MEADOWBANK GOLD PROJECT

2009 Annual Report

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

SECTION 1 • INTRODUCTION

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

In 2009 the Meadowbank mine was in the predevelopment and construction phase of the project. Overburden was removed from the North and South Portage pit areas and the benches were prepared for mining. Construction of a number of dewatering dikes was undertaken: Stormwater Dike (phase 1) East Dike, Western Channel Dike, Saddle dam #1, South Camp Dike, and Bay-Goose Dike (phase 1) were completed. In addition, a number of facilities were under construction, including the process plant, power plant, emulsion plant and water treatment plant.

These various components and activities associated with the project require a number of different authorizations from regulatory agencies including the Nunavut Impact Review Board (NIRB), the Nunavut Water Board (NWB), the Department of Fisheries and Oceans Canada (DFO), Indian and Northern Affairs Canada (INAC) and the Kivalliq Inuit Association (KIA).

This report is written to address all of the 2009 annual reporting requirements of the project under these authorizations:

- NIRB Project Certificate No.004;
- NWB Type A Water License 2AM-MEA0815;
- DFO HADD Authorization NU-08-0013 Western Channel Temporary Crossing;
- DFO HADD Authorization NU-03-190 AWPAR;
- DFO HADD Authorization NU-03-191 Mine Site;
- INAC Land Leases 66A/8-71-2 (AWPAR) and 66A/8-72-2 (AWPAR Quarries); and
- KIA Right of Way KVRW06F04.

Table 1.1 outlines each requirement by authorization and report section.

Table 1.2 presents the status of each of the sampling stations stipulated in Part I, Schedule 1 of Water License 2AM-MEA0815.

Table 1.1: List of Reporting Requirements

Authorization Reference	Reporting Requirement	Report Section
NIRB Project Certificate No.004 Condition 4	Take prompt and appropriate action to remedy any noncompliance with environmental laws and regulations and/or regulatory instruments, and shall report any non compliance as required by law immediately and report the same to NIRB annually.	10.3
NIRB Project Certificate No.004 Condition 19	Report to NIRB's Monitoring Officer for the annual reporting of freezeback effectiveness.	4.3.2
NIRB Project Certificate No.004 Condition 32e	Require all mine personnel using the road to monitor and report unauthorized non-mine use of the road, and collect and report this data to NIRB one (1) year after the road is opened and annually thereafter;	10.4.1
NIRB Project Certificate No.004 Condition 32f	Report any information received, including accidents or other safety incidents on the road, including the locked gates, to the GN, KIA, and the Hamlet immediately, and to NIRB annually.	10.4.2
NIRB Project Certificate No.004 Condition 36	Inuit observation and encounter reports for on-board vessels transporting goods and fuel through Chesterfield Inlet	10.5
NIRB Project Certificate No.004 Condition 40	Report to KIA and NIRB's Monitoring Officer annually on the Traditional Knowledge gathered including any operational changes that resulted from concerns shared at the workshop.	10.7
NIRB Project Certificate No.004 Commitment 49	Results of the fish out program	7.2
NIRB Project Certificate No.004 Condition 51	Engage the HTOs in the development, implementation and reporting of creel surveys within waterbodies affected by the Project to the GN, DFO and local HTO	7.3.3
NIRB Project Certificate No.004 Condition 54	Harvest study results	7.3.2
NIRB Project Certificate No.004 Condition 55	Annual Wildlife Summary Monitoring Report	7.3
NIRB Project Certificate No.004 Condition 56	Information on caribou migration corridors shall be reported to the GN, KIA and NIRB's Monitoring Officer annually.	7.3.4
NIRB Project Certificate No.004 Condition 57	Participate in a caribou collaring program as directed by the GN-DOE.	7.3.5
NIRB Project Certificate No.004	Report annually noise monitoring data	7.5
NIRB Project Certificate No.004 Condition 71	In consultation with EC, install and fund an atmospheric monitoring station to focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported annually to NIRB.	7.4

Authorization Reference	Reporting Requirement	Report Section
NIRB Project Certificate No.004 Condition 72	Conduct annual stack testing to demonstrate that the on-site incinerators are operating in compliance with these standards. The results of stack testing shall be contained in an annual monitoring report submitted to GN, EC and NIRB's Monitoring Officer.	5.2.1
NIRB Project Certificate No.004 Condition 74	Provide annual report of the quantity and type of waste generated at the mine site distinguishing landfilled, recycled and incinerated streams.	5.2
NIRB Project Certificate No.004 Commitment 77	Install and operate two particulate samplers at the project site and report annually monitoring results conforming to detailed reporting protocol.	7.4
NIRB Project Certificate No.004 Condition 80	File annually with NIRB's Monitoring Officer an updated report on progressive reclamation and the amount of security posted, as required by KivIA, INAC, and/or the NWB.	8.2.1
NIRB Project Certificate No.004 Condition 82	Monitor the ingress/egress of ship cargo at Baker Lake and report any accidents or spills immediately to the regulatory agencies as required by law and to NIRB's Monitoring Officer annually.	6.2
NIRB Project Certificate No.004 Commitment 85	AEMP monitoring - monitor blasting peak particle velocity and overpressure in receiving environment; must use specific charge weight/delay/set back to meet DFO requirements.	7.1.12
NWB 2AM-MEA0815 Schedule B-1	Construction Details for dikes and dams.	2.1.1
NWB 2AM-MEA0815 Schedule B-2	Results of lake level monitoring conducted under the protocol developed as per Part D Item 11.	3.1
NWB 2AM-MEA0815 Schedule B-3	Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 6 and 7.	3.2
NWB 2AM-MEA0815 Schedule B-4	The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility.	3.3
NWB 2AM-MEA0815 Schedule B-5	Geochemical monitoring results.	4.1
NWB 2AM-MEA0815 Schedule B-6	Volumes of waste rock used in construction and placed in the Rock Storage Facilities.	4.2
NWB 2AM-MEA0815 Schedule B-7	An update on the remaining capacity of the Tailings Storage Facility.	4.3.1
NWB 2AM-MEA0815 Schedule B-8	Summary of quantities and analysis of seepage and runoff monitoring from the landfills.	5.1
NWB 2AM-MEA0815 Schedule B-9	A summary report of solid waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal.	5.2
NWB 2AM-MEA0815 Schedule B-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.	5.2.1

Authorization Reference	Reporting Requirement	Report Section
NWB 2AM-MEA0815 Schedule B-11	A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.	6
NWB 2AM-MEA0815 Schedule B-12	A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.	10.1
NWB 2AM-MEA0815 Schedule B-13	The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.	7 Table 1.2
NWB 2AM-MEA0815 Schedule B-14	The results of monitoring under the AEMP.	7.1.11
NWB 2AM-MEA0815 Schedule B-15	Results of monitoring pursuant to the Fault Testing and Monitoring Plan (August 2007).	4.3.3
NWB 2AM-MEA0815 Schedule B-16	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.	8.1.1
NWB 2AM-MEA0815 Schedule B-17	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.	8.3
NWB 2AM-MEA0815 Schedule B-18	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.	8.2.1
NWB 2AM-MEA0815 Schedule B-19	A summary of any studies requested by the Board that relate to Waste disposal, Water use or Reclamation, and a brief description of any future studies planned.	9.1
NWB 2AM-MEA0815 Schedule B-20	Where applicable, revisions as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.	9.2
NWB 2AM-MEA0815 Schedule B-21	An executive summary in English, Inuktitut and French of all plans, reports, or studies conducted under this Licence.	9.3
NWB 2AM-MEA0815 Schedule B-22	A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.	10.2
NWB 2AM-MEA0815 Schedule B-23	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.	10.6
NWB 2AM-MEA0815 Schedule B-24	Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.	3.5 / 5.3
NWB 2AM-MEA0815 Part E Item 8	The Licensee shall, on an annual basis during Operations, compare the predicted water quantity and quality within the pits, to the measured water quantity and quality.	3.4

Authorization Reference	Reporting Requirement	Report Section
NWB 2AM-MEA0815 Part I Item 14	The Licensee shall submit to the Board as part of the Annual Report required under Part B Item 5, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.	2.1.2
NWB 2AM-MEA0815 Part I Item 16	The Licensee shall submit the results and interpretation of the Seepage Monitoring program.	7.1.9
DFO HADD NU-08-0013 Western Channel Condition 6	Submit written report and photographic record summarizing monitoring results - physical monitoring of Western Channel Crossing.	7.1.8
DFO HADD NU-03-0190 AWPAR Condition 5.2.4	Creel survey results.	7.3.3
DFO HADD NU-03-0190 AWPAR Condition 5.3 / 6	Submit written report summarizing 2008 monitoring results and photographic record of works and undertakings.	7.1.7
DFO HADD NU-03-0191 Mine Site Condition 6.1	Submit Written Report and Photographic Record summarizing monitoring program results.	7.1.11
INAC Land Lease 66A/8-71-2 Condition 19	The lessee shall submit to the Minister every two years after the commencement date of this lease, a report describing any variations from the Abandonment and Restoration Plan and updated cost estimates.	8.2.2
INAC Land Lease 66A/8-71-2 Condition 33	The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with the approved Abandonment and Restoration Plan, as well as any variations from the said Plan.	8.1.2
INAC Land Lease 66A/8-72-2 Condition 8	The lessee shall file a report, annually ... i. Quantity of material removed and location of removal, for the immediately preceding calendar year ii. Such other data as are reasonably required by the Minister from time to time.	2.2
INAC Land Lease 66A/8-72-2 Condition 25	The lessee shall file, annually, a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.	2.2
INAC Land Lease 66A/8-72-2 Condition 33	The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with C&R Plan, as well as any variations from the said Plan.	8.1.3
INAC Land Lease 66A/8-72-2 Condition 37	The lessee shall submit to the Minister every 2 years after the commencement date of this lease, a report describing cumulative variations from the C&R Plan with updated cost estimates.	8.2.2
KIA ROW KVRW06F04 Condition 14	Submit to KIA every two years on each anniversary of the commencement date, a report describing any variations from the Abandonment and Restoration Plan and updated cost estimates.	8.2.2
KIA ROW KVRW06F04 Condition 26	File annually a progress report for the preceding year, outlining any ongoing restoration completed, in conformity with the Abandonment and Restoration plan.	8.1.2
KIA ROW KVRW06F04 Schedule E - Condition 8	The lessee shall file annually a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.	2.2

Table 1.2:Summary of Sample Stations

NWB Station	Description	Phase	2009 Reporting Status
ST-DC-1 to TBD	Monitoring stations during Dike Construction as defined in Part D Item 11	Construction	Sections 2.1.3 and Appendix A4-3
ST-DD-1 to TBD	Monitoring stations during Dike Dewatering as defined in Part D Item 11	Construction	Section 7.1.2
ST-1	Water Intake for camp and mill	Construction, early operation, late operation, closure	Section 7.1.14
ST-2	Reclaim Water Intake	Construction, early operation, late operation, closure	Not Applicable - not yet in operation in 2009
ST-3	Water Intake for Emulsion Plant	Construction, early operation, late operation, closure	Not Applicable - not yet in operation in 2009
ST-4	Water reclaimed from Tailings Storage Facility	Early operation, late operation, closure	Not Applicable - mine site in construction phase in 2009
ST-5	Portage Area (east) diversion ditch	Early operation, late operation, closure	Not Applicable - mine site in construction phase in 2009
ST-6	Portage Area (west) diversion ditch	Early operation, late operation, closure	Not Applicable - mine site in construction phase in 2009
ST-7	Vault Area diversion ditch	Early operation, late operation, closure	Not Applicable - mine site in construction phase in 2009
ST-9	Portage Attenuation Pond prior to discharge through Third Portage Lake Outfall Diffuser	Early operation	Not Applicable - mine site in construction phase in 2009
ST-10	Vault Attenuation Pond prior to discharge through Wally Lake Outfall Diffuser	Late operation	Not Applicable - mine site in construction phase in 2009
ST-11	Tailings Storage Facility	Post closure	Not Applicable - mine site in construction phase in 2009

ST-12	Portage/ Goose Pit Lake	Post closure	Not Applicable - mine site in construction phase in 2009
ST-13	Vault Pit Lake	Post closure	Not Applicable - mine site in construction phase in 2009
ST-14 (TEH-11)	Discharge to the land from Landfarm sump at mine site	Pre-development, Construction, early operation, late operation, closure	Not Applicable - not yet constructed in 2009
ST-15	Vault non-contact diversion ditch	Early operation, late operation, closure	Not Applicable - mine site in construction phase in 2009
ST-16	Portage Rock Storage Facility	Early operation, late operation, closure	Not Applicable - mine site in construction phase in 2009
ST-17**	North Portage Pit Sump	Early operation	Not Applicable - mine site in construction phase in 2009
	Portage Pit Lake	Late operation, closure	Not Applicable - mine site in construction phase in 2009
ST-18	Portage Attenuation Pond	Early operation	Not Applicable - mine site in construction phase in 2009
ST-19**	Third Portage Pit Sump	Early operations	Not Applicable - mine site in construction phase in 2009
	Third Portage Pit Lake	Late operations	Not Applicable - mine site in construction phase in 2009
ST-20	Goose Island Pit Sump	Early operations	Not Applicable - mine site in construction phase in 2009
	Goose Island Pit Lake	Late operations, closure	Not Applicable - mine site in construction phase in 2009
ST-21	Tailings Reclaim Pond	Early operation (south of central dike), late operation (north of central dike)	Not Applicable - mine site in construction phase in 2009
ST-22	Tailings Storage Facility	Late operation, closure	Not Applicable - mine site in construction phase in 2009
ST-23	Vault Pit Sump	Late operations	Not Applicable - mine site in construction phase in 2009
ST-24***	Vault Rock Storage Facility	Late operation	Not Applicable - mine site in construction phase in 2009

		Closure (east ditch) ST-24-A	Not Applicable - mine site in construction phase in 2009
		Closure (west ditch) ST-24-B	Not Applicable - mine site in construction phase in 2009
ST-25	Vault Attenuation Pond	Late operation	Not Applicable - mine site in construction phase in 2009
ST-26	Vault Pit Lake	Closure	Not Applicable - mine site in construction phase in 2009
ST-S-1 to TBD	Seeps (to be determined)	Construction, Early operations, late operations, closure	Section 7.1.9
ST-GW-1 to TBD	Groundwater wells (to be determined)	Construction, Early operations, late operations, closure	Section 7.1.10 and Appendix F4
ST-AEMP-1 to TBD	Receiving AEMP	Construction, Early operations, late operations, closure	Section 7.1.11 and Appendix F2
ST-MMER-1 to TBD	Vault and Portage effluent outfall	Early and late operations	Not Applicable - mine site in construction phase in 2009
ST-27 and ST-28 (TEH-1 & TEH-2)	Water Intake for camp and concrete batch plant purposes	Pre-development, Construction	See ST-1 above
ST-29 and ST-30 (TEH-3 & TEH-4)	Water, if any, accumulated in north and south pre-development zones	Pre-development	Section 7.1.3
ST-31 and ST-32 (TEH-5 & TEH-6)	Water pumped from north and south pre-development zones to Contact Water Collection System	Pre-development	Section 7.1.3
ST-33 and ST-34 (TEH-7 & TEH-8)	Contact Water Collection System Lakes #1 and #2	Pre-development, Construction	Section 7.1.3

ST-35 (TEH-9)	Discharge from Lake #1 of Contact Water Collection System (Stormwater Management Pond) to Second Portage Lake	Pre-development, Construction	Section 7.1.3
ST-36 (TEH-10)	Discharge from Lake #2 of Contact Water Collection System to Second Portage Lake	Pre-development, Construction	Section 7.1.3
ST-37 (MEA-1)	Water sample location at Baker Lake in close proximity to the construction facilities	Pre-development, construction, early operation, late operation, closure	Sections 7.1.6 and 7.1.11 and Appendix F2
ST-38 (MEA-2)	East Contact Water Pond located in the south-east corner of the lay-down area	Pre-development, construction, early operation, late operation, closure	Not Applicable - not yet constructed in 2009
ST-39 (MEA-3)	West Contact Collection Pond located in the south-west corner of the lay-down area	Pre-development, construction, early operation, late operation, closure	Not Applicable - not yet constructed in 2009
ST-40 (MEA-4)	Secondary containment sump at the Bulk Fuel Storage Facility	Pre-development, construction, early operation, late operation, closure	Section 7.1.6
ST-41 (MEA-5)	Water sample location at the ammonium nitrate storage area	Pre-development, construction, early operation, late operation, closure	Not Applicable - not yet constructed in 2009
ST-42 (MEA-6)	Water sample location at the explosive storage area	Pre-development, construction, early operation, late operation, closure	Not Applicable - not yet constructed in 2009

SECTION 2 • CONSTRUCTION / EARTHWORKS

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

2.1 DIKES AND DAMS

2.1.1 Performance Evaluation

As required by water license 2AM-MEA0815, Schedule B, Item 1:

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

The surveillance program includes several types of inspection:

- Daily Routine Inspection – carried out daily by designated qualified engineer; and
- Engineering Inspection – carried out annually by a qualified engineer (consultant), during open water if possible, to verify that the facilities are functioning as intended.

Table 2.1 describes the routine geotechnical monitoring program.

b. A comparison of measured versus predicted performance;

Because not enough data are available, no comparison was done.

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

East Dike construction commenced in the summer of 2008. The East Dike is located on the east side of the Portage Pit and in conjunction with the Western Channel Dike isolates the northwest arm of Second Portage Lake to allow dewatering and development of the Portage Pit and Tailings Storage Facility. The East Dike also serves as a haulage road to connect the North Portage Pit, ore stockpiles and a crushing facility within the plant site. The East Dike is approximately 800 m in length and was constructed within Second Portage Lake, without any dewatering. It consists of a wide rockfill shell, with downstream filters and a soil-bentonite cutoff wall which was excavated to bedrock. The East Dike was constructed in water up to 5.7 m deep. The cutoff wall is up to 8 m below lake level. Grouting of the foundation and bedrock below the dike occurred in 2008 and during the first quarter of 2009.

