resulting in a spill of coolant	Equipment malfunction	Contaminated soil picked up and disposed of appropriately
10/30/2017 8:00	Fecal Coliforms		Camp	MEL-07 weekly samples were collected on Oct 30th @ 7h00 for laboratory submission. The results for bacteriology were received on Nov 7th, and showed an exceedance for fecal coliforms. Water license limit = 1000 CFU/100mL, result = 1100 CFU/100mL. The operator did not record the testing or inspections of the unit for several days prior to the sampling event, so the volume of effluent discharged over the previous 24 hour period is not known.	Other	Site Services supervisor and STP operators notified immediately upon reception of the laboratory results; Investigation ongoing. The exceedance was reported to the Nunavut spill hotline and all appropriate governing bodies.
11/7/2017 8:00	Fecal Coliform		Sewage Treatment Plant	On November 7th 2017, a sample from MEL-07 (STP effluent) was collected and sent for analysis. The results were received on November 14th 2017 and the fecal coliforms were measured at 14000 CFU/100 mL, which exceeds the permitted discharge limit of 1000 CFU/100 mL set forth in the Water License 2BB-MEL1424.	Other	An investigation is underway to determine the cause of the incident. Upon completion, a follow up report will be issued. System have been put in recirculation
11/13/2017 7:00	Grey Water	0	Main Camp	On November 13th 2017, a sample from MEL-07 (STP effluent) was collected and sent for analysis. The results showed that fecal coliforms were measured at 2300 CFU/100 mL, which exceeds the permitted discharge limit of 1000 CFU/100 mL set forth in the Water License 2BB-MEL1424. As of the 15th of November effluent discharge was stopped. An investigation was conducted and upgrades to the STP are planned and effluent will not be discharged until upgrades are completed.	Equipment failure	Other

11/15/2017 1:00	FUEL	20	Process Plant	Upon starting the crane and doing his inspection a fuel leak was noticed at rear of crane by fuel tank. vramne was shu off and leaking hose repaired.	Equipment failure	Spill was contained and contaminated soil picked up and disposed of in the landfarm
11/22/2017 1:00	STP Sludge	40	New Camp STP	During an unexpected electric shutdown (blizzard), a sludge decant was in progress. It is invilving a manual valve opening and the overflow is going to the sump tank. Operator was away, helping on the shoveling and other emergency in the blizzard. When operator came back, the sump tank was overfolwing dur to the sump pump shutdown.	Equipment failure	Contaminated snow picked up and disposed of adequately
11/27/2017 12:30	Hydraulic Oil	30	Portal	Haul truck was on the waste-rock storage pad when he went to empty his bucket he noticed hydraulic oil on the ground and stopped the equipment. Fred contacted his supervisor Tony who called the environment dept for support. (Broken hydraulic line)	Equipment failure	Spill was contained and contaminated soil picked up and disposed of in the landfarm
11/28/2017 1:00	Hydraulic Oil	2	Process Plant	A faulty hydraulic gauge was leaking	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
12/3/2017 21:30	Diesel Fuel	7500	Genset Explo Camp	The float switch was broken and a manual start was used as the automatic mode was not in function. It was then forgotten. While going to shut off the fuel supply switch the fuel operator was distracted through conversation with another co-worker.	Human error	The source of spill was controlled and investigation and remediation efforts commenced.
12/6/2017 16:30		1	Other	While moving the Almiq AWP the mechanic and the superintendent have noticed a spill of hydraulic oil.	Human error	Spill was contained and contaminated soil picked up and disposed of appropriately
12/12/2017 1:00	Diesel Fuel	5	Itivia Fuel Farm Fill station	The employee was doing some testing by loading the new tanker. While relieving the air pressure on top of the tanker some fuel spilled out.	Human error	The contractor reacted quickly and installed some absorbent pads on the ground and underneath the tanker to catch the fuel.
12/12/2017 1:00	Diesel	10	New Incinerator	Approximately the half of the 10 L of fuel was contained in the small container on the tip of the tank. A small quantity of fuel was dripping on the side of the tank.	Equipment failure	Sebastian wiped tank with absorbent pads. He also shoveled the contaminated snow into two bucket and dropped them into a secondary containment.
12/29/2017 17:00	Hydraulic Oil	5	Itivia Area	At approximately 4 pm on Dec 29, 2017 the employee started the engine of the reach stacker and let it warm up (due to being cold for a couple of weeks) for 45 min (temperature outside was -36*C at this time). Upon return to the machine, the operator began to complete their warm up checks with the hydraulics prior to use. The main boom was extended and then retracted. Upon retraction, a shuddering was experienced and the operator ceased operation. The operator then noticed the oil leaking outside the underbelly of the machine (on operators right hand side). The machine was turned off to prevent further pressure and stop the leak. It was reported to the supervisor at approximately 5pm that day and containment was started.	Equipment failure	Contaminated soil picked up and disposed of appropriately

Appendix F

Tabular Summary of Monitoring Data

Sampling Station MEL-SR1

Maxxam ID		EKF924	EKY350	ELQ334	EMU905			EQF369	ERJ568
Sampling Date		2017/05/12 14:30	2017/05/16 13:30	2017/05/23 14:50	2017/05/30 15:08	2017/06/06 09:35	2017/06/13 12:58	2017/06/20 06:00	2017/06/27 14:00
	UNITS	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**
Inorganics									
Total Ammonia-N	mg/L	0.28	4.6	[redacted]	[redacted]	0.1	0.1	0.1	<0.01
Total Dissolved Solids (TDS)	mg/L	242	206	[redacted]	[redacted]	570	924.0	1220	3280
pH	pH	7.53	7.88	7.61	7.90	7.99	8.1	7.94	6.90
Total Suspended Solids (TSS)	mg/L	100	25	1	1	9	4.0	1	3
Dissolved Sulphate (SO4)	mg/L	39	30	[redacted]	[redacted]	120	200.0	200	230
Turbidity	NTU	93	20	[redacted]	[redacted]	1.5	0.9	0.9	0.2
Alkalinity (Total as CaCO3)	mg/L	60	100	[redacted]	[redacted]	130	160.0	200	11
Nitrite (N)	mg/L	0.020	0.016	[redacted]	[redacted]	0.028	<0.010	0.013	<0.010
Nitrate (N)	mg/L	0.26	0.11	[redacted]	[redacted]	0.28	<0.10	<0.10	<0.10
Nitrate + Nitrite (N)	mg/L	0.28	0.13	[redacted]	[redacted]	0.31	<0.10	<0.10	<0.10
Mercury (Hg)	mg/L	<0.00001	<0.00001	[redacted]	[redacted]	<0.00001	<0.00001	<0.00001	<0.00001
Total Hardness (CaCO3)	mg/L	113	139	[redacted]	[redacted]	304	474.0	536.0	517.0
Total Calcium (Ca)	ug/L	32200	42800	[redacted]	[redacted]	93600	143000.0	163000.0	38100.0
Total Magnesium (Mg)	ug/L	7860	7830	[redacted]	[redacted]	17000	28300.0	31300.0	103000.0
Total Potassium (K)	ug/L	6020	6210	[redacted]	[redacted]	8100	11500.0	12900.0	35900.0
Total Sodium (Na)	ug/L	17500	16700	[redacted]	[redacted]	61400	100000.0	128000.0	870000.0
Total Oil & Grease	mg/L	-	-	<0.50	0.80	-	-	-	<0.50
Bicarb. Alkalinity (as CaCO3)	mg/L	-	-	-	-	130	160.0	200	11
Carb. Alkalinity (CaCO3)	mg/L	-	-	-	-	1.2	1.9	1.6	<1.0
Dissolved Chloride	mg/L	-	-	-	-	140	210.0	290	1600
Conductivity	umho/cm	-	-	-	-	930	1400.0	1700	5700

Maxxam ID		ESI492		ETZ831	EVC165	EWP509	EXJ712	EYN527	EZR521
Sampling Date		2017/07/04 13:30	7/11/2017	7/16/2017	2017/07/23 16:00	2017/07/29 12:38	2017/08/06 11:10	2017/08/13 09:00	2017/08/20 15:15
	UNITS	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**
Inorganics									
Total Ammonia-N	mg/L	0.24	0.07	0.04	0.03	0.65	0.06	0.03	0.04
Total Dissolved Solids (TDS)	mg/L	1190	968	1280	1150	1320	1450	1440	1490
pH	pH	7.95	8.07	7.97	7.84	8.03	8.04	7.84	8.05
Total Suspended Solids (TSS)	mg/L	8	11	6	3	5	20	2	<2
Dissolved Sulphate (SO4)	mg/L	180	200	160	170	260	260	280	170
Turbidity	NTU	2.6	1.5	1.0	1.2	1.2	0.4	0.5	0.3
Alkalinity (Total as CaCO3)	mg/L	230	210	270	260	140	210	230	230
Nitrite (N)	mg/L	<0.010	<0.010	0.012	<0.010	0.090	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	0.21	0.27	0.15	0.16	4.15	0.58	0.25	0.35
Nitrate + Nitrite (N)	mg/L	0.21	0.27	0.16	0.16	4.24	0.58	0.25	0.35
Mercury (Hg)	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Hardness (CaCO3)	mg/L	525.0	484.0	489.0	512.0	606.0	583.0	647.0	609.0
Total Calcium (Ca)	ug/L	152000.0	143000.0	144000.0	149000.0	179000.0	177000.0	-	-
Total Magnesium (Mg)	ug/L	35400.0	30800.0	31300.0	33700.0	38600.0	34500.0	-	-
Total Potassium (K)	ug/L	13700.0	12300.0	14100.0	13500.0	15700.0	14000.0	-	-
Total Sodium (Na)	ug/L	170000.0	133000.0	156000.0	165000.0	152000.0	146000.0	-	-
Total Oil & Grease	mg/L	<0.50	1.30	<0.50	0.60	<0.50	<0.50	2.10	2.20
Bicarb. Alkalinity (as CaCO3)	mg/L	230	210	270	260	140	210	230	230
Carb. Alkalinity (CaCO3)	mg/L	1.9	2.3	2.4	1.7	1.4	2.2	1.5	2.4
Dissolved Chloride	mg/L	320	280	330	360	350	290	370	270
Conductivity	umho/cm	1900	1700	1900	1900	2000	1800	2000	2100

Maxxam ID		FBL315	FCR581	FCR581	FDN344	FDZ998	FFW543	FHQ753
Sampling Date		2017/08/29 10:25	2017/09/07 12:00	2017/09/10 12:00	2017/09/12 10:30	9/16/2017 15:50	9/27/2017 15:40	10/7/2017 14:30
	UNITS	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**	**MEL-SR1**
Inorganics								
Total Ammonia-N	mg/L	-	-	-	-	-	-	-
Total Dissolved Solids (TDS)	mg/L	-	-	-	-	-	-	-
pH	pH	7.76	7.96	7.99	8.02	7.99	7.98	8
Total Suspended Solids (TSS)	mg/L	12	2	3	<10	1	3	<1
Dissolved Sulphate (SO4)	mg/L	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	-
Alkalinity (Total as CaCO3)	mg/L	-	-	-	-	-	-	-
Nitrite (N)	mg/L	-	-	-	-	-	-	-
Nitrate (N)	mg/L	-	-	-	-	-	-	-
Nitrate + Nitrite (N)	mg/L	-	-	-	-	-	-	-
Mercury (Hg)	mg/L	-	-	-	-	-	-	-
Total Hardness (CaCO3)	mg/L	-	-	-	-	-	-	-
Total Calcium (Ca)	ug/L	-	-	-	-	-	-	-
Total Magnesium (Mg)	ug/L	-	-	-	-	-	-	-
Total Potassium (K)	ug/L	-	-	-	-	-	-	-
Total Sodium (Na)	ug/L	-	-	-	-	-	-	-
Total Oil & Grease	mg/L	0.50	<0.50	1.80	<0.50	1	1.6	0.7
Bicarb. Alkalinity (as CaCO3)	mg/L	-	-	-	-	-	-	-
Carb. Alkalinity (CaCO3)	mg/L	-	-	-	-	-	-	-
Dissolved Chloride	mg/L	-	-	-	-	-	-	-
Conductivity	umho/cm	-	-	-	-	-	-	-

Sampling Station MEL-SR2

Maxxam ID		EKF925	ELQ335	EMU906	FEA001
Sampling Date		2017/05/12 14:35	2017/05/23 15:05	2017/05/30 15:33	9/16/2017 15:47
	UNITS	**MEL-SR2**	**MEL-SR2**	**MEL-SR2**	**MEL-SR-2**
Inorganics					
Total Ammonia-N	mg/L	0.27	-	-	-
Total Dissolved Solids	mg/L	250	-	-	-
pH	pH	7.65	7.40	7.69	7.94
Total Suspended Solids	mg/L	470	<1	1	2
Dissolved Sulphate (SO4)	mg/L	40	-	-	-
Turbidity	NTU	170	-	-	-
Alkalinity (Total as CaCO3)	mg/L	73	-	-	-
Nitrite (N)	mg/L	0.025	-	-	-
Nitrate (N)	mg/L	0.33	-	-	-
Nitrate + Nitrite (N)	mg/L	0.36	-	-	-
Mercury (Hg)	mg/L	0.00002	-	-	-
Total Hardness (CaCO3)	mg/L	183	-	-	-
Total Calcium (Ca)	ug/L	47400	-	-	-
Total Magnesium (Mg)	ug/L	15700	-	-	-
Total Potassium (K)	ug/L	7800	-	-	-
Total Sodium (Na)	ug/L	19300	-	-	-
Total Oil & Grease	mg/L	-	<0.50	0.60	1.2

Sampling Station MEL-SR3

Maxxam ID		EKF926	EKY351		EPA803	EQF370	ERJ569	ESI493
Sampling Date		2017/05/12 14:40	2017/05/16 13:30	2017/06/06 09:35	2017/06/13 12:50	2017/06/20 13:45	2017/06/27 14:15	2017/07/04 13:40
	UNITS	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**
Inorganics								
Total Ammonia-N	mg/L	0.27	4.1	0.09	0.03	0.03	0.05	0.14
Total Dissolved Solids	mg/L	266	232	476	5270	3410	1290	31600
pH	pH	7.61	7.82	8.00	7.68	7.65	7.94	7.76
Total Suspended Solids	mg/L	330	110	9	14	78	3	130
Dissolved Sulphate (SO4)	mg/L	39	39	120	350	240	200	2100
Turbidity	NTU	140	96	3.8	4.2	6.8	1.1	0.2
Alkalinity (Total as CaCO3)	mg/L	67	100	130	43	36	220	100
Nitrite (N)	mg/L	0.023	0.022	0.024	<0.010	<0.010	0.011	<0.10
Nitrate (N)	mg/L	0.31	0.13	0.27	<0.10	<0.10	<0.10	<1.0
Nitrate + Nitrite (N)	mg/L	0.33	0.16	0.29	<0.10	<0.10	<0.10	<1.0
Mercury (Hg)	mg/L	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Hardness (CaCO3)	mg/L	146	138	295	936	535	641	4810
Total Calcium (Ca)	ug/L	35500	41000	91100	76700	67800.0	201000.0	317000.0
Total Magnesium (Mg)	ug/L	13800	8600	16400	181000	88800.0	33700.0	977000.0
Total Potassium (K)	ug/L	7110	6250	8180	61500	32700.0	13700.0	326000.0
Total Sodium (Na)	ug/L	26800	22000	59800	1570000	747000	133000	8050000
Bicarb. Alkalinity (as CaCO3)	mg/L	-	-	130	43	36	220	100
Carb. Alkalinity (CaCO3)	mg/L	-	-	1.2	<1.0	<1.0	1.8	<1.0
Dissolved Chloride	mg/L	-	-	130	2600	1800	300	15000
Conductivity	umho/cm	-	-	930	8900	5800	1800	45000
Total Oil & Grease	mg/L	-	-	-	-	-	0.6	<0.5

Maxxam ID			ETZ832	EVC167	EWP510	EXJ713	EYN528	EZR523
Sampling Date		7/11/2017	7/16/2017	2017/07/23 14:15	2017/07/29 13:10	2017/08/06 11:10	2017/08/13 09:00	2017/08/20 15:15
	UNITS	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**
Inorganics								
Total Ammonia-N	mg/L	0.13	0.13	0.11	0.22	0.13	0.10	0.12
Total Dissolved Solids	mg/L	30400	29700	29700	29300	29700	31500	29700
pH	pH	7.92	7.87	7.83	7.93	7.90	7.84	7.90
Total Suspended Solids	mg/L	53	53	20	73	26	28	33
Dissolved Sulphate (SO4)	mg/L	2200	2100	2100	2000	750	2300	2200
Turbidity	NTU	1.3	0.2	0.5	0.2	0.5	1.1	0.6
Alkalinity (Total as CaCO3)	mg/L	110	110	110	110	110	110	110
Nitrite (N)	mg/L	<0.10	<0.10	<0.10	0.014	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	<1.0	<1.0	<1.0	0.31	<0.10	<0.10	<0.10
Nitrate + Nitrite (N)	mg/L	<1.0	<1.0	<1.0	0.33	<0.10	<0.10	<0.10
Mercury (Hg)	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Hardness (CaCO3)	mg/L	5410	4850	5180	4710	4890	5180	5090
Total Calcium (Ca)	ug/L	357000.0	335000.0	329000.0	324000.0	341000.0	-	-
Total Magnesium (Mg)	ug/L	1100000.0	976000.0	1060000.0	947000.0	981000.0	-	-
Total Potassium (K)	ug/L	348000.0	329000.0	310000.0	310000.0	317000.0	-	-
Total Sodium (Na)	ug/L	9350000	8400000	8610000	7780000	8340000	-	-
Bicarb. Alkalinity (as CaCO3)	mg/L	110	100	110	110	110	110	110
Carb. Alkalinity (CaCO3)	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dissolved Chloride	mg/L	16000	15000	16000	14000	8000	16000	16000
Conductivity	umho/cm	45000	44000	44000	42000	42000	42000	44000
Total Oil & Grease	mg/L	-	<0.50	0.9	<0.50	<0.50	0.8	1.3

Maxxam ID		FBL317	FCR582	FCR582	FDN345	FDZ999	FFW544	FHQ754
Sampling Date		2017/08/29 10:25	2017/09/07 12:20	2017/09/10 12:20	2017/09/12 10:30	2017/09/16 15:53	2017/09/27 15:40	2017/10/07 14:30
	UNITS	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**	**MEL-SR3**
Inorganics								
Total Ammonia-N	mg/L	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-	-	-	-
pH	pH	7.97	7.96	7.98	7.93	8.00	7.92	7.84
Total Suspended Solids	mg/L	49	230	31	<10	11	36	47
Dissolved Sulphate (SO4)	mg/L	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	-
Alkalinity (Total as CaCO3)	mg/L	-	-	-	-	-	-	-
Nitrite (N)	mg/L	-	-	-	-	-	-	-
Nitrate (N)	mg/L	-	-	-	-	-	-	-
Nitrate + Nitrite (N)	mg/L	-	-	-	-	-	-	-
Mercury (Hg)	mg/L	-	-	-	-	-	-	-
Total Hardness (CaCO3)	mg/L	-	-	-	-	-	-	-
Total Calcium (Ca)	ug/L	-	-	-	-	-	-	-
Total Magnesium (Mg)	ug/L	-	-	-	-	-	-	-
Total Potassium (K)	ug/L	-	-	-	-	-	-	-
Total Sodium (Na)	ug/L	-	-	-	-	-	-	-
Bicarb. Alkalinity (as CaCO3)	mg/L	-	-	-	-	-	-	-
Carb. Alkalinity (CaCO3)	mg/L	-	-	-	-	-	-	-
Dissolved Chloride	mg/L	-	-	-	-	-	-	-
Conductivity	umho/cm	-	-	-	-	-	-	-
Total Oil & Grease	mg/L	0.8	<0.50	0.9	<0.50	1.3	1.8	<0.50

Sampling Station MEL-SR4

Maxxam ID		B7B5823
Sampling Date		2017/05/29 14:50
	UNITS	**MEL-SR4**
Inorganics		
pH	pH	7.70
Total Suspended Solids	mg/L	870
Total Oil & Grease	mg/L	<0.50

Sampling Station MEL-SR5

Maxxam ID		B7B5823
Sampling Date		2017/05/31 12:00
	UNITS	**MEL-SR5**
Inorganics		
pH	pH	7.15
Phenols-4AAP	mg/L	0.00
Total Suspended Solids	mg/L	290
Total Oil & Grease	mg/L	2.3
Benzene	ug/L	<0.20
Toluene	ug/L	<0.20
Ethylbenzene	ug/L	<0.20
o-Xylene	ug/L	0.27
p+m-Xylene	ug/L	<0.40
Total Xylenes	ug/L	<0.40
1,4-Difluorobenzene	%	100
4-Bromofluorobenzene	%	101
D10-Ethylbenzene	%	103
D4-1,2-Dichloroethane	%	95
Total Lead (Pb)	mg/L	0.00191

Sampling Station MEL-SR6

Maxxam ID		B7B5823
Sampling Date		2017/05/31 12:00
	UNITS	**MEL-SR6**
Inorganics		
pH	pH	6.87
Phenols-4AAP	mg/L	<0.020
Total Suspended Solids	mg/L	40
Total Oil & Grease	mg/L	<0.50
Benzene	ug/L	<0.20
Toluene	ug/L	0.24
Ethylbenzene	ug/L	<0.20
o-Xylene	ug/L	0.32
p+m-Xylene	ug/L	<0.40
Total Xylenes	ug/L	<0.40
1,4-Difluorobenzene	%	100
4-Bromofluorobenzene	%	102
D10-Ethylbenzene	%	104
D4-1,2-Dichloroethane	%	96
Total Lead (Pb)	mg/L	0.00069

Sampling Station MEL-SR7

Maxxam ID		EVC166	EWP511	EXJ714	EYN529	EZR524
Sampling Date		2017/07/23 16:00	2017/07/29 12:50	2017/08/06 11:20	2017/08/13 09:15	2017/08/20 14:40
	UNITS	**MEL-SR7**	**MEL-SR7**	**MEL-SR7**	**MEL-SR7**	**MEL-SR7**
Inorganics						
Total Ammonia-N	mg/L	0.03	0.95	0.05	0.05	0.04
Total Dissolved Solids	mg/L	1360	986	1610	1400	1190
pH	pH	8.10	8.05	8.04	7.83	8.07
Total Suspended Solids	mg/L	2	5	2	<1	3
Dissolved Sulphate (SO4)	mg/L	290	190	42	250	120
Turbidity	NTU	0.8	0.4	1	0.4	0.3
Alkalinity (Total as CaCO3)	mg/L	110	91	220	220	190
Nitrite (N)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrate (N)	mg/L	<0.10	0.19	0.27	0.41	<0.10
Nitrate + Nitrite (N)	mg/L	<0.10	0.19	0.27	0.41	<0.10
Mercury (Hg)	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Total Hardness (CaCO3)	mg/L	633	470	781	631	607
Total Calcium (Ca)	ug/L	189000	148000	243000	-	-
Total Magnesium (Mg)	ug/L	39400.0	24700.0	42500	-	-
Total Potassium (K)	ug/L	11800.0	8080.0	16200	-	-
Total Sodium (Na)	ug/L	129000	80000	153000	-	-
Bicarb. Alkalinity (as CaCO3)	mg/L	110	90	220	220	190
Carb. Alkalinity (CaCO3)	mg/L	1.3	<1.0	2.3	1.4	2
Dissolved Chloride	mg/L	390	230	96	340	150
Conductivity	umho/cm	2000	1400	1900	1900	1700
Total Oil & Grease	mg/L	<0.50	<0.50	<0.50	1.1	1.2

Maxxam ID		FBL318	FBL318	FEA000	FFW545
Sampling Date		2017/08/29 10:40	2017/09/10 10:40	2017/09/16 15:44	2017/09/27 15:53
	UNITS	**MEL-SR7**	**MEL-SR7**	**MEL-SR7**	**MEL-SR7**
Inorganics					
Total Ammonia-N	mg/L	-	-	-	-
Total Dissolved Solids	mg/L	-	-	-	-
pH	pH	8.14	8.00	7.72	8.00
Total Suspended Solids	mg/L	<10	1	2	<1
Dissolved Sulphate (SO4)	mg/L	-	-	-	-
Turbidity	NTU	-	-	-	-
Alkalinity (Total as CaCO3)	mg/L	-	-	-	-
Nitrite (N)	mg/L	-	-	-	-
Nitrate (N)	mg/L	-	-	-	-
Nitrate + Nitrite (N)	mg/L	-	-	-	-
Mercury (Hg)	mg/L	-	-	-	-
Total Hardness (CaCO3)	mg/L	-	-	-	-
Total Calcium (Ca)	ug/L	-	-	-	-
Total Magnesium (Mg)	ug/L	-	-	-	-
Total Potassium (K)	ug/L	-	-	-	-
Total Sodium (Na)	ug/L	-	-	-	-
Bicarb. Alkalinity (as CaCO3)	mg/L	-	-	-	-
Carb. Alkalinity (CaCO3)	mg/L	-	-	-	-
Dissolved Chloride	mg/L	-	-	-	-
Conductivity	umho/cm	-	-	-	-
Total Oil & Grease	mg/L	<0.50	1.7	0.7	2.2

Sampling Station MEL-SR8

Maxxam ID		RQ7664	EWP512	EZR522	FBL318	FBL318	FFW546
Sampling Date		2017/07/25 15:15	2017/07/29 12:18	2017/08/20 15:30	2017/08/29 10:15	2017/09/10 10:15	2017/09/27 15:30
	UNITS	**MEL-SR8**	**MEL-SR8**	**MEL-SR8**	**MEL-SR8**	**MEL-SR8**	**MEL-SR8**
Inorganics							
Total Ammonia-N	mg/L	0.09	2.9	0.06	-	-	-
Total Dissolved Solids	mg/L	10700	520	1300	-	-	-
pH	pH	7.96	7.90	8.35	8.03	7.72	7.50
Total Suspended Solids	mg/L	7	5	6	<10	15	210
Dissolved Sulphate (SO4)	mg/L	700	-	99	-	-	-
Turbidity	NTU	3.9	-	1.2	-	-	-
Alkalinity (Total as CaCO3)	mg/L	220	140	220	-	-	-
Nitrite (N)	mg/L	<0.010	0.209	<0.010	-	-	-
Nitrate (N)	mg/L	<0.10	18.40	0.33	-	-	-
Nitrate + Nitrite (N)	mg/L	<0.10	18.60	0.33	-	-	-
Total Kjeldahl Nitrogen	mg/L	0.41	2.70	-	-	-	-
Mercury (Hg)	mg/L	<0.00001	<0.00001	<0.00001	-	-	-
Dissolved Mercury (Hg)	mg/L	<0.00001	<0.00001	-	-	-	-
Total Hardness (CaCO3)	mg/L	1350	230	411	-	-	-
Total Calcium (Ca)	ug/L	213000	66400	-	-	-	-
Total Magnesium (Mg)	ug/L	199000	15600	-	-	-	-
Total Potassium (K)	ug/L	72700	9430	-	-	-	-
Total Sodium (Na)	ug/L	1670000	91700	-	-	-	-
Dissolved Hardness (CaCO3)	mg/L	3500	216	-	-	-	-
Dissolved Calcium (Ca)	ug/L	282000	60600	-	-	-	-
Dissolved Magnesium (Mg)	ug/L	679000	15800	-	-	-	-
Dissolved Potassium (K)	ug/L	195000	9320	-	-	-	-
Dissolved Sodium (Na)	ug/L	5430000	93200	-	-	-	-
Bicarb. Alkalinity (as CaCO3)	mg/L	220	140	220	-	-	-
Carb. Alkalinity (CaCO3)	mg/L	1.9	1	4.6	-	-	-
Dissolved Chloride	mg/L	5700	120	380	-	-	-
Conductivity	umho/cm	17000	-	2100	-	-	-
Total Oil & Grease	mg/L	-	-	<0.50	<0.50	1.4	1.9
Reactive Silica	mg/L	7	4.9	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L	5	4.6	-	-	-	-
Total Organic Carbon (TOC)	mg/L	6.3	4.8	-	-	-	-
Orthophosphate	mg/L	0.02	0.011	-	-	-	-
Total Cyanide	mg/L	<0.0050	0.0094	-	-	-	-
Free Cyanide (WAD)	mg/L	<0.0010	0.0058	-	-	-	-
Total Phosphorus	mg/L	0.066	0.025	-	-	-	-

Sampling Station MEL-SR9

Maxxam ID		FDN346
Sampling Date		2017/09/12 11:00
COC Number		na
	UNITS	**MEL-SR9**
Inorganics		
Total Ammonia-N	mg/L	-
Total Dissolved Solids	mg/L	-
pH	pH	8.22
Total Suspended Solids	mg/L	30
Dissolved Sulphate (SO4)	mg/L	-
Turbidity	NTU	-
Alkalinity (Total as CaCO3)	mg/L	-
Nitrite (N)	mg/L	-
Nitrate (N)	mg/L	-
Nitrate + Nitrite (N)	mg/L	-
Total Kjeldahl Nitrogen	mg/L	-
Mercury (Hg)	mg/L	-
Dissolved Mercury (Hg)	mg/L	-
Total Hardness (CaCO3)	mg/L	-
Total Calcium (Ca)	ug/L	-
Total Magnesium (Mg)	ug/L	-
Total Potassium (K)	ug/L	-
Total Sodium (Na)	ug/L	-
Dissolved Hardness (CaCO3)	mg/L	-
Dissolved Calcium (Ca)	ug/L	-
Dissolved Magnesium (Mg)	ug/L	-
Dissolved Potassium (K)	ug/L	-
Dissolved Sodium (Na)	ug/L	-
Bicarb. Alkalinity (as CaCO3)	mg/L	-
Carb. Alkalinity (CaCO3)	mg/L	-
Dissolved Chloride	mg/L	-
Conductivity	umho/cm	-
Total Oil & Grease	mg/L	<0.50
Reactive Silica	mg/L	-
Dissolved Organic Carbon (DOC)	mg/L	-
Total Organic Carbon (TOC)	mg/L	-
Orthophosphate	mg/L	-
Total Cyanide	mg/L	-
Free Cyanide (WAD)	mg/L	-
Total Phosphorus	mg/L	-

Waterbody : Channel 5-Upstream		Site Specific Criteria	MMER Criteria	CCME	2017	
Year						
Date Sampled					2017/09/17 13:40	2017/09/27 11:32
Lab Reference					B7K6408	B7L6861
LAB					Maxxam	Maxxam
Parameters	**Units**					
Bicarb. Alkalinity (calc. as CaCO3)	mg/L				75	80
Carb. Alkalinity (calc. as CaCO3)	mg/L				<1.0	<1.0
Total Ammonia-N	mg/L	14 Effluent 18 Grab sample		Table (field pH/ field Temp)	8.2	6.7
Conductivity	µmhos/cm				4600	4400
Total Dissolved Solids (TDS)	mg/L	1400			3670	2510
Free Cyanide (Cn)	mg/L		0.010		0.0011	0.0012
Total Kjeldahl Nitrogen (TKN)	mg/L				8.7	6.7
Dissolved Organic Carbon (DOC)	mg/L				15	15
Total Organic Carbon (TOC)	mg/L				16	16
Orthophosphate (P)	mg/L				<0.010	<0.010
pH		6.0 to 9.5		6.5-9.0 (long term)	7.70	7.71
Total Phosphorus (P)	mg/L	2.0 Effluent 4.0 Grab sample		ultra-oligotrophic <4 ug/L (or 0.004 mg/L) or oligotrophic 4-10 (0.004 to 0.01 mg/L)	0.017	0.017
Total Suspended Solids (TSS)	mg/L	15 Effluent 30 Grab sample	15 Effluent 30 Grab sample	Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).	7	6
Dissolved Sulphate (SO4)	mg/L				-	280
Total Cyanide (Cn)	mg/L	0.5 Effluent 1 Grab sample	0.010		<0.0050	<0.0050
Turbidity	NTU			Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).	8.2	13
Alkalinity (Total as CaCO3)	mg/L				75	81
Dissolved chloride (Cl)	mg/L			640 mg/L (short term); 120 mg/L (long term)	-	1200
Nitrite (as N)	mg/L			60 mg/L NO2-N (long term)	0.199	0.154
Nitrate (as N)	mg/L			550 mg/L (short term); 13 mg/L (long term)	13.5	8.48
Nitrite-Nitrate (as N)	mg/L				13.7	8.63
Radium-226	Bq/L				-	-
Mercury (Hg)	mg/L			0.026 ug/L (long term) (or 0.00026 mg/L)	<0.00001	0.00004
Dissolved Mercury (Hg)	mg/L				<0.00001	0.00003
Total Hardness (CaCO3)	mg/L				1330	1390
Total Aluminium (Al)	mg/L	2 Effluent 3 Grab sample		5 µg/L (0.005 mg/L)if pH < 6.5 ; 100 µg/L (0.1 mg/L) if pH ≥ 6.5	0.037	0.023
Total Antimony (Sb)	mg/L				<0.0025	<0.0025
Total Arsenic (As)	mg/L	0.3 Effluent 0.6 Grab sample		5 ug/L (long term) (or 0.005 mg/L)	0.00377	0.00335
Total Barium (Ba)	mg/L				0.217	0.197
Total Beryllium (Be)	mg/L				<0.00050	<0.00050
Total Boron (B)	mg/L			29 mg/L (short term); 1.5 mg/L (long term)	<0.25	<0.25
Total Cadmium (Cd)	mg/L			1 ug/L or 0.001 mg/L (short term) ; 0.09 ug/L or 0.00009 mg/L (long term)	0.000116	0.000107
Total Chromium (Cr)	mg/L				<0.0050	<0.0050
Total Copper (Cu)	mg/L	0.2 Effluent 0.4 Grab sample		if hardness 0 to < 82 mg/L, the CWQG is 2 µg/L (or 0.002 mg/L) ; if hardness >180 mg/L, the CWQG is 4 µg/L (or 0.004 mg/L)	0.0028	0.0027
Total Iron (Fe)	mg/L			300 ug/L (long term) (or 0.3mg/L)	1.44	1.92

Total Lead (Pb)	mg/L	0.2 Effluent 0.4 Grab sample	0.2 Effluent 0.4 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L (or 0.001 mg/L) At hardness >180 mg/L, the CWQG is 7 µg/L (or 0.007mg/L)	<0.0010	<0.0010
Total Lithium (Li)	mg/L				0.326	0.308
Total Manganese (Mn)	mg/L				0.562	0.604
Total Molybdenum (Mo)	mg/L			73 ug/L (long term) (or 0.073 mg/L)	<0.0050	<0.0050
Total Nickel (Ni)	mg/L	0.5 Effluent 1.0 Grab sample	0.5 Effluent 1.0 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L (or 0.025 mg/L) hardness >180 mg/L, the CWQG is 150 µg/L (or 0.15 mg/L)	0.0126	0.0126
Total Selenium (Se)	mg/L			1 ug/L (long term) (or 0.001 mg/L)	<0.00050	<0.00050
Total Silver (Ag)	mg/L				<0.00010	<0.00010
Total Strontium (Sr)	mg/L				6.91	6.62
Total thallium (Tl)	mg/L			0.8 ug/L (long term) (or 0.0008 mg/L)	0.000091	0.000072
Total Tin (Sn)	mg/L				<0.025	<0.025
Total Titanium (Ti)	mg/L				<0.025	<0.025
Total Uranium	mg/L			33 ug/L (short term) (or 0.033 mg/L); 15 ug/L (long term) (or 0.015 mg/L)	0.00198	0.00176
Total Vanadium	mg/L				<0.025	<0.025
Total Zinc	mg/L	0.4 Effluent 0.8 Grab sample		30 ug/L (long term) (or 0.03 mg/L)	<0.025	<0.025
Total Calcium	mg/L				423	448
Total Magnesium	mg/L				67.2	66
Total Potassium	mg/L				22.8	21.1
Total Sodium	mg/L				250	241
BTEX & F1 Hydrocarbons						
Benzene	ug/L				<0.20	-
Toluene	ug/L				<0.20	-
Ethylbenzene	ug/L				<0.20	-
o-Xylene	ug/L				<0.20	-
p+m-Xylene	ug/L				<0.40	-
Total Xylenes	ug/L				<0.40	-
F1 (C6-C10)	ug/L				<25	-
F1 (C6-C10) - BTEX	ug/L				<25	-
Hydrocarbons (L) (Fraction F2 - F4))						
F2 (C10-C16 Hydrocarbons)	ug/L				-	-
F3 (C16-34 Hydrocarbons)	ug/L				-	-
F4 (C34-50 Hydrocarbons)	ug/L				-	-
Reached Baseline at C50	ug/L				-	-
F4G-sg (Grav. Heavy Hydrocarbons)	ug/L				-	-
1,4-Difluorobenzene	%				106	-
4-Bromofluorobenzene	%				96	-
D10-Ethylbenzene	%				102	-
D4-1,2-Dichloroethane	%				94	-
o-Terphenyl	%				-	-
Dissolved Hardness	mg/L				1440	1390
Dissolved Aluminium (Al)	mg/L				<0.015	<0.015
Dissolved Antimony (Sb)	mg/L				<0.0025	<0.0025
Dissolved Arsenic (As	mg/L		0.010		0.00276	0.00217
Dissolved Barium (Ba)	mg/L				0.23	0.206
Dissolved Beryllium (Be)	mg/L				<0.00050	<0.00050
Dissolved Boron (B)	mg/L				<0.25	<0.25
Dissolved Cadmium (Cd)	mg/L				0.000124	0.000101
Dissolved Chromium (Cr)	mg/L				<0.0050	<0.0050
Dissolved Copper (Cu)	mg/L		0.010		0.0025	0.0025
Dissolved Iron (Fe)	mg/L				0.549	0.546
Dissolved Lead (Pb)	mg/L		0.010		<0.0010	<0.0010
Dissolved Lithium (Li)	mg/L				0.34	0.293
Dissolved Manganese (Mn)	mg/L				0.605	0.641
Dissolved Molybdenum (Mo)	mg/L				<0.0050	<0.0050
Dissolved Nickel (Ni)	mg/L		0.020		0.0132	0.0138
Dissolved Selenium (Se)	mg/L				<0.00050	<0.00050
Dissolved Silver (Ag)	mg/L				<0.00010	<0.00010
Dissolved Strontium (Sr)	mg/L				7.8	6.47
Dissolved thallium (Tl)	mg/L				0.000095	0.000071
Dissolved Tin (Sn)	mg/L				<0.025	<0.025
Dissolved Titanium (Ti)	mg/L				<0.025	<0.025
Dissolved Uranium	mg/L				0.00203	0.00176
Dissolved Vanadium	mg/L				<0.025	<0.025
Dissolved Zinc	mg/L		0.010		<0.025	<0.025
Dissolved Calcium	mg/L				452	445
Dissolved Magnesium	mg/L				74.4	67.9
Dissolved Potassium	mg/L				25.3	22.6
Dissolved Sodium	mg/L				275	235
Reactive Silica (Si)	mg/L				7.3	7.6

Waterbody : CULVERT 2 - UPSTREAM		Site Specific Criteria	MMER Criteria	CCME	2017								
Year													
Date Sampled					2017/06/06 - 14:45	6/13/2017 13:40:00 PM	2017/06/20 10:30	2017/07/04 15:40	7/11/2017	2017/07/18 13:30	2017/07/26 11:25	2017/08/01 07:55	2017/08/22 11:35
Lab Reference					B7C1605	B7C7727	B7D4025	B7E5120	B7F3007	B7F7257	B7G3476	B7G9742	B7I6985
LAB					Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Parameters	**Units**												
Bicarb. Alkalinity (calc. as CaCO3)	mg/L				61	61	73	80	84	85	82	160	130
Carb. Alkalinity (calc. as CaCO3)	mg/L				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Ammonia-N	mg/L	14 Effluent 18 Grab sample		Table (field pH/ field Temp)	3	3.3	3.2	3	2.7	2.2	1.9	4.1	-
Conductivity	µmhos/cm				760	880	970	1100	1200	1200	1300	1300	4600
Total Dissolved Solids (TDS)	mg/L	1400			552	734	892	1050	1050	912	942	1090	3370
Free Cyanide (Cn)	mg/L		0.010		-	-	-	-	-	-	-	-	0.0014
Total Kjeldahl Nitrogen (TKN)	mg/L				-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L				-	-	-	-	-	-	-	-	37
Total Organic Carbon (TOC)	mg/L				-	-	-	-	-	-	-	-	-
Orthophosphate (P)	mg/L				-	-	-	-	-	-	-	-	-
pH		6.0 to 9.5		6.5-9.0 (long term)	7.74	7.87	7.85	7.98	8.05	7.85	7.97	7.54	7.86
Total Suspended Solids (TSS)	mg/L	15 Effluent 30 Grab sample	15 Effluent 30 Grab sample	Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).	30	5	2	2	4	5	5	11	36
Dissolved Sulphate (SO4)	mg/L				35	38	36	37	39	42	35	36	200
Total Cyanide (Cn)	mg/L	0.5 Effluent 1 Grab sample	0.010		-	-	-	-	-	-	-	-	<0.0050
Turbidity	NTU			Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).	14	1.7	1.2	1.1	0.5	1	1	15	21
Alkalinity (Total as CaCO3)	mg/L				61	61	74	81	85	85	82	160	130
Dissolved chloride (Cl)	mg/L			640 mg/L (short term); 120 mg/L (long term)	150	170	200	240	250	270	250	250	1300
Nitrite (as N)	mg/L			60 mg/L NO2-N (long term)	0.077	0.102	0.082	0.078	0.086	0.079	0.118	<0.010	-
Nitrate (as N)	mg/L			550 mg/L (short term); 13 mg/L (long term)	2.3	3.4	2.46	2.18	2	1.6	2.31	<0.10	-
Nitrite-Nitrate (as N)	mg/L				2.38	3.5	2.54	2.26	2.09	1.68	2.43	<0.10	-
Total Oil & Grease	mg/L				-	-	-	-	-	-	-	-	<0.50
Radium-226	Bq/L				-	-	-	-	-	-	-	-	-
Mercury (Hg)	mg/L			0.026 ug/L (long term) (or 0.00026 mg/L)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dissolved Mercury (Hg)	mg/L												<0.00001
Total Hardness (CaCO3)	mg/L				263	276	294	343	369	380	397	457	1350
Total Aluminium (Al)	mg/L	2 Effluent 3 Grab sample		5 µg/L (0.005 mg/L)if pH < 6.5 ; 100 µg/L (0.1 mg/L) if pH ≥ 6.5	-	-	-	-	-	0.485	0.0306	0.0145	0.573
Total Antimony (Sb)	mg/L				-	-	-	-	-	<0.00050	<0.00050	<0.00050	<0.0025
Total Arsenic (As	mg/L	0.3 Effluent 0.6 Grab sample		5 ug/L (long term) (or 0.005 mg/L)	-	-	-	-	-	0.00445	0.00254	0.00917	0.0134
Total Barium (Ba)	mg/L				-	-	-	-	-	0.128	0.122	0.209	0.477
Total Beryllium (Be)	mg/L				-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00050
Total Boron (B)	mg/L			29 mg/L (short term); 1.5 mg/L (long term)	-	-	-	-	-	0.057	0.052	<0.050	0.26
Total Cadmium (Cd)	mg/L			1 ug/L or 0.001 mg/L (short term) ; 0.09 ug/L or 0.00009 mg/L (long term)	-	-	-	-	-	0.000013	<0.000010	<0.000010	<0.000050
Total Chromium (Cr)	mg/L				-	-	-	-	-	0.0019	<0.0010	<0.0010	<0.0050
Total Copper (Cu)	mg/L	0.2 Effluent 0.4 Grab sample		if hardness 0 to < 82 mg/L, the CWQG is 2 µg/L (or 0.002 mg/L) ; if hardness >180 mg/L, the CWQG is 4 µg/L (or 0.004 mg/L)	-	-	-	-	-	0.003	0.00183	<0.00050	0.0066
Total Iron (Fe)	mg/L			300 ug/L (long term) (or 0.3mg/L)	-	-	-	-	-	1.12	0.172	3.52	1.52
Total Lead (Pb)	mg/L	0.2 Effluent 0.4 Grab sample	0.2 Effluent 0.4 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L (or 0.001 mg/L) At hardness >180 mg/L, the CWQG is 7 µg/L (or 0.007mg/L)	-	-	-	-	-	0.00054	<0.00020	<0.00020	0.0014
Total Lithium (Li)	mg/L				-	-	-	-	-	0.054	0.051	0.0238	0.228
Total Manganese (Mn)	mg/L				-	-	-	-	-	0.0748	0.0286	1.47	0.901
Total Molybdenum (Mo)	mg/L			73 ug/L (long term) (or 0.073 mg/L)	-	-	-	-	-	<0.0010	<0.0010	<0.0010	0.0063
Total Nickel (Ni)	mg/L	0.5 Effluent 1.0 Grab sample	0.5 Effluent 1.0 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L (or 0.025 mg/L) hardness >180 mg/L, the CWQG is 150 µg/L (or 0.15 mg/L)	-	-	-	-	-	0.0042	0.0027	0.0024	0.0165
Total Selenium (Se)	mg/L			1 ug/L (long term) (or 0.001 mg/L)	-	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00050
Total Silver (Ag)	mg/L				-	-	-	-	-	<0.000020	<0.000020	<0.000020	<0.00010
Total Strontium (Sr)	mg/L				-	-	-	-	-	1.64	1.62	1.12	6.74
Total thallium (Tl)	mg/L			0.8 ug/L (long term) (or 0.0008 mg/L)	-	-	-	-	-	0.000029	0.000029	<0.000010	0.000056
Total Tin (Sn)	mg/L				-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.025
Total Titanium (Ti)	mg/L				-	-	-	-	-	0.0109	<0.0050	<0.0050	0.028
Total Uranium	mg/L			33 ug/L (short term) (or 0.033 mg/L); 15 ug/L (long term) (or 0.015 mg/L)	-	-	-	-	-	0.00063	0.00044	0.00012	0.00484
Total Vanadium	mg/L				-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.025
Total Zinc	mg/L	0.4 Effluent 0.8 Grab sample		30 ug/L (long term) (or 0.03 mg/L)	-	-	-	-	-	0.0052	<0.0050	<0.0050	<0.025
Total Calcium	mg/L				83.6	87.6	96.5	110	115	120	127	150	418
Total Magnesium	mg/L				13.1	13.8	13	16.8	20	19.4	19.4	20.2	73.4
Total Potassium	mg/L				6.74	7.37	7.3	8.74	9.69	9.64	10.4	7.66	34.7
Total Sodium	mg/L				37.5	45.5	43.8	59.7	63.9	61.8	63.4	48.7	332
BTEX & F1 Hydrocarbons					-	-	-	-	-	-	-	-	

Benzene	ug/L				-	-	-	-	-	-	-	-	<0.20
Toluene	ug/L				-	-	-	-	-	-	-	-	<0.20
Ethylbenzene	ug/L				-	-	-	-	-	-	-	-	<0.20
o-Xylene	ug/L				-	-	-	-	-	-	-	-	<0.20
p+m-Xylene	ug/L				-	-	-	-	-	-	-	-	<0.40
Total Xylenes	ug/L				-	-	-	-	-	-	-	-	<0.40
F1 (C6-C10)	ug/L				-	-	-	-	-	-	-	-	<25
F1 (C6-C10) - BTEX	ug/L				-	-	-	-	-	-	-	-	<25
1,4-Difluorobenzene	%				-	-	-	-	-	-	-	-	104
4-Bromofluorobenzene	%				-	-	-	-	-	-	-	-	88
D10-Ethylbenzene	%				-	-	-	-	-	-	-	-	101
D4-1,2-Dichloroethane	%				-	-	-	-	-	-	-	-	108
o-Terphenyl	%				-	-	-	-	-	-	-	-	-
Dissolved Hardness	mg/L				-	-	-	-	-	-	-	-	1460
Dissolved Aluminium (Al)	mg/L				-	-	-	-	-	-	-	-	0.022
Dissolved Antimony (Sb)	mg/L				-	-	-	-	-	-	-	-	<0.0025
Dissolved Arsenic (As	mg/L		0.010		-	-	-	-	-	-	-	-	0.00544
Dissolved Barium (Ba)	mg/L				-	-	-	-	-	-	-	-	0.445
Dissolved Beryllium (Be)	mg/L				-	-	-	-	-	-	-	-	<0.00050
Dissolved Boron (B)	mg/L				-	-	-	-	-	-	-	-	0.25
Dissolved Cadmium (Cd)	mg/L				-	-	-	-	-	-	-	-	<0.000050
Dissolved Chromium (Cr)	mg/L				-	-	-	-	-	-	-	-	<0.0050
Dissolved Copper (Cu)	mg/L		0.010		-	-	-	-	-	-	-	-	0.0036
Dissolved Iron (Fe)	mg/L				-	-	-	-	-	-	-	-	0.086
Dissolved Lead (Pb)	mg/L		0.010		-	-	-	-	-	-	-	-	<0.0010
Dissolved Lithium (Li)	mg/L				-	-	-	-	-	-	-	-	0.229
Dissolved Manganese (Mn)	mg/L				-	-	-	-	-	-	-	-	0.752
Dissolved Molybdenum (Mo)	mg/L				-	-	-	-	-	-	-	-	0.0065
Dissolved Nickel (Ni)	mg/L		0.020		-	-	-	-	-	-	-	-	0.0117
Dissolved Selenium (Se)	mg/L				-	-	-	-	-	-	-	-	<0.00050
Dissolved Silver (Ag)	mg/L				-	-	-	-	-	-	-	-	<0.00010
Dissolved Strontium (Sr)	mg/L				-	-	-	-	-	-	-	-	6.75
Dissolved thallium (Tl)	mg/L				-	-	-	-	-	-	-	-	<0.000050
Dissolved Tin (Sn)	mg/L				-	-	-	-	-	-	-	-	<0.025
Dissolved Titanium (Ti)	mg/L				-	-	-	-	-	-	-	-	<0.025
Dissolved Uranium	mg/L				-	-	-	-	-	-	-	-	0.00485
Dissolved Vanadium	mg/L				-	-	-	-	-	-	-	-	<0.025
Dissolved Zinc	mg/L		0.010		-	-	-	-	-	-	-	-	<0.025
Dissolved Calcium	mg/L				-	-	-	-	-	-	-	-	460
Dissolved Magnesium	mg/L				-	-	-	-	-	-	-	-	75.8
Dissolved Potassium	mg/L				-	-	-	-	-	-	-	-	32.2
Dissolved Sodium	mg/L				-	-	-	-	-	-	-	-	331
Reactive Silica (Si)	mg/L												8.7

Note:
- not analyzed
BOLD - exceeds oneor more guidelines

Waterbody : CULVERT 3 - UPSTREAM		Site Specific Criteria	MMER Criteria	CCME	2017										
Year															
Date Sampled					07/18/17	07/26/17	08/01/17	08/06/17	08/13/17	08/22/17	08/29/17	09/13/17	09/17/17	09/27/17	10/03/17
Lab Reference					B7F7257	B7G3476	B7G9742	B7H1202	B7H7102	B7I6985	B7J2724	B7K4227	B7K6408	B7L6861	B7L9990
LAB					Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Parameters	**Units**														
Bicarb. Alkalinity (calc. as CaCO3)	mg/L				77	80	77	77	74	78	76	7.78	120	73	-
Carb. Alkalinity (calc. as CaCO3)	mg/L				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7	1.1	<1.0	-
Total Ammonia-N	mg/L	14 Effluent 18 Grab sample		Table (field pH/ field Temp)			29	61	7.1	-	-	-	7	2.5	-
Conductivity	µmhos/cm				1700	1900	6200	21000	3200	3800	4500	-	4000	2900	-
Total Dissolved Solids (TDS)	mg/L	1400			1250	1530	7270	15100	2530	2860	2930	-	3310	1720	-
Free Cyanide (Cn)	mg/L		0.010		-	-	-	-	-	<0.0010	<0.0010	-	0.0012	0.001	-
Total Kjeldahl Nitrogen (TKN)	mg/L				-	-	-	-	-	-	-	-	7.7	3.1	-
Dissolved Organic Carbon (DOC)	mg/L				-	-	-	-	-	13	14	-	18	13	-
Total Organic Carbon (TOC)	mg/L				-	-	-	-	-	-	-	-	19	15	-
Orthophosphate (P)	mg/L				-	-	-	-	-	-	-	-	<0.010	<0.010	-
pH		6.0 to 9.5		6.5-9.0 (long term)	7.72	7.6	7.63	7.38	7.65	7.72	7.75	-	7.99	7.85	7.8
Total Phosphorus (P)	mg/L	2.0 Effluent 4.0 Grab sample		ultra-oligotrophic <4 ug/L (or 0.004 mg/L) or oligotrophic 4-10 (0.004 to 0.01 mg/L)	-	-	-	-	-	-	-	-	0.016	0.043	-
Total Suspended Solids (TSS)	mg/L	15 Effluent 30 Grab sample	15 Effluent 30 Grab sample	Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).	5	7	8	16	5	10	<10	-	7	6	32
Dissolved Sulphate (SO4)	mg/L				52	43	160	440	88	110	120	-		86	-
Total Cyanide (Cn)	mg/L	0.5 Effluent 1 Grab sample	0.010		-	-	-	-	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Turbidity	NTU			Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).	1.8	12	3	3.9	3.1	3	2.8	-	8.6	5.5	-
Alkalinity (Total as CaCO3)	mg/L				77	80	77	77	75	78	77	-	120	74	-
Dissolved chloride (Cl)	mg/L			640 mg/L (short term); 120 mg/L (long term)	400	460	1800	7000	940	1100	1300	-	-	780	-
Nitrite (as N)	mg/L			60 mg/L NO2-N (long term)	0.108	0.153	0.586	1.97	0.157	-	-	-	0.179	0.149	-
Nitrate (as N)	mg/L			550 mg/L (short term); 13 mg/L (long term)	3.86	4.42	22.8	75.6	8.9	-	-	-	6.06	5.75	-
Nitrite-Nitrate (as N)	mg/L				3.97	4.58	23.4	77.6	9.06	-	-	-	6.23	5.9	-
Total Oil & Grease	mg/L				-	-	-	-	-	<0.50	0.7	<0.50	<0.50	<0.50	2.1
Radium-226	Bq/L				-	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)	mg/L			0.026 ug/L (long term) (or 0.00026 mg/L)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	<0.00001	0.00001	-
Dissolved Mercury (Hg)	mg/L				-	-	-	-	-	<0.00001	<0.00001	-	<0.00001	0.00001	-
Total Hardness (CaCO3)	mg/L				512	610	2290	5520	953	1140	1270	-	1150	829	-
Total Aluminium (Al)	mg/L	2 Effluent 3 Grab sample		5 µg/L (0.005 mg/L)if pH < 6.5 ; 100 µg/L (0.1 mg/L) if pH ≥ 6.5	0.023	0.036	0.047	<0.060	0.023	0.015	0.352	-	0.041	0.015	-
Total Antimony (Sb)	mg/L				<0.00050	<0.0025	<0.0025	<0.010	<0.0025	<0.0025	<0.0025	-	<0.0025	<0.0025	-
Total Arsenic (As)	mg/L	0.3 Effluent 0.6 Grab sample		5 ug/L (long term) (or 0.005 mg/L)	0.00303	0.00302	0.0032	0.0034	0.00258	0.0026	0.00217	-	0.00286	0.002	-
Total Barium (Ba)	mg/L				0.135	0.178	0.41	0.697	0.236	0.237	0.296	-	0.261	0.19	-
Total Beryllium (Be)	mg/L				<0.00010	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	-
Total Boron (B)	mg/L			29 mg/L (short term); 1.5 mg/L (long term)	0.119	<0.25	0.41	1.1	<0.25	<0.25	<0.25	-	<0.25	<0.25	-
Total Cadmium (Cd)	mg/L			1 ug/L or 0.001 mg/L (short term) ; 0.09 ug/L or 0.00009 mg/L (long term)	0.000022	<0.000050	0.000455	0.00094	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050	-
Total Chromium (Cr)	mg/L				<0.0010	<0.0050	<0.0050	<0.020	<0.0050	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Total Copper (Cu)	mg/L	0.2 Effluent 0.4 Grab sample		if hardness 0 to < 82 mg/L, the CWQG is 2 µg/L (or 0.002 mg/L) ; if hardness >180 mg/L, the CWQG is 4 µg/L (or 0.004 mg/L)	0.00216	<0.0025	<0.0025	<0.010	<0.0025	<0.0025	<0.0025	-	0.0026	<0.0025	-
Total Iron (Fe)	mg/L			300 ug/L (long term) (or 0.3mg/L)	0.232	2.25	0.649	<0.20	0.603	0.873	0.748	-	1.22	0.42	-
Total Lead (Pb)	mg/L	0.2 Effluent 0.4 Grab sample	0.2 Effluent 0.4 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L (or 0.001 mg/L) At hardness >180 mg/L, the CWQG is 7 µg/L (or 0.007mg/L)	<0.00020	<0.0010	<0.0010	<0.0040	<0.0010	<0.0010	<0.0010	-	<0.0010	<0.0010	-
Total Lithium (Li)	mg/L				0.142	0.139	0.757	2.06	0.274	0.276	0.3	-	0.179	0.233	-
Total Manganese (Mn)	mg/L				0.107	0.628	0.357	0.631	0.197	0.276	0.203	-	0.843	0.224	-
Total Molybdenum (Mo)	mg/L			73 ug/L (long term) (or 0.073 mg/L)	0.0014	<0.0050	<0.0050	<0.020	<0.0050	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Total Nickel (Ni)	mg/L	0.5 Effluent 1.0 Grab sample	0.5 Effluent 1.0 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L (or 0.025 mg/L) hardness >180 mg/L, the CWQG is 150 µg/L (or 0.15 mg/L)	0.0029	0.0054	0.0056	<0.020	<0.0050	<0.0050	<0.0050	-	0.0058	<0.0050	-
Total Selenium (Se)	mg/L			1 ug/L (long term) (or 0.001 mg/L)	<0.00010	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	-
Total Silver (Ag)	mg/L				<0.000020	<0.00010	<0.00010	<0.00040	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	-
Total Strontium (Sr)	mg/L				2.97	2.79	17	47.6	5.41	5.72	7.26	-	5.35	4.57	-
Total thallium (Tl)	mg/L			0.8 ug/L (long term) (or 0.0008 mg/L)	0.000042	<0.000050	0.000199	0.00055	0.000051	0.000051	0.000054	-	<0.000050	<0.000050	-
Total Tin (Sn)	mg/L				<0.0050	<0.025	<0.025	<0.10	<0.025	<0.025	<0.025	-	<0.025	<0.025	-
Total Titanium (Ti)	mg/L				<0.0050	<0.025	<0.025	<0.10	<0.025	<0.025	0.026	-	<0.025	<0.025	-
Total Uranium	mg/L			33 ug/L (short term) (or 0.033 mg/L); 15 ug/L (long term) (or 0.015 mg/L)	0.00073	0.0007	0.00107	0.0022	0.00076	0.00084	0.00118	-	0.00344	0.00105	-
Total Vanadium	mg/L				<0.0050	<0.025	<0.025	<0.10	<0.025	<0.025	<0.025	-	<0.025	<0.025	-
Total Zinc	mg/L	0.4 Effluent 0.8 Grab sample		30 ug/L (long term) (or 0.03 mg/L)	0.463	0.347	<0.025	<0.10	0.079	0.076	0.083	-	<0.025	0.062	-