Instrumentation has been installed and monitored within the East Dike. Dewatering of the northwest arm of Second Portage Lake commenced in March 2009. It is understood that during dewatering, water levels on the downstream side of the East Dike steadily decreased initially. Between May 17 and 19, 2009, the outlet of Second Portage Lake to Tehek Lake, which had been frozen, released suddenly resulting in a rapid decrease of the upstream

water level at the East Dike of approximately 0.7 meters. A response in the piezometers was also observed at this time. Dewatering was temporarily suspended and then re-initiated. Between May 19 and May 21, a relatively slow decrease in the downstream lake level was recorded, and responses were observed in piezometer and thermistor string data (in particular near Sta. 60+490), which lead to the belief that a potential leak through the East Dike could have developed. Flow meters were not installed in the dewatering pumps and therefore the rate of dewatering could not be used to verify the magnitude of the potential leak. In response to the concern over a potential leak and given the lack of available information regarding its location, extent and magnitude, AEM assumed and planned for the worst case scenario. Based on the estimated pumping rates and observed decrease in dewatering level, the leak rate was estimated to be as high as 0.5 m^3/s. A contingency grouting program was developed and implemented. Contingency grouting activities in the area of concern occurred between May 25 and June 1, 2009. By June 1, dewatering rates on the downstream side of East Dike were re-established and piezometer and thermistor readings normalized.

On July 21, 2009 a sinkhole on the upstream side of the cutoff wall, at approximately Sta. 60+472 was observed by AEM staff. Coincidentally, representatives of Golder Associates (Golder) and the Meadowbank Dike Review Board (MDRB) members were on site. The sinkhole was inspected by representatives of Golder, AEM, and the MDRB. Seepage on the downstream side of the dike, in the vicinity of the sinkhole area, had been observed several days prior. In response to the appearance of the sinkhole, a plan was developed and implemented by Golder and AEM that included:

- Monitoring the surface expression of the sinkhole between July 21 and 31, 2009;
- Construction of a weir and then monitoring seepage rates between July 24 and September 6, 2009 when the weir became submerged as a result of the rising water level on the downstream side of the East Dike;
- Visual inspection of the clarity of the seepage water;
- Conducting tracer tests;
- Excavation of the sinkhole area to further inspect the extent and nature of the sinkhole;
- Planning and implementation of a cone penetration testing (CPT) program to investigate the integrity of the cutoff wall in the vicinity of the sinkhole;
- Planning and procurement of supplies and equipment for additional emergency grouting;
- Installation of additional piezometers;
- Planning and implementation of a further geotechnical investigation program in the vicinity of the sinkhole; and

- Planning and implementation of a surficial geophysical investigation program using ground penetrating radar.

When the sinkhole area was excavated, a cavity of about 18 m^3 (1 m high) under the frozen cap of the dike was discovered. The cavity extended about 0.5 m into the cutoff wall. Movement of materials had occurred in the sinkhole area and rapid localized settlement had resulted. It is anticipated that the observed movements on the surface are related to thawing phenomenon that induces progressive in-filling of the existing void under the frozen cap. When the cover material became either unfrozen or too thin to support (bridge) the void, the collapse occurred and the sinkhole appeared. Seepage monitoring at the weir indicated a stable flow between 8 and 15 L/s with no turbidity.

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

The grouting program developed following the potential leak between May 19 - 21, 2009 is found in the report '*Meadowbank East Dike Grouting Response Plan – Completed Works, July 14, 2009'*. Mitigative works on the sinkhole can be found in the report '*Observation and Comments Following Work Carried Out on East Dike August 1, 2009 – Meadowbank Gold Project'*. Both documents are available in Appendix A1.

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

Changes in the design of the East Dike can be found in the '*East Dike Construction As-built Report, Report No. 07-1413-0074; 09-1428-5007 Doc. 900 Ver. 0 Rev. 1'*, Section 5 and 6, December 15, 2009, available in Appendix A1. A major design change was required to address the method of contact grouting between the soil-bentonite wall and the grouted bedrock foundation.

Minor design modifications were required for the following:

- To address alignment modification in response to field conditions;
- To arrange for Golder QA staff to undertake some of the required QC testing;
- To remove the requirement for placement of excavated rockfill at the upstream dike toe;
- In response to the required construction schedule, the full range of methods specified to confirm that the excavation for the soil-bentonite cut-off wall founded on bedrock; and

- Grouting concurrently at 3 m primary and secondary spacing with tertiary grouting following at 1.5 m spacing over the specified split spacing sequencing of all primary holes completed ahead of higher order holes.

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

Instrumentation within the East Dike was installed in the spring of 2009 to monitor the dike's performance following construction and during dewatering, operation, and into closure. Data has been collected and reviewed regularly by AEM since the installation. Data has also been provided on a regular basis to Golder for review. Section 2.3 of the '*2009 Annual Geotechnical Inspection Report'* included in Appendix A2 summarizes the data analyses.

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

Refer to item d in this section.

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

The current estimate for the total seepage rate at the East Dike plus the Western Channel Dike is approximately 20 liters per second. This represents an estimated total of 50,000 m^3 per month or 600,000 m^3 per year. Seepage collection will be in place once the dewatering of the Second Portage Arm is complete.

2.1.2 Independent Geotechnical Expert Review Panel Reporting

As required by water license 2AM-MEA0815 Part I, Item 14: ***The Licensee shall submit to the Board as part of the Annual Report required under Part B Item 5, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.***

Three reports were prepared by the Independent Geotechnical Review Board in 2009 and are included as Appendix A3.

2.1.3 East Dike and Bay-Goose Dike Phase 1 Construction Evaluation

East Dike

AEM constructed two dikes in 2008, the East Dike and the Western Channel Dike. Due to the elevated total suspended solids (TSS) in Second Portage Lake related to East Dike construction, an effects assessment study (EAS) was conducted to determine the ecological significance of the situation. The study, entitled '*Aquatic Effects Monitoring Program –*

Targeted Study: Second Portage Lake TSS Effects Assessment Study Meadowbank Gold Project (June 2009)' is included as Appendix A4-1. From an ecological perspective, the EAS results point to settled sediment, rather than suspended sediment, as the primary outstanding concern. Apart from the depression of phytoplankton productivity, which showed substantial recovery between sampling events, there were no ecologically-significant effects observed related to TSS in the water column. Settled or settling sediment, however, was identified as a potential concern for benthic invertebrates (a possible, but inconclusive, reduction in abundance in Second Portage Lake (SP); no effects to diversity in SP or to either abundance or diversity in Tehek Lake (TE) and fish (possible smothering of eggs in spawning areas based on toxicity test results). EAS work in 2009 (and 2010 for benthos) targeted reducing uncertainty as to whether settled sediment remains an ecological concern in Second Portage Lake. Details are available in the '*Aquatic Effects Monitoring Program – Targeted Study: Dike Construction TSS Effects Assessment Study 2009 Meadowbank Gold Project (March 2010)'* in Appendix A4-2. This report also discusses the initial monitoring for the Bay-Goose Dike EAS.

Bay-Goose Dike Phase 1

Construction of the Bay-Goose Dike began on July 27, 2009. Turbidity barriers functioned quite well during the first several weeks of monitoring. TSS concentrations were slightly elevated during the first two weeks of monitoring at select stations, but then dissipated into the water column on August 11 due to wind-driven vertical mixing (resulting in lower overall TSS concentrations throughout the water column). Neither the 24-hr average (Short Term Mean (STM); 50 mg/L) nor the 30-day average (Maximum Monthly Mean (MMM); 15 mg/L) trigger values for TSS concentrations were exceeded at any station. A more intensive TSS plume began to form in deeper basins (>16 m) east of the work area (e.g., BGE-3) between August 13 and 17, but was again dissipated throughout the water column by a southeast wind event on August 18. Both the STM and MMM were exceeded at one or more stations during this period. Relatively calm conditions over the next two weeks favoured the reformation of the east TSS plume in deep areas (>16 m), presumably due to the continued introduction of new material from between or under turbidity barrier panels (e.g., near BGE-2) and the lack of wind-driven mixing. TSS concentrations also started to rise on the west side of the work zone, particularly in the deep area at BGW-2. Focused plume tracking showed that the east TSS laden plume was largely contained within the bathymetric depression between BGE-2 through BGE-5 at depths >16 m. Both the STM and MMM were exceeded at these depths at several stations during this period.

A severe wind storm (i.e., > 100 km/hr gusts) lasting from August 31 through September 2 vertically mobilized and mixed the high TSS water in the deep depressions into the water column resulting in uniformly elevated TSS throughout the east basin of Third Portage Lake. The silt curtains were also heavily damaged and allowed high concentrations of TSS laden water to escape, exacerbating the condition. The water column stayed fairly well mixed for the remainder of the monitoring period, with TSS concentrations gradually diminishing over

time. Despite repairing the turbidity barriers, TSS gradients did not reform across the barriers, likely due to much lower sediment inputs from dike construction activities in September. TSS triggers for high-value habitat areas changed as of September 1 (STM to 25 mg/L; MMM to 6 mg/L); TSS trigger values for other areas (i.e., not high-value habitat) remained the same. The 30-day average TSS concentrations exceeded the MMMs at nearly all stations for most of September; concentrations at routine stations fell below the MMM by early October, while the monthly average concentrations at high-value habitat stations still exceeded the MMM at all stations. Notwithstanding, 24-hr maximum TSS concentrations at all stations were approximately 6 mg/L (or less) and decreasing by the end of the monitoring program in October.

As a complement to routine daily turbidity monitoring, broad surveys were conducted every one to two weeks to characterize conditions in one or more of the following areas: north and east (southern area) basins of Third Portage Lake, Second Portage Lake and Tehek Lake. TSS concentrations were:

- Always < 1.2 mg/L and usually < 0.5 in the north basin of Third Portage Lake (i.e., background);
- Always < 7.2 mg/L for the southern portion of the east basin of Third Portage Lake;
- Always < 5 mg/L and usually < 2 mg/L in most of Second Portage Lake; and
- Always < 1 mg/L and usually <0.5 mg/L in Tehek Lake near the outlet of Second Portage Lake.

Dike water quality monitoring, in accordance with the '*Water Quality Monitoring and Management Plan for Dike Construction and Dewatering at the Meadowbank Mine V2* March 2009' was conducted throughout the open water season for the Bay-Goose Dike. A full summary of this monitoring, including sampling design, methodology and data results,are provided in '*Aquatic Effects Monitoring Program – Targeted Study: Dike Construction Monitoring 2009'* in Appendix A4-3.

Regulators were notified of the Bay-Goose Dike/TSS events in a series of emails, starting on August 13, 2009. These emails included updates on water quality monitoring (turbidity measurements specifically), Bay-Goose Dike construction status and actions taken by AEM to address the situation. A copy of all email correspondence is provided in Appendix A4-4. A presentation to regulators on the general conclusions of the TSS investigation at the Bay-Goose Dike phase 1 was held November 4, 2009. Proposed mitigation actions and construction methods for the Bay-Goose Dike phase 2 were discussed. The minutes of this workshop are attached in Appendix A4-5. Version 3 of the '*Water Quality Monitoring and Management Plan for Dike Construction and Dewatering'* was submitted to the NWB for review in early December 2009. This plan was subsequently approved on February 16, 2010 with the requirement that version 4 of the plan, incorporating regulator comments,

responses from AEM and conditions of approval, be submitted with the 2009 Annual Report. Version 4 of the monitoring plan is included in Appendix A4-5.

2.2 QUARRIES

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

As required by INAC Land Lease 66A/8 72-2, Condition 8: ***The lessee shall file a report, annually, with the Minister in the manner and format stipulated by the Minister. The report shall include:***

i. Quantity of material removed and location of removal, for the immediately preceding calendar year; and

ii. Such other data as are reasonably required by the Minister from time to time.

And

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

And

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

No material was blasted from the AWPAR quarries in 2009. Material remaining in some of the quarries was used for road maintenance; this material was included in the calculation of the final quarried amounts reported in June 2008.

SECTION 3 • WATER MANAGEMENT ACTIVITIES

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

3.1 LAKE LEVEL MONITORING

As required by Water License 2AM-MEA0815 Schedule B, Item 2: ***Results of lake level monitoring conducted under the protocol developed as per Part D Item 11 (Water Quality Monitoring and Management Plan for Dike Construction and Dewatering).***

The dewatering of the northwest arm of Second Portage Lake (the impoundment area) began on March 17, 2009 and continued throughout the remainder of the year. The impoundment water was discharged into Third Portage Lake. From April 14 to July 9, 2009 impoundment water was also discharged into Second Portage Lake. A description of the dewatering process is provided in Section 7.1.2. The elevation, in metres above sea level (masl), of Third Portage Lake and Second Portage Lake was monitored on a weekly basis, weather permitting, throughout the dewatering process. The location of the lake level survey monitoring is identified on Figure 1 for Third Portage Lake (TPL) and Second Portage Lake (SPL).

The lake levels of Third Portage Lake and Second Portage Lake are presented in Table 3.1. Lake levels did not vary considerably and remained within the range of naturally occurring levels.

Lake levels of the northwest arm of Second Portage Lake were also monitored. Table 3.1 presents the daily elevation monitoring results of the impoundment area (identified as 'Intake' on the table). Throughout the year, as dewatering proceeded, lake levels in the impoundment area dropped from 133.4 to 124.4 masl. This information is provided for informational purposes only.

3.2 WATER BALANCE WATER QUALITY MODEL REPORTING SUMMARY

As required by Water License 2AM-MEA0815 Schedule B, Item 3: ***Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 6 and 7.***

The Meadowbank Project was in the construction phase until the end of 2009. The first bi-annual report is due six months from the date of commercial operations.

3.3 BATHYMETRIC SURVEYS

As required by Water License 2AM-MEA0815 Schedule B, Item 4: ***The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility.***

The bathymetric survey in Baker Lake was completed on July 18, 2009 prior to the shipping season and is included in Appendix B1.

3.4 PREDICTED VS. MEASURED WATER QUALITY

As required by Water License 2AM-MEA0815 Part E, Item 8: ***The Licensee shall, on an annual basis during Operations, compare the predicted water quantity and quality within the pits, to the measured water quantity and quality. Should the difference between the predicted and measured values be 20% or greater, then the cause(s) of the difference(s) shall be identified and the implications of the difference shall be assessed and reported to the Board.***

The Meadowbank Project was in the construction phase until the end of 2009; as such, no data is available yet.

3.5 ADDITIONAL INFORMATION

As required by Water License 2AM-MEA0815 Schedule B, Item 24: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

The Board did not request any additional details on water use in 2009.

SECTION 4 • WASTE ROCK MANAGEMENT ACTIVITIES

4.1 GEOCHEMICAL MONITORING

In accordance with Water License 2AM-MEA0815 Schedule B, Item B-5:

Geochemical monitoring results including:

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

In 2009, AEM sampled every blast hole and analysed the percentages of sulphur and carbon. The results from these analyses are used to differentiate Non-Potentially Acid Generating (NPAG) from Potentially Acid Generating (PAG) materials. The Total Sulphur (S) analysis is converted into a Maximum Potential Acidity (MPA) value by multiplying the Total S wt% by 31.25 which yields an MPA value in Kg CaCO3 equivalent. The Total Inorganic Carbon analysis is similarly converted into a Carbonate Neutralization Potential (NP) by multiplying the Total wt% Inorganic Carbon (reported as %CO2) by 22.7 which yields an NP value in Kg CaCO3 equivalent. The Net Potential Ratio (NPR) for the blast hole drill cutting sample is then calculated as follows: NPR = NP/MPA.

The mine geology staff uses the derived NPR to characterize the rock in the blast pattern. The mine surveyor uses this information to delineate the dig limits within the blasted rock to guide the shovel and loader operators in directing where the rock is to be taken. All the NPAG rock was used for construction of the Bay-Goose Dike, Saddle Dam 1, South Camp Dike, roads and pads. The PAG rock was used in the footprint of the Tailings Impoundment Area; Stormwater Dike and Rockfill Road (RF1). The remainder of the PAG rock was sent to the Portage Waste Rock Facility (22,877 tonnes).

In 2009, a total of 21,864 production samples were assayed to determine NPAG and PAG rock. The results and the resultant NPAG-PAG classification confirmation are logged in the Meadowbank GEMCOM database. Due to the large volume of data, the results are not included in this annual report. These results can be provided on demand.

To validate the method used by AEM, 75 samples (including ultramafic volcanic, intermediate volcanic and iron volcanic rock types) from production drill holes were sent to an accredited commercial lab (external lab) for acid base accounting (ABA) analysis using the Modified Sobek Method for determination of NP/AP. The comparison between AEM's method and the external lab ABA analysis is included in Table 4.1. The metal leaching tests were performed using the Shake Flask Method and the results are included in Table 4.2. The comparison shows that the results of AEM's methods and the external lab's ABA analysis for determination of NP/AP are similar. All AEM results showing PAG rock were

confirmed by the external lab results. Results from the metal leaching analyses showed that the License limits for arsenic, copper, zinc and nickel were respected.

AEM will continue to analyze samples for ABA in 2010; approximately 200 samples will be sent to an accredited lab for ABA and metal leaching tests.

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

Refer to the discussion in sections 4.1a and 4.2.

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

Routine water quality sampling results along the AWPAR are presented the document '*All Weather Private Access Road 2009 Water Quality Management Report'* which is included in Appendix C1.

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

Because of the pre-development work, no leaching was observed on the pit slope or dike faces.

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

In 2009 there were no geochemical outcomes or observations that could imply or lead to environmental impact.

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

The mill did not commence operations until early 2010; as such there was no geochemical data associated with tailings in 2009.

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

Results are included in the '*All Weather Private Access Road 2009 Water Quality Management Report'* included in Appendix C1.

4.2 WASTE ROCK VOLUME

In accordance with Water License 2AM-MEA0815 Schedule B, Item B-6: ***Volumes of waste rock used in construction and placed in the Rock Storage Facilities.***

The volume of waste rock from the North Portage and South Portage starter pits used for construction purposes and placed in the waste rock pile in 2009 is presented in Table 4.3.