Total Calcium	mg/L				165	201	692	1640	304	365	397	-	361	262	-
Total Magnesium	mg/L				23.9	26.5	136	345	47.1	56.4	67.1	-	61.1	42.9	-
Total Potassium	mg/L				11.8	13.2	62	159	23.1	26.2	29.9	-	22.3	18.4	-
Total Sodium	mg/L				92.1	94	885	2380	232	276	319	-	226	195	-
BTEX & F1 Hydrocarbons															
Benzene	ug/L				-	-	-	-	-	<0.20	<0.20	-	<0.20	-	-
Toluene	ug/L				-	-	-	-	-	<0.20	<0.20	-	<0.20	-	-
Ethylbenzene	ug/L				-	-	-	-	-	<0.20	<0.20	-	<0.20	-	-
o-Xylene	ug/L				-	-	-	-	-	<0.20	<0.20	-	<0.20	-	-
p+m-Xylene	ug/L				-	-	-	-	-	<0.40	<0.40	-	<0.40	-	-
Total Xylenes	ug/L				-	-	-	-	-	<0.40	<0.40	-	<0.40	-	-
F1 (C6-C10)	ug/L				-	-	-	-	-	<25	<25	-	<25	-	-
F1 (C6-C10) - BTEX	ug/L				-	-	-	-	-	<25	<25	-	<25	-	-
Hydrocarbons (L) (Fraction F2 - F4))															
F2 (C10-C16 Hydrocarbons)	ug/L				-	-	-	-	-	-	-	-	-	-	-
F3 (C16-34 Hydrocarbons)	ug/L				-	-	-	-	-	-	-	-	-	-	-
F4 (C34-50 Hydrocarbons)	ug/L				-	-	-	-	-	-	-	-	-	-	-
Reached Baseline at C50	ug/L				-	-	-	-	-	-	-	-	-	-	-
F4G-sg (Grav. Heavy Hydrocarbons)	ug/L				-	-	-	-	-	-	-	-	-	-	-
1,4-Difluorobenzene	%				-	-	-	-	-	105	101	-	104	-	-
4-Bromofluorobenzene	%				-	-	-	-	-	91	103	-	100	-	-
D10-Ethylbenzene	%				-	-	-	-	-	101	94	-	106	-	-
D4-1,2-Dichloroethane	%				-	-	-	-	-	107	104	-	92	-	-
o-Terphenyl	%				-	-	-	-	-	-	-	-	-	-	-
Dissolved Hardness	mg/L				-	-	-	-	-	1170	1260	-	1200	791	-
Dissolved Aluminium (Al)	mg/L				-	-	-	-	-	<0.015	<0.015	-	<0.015	<0.015	-
Dissolved Antimony (Sb)	mg/L				-	-	-	-	-	<0.0025	<0.0025	-	<0.0025	<0.0025	-
Dissolved Arsenic (As	mg/L		0.010		-	-	-	-	-	0.00247	0.00185	-	0.00215	0.00161	-
Dissolved Barium (Ba)	mg/L				-	-	-	-	-	0.254	0.291	-	0.268	0.189	-
Dissolved Beryllium (Be)	mg/L				-	-	-	-	-	<0.00050	<0.00050	-	<0.00050	<0.00050	-
Dissolved Boron (B)	mg/L				-	-	-	-	-	<0.25	<0.25	-	<0.25	<0.25	-
Dissolved Cadmium (Cd)	mg/L				-	-	-	-	-	<0.000050	<0.000050	-	<0.000050	<0.000050	-
Dissolved Chromium (Cr)	mg/L				-	-	-	-	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Dissolved Copper (Cu)	mg/L		0.010		-	-	-	-	-	0.0014	0.0015	-	0.0021	0.0018	-
Dissolved Iron (Fe)	mg/L				-	-	-	-	-	0.548	0.211	-	0.236	0.166	-
Dissolved Lead (Pb)	mg/L		0.010		-	-	-	-	-	<0.0010	<0.0010	-	<0.0010	<0.0010	-
Dissolved Lithium (Li)	mg/L				-	-	-	-	-	0.274	0.3	-	0.183	0.214	-
Dissolved Manganese (Mn)	mg/L				-	-	-	-	-	0.236	0.183	-	0.821	0.201	-
Dissolved Molybdenum (Mo)	mg/L				-	-	-	-	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Dissolved Nickel (Ni)	mg/L		0.020		-	-	-	-	-	<0.0050	<0.0050	-	0.0055	<0.0050	-
Dissolved Selenium (Se)	mg/L				-	-	-	-	-	<0.00050	<0.00050	-	<0.00050	<0.00050	-
Dissolved Silver (Ag)	mg/L				-	-	-	-	-	<0.00010	<0.00010	-	<0.00010	<0.00010	-
Dissolved Strontium (Sr)	mg/L				-	-	-	-	-	6.06	6.92	-	5.82	4.25	-
Dissolved thallium (Tl)	mg/L				-	-	-	-	-	0.000055	0.000050	-	<0.000050	<0.000050	-
Dissolved Tin (Sn)	mg/L				-	-	-	-	-	<0.025	<0.025	-	<0.025	<0.025	-
Dissolved Titanium (Ti)	mg/L				-	-	-	-	-	<0.025	<0.025	-	<0.025	<0.025	-
Dissolved Uranium	mg/L				-	-	-	-	-	0.00103	0.00116	-	0.00344	0.00096	-
Dissolved Vanadium	mg/L				-	-	-	-	-	<0.025	<0.025	-	<0.025	<0.025	-
Dissolved Zinc	mg/L		0.010		-	-	-	-	-	0.064	0.072	-	<0.025	0.059	-
Dissolved Calcium	mg/L				-	-	-	-	-	370	393	-	380	250	-
Dissolved Magnesium	mg/L				-	-	-	-	-	59.2	67.7	-	59.9	40.6	-
Dissolved Potassium	mg/L				-	-	-	-	-	26.6	30.1	-	22.5	18.8	-
Dissolved Sodium	mg/L				-	-	-	-	-	291	312	-	226	183	-
Reactive Silica (Si)	mg/L				-	-	-	-	-	5.7	1.8	-	8.1	1.3	-

Waterbody : DCP1-Downstream	Site Specific Criteria	MMER Criteria	CCME	2017					
Year									
Date Sampled				5/14/17	5/24/17	6/6/17	6/13/17	6/20/17	7/4/17
Lab Reference				B7A3182	B7A9722	B7C1605	B7C7727	B7D4025	B7E5120
LAB				Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Parameters									
Bicarb. Alkalinity (calc. as CaCO3)				-	-	81	100	150	180
Carb. Alkalinity (calc. as CaCO3)				-	-	<1.0	<1.0	<1.0	<1.0
Total Ammonia-N	14 Effluent 18 Grab sample		Table (field pH/ field Temp)	2.1	5.6	5.9	3.3	29	55
Conductivity				-	-	1400	2100	6200	5100
Total Dissolved Solids (TDS)	1400			478	808	1050	1730	5270	3860
Fluoride (F-)									
Free Cyanide (Cn)		0.010		-	-	-	-	-	-
Total Kjeldahl Nitrogen (TKN)				-	-	-	-	-	-
Dissolved Organic Carbon (DOC)				-	-	-	-	-	-
Total Organic Carbon (TOC)				-	-	-	-	-	-
Orthophosphate (P)				-	-	-	-	-	-
pH	6.0 to 9.5		6.5-9.0 (long term)	7.49	7.69	7.68	7.82	7.59	7.75
Total Phosphorus (P)	2.0 Effluent 4.0 Grab sample		ultra-oligotrophic <4 ug/L (or 0.004 mg/L) or oligotrophic 4-10 (0.004 to 0.01 mg/L)	-	-	-	-	-	-
Total Suspended Solids (TSS)	15 Effluent 30 Grab sample	15 Effluent 30 Grab sample	Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).	310	17	120	28	170	19
Dissolved Sulphate (SO4)				26	48	52	140	540	580
Total Cyanide (Cn)	0.5 Effluent 1 Grab sample	0.010		-	-	-	-	-	-
Turbidity			Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).	390	6.3	94	30	140	7.4
Alkalinity (Total as CaCO3)				55	110	82	100	150	180
Dissolved chloride (Cl)			640 mg/L (short term); 120 mg/L (long term)	-	-	300	480	1600	1100
Nitrite (as N)			60 mg/L NO2-N (long term)	0.083	0.252	0.308	0.089	2.32	2.15
Nitrate (as N)			550 mg/L (short term); 13 mg/L (long term)	2.47	5.26	6.09	2.32	47.3	78.8
Nitrite-Nitrate (as N)				2.56	5.52	6.4	2.4	49.6	81
Radium-226									
Mercury (Hg)			0.026 ug/L (long term) (or 0.00026 mg/L)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dissolved Mercury (Hg)									
Total Hardness (CaCO3)				176	336	381	807	1990	1640
Total Aluminium (Al)	2 Effluent 3 Grab sample		5 µg/L (0.005 mg/L)if pH < 6.5 ; 100 µg/L (0.1 mg/L) if pH ≥ 6.5	-	0.339	-	-	-	-
Total Antimony (Sb)				-	0.00064	-	-	-	-
Total Arsenic (As)	0.3 Effluent 0.6 Grab sample		5 ug/L (long term) (or 0.005 mg/L)	-	0.00436	-	-	-	-
Total Barium (Ba)				-	0.0925	-	-	-	-
Total Beryllium (Be)				-	<0.00010	-	-	-	-
Total Boron (B)			29 mg/L (short term); 1.5 mg/L (long term)	-	0.081	-	-	-	-
Total Cadmium (Cd)			1 ug/L or 0.001 mg/L (short term) ; 0.09 ug/L or 0.00009 mg/L (long term)	-	0.000026	-	-	-	-

Total Chromium (Cr)				-	<0.0010	-	-	-	-
Total Copper (Cu)	0.2 Effluent 0.4 Grab sample		if hardness 0 to < 82 mg/L, the CWQG is 2 µg/L (or 0.002 mg/L) ; if hardness >180 mg/L, the CWQG is 4 µg/L (or 0.004 mg/L)	-	0.00528	-	-	-	-
Total Iron (Fe)			300 ug/L (long term) (or 0.3mg/L)	-	0.348	-	-	-	-
Total Lead (Pb)	0.2 Effluent 0.4 Grab sample	0.2 Effluent 0.4 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L (or 0.001 mg/L) At hardness >180 mg/L, the CWQG is 7 µg/L (or 0.007mg/L)	-	0.0007	-	-	-	-
Total Lithium (Li)				-	0.159	-	-	-	-
Total Manganese (Mn)				-	0.11	-	-	-	-
Total Molybdenum (Mo)			73 ug/L (long term) (or 0.073 mg/L)	-	0.0038	-	-	-	-
Total Nickel (Ni)	0.5 Effluent 1.0 Grab sample	0.5 Effluent 1.0 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L (or 0.025 mg/L) hardness >180 mg/L, the CWQG is 150 µg/L (or 0.15 mg/L)	-	0.0034	-	-	-	-
Total Selenium (Se)			1 ug/L (long term) (or 0.001 mg/L)	-	0.00035	-	-	-	-
Total Silver (Ag)				-	<0.000020	-	-	-	-
Total Strontium (Sr)				-	1.94	-	-	-	-
Total thallium (Tl)			0.8 ug/L (long term) (or 0.0008 mg/L)	-	0.000052	-	-	-	-
Total Tin (Sn)				-	<0.0050	-	-	-	-
Total Titanium (Ti)				-	0.0072	-	-	-	-
Total Uranium			33 ug/L (short term) (or 0.033 mg/L); 15 ug/L (long term) (or 0.015 mg/L)	-	0.00148	-	-	-	-
Total Vanadium				-	<0.0050	-	-	-	-
Total Zinc	0.4 Effluent 0.8 Grab sample		30 ug/L (long term) (or 0.03 mg/L)	-	0.0075	-	-	-	-
Total Calcium				53.2	108	123	265	642	492
Total Magnesium				10.6	16.4	17.8	35.4	94.7	100
Total Potassium				7.55	8.7	9.43	15.3	49.2	40.2
Total Sodium				23	132	86.7	76.6	390	273

Waterbody : DCP1-Downstream									
Year	Site Specific Criteria	MMER Criteria	**CCME**						
Date Sampled				7/11/17	7/18/17	7/26/17	8/1/17	9/10/17	10/2/17
Lab Reference				B7F3007	B7F7257	B7G3476	B7G9742	B7K0900	B7M1107
LAB				Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Field Measurments									
Water Temperature									
pH									
Conductivity									
Laboratory-Measured									
Parameters									
Bicarb. Alkalinity (calc. as CaCO3)				170	170	170	140	-	-
Carb. Alkalinity (calc. as CaCO3)				1.3	1.1	1.1	<1.0	-	-
Total Ammonia-N	14 Effluent 18 Grab sample		Table (field pH/ field Temp)	58	61	59	53	30	7.4
Conductivity				5000	5000	5000	6600	-	-
Total Dissolved Solids (TDS)	1400			3900	3330	4050	5540	3600	1980
Fluoride (F-)									<0.10
Free Cyanide (Cn)		0.010		-	-	-	-	0.0091	0.0015
Total Kjeldahl Nitrogen (TKN)				-	-	-	-	-	-
Dissolved Organic Carbon (DOC)				-	-	-	-	-	-
Total Organic Carbon (TOC)				-	-	-	-	-	-
Orthophosphate (P)				-	-	-	-	<0.010	<0.010
pH	6.0 to 9.5		6.5-9.0 (long term)	7.9	7.83	7.87	7.76	7.98	8.04
Total Phosphorus (P)	2.0 Effluent 4.0 Grab sample		ultra-oligotrophic <4 ug/L (or 0.004 mg/L) or oligotrophic 4-10 (0.004 to 0.01 mg/L)	-	-	-	-	-	0.012

Total Suspended Solids (TSS)	15 Effluent 30 Grab sample	15 Effluent 30 Grab sample	Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).	12	8	10	39	3	4
Dissolved Sulphate (SO4)				590	590	440	580	450	310
Total Cyanide (Cn)	0.5 Effluent 1 Grab sample	0.010		-	-	-	-	0.013	<0.0050
Turbidity			Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).	4	3.5	1.9	1.1	1.3	1.3
Alkalinity (Total as CaCO3)				170	170	170	140	220	170
Dissolved chloride (Cl)			640 mg/L (short term); 120 mg/L (long term)	1000	1000	840	1600	1000	730
Nitrite (as N)			60 mg/L NO2-N (long term)	1.89	1.67	1.53	1.27	0.324	0.023
Nitrate (as N)			550 mg/L (short term); 13 mg/L (long term)	85.9	89	82	76.6	34.7	0.93
Nitrite-Nitrate (as N)				87.8	90.7	83.6	77.9	35	0.96
Radium-226									
Mercury (Hg)			0.026 ug/L (long term) (or 0.00026 mg/L)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dissolved Mercury (Hg)									
Total Hardness (CaCO3)				1580	1600	1850	1930	1470	1060
Total Aluminium (Al)	2 Effluent 3 Grab sample		5 µg/L (0.005 mg/L)if pH < 6.5 ; 100 µg/L (0.1 mg/L) if pH ≥ 6.5	-	0.239	0.244	1.23	0.095	0.133
Total Antimony (Sb)				-	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Total Arsenic (As)	0.3 Effluent 0.6 Grab sample		5 ug/L (long term) (or 0.005 mg/L)	-	0.00986	0.0112	0.0113	0.00787	0.00717
Total Barium (Ba)				-	0.0904	0.0867	0.141	0.0869	0.109
Total Beryllium (Be)				-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Boron (B)			29 mg/L (short term); 1.5 mg/L (long term)	-	0.57	0.54	0.71	0.36	<0.25
Total Cadmium (Cd)			1 ug/L or 0.001 mg/L (short term) ; 0.09 ug/L or 0.00009 mg/L (long term)	-	<0.000050	<0.000050	0.000128	0.000091	0.000053
Total Chromium (Cr)				-	<0.0050	<0.0050	0.0053	<0.0050	<0.0050
Total Copper (Cu)	0.2 Effluent 0.4 Grab sample		if hardness 0 to < 82 mg/L, the CWQG is 2 µg/L (or 0.002 mg/L) ; if hardness >180 mg/L, the CWQG is 4 µg/L (or 0.004 mg/L)	-	0.0189	0.0189	0.0163	0.0133	0.0065
Total Iron (Fe)			300 ug/L (long term) (or 0.3mg/L)	-	0.45	0.496	2.69	0.262	0.294
Total Lead (Pb)	0.2 Effluent 0.4 Grab sample	0.2 Effluent 0.4 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L (or 0.001 mg/L) At hardness >180 mg/L, the CWQG is 7 µg/L (or 0.007mg/L)	-	0.001	<0.0010	0.0034	<0.0010	<0.0010
Total Lithium (Li)				-	0.453	0.445	0.541	0.31	0.186
Total Manganese (Mn)				-	0.495	0.481	0.655	0.632	0.423
Total Molybdenum (Mo)			73 ug/L (long term) (or 0.073 mg/L)	-	0.0279	0.0266	0.021	0.0146	<0.0050

Total Nickel (Ni)	0.5 Effluent 1.0 Grab sample	0.5 Effluent 1.0 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L (or 0.025 mg/L) hardness >180 mg/L, the CWQG is 150 µg/L (or 0.15 mg/L)	-	0.0578	0.0598	0.0674	0.0609	0.0301
Total Selenium (Se)			1 ug/L (long term) (or 0.001 mg/L)	-	0.00089	0.00102	0.00095	0.00092	<0.00050
Total Silver (Ag)				-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Total Strontium (Sr)				-	9.79	9.28	14	7.85	5.05
Total thallium (Tl)			0.8 ug/L (long term) (or 0.0008 mg/L)	-	0.000189	0.000185	0.000296	0.000145	0.000079
Total Tin (Sn)				-	<0.025	<0.025	<0.025	<0.025	<0.025
Total Titanium (Ti)				-	<0.025	<0.025	<0.025	<0.025	<0.025
Total Uranium			33 ug/L (short term) (or 0.033 mg/L); 15 ug/L (long term) (or 0.015 mg/L)	-	0.0317	0.0305	0.0254	0.0277	0.00976
Total Vanadium				-	<0.025	<0.025	<0.025	<0.025	<0.025
Total Zinc	0.4 Effluent 0.8 Grab sample		30 ug/L (long term) (or 0.03 mg/L)	-	0.027	<0.025	<0.025	<0.025	<0.025
Total Calcium				459	471	549	565	432	335
Total Magnesium				106	104	115	127	95.7	54
Total Potassium				39.5	39.6	43.5	50.7	32.9	18.3
Total Sodium				281	265	282	466	268	156

Waterbody : DCP5-Downstream		Site Specific Criteria	MMER Criteria	CCME	2017					
Year										
Date Sampled					5/14/17	5/18/17	5/24/17	6/13/17	6/20/17	7/4/17
Lab Reference					B7A3182	B7A5875	B7A9722	B7C7727	B7D4025	B7E5120
LAB					Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Parameters	**Units**									
Bicarb. Alkalinity (calc. as CaCO3)	mg/L				-	-	-	96	110	130
Carb. Alkalinity (calc. as CaCO3)	mg/L				-	-	-	<1.0	<1.0	<1.0
Total Ammonia-N	mg/L	14 Effluent		Table (field pH/ field Temp)	5.4	3.1	2.9	4	3.6	26
Conductivity	µmhos/cm				-	-	-	1100	2700	7800
Total Dissolved Solids (TDS)	mg/L	1400			860	718	634	950	2580	6750
Fluoride (F-)	mg/L				-	-	-	-	-	-
Free Cyanide (Cn)	mg/L		0.010		-	-	-	-	-	-
Total Kjeldahl Nitrogen (TKN)	mg/L				-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L				-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/L				-	-	-	-	-	-
Orthophosphate (P)	mg/L				-	-	-	-	-	-
pH		6.0 to 9.5		6.5-9.0 (long term)	7.48	7.66	7.72	7.89	7.91	7.59
Total Phosphorus (P)	mg/L	2.0 Effluent 4.0 Grab sample		ultra-oligotrophic <4 ug/L (or 0.004 mg/L) or oligotrophic 4-10 (0.004 to 0.01 mg/L)	-	-	-	-	-	-
Total Suspended Solids (TSS)	mg/L	15 Effluent 30 Grab sample	15 Effluent 30 Grab sample	Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).	61	19	570	1100	5	12
Dissolved Sulphate (SO4)	mg/L				46	40	43	56	170	430
Total Cyanide (Cn)	mg/L	0.5 Effluent 1 Grab sample	0.010		-	-	-	-	-	-
Turbidity	NTU			Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).	11	5.4	210	350	4.1	4.8
Alkalinity (Total as CaCO3)	mg/L				47	58	75	97	110	140
Dissolved chloride (Cl)	mg/L			640 mg/L (short term); 120 mg/L (long term)	-	-	-	220	660	2300
Nitrite (as N)	mg/L			60 mg/L NO2-N (long term)	0.436	0.257	0.146	0.194	0.073	0.878
Nitrate (as N)	mg/L			550 mg/L (short term); 13 mg/L	6	4.13	3.7	3.76	1.96	19.3
Nitrite-Nitrate (as N)	mg/L				6.44	4.38	3.85	3.95	2.03	20.2
Radium-226	Bq/L									
Mercury (Hg)	mg/L			0.026 ug/L (long term) (or	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dissolved Mercury (Hg)	mg/L									
Total Hardness (CaCO3)	mg/L				283	138	464	383	1050	2700
Total Aluminium (Al)	mg/L	2 Effluent 3 Grab sample		5 µg/L (0.005 mg/L)if pH < 6.5 ; 100 µg/L (0.1 mg/L) if pH ≥ 6.5	-	-	1.64	9.49	-	-
Total Antimony (Sb)	mg/L				-	-	<0.00050	<0.00050	-	-
Total Arsenic (As	mg/L	0.3 Effluent 0.6 Grab sample		5 ug/L (long term) (or 0.005 mg/L)	-	-	0.00968	0.00246	-	-
Total Barium (Ba)	mg/L				-	-	0.108	0.0549	-	-
Total Beryllium (Be)	mg/L				-	-	<0.00010	<0.00010	-	-
Total Boron (B)	mg/L			29 mg/L (short term); 1.5 mg/L (long term)	-	-	<0.050	0.095	-	-
Total Cadmium (Cd)	mg/L			1 ug/L or 0.001 mg/L (short term) ; 0.09 ug/L or 0.00009 mg/L (long term)	-	-	0.00006	0.000012	-	-
Total Chromium (Cr)	mg/L				-	-	0.0061	<0.0010	-	-
Total Copper (Cu)	mg/L	0.2 Effluent 0.4 Grab sample		if hardness 0 to < 82 mg/L, the CWQG is 2 µg/L (or 0.002 mg/L) ; if hardness >180 mg/L, the CWQG is 4 µg/L (or 0.004 mg/L)	-	-	0.0124	0.0038	-	-
Total Iron (Fe)	mg/L			300 ug/L (long term) (or 0.3mg/L)	-	-	3.99	0.323	-	-
Total Lead (Pb)	mg/L	0.2 Effluent 0.4 Grab sample	0.2 Effluent 0.4 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L (or 0.001 mg/L) At hardness >180 mg/L, the CWQG is 7 µg/L (or 0.007mg/L)	-	-	0.00363	<0.00020	-	-
Total Lithium (Li)	mg/L				-	-	0.0508	0.59	-	-
Total Manganese (Mn)	mg/L				-	-	0.184	0.0546	-	-
Total Molybdenum (Mo)	mg/L			73 ug/L (long term) (or 0.073 mg/L)	-	-	0.004	0.001	-	-
Total Nickel (Ni)	mg/L	0.5 Effluent 1.0 Grab sample	0.5 Effluent 1.0 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L (or 0.025 mg/L) hardness >180 mg/L, the CWQG is 150 µg/L (or 0.15 mg/L)	-	-	0.0186	0.0147	-	-
Total Selenium (Se)	mg/L			1 ug/L (long term) (or 0.001 mg/L)	-	-	0.00016	<0.00010	-	-
Total Silver (Ag)	mg/L				-	-	0.000031	<0.000020	-	-
Total Strontium (Sr)	mg/L				-	-	1.49	0.526	-	-
Total thallium (Tl)	mg/L			0.8 ug/L (long term) (or 0.0008 mg/L)	-	-	0.000037	0.00001	-	-
Total Tin (Sn)	mg/L				-	-	<0.0050	<0.0050	-	-
Total Titanium (Ti)	mg/L				-	-	0.0891	<0.0050	-	-
Total Uranium	mg/L			33 ug/L (short term) (or 0.033 mg/L); 15 ug/L (long term) (or 0.015 mg/L)	-	-	0.00295	0.00254	-	-
Total Vanadium	mg/L				-	-	0.007	<0.0050	-	-
Total Zinc	mg/L	0.4 Effluent 0.8 Grab sample		30 ug/L (long term) (or 0.03 mg/L)	-	-	0.0111	0.0179	-	-

Total Calcium	mg/L				88	44.6	160	119	353	877
Total Magnesium	mg/L				15.3	6.47	15.8	20.7	41.2	124
Total Potassium	mg/L				8.57	4.23	6.89	11.5	17.9	61.2
Total Sodium	mg/L				64.3	44.9	43.7	66.9	79.9	387

Waterbody : DCP5-Downstream		Site Specific Criteria	MMER Criteria	**CCME**						
Year										
Date Sampled					7/11/17	7/18/17	7/26/17	8/1/17	9/10/17	10/2/17
Lab Reference					B7F3007	B7F7257	B7G3476	B7G9742	B7K0900	B7M1107
LAB					Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Field Measurments										
Water Temperature										
pH										
Conductivity										
Laboratory-Measured										
Parameters	**Units**									
Bicarb. Alkalinity (calc. as CaCO3)	mg/L				150	130	130	98	-	-
Carb. Alkalinity (calc. as CaCO3)	mg/L				<1.0	<1.0	<1.0	<1.0	-	-
Total Ammonia-N	mg/L	14 Effluent 18 Grab sample		Table (field pH/ field Temp)	50	58	55	7.4	11	11
Conductivity	µmhos/cm				13000	15000	15000	4800	-	-
Total Dissolved Solids (TDS)	mg/L	1400			9200	9990	9780	4550	5120	3330
Fluoride (F-)	mg/L				-	-	-	-	-	0.14
Free Cyanide (Cn)	mg/L		0.010		-	-	-	-	0.0023	0.0018
Total Kjeldahl Nitrogen (TKN)	mg/L				-	-	-	-	-	-
Dissolved Organic Carbon (DOC)	mg/L				-	-	-	-	-	-
Total Organic Carbon (TOC)	mg/L				-	-	-	-	-	-
Orthophosphate (P)	mg/L				-	-	-	-	<0.010	<0.010
pH		6.0 to 9.5		6.5-9.0 (long term)	7.77	7.62	7.62	7.76	7.93	7.86
Total Phosphorus (P)	mg/L	2.0 Effluent 4.0 Grab sample		ultra-oligotrophic <4 ug/L (or 0.004 mg/L) or oligotrophic 4-10 (0.004 to 0.01 mg/L)	-	-	-	-	-	0.04
Total Suspended Solids (TSS)	mg/L	15 Effluent 30 Grab sample	15 Effluent 30 Grab sample	Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).	10	12	10	7	8	48
Dissolved Sulphate (SO4)	mg/L				540	640	710	640	750	650
Total Cyanide (Cn)	mg/L	0.5 Effluent 1 Grab sample	0.010		-	-	-	-	0.0064	0.0055
Turbidity	NTU			Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).	2.8	3	4	2.6	9	13
Alkalinity (Total as CaCO3)	mg/L				150	140	130	98	350	240
Dissolved chloride (Cl)	mg/L			640 mg/L (short term); 120 mg/L (long term)	3800	4500	4600	1200	1600	1200
Nitrite (as N)	mg/L			60 mg/L NO2-N (long term)	0.861	0.684	0.584	0.109	0.204	0.115
Nitrate (as N)	mg/L			550 mg/L (short term); 13 mg/L (long term)	51	69.1	68.9	5.88	6.8	10.4
Nitrite-Nitrate (as N)	mg/L				51.8	69.8	69.5	5.99	7	10.5
Radium-226	Bq/L							-	-	-
Mercury (Hg)	mg/L			0.026 ug/L (long term) (or 0.00026 mg/L)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Dissolved Mercury (Hg)	mg/L									
Total Hardness (CaCO3)	mg/L				4650	5060	5830	2000	2530	1930
Total Aluminium (Al)	mg/L	2 Effluent 3 Grab sample		5 µg/L (0.005 mg/L)if pH < 6.5 ; 100 µg/L (0.1 mg/L) if pH ≥ 6.5	-	0.04	0.07	0.105	<0.030	0.517
Total Antimony (Sb)	mg/L				-	<0.0050	<0.010	<0.0025	<0.0050	<0.0025
Total Arsenic (As	mg/L	0.3 Effluent 0.6 Grab sample		5 ug/L (long term) (or 0.005 mg/L)	-	0.0077	0.0077	0.00686	0.0138	0.0113
Total Barium (Ba)	mg/L				-	0.282	0.261	0.168	0.12	0.0879
Total Beryllium (Be)	mg/L				-	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050
Total Boron (B)	mg/L			29 mg/L (short term); 1.5 mg/L (long term)	-	1.43	1.6	<0.25	<0.50	<0.25
Total Cadmium (Cd)	mg/L			1 ug/L or 0.001 mg/L (short term) ; 0.09 ug/L or 0.00009 mg/L (long term)	-	0.0003	0.00029	0.000114	0.0001	0.000127
Total Chromium (Cr)	mg/L				-	<0.010	<0.020	<0.0050	<0.010	<0.0050
Total Copper (Cu)	mg/L	0.2 Effluent 0.4 Grab sample		if hardness 0 to < 82 mg/L, the CWQG is 2 µg/L (or 0.002 mg/L) ; if hardness >180 mg/L, the CWQG is 4 µg/L (or 0.004 mg/L)	-	0.0075	<0.010	0.0082	0.0087	0.0073
Total Iron (Fe)	mg/L			300 ug/L (long term) (or 0.3mg/L)	-	0.25	0.44	0.528	1.37	1.66
Total Lead (Pb)	mg/L	0.2 Effluent 0.4 Grab sample	0.2 Effluent 0.4 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L (or 0.001 mg/L) At hardness >180 mg/L, the CWQG is 7 µg/L (or 0.007mg/L)	-	<0.0020	<0.0040	<0.0010	<0.0020	0.0014
Total Lithium (Li)	mg/L				-	1.8	1.92	0.245	0.288	0.246
Total Manganese (Mn)	mg/L				-	1.83	1.61	1.36	1.55	1.37
Total Molybdenum (Mo)	mg/L			73 ug/L (long term) (or 0.073 mg/L)	-	0.021	0.021	0.0075	<0.010	0.0053
Total Nickel (Ni)	mg/L	0.5 Effluent 1.0 Grab sample	0.5 Effluent 1.0 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L (or 0.025 mg/L) hardness >180 mg/L, the CWQG is 150 µg/L (or 0.15 mg/L)	-	0.299	0.362	0.0923	0.097	0.096

Total Selenium (Se)	mg/L			1 ug/L (long term) (or 0.001 mg/L)	-	<0.0010	<0.0020	0.00051	<0.0010	0.00052
Total Silver (Ag)	mg/L				-	<0.00020	<0.00040	<0.00010	<0.00020	<0.00010
Total Strontium (Sr)	mg/L				-	40.3	39.6	8.46	9.14	8.28
Total thallium (Tl)	mg/L			0.8 ug/L (long term) (or 0.0008 mg/L)	-	<0.00010	<0.00020	<0.000050	<0.00010	0.000059
Total Tin (Sn)	mg/L				-	<0.050	<0.10	<0.025	<0.050	<0.025
Total Titanium (Ti)	mg/L				-	<0.050	<0.10	<0.025	<0.050	<0.025
Total Uranium	mg/L			33 ug/L (short term) (or 0.033 mg/L); 15 ug/L (long term) (or 0.015 mg/L)	-	0.038	0.0418	0.0064	0.0103	0.0111
Total Vanadium	mg/L				-	<0.050	<0.10	<0.025	<0.050	<0.025
Total Zinc	mg/L	0.4 Effluent 0.8 Grab sample		30 ug/L (long term) (or 0.03 mg/L)	-	0.47	0.46	0.048	<0.050	<0.025
Total Calcium	mg/L				1480	1620	1910	649	607	523
Total Magnesium	mg/L				232	245	259	92.6	245	152
Total Potassium	mg/L				113	120	132	36.5	56	39.2
Total Sodium	mg/L				852	908	970	191	299	233

Waterbody : Mel-17		Site Specific Criteria	MMER Criteria	CCME	2017			
Year								
Date Sampled					6/24/2017	7/24/2017	8/23/2017	9/13/2017
Lab Reference					B7D6320	B7G3631	B7I6940	B7K4224
LAB					MAXXAM	MAXXAM	MAXXAM	MAXXAM
Field Measurments								
GPS Coordinates					540685-6989588	540685-6989588	540685-6989588	540685-6989588
Water Temperature	oC				-	-	15.5	8.9
pH	pH units				-	-	8.51	8.36
Conductivity	(mS/cm)				-	-	0.677	0.802
Parameters	**Units**							
Bicarb. Alkalinity (calc. as CaCO3)	mg/L				34	40	46	56
Carb. Alkalinity (calc. as CaCO3)	mg/L				<1.0	<1.0	<1.0	<1.0
Total Ammonia-N	mg/L	14 Effluent 18 Grab sample		Table (field pH/ field Temp)	0.23	0.04	0.02	0.04
Conductivity	µmhos/cm				510	800	700	620
Total Dissolved Solids (TDS)	mg/L	1400			406	736	600	620
Free Cyanide (Cn)	mg/L		0.010		-		<0.0010	0.0016
Total Kjeldahl Nitrogen (TKN)	mg/L				0.62	0.45	0.56	0.4
Dissolved Organic Carbon (DOC)	mg/L				7.7	11	10	-
Total Organic Carbon (TOC)	mg/L				7.9	11	11	9.9
Orthophosphate (P)	mg/L				<0.010	<0.010	0.026	0.011
pH		6.0 to 9.5		6.5-9.0 (long term)	7.53	7.71	7.82	7.87
Total Phosphorus (P)	mg/L	2.0 Effluent 4.0 Grab sample		ultra-oligotrophic <4 ug/L (or 0.004 mg/L) or oligotrophic 4-10 (0.004 to 0.01 mg/L)	0.007	0.006	0.007	0.005
Total Suspended Solids (TSS)	mg/L	15 Effluent 30 Grab sample	15 Effluent 30 Grab sample	Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).	1	2	<10	2
Dissolved Sulphate (SO4)	mg/L				13	18	13	18
Total Cyanide (Cn)	mg/L	0.5 Effluent 1 Grab sample	0.010		-	<0.0050	<0.0050	<0.0050
Turbidity	NTU			Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).	0.5	0.4	0.8	0.6
Alkalinity (Total as CaCO3)	mg/L				34	40	47	56
Dissolved chloride (Cl)	mg/L			640 mg/L (short term); 120 mg/L (long term)	120	190	160	140
Nitrite (as N)	mg/L			60 mg/L NO2-N (long term)	0.017	<0.010	<0.010	<0.010
Nitrate (as N)	mg/L			550 mg/L (short term); 13 mg/L (long term)	0.31	<0.10	<0.10	<0.10
Nitrite-Nitrate (as N)	mg/L				0.33	<0.10	<0.10	<0.10
Radium-226	Bq/L							
Mercury (Hg)	mg/L			0.026 ug/L (long term) (or 0.00026 mg/L)	<0.00001	<0.00001	<0.00001	<0.00001
Dissolved Mercury (Hg)	mg/L				<0.00001	<0.00001	<0.00001	<0.00001
Total Hardness (CaCO3)	mg/L				168	253	43	-
Total Aluminium (Al)	mg/L	2 Effluent 3 Grab sample		5 µg/L (0.005 mg/L)if pH < 6.5 ; 100 µg/L (0.1 mg/L) if pH ≥ 6.5	0.006	<0.0030	0.0031	0.0083
Total Antimony (Sb)	mg/L				<0.00050	<0.00050	<0.00050	<0.00050
Total Arsenic (As	mg/L	0.3 Effluent 0.6 Grab sample		5 ug/L (long term) (or 0.005 mg/L)	0.00064	0.00079	0.0008	0.00069
Total Barium (Ba)	mg/L				0.0516	0.0632	0.0558	0.0552
Total Beryllium (Be)	mg/L				<0.00010	<0.00010	<0.00010	<0.00010
Total Boron (B)	mg/L			29 mg/L (short term); 1.5 mg/L (long term)	<0.050	<0.050	<0.050	<0.050
Total Cadmium (Cd)	mg/L			1 ug/L or 0.001 mg/L (short term) ; 0.09 ug/L or 0.00009 mg/L (long term)	<0.000010	<0.000010	<0.000010	<0.000010
Total Chromium (Cr)	mg/L				<0.0010	<0.0010	<0.0010	<0.0010
Total Copper (Cu)	mg/L	0.2 Effluent 0.4 Grab sample		if hardness 0 to < 82 mg/L, the CWQG is 2 µg/L (or 0.002 mg/L) ; if hardness >180 mg/L, the CWQG is 4 µg/L (or 0.004 mg/L)	0.00093	0.00092	0.00095	0.00102
Total Iron (Fe)	mg/L			300 ug/L (long term) (or 0.3mg/L)	0.149	0.12	0.217	0.208
Total Lead (Pb)	mg/L	0.2 Effluent 0.4 Grab sample	0.2 Effluent 0.4 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L (or 0.001 mg/L) At hardness >180 mg/L, the CWQG is 7 µg/L (or 0.007mg/L)	<0.00020	<0.00020	<0.00020	<0.00020
Total Lithium (Li)	mg/L				0.0376	0.0604	0.0498	0.0394
Total Manganese (Mn)	mg/L				0.0406	0.0111	0.0186	0.0294
Total Molybdenum (Mo)	mg/L			73 ug/L (long term) (or 0.073 mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
Total Nickel (Ni)	mg/L	0.5 Effluent 1.0 Grab sample	0.5 Effluent 1.0 Grab sample	hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L (or 0.025 mg/L) hardness >180 mg/L, the CWQG is 150 µg/L (or 0.15 mg/L)	0.0014	0.0013	0.0012	0.0017
Total Selenium (Se)	mg/L			1 ug/L (long term) (or 0.001 mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
Total Silver (Ag)	mg/L				<0.000020	<0.000020	<0.000020	<0.000020
Total Strontium (Sr)	mg/L				0.719	1.11	0.953	0.811
Total thallium (Tl)	mg/L			0.8 ug/L (long term) (or 0.0008 mg/L)	<0.000010	0.000011	<0.000010	<0.000010
Total Tin (Sn)	mg/L				<0.0050	<0.0050	<0.0050	<0.0050
Total Titanium (Ti)	mg/L				<0.0050	<0.0050	<0.0050	<0.0050
Total Uranium	mg/L			33 ug/L (short term) (or 0.033 mg/L); 15 ug/L (long term) (or 0.015 mg/L)	<0.00010	0.00012	0.0001	0.00018
Total Vanadium	mg/L				<0.0050	<0.0050	<0.0050	<0.0050
Total Zinc	mg/L	0.4 Effluent 0.8 Grab sample		30 ug/L (long term) (or 0.03 mg/L)	<0.0050	<0.0050	<0.0050	<0.0050

Total Calcium	mg/L				56.5	84	90.8	72.3
Total Magnesium	mg/L				6.53	10.6	9.55	8.31
Total Potassium	mg/L				3.53	5.45	5.23	4.12
Total Sodium	mg/L				19.8	32	28	21.5
Dissolved Metals								
Dissolved Hardness	mg/L				162	241	41.4	-
Dissolved Aluminium (Al)	mg/L				0.0038	<0.0030	<0.0030	0.0079
Dissolved Antimony (Sb)	mg/L				<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Arsenic (As	mg/L		0.010		0.00061	0.00076	0.0008	0.00063
Dissolved Barium (Ba)	mg/L				0.0493	0.0607	0.0561	0.0511
Dissolved Beryllium (Be)	mg/L				<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Boron (B)	mg/L				<0.050	<0.050	<0.050	<0.050
Dissolved Cadmium (Cd)	mg/L				<0.000010	<0.000010	<0.000010	<0.000010
Dissolved Chromium (Cr)	mg/L				<0.0010	<0.0010	<0.0010	<0.0010
Dissolved Copper (Cu)	mg/L		0.010		0.00083	0.00079	0.00088	0.00085
Dissolved Iron (Fe)	mg/L				0.077	0.0726	0.119	0.116
Dissolved Lead (Pb)	mg/L		0.010		<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Lithium (Li)	mg/L				0.0399	0.0583	0.0496	0.0356
Dissolved Manganese (Mn)	mg/L				0.0251	0.0095	0.0141	0.0257
Dissolved Molybdenum (Mo)	mg/L				<0.0010	<0.0010	<0.0010	<0.0010
Dissolved Nickel (Ni)	mg/L		0.020		0.0013	0.0012	0.0012	0.0015
Dissolved Selenium (Se)	mg/L				<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Silver (Ag)	mg/L				<0.000020	<0.000020	<0.000020	<0.000020
Dissolved Strontium (Sr)	mg/L				0.71	1.16	0.94	0.767
Dissolved thallium (Tl)	mg/L				0.00001	0.00001	<0.000010	<0.000010
Dissolved Tin (Sn)	mg/L				<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Titanium (Ti)	mg/L				<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Uranium	mg/L				<0.00010	0.00011	0.0001	0.00017
Dissolved Vanadium	mg/L				<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Zinc	mg/L		0.010		<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Calcium	mg/L				54.3	80.3	84.6	64.4
Dissolved Magnesium	mg/L				6.32	9.91	9.77	7.97
Dissolved Potassium	mg/L				3.39	5.35	5.11	4.23
Dissolved Sodium	mg/L				19.7	29.9	27.8	21.8
Reactive Silica (Si)	mg/L				0.52	1.3	1.5	2.9

Note:
- not analyzed
BOLD - exceeds oneor more guidelines

Appendix G

Summary of Public Consultations and Participation

Public Consultation 2017 Meliadine

Date	Title	Location	Type	Subject categories
2017-12-11	Meeting with Peter Tapatai		In person	
2017-12-09	One-on-one assistance with M&T		Meeting	IIBA - Contractor Training
2017-11-24	By Pass road site visit with Elder/HTO representative	Rankin Inlet, NU	In person	Community - Community Development / Infrastructure / Investment Community - Hunting / Harvesting / Fishing Community - Hunters and Trappers' Organization (HTO) Community - Impacts Environment - Visual Impacts
2017-11-24	Training discussion with Albert Netser (Arctic College director for Trades program)		In person	Training / Education
2017-11-17	Rankin Inlet Community Information Session	Rankin Inlet, NU	Open House	Community - Business opportunities / Business development Community - Community Development / Infrastructure / Investment Community - Community Visits Community - Scholarships Community - Consultation Community Community Agreements - Community Investment Fund (CIF) Community Agreements Human Resources - Recruitment Human Resources - Labour Pool Process
2017-11-09	Hamlet Agnico Gala		Meeting	Community - Assistance, Donation or Sponsorship
2017-10-23	FW: Partnership Agreement-Whale Cove		Meeting	Community Agreements - Community Coordinator Agreement Community Agreements - Community Partnership Agreement
2017-10-20	Rankin HTO Meeting - October 20-2017.docx		Meeting	Community - Hunters and Trappers' Organization (HTO)
2017-10-12	Community Liaison Committee Meeting-Oct 11		Meeting	Community - Business opportunities / Business development Community - Community Development / Infrastructure / Investment Community - Hunting / Harvesting / Fishing Community - Hunters and Trappers' Organization (HTO) Community - TASK Week Community - Community Liaison Committee (CLC) Community - Wellness Planning Environment - Hazardous Waste / Waste Environment - Dust Environment - Wildlife Community Agreements - Family Days Human Resources - Recruitment Human Resources - Labour Pool Process
2017-10-03	FW: Information Meeting - TODAY 5:30		Meeting	Community - Community Development / Infrastructure / Investment Community
2017-09-22	Aluki Kotierk, NTI President		In person	Community - Impacts Community - Gender Equity Community - Employment/Jobs IIBA - Implementation IIBA Socio-Economic Training / Education
2017-09-22	Presented to Exucutive Development Leadership Program in Iqaluit	Iqaluit, NU	In person	Community Socio-Economic Training / Education Human Resources
2017-09-20	Kivalliq Mayors meeting	Rankin Inlet, NU	Meeting	Community IIBA Socio-Economic

Date	Title	Location	Type	Subject categories
2017-08-02	13 December 2016 Hamlet Council Meeting - Itivia	Rankin Inlet, NU	Meeting	Community - Community Development / Infrastructure / Investment Government - Permitting Project - Construction Activities
2017-07-27	Rankin Inlet Public Meeting - Itivia	Rankin Inlet, NU	Public Meeting	Community - Community Development / Infrastructure / Investment Environment - Vibration Environment - Dust Environment - Caribou Project - Construction Activities Issues or Concerns - Complaint
2017-07-26	Rankin HTO Meeting	Rankin Inlet, NU	Meeting	Community - Hunters and Trappers' Organization (HTO)
2017-07-18	Rankin Inlet - Community Open House		Meeting	Community Environment - Dust Project - Construction Activities
2017-07-18	Rankin Inlet - Open House Itivia	Rankin Inlet, NU	Open House	Environment - Dust Project - Construction Activities Issues or Concerns - Complaint
2017-07-17	Rankin SAO: Dust control	Rankin Inlet, NU	Meeting	Community - Impacts Environment - Dust Environment - Water
2017-07-12	MEL OSWG #2017-01	Rankin Inlet, NU	Meeting	IIBA - Meliadine Working Group
2017-07-11	Phone call with Nunavut Airports - Itivia project		Meeting	
2017-07-10	Meeting with Chesterfield Hamlet Council	Chesterfield Inlet, NU	In person	
2017-07-05	Meeting with Coral Harbour HTO	Chesterfield Inlet, NU	In person	Project - Whale Tail
2017-06-19	High school awards	Rankin Inlet, NU	In person	Community
2017-06-19	Phone call with Nunavut Airports - Itivia Permitting project		Meeting	Government - Permitting
2017-06-08	Meeting with Panniuq		Meeting	IIBA - KIA Information Transmission IIBA - Meadowbank Working Group
2017-06-05	Q2 Employment session Rankin Inlet	Rankin Inlet, NU	Open House	IIBA Human Resources - Labour Pool Process
2017-05-23	Implementation Committee Meeting #2017-01	Rankin Inlet, NU	Meeting	IIBA - Implementation Committee (IC)
2017-05-18	CPA Financial Statements Training Review	Rankin Inlet, NU	Meeting	Community - Business opportunities / Business development Training / Education
2017-05-17	Rankin Shooting Range		Meeting	Community - Community Development / Infrastructure / Investment Health & Safety
2017-05-17	Meliadine On-Site IIBA Awareness	Rankin Inlet, NU	Meeting	IIBA - Implementation
2017-05-17	Meliadine On-Site IIBA Awareness	Rankin Inlet, NU	Meeting	IIBA - Implementation
2017-05-16	High School Awards	Rankin Inlet, NU	Meeting	Training / Education
2017-05-16	IIBA awareness and BOC visit presentation notes	Rankin Inlet, NU	Meeting	IIBA - Business Opportunities Committee (BOC)
2017-05-16	Phone call with Nunavut Airports - Itivia Permitting project		Meeting	Government - Permitting
2017-05-15	Rankin Hamlet Agnico Working group	Rankin Inlet, NU	Meeting	Community - Hamlet Working Committee Community - Impacts Community Community Agreements - Community Investment Fund (CIF) Community Agreements - Green Community Agreement Health & Safety
2017-05-12	2017 Business Opportunities Information Session - Rankin Inlet		Open House	Procurement - Pre-qualification Process Procurement - Tendering Process
2017-05-10	Meliadine On-Site IIBA Awareness	Rankin Inlet, NU	Meeting	IIBA - Implementation

Date	Title	Location	Type	Subject categories
2017-05-04	Site Tour		Site Tour	Community - Impacts Environment - Visual Impacts
2017-04-28	Phone call with Hamlet - Itivia Permitting project		Meeting	Government - Permitting
2017-04-24	Hamlet Council meeting - Itivia Permitting project	Rankin Inlet, NU	Meeting	Government - Permitting
2017-04-20	Introduced and set up future meeting re: Itivia Emergency Services		Meeting	Community - Impacts Community
2017-04-20	2017 Q1: Open Door Baker Lake	Baker Lake, NU	Public Meeting	IIBA - Business Opportunities Committee (BOC) IIBA - Employment and Culture Committee (ECC) Project - Whale Tail Procurement - Pre-qualification Process Human Resources - Labour Pool Process
2017-04-19	2017 Q1: Rankin Inlet - Itivia Open House and Q1 Employment Information Session April 2017	Rankin Inlet, NU	Open House	IIBA - Employment Information Session (EIS) Project - Construction Activities Human Resources - Labour Pool Process
2017-04-13	Meeting with Nunavut Airports - Itivia Permitting project		Meeting	Government - Permitting
2017-04-03	Phone call with Hamlet - Itivia Permitting project		Meeting	Government - Permitting
2017-03-31	Baker Lake Interim Mayor		Meeting	Community - Community Development / Infrastructure / Investment Community - Assistance, Donation or Sponsorship Community Government Socio-Economic Community Agreements Training / Education
2017-03-31	Rankin Inlet - Itivia Open House March 2017		Open House	Project - Construction Activities Human Resources - Labour Pool Process
2017-03-30	Robert Janes Hudson Bay Roundtable		Meeting	Community Government
2017-03-30	Mayor Bob Leonard		Meeting	Community Government
2017-03-30	Naujaat Mayor		Meeting	Community Government
2017-03-24	Phone call with Nunavut Airports - Itivia Permitting project		Meeting	Government - Permitting
2017-03-16	Hamlet meeting re: boat launch and Itivia Project		In person	
2017-03-16	informal meeting with councillor	Rankin Inlet, NU	In person	Community - Hamlet Working Committee Project
2017-03-15	Meeting with National Defense - Itivia Permitting project		Meeting	Government - Permitting
2017-03-13	Hamlet Council meeting - Itivia Permitting project	Rankin Inlet, NU	Meeting	Government - Permitting
2017-02-27	Meeting with Nunavut Airports - Itivia Permitting project	Rankin Inlet, NU	Meeting	Government - Permitting
2017-02-27	Hamlet Council Meeting - Itivia Permitting project	Rankin Inlet, NU	Meeting	Government - Permitting
2017-02-17	Hamlet AEM Working group meeting	Rankin Inlet, NU	Meeting	Community
2017-02-10	Itivia and NU Airports		In person	Community
2017-01-25	Meeting with Nunavut Airports - Itivia Permitting project	Rankin Inlet, NU	Meeting	Government - Permitting
2017-01-24	Meeting with National Defense - Itivia Permitting project		Meeting	Government - Permitting
2017-01-19	Boat laung idea meeting with Hamlet		Meeting	Community
2017-01-17	Boat launch idea		Meeting	Community

Appendix H

Upcoming Events and Information Sessions

Q1 - 2018 Employment Information Sessions

Date	Community	Time (4 hours)	Location
26-Mar	Arviat	1 p.m. 5 p.m.	Community Hall
TBD	Whale Cove	TBD	Hamlet Chambers
23-Mar	Chesterfield Inlet	1 p.m. 5 p.m.	Agnico Office
TBD	Rankin Inlet	TBD	Inns North
9-Mar	Coral Harbour	1 p.m. 5 p.m.	Hamlet Chambers
26-Mar	Naujaat	1 p.m. 5 p.m.	Hamlet Chambers
22-Mar	Baker Lake	2 p.m. 6 p.m.	Agnico Office

Q1 Meetings

Date	Community	Type of Meeting	Topic
18-Jan	Rankin Inlet	ECC Meeting	
5-Feb	Rankin Inlet	BOC Meeting	
8-Feb	Baker Lake	Community Meeting	Inpit disposal
12-Feb	Rankin Inlet	IC Meeting	
13-Feb	Whale Cove	Community Meeting	Huckleberry
14-Feb	Arviat	Hamlet Meeting	
15-Feb	Rankin Inlet	Hamlet Meeting	
19-Feb	Rankin Inlet	Working Committee	Diffuser + Huckleberry
21-Feb	Whale Cove	Community Meeting	Huckleberry
26-Feb	Rankin Inlet	Community Meeting	Diffuser
6-Mar	Rankin Inlet	Hamlet Meeting	Diffuser
6-Mar	Rankin Inlet	Community Meeting	Diffuser
12-Mar	Rankin Inlet	ECC Meeting	
14-Mar	Meliadine	CEDO visit at Meliadine	
15-Mar	Rankin Inlet	Community Meeting	Diffuser

Q2 Meetings

3-Apr	Rankin Inlet	BOC Meeting	
9-Apr	Rankin Inlet	ECC Meeting	
8-May	Rankin Inlet	IC Meeting	
15-May	Rankin Inlet	ECC Meeting	
13-Jun	Rankin Inlet	BOC Meeting	

Q3 Meetings

10-Jul	Rankin Inlet	ECC Meeting	
8-Aug	Rankin Inlet	IC Meeting	
21-Aug	Rankin Inlet	BOC Meeting	

Q4 Meetings

4-Sep	Rankin Inlet	ECC Meeting	
16-Oct	Rankin Inlet	BOC Meeting	
20-Nov	Rankin Inlet	IC Meeting	
27-Nov	Rankin Inlet	ECC Meeting	
4-Dec	Rankin Inlet	BOC Meeting	

Appendix I

2017 Annual Geotechnical Inspection

21 March 2018

MELIADINE GOLD PROJECT, RANKIN INLET, NUNAVUT

2017 Annual Geotechnical Inspection

Submitted to:
Agnico Eagle Mines Limited
PO Box 879
Rankin Inlet, Nunavut
X0C 0G0

Attention: Ms. Jennifer Brown

REPORT

Reference Number: 1660296-024-R-Rev0-3000

Distribution:

1 Hard Copy - Agnico Eagle Minest Limited
Electronic Copy - Agnico Eagle Mines Limited
Electronic Copy - Golder Associates Ltd.

Golder Associates

Executive Summary

Agnico Eagle Mines Limited (AEM) retained Golder Associates Ltd. (Golder) to conduct the 2017 annual geotechnical inspection of the Meliadine Gold Project (Project) to comply with the requirements of AEM's Water Licence No. 2AM-MEL1631 (Water Licence). The inspection was conducted between 19 September and 22 September 2017 and covered the geotechnical aspects and review of the available instrumentation data for water management infrastructure, roads, waste facilities, and infrastructure pads in the following areas:

- main site
- exploration camp site
- all-weather access road (AWAR)
- Itivia site and by-pass road

Infrastructure for the mine is progressively being built, including some of the water management collection ponds, associated dikes, the tailings storage facility, open pits, waste rock storage facilities, diversion berms and channels. The inspection was carried out in accordance with the requirements of the Water Licence, for the facilities in existence at the time of the inspection.

The inspection occurred when there was no snow or ice on the lakes or land, following the freshet, and when surface water flows were generally low. Peak surface water flows typically occur during the freshet (mid-June to mid-July). During the inspection the weather was generally clear with some periods of rain. Daily temperatures varied between 0°C and 10°C. Water levels were considered to be normal for this period of the year, and the flow observed at water crossings was low.

AEM's environmental department monitors the water levels and quality in the collection ponds and collects instrumentation data; however, no geotechnical inspections are conducted and the instrumentation data is not reviewed.

The results of the 2017 annual geotechnical inspection carried out at the Project site, along the All Weather Access Road (AWAR), and at the Itivia site, indicate that the infrastructure was generally in good condition and performing as designed.

The following presents a summary of the key findings and recommendations from the 2017 geotechnical inspection for the infrastructure in each of the areas inspected:

Main site:

- It is recommended that an operation, maintenance, and surveillance (OMS) manual be developed for the water management infrastructure on site, including requirements for regular geotechnical inspections and monitoring of the structures, including collection, plotting, and review of instrumentation data.
- An Emergency Response Plan should also be developed to address the consequences of failure of the water management structures.

- Geotechnical inspections should be carried out and documented for all facilities following the schedule specified in the OMS manual. In addition, instrumentation should be monitored and the data reviewed, following the schedule specified in the OMS manual.
- The containment pond dikes, have been designed to have a frozen core, which is to function as a low permeability barrier, to reduce seepage through the structures. Therefore, to reduce the potential for infiltration, cracks and areas of minor settlement in the containment pond dikes should be monitored and filled and/or re-contoured.
- Where access is feasible, removal of snow from the water collection pond dikes (temporary and permanent) is recommended to reduce the insulating effects of the snow, thereby allowing the temperature of the core material in the dikes and the foundations to drop as low as possible. Snow removal is more important if thermistor data indicates that temperatures within the dikes and/or foundation are warmer than expected.
- Water volumes within containment ponds should be managed (pumped down in the fall), to maximize capacity for storage during the freshet.
- A cover layer of coarser rockfill should be placed where esker sand has been used for construction of infrastructure to reduce erosion potential.
- The Wesmeg Borrow Area should be re-contoured and either capped with a coarser material or revegetated to reduce erosion.
- The openings in the berm around the perimeter of Portal No. 2 should be filled in to provide a complete perimeter berm and loose materials on the benches around the portal excavation should be pulled back to reduce the potential for material to roll into the excavation.
- If the exploration landfill is kept in operation, it is recommended that its berms be compacted to fill in the cracks to reduce further slumping and erosion. A coarser rockfill should also be placed on the berm slopes and crests to reduce erosion.
- Remediate the disturbance adjacent to the new emulsion plant road through backfill, grading, placement of coarse material or revegetation to reduce the potential for ponding adjacent to the road and erosion.
- If ponding occurs adjacent to site roads, consideration should be given to installing culverts to facilitate drainage and reduce the potential for permafrost degradation.
- Roadway embankment slope angles and material types should be selected such that they do not negatively affect wildlife movement and erosion. Embankment materials should be compacted to reduce the potential of the material being eroded, and if necessary a coarser, well graded, material could be placed and compacted to further reduce erosion potential.
- When culverts are installed, ensure bedding material surrounding culverts is of a suitable gradation (e.g., sandy) and compacted. Larger sized particles (e.g., cobbles) should not be placed in direct contact with the culverts.
- Implement a road and culvert monitoring program for site roads, as is done for the AWAR, which is tied to a maintenance program.

Exploration Camp Site:

- Repair surface erosion along south slope of exploration camp pad. Grade surface to reduce channelization of surface water flows and therefore reduce the potential for the erosion to reoccur. In this area, a coarser surfacing layer could be placed on top to help reduce the potential for future erosion.
- AEM should try to minimize the amount of water contained within the exploration landfarm until it is decommissioned and remediated.

AWAR:

- Continue to monitor culverts and hydraulic effectiveness to assess if current culverts provide adequate capacity or if additional culverts are required. Evaluate if any culverts need to be installed at a lower elevation to reduce ponding, and downstream erosion.
- The kilometre markings on the AWAR culverts should be checked and replaced with accurate numbers.
- Continue regular road inspections and documentation, snow removal, and maintenance of the AWAR.

Itivia Site and By-pass Road:

- Once construction is complete, develop and implement a visual geotechnical monitoring program for the slopes and berms at the Itivia site.
- Once the road is in use, develop and implement a road and culvert monitoring program for the Itivia by-pass road, as is done for the AWAR, which is tied to a maintenance program.

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APPENDICES

1.0 INTRODUCTION

Agnico Eagle Mines Limited (AEM) is developing the Meliadine Gold Project (the Project). It is located approximately 25 km north of Rankin Inlet, in the Kivalliq Region of Nunavut. A series of open pits as well as underground development will be used to extract gold.

AEM retained Golder Associates Ltd. (Golder) to conduct the 2017 annual geotechnical inspection for the Project, pursuant to the requirements of the Type A Water Licence Permit No.2AM-MEL1631 (Nunavut Water Board 2016).

Under Part I, Item 14 (page 21) and Schedule I, Item 1 (page 39) of the Water Licence, AEM is required to undertake an annual geotechnical inspection of its facilities between the months of July and September. The inspection is to be carried out by a geotechnical engineer, and to be in accordance with the Canadian Dam Association (CDA) *Dam Safety Guidelines* (CDA 2013), where applicable. The inspection occurred between 19 and 22 September 2017, and was conducted by Allison Isidoro, a geotechnical engineer, holding professional registration in Nunavut, and employed by Golder.

Construction of the infrastructure for the Project has commenced and will continue in stages as development and mining progresses. The following structures were inspected:

- main site including
  - P-Area temporary collection ponds (P1, P2, and P3) and associated dikes (DP1-A, DP1-B, DP2-A, DP3-A)
  - permanent water collection ponds CP1 and CP5 and their associated dikes (D-CP1 and D-CP5)
  - diversion Berm 3
  - diversion Channel 2 and Channel 5
  - saline pond
  - site roads
    - industrial pad area, including Culvert 3 and Culvert 4
    - road to Tiriganiaq Esker, including Culvert 6
    - road to Wesmeg Borrow Area
    - main site water intake access road
    - new emulsion plant pad and road
  - current explosives (ANFO plant) pad and magazine storage
  - Wesmeg borrow and vent raise
  - ore and waste rock storage areas
  - industrial site pad
  - landfarm

  - exploration and operations landfills
  - effluent water treatment plant and intake causeway
  - underground Portals No. 1 and No. 2
  - new fuel storage
  - ventilation intake pad
- exploration camp site including
  - site pad and diffuser access
  - fresh water intake
  - access road
  - landfarm
  - fuel storage
- all-weather access road (AWAR)
- Itivia site
  - fuel storage
  - bypass road

The facilities at the main mine site and exploration camp areas that had been constructed at the time of the 2017 inspection are shown in Figure 1. At the time of the inspection, the P-Area had been completed in addition to permanent water management pond dikes D-CP1 and D-CP5. Some site service roads were in place with the associated culverts and ditches constructed to manage water around infrastructure and roads. Construction of the industrial pad was ongoing. Most of the rockfill pad had been constructed and active construction was largely of the facilities. Underground Portal No. 1 was operational. Underground development was occurring, with associated waste rock and ore being hauled to the surface and placed in stockpiles. The entrance to underground Portal No. 2 was complete and the drift was being advanced. The ventilation intake pad had been constructed and the ventilation intake building was under construction. The operations landfill and landfarm facilities had been constructed but were not yet in use. The effluent water treatment plant and associated intake had been constructed; however, not commissioned. The fresh water intake pump and associated pipeline were in place and an access road had been constructed to within a few metres of the lake; however, a causeway and permanent pump house had not been built. The pipeline was running along the toe of the road. The fuel storage facility was partially constructed. Liner had been placed over the base of the facility and the tanks were in place, but liner had not been extended up the slopes of the containment berms. The saline water pond had been constructed and was storing water. The emulsion plant was under construction and the access road had recently been constructed.

The exploration camp site was the first area of the Project to be developed and at the time of the site visit the exploration camp and office facilities were being used, but AEM was in the process of transitioning staff to the new camp facilities at the main site. Once the multi-purpose building is complete offices will also be transitioned to the main site. It is expected that the exploration camp will be used until approximately December 2018. The exploration site was inspected, including the site pad, fresh water intake, diffuser access, landfarm, fuel storage, and access road.