4.3 TAILINGS STORAGE FACILITY

4.3.1 Tailings Storage Facility Capacity

As required by Water License 2AM-MEA0815 Schedule B-7: ***An update on the remaining capacity of the Tailings Storage Facility.***

There was no deposition associated with the TSF in 2009.

4.3.2 Tailings Freezeback

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

There was no deposition associated with the TSF in 2009.

4.3.3 Fault Testing and Monitoring

As required by Water License 2AM-MEA0815 Schedule B, Item 15: ***Results of monitoring pursuant to the Fault Testing and Monitoring Plan (August 2007).***

The '*Fault Testing and Monitoring Plan'* outlines the testing and monitoring procedures that will be conducted to determine the permeability of faults that extend through the central dike. There are no results to report in 2009 as construction of the Central Dike is planned for 2011.

SECTION 5 • WASTE MANAGEMENT ACTIVITIES

5.1 Landfill Monitoring

As required by Water license 2AM-MEA0815 Schedule B, Item 8: ***Summary of quantities and analysis of seepage and runoff monitoring from the landfills.***

Seepage and runoff monitoring of the Landfill is discussed below in Section 7.1.5.

5.2 Solid Waste Disposal Activity

As required by Water License 2AM-MEA0815 Schedule B, Item 9: ***A summary report of solid waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal.***

And

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

A monthly summary of the amount of waste disposed of in the landfill, sent to the incinerator and the scrap wood sent to Baker Lake in 2009 is included as Table 5.1. The Hamlet asks that AEM send scrap wood to Baker Lake for use by the community. A summary of the hazardous material sent for disposal at a facility in Quebec is included as Table 5.2. The shipping manifests for the hazardous material can be found in Appendix D1.

5.2.1 Incinerator

As per Water License 2AM-MEA0815 Schedule B, Item 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.***

And

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

Commissioning of the permanent incinerator was completed in June 2009. Prior to that three smaller units were in operation.

Ash samples were collected from the smaller units on February 27, March 27 and June 4 and from the main incinerator on July 1, August 22 and September 21, 2009. As stipulated in the '*Incinerator Waste Management Plan'* (AEM, May 2009, v2), ash samples are to be collected from the main incinerator monthly for the first three months of operation and annually thereafter. Results of the ash sampling from both the smaller units and the main incinerator are presented in Table 5.3. All parameters met the Government of Nunavut Environmental Guidelines for Industrial Discharge (2002); therefore, ash from the incinerators are acceptable for disposal in the mine's landfill.

In addition, waste oil destined for burning in the incinerator or any waste oil furnace is to be sampled and compared to the NWT Used Oil and Waste Fuel Management Regulations (NWT, 2003). One sample of waste oil was collected in 2009; results are presented in Table 5.4. All parameters met the NWT guidelines; therefore the waste oil was safe for incineration. In the future these samples will be collected on a monthly basis. Certificates of analysis for the samples are included in Appendix F1.

The stack sampling was planned for the beginning of fall 2009. After discussion with the consultant, it was impossible to perform the sampling inside the building because the distance between the outlet of the secondary chamber and the roof was too short to comply with the standards. The stack sampling has to be performed outside on the roof and due to safety considerations the test was delayed until the summer of 2010. The consultant will be at the site May 17-19, 2010 to ensure preparations are complete prior to the stack sampling in June. The regulators will be advised in advance of the sampling dates.

5.3 ADDITIONAL INFORMATION

As required by Water License 2AM-MEA0815 Schedule B, Item 24: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

The Board did not request any additional details on waste disposal in 2009.

SECTION 6 • SPILL MANAGEMENT

As per Water License 2AM-MEA0815 Schedule B, Item 11 ***A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.***

And

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

A summary of unauthorized discharges that occurred in 2009 is presented in Table 6.1. This data was also included in monthly monitoring reports submitted to the NWB. GN Spill Report Forms for reported spills are included in Appendix E1. AEM has never received the spill report line identification number. Spill prevention training was emphasised in 2009 for employees to prevent and to report spills, as follows:

- All employees and contractors must participate in a four hour induction session upon arrival at the mine site, which includes a training section on spill management (prevention, reporting and cleaning);
- Every employee and contractor who operates a vehicle on the site must participate in training on vehicle operation. Spill management is a component of this training session; and
- Spill management was discussed during the General Manager's quarterly presentation to all employees.

There were no spill reports from Northern Transportation NTCL with respect to transit of the barges enroute to Baker Lake.

SECTION 7 • MONITORING

This section includes monitoring requirements from all aspects of the Meadowbank Project.

7.1 AQUATIC MONITORING PROGRAM

As required by Water License 2AM-MEA0815 Schedule B-13: ***The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.***

And

As required by Water License 2AM-MEA0815 Schedule B, Item 14: ***The results of monitoring under the Aquatics Effect Management Plan (AEMP).***

And

As required by DFO HADD Authorizations NU-03-0191 Condition 6.1 (Mine); NU-03-0190 Condition 6 (AWPAR); NU-03-0190 Condition 6 (Western Channel Temporary Crossing): ***Submit written report summarizing 2008 monitoring results and photographic record of works and undertakings.***

Certificates of Analysis for all aquatic monitoring programs conducted by AEM are included in Appendix F1.

7.1.1 Construction Activities

Construction monitoring for the project includes all of the water quality monitoring for the dewatering dikes, and all surface runoff during the construction of any facility where water may flow directly or indirectly into a waterbody.

In 2009, water quality monitoring was conducted during the construction of Bay-Goose Dike (phase 1). The results of the 2009 dike construction monitoring program are available in the report entitled '*Aquatic Effects Monitoring Program – Targeted Study: Dike Construction Monitoring 2009, Meadowbank Gold Project*' prepared for AEM by Azimuth Consulting Group, attached as Appendix A4-3. A summary of the TSS effects assessment studies for the East Dike and Bay-Goose Dike (phase 1) construction was previously presented in Section 2.1.3.

All contact water around the mine site was diverted to stormwater management pond #1 in 2009. Consequently, there were no incidences where runoff water from any facility under construction may flow directly or indirectly into a waterbody.

7.1.2 Dewatering Activities

Dewatering of the northwest arm of Second Portage Lake (the impoundment area) started March 17, 2009. One water pump was in operation at this time. The second and third pumps came into service on the March 20 and 23. These pumps are identified as Intakes 1, 2 and 3, respectively, and are located on the southern shore of the impoundment area near the water treatment plant (note that the WTP was not in operation until October). Intake 4, located in the same area, came on line later in the season, on June 2, 2009. The water from these pumps is discharged to Third Portage Lake (TPL). The location of the intake pumps and discharge outlet are shown on Figure 1.

On April 14 and 26, Intakes 5 and 6 came into operation; these pumps are located on the eastern shore of the impoundment area adjacent to the East Dike. The water from these pumps is discharged to Second Portage Lake (SPL). The location of the intake pumps and discharge outlet are shown on Figure 1.

All dewatering activities were suspended as of July 9, 2009 due to an elevation of turbidity and TSS. Installation of two TSS actiflo water treatment plants was completed near the end of October. These plants are identified as WTP1 and WTP2 and are located inside a housed structure (shown on Figure 1). Dewatering of the impoundment area began again on October 25, 2009; water from the treatment plants is discharged to TPL.

Total suspended solids and turbidity are monitored daily at each intake pump/water treatment plant and once per week (during periods of discharge) in Third Portage Lake and Second Portage Lake near the receiving outlets. In addition, pH and total aluminum are measured weekly from each of the intakes/water treatment plants and receiving outlets. The results of this monitoring are presented in Tables 7.1 to 7.5. It is important to note that all values that were reported by the laboratory as below the method detection limit (MDL) are conservatively presented in the tables at the full MDL value. Turbidity values were calculated by AEM using a YSI turbidity meter; quality control calibration results for this equipment are presented in Section 7.1.13 below.

The license criteria for turbidity are 30 NTU for the 24 hour maximum, and 15 NTU for the 30 day mean maximum. For TSS, the 24 hour maximum criterion is 22.5 mg/L and 15 mg/L for the 30 day mean maximum. Tables 7.1 and 7.2 present the turbidity and TSS monitoring results from March to July for Intakes 1 to 4 (discharging to TPL) and Intakes 5 and 6 (discharging to SPL), respectively. Table 7.3 presents the monitoring results from October to December for the Water Treatment Plant (discharging to TPL).

From March to July, the pumps were periodically shut down so that the intake pipes could be moved to deeper water. This action was generally initiated once the turbidity and/or TSS levels began to rise. On June 29, Intake pumps 5 and 6 were shut down due to the mean 24 hour maximum turbidity concentration (31.8 NTU) rising above the 24 hour maximum

license limit (30 NTU). The pumps were shut down for three days while the intake pipes were relocated to deeper water.

From October to December, the water treatment plants were in operation; however, the plants were in recirculation mode for a few of the days for plant maintenance issues. The maximum 24 hour TSS limit was exceeded on December 12 (42 vs. 22.5 mg/L) due to a build up of suspended solids in the laminar plates of the plants. In response to this exceedance, the following procedures were implemented to avoid high suspended solids levels in the water treatment plant:

- A pipe extension for the water hose was fabricated to enable the operator to clean the laminar plates daily on each actiflow unit. The cleaning is done while the diesel supply pump is shut down for its daily inspection;
- Every Saturday the water level in each actiflow unit is lowered to the level of the laminar plates and a thorough cleaning takes place;
- All cleaning activities are recorded in a log book to ensure that the cleanings are being completed as scheduled; and
- Sampling procedures have been modified; technicians allow the sampling valve to run for three minutes to ensure build-up in the sampling valve is not contaminating the sample.

Results for the pH and aluminum monitoring are presented in Table 7.4 for March to July and Table 7.5 for October to December. There was no exceedance of any of the license limits.

7.1.3 Water Collection System

A water collection system comprised of ditches, sumps, attenuation ponds, stormwater management ponds and open pits has been developed to control surface water for the Meadowbank project.

All surface water runoff around the mine site is directed to stormwater management pond #1, often referred to as Tear Drop Lake. In 2009, water quality was monitored on two occasions from this pond. Results are presented in Table 7.6 and sampling locations are illustrated on Figure 1. Samples are identified as TDL1 and TDL2 (original field notes erroneously labelled one of the samples as ST-27).

At the end of August, water accumulated in the predevelopment zone of the North Portage Pit. The location of this sump is 14W 0639021N 7214736E (see Figure 1). Water quality monitoring of this sump was undertaken on August 23-25, 2009 and results are presented in Table 7.7. The sample name is ST-29 (it was originally erroneously labelled as ST-34). The

water in this sump was discharged intermittently to stormwater management pond #2 for a few days. After that, a blast in that region permanently removed the sump. No further discharges to stormwater management pond #2 occurred.

No water from the stormwater management ponds (#1 or #2) was discharged to the receiving environment; therefore there are no applicable license effluent quality limits for this dataset. This data is being presented in the 2009 annual report for informational purposes only.

7.1.4 Tailings Storage Facility, Reclaim Pond and Waste Rock Storage Facilities

During the operations phase of the project, water quality monitoring will be conducted from the tailings storage facility, tailings reclaim pond and waste rock storage facilities.

The tailings storage facility and reclaim pond were not yet in operation in 2009; dewatering of the northwest arm of Second Portage Lake was still underway. Consequently no monitoring data is available for these facilities in 2009.

The waste rock storage facilities were in operation in 2009. The mine was in the pre-development and construction phase; overburden was removed from the North and South Portage pit areas and benches were prepared for mining. Surface runoff and seepage at the waste rock storage facility was not observed in the 2009 season; consequently, no samples were collected.

7.1.5 Mine Site

Locations for water quality monitoring at the mine site include the Sewage Treatment Plant (STP), runoff water from the landfill, runoff water from the landfarm, and any runoff water collected in the secondary containment area of the bulk fuel storage tank that is discharged to land. The site layout is presented in Figure 1.

Sewage Treatment Plant

From January to March, 2009, the Seprotech L333 sewage treatment plant (STP) was in operation; two Little John 100 units (the two units operate together as one sewage treatment plant) were in recirculation mode (testing mode). In April and May both the Seprotech and Little John plants were in operation, but had separate waste water streams. In June the wastewater streams from both plants were combined and for the duration of the year the wastewater stream from both plants was sampled together; samples were collected from a valve inside the STP building. Discharge from the sewage treatment plants is directed to stormwater management pond #1.

Water quality monitoring data from the STP is presented in Table 7.8. All of this data was previously reported to the NWB in the monthly monitoring reports. There are no applicable license effluent quality limits for this dataset; this data is being presented in the 2009 annual report for informational purposes only.

Landfill

The Meadowbank Landfill #1 has been operational as of November 2008. A summary of the solid waste disposal activity for the site is presented in Section 5.2 above. Surface runoff and seepage at the landfill was not observed in the 2009 season; consequently, no samples were collected.

Landfarm

The Meadowbank landfarm is not yet constructed; consequently, there is no monitoring data to report for 2009.

Meadowbank Bulk Fuel Storage Facility

The construction of the secondary containment fuel storage tank at Meadowbank was finished in November 2008. Runoff water from the secondary containment area of the bulk fuel storage tank was sampled on September 7, 2009 and analyzed for metals and hydrocarbons. T his data is presented in Table 7.9. No parameters exceeded the water quality limits stipulated in Part F, Item 6 in the water license. Regardless, this water was never discharged to the land. It currently remains frozen in the secondary containment area.

7.1.6 Baker Lake Marshalling Facilities

The design of the Baker Lake marshalling facility includes a number of facilities that have not yet been constructed; these include: two storage ponds to collect site precipitation runoff (east and west), an explosives storage area and an ammonium nitrate storage area. Consequently, no water quality monitoring of these facilities was conducted.

The Baker Lake bulk fuel storage facility was in full operation throughout 2009. Water quality monitoring of the secondary containment facility was completed by AEM staff on June 22, 2009. The sample is labelled as ST-40 and results are presented in Table 7.10. All parameters met the maximum concentration of any single grab sample criteria stipulated in Part F, Item 23 of the water license. Later in the season, on August 9, the INAC Water Inspector, Mr. Andrew Keim, collected a water quality sample from this location during his routine inspection. Based on the results from the June and August samples, Mr. Keim granted AEM approval (via an email) to discharge the water in the Baker Lake bulk fuel secondary containment facility on August 31, 2009. The water was subsequently discharged to the land adjacent to the secondary containment facility.

As part of the Core Receiving Environment Monitoring Program (CREMP), water quality samples are collected from Baker Lake. Three monitoring stations are sampled; one at the Baker Lake barge dock, one at the Baker Lake jetty (used by AEM adjacent to the marshalling facility), and one upstream reference location. The jetty monitoring station meets the sampling requirements of ST-37. For more details, please refer to the report entitled ''*Aquatic Effects Management Program – Core Receiving Environment Monitoring Program 2009, Meadowbank Gold Project'* prepared for AEM by Azimuth Consulting Group, attached as Appendix F2.

7.1.7 All Weather Private Access Road (AWPAR) and Quarries

The construction of the AWPAR between the Hamlet of Baker Lake and the Meadowbank mine was completed on March 21, 2008. Monitoring along the AWPAR continued throughout the 2009 season to include water quality sampling, erosion and flow inspections, structural crossing inspections and fisheries studies.

The sampling design and results of the 2009 AWPAR water quality monitoring are available in the report entitled '*All Weather Private Access Road; 2009 Water Quality Management Report*' prepared by AEM, attached as Appendix C1. Visual inspections to monitor erosion and sediment transport are included in this report.

A geotechnical structural inspection of the AWPAR, including all culverts, bridges and quarries, was conducted by Golder Associates in November 2009. The findings are presented in the report entitled '*2009 Annual Geotechnical Inspection, Meadowbank Gold Project, Nunavut*', attached in Appendix A2.

The results of the 2009 AWPAR fisheries monitoring are available in the report entitled '*All-Weather Private Access Road (AWPAR) Fisheries Report'* prepared by AEM, attached as Appendix F3. This report includes the results and a discussion of the fisheries habitat compensation monitoring at bridge crossing R02.

7.1.8 Western Channel Temporary Crossing

The Western Channel Temporary Crossing was, as the name implies, a temporary culverted road crossing over the narrow Western Channel. It was constructed in the spring of 2008 to allow truck access to the South Portage Starter Pit. Later in the season, on September 24, 2008, construction of the Western Channel dewatering dike began, and this temporary crossing was converted into a coffer dam.

Consequently, no further monitoring data for the 'temporary crossing' is available. Results of water quality monitoring for the Western Channel dike were presented as part of the 2008 dike construction monitoring program.

7.1.9 Seepage

As required by Water License 2AM-MEA0815 Part I, Item 16: ***The results and interpretation of the Seepage Monitoring program in accordance with Part I, Item 15***

The Seepage Monitoring program includes the following locations:

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

Lake water seepage through dewatering dikes

Seepage through the East dike and Western Channel dike is discussed in Section 2.1.1 h above.

Seepage (of any kind) through Central Dike

Not applicable; this dike in not yet constructed.

Seepage and runoff from the landfill:

See Section 7.1.5 above.

Subsurface seepage and surface runoff from waste rock piles

See Section 7.1.4 above.

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

The mine pit was in the predevelopment stage throughout 2009. Consequently, no seepage was reported.

7.1.10 Groundwater

The results of the 2009 groundwater monitoring program are available in the report entitled '*2009 Groundwater Quality Monitoring Program, Meadowbank Mine'* prepared for AEM by Golder Associates, attached as Appendix F4.

7.1.11 Receiving Environment

The results of the 2009 core receiving environment monitoring program are available in the report entitled ''*Aquatic Effects Management Program – Core Receiving Environment Monitoring Program 2009, Meadowbank Gold Project'* prepared for AEM by Azimuth Consulting Group, attached as Appendix F2. The core monitoring program includes samples from Baker Lake.