Many other aspects of the future development for the Project had not been constructed at the time of the visit including: the water management collection ponds (CP3, CP4, and CP6) and associated dikes (D-CP3, D-CP4, and D-CP6), tailings storage facility, open pits, waste rock storage facilities, ore storage facilities, diversion berms 1 and 2, several diversion channels (1, 3, 4, 6, 7, and 8). The final layout of the main site, including water management structures, is shown on Figure 2.

The AWAR connecting Rankin Inlet to the Project provides one-way traffic access (with pull-outs to allow vehicles to pass) and was in use.

The Itivia shipping and fuel storage site in Rankin Inlet was under construction. The site pads were in place and the fuel storage facility was under construction with active liner placement at the time of the site visit. The Itivia bypass road was under construction.

Where applicable, the inspection was performed consistent with the principles set out by the CDA (2013). The inspection consisted of visually observing each of the facilities listed above; taking photographs to document the conditions at the time of the inspection (Appendix A, Appendix B, and Appendix D); reviewing instrumentation data (Appendix C), inspection reports, and other relevant files and reports (listed in the reference section of this report); communication with AEM on-site staff (Mr. Jeffrey Pratt and Ms. Jennifer Brown); and preparation of this report to document the inspection.

The inspection occurred when there was no snow or ice on the lakes or land, following the freshet, and when surface water flows were generally low. Peak surface water flows typically occur during the freshet (mid-June to mid-July). During the inspection, the weather was generally clear with some periods of rain. Daily temperatures varied between 0°C and 10°C. Water levels were considered to be normal for this period of the year, and the flow observed at water crossings was low.

The site water management plan (AEM 2017) provides a summary of the water management infrastructure and the overall water management approach.

This report describes the geotechnical aspects of the areas inspected and presents general observations and recommendations. In addition, a description of the geophysical and permafrost conditions for the site is provided.

1.1 Scope Limitations

The scope of the inspection is limited to observation of the geotechnical aspects of each of the facilities listed above and review of the associated instrumentation data. The inspection did not include other assessments such as structural, mechanical, or environmental.

For additional information related to the limitations of this scope, reference should be made to the Study Limitations following the main text of this report.

FRESH WATER PUMPING STATION
EMULSION PLANT PAD
CHANNEL 2
INDUSTRIAL PAD
MELIADINE ESKER QUARRY
LANDFARM
EFFLUENT WATER TREATMENT PLANT AND INTAKE CAUSEWAY
CP1
MELIADINE LAKE
OPERATIONS LANDFILL
CULVERT 3
CULVERT 2
CULVERT 4
D-CP1
PORTAL #2
EXPLORATION LANDFILL
ORE AND WASTE STOCKPILES
FUEL STORAGE
P1
P-AREA
SALINE WATER STORAGE / TRANSFER POND / BERM
P2
P3
CULVERT 6
CP5
CP5 JETTY
PORTAL No. 1
CHANNEL 5
ANFO PLANT
BERM 3
VENTILATION INTAKE
D-CP5
MAGAZINE STORAGE
WESMEG ESKER QUARRY
EXPLORATION CAMP WATER INTAKE
DIFFUSER
EXPLORATION CAMP
MELIADINE LAKE
EXPLORATION LAND FARM
EXPLORATION FUEL STORAGE AREA
GATE HOUSE
AWAR
538 000 E
538 500 E
539 000 E
539 500 E
540 000 E
540 500 E
541 000 E
541 500 E
542 000 E
542 500 E
543 000 E
543 500 E
6 990 500 N
6 990 000 N
6 989 500 N
6 989 000 N
6 988 500 N
6 988 000 N
0 250 500
1:7,500 METRES

LEGEND

WATER BODY

EXISTING GROUND CONTOURS

NOTE(S)

1. ALL UNITS ARE IN METRES UNLESS OTHERWISE IS NOTED.
2. COORDINATE SYSTEM UTM15 NAD83.
3. CONTOUR INTERVAL EVERY 2m.

REFERENCE

1. GENERAL ARRANGEMENT PROVIDED BY HAMEL ARPENTAGE, AUGUST 22 2016. FILE NAME: SK - MELIADINE GENERAL.DWG
2. SITE INFRASTRUCTURE PROVIDED BY AGNICO EAGLE MINES , 20 FEBRUARY, 2018. FILE NAME: 65-000-210-200-2_R2.dwg

CLIENT
AGNICO EAGLE MINES LTD.

PROJECT
MELIADINE GOLD PROJECT

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-03-19
DESIGNED	AI
PREPARED	MSH/JY
REVIEWED	FE
APPROVED	AI

TITLE
GENERAL SITE PLAN LAYOUT SEPTEMBER 2017

PROJECT NO.	PHASE/DOC#	REV.	FIGURE
1660296	3000/024	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

25 mm

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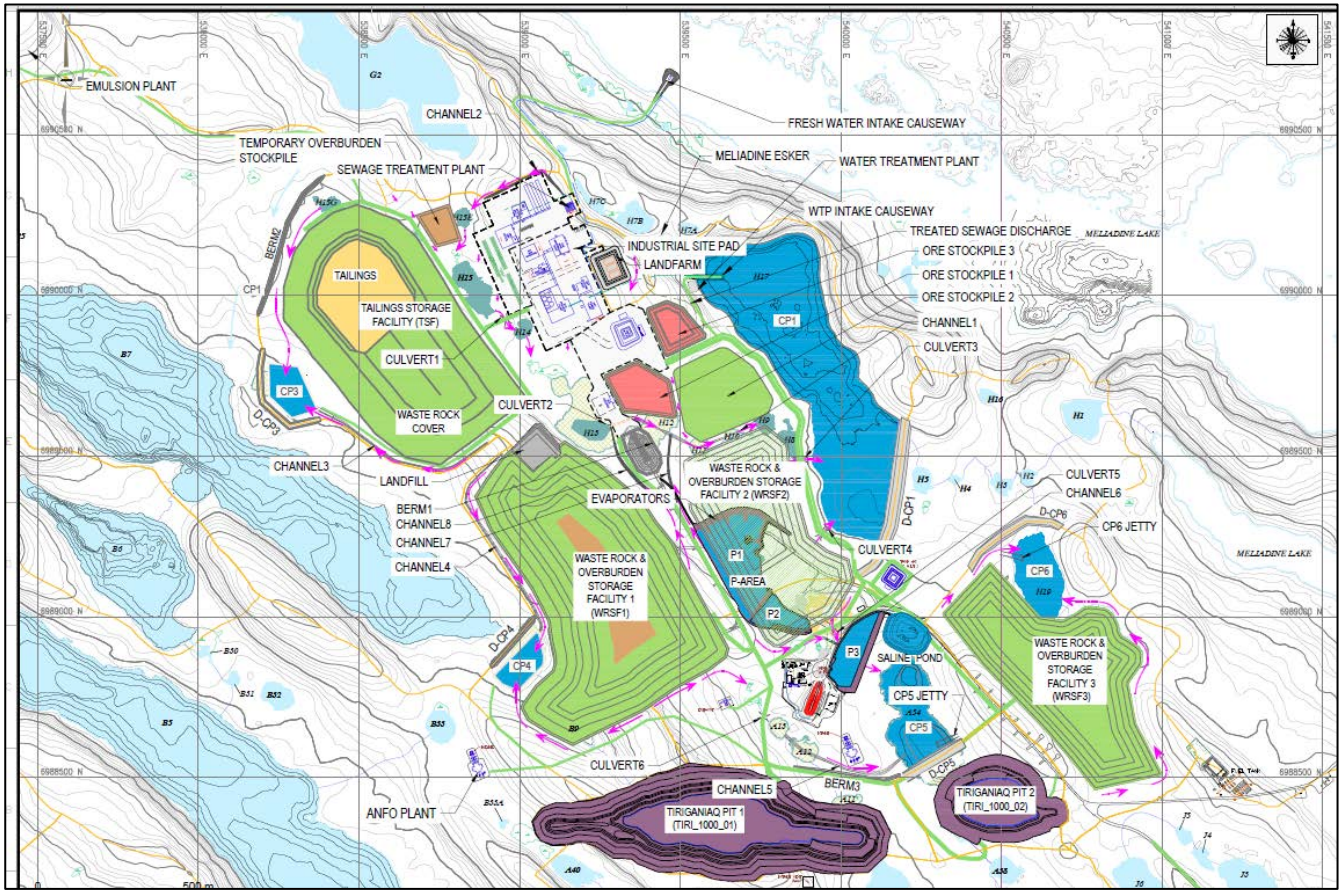


Figure 2: Main Site General Layout and Water Management Infrastructure

Source: AEM 2017.

2.0 GEOPHYSICAL AND PERMAFROST CONDITIONS

The Project is located in the Kivalliq Region, near the northern border of the southern Arctic terrestrial eco-zone, and within the Arctic tundra climate region. It is located within the Churchill geological province, which forms part of the northern Canadian Shield.

The landscape is dominated by features characteristic of glaciated terrain and exposed bedrock. Primarily underlain by Precambrian granitic bedrock, the terrain consists of broadly rolling uplands and lowlands. The Project is located at an approximate elevation of 60 metres above sea level (masl) with a maximum topographic relief of 20 m. There are numerous small lakes, wetlands, and creeks, indicating poorly drained conditions. The upland areas are generally well drained. A series of low relief ridges composed of glacial deposits oriented northwest–southeast control the regional surface drainage pattern. Periodic ice blockages at outlets of small lakes and wetlands occur during the freshet, these can temporarily increase the downstream flood peak discharges and affect the flood characteristics. High flows are observed during the freshet, while low flows and dry stream channels are typical in late summer.

Soils are typically Cryosols. Glacial moraine deposits are predominant, ranging in thickness from veneers (less than 2 m) to blankets (2 to 5 m) to hummocky deposits (5 to 15 m). Glaciofluvial deposits are also present, with the most prominent being a network of sinuous eskers. Lacustrine deposits occur in association with the numerous lakes. Near the coast of Hudson Bay, finer textured marine sediments cover the ground surface.

The Project is located in a zone of continuous permafrost and has an annual average air temperature of -10.4°C, based on climate data from Rankin Inlet. Within the permafrost there are intervening taliks (areas of unfrozen ground) and thaw bulbs induced by lakes. The permafrost in the region is considered to be “cold” (i.e., has an average annual surface temperature and zero amplitude temperature of less than -4°C). The depth of permafrost and of the active layer varies based on the proximity to lakes, soil thickness, vegetation, climate conditions, and slope direction. Based on thermal studies and measurements of ground temperatures, the depth of permafrost is generally between 360 to 495 metres below ground surface (mbgs). The depth of the active layer ranges from about 1 mbgs in areas with shallow surficial soils, up to about 3 mbgs adjacent to the lakes (AEM 2014b). The typical permafrost ground temperatures at the depths of zero annual amplitude are in the range of -5.0°C to -7.5°C in the areas away from lakes and streams, and generally are reached at a depth of 15 to 35 mbgs. The geothermal gradient ranges from 0.012°C/m to 0.02°C/m (Golder 2014). The ground ice content in the region is expected to be between 0% and 10% (dry permafrost) based on the regional scale compilation data and the Canada Permafrost Map published by Natural Resources Canada (NRC 1993). However, areas of local higher ground ice content occur and are generally associated with low lying areas of poor drainage.

Taliks may occur where lake depths are greater than about 1 to 2.3 m. The presence and extent of each talik is influenced by the geometry (size and shape) of the lake. As the depth and size of lakes increase, the extent of the talik increases. Formation of an open-talik, which penetrates through the permafrost, would be expected for lakes that exceed a critical depth and size. It is anticipated that open-taliks exists below Meliadine Lake, Lake B7, and Lake D7 based on their depth and geometry (Golder 2013).

The salinity of groundwater also influences the temperature at which the groundwater freezes. Testing has indicated that the salinity of the groundwater in the Project area generally increases with depth. Test results on two deep groundwater samples collected below the base of the permafrost as part of the baseline study indicated salinity level leads to a freezing point depression of about 3.2°C (AEM 2014a, Volume 7, Appendix 7.2-A).

Thermistor cables have been installed to monitor natural ground temperatures in the vicinity of the Project. Data are presented in Appendix C along with plan views of thermistor installation locations (Figure C1 and C2). Priorities and frequencies for reading these thermistors are summarized in AEM (2015c) and are based on the development sequence for the mine. Thermistors located in close proximity to the process plant and other mine infrastructure have the highest priority and are read more often. Thermistors located in the Tiriganiaq open pit area are given the next priority. The thermistors installed to monitor the deep permafrost are given the lowest priority as the conditions within the deep permafrost do not fluctuate seasonally, so fewer readings are required.

3.0 P-AREA TEMPORARY DIKES AND COLLECTION PONDS

During the winter of 2016, it was recognized by AEM personnel, as an interim measure to manage an emergency situation, that temporary water collection ponds were required to collect and manage surface runoff water near underground Portal No. 1 and the waste rock storage area (AEM 2016a). The concern related to the potential that surface runoff water from the ore and waste rock stockpiles could contain elevated chloride and ammonia concentrations, above the permitted discharge criteria standards per the Metal Mining Effluent Regulations under the *Fisheries Act* and/or Canadian Council of Ministers of the Environment guidelines for the protection of aquatic life.

Therefore, prior to the 2016 freshet, four temporary containment dikes (referred to as DP1-A, DP1-B, DP2-A, and DP3-A) were constructed between 25 March and 10 May 2016 to create three temporary ponds (P1, P2, and P3) to manage the runoff near Portal No.1 and from the waste rock storage area (Figure 3). Representatives from Tetra Tech EBA were on site during the majority of dike construction to provide geotechnical assistance, monitor the construction, and prepare the construction record report (Tetra Tech EBA 2016c).

The collection ponds are referred to collectively as the P-Area. The dikes do not completely enclose the ponds. Portions of the pond boundaries are associated with natural areas of higher ground, the ore and waste stockpile area, and/or existing roads. These roads were not built as water containment structures. Similarly, the stockpiles of ore and waste are granular in nature and do not function as water containment structures on a year-round basis.

In general, the P-Area receives direct precipitation, runoff from the site roads immediately surrounding the area and runoff and pore water from the ore and waste rock stockpiles near Portal No. 1. Water from underground is also pumped to the P-Area, typically via the Saline Pond. Pipelines and associated pumping systems exist to allow water to be transferred from P2 and P3 to P1. Three evaporator units have been installed within P1. A pumping station within P1 connects to the evaporators.

In accordance with the CDA (2013), dam classification is assigned based on an assessment of the consequence of failure, evaluated on the basis of potential incremental losses of life, environmental and cultural values, and third party infrastructure and economics. The class is determined by the highest potential consequence ranking. Although these dikes are less than 2.5 m in height, and therefore do not meet the definition of a dam (CDA 2013), due to the potential negative environmental consequences associated with release of the water contained by the dikes, a consequence classification of significant has been assigned. Failure of the dikes would not be anticipated to cause any loss of life, loss to cultural values, nor loss to third party infrastructure and economics. The environmental consequence, if any, to downstream fish-bearing lakes, which is Lake A8 for this particular situation, would be expected to be short term, with restoration or compensation in kind highly possible.

The four containment dikes were designed and generally constructed to be frozen core dike structures. The central zone of each dike was intended to be constructed of saturated crushed (30 mm minus) material that was to freeze and become the frozen core, thereby forming the water-retaining element of each dike. Transition material (200 mm minus) was to be placed on the upstream and downstream sides of the frozen core, with additional coarser grained rockfill placed further upstream and downstream and above the core. The upstream and downstream slopes are approximately 2 horizontal to 1 vertical. The maximum height of the frozen core of any of the dikes is approximately 2.5 m, and the maximum height of the entire dike (frozen core and thermal cover) is 4 m. Single bead thermistor cables were installed at selected locations at the crest of the frozen core to monitor the thermal conditions at the crest of the core; however, these instruments stopped working within a few months after installation. Six new vertical thermistors were installed in 2017. Their locations are shown in Figure C3 (Appendix C).

Appendix A1 contains a summary of photographs of the temporary dikes and collection ponds from the 2017 inspection.

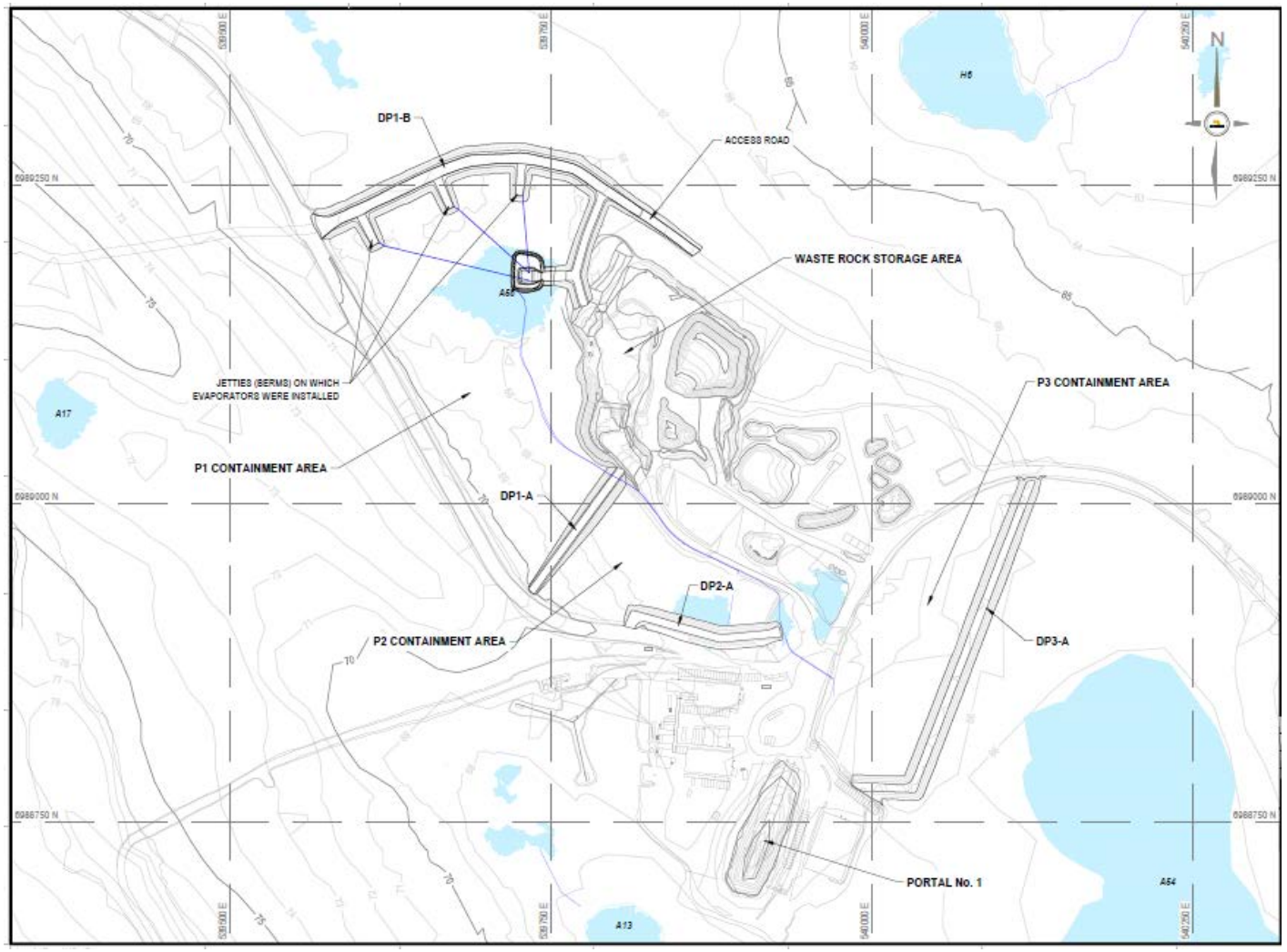


Figure 3: P-Area and Dikes DP1-A, DP1-B, DP2-A, DP3-A

Source: Tetra Tech EBA 2016c

Additional information regarding the thermal conditions and monitoring of the dikes is provided in Section 3.2. Figure 4 shows a typical section through one of the dikes (DP3-A).

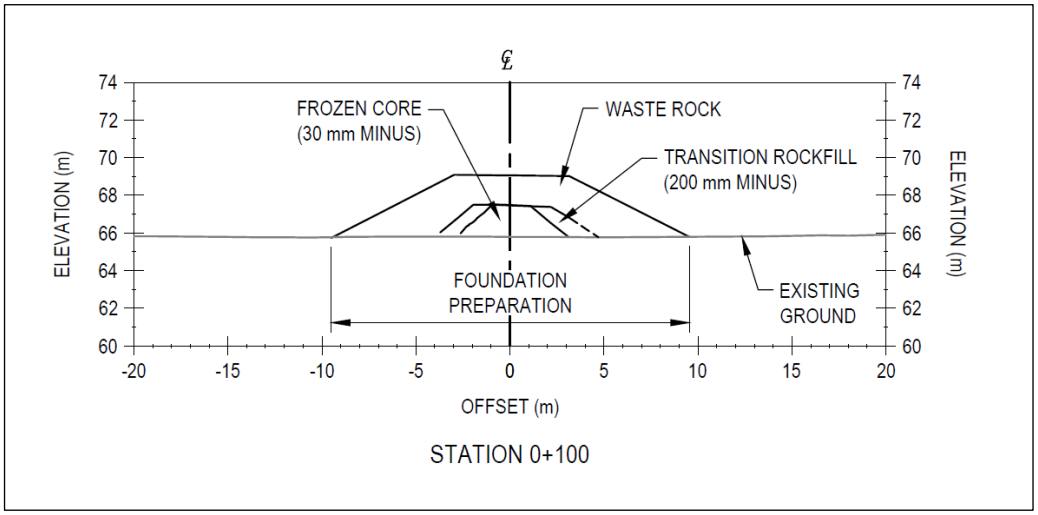


Figure 4: Typical Section through Temporary P-Area Dike DP3-A

Source: Tetra Tech EBA 2016c

There are no spillways in the dikes. Water levels within each pond are controlled through pumping and the use of the evaporators installed within P1.

Due to warmer weather conditions at the time of construction of portions of the dikes, some of the crushed material was not placed in a saturated condition in the central zones:

- DP1-A minimum saturated and frozen core elevation was 67.9 masl at the time of construction
- DP1-B entire core unsaturated
- DP2-A entire core unsaturated
- DP3-A saturated core elevation varied along the length of the dike, with a minimum elevation of 65.7 masl at the time of construction

P1 was subdivided into two areas by an internal berm. Details regarding the internal divider berm are not included within the P-Area construction record report, nor is its location shown on the drawings.

A lined pond was constructed in the northwest corner of P1 in May 2017 to contain contaminated snow from a fuel spill at the exploration camp fuel farm. The snow melt water was treated with an oil water separator in September 2017 and the clean water was pumped to CP1. The snow and rain that collects in the snow melt pond over the winter and 2018 spring freshet may require treatment, after which time the water will be pumped to CP1 and the snow melt pond will be decommissioned.

The P-Area area temporary dikes and collection ponds are intended to be an interim measure during development of the site to manage the runoff water until permanent water management dikes and collection ponds are constructed and operating to the design. As the project advances, the P-Area will become covered by waste rock and soil as Waste Rock Storage Facility 2 is developed.

3.1 Visual Observations

The inspection involved walking along the crest and toes of the dikes (DP1-A, DP1-B, DP2-A, and DP3-A), examining the condition of the upstream and downstream slopes of the dikes for visual signs of deformation and instability, cracking, and uneven surfaces. Each pond contained water at the time of the site visit, so it was not possible to walk the upstream toe of the dikes. Seepage occurrences and/or indications of seepage were noted along the downstream toes. A photographic record of the inspection, with annotations added, where appropriate, is included in Appendix A1.

At the time of the inspection, the following general observations were made:

- Overall, the dikes appear stable, with no significant geotechnical concerns identified.
- The dikes do not completely enclose the ponds. The ore and waste stockpile area and existing roads form a portion of the pond boundaries. Neither the stockpiles nor the roads function as water containment structures, on a year-round basis. Collectively, the ponds and the associated dikes appear to capture the majority of the surface water runoff from the area of concern.
- The P1 divider berm appears to have been constructed of till with some rockfill on the downstream slope, as shown in Photographs 26 through 28 (Appendix A1).
- Seepage zones were evident downstream of DP1-B and DP3-A (e.g., Photographs 12 through 15 and Photographs 39 through 43, Appendix A1). The flow was clear.
- Ditches and sumps had been constructed downstream of DP1-B and DP3-A and water was being actively pumped back into the ponds from the downstream collection systems at the time of the site visit.
- As noted in the 2016 annual inspection report (Golder 2017), the rockfill used as thermal cover above the core and on the upstream and downstream slopes of the dikes was of variable grain size, particularly for DCP2-A and DCP3-A (e.g., Photograph 33 and Photograph 48 Appendix A1). Finer rockfill was observed on the crest of DCP3-A (e.g., Photographs 44 and 45, Appendix A1). The crest of DCP1-B was also observed to have a cap of finer material which may have been placed or may be due to traffic on the dike crest.
- Cracks and periodic small depressions were observed in selected areas of DCP1-A (Photograph 4, Appendix A1), DCP1-B evaporator jetties (Photograph 24 and 25, Appendix A1), DCP2-A (Photograph 33, Appendix A1), and DCP3-A (Photographs 46, 47, and 50, Appendix A1). The cracks observed in the DCP1-B jetties and the east end of DCP2-A were the most substantial and should be the priority areas for remediation and ongoing monitoring.

- Circular cracks with settlement (vertical displacement or slump) and small circular voids were observed during the 2016 inspection along the upstream slope of DP2-A, approximately between Stn 0+50 and Stn 0+65. The observed settlement and cracking may have been associated with 1) thawing of the foundation soils, in particular, if the soils were ice-rich, and/or 2) melting of snow or ice that may have been entrapped within the transition and rockfill material at the time of construction. At the time of the 2017 inspection, fine rockfill was observed to have been used to remediate the slope in the area of the settlement (Photographs 30, 31, and 36, Appendix A1). Some cracking and vertical displacement was still evident on either side of the fine rockfill (Photographs 32 and 36, Appendix A1). This settlement is not a concern for the stability or integrity of the dike; however, it should be monitored, and placement of additional fine rockfill, regrading, and re-compacting the slope may be warranted to reduce the potential for infiltration into the dike, if the dike continues to be used.
- The single point thermistor cables that were installed during the construction of the P-Area dikes stopped working a few months after they were installed in August 2016.
- White staining observed on the upstream slopes of the rockfill of the P-Area dikes is attributed to the salinity levels within the water, indicates the high water mark within the ponds (e.g., Photographs 19 and 35, Appendix A1). The staining was less obvious on DCP3-A, which may be a result of a higher pond elevation at the time of the site visit.
- Water levels within each pond are measured daily during the open water season, and the pond levels were maintained below the maximum design water elevation except for P1, which rose above the design maximum pond elevation for four days at the end of July and the beginning of August 2017.

3.2 Geotechnical Instrumentation and Monitoring Data

Single bead thermistors were installed by Tetra Tech EBA at the crest of the core (30 mm minus) material, at selected stations along each dike during construction. These thermistors stopped working in August 2016 (a few months after installation).

Six new vertical thermistors were installed in the P-Area dikes on 30 September and 2 November 2017. Two were installed in DP1-B, one was installed in DP2-A, and three were installed in DP3-A (Figure C3, Appendix C2). The thermistors were read by AEM staff after installation. The instruments installed on 30 September 2017 were read three times and the instruments installed on 2 November were read once. Plots of the thermistor data are provided in Appendix C2. The data indicate that the dikes, and the foundation materials directly below the dikes, were at or below 0°C by late October to early November 2017. Due to the limited data available in 2017 it is not possible to evaluate the seasonal variation of the thermal conditions within the dikes. The data from these instruments will have to be reviewed through 2018 to provide a better understanding of the thermal conditions of the dikes and foundations and whether frozen conditions are maintained throughout the year.

Table 1 shows key information regarding the construction of each dike and thermistor installation locations.

Table 1: Summary of Key Dike Information and Thermistor Locations

Dike Structure	Minimum Elevation of Core	Minimum Saturated Elevation of Core [(a)]	Minimum Dike Rockfill Crest Elevation	Maximum Pond Operating Elevation [(b)]	Thermistor Location
DP1-A	68.9 m	67.9 m	70.3 m	68.5 m	no instrumentation
DP1-B	68.9 m	none	70.5 m	68.5 m	DCP1B-1: Stn 0+150 DCP1B-2: Stn 0+220
DP2-A	67.9 m	none	69.5 m	67.25 m	DCP2A-1: Stn 0+090
DP3-A	67.4 m	65.7 m	69.0 m	66.35 m	DCP3A-1: Stn 0+050 DCP3A-2: Stn 0+150 DCP3A-3: Stn 0+250

(a) At the time of construction.

(b) Water level associated with a 24-hour duration extreme rainfall event with a return period of 1:100 years, which would bring the elevation to within 300 mm of the top of the core. (File: 20160530 P1_P2_P3 Water Balance for 2016.xlsm, P1-Area Water Balance, Tetra Tech 2016c).

Stn = Station (distance) along centreline of each dike from the starting reference point; SB# = thermistor instrument identification number.

In 2017, AEM staff performed the following monitoring activities:

- recorded the daily volumes of water pumped from underground to the P-Area
- recorded the daily volumes of water transferred between the ponds
- measured and recorded water elevations within each pond during the open water season on a graph with the maximum allowable pond elevation
- performed daily inspections of water condition (e.g., frozen or thawed, clear or cloudy) and flow at water management facilities during the freshet (17 May to 12 June 2016)
- collected samples from the P-Area approximately weekly for water quality analysis from 22 May to 25 September 2017

The information collected is contained within various spreadsheets, which were provided to Golder for review.

Geotechnical inspections were not carried out in 2017; however, environmental staff conducting water flow and quality inspections were at the dikes on a regular basis. AEM has indicated that it will have an engineering team on site in 2018 and will conduct regular geotechnical inspections.

An operation, maintenance, and surveillance (OMS) manual has not been prepared for the P-Area and associated dike structures. An overall Project *Risk Management and Emergency Response Plan* (AEM 2015a), dated April 2015, has been prepared and includes identification of the potential failure scenarios associated with the dikes and future tailings facility. However, an Emergency Response Plan to address the consequences of failure of any of the temporary dikes currently on site and the procedures to be followed in the event of a failure has not yet been developed.