The results of the habitat compensation monitoring program are available in the report entitled '*Aquatic Effects Management Program – Habitat Compensation Monitoring 2009, Meadowbank Gold Project'* prepared for AEM by Azimuth Consulting Group, attached as Appendix F5. The only habitat compensation feature available for monitoring during the 2009 year is the East dike face. The habitat compensation feature along the AWPAR at bridge crossing R02 is discussed in Section 7.1.7 and Appendix F3.

7.1.12 Blasting Activities

As required by NIRB Project Certificate No.004, Commitment 85: ***AEMP monitoring - monitor blasting peak particle velocity and overpressure in receiving environment; must use specific charge weight/delay/set back to meet DFO requirements.***

The detonation of explosives in or near water produces compressive shock waves that can cause significant impacts to the swim bladders of fish, rupture other internal organs and/or damage or kill fish eggs and larvae. In addition, the effects of the shock waves can be intensified in the presence of ice. Consequently, guidelines have been developed by DFO to protect fish and fish habitat from works or undertakings that involve explosives in or near fisheries waters. These guidelines are presented in the DFO report entitled "Use of Explosives In or Near Canadian Fisheries Water" (Wright and Hopky, 1998), and include the following:

- No explosive is to be detonated in or near fish habitat that produces an instantaneous pressure change (IPC) greater than 100 kPa in the swim bladder of a fish; representatives from DFO have mentioned to AEM that a value of 50 kPa is more appropriate instead of 100 kPa; and

- No explosive is to be detonated that produces a peak particle velocity greater than 13 mm/s in a spawning bed during the period of egg incubation (for lakes near the Meadowbank mine, the fisheries window is from August 15 to June 30).

Peak particle velocity (PPV) and overpressure monitoring data was recorded throughout 2009 during blasting activities at the North and South Portage starter pits. The location of the blast monitoring stations is shown in Figure 1; results of the monitoring are presented in Table 7.11.

PPV concentrations exceeded the DFO criteria of 13 mm/s for 11 of the 149 blasts. IPC measurements were all well below the DFO criteria (50 kpa).

The blast monitoring results are reviewed after each blast and the 'blast mitigation plan' is implemented immediately if the vibrations or the overpressure exceed the guidelines. This plan includes a retro analysis to determine what caused the higher than expected results. Staff training is conducted should the cause for the exceedance be human error. Formally documenting the Blast Monitoring Program, including the blast mitigation plan, is in the final stages of development and approval.

7.1.13 QAQC Sampling

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

All data from Multi-Lab Direct underwent a vigorous internal QAQC process, including the use of spiked samples and duplicate samples. All QAQC data passed the laboratories acceptable limits. The laboratory Certificates of Quality Control are presented in Appendix F1**,** alongside the Certificates of Analysis.

All AEM turbidity field data was analyzed on a YSI turbidity meter. These meters were calibrated daily prior to use. A Hoskin Scientific 340I pH meter was purchased by AEM in November 2009. It was calibrated every time the meter was used in the field. Prior to the Hoskin, a simple pH pen was used by our field technicians. Tables 7.12 and 7.13 present the calibration results for the YSI meter and Hoskin meter, respectively.

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

- Appendix A4-2: AEMP: Dike Construction TSS Effects Assessment Study 2009 – Sections 2.2.5, 2.3.1, 3.2.5 and 3.3.1.
- Appendix A4-3: AEMP: Dike Construction Monitoring 2009 – Sections 2.7 and 3.4.1
- Appendix C1: AWPAR 2009 Water Quality Management Report – Section 5
- Appendix F4: 2009 Groundwater Quality Monitoring Program – Sections 2.4 and 3.2
- Appendix F2: AEMP: Core Receiving Environment Monitoring Program 2009 – Sections 2.7 and 3.1
- Appendix F5: AEMP: Habitat Compensation Monitoring 2009 – Sections 2.5 and 3.1

7.1.14 Water Usage

The volume of freshwater pumped from Third Portage Lake for use at the Meadowbank mine is presented in Table 7.14. A total volume of 36,451 m^3 was used at the mine in 2009, well within the 2AM-MEA0815 license limit of 700,000 m^3 per year. In future years the volume of freshwater required for use at the mine is expected to be higher than the 2009 volume; the mill was not yet in operation in 2009.

7.2 FISH-OUT PROGRAM SUMMARY

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

The Fish-out of the northwest arm of Second Portage Lake was completed in 2008. Habitat mapping was completed for the area in 2009. A summary of the habitat mapping is available in the report entitled *'Aquatic Effects Monitoring Program - Addendum to the 2008 Fish-Out of the Northwest Arm of Second Portage Lake: Habitat Mapping of the Northwest Arm of Second Portage Lake 2009'* prepared for AEM by Azimuth Consulting Group, attached as Appendix F6.

7.3 WILDLIFE MONITORING

7.3.1 Annual Monitoring

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

The results of the 2009 wildlife monitoring are available in the report entitled *'Meadowbank Gold Mine Project 2009 Wildlife Monitoring Summary Report'* prepared for AEM by Gebauer & Associates, attached as Appendix F7.

7.3.2 Harvest Study Results

As required by NIRB Project Certificate No.004 Condition 54: ***Details of a comprehensive hunter harvest survey to determine the effect on ungulate populations resulting from increased human access caused by the all-weather private access road.***

The results of the harvest study are available in Section 3.8 of the report entitled *'Meadowbank Gold Mine Project 2009 Wildlife Monitoring Summary Report'* prepared for AEM by Gebauer & Associates, attached as Appendix F7.

7.3.3 Creel Survey Results

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

And

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

The results of the creel survey are available in Section 4 and Appendix D in the report entitled *'Meadowbank Gold Mine Project 2009 All Weather Private Access Road Fisheries Report'* prepared by AEM, attached as Appendix F3.

7.3.4 Caribou Migration Corridor Information Summary

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

Maps of caribou migration routes and home ranges were completed in December 2008 and posted at the Meadowbank site. No new information became available that substantially altered the conclusions from 2008; consequently, the maps were not updated in 2009.

7.3.5 Caribou Collaring Study

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

The status of the caribou collaring program and results for 2009 are available in Sections 3.9 and 4.9 respectively in the report entitled *'Meadowbank Gold Mine Project 2009 Wildlife Monitoring Summary Report'* prepared for AEM by Gebauer & Associates, attached as Appendix F7.

7.4 AIR QUALITY MONITORING

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

And

NIRB Project Certificate No.004 Commitment 77: *Install and operate two particulate samplers at the project site and report annually monitoring results conforming to detailed reporting protocol.*

AEM has commissioned our consultant, Golder Associates, to complete a review for the optimal placement of the two particulate samplers at the project site. Installation of the samplers is scheduled for the 2010 field season, following approval from regulators on the sampler locations. Consequently, there is no air quality data to report for 2009.

7.5 NOISE MONITORING

As requested by NIRB: *Report noise monitoring data annually*.

The results of the noise monitoring are available in the report entitled *'2009 Noise Monitoring Report for the Meadowbank Gold Project'* prepared for AEM by Golder Associates, attached as Appendix F8.

SECTION 8 • CLOSURE

8.1 PROGRESSIVE RECLAMATION

8.1.1 Mine Site

As required by Water License 2AM-MEA0815 Schedule B, Item 16: ***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.***

The mine site was under construction throughout 2009, therefore no restoration work was completed.

8.1.2 AWPAR

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

And

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

No restoration work was completed in 2009.

8.1.3 Quarries

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

No restoration work was completed in 2009.

8.2 RECLAMATION COSTS

8.2.1 Project Estimate

As required by Water License 2AM-MEA0815 Schedule B, Item 18: ***An updated estimate of the current restoration liability based on project development monitoring, results of restoration research and any changes or modifications to the Appurtenant Undertaking.***

And

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

The mine site was under construction throughout 2009, therefore no restoration work was completed. Estimates of current restoration liability and the amount of security posted for the project are the same as was approved by the NWB in July 2008 (at the time of license issuance).

8.2.2 AWPAR and Quarries

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

And

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

And

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

No progressive reclamation has been completed on the AWPAR or associated quarries. Closure activities are consistent with the '*AEM Closure and Reclamation Plan, September 2008*', and original cost estimate.

8.3 CAPPING THICKNESS

As required by Water License 2AM-MEA0815 Schedule B, Item 17: ***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.***

Field trials have not commenced; the Tailings Storage Facility and Waste Rock Storage Facilities were constructed in 2009.

SECTION 9 • PLANS / REPORTS / STUDIES

9.1 SUMMARY OF STUDIES

As required by Water License 2AM-MEA0815 Schedule B, Item 19: ***A summary of any studies requested by the Board that relate to Waste disposal, Water use or Reclamation, and a brief description of any future studies planned.***

The following studies were commissioned by AEM and are included with this annual report as appendices:

- *Aquatic Effects Monitoring Program – Targeted Study: Second Portage Lake TSS Effects Assessment Study Meadowbank Gold Project, June 2009* – Appendix A4-1; and
- *Aquatic Effects Monitoring Program – Targeted Study: Dike Construction TSS Effects Assessment Study 2009 Meadowbank Gold Project* - Appendix A4-2.

9.2 SUMMARY OF REVISIONS

As required by Water License 2AM-MEA0815 Schedule B, Item 20: ***Where applicable, revisions will be completed as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.***

Appendix G1 includes a description of revisions for the following plans submitted to the Board in 2009:

- Updated Water Management Plan, July 2009;
- Mine Waste Management Plan, October 2009;
- Water Quality Monitoring and Management Plan for Dike Construction and Dewatering, v3 (November 2009). Version 4 (April 2010) of this plan has been submitted in full as Appendix A4-5 to this report as requested by the NWB in correspondence dated February 16, 2010;
- Emergency Response Plan, v2 (November 2009);
- Baker Lake Fuel Storage Facility Environmental Performance Monitoring Plan, v1 (December 2009);
- Meadowbank Fuel Storage Facility Environmental Performance Monitoring Plan, v1 (December 2009); and
- Aquatic Effects Management Program, v1 (March 2009) and v2 (May 2009).

9.3 EXECUTIVE SUMMARY TRANSLATIONS

As required by Water License 2AM-MEA0815 Schedule B, Item 21: ***An executive summary in English, Inuktitut and French of all plans, reports, or studies conducted under this Licence.***

Appendix G2 includes an executive summary in English, Inuktitut and French for the following documents. An addendum will be submitted to include all translations not available at the time of submission.

- Updated Water Management Plan, July 2009;
- Water Quality Monitoring Plan for Dike Construction and Dewatering, v3 (November 2009);
- Emergency Response Plan, v2 (November 2009);
- Mine Waste Management Plan, October 2009;
- Baker Lake Fuel Storage Facility Environmental Performance Monitoring Plan, v1 (December 2009);
- Meadowbank Fuel Storage Facility Environmental Performance Monitoring Plan, v1 (December 2009);
- Aquatic Effects Management Program, v2 (March 2009);
- 2009 Groundwater Monitoring Report;
- 2009 Geotechnical Inspection Report;
- Aquatic Effects Monitoring Program – Targeted Study: Second Portage Lake TSS Effects Assessment Study Meadowbank Gold Project, June 2009;
- Aquatic Effects Monitoring Program – Targeted Study: Dike Construction TSS Effects Assessment Study 2009 Meadowbank Gold Project, April 2010;
- Aquatic Effects Monitoring Program – Targeted Study: Dike Construction Monitoring 2009 Meadowbank Gold Project; and
- Aquatic Effects Monitoring Program – Core Receiving Environment Monitoring Program 2009.

SECTION 10 • MODIFICATIONS / GENERAL / OTHER

10.1 MODIFICATIONS

As required by Water License 2AM-MEA0815 Schedule B, Item 12: ***A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.***

There were no modifications to water or waste related structures or facilities in 2009.

10.2 INSPECTIONS AND COMPLIANCE REPORTS

As required by Water License 2AM-MEA0815 Schedule B, Item 22: ***A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.***

Two water use inspections were conducted by the INAC Inspector in August 2009. The mine site and the Baker Lake Marshalling Facility were inspected August 9, 2009. The All Weather Private Access road inspection was included in the inspection report for the Type B Exploration Water License 2BE-MEA0813, August 8 2009. On September 18, 2009 a response was submitted to the Inspector for the quarry along the road. The two inspection reports and response to the Inspector are included in Appendix H1.

10.3 NON-COMPLIANCE ISSUES

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

There were three non-compliance issues for the Meadowbank Gold Project in 2009. The first non-compliance issue occurred during the construction of the Bay-Goose Dike Phase 1 in August 2009; the short term limit and the monthly mean for TSS were exceeded at several stations (see the discussion in Section 2.1.3 and AEMP - Dike Construction Monitoring 2009 Appendix A4-3).

The two other issues occurred during the dewatering; the maximum 24 hours turbidity concentration (31.8 NTU) was exceeded on June 29, 2009 (31.8 vs 30 NTU) and the maximum 24 hour TSS limit was exceeded on December 12, 2009 (42 vs. 22.5 mg/L). AEM's response to these incidents is described in Section 7.1.2.

10.4 AWPAR USAGE REPORTS

10.4.1 Authorized and Unauthorized Non-Mine Use

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

Reports of unauthorized use of the AWPAR by Hondas (All Terrain Vehicles) are included in Appendix H2.

10.4.2 Safety Incidents

As required by NIRB Project Certificate Condition 32f: ***Report any information received, including accidents or other safety incidents on the road, including the locked gates, to the GN, KIA, and the Hamlet immediately, and to NIRB annually.***

Three accidents were reported in 2009, as described below.

1. January 7, 2009, 8:30am. A tractor trailer transporting a D8 dozer was entering the road switchback from the south at AWPAR KM 38. The back wheels of the trailer locked as the operator applied the trailer brake and the rear wheels of the trailer slid of the road. The D-8 shifted and fell off the trailer. The incident was a reportable occurrence.

   The initial investigation report was completed on January 8, 2008 and a follow-up investigation was completed by the Superintendent Health and Safety and the Employee Co-chair of the Joint Health and Safety Committee on January 27, 2009. Factors contributing to the incident included road conditions and the operator's unfamiliarity with the conditions of the switchback. It was recommended that loads of crush be stockpiled nearby the area so it can be applied to the hill more frequently if required.

2. February 7, 2009, 5:30 pm. A tractor trailer transporting a D8 dozer was heading south towards Baker Lake across Bridge 3, followed by a second vehicle. Visibility was poor due to blowing snow. The supervisor in the second vehicle informed the tractor trailer operator via radio to adjust to the right because the cutting edge of the dozer blade was impacting the side of the bridge. Subsequent inspections determined the damage to the bridge was structural and required a Structural Engineer to coordinate repairs. The road was closed to heavy equipment traffic until the repairs were complete. Factors contributing to the incident included decreased visibility due to weather conditions and the dozer was transported with the blade at an angle when common practice is transport with the blade in straight position.

3. February 11, 2009. A Triple 7 rock haul truck was travelling south near KM 90 at approximately 40 km/hr approaching a small hill. Visibility was poor and road conditions were slippery. The right tire started to move towards the right side of the road and the operator accelerated the truck forward on the right. The truck drove onto the tundra approximately 5ft from the road upright and stuck. Factors contributing to the incident included speed, operator error and road conditions.

Wildlife encounters along the AWPAR are discussed in Appendix F of the 2009 Wildlife Monitoring Report, attached as Appendix F7.

10.5 ON-BOARD VESSEL ENCOUNTER REPORTS

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

In 2009, three elders from Chesterfield Inlet acted as Wildlife Monitors on the AEM chartered tugs and barges travelling past Chesterfield Inlet to Baker Lake. The Wildlife Monitors provided verbal reports to AEM's Community Liaison Officer in Baker Lake who then prepared a written trip report; this report is attached as Appendix H3.

10.6 PUBLIC CONSULTATION

As required by Water License 2AM-MEA0815 Schedule B, Item 23: ***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.***

A log of 2009 public consultation activities is included as Appendix H4.

10.7 TRADITIONAL KNOWLEDGE

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

The Traditional Knowledge Workshop did not take place as planned in the late summer of 2009 for a number of reasons that are described later in this section. The IQ Workshop was completed Tuesday January 26, 2010 and continuing into Wednesday January 27.

On March 29, 2009 AEM approached Nunami Jacques Whitford (NJW) (a Sakku Development Inc. group company) by letter requesting a proposal to conduct a one day traditional knowledge workshop in Chesterfield Inlet. The purpose of the workshop would be

to obtain information as required under Project Certificate Conditions #34 and 40 concerning the marine mammals, cabins, hunting and other local activities in the Inlet; and about traditional knowledge that should be incorporated into search and rescue procedures and operation.

A proposal was received from NJW on April 27, but the Inuit content was fairly low. Following discussions between AEM and NJW on ways to increase local Inuit content in this workshop, NJW submitted a revised proposal for this IQ Workshop on May 28, 2009. The delay resulted from the time it took to locate and line up qualified local Inuit personnel who could help in designing and implementing this IQ Workshop.

A Purchase Order was subsequently issued by AEM to NJW for this work in June of 2009. The first step prior to scheduling the workshop was to apply for a license to collect research and scientific data (including IQ) from the Nunavut Research Institute (NRI). An application was submitted by NJW in late May and a license was expected within 45 days allowing for the workshop to be tentatively scheduled for late July or early August. Research License 03-020-09N-A under the Nunavut Scientists Act was issued for this IQ workshop by NRI on July 29, 2009. However, by this time the NJW Project Manager left his employment with NJW leaving a vacancy that took several months to fill. At the same time, NJW became part of the Stantec Group as Stantec merged with Jacques Whitford. It took several months for a new team to be assembled and brought up to speed on this project.

FMA Heritage (FMA), which is part of the Stantec Group, is now tasked with taking the lead on planning and organizing this workshop. The local Inuit content has been retained as per the revised proposal of May 28, 2009. By the time the team was assembled, the earliest possible date for the IQ Workshop was going to be mid-December which was considered too close to the holiday season. Consequently, AEM authorized FMA to apply for an extension of the NRI Research License to allow for this workshop to be re-scheduled for late January. An amended license was issued by NRI on November 23, 2009.

Tables

Table 2.1: Geotechnical Monitoring Program

Instrumentation	Monitored By	Reported To	Dewatering Frequency	Operations Frequency
Piezometers	• Manually by Engineering Personnel during dewatering; and • Automatically during operations (overseen by Engineering Personnel)	Engineering Superintendent	Every 0.25 m of drawdown	Weekly
Slope Inclinometer Casings	• Manually by Engineering Personnel during dewatering; and • Manually during operations (overseen by Engineering Personnel)	Engineering Superintendent	Daily	Weekly changing to Monthly
Thermistors	• Manually by Engineering Personnel during dewatering; and • Automatically during operations (overseen by Engineering Personnel)	Engineering Superintendent	Weekly	Monthly
Surface Monuments and Surface Prisms	• Manually by Engineering Personnel during dewatering; and • Manually during operations (overseen by Engineering Personnel)	Engineering Superintendent	Daily	Weekly changing to monthly
Seismographs	• Manually by Engineering Personnel during dewatering; and • Manually during operations (overseen by Engineering Personnel)	Engineering Superintendent	During blasting at the Portage Pit adjacent to the dike	During blasting at the Portage Pit adjacent to the dike

Table 3.1: Lake Level Monitoring

Date	Intake (masl)	Difference (masl)	Discharge Third Portage Lake (masl)	Discharge Second Portage Lake (masl)
14-Mar-09	133.441	0.000	133.54	
17-Mar-09	133.437	-0.004	133.54	
18-Mar-09	133.415	-0.022		
19-Mar-09	133.411	-0.004		
20-Mar-09	133.406	-0.005		
21-Mar-09	133.401	-0.005		
22-Mar-09	133.327	-0.074		
23-Mar-09	133.292	-0.035		
24-Mar-09	133.230	-0.062	133.54	
25-Mar-09	133.183	-0.047		
26-Mar-09	133.120	-0.063		
27-Mar-09	133.084	-0.036		
28-Mar-09	133.020	-0.064		
29-Mar-09	132.970	-0.050		
30-Mar-09	132.922	-0.048		
31-Mar-09	132.870	-0.052		
1-Apr-09	132.820	-0.050		
3-Apr-09	132.740	-0.080		
3-Apr-09	132.720	-0.020		
4-Apr-09	132.670	-0.050		
5-Apr-09	132.620	-0.050	133.56	
6-Apr-09	132.540	-0.080		
7-Apr-09	132.480	-0.060		
8-Apr-09	132.420	-0.060		
9-Apr-09	132.360	-0.060		
10-Apr-09	132.280	-0.080		
11-Apr-09	132.210	-0.070		
12-Apr-09	132.150	-0.060	133.59	
13-Apr-09	132.080	-0.070		
14-Apr-09	132.000	-0.080		
15-Apr-09	131.910	-0.090		
16-Apr-09	131.838	-0.072		
17-Apr-09	131.751	-0.087		
18-Apr-09	131.665	-0.086		
19-Apr-09	131.573	-0.092		
20-Apr-09	131.491	-0.082	133.6	133.16
21-Apr-09	131.423	-0.068		
22-Apr-09	131.321	-0.102		
23-Apr-09	131.234	-0.087		
24-Apr-09	131.141	-0.093		
25-Apr-09	131.075	-0.066		
26-Apr-09	131.016	-0.059	133.628	133.284
27-Apr-09	130.932	-0.084		
28-Apr-09	130.836	-0.096		
29-Apr-09	130.757	-0.079		
30-Apr-09	130.639	-0.118		

Date	Intake (masl)	Difference (masl)	Discharge Third Portage Lake (masl)	Discharge Second Portage Lake (masl)
1-May-09	130.568	-0.071		
2-May-09	130.493	-0.075	133.612	133.435
3-May-09	130.426	-0.067		
4-May-09	130.332	-0.094		
5-May-09	130.240	-0.092		
6-May-09	130.150	-0.090		
7-May-09	130.063	-0.087		
8-May-09	129.958	-0.105		
9-May-09	129.891	-0.067		
10-May-09	129.842	-0.049	133.642	133.556
11-May-09	129.779	-0.063		
12-May-09	129.679	-0.100		
13-May-09	129.578	-0.101		
14-May-09	129.486	-0.092		
15-May-09	129.388	-0.098		
16-May-09	NA	NA	133.652	133.642
17-May-09	129.198	-0.190		
19-May-09	129.045	-0.153		133.239
20-May-09	129.004	-0.041		133.027
21-May-09	128.998	-0.006		
21-May-09	128.999	0.001		
21-May-09	128.993	-0.006		
22-May-09	128.974	-0.019		
22-May-09	128.964	-0.010		132.89
23-May-09	128.940	-0.024		
23-May-09	128.922	-0.018		
24-May-09	128.914	-0.008		
24-May-09	128.890	-0.024	133.656	
25-May-09	128.879	-0.011		
25-May-09	128.854	-0.025		
26-May-09	128.842	-0.012		
26-May-09	128.818	-0.024		
27-May-09	128.778	-0.040		
27-May-09	128.769	-0.009		
28-May-09	128.737	-0.032		
28-May-09	128.715	-0.022		
29-May-09	128.682	-0.033		
29-May-09	128.661	-0.021		
30-May-09	128.626	-0.035		
30-May-09	128.599	-0.027		132.735
31-May-09	128.545	-0.054		
31-May-09	128.496	-0.049	133.658	
1-Jun-09	128.417	-0.079		
1-Jun-09	128.396	-0.021		
2-Jun-09	128.339	-0.057		
2-Jun-09	128.318	-0.021		
3-Jun-09	128.254	-0.064		
3-Jun-09	128.210	-0.044		

Date	Intake (masl)	Difference (masl)	Discharge Third Portage Lake (masl)	Discharge Second Portage Lake (masl)
4-Jun-09	128.129	-0.081		
5-Jun-09	127.990	-0.139		
5-Jun-09	127.951	-0.039		
6-Jun-09	127.881	-0.070		
6-Jun-09	127.846	-0.035		
7-Jun-09	127.780	-0.066		
7-Jun-09	127.743	-0.037		
8-Jun-09	127.682	-0.061		
8-Jun-09	127.649	-0.033		
9-Jun-09	127.611	-0.038		
9-Jun-09	127.586	-0.025		
10-Jun-09	127.546	-0.040		
10-Jun-09	127.529	-0.017		
11-Jun-09	127.484	-0.045		
11-Jun-09	127.454	-0.030		
12-Jun-09	127.404	-0.050		
12-Jun-09	127.367	-0.037		
13-Jun-09	127.332	-0.035		
13-Jun-09	127.323	-0.009		
14-Jun-09	127.305	-0.018		
14-Jun-09	127.265	-0.040		
15-Jun-09	127.218	-0.047		
15-Jun-09	127.204	-0.014		
16-Jun-09	127.161	-0.043		
16-Jun-09	127.150	-0.011		
17-Jun-09	127.154	0.004		
17-Jun-09	127.169	0.015		
18-Jun-09	127.176	0.007		
18-Jun-09	127.187	0.011		
19-Jun-09	127.182	-0.005		
19-Jun-09	127.168	-0.014		
20-Jun-09	127.129	-0.039		
20-Jun-09	127.093	-0.036		
21-Jun-09	127.039	-0.054		
21-Jun-09	127.010	-0.029		
22-Jun-09	126.970	-0.040		
22-Jun-09	126.924	-0.046		
23-Jun-09	126.880	-0.044		
23-Jun-09	126.860	-0.020		
24-Jun-09	126.820	-0.040		
24-Jun-09	126.770	-0.050		
25-Jun-09	126.748	-0.022		
25-Jun-09	126.721	-0.027		
26-Jun-09	126.668	-0.053		
26-Jun-09	126.648	-0.020	133.804	133.176
27-Jun-09	126.607	-0.041		
27-Jun-09	126.589	-0.018		
28-Jun-09	126.532	-0.057		

Date	Intake (masl)	Difference (masl)	Discharge Third Portage Lake (masl)	Discharge Second Portage Lake (masl)
28-Jun-09	126.497	-0.035		
29-Jun-09	126.449	-0.048		
29-Jun-09	126.432	-0.017		
30-Jun-09	126.470	0.038		
1-Jul-09	126.543	0.073		
1-Jul-09	126.587	0.044		
2-Jul-09	126.629	0.042		133.159
3-Jul-09	126.663	0.034		
4-Jul-09	126.696	0.033		
5-Jul-09	126.712	0.016		
6-Jul-09	126.690	-0.022		
7-Jul-09	126.655	-0.035		133.14
8-Jul-09	126.636	-0.019		
9-Jul-09	126.628	-0.008		
10-Jul-09	126.601	-0.027		
11-Jul-09	126.618	0.017		
12-Jul-09	126.645	0.027		
13-Jul-09	126.664	0.019		
15-Jul-09	126.683	0.019		
16-Jul-09	126.685	0.002	133.77	133.085
17-Jul-09	126.712	0.027		
18-Jul-09	126.707	-0.005		
19-Jul-09	126.705	-0.002		
20-Jul-09	126.712	0.007		
21-Jul-09	126.722	0.010		
22-Jul-09	126.680	-0.042	NA - wave	
23-Jul-09	126.790	0.110	133.77	133.01
24-Jul-09	126.805	0.015	NA - wave	
25-Jul-09	126.938	0.133	NA - wave	
26-Jul-09	126.997	0.059		
27-Jul-09	127.038	0.041		
28-Jul-09	127.047	0.009		
29-Jul-09	127.076	0.029		
30-Jul-09	127.098	0.022	133.74	132.98
31-Jul-09	127.109	0.011		
1-Aug-09	127.125	0.016		
2-Aug-09	127.143	0.018		
4-Aug-09	127.169	0.026		
5-Aug-09	127.177	0.008		
6-Aug-09	127.186	0.009	134.15	132.96
8-Aug-09	127.255	0.069	NA - wave	
9-Aug-09	127.222	-0.033		
10-Aug-09	127.265	0.043		
12-Aug-09	127.307	0.042	NA - wave	
14-Aug-09	127.293	-0.014		
16-Aug-09	127.304	0.011		
18-Aug-09	127.301	-0.003	NA - wave	
19-Aug-09	127.370	0.069		

Date	Intake (masl)	Difference (masl)	Discharge Third Portage Lake (masl)	Discharge Second Portage Lake (masl)
20-Aug-09	127.390	0.020		133.00
21-Aug-09	127.370	-0.020		
22-Aug-09	127.400	0.030		
23-Aug-09	127.393	-0.007	133.75	
24-Aug-09	127.397	0.004		
25-Aug-09	127.401	0.004		
26-Aug-09	127.427	0.026	133.75	
27-Aug-09	127.453	0.026		133.00
28-Aug-09	127.487	0.034		
29-Aug-09	127.522	0.035		
30-Aug-09	127.550	0.028		
5-Sep-09	127.713	0.163		
7-Sep-09	127.781	0.068		
9-Sep-09	127.845	0.064		
10-Sep-09	127.901	0.056		
11-Sep-09	127.890	-0.011	133.72	132.99
13-Sep-09	127.960	0.070		
14-Sep-09	127.960	0.000		
16-Sep-09	127.972	0.012	NA - wave	
17-Sep-09	127.960	-0.012	NA - wave	
18-Sep-09	127.985	0.025		
19-Sep-09	127.983	-0.002		
20-Sep-09	128.002	0.019		
21-Sep-09	128.001	-0.001		
22-Sep-09	128.013	0.012		
23-Sep-09	128.001	-0.012		133.03
24-Sep-09	128.006	-0.005		
26-Sep-09	128.030	-0.024		
29-Sep-09	128.006	0.024		
11-Oct-09	128.073	0.07		
12-Oct-09	128.050	-0.02	133.70	133.00
13-Oct-09	128.050	0.000		
15-Oct-09	128.047	-0.003		
19-Oct-09	128.050	0.003		
11-Nov-09	127.190	-0.860		
12-Nov-09	127.133	-0.057		
12-Nov-09	127.122	-0.011		
13-Nov-09	127.070	-0.052		
13-Nov-09	127.066	-0.004		
14-Nov-09	127.020	-0.046		
14-Nov-09	126.996	-0.024	133.65	
15-Nov-09	126.962	-0.034		
15-Nov-09	126.938	-0.024		
16-Nov-09	126.898	-0.040		
16-Nov-09	126.868	-0.030		
17-Nov-09	126.821	-0.047		
17-Nov-09	126.794	-0.027		
18-Nov-09	126.753	-0.041	133.67	

Date	Intake (masl)	Difference (masl)	Discharge Third Portage Lake (masl)	Discharge Second Portage Lake (masl)
19-Nov-09	126.697	-0.056		
20-Nov-09	126.625	-0.072		
20-Nov-09	126.589	-0.036		
21-Nov-09	126.557	-0.032		
22-Nov-09	126.503	-0.054		
23-Nov-09	126.433	-0.070		
24-Nov-09	126.393	-0.040		
25-Nov-09	126.361	-0.032		
25-Nov-09	126.329	-0.032	133.67	
26-Nov-09	126.333	0.004		
26-Nov-09	126.322	-0.011		
29-Nov-09	126.245	-0.077		
30-Nov-09	126.204	-0.041		
1-Dec-09	126.185	-0.019		
1-Dec-09	126.179	-0.006		
2-Dec-09	126.157	-0.022	133.68	
2-Dec-09	126.132	-0.025		
3-Dec-09	126.120	-0.012		
3-Dec-09	126.098	-0.022		
4-Dec-09	126.102	0.004		
4-Dec-09	126.070	-0.032		
5-Dec-09	126.030	-0.040		
6-Dec-09	125.986	-0.044		
7-Dec-09	125.949	-0.037		
8-Dec-09	125.870	-0.079		
9-Dec-09	125.820	-0.050	133.65	
10-Dec-09	125.762	-0.058		
10-Dec-09	125.723	-0.039		
11-Dec-09	125.691	-0.032		
11-Dec-09	125.655	-0.036		
12-Dec-09	125.626	-0.029		
12-Dec-09	125.609	-0.017		
13-Dec-09	125.540	-0.069		
14-Dec-09	125.460	-0.080		
14-Dec-09	125.422	-0.038		
15-Dec-09	125.384	-0.038		
16-Dec-09	125.326	-0.058		
19-Dec-09	125.089	-0.237		
19-Dec-09	125.066	-0.023		
20-Dec-09	125.028	-0.038		
21-Dec-09	124.976	-0.052		
21-Dec-09	124.952	-0.024		
22-Dec-09	124.920	-0.032		
22-Dec-09	124.898	-0.022		
23-Dec-09	124.854	-0.044	133.67	
23-Dec-09	124.839	-0.015		
24-Dec-09	124.797	-0.042		
24-Dec-09	124.773	-0.024		

Date	Intake (masl)	Difference (masl)	Discharge Third Portage Lake (masl)	Discharge Second Portage Lake (masl)
25-Dec-09	124.752	-0.021		
25-Dec-09	124.728	-0.024		
26-Dec-09	124.685	-0.043		
26-Dec-09	124.661	-0.024		
27-Dec-09	124.616	-0.045		
27-Dec-09	blizzard	N/A		
28-Dec-09	blizzard	N/A		
29-Dec-09	blizzard	N/A		
30-Dec-09	frozen	N/A	133.63	
30-Dec-09	blizzard	N/A		
31-Dec-09	blizzard	N/A		
31-Dec-09	124.371	-0.290		

Table 4.1: ABA Results Comparison

Samples of Intermediaire Volcanics drill cutting

	AEM lab					External lab - ABA modified Sobek method				
Tags id	TOTAL C %	TOTAL S %	NP	MPA	NPR	TOTAL C %	TOTAL S %	NP	AP	NP/AP
PO5135155_1115	1.35	0.80	112.62	24.93	4.52	0.204	0.03	16.2	0.79	20.51
PO5135155_1116	0.47	0.31	39.04	9.84	3.97	0.192	0.03	13.2	0.99	13.33
PO5135155_1118	2.20	0.02	182.93	0.55	331.46	0.137	0.01	9.7	0.41	23.66
PO5135155_1215	0.20	0.71	16.32	22.16	0.74	0.060	0.06	9.0	1.81	4.97
PO5135155_1216	1.55	0.15	128.81	4.64	27.77	0.119	0.08	12.5	2.53	4.94
PO5135155_1217	2.04	0.47	170.15	14.79	11.51	0.103	0.02	9.9	0.52	19.04
PO5135155_1314	0.38	0.29	31.70	9.12	3.48	0.058	0.02	7.9	0.70	11.29
PO5135155_1617	1.05	0.11	87.14	3.28	26.55	0.934	0.05	84.3	1.71	49.30
PO5135155_1919	0.91	0.17	75.51	5.37	14.07	1.10	0.12	98.7	3.66	26.97
PO5135155_2018	3.67	0.01	305.89	0.40	773.17	3.72	< 0.01	299	0.31	964.52
PO5135155_2019	2.41	0.16	201.07	5.13	39.17	2.36	0.10	185	3.17	58.36
PO5135155_2118	3.47	0.08	289.60	2.51	115.54	3.79	0.03	294	1.04	282.69
PO5135155_2119	0.47	0.16	38.76	4.88	7.95	0.500	0.05	52.5	1.68	31.25
PO5135155_2218	3.91	0.02	325.50	0.73	447.30	3.66	< 0.01	292	0.31	941.94
PO5135155_2219	0.86	0.39	71.83	12.16	5.91	0.848	0.23	75.5	7.28	10.37
PO5135193_1114	0.10	0.81	8.71	25.25	0.34	0.087	0.69	7.3	21.6	0.34
PO5135193_1117	0.30	0.17	25.13	5.24	4.80	0.235	0.06	9.5	1.77	5.37
PO5135193_1127	0.21	0.47	17.89	14.77	1.21	0.460	0.10	15.5	3.12	4.97
PO5135193_1132	0.26	0.10	21.62	3.25	6.66	0.237	0.03	11.0	1.00	11.00
PO5135193_1213	0.26	0.67	21.64	20.89	1.04	0.162	0.54	12.7	17.0	0.75
PO5135193_1214	0.18	0.06	15.30	1.83	8.37	0.250	0.01	19.7	0.34	57.94
PO5135193_1218	0.22	0.09	18.47	2.78	6.64	0.172	0.05	14.0	1.47	9.52
PO5135193_1222	0.23	0.50	19.14	15.51	1.23	0.243	0.34	9.5	10.6	0.90
PO5135193_1315	0.22	0.29	18.42	8.91	2.07	0.207	0.11	14.3	3.36	4.26
PO5135193_1316	0.36	0.05	29.73	1.52	19.52	0.388	< 0.01	22.0	0.31	70.97