3.3 Recommendations

The following recommendations are provided regarding the temporary dikes and ponds, for the period of their operation:

- AEM personnel should conduct regular geotechnical inspections and document visual observations such as, cracking, slumping, and/or seepage. Thermistor data should be collected, plotted and reviewed, and pond water levels should continue to be measured and tracked. Inspection reports should be prepared for documentation.
- Continue to collect and pump back seepage water, as deemed necessary, in areas where seepage could impact downstream areas.
- The limited thermistor data available indicate that the dikes were not frozen at the time of the initial readings in the fall of 2017 and therefore may not have been functioning as frozen core dams. The thermistors should be read regularly throughout the year, especially from freshet to freeze up to determine if the dikes remain frozen. To maintain the thermal integrity of the frozen core, the following should be implemented:
  - The open cracks and depressions observed on the dike crests should be filled to reduce the potential for infiltration into the core and associated thermal warming. As some of the cracks are relatively narrow, sand could be used. These areas should continue to be monitored following repair works to determine if these cracks and depressions reappear.
  - Where access is feasible, removal of snow from the water collection pond dikes is recommended to reduce the insulating effects of the snow, thereby allowing the temperature of the core material in the dikes and the foundations to drop as low as possible such that the frozen core can be established, with the potential that it could reach a cold enough temperature that the core could be maintained in a frozen condition throughout the following summer. Snow removal is more important if thermistor data indicates that temperatures within the dikes and/or foundation are warmer than expected.
  - The water levels in the ponds should be reduced as much as possible in the winter to promote freezing of the dam cores. This would also increase the capacity within the ponds to manage water during the 2018 freshet, if necessary.
- Circular cracks with settlement (vertical displacement or slump) and small circular voids evident along the upstream slope of DP2-A, near Stn 0+40 and Stn 0+75 should continue to be monitored and consideration for filling in the cracks, with additional fine rockfill, regrading, and re-compacting the slope may be warranted to reduce the potential for infiltration into the dike, if the dike continues to be used.
- Make sure each thermistor cable is well marked so they can be located and maintained during the winter, and are not damaged during snow removal operations. Consider adding data loggers to record the temperatures.
- Consider adding rockfill material to cover the till berm in P1, to protect the till and maintain its integrity if this berm is required for water management.
- If the temporary ponds and associated dikes continue to be used by AEM, then an OMS manual should be prepared and implemented. An Emergency Response Plan to address the consequences of failure of any of the dikes on site should also be prepared. Once prepared, it is a good practice to review these documents on an annual basis, along with the overall site Emergency Response Plan, and update them as necessary (e.g., the names and contact numbers for key personnel).

4.0 PERMANENT WATER COLLECTION PONDS, DIKES, BERMS, AND CHANNELS

The permanent water management facilities for the Meliadine Gold Project will be constructed as the Project develops. This section presents a summary of the permanent water collection ponds and associated dikes, berms, and channels that had been constructed prior to the 2017 inspection, including Collection Pond 1 (CP1) and its associated dike (D-CP1), Collection Pond 5 (CP5) and its associated dike (D-CP5), Berm 3, Channel 2, Channel 5, and the saline pond.

4.1 Water Collection Ponds and Associated Dikes

At the time of the site visit in September 2017, two of the permanent water collection pond dikes had been constructed, D-CP1 and D-CP5. These dikes were constructed between October 2016 and July 2017. Both dikes are composed of rockfill and transition shells with a geomembrane liner anchored into a key trench within the permafrost foundation (soil or bedrock).

D-CP1 is approximately 600 m long with a maximum height of 6.6 m (Tetra Tech 2017e) and is located northeast of the P-Area, as shown in Figure 5. It is oriented approximately south–north with a slight inflection 200 m from the south abutment. D-CP1 was constructed across the outlets of lakes H6 and H17, which combine to form CP1. The CDA (2013) dam consequence classification for D-CP1 is *Significant* (Tetra Tech 2016a). A downstream collection sump and two channels were constructed approximately 5 m downstream of the D-CP1 toe to collect surface run-off and any possible dike seepage for pump back to CP1. CP1 is the final water management facility on site, and water from various parts of the site will be pumped to CP1 for treatment and discharge to Meliadine Lake.

D-CP5 is approximately 300 m long with a maximum height of 3.3 m (Tetra Tech 2017d) and is located southeast of the P-Area, as shown in Figure 5. It is oriented approximately southwest–northeast and was constructed across the south portion of Lake A54 such that the northern portion of the lake now forms CP5. The CDA (2013) dam consequence classification for D-CP5 is *Significant* (Tetra Tech 2016b). A small collection sump is located in a natural depression downstream of D-CP5 to collect surface run-off and any possible seepage through the dike for pump back to CP5. CP5 will be used seasonally for temporary water storage with active pumping to CP1.

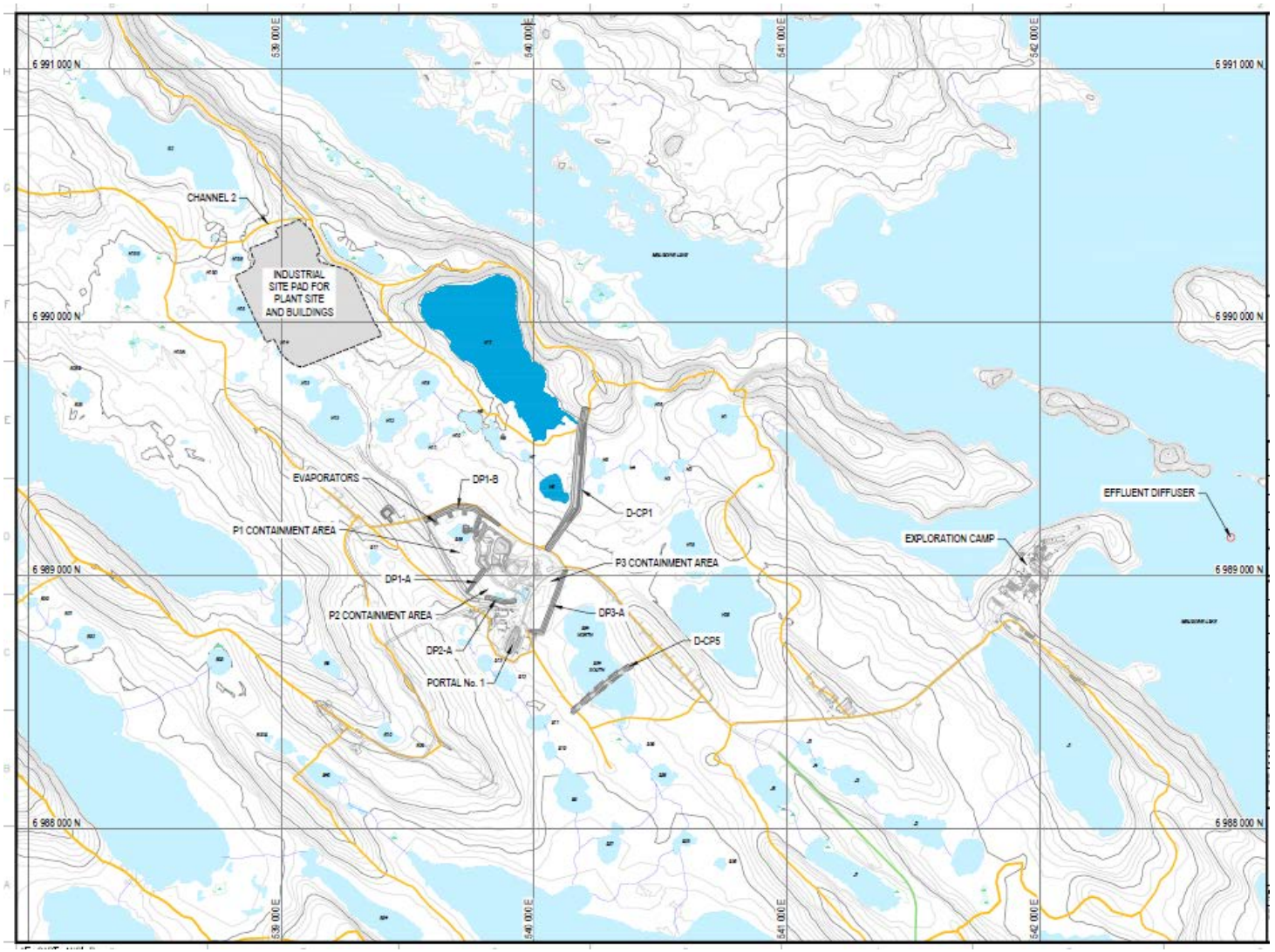


Figure 5: General Location of Dikes D-CP1 and D-CP5

Source: Tetra Tech 2017e

4.1.1 Visual Observations

The inspection involved walking along the crests and toes of the dikes and examining the condition of the slopes of the dikes for visual signs of deformation and instability, cracking, and uneven surfaces. There was water in CP1 and CP5 at the time of the site visit, so it was not possible to walk along the upstream toes of the dikes. Visible observations of seepage occurrences and/or indications of seepage were noted. A photographic record of the inspection, with annotations added where appropriate, is included in Appendix A2.

Construction of the dikes was completed in July 2017, and AEM indicated that it was in the process of transferring the dikes from its construction team to its operations and engineering team on site. Due to the transition, there were no geotechnical inspections completed for the dikes in 2017 after construction was complete.

AEM provided Golder with plots that are used to document the pond levels in CP1 and CP5 one or two times per day during the freshet (17 May to 7 June 2017) and then every one to nine days until the end of October 2017. The plots included the maximum allowable pond levels for pre-freshet, open water, pre-winter, and during a flood. AEM also provided documentation of the volumes of water pumped from the ponds during the open water season.

Dike D-CP1

At the time of the inspection of D-CP1, the following general observations were made:

- Overall, the dike appeared stable, with no significant geotechnical concerns identified.
- Minor cracking and small settlement was observed along significant portions of the upstream slope and crest (Photographs 4 through 6 and Photographs 8 through 10, Appendix A2). The largest cracks were up to 2 to 3 cm wide (Photograph 9, Appendix A2).
- There was some indication of possible minor sloughing of the downstream slope (e.g., Photographs 18 and 19, Appendix A2).
- There were cracks observed downstream of the downstream collection channel (e.g., Photograph 22, Appendix A2). This cracking was observed within the muck from construction of the channel that was placed along the sides; however, it may be due to thaw settlement and extend into the original ground.
- Settlement and cracking are likely due to thaw settlement in the foundation and/or dike fills prior to it freezing.
- The downstream collection channel appeared to be consistently graded to the downstream collection sump. A small amount of water was ponded in the channel from approximately Stn 1+330 to the pond (Photographs 22 and 23, Appendix A2).
- Minor cracking was observed in the crests of the downstream collection sump berms (e.g., Photograph 24, Appendix A2).
- Water was observed to be flowing back towards the collection sump from downstream (southwest) of the collection sump (Photograph 26, Appendix A2).

Dike D-CP5

At the time of the inspection of D-CP5, the following general observations were made:

- Overall, the dike appeared stable, with no significant geotechnical concerns identified.
- Minor cracking was observed in a few locations on the upstream and downstream sides of the dike crest (Photographs 31 and 44, Appendix A2).
- A small hole was observed upstream of ground temperature cable VGTC-2 (Photograph 35, Appendix A2) and there was space around the instrument itself. When sand was kicked into the hole, it was possible to hear it hit water below.
- A small sump area had been excavated downstream of the dike, and there was active intermittent pump back of water at the time of the site visit (Photographs 39 and 40, Appendix A2). The pump back was being discharged on to the upstream slope of the dike. Mr. Jeff Pratt, who was accompanying Mrs. Isidoro during the inspection, put a piece of plywood in front of the discharge (Photograph 36, Appendix A2); however, the water was still flowing into the rockfill shell. Mr. Pratt was able to pull the pipeline straighter to extend it past the rockfill toe (Photograph 37, Appendix A2).
- Water appeared to be ponding within the upstream toe of the rockfill shell near where the pump back water was being discharged (Photograph 38, Appendix A2). It appeared that the access road upstream of the rockfill toe may have been blocking the water within the rockfill shell.
- Jetty 5 is the causeway for the pump back station for CP5. Jetty 5 appeared stable with no significant geotechnical concerns identified (Photographs 45 and 46, Appendix A2). However, there was some minor slumping and cracking observed at the southwest toe (Photograph 47, Appendix A2).

4.1.2 Geotechnical Instrumentation and Monitoring

Horizontal and vertical thermistors were installed in D-CP1 and D-CP5, as shown in Figures C4 to C7 in Appendix C. Plots of the thermistor data are provided in Appendix C.

Dike DCP-1

There were five horizontal thermistors installed in D-CP1 above the liner parallel to the key trench and five vertical thermistors installed upstream and downstream of the key trench. The locations of these instruments are summarized in Table 2. There were also six settlement survey monuments installed over the liner crest in the central area of the dike as shown in Figures C4 and C5 in Appendix C2.

Table 2: Summary of D-CP1 Thermistor Locations

Instrument	Horizontal or Vertical (H or V)	Location	Additional Details
HGTC-1	H	Stn. 1+513 to 1+562	
HGTC-2	H	Stn. 1+254 to 1+304	
HGTC-3	H	Stn. 1+343 to 1+394	
HGTC-4	H	Stn. 1+432 to 1+482	
HGTC-5	H	Stn. 1+117 to 1+158	
VGTC-1	V	1+278	upstream of the liner and key trench
VGTC-2	V	1+280	downstream of the liner and key trench
VGTC-3	V	1+461	upstream of the liner and key trench
VGTC-4	V	1+460	downstream of the liner and key trench
VGTC-5	V	1+300	along slope upstream of the Phase 2 liner

Stn = Station (distance) along centreline of each dike from the starting reference point.

The following observations were made regarding the instrumentation readings collected for D-CP1:

- The horizontal ground temperature cable plots (Appendix C2) indicate a warming trend in the base of the key trench from the time the instruments were installed in March 2017 until December 2017. This is not unexpected as the horizontal ground temperature cables would have been exposed to colder ambient temperatures when they were initially installed in the base of the key trench in March 2017, followed by warming ambient temperatures and placement of fills over the instruments. The plots indicate the temperatures were stabilizing at values in the range of -2°C to -6°C in November and December 2017. Data from the thermistors should be evaluated through 2018 to get a better understanding of the thermal conditions in the key trench.
- Vertical ground temperature cable plots (Appendix C2) indicate that the dike and foundation were below 0°C by October or November 2017, with the exception of VGTC-4, located downstream of the key trench and liner, which was still showing temperatures above 0°C to a depth of approximately 5 m below the original ground surface up until the end of December 2017. VGTC-3 is located directly upstream of VGTC-4. The temperature plot for VGTC-3 indicates the foundation below the dike has been frozen since June 2017 and the dike fills have been below 0°C since the end of October 2017, so it appears that the warmer temperatures measured in VGTC-4 are localized. Thermistor VGTC-4 should be monitored closely to determine if the foundation and dike continue to freeze. Data from all the thermistors should be evaluated through 2018 to get a better understanding of the thermal conditions and potential variability throughout the year.
- The survey monitoring points indicated 1 to 2 cm of settlement from late July to late October 2017. Readings prior to this period were completed with a GPS which was not accurate enough for monitoring settlement.

Dike D-CP5

Two horizontal thermistors were installed in the key trench approximately 250 mm above the liner along most of the length of the trench. Three vertical thermistors were installed upstream and downstream of the key trench and liner. The locations of these instruments are summarized in Table 3. There were also three settlement survey monuments installed over the liner crest in the central area of the dike as shown in Figures C6 and C7 in Appendix C2.

Table 3: Summary of D-CP5 Thermistor Locations

Instrument	Horizontal or Vertical (H or V)	Location	Additional Details
HGTC-1	H	Stn. 0+052 to 0+202	
HGTC-2	H	Stn. 0+164 to 0+304	
VGTC-1	V	Stn. 0+181	upstream of the liner and key trench
VGTC-2	V	Stn. 0+185	upstream of the liner and key trench
VGTC-3	V	Stn. 0+185	downstream of the liner and key trench

Stn = Station (distance) along centreline of each dike from the starting reference point.

The following observations were made regarding the instrumentation readings collected for D-CP5:

- The horizontal ground temperature cable plots (Appendix C2) indicate a warming trend in the base of the key trench from the time the instruments were installed in April 2017 until December 2017. This is not unexpected as the horizontal ground temperature cables would have been exposed to colder ambient temperatures when they were initially installed in the base of the key trench in April 2017, followed by warming ambient temperatures and placement of fills over the instruments. The plots indicate the temperatures were stabilizing at about -2°C in November and December 2017. Data from these thermistors should be evaluated through 2018 to get a better understanding of the thermal conditions in the key trench.
- Vertical ground temperature cable plots (Appendix C2) indicate that the dike and foundation were below 0°C by October or November 2017. Data from all the thermistors should be evaluated through 2018 to get a better understanding of the thermal conditions and potential variability throughout the year.
- The survey monitoring point data indicate approximately 3 cm of settlement at M-3 from late July to late October 2017. Readings prior to this period were completed with a GPS which was not accurate enough for monitoring settlement. The other two survey monitoring points showed less than 1 cm of settlement.

4.1.3 Recommendations

The following recommendations are provided regarding D-CP1 and D-CP5:

- The open cracks and depressions observed in the dike crests should be filled with fine rockfill or sand to reduce the potential for infiltration into the dike and associated thermal warming. These areas should be monitored following repair works to determine if these cracks and depressions reappear.
- The pipe ramp constructed out of sand upstream of D-CP1 near Stn. 1+140 will be susceptible to erosion. It is recommended that the pipe ramp be covered with a coarser rockfill to protect it from erosion.

- Monitor the cracking observed in the D-CP1 downstream sump berms and adjacent to the downstream collection channel. Recontouring and/or compacting the areas of cracking to close the cracks will reduce the potential for water to infiltrate into the cracks that could lead to warming of the permafrost and additional thaw settlement and cracking.
- The D-CP1 sump and downstream collection channel should be emptied in the fall/early winter to refreeze the ground around these facilities. During the open water season, keeping the water level in the downstream channel and sump low will reduce the potential for thaw of the ground around and associated settlement.
- It is recommended that AEM develop an OMS manual for the water management structures on site that includes such information as responsible personnel, monitoring frequencies for visual inspections and instrumentation monitoring, and pond/channel storage design criteria. AEM has indicated that preparation of the OMS manual has been started. An Emergency Response Plan should also be developed to address the consequences of failure of any of the water management structures. Once prepared, it is a good practice to review these documents on an annual basis, along with the overall site Emergency Response Plan, and update them as necessary (e.g., the names and contact numbers for key personnel).
- The water levels in the ponds should be reduced, as much as possible, in the fall/winter to manage water during the spring freshet.
- Geotechnical inspections of the dikes should be conducted and documented following the schedule developed in the OMS manual. Inspections should include observations such as cracking or settlement in the crests and/or slopes, seepage or indications of seepage, and pond level.
- The ground temperature cables and survey monitoring points should be monitored following the schedule developed in the OMS manual. The design engineer recommends the ground temperature cables be read twice per month in June and July and monthly for the rest of the year (Tetra Tech 2017d, e). They also recommend the survey monitoring points be surveyed monthly for the first two years and then quarterly for the remainder of the operation of the dike. The data should be plotted and reviewed following the process laid out in the OMS manual.
- Vertical ground temperature cable VGTC-4 in D-CP1 should be monitored closely as it was showing readings above 0°C up until the end of 2017. Horizontal ground temperature cable HGTC-1 in D-CP1 should also be monitored closely as it was indicating temperatures around -2°C for the base of the key trench, which is warmer than other sections of the trench.
- The ground temperature should be monitored to determine if the foundation remains frozen. Fluctuation of the temperature within the active layer in the dike are expected; however, the foundation is designed to be maintained frozen.
- The pump back line for D-CP5 should be permanently extended to ensure that pump back water is discharged upstream of the dam toe and does not flow into the rockfill shell.
- Where access is feasible, snow should be removed from the dike crests and slopes in the winter as this can help to reduce the insulating effects of the snow, thereby allowing the temperatures of the dike and foundation to drop as low as possible. Snow removal is more important if thermistor readings indicate warmer temperatures than expected.

4.2 Channel 5 and Berm 3

Channel 5 and Berm 3 are located west of CP5 and are designed to divert water from the A12 catchment area into CP5 so that this water does not flow into Tiriganiaq Pit 1. Channel 5 is the main water diversion structure; Berm 3 is only required to temporarily retain water under an extreme rainfall event when the water level in CP5 is temporarily high (Tetra Tech 2016d).

Channel 5 was constructed from 17 to 26 November 2016 and is approximately 335 m long with a base width of approximately 3 m and a maximum depth of 1.6 m. The channel was designed with a geotextile lining covered with riprap.

Berm 3 was built between 3 August and 9 September 2017. Berm 3 is approximately 315 m long with a maximum height of about 2.8 m. Berm 3 consists of a till core, a foundation key trench backfilled with till, and a cover layer constructed out of 600 mm minus esker material. The design specified run-of-mine rockfill for the cover; however, this material was not available at the time of construction.

4.2.1 Visual Observations

The inspection involved walking along the crest and slopes of Berm 3, examining the condition of the berm for visual signs of deformation and instability, cracking, or uneven surfaces. There was water ponded along sections of the upstream and downstream toes of Berm 3 at the time of the inspection. Seepage occurrences and/or indications of seepage were noted.

Channel 5 was inspected by walking the southern crest from near the outlet to CP5 to approximately Stn. 1+040. Water had overflowed the shallow section of Channel 5 between approximately Stn 0+085 and 1+045 at the time of the site visit, which limited access to portions of the channel.

A photographic record of the inspection, with annotations added where appropriate, is included in Appendix A2. At the time of the inspection of Channel 5 and Berm 3, the following general observations were made:

- Overall, Berm 3 and Channel 5 appeared stable, with no significant geotechnical concerns identified.
- There was some cracking observed adjacent to Channel 5 (Photograph 49, Appendix A2). This cracking may be within waste materials removed during construction of Channel 5 or may be due to thaw settlement and extend into original ground.
- Water was ponded in Channel 5 along its entire length and had overflowed the shallow section of Channel 5 between approximately Stn. 0+085 and 1+045 (Photographs 48 through 51, Appendix A2). Water was ponding against the upstream side of Berm 3 from approximately Stn. 0+100 to 0+200 (Photographs 51 through 52, and Photographs 54 through 55, Appendix A2).
- The esker material used for the Berm 3 cover layer (e.g., Photographs 53 through 58, Appendix A2) may be susceptible to erosion.
- There was a small pond against the downstream toe of Berm 3 near the northwest end of the berm (Photograph 56, Appendix A2). There was also shallow water ponded within the vegetation adjacent to the downstream toe of Berm 3 near the mid-point of the berm (Photograph 57, Appendix A2). There were no visible signs of seepage. The water observed on the downstream side of the berm may be due to seepage from the water ponded on the upstream side of the berm, but could also be due to run-off collecting where there is low topography of the original ground in this area.

4.2.2 Recommendations

The following recommendations are provided regarding Channel 5 and Berm 3:

- Monitor the cracking adjacent to Channel 5. Recontouring and/or compacting the areas of cracking to close the cracks will reduce the potential for water to infiltrate into the cracks leading to warming of the permafrost and additional thaw settlement and cracking.
- According to the design for Channel 5 and Berm 3 (Tetra Tech EBA 2016d), Channel 5 is supposed to be able to handle run-off flows except for an extreme rain event and Berm 3 is only intended to temporarily retain water when the water level in CP5 is high due to an extreme rain event. However, at the time of the site visit, water had overflowed Channel 5 and was ponded against Berm 3. The ponding appeared to be relatively shallow. Ponding upstream of Berm 3 should be monitored to determine how much and how often ponding occurs and if Berm 3 can perform as required with the ponding.
- The Berm 3 cover materials may be susceptible to erosion. This should be monitored, and if there is erosion, consideration should be given to placing coarser material on Berm 3 to reduce the potential for erosion.

4.3 Saline Pond

The saline pond is located east of DP3-A and was constructed during the third quarter of 2016. The saline pond was constructed to manage excess underground saline water starting in the third quarter of 2016, before a long-term saline water disposal/treatment plan was finalized. During 2017, water was transferred from the saline pond to the P-Area for evaporation. AEM is planning to have a permanent saline water treatment plant by January 2019.

The saline pond was largely constructed by excavation within permafrost overburden and bedrock. A small berm approximately 1 to 2 m high was constructed around the excavation with a till core and rockfill cover to promote permafrost development in the original ground below the berm and keep surface water from the surrounding area from draining into the pond. The pond is designed to maintain the maximum pond elevation under the inflow design flood (1-in-100-year precipitation event) below original ground and below the level of CP5 to minimize the potential for seepage out of the saline pond.

4.3.1 Visual Observations

The inspection involved walking along the crest of the saline pond perimeter berm, examining the condition of the berm for visual signs of deformation and instability, cracking, or uneven surfaces. Seepage occurrences and/or indications of seepage were noted. A selection of photos from the inspection are included in Appendix A2.

At the time of the inspection of the saline pond, the following general observations were made:

- Overall, the pond and perimeter berm appeared stable, with no significant geotechnical concerns identified.
- There was water in the pond at the time of the site visit that was well below the top of the bedrock excavation (Photographs 59 and 60, Appendix A2).

- Cracking and settlement were observed in the perimeter berm in a few locations. Most of the cracking and settlement was minor (e.g., Photograph 63, Appendix A2) with the exception of the northwest section of the perimeter berm which had some larger cracks (Photograph 61, Appendix A2). There was also an area near the upstream toe of the perimeter berm that appeared to have undergone more substantial settlement (Photograph 62, Appendix A2). AEM has indicated that there is a fault in this area and surface water sometimes seeps into the pond through the northwest section of the perimeter berm (downstream of DP3-A), which are likely causing the settlement and cracking within the berm.
- A small pond of water was observed adjacent to the northwest perimeter berm, downstream of DCP3-A (Photograph 66, Appendix A2).

4.3.2 Recommendations

The following recommendations are provided regarding the saline pond for the time it is in operation:

- Recontouring and/or compacting the areas of cracking in the perimeter berm is recommended, particularly the northwest section of the berm, to close the cracks. This area should also be monitored to assess if cracking and settlement continues.
- Monitor the downstream side of the perimeter berm for ponding water and consider diverting it or pumping it so it does not seep into the saline pond.

4.4 Channel 2

Channel 2 has been constructed along the northern end of the main mine site industrial pad. To construct the channel, a trench was excavated, woven geotextile was placed to line the excavation, and then the channel was lined with riprap (coarser rocks). A selection of photos from the inspection are included in Appendix A2 (Photographs 67 through 73).

During construction and operation, contact water from the plant site area will naturally flow or be diverted into Channel 2, which in turn will flow into ponds H15E, H15, H14, H13, H12, H9, H8, and eventually into CP1.

The slope of the channel base is not consistent and some pooling of water and deposition of sediment in lower areas was observed. Ponded water may infiltrate into the channel base, but is not expected to be substantial. No geotechnical concerns associated with Channel 2 were identified.

5.0 SITE ROADS, CULVERTS, AND TIRIGANIAQ ESKER AND WESMEG BORROW AREA

This section summarizes the observations made during the 2017 geotechnical inspection regarding the main site roads and associated culverts, and the Tiriganiaq Esker and Wesmeg Borrow Area roads and facilities. Appendix A3 contains selected photographs taken during the inspection.

5.1 Site Roads and Culverts

At the time of the site visit, the site roads were generally in good condition and constructed for two-way traffic with pull outs. As the site is in active construction, roads were in various stages of construction and operation and had been constructed with materials with variable sizes and gradations.

The roads appeared to generally be of adequate width, and pull outs to allow vehicles to safely pass had been constructed. The heights of the road fills were such that berms were not required. The roads appeared to have been constructed using a combination of sand and gravel obtained from esker borrow areas, rockfill, and crushed aggregate. No geotechnical concerns were identified during the inspection. Normal maintenance of the roads should be anticipated.

There were three permanent water management culverts in place at the time of the site visit: Culverts 3, 4, and 6. Culvert 2 had been removed for repair and replacement. AEM has indicated that Culvert 2 was put back in place shortly after the 2017 site visit. A summary of the culverts inspected, general observations, and any recommendations is provided in Table 4, and Appendix A3 contains selected photographs of the culverts (Photographs 2 through 6 and Photographs 10 through 12).

At the time of the 2016 inspection, the access road to the Wesmeg Borrow Area had recently been established. The road had been built by creating trenches on either side of the road and then using this borrow material to create the roadway. Water was ponding in some portions of the trenches along the road. The road looked to have been constructed from till materials with higher fines contents. The condition of the road and areas adjacent to the road that were observed during the 2017 inspection were much improved. The trench areas adjacent to the road had been regraded, and some rockfill material had been placed on the road (Photographs 13 and 14, Appendix A3). Water was ponded against the road where it crosses low topography north of Lake B33A (Photographs 7 and 13, Appendix A3). The design report for the Wesmeg Road (Tetra Tech EBA 2016e) indicates that a culvert was planned for this location and should be installed.

The main site water intake access road appeared to have been recently constructed using a combination of sand and gravel obtained from esker borrow areas and rockfill (Photographs 42 through 45, Appendix A3). No geotechnical concerns were identified during the inspection. Normal maintenance should be anticipated.

Table 4: Summary of Site Culverts Inspected

Access Road	Culvert No.	Culvert Description	Comments/Recommendations
Access road on west side of CP1	3	3×600 mm CSP	Culverts were in good condition (Photographs 2 and 3, Appendix A3). Water was flowing through the culverts at the time of the site visit from H8 to CP1. The downstream ends of the culverts were mostly submerged within CP1. Culverts appeared to have appropriately sized cover material.
	4	1×600 mm CSP	Small amount of damage to upstream end of the culvert (Photograph 5, Appendix A3). No flow through the culvert. Downstream end of culvert was partially submerged by CP1 (Photograph 6, Appendix A3). Culvert appeared to have appropriately sized cover material.
Road to Tiriganiaq Esker	conduit	CSP conduit for pipeline crossing	CSP placed as a conduit for a pipeline crossing. CSP was badly damaged (Photographs 8 and 9, Appendix A3). If pipeline crossing will stay in place, CSP should be replaced and additional road fill cover should be placed.
	6	1×600 mm CSP	Culvert was in good condition (Photographs 10 through 12, Appendix 3). Small flow observed.

Note: 1×600 mm = the number of culverts × the diameter of the culvert

CSP = corrugated steel pipe.