Samples of Iron Formation drill cutting

	AEM lab					External lab - ABA modified Sobek method				
Tags id	TOTAL C %	TOTAL S %	NP	MPA	NPR	TOTAL C %	TOTAL S %	NP	AP	NP/AP
PO5135193_1107	0.102	0.653	8.509	20.403	0.417	0.100	0.21	11.3	6.56	1.723
PO5135193_1108	0.129	0.268	10.743	8.385	1.281	0.091	0.55	10.9	17.2	0.634
PO5135193_1110	0.192	0.233	15.970	7.274	2.195	0.163	0.20	12.9	6.29	2.051
PO5135193_1112	0.189	0.483	15.735	15.097	1.042	0.160	0.35	14.8	10.9	1.358
PO5135193_1113	0.169	0.406	14.084	12.696	1.109	0.157	0.30	11.5	9.34	1.231
PO5135193_1119	0.141	0.745	11.735	23.278	0.504	0.134	0.88	12.9	27.4	0.471
PO5135193_1120	0.100	0.573	8.341	17.894	0.466	0.083	0.46	14.6	14.4	1.014
PO5135193_1121	0.216	0.438	17.996	13.693	1.314	0.169	0.34	13.5	10.5	1.286
PO5135193_1122	0.169	0.446	14.096	13.945	1.011	0.198	0.24	9.1	7.57	1.202
PO5135193_1131	0.263	0.555	21.955	17.343	1.266	0.228	0.34	13.1	10.5	1.248
PO5135193_1208	0.109	0.336	9.058	10.502	0.863	0.090	0.27	10.0	8.31	1.203
PO5135193_1209	0.121	0.303	10.083	9.483	1.063	0.117	0.32	9.6	9.98	0.962
PO5135193_1210	0.154	0.178	12.810	5.553	2.307	0.119	0.12	12.8	3.70	3.459
PO5135193_1212	0.107	0.381	8.882	11.908	0.746	0.106	0.28	11.4	8.69	1.312
PO5135193_1219	0.151	0.501	12.578	15.659	0.803	0.097	0.36	11.3	11.4	0.991
PO5135193_1220	0.136	0.560	11.314	17.514	0.646	0.165	0.58	15.6	18.0	0.867
PO5135193_1221	0.109	0.574	9.090	17.942	0.507	0.131	0.55	10.5	17.1	0.614
PO5135193_1230	0.494	0.702	41.208	21.926	1.879	0.325	0.77	19.4	24.2	0.802
PO5135193_1308	0.221	0.385	18.431	12.039	1.531	0.181	0.37	10.7	11.4	0.939
PO5135193_1311	0.186	0.276	15.533	8.611	1.804	0.164	0.20	16.2	6.17	2.626
PO5135193_1318	0.180	0.237	14.963	7.404	2.021	0.108	0.18	11.1	5.56	1.996
PO5135193_1319	0.148	0.296	12.351	9.263	1.333	0.148	0.17	13.0	5.27	2.467
PO5135193_1320	0.131	0.645	10.896	20.167	0.540	0.126	0.35	12.7	11.0	1.155
PO5135193_1321	0.365	0.294	30.459	9.197	3.312	0.328	0.23	13.4	7.25	1.848
PO5135199_1701	0.533	2.112	44.435	66.012	0.673	0.780	1.37	13.3	42.7	0.311

Samples of Ultramafic Volcanics drill cutting

	AEM lab					External lab - ABA modified Sobek method				
Tags id	TOTAL C %	TOTAL S %	NP	MPA	NPR	TOTAL C %	TOTAL S %	NP	AP	NP/AP
PO5135155_1318	1.326	0.182	110.533	5.673	19.483	1.31	0.06	105	1.92	54.688
PO5135155_1409	0.605	1.988	50.423	62.111	0.812	0.488	1.64	38.6	51.4	0.751
PO5135155_1419	0.101	0.092	8.377	2.880	2.908	0.048	0.22	14.2	6.93	2.049
PO5135155_1518	0.918	0.190	76.498	5.950	12.858	0.706	0.11	60.3	3.39	17.788
PO5135155_1519	0.101	0.092	8.377	2.880	2.908	0.077	0.02	12.4	0.58	21.379
PO5135155_1619	0.269	0.276	22.416	8.633	2.597	0.197	0.17	10.4	5.37	1.937
PO5135155_1620	0.899	0.185	74.881	5.777	12.962	0.872	0.17	11.7	5.43	2.155
PO5135155_1819	0.072	0.126	5.998	3.924	1.528	0.030	0.05	12.7	1.66	7.651
PO5135155_2020	0.070	0.015	5.845	0.482	12.138	0.033	0.01	11.5	0.38	30.263
PO5135155_2021	0.065	0.028	5.425	0.873	6.214	0.040	0.03	8.9	0.79	11.266
PO5135155_2120	0.079	0.055	6.543	1.729	3.785	0.053	0.01	9.7	0.36	26.944
PO5135155_2121	0.047	0.127	3.888	3.984	0.976	0.046	0.03	10.0	1.05	9.524
PO5135155_2205	2.291	3.201	190.937	100.019	1.909	0.982	2.68	57.2	83.6	0.684
PO5135155_2220	0.042	0.011	3.512	0.347	10.110	0.032	0.05	10.1	1.64	6.159
PO5135155_2221	0.098	0.122	8.199	3.810	2.152	0.084	0.04	10.4	1.29	8.062
PO5135155_2222	0.048	0.047	3.971	1.459	2.723	0.034	0.04	10.1	1.19	8.487
PO5135155_2321	0.053	0.043	4.458	1.357	3.285	0.021	0.05	10.5	1.57	6.688
PO5135155_2322	0.041	0.009	3.383	0.267	12.673	0.027	< 0.01	10.3	0.31	33.226
PO5135157_2007	0.085	0.463	7.122	14.482	0.492	0.111	0.28	16.7	8.60	1.942
PO5135193_1111	0.431	0.622	35.893	19.435	1.847	0.370	0.52	27.4	16.2	1.691
PO5135193_1310	0.457	0.233	38.121	7.267	5.246	0.341	0.15	29.0	4.70	6.170
PO5135199_1111	0.084	0.404	6.989	12.614	0.554	0.075	0.32	10.1	10.2	0.990
PO5135199_1412	0.175	0.518	14.583	16.174	0.902	0.169	0.42	15.0	13.2	1.136
PO5135199_1413	0.109	0.481	9.045	15.044	0.601	0.148	0.37	10.7	11.6	0.922

Table 4.2: Metal Leaching Results Comparison

Samples of Intermediaire Volcanics drill cutting
Shake Flask Leach

Tags id	As (mg/L)	Cu (mg/L)	Ni (mg/L)	Zn (mg/L)
P05135155_1115	0.0096	0.0017	0.0004	< 0.001
P05135155_1116	0.0819	0.0006	0.0005	< 0.001
P05135155_1118	0.0255	0.0007	0.0002	< 0.001
P05135155_1215	0.134	< 0.0005	0.0003	< 0.001
P05135155_1216	0.0686	< 0.0005	0.0004	< 0.001
P05135155_1217	0.0331	< 0.0005	0.0003	< 0.001
P05135155_1314	0.171	0.0005	0.0003	< 0.001
P05135155_1617	0.0004	< 0.0005	< 0.0001	< 0.001
P05135155_1919	0.0006	< 0.0005	< 0.0001	< 0.001
P05135155_2018	0.0043	< 0.0005	0.0002	< 0.001
P05135155_2019	0.0010	< 0.0005	< 0.0001	< 0.001
P05135155_2118	0.0114	< 0.0005	< 0.0001	< 0.001
P05135155_2119	0.0008	< 0.0005	< 0.0001	< 0.001
P05135155_2218	0.0066	< 0.0005	< 0.0001	< 0.001
P05135155_2219	0.0008	< 0.0005	< 0.0001	< 0.001
P05135193_1114	0.0078	0.0007	0.104	0.001
P05135193_1117	0.0099	< 0.0005	0.0017	< 0.001
P05135193_1127	0.0038	0.0013	0.0013	< 0.001
P05135193_1132	0.0014	0.0019	0.0071	0.001
P05135193_1213	0.0020	0.0009	0.0023	< 0.001
P05135193_1214	0.0104	0.0012	0.0010	< 0.001
P05135193_1218	0.0209	< 0.0005	0.0004	< 0.001
P05135193_1222	0.0133	< 0.0005	0.0014	< 0.001
P05135193_1315	0.0135	< 0.0005	0.0002	< 0.001
P05135193_1316	0.0261	0.0007	0.0003	< 0.001

Samples of Iron Formation drill cutting
Metal Leaching Shake Flask test

Tags id	As (mg/L)	Cu (mg/L)	Ni (mg/L)	Zn (mg/L)
P05135193_1107	0.0019	0.0006	0.0155	0.001
P05135193_1108	0.0117	0.0006	0.0126	< 0.001
P05135193_1110	0.0033	0.0007	0.0009	< 0.001
P05135193_1112	0.0008	0.0014	0.0005	< 0.001
P05135193_1113	0.0008	0.0006	0.0021	< 0.001
P05135193_1119	0.0009	< 0.0005	0.0004	< 0.001
P05135193_1120	0.0006	< 0.0005	0.0003	< 0.001
P05135193_1121	0.0087	0.0005	0.0008	< 0.001
P05135193_1122	0.0033	0.0006	0.0027	0.001
P05135193_1131	0.0013	0.0006	0.0002	< 0.001
P05135193_1208	0.0053	0.0005	0.0031	< 0.001
P05135193_1209	0.0075	0.0005	0.0023	< 0.001
P05135193_1210	0.0011	< 0.0005	0.0002	< 0.001

Tags id	As (mg/L)	Cu (mg/L)	Ni (mg/L)	Zn (mg/L)
P05135193_1212	0.0005	< 0.0005	0.0003	< 0.001
P05135193_1219	0.0023	0.0007	0.0004	< 0.001
P05135193_1220	0.0015	< 0.0005	0.0002	< 0.001
P05135193_1221	0.0015	< 0.0005	0.0018	< 0.001
P05135193_1230	0.0012	< 0.0005	0.0004	< 0.001
P05135193_1308	0.0032	0.0006	0.0026	< 0.001
P05135193_1311	0.0008	0.0010	0.0009	0.001
P05135193_1318	0.0121	< 0.0005	0.0001	< 0.001
P05135193_1319	0.0024	0.0005	0.0006	< 0.001
P05135193_1320	0.0046	< 0.0005	0.0007	< 0.001
P05135193_1321	0.0061	0.0007	0.0015	< 0.001
P05135193_1701	0.0148	< 0.0005	0.0022	< 0.001

Samples of Ultramafic Volcanics drill cutting
Shake Flask Leach

Tags id	As (mg/L)	Cu (mg/L)	Ni (mg/L)	Zn (mg/L)
PO5135155_1318	0.0008	< 0.0005	< 0.0001	< 0.001
PO5135155_1409	0.0008	0.0013	0.0007	0.002
PO5135155_1419	0.0004	0.0006	< 0.0001	< 0.001
PO5135155_1518	0.0007	0.0007	< 0.0001	< 0.001
PO5135155_1519	0.0008	0.0005	< 0.0001	< 0.001
PO5135155_1619	0.0003	< 0.0005	< 0.0001	< 0.001
PO5135155_1620	0.0006	< 0.0005	< 0.0001	< 0.001
PO5135155_1819	0.0003	< 0.0005	< 0.0001	< 0.001
PO5135155_2020	0.0003	0.0006	< 0.0001	< 0.001
PO5135155_2021	0.0005	0.0006	< 0.0001	< 0.001
PO5135155_2120	0.0007	0.0019	< 0.0001	< 0.001
PO5135155_2121	0.0002	0.0007	< 0.0001	< 0.001
PO5135155_2205	0.0013	0.0010	0.0013	0.003
PO5135155_2220	0.0004	0.0006	< 0.0001	< 0.001
PO5135155_2221	0.0005	0.0011	< 0.0001	0.001
PO5135155_2222	0.0004	0.0008	< 0.0001	< 0.001
PO5135155_2320	0.0004	0.0008	< 0.0001	< 0.001
PO5135155_2321	0.0005	0.0008	< 0.0001	< 0.001
PO5135155_2322	0.0002	< 0.0005	< 0.0001	< 0.001
PO5135157_2007	0.0002	< 0.0005	< 0.0001	< 0.001
PO5135193_1111	0.0052	0.0007	0.0014	< 0.001
PO5135193_1310	0.0015	< 0.0005	0.0002	< 0.001
PO5135199_1111	0.0005	< 0.0005	< 0.0001	< 0.001
PO5135199_1412	0.0006	0.0007	0.0001	< 0.001
PO5135199_1413	0.0004	< 0.0005	< 0.0001	< 0.001

Table 4.3: Waste Rock Volumes

	North Portage (Tonnes)			South Portage (Tonnes)			TOTAL (Tonnes)
	Rock	Ore	Waste	Rock	Ore	Waste	
January	160,294						
February	103,323						
March	256,972		280				
April	388,725	12,733	1,306				
May	516,829						
June	531,933	729					
July	584,364	5,910	6,820				
August	741,518						
September	528,191	9,618	4,445				
October	640,295	42,452	250	19,778		2,548	
November	378,005	33,247	3,167	601,807	94,848	4,061	
December	322,641	6,307		341,547	339,991		
TOTAL	**5,153,090**	**110,996**	**16,268**	**963,132**	**434,839**	**6,609**	**6,684,934**

Total Waste Rock Transfered to Waste Dump	**22,877**
Total Rock Used for Construction Purposes (road, dikes, etc.)	**6,116,222**
Total Ore	**545,834**

Table 5.1: Volume of Waste Transferred

Month	Waste Volume Transferred to AEM Landfill (m^3)	Waste Volume sent to Incinerator (m^3)	Volume of wood sent to Baker Lake (m^3)
January	740	155	
February	865	140	
March	1,036	186	
April	1,059	180	
May	1,216	217	
June	1,302	210	
July	1,489	248	168
August	1,707	248	
September	1,673	240	
October	1,680	248	
November	1,707	240	
December	1,442	248	
TOTAL	**15,916**	**2,560**	**168**

Table 5.2: Hazmat Management Disposal

Shipping name	Quantity	Packaging Codes
AEROSOLS	3	Quatrex
BROKEN MERCURY LAMP	1	Quatrex
CONTAMINATED HYDAULIC HOSES	2	Wooden crate
CONTAMINATED HYDRAULIC HOSES (drums)	25	Drum
CONTAMINATED HYDRAULIC HOSES (quattrex)	6	Quatrex
COOKING OIL	5	Drum
FLAMMABLE LIQUID, n.o.s., (glue and polymer)	2	Drum
FOAM CYLINDER (fire exctinguisher)	1	Wooden crate
HYDROCARBON CONTAMINATED WATER	18	Drum
LABPACK ORGANIC (CONSUMER COMMODITY)	5	Drum
OIL AND GREASE (20 lts/5 gallons pails)	1	Quatrex
OILY CONTAMINATED SOLID (drum)	17	Drum
OILY CONTAMINATED SOLID (quattrex-bag)	10	Quatrex
OILY SLUDGE AND DEBRIS (drum)	32	Drum
OILY SLUDGE AND DEBRIS (oversize-drum)	1	Drum
ORGANIC COMPOUND (consumer commodity)	2	Lab pack
RESIDU LAST CONTAINED DIPHENYLMETHANE-4,4-DIIISOCYANATE SOLUTION	16	Drum
RESIDU LAST CONTAINED OIL AND GREASE (20 liters/5 gallons pails) (1 full seacan)	4000	Pail
RESIDU LAST CONTAINED RESIN	12	Drum
WASTE AEROSOL FLAMMABLE (drum)	7	Drum
WASTE AEROSOL FLAMMABLE (quattrex-bag)	1	Quatrex
WASTE ANTIFREEZE (drum)	6	Drum
WASTE ANTIFREEZE (tote)	1	Tote
WASTE BATTERIES	1	Drum
WASTE BATTERIES WET FILLED WITH ACID	21	Quatrex
WASTE CALCIUM CHLORIDE	1	Drum
WASTE COOKING OIL	3	Drum
WASTE FLAMMABLE SOLID ORGANIC N.O.S. (FUEL RAGS OR FILTERS) (drum)	18	Drum
WASTE FLAMMABLE SOLID ORGANIC N.O.S. (FUEL RAGS OR FILTERS) (quattrex bag)	48	Quatrex
WASTE FUEL (drum)	133	Drum
WASTE FUEL (oversize-drum)	2	Drum
WASTE FUEL (tote-tank 1000 lts)	2	Tote
WASTE GREASE (205 lts drum)	16	Drum
WASTE GREASE (68 lts drum)	10	Drum
WASTE GREASE AND OIL	81	Pail
WASTE OIL (drum)	180	Drum
WASTE OIL (in Quattrex)	27	Pail
WASTE OIL (Tote tank 1000 litres)	15	Tote
WASTE OIL FILTERS (drum)	52	Drum
WASTE OIL FILTERS (quattrex bag)	6	Quatrex
WASTE OILY RAGS	100	Drum
WASTE PAINT	1	Wooden crate
WASTE PAINT (labpack drum)	13	Drum
WASTE PAINT (labpack quattrex)	3	Quatrex