5.2 Tiriganiaq Esker and Wesmeg Borrow Area Facilities

The ANFO plant, the magazine storage, and the Wesmeg Borrow and vent raise areas were inspected, (Photographs 7 through 26, Appendix A3). The following are some of the general observations and recommendations:

- Cracking and erosion were observed at the Wesmeg Borrow Area (Photograph 15 through 18). This material should be recontoured and either capped with a coarser material or some other form of reclamation to protect against erosion.
- A small rockfill pad had been constructed at the Wesmeg vent raise with a low area and a berm on the west side (Photograph 19, Appendix A3). Water was ponded in the low area. A steel pipe was installed through the access point of the pad for water management (Photographs 19 and 20, Appendix A3). There was no flow at the time of the site visit.
- The magazine storage area and blast guard berms were inspected and there were no signs of erosion or cracking. No geotechnical concerns associated with the magazine storage area were identified.
- The ANFO plant pad was inspected and appeared to have been constructed mostly out of rockfill and possibly also some esker sand and gravel. The slopes are approximately 2 horizontal to 1 vertical, and appeared stable. There were two areas on the southwest slope that had some signs of erosion and settlement (Photographs 24 and 25, Appendix A3), but otherwise the slopes of the pad were generally in good condition. The alignments of the slopes were somewhat irregular and the sea-containers (stacked 2 to 3 high) were observed to be relatively close to the crests of the slopes (Photographs 27 and 28). Consideration should be given to using a larger set-back from the slopes for placement of sea-containers.

5.3 New Emulsion Plant and Access Road

The new emulsion plant pad north of the main mine site (industrial pad) was under construction at the time of the 2017 site inspection and the access road had recently been constructed (Photographs 29 to 41, Appendix A3). The following are some of the general observations and recommendations:

- The road appeared to generally be of adequate width, and pull outs to allow vehicles to safely pass had been constructed. The height of the road fill was such that berms were not required.
- The road appeared to have been constructed using esker sand and gravel material, which may be susceptible to erosion.
- Lake H15E was ponding on the northeast side of the road at the south end of the road near the main camp and no culvert had been installed at the time of the site visit; however, AEM indicated that Culvert 1 was installed through the road at this location after the site visit.
- A culvert was installed through the road near the borrow area and a small flow was observed (Photographs 35 through 37, Appendix A3). Straw logs had been placed to control erosion and suspended solids in the flow and appeared to be functioning well (Photograph 38, Appendix A3).
- Areas adjacent to the road had been stripped of organics and there was variable amounts of ponded water in these areas. In some areas water filled most of the excavation (e.g., Photograph 33 and 39). Ponding of water may result in greater thaw of the permafrost that could lead to greater settlement of the road fill.
- The emulsion plant pad appeared to be constructed with dirty rockfill and a sand and gravel layer was being placed over the rockfill base at the time of the inspection (Photographs 40 and 41, Appendix A3). A rockfill berm and drainage channel had been constructed along the northwest side of the pad (Photograph 40, Appendix A3). No geotechnical concerns were identified during the inspection.

5.4 Recommendations

The following are recommendations for the site roads and culverts and the Tiriganiaq and Wesmeg borrow areas:

- The culvert planned for where the Wesmeg borrow access road crosses low topography north of Lake B33A should be installed.
- If the CSP for the pipeline crossing under the Tiriganiaq Esker access road will stay in place, the CSP should be replaced and additional road fill cover should be placed.
- The Wesmeg borrow area should be recontoured and either capped with a coarser material or some other form of reclamation to protect against erosion.
- Consideration should be given to using a larger set-back from the ANFO plant pad slopes for placement of sea-containers.
- Areas of erosion on ANFO plant pad should be monitored.
- If erosion occurs in the esker sand material used to construct the emulsion plant road, rockfill should be placed to cap the road and reduce erosion.

- It is recommended that the disturbed areas adjacent to the emulsion plant road are regraded so that water does not pond.
- Regular monitoring and maintenance of the roads should be conducted.

6.0 ORE AND WASTE STOCKPILES

The ore and waste rock storage area is located east of the P-Area. At this time in the development of the site, there were only relatively small piles of waste rock and ore (high grade and low grade). A selection of photographs from the inspection are provided in Appendix A4 (Photographs 1 through 9).

Ore and waste materials removed from the underground development are transported to surface and placed in stockpiles. The majority of waste rock is crushed into various sizes for use in construction. There were various piles of waste materials that have been crushed in this area. One of the high grade ore piles and one of the waste rock piles had access ramps and a top crest area. Berms were in place around the crests of both piles.

No geotechnical concerns related to the stability of the stockpiles were identified.

7.0 OTHER MELIADINE FACILITIES

This section contains the observations and recommendations from the 2017 geotechnical inspection of other Meliadine facilities: industrial pad, landfarm, effluent water treatment plant pad, underground Portal No. 1, underground Portal No. 2, fuel storage area, ventilation intake pad, exploration landfill, and operations landfill.

7.1 Industrial Pad

At the time of the 2017 inspection, the industrial pad appeared to have been mostly completed; however, various facilities were under construction, such as the process plant building, the multi-services building, the incinerator, and the fuel storage area. The camp facility trailers had been set up and AEM was in the process of moving people from the exploration camp to the main camp. Some temporary trailers had also been set up for office space. Appendix A5 contains a selection of the photographs taken during the inspection (Photographs 1 through 17).

The industrial pad is constructed using a combination of rockfill and esker sand and gravel obtained from borrow areas. A surface layer of crushed aggregate was observed in some areas (e.g., Photographs 14 and 15, Appendix A5). The height of the pad varies, based on topography. The slopes of the edges of the pad ranged from approximately 2.5 to 3 horizontal to 1 vertical, and appeared stable. No cracking or settlement was observed on the top surface of the pad. There was erosion observed in several locations along the north slopes where esker sand and gravel had been used for construction (e.g., Photographs 4 and 5, Appendix A5).

Culverts were generally not observed through access ramps and roads within and around the industrial pad, with the exception of one culvert located through an access ramp off of the road at the south end of the industrial pad (Photograph 12, Appendix A5).

Normal maintenance of the surface of the pad, and in particular areas with heavier traffic (e.g., roads), should be anticipated. No geotechnical concerns were identified.

7.2 Landfarm

The new landfarm is located at the southeast corner of the industrial pad area and west of the water treatment plant (Photograph 1, Appendix A5) and will replace the exploration landfarm (Section 8.3) which will be decommissioned. At the time of the 2017 site visit, the perimeter berms of the new landfarm had been constructed and the liner bedding material had been placed; however, the geotextile and geomembrane liner had not been placed. The berms looked to have been constructed with a combination of rockfill and esker materials and the slopes appeared to be approximately 2.5 horizontal to 1 vertical as per the design (Tetra Tech 2017b). There were no signs of erosion, cracking, or settlement, which is expected as the landfarm was newly constructed. No geotechnical concerns were identified. A selection of photos from the inspection are included in Appendix A5 (Photographs 18 through 23).

7.3 Effluent Water Treatment Plant Pad and Intake Causeway

The effluent water treatment plant is located on the northwest shore of CP1 (Photograph 24). A rockfill pad was constructed for the effluent water treatment plant and a rockfill causeway was constructed into CP1 for the intake line and pump house. A selection of photos from the inspection are included in Appendix A5 (Photographs 24 through 32).

The slopes of the pad appeared to be approximately 2 horizontal to 1 vertical, and the slopes of the causeway appeared to be approximately 2.5 horizontal to 1 vertical. There were no signs of erosion, cracking, or settlement, which is expected as the pad was newly constructed. No geotechnical concerns were identified with the pad or causeway. A pipe berm on the south side of the effluent water treatment plant pad had been constructed out of sand that is susceptible to erosion (Photograph 25, Appendix A5).

7.4 Underground Portal No. 1

Underground Portal No. 1 is located southwest of P3 (Photograph 33, Appendix A5). At the time of the inspection, Portal No. 1 had been constructed and was in use. A selection of photos from the inspection are included in Appendix A5 (Photographs 33 through 39).

A small excavation and corrugated culvert is used to connect the underground ramp to surface. Portal No. 1 was observed from the surface only, with observation of the small bedrock cut face above the culvert. A rockfill berm was also in place around the perimeter of the portal excavation. The toe of the rockfill perimeter berm was close to the crest of the rock face in some locations and there was evidence of ravelling of rockfill into the cut; however, the corrugated culvert protects the access to the portal, so there is no safety concern. No other geotechnical concerns were identified at the time of the inspection.

7.5 Underground Portal No. 2

Underground Portal No. 2 is located northwest of the P-Area, on the west side of the access road from Portal No. 1 to the main camp site (industrial pad) (Photograph 33, Appendix A5). At the time of the inspection, Portal No. 2 was being constructed. A selection of photos from the inspection are included in Appendix A5 (Photographs 40 through 47).

Portal No. 2 was observed from the surface only, with observation of the small bedrock cut face and perimeter berm. The toe of the rockfill perimeter berm was close to the crest of the rock face in some locations and there was evidence of ravelling of rockfill onto one of the rock cut benches (Photograph 44, Appendix A5). Ravelling of loose rockfill is a safety concern during entry and exit to the portal. Water was observed ponding in some areas around the perimeter of the portal (outside the perimeter berm) and there was no water management in place (Photographs 46 and 47, Appendix A5). There was an opening in the perimeter berm above the south end of the portal (Photograph 47).

7.6 Fuel Storage Containment Area

The new fuel storage containment area is located south of the west end of D-CP1 and north of the saline pond (Photograph 48, Appendix A5). At the time of the site visit, the fuel storage area was partially constructed. The containment area base and dikes had been constructed and the tanks (3 million litres and 250,000 litres) had been erected. Liner and liner cover had been placed below the tanks; however, the dikes were not yet lined. The dike slopes appeared to be approximately 2 horizontal to 1 vertical, as per the design (Tetra Tech and WSP Canada Inc. 2017) and there were no signs of cracking or settlement. No geotechnical concerns were identified at the time of the site visit. A selection of photos from the inspection are included in Appendix A5 (Photographs 48 through 54).

7.7 Ventilation Intake Pad

The ventilation intake pad is located southeast of Portal No. 1 and north of Channel 5 and Berm 3 (Photograph 55, Appendix A5). At the time of the inspection, the pad had been recently completed and the ventilation intake facility was under construction. A selection of photos from the inspection are included in Appendix A5 (Photographs 56 through 58).

The pad looked to have been constructed out of variable esker materials and the slopes appeared to be approximately 2.5 horizontal to 1 vertical. The finer sand and gravel material may be susceptible to erosion. There was no cracking or settlement observed.

7.8 Exploration Landfill

The exploration landfill is located southwest of Portal No. 2 and northwest of the P-Area (Figure 6). At the time of the site visit, the operation landfill (Section 7.9) was almost completed. It is understood that the exploration landfill will be decommissioned once the new landfill becomes operational.

The exploration landfill is located on gently sloping ground and is contained on three sides by berms and by high ground on the fourth (south) side. The berms appeared to be constructed with esker materials that contained substantial amounts of sand and gravel. The slopes appeared to be approximately 2.5 horizontal to 1 vertical. A selection of photos from the inspection are included in Appendix A5 (Photographs 60 through 68).

A lot of cracking was observed on the downstream slopes of the containment berms. The cracking appeared to be largely due to translational slumping of the berm materials on the slope (e.g., Photographs 61, 62, and 64, Appendix A5). There was also some areas where materials had been eroded and deposited at the toe of the slope (Photograph 66, Appendix A5). There was no ponded water or seepage observed.

7.9 Operation Landfill

The operation landfill (Figure 6 and Photograph 59, Appendix A5) is located northwest of Portal No. 2 and within the northeast corner of the future Waste Rock Storage Facility 1 footprint. At the time of the site visit, construction of the operation landfill appeared to be almost completed.

The operation landfill is located on sloping ground and is contained by perimeter berms. The berms appeared to be constructed with a combination of rockfill and esker materials that contained substantial amounts of sand and gravel. The slopes appeared to match the design of approximately 2.5 horizontal to 1 vertical for the exterior slopes and 2 horizontal to 1 vertical for interior slopes. A sand and gravel layer had been placed over the base of the landfill, but not over the interior slopes of the berms, as shown in the design (Tetra Tech 2017c). There were no cracks or settlement observed. A selection of photos from the inspection are included in Appendix A5 (Photographs 69 through 75).

The sand and gravel material may be susceptible to erosion. If erosion is observed, a coarser rockfill layer should be placed over the exterior slopes and berm crests to protect against erosion. A small amount of water was observed ponding behind the southwest perimeter berm, adjacent to the access ramp to the landfill (Photograph 75, Appendix A5). It is recommended that the area to the southwest of the landfill be graded to reduce the potential for ponding once the landfill is in operation. A few very small puddles of water were observed on the base of the landfill; however, the base appeared to be generally well graded, so substantial ponding is not expected (Photograph 69, Appendix A5).

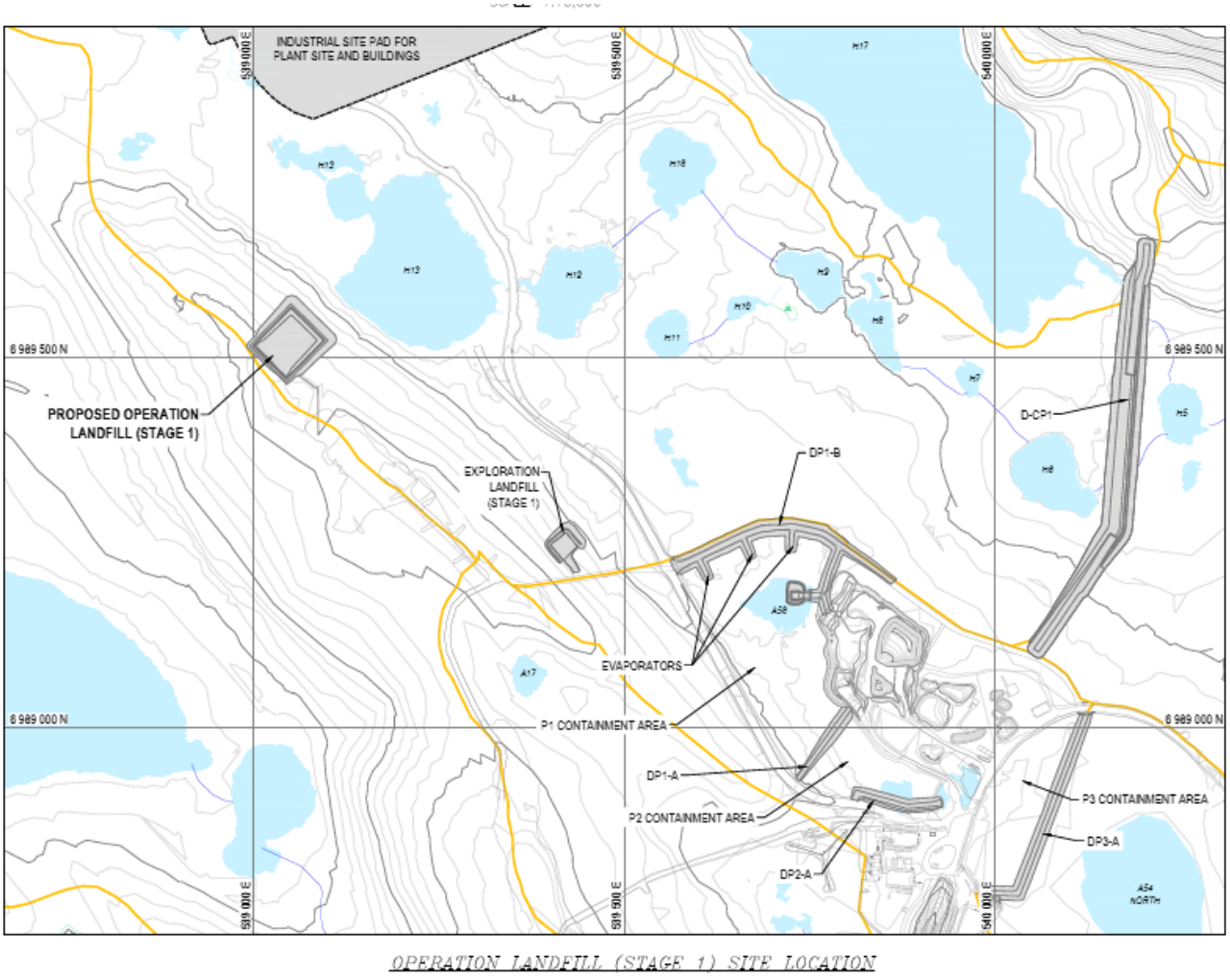


Figure 6: Exploration and Operation Landfill Location Plan

Source: Tetra Tech 2017c.

7.10 Recommendations

The following are recommendations for the Meliadine Mine site facilities summarized in Section 7.0:

- It is recommended that the north slopes of the industrial pad are recontoured and that a coarser surfacing layer is placed on the slope where erosion is substantial.
- It is recommended that the pipe berm constructed out of sand on the south side of the effluent water treatment plant pad be covered with a coarser rockfill to protect against erosion.
- It is recommended that loose rockfill material on the slopes above Portal # 2 is pulled back in areas where it is close to the edge of the cut face and people should not work on the ramp area outside of the portal entrance.
- The opening in the perimeter berm above the south end of Portal No. 2 should be filled in to restrict access and run-off into the excavation.
- Snow management around and above Portal No. 1 and 2 may be advisable, especially prior to freshet, to reduce the potential for larger surface water inflows entering the underground.
- If erosion occurs on the slopes of the ventilation intake facility pad, coarser rockfill should be placed over the slopes and crests to reduce the potential for erosion.
- Some sea-containers were observed to be very close to the edge of the ventilation intake facility pad crest. It is recommended that sea-containers or other structures be placed with a set-back from the slope.
- If the exploration landfill is kept in operation, it is recommended that the berms be compacted to fill in the cracks to avoid further infiltration of water leading to more slumping and erosion. A coarser rockfill should also be placed on the berm slopes and crests to reduce erosion.

8.0 EXPLORATION CAMP AND ACCESS ROAD

The exploration camp site was the first area of the project that was developed and at the time of the site visit it had camp and office facilities; however, AEM was in the process of transitioning staff to the new camp facilities at the main site. The exploration site was inspected including the site pad, fresh water intake, diffuser access, landfarm, fuel storage, and access road. The following sections provide a summary of the observations and recommendations relating to the exploration camp and access road.

8.1 Exploration Camp Pad, Water Intake, and Diffuser Access

The exploration camp site is located on a peninsula on the west shore of Meliadine Lake. The exploration pad has primarily been constructed with esker sand and gravel material; however, small localized portions of the slopes contain coarser grained particles. The thickness of the pad varies based on topography; however, it is generally relatively thin. The slopes appeared to be approximately 2 to 2.5 horizontal to 1 vertical. The slopes generally appeared stable. A selection of photos from the inspection are included in Appendix A6 (Photographs 1 through 9).

There was evidence of surface erosion occurring along the south side of the exploration camp pad (Photographs 4 and 5, Appendix A6).

A short access road extends to the north from the exploration camp pad to the edge of Meliadine Lake, to provide vehicle access to the fresh water intake pump house and pipeline. Photographs 10 through 13 (Appendix A6) show the access road and water intake structures. No geotechnical concerns were identified.

The diffuser access road starts at the water intake access road and runs east to Meliadine Lake. Photographs 14 through 20 (Appendix A6) show the diffuser access road. There was some minor cracking at the eastern end of the road close to Meliadine Lake (Photographs 16 and 18, Appendix A6).

8.2 Exploration Camp Access Road

At the time of the site visit, the exploration road was generally in good condition and appeared to have been constructed with esker materials. There were three culverts installed through the road, and observations from the inspection are summarized in Table 5.

There was an area near the intersection with the main road where water was ponding on either side of the road and the AEM representative mentioned that this section of road is often wet (Photograph 27, Appendix A6).

Table 5: Exploration Camp Access Road Culvert Summary

Culvert Location	Culvert Description	Comments/Recommendations
North side of camp	1×450 mm HDPE corrugated	Upstream end of culvert appears to have been buried within the exploration camp pad (Photographs 21 and 22, Appendix A6).
North side of camp	1×600 mm CSP	Culvert in good condition, no obstructions, no flow. Silt curtain downstream of outlet. Core racks are located upstream, and would trap snow. Evidence of flow during freshet and storms. Esker sand surrounding culvert. Upstream and downstream slopes are not armoured. Consider adding armouring. (Photographs 21, 23, and 24, Appendix A6).
West of camp near Lake J1	1×600 mm HDPE corrugated	Culvert in good condition. Upstream inlet to culvert armoured with rockfill that extends into culvert. Downstream end of culvert partially blocked with sand that should be cleared out. Some large boulders around downstream end of culvert that should be removed to prevent damage to the culvert. (Photographs 25 and 26, Appendix A6).

Note: 1×__ mm = the number of culverts × the diameter of the culvert

CSP = corrugated steel pipe.

8.3 Fuel Storage Area and Landfarm

The fuel storage area, landfarm, and core storage pad are located along the north side of the exploration camp access road, approximately 0.9 km west of the camp. A selection of photos from the inspection are included in Appendix A6 (Photographs 28 through 40).

The exploration bulk fuel storage tanks contain jet fuel and diesel. At the exploration camp, there is a small tank with gasoline (Photograph 8, Appendix A6). All tanks are double lined and self-contained. The tanks are located on a raised pad, constructed with esker sand and gravel. There is no liner or berm surrounding the tanks. The pad was generally in good condition; however, some minor cracking was observed along the east crest due to settlement (e.g., Photographs 30 and 31, Appendix A6).

The exploration landfarm consists of an above-ground bermed containment area, which appears to have been constructed of esker sand and gravel, with a 60 millimetre HDPE textured geomembrane liner and nonwoven geotextile beneath the liner. The liner surface has been covered with a layer of sand and gravel. Contaminated soils have been placed within the bermed area. Water, from precipitation events, has also accumulated within the landfarm (e.g., Photographs 35, 36, and 38, Appendix A6). It is understood that water samples are periodically collected and, if necessary, the water is treated prior to discharge. A small pond was observed near the northeast toe of the landfarm, which is likely due to seepage (Photograph 34, Appendix A6). Evidence of seepage was also observed along the base and lower portion of the berms in some areas, particularly the north slope (Photograph 35, Appendix A6).

It is understood that AEM intends to decommission the exploration landfarm once the new landfarm at the main site is operational (Section 7.2). When the exploration landfarm is decommissioned, it is anticipated that some cleanup of the foundation soil, and containment berms material will be necessary. Until such time that the operation landfarm is commissioned, AEM should try to minimize the amount of water contained within the exploration landfarm.

The core storage pad is located north of the landfarm. The pad slopes generally looked stable; however, there were some fairly large cracks along the east crest (e.g., Photograph 40, Appendix A6) that should be monitored and consideration given to filling them in to reduce infiltration leading to further erosion and cracking.

8.4 Recommendations

The following are recommendations for the exploration camp and access road:

- The south side of the exploration camp pad should be graded to manage surface water to reduce channelization of the flow that leads to erosion. The slope should also be regraded. A coarser surfacing layer could also be placed on top to help reduce the potential for future erosion.
- The diffuser access road could be regraded to close up the cracks and reduce the potential for future cracking.
- Armouring could be added around the 600 mm CSP through the exploration camp access road to reduce erosion.
- The downstream end of the 600 mm corrugated HDPE culvert through the exploration camp access road should be cleared of material. The large boulders around the downstream end of the culvert should also be removed to prevent damage to the culvert.
- If water continues to pond adjacent to the exploration camp access road near the intersection with the main road, consideration should be given to installing a culvert.
- The cracks in fuel storage pad should be monitored; however, they are not considered to be a geotechnical concern.

  Seepage from the landfarm should be monitored and managed, if deemed necessary due to water quality.

9.0 ALL-WEATHER ACCESS ROAD (AWAR) AND ASSOCIATED WATER MANAGEMENT STRUCTURES

The All Weather Access Road (AWAR) construction activities began during the winter of 2012, and construction was completed by the end of October 2013 to connect the hamlet of Rankin Inlet to the Project. Appendix B contains photographs taken during the inspection. The road is approximately 23.8 km long, with three bridge crossings and culverts installed at a total of 19 locations. The road has two-way traffic, and is approximately 6.5 m wide with pull offs approximately every 400 m ±50 m to facilitate vehicles passing.

The AWAR is used by AEM and also provides unrestricted all-terrain vehicle (ATV) access for the public, if it is safe to do so. The AWAR is used to transport building materials, construction/mining equipment, fuel, reagents, supplies, workers, and contractors to the Project.

The road design is based on a general sub-base composed of rockfill or sand and gravel from esker sources and crushed granular surfacing with a combined minimum thickness of 500 mm. The road design varied based on the relative susceptibility to freeze and thaw induced settlement of the foundation soils. The thickness of the road fill material was generally increased, to a minimum of 1.3 m, in areas where potentially thaw-sensitive soils were identified. Along portions of the road where thaw-sensitive soils were identified, a geotextile material was incorporated into the road design to limit damage to the road should the foundation material thaw.

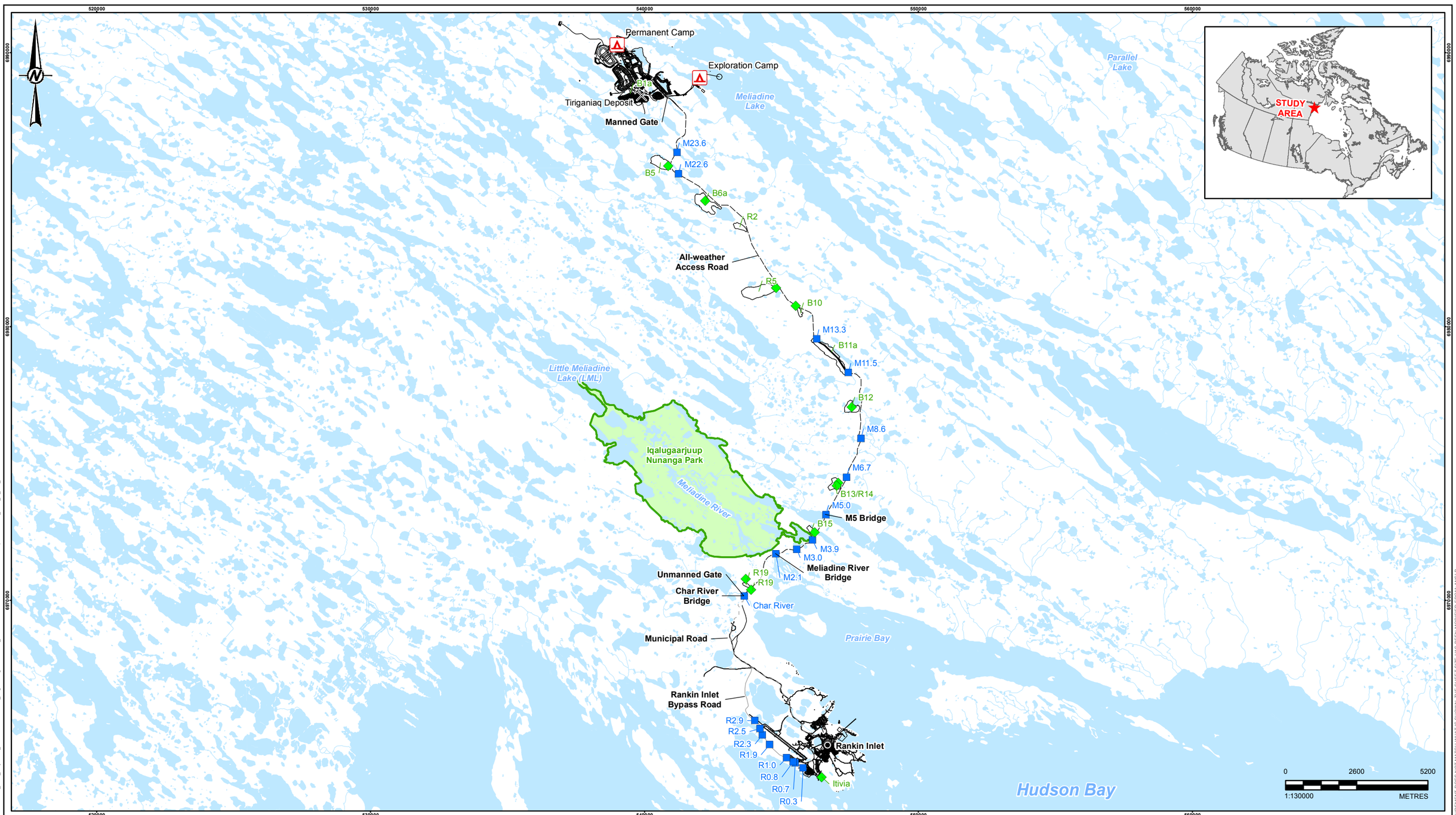
No evidence of thermal degradation of the permafrost was observed on the road during the inspection. It should be noted that visual evidence may not necessarily be observed due to the regular road maintenance performed by AEM. During the inspection, water levels were considered to be normal to low and flow velocities at the crossings were considered to be low.

9.1 Observations and Recommendations

The culverts were generally observed to be in good condition, at the time of the inspection. Most culverts were unobstructed with no signs of damage to the culverts. All bridges and their embankments were in good geotechnical condition at the time of the inspection. A structural and/or mechanical assessment of the bridges was not conducted and is beyond the scope of this geotechnical inspection.

A photographic record of the inspected culverts and bridges is provided in Appendix B. Figure 7 shows the location of the primary water management structures along the road (e.g., M3.9). However, additional culverts have been added that are not shown in Figure 7.

Table 6 lists the locations of water management structures: culverts and bridges that have been installed along the AWAR. The location of the culverts and bridges are listed, based on distance from the Friendship Centre in Rankin Inlet, with the gate house at Meliadine being 29 km. Size and number of culverts is provided in Table 6, along with specific observations and photos at the time of the inspection, and any recommendations. It was observed during the 2017 inspection that flags with kilometre markings had been installed at the culvert locations; however, the distance markings on the culverts did not match with the location along the AWAR.



LEGEND

- CAMP
- PROPOSED MINE SITE
- QUARRY/BORROW PIT LOCATION
- WATERCOURSE CROSSING
- ALL-WEATHER ACCESS ROAD (AWAR)
- ROAD - NEW
- ROAD - EXISTING
- WATERCOURSE
- WATERBODY
- TERRITORIAL PARK

REFERENCE(S)

1. BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED.
2. DATUM: NAD83 PROJECTION UTM ZONE 15

CLIENT
AGNICO EAGLE MINES LTD.