Shipping name	Packaging Quantity	Packaging Codes
Total Quatrex	100	
Total Drum	675	
Total Wooden crate	4	
Total Pail	4108	
Total Lab pack	2	
Total Tote	18	

Table 5.3: Incinerator Ash Sampling

Parameter	Guideline for Industrial Waste Discharge*	Little Incinerators			Mine Site Incinerator		
		27-Feb-09	27-Mar-09	4-Jun-09	1-Jul-09	22-Aug-09	21-Sep-09
Arsenic (mg/L)	2.5	0.023	0.071	0.14	0.067	0.071	0.006
Barium (mg/L)	100	0.11	0.040	0.056	0.36	0.35	0.23
Cadmium (mg/L)	0.5	<0.002	<0.002	0.089	<0.002	0.025	<0.002
Chromium (mg/L)	0.5	0.031	0.072	0.019	0.38	0.036	0.27
Lead (mg/L)	5	<0.002	<0.0009	0.015	<0.0009	<0.01	<0.01
Mercury (mg/L)	0.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Selenium (mg/L)	1	<0.005	<0.005	0.006	<0.005	<0.005	<0.005
Silver (mg/L)	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc (mg/L)	500	<0.02	2.4	5.7	<0.02	29	<0.2

Notes:

* Government of Nunavut Environmental Guideline for Industrial Waste Discharges (D of SD, 2002)

Table 5.4: Waste Oil Sampling

Parameter	NWT Used Oil & Waste Fuel Regulations*	1-Jul-09
Cadmium (ppm)	2	<1
Chromium (ppm)	10	<1
Lead (ppm)	100	-
Total Organic Halogens (as chlorine) (ppm)	1000	150
Polychlorinated biphenyls (ppm)	2	<1
Flash point (^{o}C)	-	62

Notes:

* NWT Used Oil and Waste Fuel Management Regulations (NWT, 2003)

Table 6.1: 2009 Spill Summary

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
7-Feb-09	Diesel fuel	5 L	AWPAR Km	hose burst from a pick-up	all contamination was collected and snow was put in a barrel and send to the Hazmat	No
8-Feb-09	Diesel fuel	3 L	AWPAR Km 31	Hose burst from Mini Bus	all contamination was collected and snow was put in a barrel and send to the Hazmat	No
12-Feb-09	Concentrate Glass cleaner	20 L	In front of TCG garage	Tail gate open during transportation	Identify the contaminated area and take all cont. Snow in a barrel to the hazmat	No
14-Feb-09	Hydraulic oil	4 L	Crusher area	Crack fitting on hose	Immediate place of oil absorbents & fix fitting, then clean collect & packaged the spill	No
14-Feb-09	Antifreeze	10 L	Generator #1	Hole in the radiator	Put absorbent sheet to contain spill inside and take out contaminated snow	No
13-Feb-09	Antifreeze, Fuel, hydraulic oil	50 L	Crusher area	Truck tip on the side	Contain the leak and shuvel it up with a back hole to the quarry 22	No
23-Feb-09	Oil	4 L	Container by new drill & Toromont coverall	Drum was Punctured while moving it to the coverall	Drained the remainder of the drum into an empty drum using the crane on the service truck. Used spill pads to soak up spill oil	No
21-Feb-09	Hydraulic oil	15 L	Sand pit	Hose busrt from cold weather	Snow was pick up to the contaminated snow area and the D8 dozer was transport by a trailer to the garage	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
24-Feb-09	Oil	8 L	Dewatering road west of culvert	Vent of the motor was plugged and the oil spill by the checking gage (cause by cold weather)	Contaminated snow was put to bermed cell and the motor get reperaid	No
3-Mar-09	Hydraulic oil	10 L	East Dike	Hose burst on a drill	Drilling ceased and the spill was contained.	No
11-Mar-09	Hydraulic oil	8 L	Entrance of the Tarmak	Hose burst	Contaminated snow was taken to the contaminated snow cell.	No
14-Mar-09	Oil	10 L	Waste management area	Engine connecting rod went through engine block	Absorbent sheets were applied. Contaminated snow was taken to the contaminated snow cell.	No
16-Mar-09	Prestone	8 L	AWPAR km 100	Incorrect Prestone product in the radiator caused crack and leakage	Absorbent sheets were applied. Contaminated snow was taken to the contaminated snow cell.	No
23-Mar-09	Oil	4 L	Container by new drill & Toromont Coverall	Oil drum was punctured drum while moving it to Coverall	The remainder of oil in the drum was drained into an empty drum using the crane on the service truck. Used spill pads to soak up spilled oil.	No
13-Mar-09	Oil	60 L	Blue coverall laydown	Fire in the engine compartment melted hoses	Spill contained with spill kit materials. Top soil was cleaned up immediately and sent to Quarry 22 with other contaminated soil. Further excavation was completed on April 13, with 48 m^3 contaminated soil sent to Quarry 22.	No
19-Mar-09	Hydraulic oil	20 L	Front of cold storage	Leak from the rotation motor for the drill	Contaminated material was taken to the hazardous materials storage area.	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
4-Apr-09	Antifreeze	8 L	AWR between km 83-84	Unknown (spill was found on the road)	Contaminated soil removed and taken to Quarry 22	No
4-Apr-09	Diesel	4 m^3	Road between batch plant and laydown3	Unknown	Contaminated soil was removed	No
4-Apr-09	Diesel	70 L	Dewatering fuel tank for pumps	Tank was over filled by the fuel truck operator	Absorbent sheets placed under tank to contain spill. Contaminated snow taken to contaminated snowcell	No
5-Apr-09	Hydraulic oil	1 L	Ice road	Hose burst	Cleaned up with spill kit. Contaminated material taken to hazardous materials storage area	No
10-Apr-09	Diesel	20 L	Drill patern	Fast fill breather mechanically defective; will be repaired	Absorbent sheets applied. Contaminated snow taken to contaminated snowcell	No
11-Apr-09	Hydraulic oil	4 L	East Dike (middle)	Cylinder packing burst	Contaminated snow taken to the contaminated snow cell	No
13-Apr-09	Waste oil	20 L	Inside blue coverall	Valve not properly closed	Closed the valve and wiped the floor with absorbent pads. Contaminated pads taken to hazardous materials storage area	No
14-Apr-09	Diesel	20 L	New Incinerator	Hose fell out from tank while operator was on break and acted as a syphon onto the cement floor	Advised operator to remove pump intake from liquid when not pumping. Operating procedure revised. Absorbent sheets applied then placed into the new incinerator to be burned	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
21-Apr-09	Diesel	40 L	Reclaim tunnel	Equipment flipped over on its side, causing fuel to seep through filler cap	Contained fuel spill after equipment flipped on its side. Excavated and hauled contaminated material to Quarry 22: approx 1 x 20 tonner load (1 x Euclid truck)	No
17-Apr-09	Hydraulic oil	10 L	North portage pit	Hose leak	Absorbent sheets applied. Contaminated snow and rock put into an empty 5 gal that was taken to the hazardous materials storage area	No
16-Apr-09	Transmission oil	6 L	North portage pit	Pick-up rolled over a rock and broke the oil filter	Absorbent sheets applied. Contaminated snow taken to contaminated snowcell	No
22-Apr-09	Hydraulic oil	50 L	180 men camp	Broken hose	Contaminated snow taken to the contaminated snow cell	No
27-Apr-09	Diesel	8 m^3	Between batch plant and washroom unit	Unknown	Contaminated soil removed and taken to Quarry 22	No
28-Apr-09	Diesel	1 m^3	Road in front of Talbon shop	Unknown	Contaminated soil removed and taken to Quarry 22	No
14-May-09	Hydraulic oil	25 L	South Camp Dike	Hydraulic oil break	All contaminated rock was removed with the excavator and taken to Quarry 22	No
19-May-09	Diesel fuel	25 L	Waste Dump	Fuel nozzle failed to shut off	Absorbent material was used to recover fuel on surface and the soil was scrapped with a backhaul.	No
25-May-09	Jet B	205 L	Km 89 AWPAR	Crack in the bottom of the drum	Soil was removed and taken to Quarry 22	Yes
Unknown	Oil	3 m^2	Toromont Pad	Unknown	All contaminated rock was removed with the excavator and taken to Quarry 22	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
27-May-09	Diesel fuel	20 L	Km 103 AWPAR	Fuel drum not closed	Absorbent was used to contain the leak, pick up contaminated soil with shovel and back haul	No
27-May-09	Diesel fuel	20 L	Construction site	Leak from a light plant	The generator was stop and the soil shovel up with an excavator	No
28-May-09	Hydraulic oil	50 L	Dewatering Road and Saddle Dam road	Hose busted	Cleaned and contaminated soil bring to the hazardous materials storage area	No
Unknown	Diesel fuel	1 m^2	TCG Area	Possible over flow when refuelling	The area was cleaned up and contaminated soil was taken to the hazardous materials storage area	No
Unknown	Oil	1 m x 0.75 m	TCG Area	Possibly back haul	The area was cleaned up and contaminated soil was taken to the hazardous materials storage area	No
Unknown	Diesel fuel	1 m^2	TCG Area	Possibly fuel truck	The area was cleaned up and contaminated soil was taken to the hazardous materials storage area	No
Unknown	Coolant	~ 10 L	Cold Storage	777 Haul trucks	The area was cleaned up and contaminated soil was taken to the hazardous materials storage area	No
Unknown	Diesel fuel	5 m^2	In front of White Coverall	Fuel truck	All contaminated rock was removed with the excavator and taken to Quarry 22	No
31-May-09	Diesel fuel	2 m^2	Dewatering area between the pumps and the shelter	Unknown	All contaminated rock was removed with the excavator and taken to Quarry 22	No
Unknown	Grease and oil	4 m^2	AWPAR along the airstrip	Unknown	All contaminated rock was removed with the excavator and taken to Quarry 22	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
6-Jun-09	Fuel	10 L	Front of Mill Building	Fuel was filled in a hydraulic tank and about 10 L of mixed hydraulic and fuel overflowed on the ground	The contractor was designated to clean up the spill and to dispose of the material properly at the hazardous materials storage area	No
10-Jun-09	Hydraulic oil	45-90 L	Airstrip tarmac and road to shop	Broken fitting on hydraulic hose on the compactor	Contaminated soil placed in a drum and taken to the hazardous materials storage area	No
12-Jun-09	Diesel	20 L	End of Wing 5	Rebar penetrated fuel tank of Bob Cat Unit BCJD01	Shut down the equipment. Spill response was deployed using spill pads and pans	No
Unknown	Oil	1 m^2	White coverall	Broken machine in the parking lot	Contaminated soil placed in a container and taken to Quarry #22	No
Unknown	Oil	0.3 m^2	Operation office (parking lot)	Unknown	Contaminated soil placed in a container and taken to Quarry #22	No
20-Jun-09	Oil	3.5 m^2	In front of the Warehouse	Leak from Hyster equipment	Contaminated soil placed in a container and taken to Quarry #22	No
5-Jul-09	Hydraulic Oil	2 L	South of Nahanni maintenance shop	Leak in hydraulic line connector	Contaminated soil placed in a drum and taken to the hazardous materials storage area	No
6-Jul-09	Hydraulic Oil	~ 35 L	Behind the truck shop	Rough condition of the road caused equipment to fall off the machine	Dump truck used to move contaminated soil to Quarry 22	No
8-Jul-09	Diesel Fuel	5 L	Tank farm	A pipe was leaking	Dump truck used to move contaminated soil to Quarry 22	No
Unknown	Hydraulic Oil	4 L	Cold Storage	Possibly excavator or drill	Contaminated soil was taken to the hazardous materials storage area	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
28-Jul-09	Hydraulic Oil	4 L	Beside Reclaim Tunnel	Blown hydraulic hose	Contaminated soil was collected with heavy equipment and taken to Quarry 22	No
29-Jul-09	Used Oil	50 L	Laydown 3	Transporting drum	Contaminated material was collected with heavy equipment and taken to Quarry 22	No
5-Aug-09	Hydraulic oil	80 L	Goose Bay ramp	Hose busted	Absorbent pads and absorbent peat moss applied. Contaminated material collected and sent to Quarry 22	No
10-Aug-09	Diesel fuel	50 L	Baker Lake upper loading area	Truck trouble	Used absorbent pads. Contaminated soil removed and sent to Quarry 6	No
10-Aug-09	Diesel fuel	50 L	Baker Lake barge loading area platform	Truck trouble	Used absorbent pads. Contaminated soil removed and sent to Quarry 6	No
7-Aug-09	Diesel fuel	25 L	Between leaching tanks and power plant	Leak from the air compressor engine	Used absorbent pads. contaminated soil removed and sent to Quarry 22	No
17-Aug-09	Fuel	4 L	Intersection to TCG crusher	Used the wrong truck to refill the tank. It did not have a fuel cap	Collected contaminated soil in a drum and send it to the hazardous materials storage area. Mechanic will not refuel equipment until proper cap on is replaced on the tank	No
20-Aug-09	Diesel fuel	80 L	Bay Goose Dike	When the fuel nozzle was removed, the automatic cut off on the 773 truck did not work (dirt inside)	Absorbent pads used for all fuel (liquid) above ground and then the contaminated area was excavated with a 320. Loaded the material into a 773 and transported to Quarry 22. Flagged the excavated area and notified environment dept. for inspection	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
2-Aug-09	Used oil	80 L	Inside incinerator	The hose was left inside the drum, so the pump hose acted as a siphon and spilled out used oil onto the cement floor	Used absorbent pad to recover the spilled oil on the cement floor and put it into hazmat seacan	No
27-Aug-09	Oil	20 L	Pit area	A protection plate fell underneath the motor. From the movement of the shovel, the plate lifted up and knocked off the oil filter	Used absorbent pad to recover the spill and put it in to hazmat seacan	No
10-Sep-09	Glycol	1100 L	LD3	Cubes stacked ineffectively in the seacan. The forklift was trying to remove the cube and punched the cube with the fork.	Absorbent applied to the spill. Contaminated soil taken to Quarry 22 (approx. 10 to 20 tons removed). Composite samples taken from bottom and the sides.	Yes
19-Sep-09	Anti-freeze	3 L	Front of Main Entrance	Radiator had holes in it.	Applied absorbent.	No
20-Sep-09	Diesel	80 L	On the bermed area of the tank farm	Human error. Misjudged the capacity of the tank.	Contaminated soil collected and taken to Quarry 22.	No
20-Sep-09	Hydraulic oil	20 L	On drill pattern #5145071 in the pit	Hose burst.	Contaminated soil collected in a pail and placed in a dedicated seacan container at FGL area.	No
26-Sep-09	Waste oil and grease	45 L	Baker Lake marshalling area	Leak of product inside HAZMAT seacan.	Moved Seacan to Quarry 6 and changed the leaking bag.	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
26-Sep-09	Waste oil mixed with water	30 L	Baker Lake marshalling area	Leak of product inside HAZMAT seacan.	Moved Seacan to Quarry 6 and changed the leaking bag.	No
26-Sep-09	Transmission oil	5 L	Construction warehouse	Broken Clam hose.	Applied absorbent to the spill. Contaminated soil collected and taken to Quarry 22.	No
28-Sep-09	Diesel	400 L	Refuelling Area (contained in a membrane)	Overfilling diesel tank and leaving hose attached to the tank.	Placed absorbent on the spill and picked up the contaminated soil. Material taken to Quarry 22.	Yes
29-Sep-09	Diesel	4 m^2	Refuelling Area	Unknown.	Used absorbent.	No
29-Sep-09	Anti-freeze	< 1 L	Operations parking lot	Truck leaked.	Used absorbent pads. Truck taken in for inspection.	No
30-Sep-09	Diesel	10 L	Km 43 AWPAR	Truck rolled over while travelling on AWPAR.	Used absorbent to contain the leak. Also put absorbent on the ground as a preventive measure.	No
1-Oct-09	Hydraulic oil	90 m^2	AWPAR between km 10 and 20, left side of the road south bound	Broken hose	Backhoe and front shovel used to excavate the contaminated soil. Three loads of contaminated soil taken to Quarry 6	No
7-Oct-09	Hydraulic oil	200 L	Between Stormwater dike and the pit	Busted hose	Driver went directly to the garage for repairs when broken hose was noticed. Oil was spread all along the muddy road. The oil was mixed with the muddy soil and nothing could be recovered. Operation	Yes
11-Oct-09	Diesel Fuel	200 L	Baker Lake Refueling station	Driver overfilled the tanker truck	Contaminated material was recovered and taken to Quarry 6	Yes
14-Oct-09	Oil and Glycol	25 L	Construction genset	Motor failure	Applied absorbent to spill and repaired the broken part. Contaminated soil picked up and taken to the hazmat storage area	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
21-Oct-09	coolant	6 - 8 L	Dewatering tanks	Unknown, possibly a leak in the radiator on the IT 14 or the CM 785 drill	Contaminated soil picked up and taken to the hazmat storage area	No
21-Oct-09	Oil	3 L	Laydown 2	Forklift punctured drum resulting in a small hole	Immediately repositioned drum. Contaminated soil and snow placed in a pail and taken to the hazmat storage area. Oil to be burned at the incinerator	No
24-Oct-09	Diesel Fuel	1 m^2	East Dike (generator)	Vent on the generator not working properly	Secondary containment placed under generator	No
24-Oct-09	Diesel Fuel	7 m^2	Pit (South Entrance)	Unknown	Area scraped with grader blade. Contaminated snow and soil picked up with loader and taken to the snow cell and hazmat storage area	No
24-Oct-09	Antifreeze or oil	1 m^2	Waste rock Pad	Leak from drill # RBD05	Contaminated soil picked up and taken to hazmat storage area	No
24-Oct-09	Oil	less than 1 m^2	Saddle Dam	Broken hose	Shoveled the contaminated soil into the roll-off bin	No
24-Oct-09	Antifreeze	1 m^2	Quarry 23	Anti-freeze leaked while RH-120 shovel was being assembled	Contaminated snow and soil picked up and taken to the snow cell and hazmat storage area	No
25-Oct-09	Coolant	1 m^2	Bay Goose Island	Leak from Geopac compactor	Put secondary containment under the compactor to contain the leak. Compactor can only be moved in spring so the contaminated soil will be recovered that time	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
25-Oct-09	Diesel Fuel	2 m^2	TCG pad	Compressor fuel tank moved when fuel tank was full	Contaminated soil picked up and taken to hazmat storage area	No
25-Oct-09	Diesel Fuel	2 m^2	Truck shop	Overfilling of the frost fighters	Secondary containment placed under every frost fighter	No
25-Oct-09	Diesel Fuel	2 m^2	Nahanni Maintenance shop	Unknown	Contaminated soil picked up and taken to hazmat storage area	No
25-Oct-09	Oil	less than 1 m^2	Construction office parking	Mechanical problem on the drill	Applied absorbent to spill and repaired the broken part. Contaminated soil picked up and taken to hazmat storage area	No
27-Oct-09	Diesel Fuel	3 L	Truck shop	While moving a frost fighter into a secondary containment, some fuel leaked from the cap of the frost fighter	Contaminated soil picked up and taken to hazmat storage area	No
29-Oct-09	Oil	5 L	Pit	Drill - Usage of summer oil instead of winter oil, it expanded and overflowed	Put secondary containment under it. Contaminated soil/snow collected and taken to hazmat storage area. Drill taken in for maintenance	No
31-Oct-09	Diesel Fuel	3 L	Dewatering tanks	Overfilling of the generator	Contaminated material will be recovered when genset is relocated	No
31-Oct-09	Transmission fluid	Unknown	AWPAR km 70 and 71	Transmission breaks on the Hyster lift	Contaminated soil collected	No
31-Oct-09	Oil	2 L	Saddle dam dike	Fill the oil tank without putting the plug at the bottom	Replaced plug. Contaminated soil picked up and taken to hazmat storage area	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
6-Nov-09	Antifreeze	45 L	South Portage Pit	Hose burst	Put absorbent pads on the ground and made secondary containment to contain the spill. 4m of muck removed with 966 and taken to Quarry 22	No
13-Nov-09	Transmission oil	15 L	South Portage Pit	Rock fell on sight glass level window causing the window to break	Contaminated material loaded into truck 773 #9 and transported to Quarry 22 on day shift	No
13-Nov-09	Hydraulic oil	50 L	North Portage pit	Hydraulic hose burst	Contaminated rock transported to Quarry 22	No
24-Nov-09	Diesel Fuel	15 L	Incinerator Building	Tank filled to the top with cold diesel fuel. It expanded with the heat of the building causing the tank to overflow	Spill happened on the cement floor. Absorbent pads applied to the spill	No
21-Nov-09	Hydraulic oil	2 L	Near TSS Plant	Mechanical failure	There will be access to the spill as soon as the hyster is moved	No
28-Nov-09	Hydraulic oil	40 L	South Portage Pit	Hose burst	Contaminated soil collected and taken to Quarry 22	No
28-Nov-09	Transmission oil	5 L	TSS Water treatment Plant	Broken transmission on a pick truck	Contaminated snow collected and taken to the contaminated snow cells	No
30-Nov-09	Hydraulic oil	2 L	Between Powerhouse and Transfer Tower	Broken hose	Put down absorbent pads immediately after the spill. Scraped the contaminated snow scraped with a loader and taken to the snow cells.	No
15-Dec-09	Engine oil	20 L	AWPAR (crossing of the fresh water intake road)	The truck left the road and hit a rock	Excavator and a truck used to collect and transport the soil to Quarry 22	No