PROJECT
MELIADINE GOLD PROJECT

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-11-17
DESIGNED	FE
PREPARED	CDB
REVIEWED	
APPROVED	

TITLE
MELIADINE ACCESS ROAD NETWORK WITH QUARRIES AND DRAINAGE

PROJECT NO.	CONTROL	REV.	FIGURE
1660296	3000/R-024	0	**7**

PATH: Y:\burnaby\CAD-GIS\Client\Agnico_Eagle_Mines_Ltd\Meliadine_Gold_Project\99_PROJECTS\1661\0296_Engineering Services\02_PRODUCTION\2000\DOC R-006\MXD\Report\1660296_2000_R_006_004.mxd PRINTED ON: 2016-11-21 AT: 4:04:31 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

Table 6: 2017 Inspection Record of Water Management Structures along the All-Weather Access Road

Station (distance from Friendship Centre)	Water Management Structure Description	Conditions, Observations, and Recommendations (at time of inspection)
KM 6.0	Char River Bridge	Good condition, stable embankments and abutments. Left abutment downstream, sand and gravel, with potential for erosion, Recommendation: Monitor left abutment to determine if armouring should be added.
KM 6.2	3 CSP culverts: 2×1,300 mm 1×700 mm	The culverts are vertically offset with the 700 mm culvert elevated above the 1,300 mm culverts. All clear and in good condition. Small flow in the lower 1,300 mm culvert.
KM 7.0	3 CSP culverts: 2×1,000 mm 1×700 mm	The culverts are vertically offset with the 700 mm culvert elevated above the 1,000 mm culverts. The 700 mm culvert had a dent in side. One of the 1,000 mm culverts had no flow, but contained ponded water. Other 1,000 mm culvert had small flow. Sandy soil around culverts, potential for erosion causing turbidity. Recommendation: Consider adding armouring around culverts to reduce potential for erosion.
KM 7.1	3 CSP culverts: 2×1,000 mm 1×700 mm	Vertically offset. 700 mm culvert is elevated, minor deformation of culverts under the road, no substantial reduction of cross-sectional area. Minor flow in lower 1,000 mm culvert.
KM 7.4	3 CSP culverts: 1×900 mm 1×700 mm 1×1,000 mm	Vertically offset. 700 mm culvert is elevated. Damaged, partially crushed inlet of the 900 mm culvert. Erosion potential due to sandy soils around 700 mm culvert and the inlet was not well armoured. 1,000 mm clear, low flow/ponding water. Recommendation: Consider extending 700 mm culvert and armour around it to reduce erosion.
KM 8.0	Meliadine River Bridge	Right abutment, downstream slope has exposed esker sand and gravel. Recommendation: Monitor right abutment to determine if armouring should be added.
KM 9.1	2×1,000 mm CSP culverts	Minor deformation of both culverts under the road. No flow, water ponded below the inlets. Design was for 5 culverts.
KM 9.5	1×1,300 mm CSP culvert.	Water ponded on upstream side of culvert/road with very low flow due to elevated inlet of CSP. CSP in good condition. Design was for 4 culverts.
KM 10.5	M-5 Bridge	Good condition, stable embankment and abutments of the bridge. Potential small erosion/settlement of rock embankment on the bridge's right abutment identified during 2016 inspection shows no signs of change. Exposed geotextile exposed at base of downstream end of left abutment that could be due to erosion. Recommendation: Continue to monitor for erosion and/or settlement.
KM 12.1	4 CSP culverts: 2×1,300 mm 1×900 mm 1×700 mm	Vertically offset. 700 mm and 900 mm culverts are elevated. Some small dents and bending of haunches in 700 mm and one of the 1,300 mm culverts. Minor flow through the lowest of the 1,300 mm culverts.
KM 12.6	no culverts	Area of poor drainage. Flow along road edge, suspect seepage under the road. Some erosion along toe of road.
KM 13.5	5 CSP culverts: 3×1,300 mm 2×900 mm	Vertically offset, 900 mm culverts are elevated above 1,300 mm culverts. Good condition, no flow, minor dents and deflection in haunch.
KM 14.7	Access road to B12 quarry, 500 mm HDPE corrugated culvert	No flow, small amount of water ponded against AWAR and quarry access road, below inlet of culvert. Minor dents observed in culvert. Small erosion at outlet.
KM 16.3	3 CSP culverts: 1×1,300 mm 1×700 mm 1×1,000 mm	Vertically offset, 1,300 mm culvert is the lowest, then the 1,000 mm culvert and the 700 mm culvert is the highest. No flow in the 700 mm and 1,000 mm culverts, good condition. Small clear flow in 1,300 mm culvert, good condition, small erosion visible at outlet. Outlets are all elevated increasing erosion potential. Drainage appears to be connected to M13.3 area (KM18.1 and 18.15), survey required to confirm. Recommendation: Monitor to assess if hydraulic capacity is adequate and if erosion is an issue. Consider installing culverts at lower elevations to improve water management.
KM 18.1	2 CSP culverts: 1×900 mm, 1×1,000 mm	Vertically offset culverts. The 900 mm culvert is elevated above 1,000 mm culvert. Lower culvert has some flow, minor dent on upstream end. Upper culvert is in good condition. Cover over upper culvert appears thin on upstream side. Note for flow to occur in upper culvert, the road near KM18.15 would be nearly flooded. Culvert outlet is high, therefore potential for erosion during high flow periods exists. Trench exists along upstream toe of road connecting the culverts at KM 18.1 to KM18.15. Recommendation: Monitor cover over upper culvert. If cover thickness is reduced, additional material should be placed to protect the culvert. Consider lowering culverts to allow flow with less ponding adjacent to road and less potential for erosion.
KM 18.15	1×600 mm CSP culvert.	Invert and outlet are both elevated, increasing erosion potential. Ponding adjacent to road required before reaching the culvert inlet. Some erosion of road slope and toe visible. Flow may initially occur through the road fill beneath the culvert. Trench exists along upstream toe of road connecting the culverts at KM 18.1 to KM18.15. Recommendation: Assess if hydraulic capacity is adequate. If water management challenges observed, consider installing an additional culvert at this location, at a lower elevation.
KM 21.7	2×160 mm steel pipes, used as culverts	Vertically offset steel pipes, clear, no flow. High water level evident. AEM inspection reports note water ponding at or over road in this area. Capacity of pipes may be inadequate, or pipes could have been frozen (blocked) causing water to backup. Recommendation: Consider marking pipe location and cleaning out, prior to freshet. Assess if additional capacity is required. Monitor for signs of erosion.
KM 22.3	2×160 mm steel pipes, used as culverts	Vertically offset, clear, no flow. Recommendations: Culverts could be lowered to reduce ponding upstream.
KM 22.7	No culverts	Water ponded on the east side of the road, signs of wet ground observed on west side of road indicating possible seepage under the road. Recommendation: Consider installing a culvert to manage water in this area.
KM 25.8	1×600 mm HDPE corrugated culvert	No flow, minor amount of gravel in base of culvert, some dents on upstream inlet to culvert. Sandy soil around inlet and outlet. Some sediment erosion and deposition evident on downstream side of culvert. Some erosion of slope of road visible in this area. AEM inspection reports noted ponding of water at or over the road in this area during the freshet. Recommendation: Consider adding armouring around culverts. Consider adding additional culverts if water management continues to be an issue during freshet.

Station (distance from Friendship Centre)	Water Management Structure Description	Conditions, Observations, and Recommendations (at time of inspection)
KM 26.2	2×160 mm steel pipes, used as culverts	Vertically offset, lower pipe bent upwards, unable to see through, upper pipe is clear. Some sediment deposition downstream is evident. Water ponded along road below upstream inverts of pipes. AEM inspection reports noted ponding of water at or over the road in this area during the freshet. Recommendation: Lower pipe should be replaced. Consider adding additional culverts if water management continues to be an issue during freshet.
KM 26.5	3×700 mm CSP culverts.	Equal elevation, clear, no flow, small dents, no blockages.
KM 26.8	2×160 mm steel pipes, used as culverts	Vertically offset, clear, no flow.
KM 27.1	3 CSP culverts: 1×900 mm 1×700 mm 1×1,000 mm (southernmost)	Vertically offset, middle culvert (700 mm) elevated above adjacent culverts. Clear, minor flow in lowest culvert, some small dents in 900 mm and 1,000 mm culverts.
KM 28.7	Seepage	Ponded water on east side of road. AEM notes that water ponds against road for most of open water season and road surface often is moist, indicating signs of seepage through road. Recommendation: Consider installation of a culvert.
KM 29.6	1×500 mm HDPE corrugated culvert	Clear, no flow, some small dents, small erosion evident upstream, water ponded on downstream.

1×__ mm = the number of culverts × the diameter of the culvert.

CSP = corrugated steel pipe; AWAR = all-weather access road.

AEM has implemented a watercourse crossing inspection and maintenance program (AEM 2015b), which includes:

- a regular inspection program to identify issues relating to watercourse crossings, such as structural integrity and hydraulic function
- an event-based inspection program to track the impacts of larger storm events on watercourse crossings
- a culvert location inspection program to ensure that culverts have been installed in the correct location with respect to watercourses and that the culvert capacity is adequate, for hydraulic conditions

A total of 26 inspections were conducted by AEM's environment department in 2017. During May and June (during freshet), the inspections were conducted one to two times per week. In April, July, August, and October, inspections were conducted two to three times per month, and for the rest of the year inspections were completed once per month.

Prior to spring freshet, the culverts and bridges were inspected to assess their condition and ability to accommodate rapid spring thaws. The visual inspections are intended to identify any structural issues, blockages, ponding against or over the road, required maintenance, damage, bed erosion, or scour. The inspections include photos of key observations and are documented and filed for future reference.

Road maintenance and snow management are carried out, as deemed necessary. Steaming of culverts, is included as a maintenance activity.

Records of the inspections carried out by the environmental team were provided to Golder for review. The following are some of the key observations documented in the inspection reports during the open water season:

- M5 and Char River under bridge snow accumulation would need to be cleaned up before freshet.
- There was no snow buildup observed on the side of the road.
- Culvert 8.6 needs monitoring; it looks like there is not enough capacity for the water flow required in the area.
- Snow removal around bridges and culverts was successful.
- Water pooling can be observed in the Meliadine River area.
- The situation [water backing up leading to a concern that there may not be sufficient capacity for the flows] at Culvert 8.6 seems to be back to normal (water flushed through culvert).
- The Meliadine River area is back to normal water levels.
- Water pooling can be observed at KM 28 to 30 (to monitor).
- Water is ponding in a number of areas. No GPS coordinates were taken. Straw logs were deployed along areas where water was seen flowing across the road toward a water body.
- All bridge crossings are flowing—no water is backing up.

- There are three areas between KM 25 and KM 29 where water is flowing over the road towards a water body. Straw logs were placed in these areas on 24 May to help manage sediment (more will be placed).
- Water was observed to be encroaching on the road at KM 22 and 26.
- Water pooling should be monitored at KM 22 and 29.
- Recent warm weather reduced size of pooling at KM 22 and 29 drastically.
- Meliadine River Bridge has a rock cage that requires repair to prevent further damage.

By mid-June, observations noted in the inspection reports that the culverts were no longer flowing and there was no more ponding against the road.

10.0 ITIVIA FUEL STORAGE SITE AND BYPASS ROAD

The Itivia site is located south of Rankin Inlet on the north shore of Melvin Bay (Photograph 1, Appendix D1). To minimize impacts on Rankin Inlet, AEM is constructing a bypass road to divert traffic travelling to and from the Itivia site and the Project site around Rankin Inlet. The following sections provide a summary of the observations and recommendations relating to the fuel storage site bypass road.

10.1 Fuel Storage

The Itivia site will be used for bulk fuel storage and will provide a laydown area for transfer of materials to the Project site. At the time of the 2017 site visit, the laydown pad areas appeared to be generally complete and the fuel storage area was under construction. A selection of the photos taken during the site visit are provided in Appendix D1 (Photographs 2 through 16).

The laydown pad areas had been constructed with rockfill and crushed aggregate materials and the slopes appeared to range from about 2 to 3 horizontal to 1 vertical (Photographs 8 through 11, Appendix D1). There was a rock cut face between the fuel storage facility and the upper laydown area above (Photograph 7, Appendix D1). There were no geotechnical concerns identified.

The fuel storage area has two tanks (20 million and 13.5 million litres) within a bermed secondary containment facility. The tanks had been erected, and the raised base and perimeter berms had been constructed out of rockfill. HDPE liner, liner bedding and transition, and liner cover placement were in progress. Selected photographs from the site visit are provided in Appendix D1 (Photographs 2 through 7). There were no geotechnical concerns identified.

Two 450 mm corrugated steel culverts had been installed across the access road into the Itivia site (Photographs 13 through 16, Appendix A6). There was a small pond of water on both the upstream and downstream sides of the culverts, but no visible flow. There was a small bermed pool area constructed out of sand on the downstream side of the culverts in addition to straw logs for sediment control. There were no geotechnical concerns identified.

10.2 Bypass Road

The Itivia bypass road is a 6.3 km gravel road that will divert traffic from the Itivia laydown area to the Project site around Rankin Inlet (Figure 8). The road is designed to be 6.5 m wide for most of its length with pull outs to allow two-way traffic. Two sections are designed to be 8 m to allow two-way traffic without pullouts.

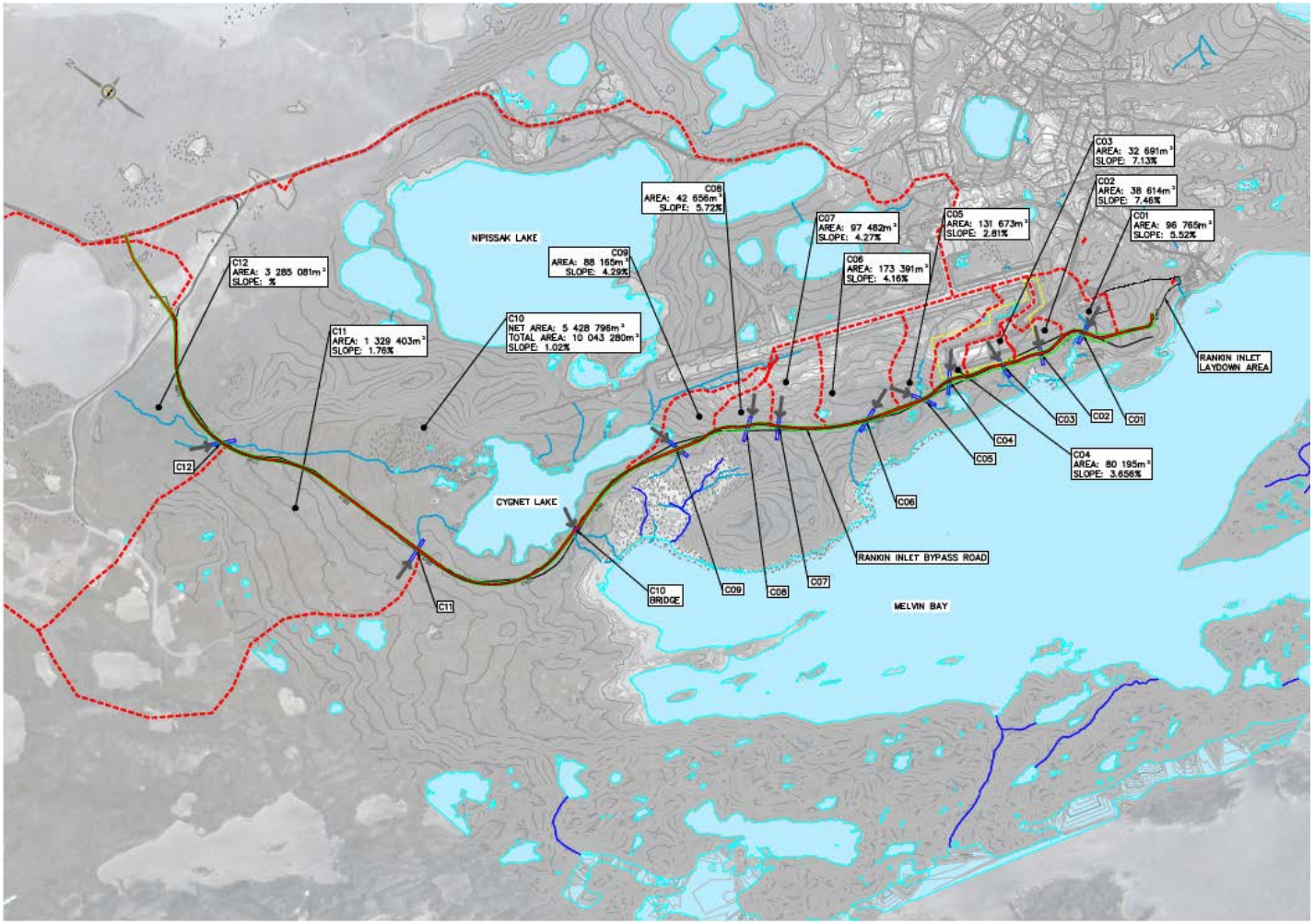


Figure 8: Itivia Bypass Road Alignment

Source: Tetra Tech 2017a.

At the time of the site visit, the road was under construction. Approximately 1.5 km of the northwest end of the road was inspected starting at its intersection with the main AWAR road. Six culvert locations had been constructed and were inspected. All the culverts were corrugated steel culverts and ranged in size from 0.7 to 1.2 m diameter. The locations of the culverts inspected do not appear to match well with the design drawings (Tetra Tech 2017a), which may be a result of modifications to the culvert locations during construction based on site observations and conditions. A selection of the photos taken during the site visit are provided in Appendix D2 (Photographs 17 through 34).

Table 7 provides a summary of the culverts inspected and the observations. There was one location approximately 1.2 km from the intersection with the AWAR where water was ponded on both sides of the road but there was no culvert (Photographs 21 and 22, Appendix D2). A natural drainage course could be seen on the west side of the road, but it also appeared that there had been some excavation in the area, creating a hole for water to pond in. When the inspection is completed in 2018, this area should be checked to see if there is further ponding. No other geotechnical concerns were identified.

Table 7: Itivia Bypass Road Culvert Inspection Summary

Distance from Intersection with AWAR	Number of Culverts (diameter)	Observations	Photographs (Appendix D2)
0.1	3 (1.2 m)	Water ponding on both sides below the inverts of the culverts. No flow through culverts.	17 and 18
0.3	2 (0.7 m)	Water ponding on both sides at or below the inverts of the culverts. No flow through culverts. Some larger rocks within the road fills above the culverts that could cause damage, so should be removed.	19 and 20
1.3	2 (1.2 m)	Shallow water ponding within the vegetation on both sides of the road. No flow through culverts. Some larger rocks within the road fills above the culverts that could cause damage, so should be removed.	23 through 26
1.4	2 (1.2 m)	Shallow water ponding within the vegetation on both sides of the road. No flow through culverts. Silt fencing in place on east side of the road.	27 through 29
1.45	2 (1.2 m)	Water course visible just past the ends of the culverts on both the east and west side of the road. Water was below the inverts of the culverts. No flow through culverts. Some larger rocks within the road fills above the culverts that could cause damage, so should be removed.	30 through 32
1.5	1 (1.0 m)	Water course visible just past the ends of the culverts on both the east and west side of the road. Water was below the inverts of the culvert. No flow through culvert.	33 and 34

AWAR = all-weather access road.

10.3 Recommendations

The following are recommendations for the Itivia fuel storage area and by-pass road:

- The locations of the culverts through the Itivia by-pass road do not appear to match well with the design drawings (Tetra Tech 2017a). The discrepancy in the locations of the culverts may be due to modifications to the locations during construction based on site observations and conditions. The culvert locations should be referenced to the as-built report and drawings during the 2018 annual geotechnical inspection.
- When the Itivia by-pass road inspection is completed in 2018, the area approximately 1.2 km from the intersection with the AWAR should be checked to see if there is still ponding.
- There were some larger rocks within the road fills above the culverts located at 1.3 km and 1.45 km from the intersection with the AWAR that could cause damage, so should be removed. Once the road construction is complete, all culverts should be checked and large rocks removed as necessary.
- Once construction is complete, develop and implement a visual geotechnical monitoring program for the slopes and berms at the Itivia site.
- Once the road is in use, develop and implement a road and culvert monitoring program for the Itivia by-pass road, as is done for the AWAR, which is tied to a maintenance program.

11.0 SUMMARY AND RECOMMENDATIONS

The results of the 2017 annual geotechnical inspection carried out at the Project site, along the AWAR, and at the Itivia site, indicate that the infrastructure was generally in good condition and performing as designed.

The following presents a summary of the findings and recommendations from the 2017 geotechnical inspection for the infrastructure in each of the areas inspected:

Main Site:

- It is recommended that AEM develop an OMS manual for the water management structures on site that includes such information as responsible personnel, monitoring frequencies for visual inspections and instrumentation monitoring, and pond/channel storage design criteria. AEM has indicated that preparation of an OMS manual has started.
- An Emergency Response Plan should be developed to address the consequences of failure of any of the water management structures. Once prepared, it is a good practice to review these documents on an annual basis, along with the overall site Emergency Response Plan, and update them as necessary (e.g., the names and contact numbers for key personnel).
- Geotechnical inspections should be carried out and documented for all facilities following the schedule developed in the OMS manual. In addition, instrumentation should be monitored, and the data should be plotted and reviewed, following the schedule developed in the OMS manual.
- Cracks and areas of minor settlement in the containment pond dikes should be monitored and filled and/or recontoured to close the cracks and reduce the potential for infiltration.
- Where access is feasible, removal of snow from the water collection pond dikes (temporary and permanent) is recommended to reduce the insulating effects of the snow, thereby allowing the temperature of the core material in the dikes and the foundations to drop as low as possible. Snow removal is more important if thermistor data is indicating that the dike and/or foundation temperatures are warmer than expected.
- Water volumes within containment ponds should be managed (pumping down), to maximize capacity for the freshet.
- Make sure thermistors in the water management dikes are well marked so they can be located and maintained during the winter, and are not damaged during snow removal operations. Consider adding data loggers to record the temperatures.
- Consider adding rockfill material to cover the till berm in P1, to protect the till and maintain its integrity if this berm is required for water management.
- Monitor the cracking observed in the D-CP1 downstream sump berms and adjacent to the downstream collection channel. Recontouring and/or compacting the areas of cracking to close the cracks will reduce the potential for water to infiltrate into the cracks leading to warming of the permafrost and additional thaw settlement and cracking.
- The D-CP1 sump and downstream collection channel should be emptied in the fall/early winter to refreeze the ground around these facilities. During the open water season, keeping the water level in the downstream channel and sump low will reduce the potential for thaw of the ground around and associated settlement.

- Vertical ground temperature cable VGTC-4 in D-CP1 should be monitored closely as it was showing readings above 0°C up until the end of 2017. Horizontal ground temperature cable HGTC-1 in D-CP1 should also be monitored closely as it was indicating temperatures around -2°C for the base of the key trench, which is warmer than other sections of the trench.
- The ground temperatures below the water management dikes should be monitored to determine if the foundation remains frozen. Fluctuation of the temperature within the active layer in the dike are expected; however, the foundation is designed to be maintained frozen.
- The pump back line for D-CP5 should be permanently extended to ensure that pump back water is discharged upstream of the dam toe and does not flow into the rockfill shell.
- Soil stabilization should be conducted to reduce erosion potential where esker sand has been used for construction of infrastructure.
- If ponding of water is observed in areas, grading should be conducted to reduce ponding, and if ponding occurs adjacent to roads, consideration should be given to installing culverts.
- Consider using a minimum set-back distance from slope crests for sea-containers or other structures placed on pads.
- The Wesmeg Borrow Area should be recontoured and either capped with a coarser material or revegetated to reduce erosion.
- Monitor the cracking adjacent to Channel 5. Recontouring and/or compacting the areas of cracking to close the cracks will reduce the potential for water to infiltrate into the cracks leading to warming of the permafrost and additional thaw settlement and cracking.
- Ponding upstream of Berm 3 should be monitored to determine how much and how often ponding occurs and if Berm 3 can perform as required with the ponding.
- The Berm 3 cover materials may be susceptible to erosion. This should be monitored, and if there is erosion, consideration should be given to placing coarser material on Berm 3 to reduce the potential for erosion.
- Fill in openings in the berm around the perimeter of Portal No. 2 and pull back loose materials on the benches around the excavation to reduce the potential for material to roll into the excavation.
- Snow management around and above Portal No. 1 and 2 may be advisable, especially prior to freshet, to reduce the potential for larger surface water inflows entering the underground.
- If the exploration landfill is kept in operation, it is recommended that its berms be compacted to fill in the cracks to reduce further slumping and erosion. A coarser rockfill should also be placed on the berm slopes and crests to reduce erosion.

- Remediate the disturbance adjacent to the new emulsion plant road through backfill, grading, placement of coarse material or revegetation to reduce the potential for ponding adjacent to the road and erosion.
- Roadway embankment slope angles and material types should be selected such that they do not negatively affect wildlife movement. Embankment materials should be compacted to reduce the potential of the material being eroded, and if necessary a coarser, well graded, material could be placed and compacted to further reduce erosion potential.
- When culverts are installed, ensure bedding material surrounding culverts is of a suitable gradation (e.g., sandy) and compacted. Larger sized particles (e.g., cobbles) should not be placed in direct contact with the culverts within the road fills; however, the slopes of the road around the outlets of the culverts should be armoured to reduce erosion.
- If the CSP for the pipeline crossing under the road to the Tiriganiaq Esker will stay in place, the CSP should be replaced and additional road fill cover should be placed.
- Implement a road and culvert monitoring program for site roads, as is done for the AWAR, which is tied to a maintenance program.

Exploration Camp Site:

- Repair surface erosion along south slope of exploration camp pad. Grade surface to reduce channelization of surface water flows and therefore reduce the potential for the erosion to reoccur. In this area, a coarser surfacing layer could be placed on top to help reduce the potential for future erosion.
- AEM should try to minimize the amount of water contained within the exploration landfarm until it is decommissioned and remediated.
- The diffuser access road could be regraded to close up the cracks and reduce the potential for future cracking.
- Armouring could be added around the 600 mm CSP through the exploration camp access road to reduce erosion.
- The downstream end of the 600 mm corrugated HDPE culvert through the exploration camp access road should be cleared of material. The large boulders around the downstream end of the culvert should also be removed to prevent damage to the culvert.
- If water continues to pond adjacent to the exploration camp access road near the intersection with the main road, consideration should be given to installing a culvert.
- The cracks in fuel storage pad should be monitored; however, they are not considered to be a geotechnical concern.

All-weather Access Road:

- Continue to monitor culverts and hydraulic effectiveness to assess if current culverts provide adequate capacity and if any changes are required. Evaluate if any culverts need to be installed at a lower elevation to reduce ponding, and downstream erosion.
- Monitor areas that have ponding, but no culverts and consider installing culverts to manage water.
- The kilometre markings on the AWAR culverts should be checked and replaced with accurate numbers.
- Continue regular road inspections and documentation, snow removal, and maintenance for AWAR.

Specific recommendations for the AWAR culverts and bridges are summarized in Table 8.

Itivia Site and By-pass Road:

- The locations of the culverts through the Itivia by-pass road do not appear to match well with the design drawings (Tetra Tech 2017a). The culvert locations should be referenced to the as-built report and drawings during the 2018 annual geotechnical inspection.
- When the Itivia by-pass road inspection is completed in 2018, the area approximately 1.2 km from the intersection with the AWAR should be checked to see if there is still ponding.
- There were some larger rocks within the Itivia by-pass road fills around the culverts inspected in 2017 that should be removed. Once the road construction is complete, all culverts should be checked and large rocks removed as necessary.
- Once construction is complete, develop and implement a visual geotechnical monitoring program for the slopes and berms at the Itivia site.
- Once the road is in use, develop and implement a road and culvert monitoring program for the Itivia by-pass road, as is done for the AWAR, which is tied to a maintenance program.

Table 8: Recommendations for All-Weather Access Road

Station (distance from Friendship Centre in Rankin Inlet)	Water Management Structure Description	Recommendations
KM 6.0	Char River Bridge	Potential for erosion of sand and gravel on left abutment downstream. Monitor to determine if armouring should be added.
KM 7.0	3 CSP culverts: 2×1000 mm 1×700 mm	Potential for erosion of sandy soil around culverts. Monitor to determine if armouring should be added.
KM 7.4	3 CSP culverts: 1×900 mm 1×700 mm 1×1000 mm	Erosion potential due to sandy soils around 700 mm culvert and the inlet was not well armoured. Consider extending and adding armouring.
KM 8.0	Meliadine River Bridge	Right abutment, downstream slope has exposed esker sand and gravel. Monitor to determine if armouring should be added.
KM 10.5	M-5 Bridge	Potential small erosion/settlement of rock embankment on the bridge's right abutment identified during 2016 inspection shows no signs of change. Continue to monitor. Exposed geotextile exposed at base of downstream end of left abutment that could be due to erosion, so should be monitored.
KM 12.6	no culverts	Area of poor drainage. Flow along road edge, suspect seepage under the road. Some erosion along toe of road. Monitor and consider installing a culvert to manage water and/or rockfill to protect road for further erosion.
KM 16.3	3 CSP culverts: 1×1,300 mm 1×700 mm 1×1,000 mm	Outlets are all elevated increasing erosion potential. Monitor to assess if hydraulic capacity is adequate and if erosion is an issue. Consider installing culverts at lower elevations to improve water management.
KM 18.1	2 CSP culverts: 1×900 mm, 1×1,000 mm	Consider adding cover over upper culvert on upstream side. Upper culvert outlet is high, therefore water has to pond close to road surface for culvert to pass flows. Elevation of culvert leads to potential for erosion during high flow periods. Assess if hydraulic capacity is adequate.
KM 18.15	1×600 mm CSP culvert.	Invert and outlet are both elevated, increasing erosion potential. Some erosion of road slope and toe visible. Assess if hydraulic capacity is adequate. If water management challenges observed, consider installing an additional culvert at this location, at a lower elevation.
KM 21.7	2×160 mm steel pipes, used as culverts	High water level evident near road surface. AEM inspection reports note water ponding at or over road in this area. Consider marking pipe location and cleaning out, prior to freshet. Monitor for signs of erosion and adequacy of hydraulic capacity. Add additional culvert in this area if required.
KM 22.7	No culverts	Water ponded on the east side of the road, signs of wet ground observed on west side of road indicating possible seepage under the road. Consider installing a culvert.
KM 25.8	1×600 mm HDPE corrugated culvert	Sandy soil around inlet and outlet and some sediment erosion and deposition evident on downstream side of culvert. Consider adding armouring. Some erosion of slope of road visible in this area. AEM inspection reports noted ponding of water at or over the road in this area during the freshet. Consider adding additional culverts if water management continues to be an issue during freshet. Also consider adding armour around culvert and on road slopes.
KM 26.2	2×160 mm steel pipes, used as culverts	Lower pipe bent upwards and should be replaced. Some sediment deposition downstream is evident. Water ponded along road below upstream inverts of pipes. AEM inspection reports noted ponding of water at or over the road in this area during the freshet. Consider adding additional culverts if water management continues to be an issue during freshet.
KM 28.7	Seepage	Ponded water on east side of road. AEM notes that water ponds against road for most of open water season and road surface often is moist, indicating signs of seepage through road. Consider installation of a culvert.
KM 29.6	1×500 mm HDPE corrugated culvert	Clear, no flow, some small dents, small erosion evident upstream, water ponded on downstream. Monitor and consider lowering the culvert or adding a culvert at a lower elevation.

1×__ mm = the number of culverts × the diameter of the culvert.

CSP = corrugated steel pipe.