Date of Spill	Hazardous Material	Quantity	Location	Cause of spill	Clean-up Action Taken	Reported to Spill GN HotLine
19-Dec-09	Diesel Fuel	30 L	Powerhouse fuel tanks	Overfilling of the tank while transferring fuel from the main tank. Problems with the gauge.	Shoveled and collected the contaminated soil and snow and then disposed of it in the proper area	No
24-Dec-09	Fuel	10 L	Fuel station	Nozzle failure	Applied absorbent pads and transported material to the hazmat area	No
18-Dec-09	Hydraulic oil	10 m^2	North Portage Pit	Leak from a hose on the RBDO5 drill	Contaminated material taken to Quarry 22	No
21-Dec-09	Fuel	15 L	Powerhouse fuel tanks	Transferring fuel from main tank. Shut off transfer at 90% day tank level. After shut off, fuel level jumped to 98%. Operator immediately shut off main valve to tanks	Verified proper tank level calibration and that all valves were functioning correctly. Contaminated material removed and taken to the hazmat area	No
27-Dec-09	Hydraulic oil	45 L	AEM Crusher	Hose burst	Contaminated soil taken to Quarry 22	No

Table 7.1: Dewatering Monitoring for Intakes Discharging to TPL, March - July 2009

Date	Intake 1		Intake 2		Intake 3		Intake 4		No Pumps Running	All TPL Water Intake Pumps				TPL Outlet	
	24-hour Mean NTU	Lab TSS mg/L	24-hour Mean NTU	Lab TSS mg/L	24-hour Mean NTU	Lab TSS mg/L	24-hour Mean NTU	Lab TSS mg/L		NTU 24-hour Mean NTU	TSS 24-hour Mean mg/L	NTU 30-day Mean NTU	TSS 30-day Mean mg/L	24-hour Mean NTU	Lab TSS mg/L
17-Mar-09					2.4					2.4				0.4	
18-Mar-09					2.5	1				2.5	1				
19-Mar-09					2.4	1				2.4	1				
20-Mar-09			2.3		2.3	1				2.3	1				
21-Mar-09			2.3	1	2.3	1				2.3	1				
22-Mar-09									x						
23-Mar-09			2.2	1	2.3	1				2.3	1			0.4	1
24-Mar-09	3.0	1	2.8	1	2.5	1				2.8	1				1
25-Mar-09	3.2	1	3.6	1	3.4	1				3.4	1				
26-Mar-09									x						
27-Mar-09	3.1	1	3.5	1	3.3	1				3.3	1				
28-Mar-09	2.9	1	3.1	1	3.1	1				3.0	1				
29-Mar-09	5.3	1	5.5	1	5.1	1				5.3	1			2.1	5
30-Mar-09	4.2	1	3.8	1	4.1	1				4.0	1				
31-Mar-09	4.5	3	4.4	2	4.2	2				4.4	2				
1-Apr-09	4.2	1	4.0	1	4.2	2				4.1	1				
2-Apr-09	3.7	2	3.8	3	3.5	2				3.7	2				
3-Apr-09	3.9	1	3.5	4	3.3	3				3.6	3				
4-Apr-09	3.6	4	3.6	1	3.6	1				3.6	2				
5-Apr-09		1	4.2	1	3.3	1				3.8	1			2.1	1
6-Apr-09	3.6	1	3.8	1	3.5	1				3.6	1				
7-Apr-09	3.6	2	3.8	1	3.6	2				3.7	2				
8-Apr-09									x						
9-Apr-09	3.9	2	3.5	1	3.6	3				3.6	2				
10-Apr-09	3.1	2	3.2	2	3.0	2				3.1	2				
11-Apr-09	3.1	1	3.3	4	3.1	1				3.1	2				
12-Apr-09	4.3	5	3.6	3	3.5	3				3.8	4			2.0	3
13-Apr-09	4.0	1	4.7	3	4.5	1				4.4	2				
14-Apr-09	3.8		3.3		3.3					3.5					
15-Apr-09	4.1	1	4.1	1	4.0	2				4.1	1				
16-Apr-09	4.3	1	4.2	1	3.9	1				4.1	1				
17-Apr-09	3.9	4	3.9	1	3.9	1				3.9	2				
18-Apr-09	3.0	2	2.8	2	2.8	1				2.9	2	3.4	2		
19-Apr-09									x						
20-Apr-09	4.2	1	4.2	1	4.1	4				4.1	2	3.5	2		
21-Apr-09	4.0	1	4.4	10	4.1	2				4.1	4	3.5	2	1.7	3
22-Apr-09	3.9	4	4.2	2	4.2	2				4.1	3	3.6	2		
23-Apr-09	3.4	2	3.5	4	3.5	2				3.5	3	3.6	2		
24-Apr-09	3.4	1	3.5	2	3.5	1				3.5	1	3.7	2		
25-Apr-09	3.3	1	3.5	1	3.2	1				3.3	1	3.7	2		
26-Apr-09	3.4	1	3.6	1	3.3	1				3.4	1	3.7	2		
27-Apr-09	3.6	1	3.6	1	3.5	3				3.5	2	3.7	2		
28-Apr-09	3.8	1	4.1	2	4.4	2				4.1	2	3.8	2		
29-Apr-09	3.1	1	3.8	1	3.6	1				3.5	1	3.8	2		
30-Apr-09									x						
1-May-09									x						

Date	Intake 1		Intake 2		Intake 3		Intake 4		No Pumps Running	All TPL Water Intake Pumps				TPL Outlet	
	24-hour Mean NTU	Lab TSS mg/L	24-hour Mean NTU	Lab TSS mg/L	24-hour Mean NTU	Lab TSS mg/L	24-hour Mean NTU	Lab TSS mg/L		NTU 24-hour Mean NTU	TSS 24-hour Mean mg/L	NTU 30-day Mean NTU	TSS 30-day Mean mg/L	24-hour Mean NTU	Lab TSS mg/L
2-May-09									x					0.8	2
3-May-09									x						
4-May-09	3.2	1	3.5	1	3.5	1				3.4	1	3.7	2		
5-May-09	3.3	1	3.6	2	3.7	4				3.5	2	3.7	2		
6-May-09	3.4	1	3.7	11	3.7	18				3.6	10	3.7	2		
7-May-09	3.5	4	3.5	2	3.4	2				3.5	3	3.7	2		
8-May-09	3.5	4	3.4	4	3.5	4				3.4	4	3.6	2		
9-May-09	3.9	4	3.9	4	3.7	4				3.8	4	3.7	2		
10-May-09	3.1	3	3.2	6	3.2	3				3.2	4	3.6	2	0.4	6
11-May-09	3.2	1	3.5	2	3.4	1				3.4	1	3.6	2		
12-May-09	3.1	1	3.2	1	3.1	1				3.2	1	3.6	2		
13-May-09	3.3	1	3.2	2	3.4	1				3.3	1	3.6	2		
14-May-09	3.3	2	3.4	1	3.2	1				3.3	1	3.6	2		
15-May-09	3.8	1	3.7	1	3.6	2				3.7	1	3.6	2		
16-May-09	3.1	2	3.6	3	3.0	3				3.2	3	3.6	2	0.5	1
17-May-09	3.0	1	3.0	3	2.9	4				3.0	3	3.6	2		
18-May-09	3.9	2	4.1	2	3.8	1				3.9	2	3.6	2		
19-May-09	5.0	2	4.1	3	3.2	2				4.1	2	3.6	2		
20-May-09	3.9	2	4.7	2	4.9	2				4.5	2	3.6	2		
21-May-09	3.3	1	3.3	3	3.4	3				3.3	2	3.6	2		
22-May-09	3.2	1	3.1	1	3.5	1				3.2	1	3.6	2		
23-May-09	3.5	2	3.3	2	3.3	3				3.3	2	3.6	2		
24-May-09	3.1	2	2.8	2	3.3	1				3.0	2	3.5	2	0.5	4
25-May-09	3.2	1	3.4	1	3.7	1				3.4	1	3.5	2		
26-May-09	3.3	1	3.4	2	3.3	2				3.3	2	3.5	2		
27-May-09	3.5	1	3.9	2	3.6	1				3.7	1	3.5	2		
28-May-09	4.2	1	4.7	1	4.9	1				4.6	1	3.5	2		
29-May-09	5.2	1	5.8	2	5.8	2				5.6	2	3.6	2		
30-May-09	5.9	2	6.9	2	7.0	2				6.6	2	3.7	2		
31-May-09	4.7	2	6.0	1	6.1	2				5.6	2	3.8	2		
1-Jun-09									x						
2-Jun-09			3.1	2	2.8	2				3.0	2	3.7	2		
3-Jun-09	3.5	1	4.1	2	3.8	2	3.2	2		3.7	2	3.7	2		
4-Jun-09	4.4	3	4.1	5	4.0	2	4.1	4		4.1	4	3.8	2		
5-Jun-09	4.7	3	4.4	3	4.2	2	4.4	4		4.4	3	3.8	2		
6-Jun-09	7.0	3	7.0	3	6.8	4	6.7	4		6.9	4	3.9	2		
7-Jun-09	8.0	4	8.0	3	7.4	3	7.3	7		7.7	4	4.0	2		
8-Jun-09	8.1	3	7.4	3	7.5	5	8.1	5		7.8	4	4.2	2		
9-Jun-09	13.2	2	10.3	2	10.4	2	11.0	2		11.2	2	4.4	2		
10-Jun-09	11.0	2	12.8	2	11.2	1	40.1	3		18.8	2	5.0	2		
11-Jun-09	14.1	5	13.6	4	13.0	4	15.0	5		13.9	5	5.3	2		
12-Jun-09	15.0	4	14.5	4	13.4	4	11.5	5		13.6	4	5.7	2		
13-Jun-09	13.7	4	13.3	5	12.1	4	14.4	5		13.4	5	6.0	2		
14-Jun-09	14.6	5	14.6	6	14.0	5	14.4	4		14.4	5	6.4	2		
15-Jun-09	15.9	6	13.4	6	14.6	6	13.7	6		14.4	6	6.7	3		
16-Jun-09	18.0	7	16.9	6	17.9	8	18.2	7		17.8	7	7.2	3		
17-Jun-09									x					0.7	1
18-Jun-09									x						

Date	Intake 1		Intake 2		Intake 3		Intake 4		No Pumps Running	All TPL Water Intake Pumps				TPL Outlet	
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS		NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean	24-hour Mean	Lab TSS
	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L		NTU	mg/L	NTU	mg/L	NTU	mg/L
19-Jun-09									x						
20-Jun-09	19.2	7	18.2	8	15.1	6	17.1	8		17.4	7	7.7	3		
21-Jun-09	19.8	10	19.3	10	21.6	10	19.6	9		20.1	10	8.2	3		
22-Jun-09	20.4	9	18.7	9	17.9	8	18.9	9		19.0	9	8.7	3		
23-Jun-09	25.6	7	20.4	5	20.8	8	21.0	7		22.0	7	9.3	4		
24-Jun-09	20.3	8	16.9	7	17.4	7	16.6	8		17.8	8	9.8	4		
25-Jun-09	20.7	8	17.1	8	17.9	8	18.8	10		18.6	9	10.3	4		
26-Jun-09	22.3	7	17.6	8	17.3	7	13.5	6		17.7	7	10.8	4		
27-Jun-09	23.3	8	22.4	7	23.2	8	22.3	9		22.8	8	11.4	4	1.1	1
28-Jun-09	24.0	8	19.2	7	19.8	8	21.4	6		21.1	7	12.0	5		
29-Jun-09	25.5	9	22.1	8	21.5	7	22.8	8		23.0	8	12.7	5		
30-Jun-09									x						
1-Jul-09									x						
2-Jul-09									x						
3-Jul-09									x						
4-Jul-09									x						
5-Jul-09	18.3	8	17.7	8						18.0	8	13.2	5		
6-Jul-09	16.3	7	14.3	8						15.3	8	13.5	5		
7-Jul-09	21.5	7	21.9	9						21.7	8	14.1	5	1.5	
8-Jul-09	16.9	7	19.8	6						18.4	7	14.4	6		
9-Jul-09	21.4	8	22.3	8						21.9	8	15.0	6		

Table 7.2: Dewatering Monitoring for Intakes Discharging to SPL, March - July 2009

Date	Intake 5		Intake 6		No Pumps Running	All SPL Water Intake Pumps				SPL Outlet	
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS		NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean	24-hour Mean	Lab TSS
	NTU	mg/L	NTU	mg/L		NTU	mg/L	NTU	mg/L	NTU	mg/L
17-Mar-09					x						
18-Mar-09					x						
19-Mar-09					x						
20-Mar-09					x						
21-Mar-09					x						
22-Mar-09					x						
23-Mar-09					x						
24-Mar-09					x						
25-Mar-09					x						
26-Mar-09					x						
27-Mar-09					x						
28-Mar-09					x						
29-Mar-09					x						
30-Mar-09					x						
31-Mar-09					x						
1-Apr-09					x						
2-Apr-09					x						
3-Apr-09					x						
4-Apr-09					x						
5-Apr-09					x						
6-Apr-09					x						
7-Apr-09					x						
8-Apr-09					x						
9-Apr-09					x						
10-Apr-09					x						
11-Apr-09					x						
12-Apr-09					x						
13-Apr-09					x						
14-Apr-09					x						
15-Apr-09	4.0	2				4.0	2				
16-Apr-09	3.9	2				3.9	2				

Date	Intake 5		Intake 6		No Pumps Running	All SPL Water Intake Pumps				SPL Outlet	
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS		NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean	24-hour Mean	Lab TSS
	NTU	mg/L	NTU	mg/L		NTU	mg/L	NTU	mg/L	NTU	mg/L
17-Apr-09	3.4	4				3.4	4				
18-Apr-09	3.0	1				3.0	1				
19-Apr-09					x						
20-Apr-09	4.4	1				4.4	1			2.8	7
21-Apr-09	3.9	6				3.9	6				
22-Apr-09	3.5	2				3.5	2				
23-Apr-09	3.2	1				3.2	1				
24-Apr-09	3.2	2				3.2	2				
25-Apr-09	3.0	2				3.0	2				
26-Apr-09	4.3	2				4.3	2			0.5	2
27-Apr-09	3.1	1				3.1	1				
28-Apr-09	3.2	1	3.4	2		3.3	2				
29-Apr-09	3.3	1	3.1	1		3.2	1				
30-Apr-09					x						
1-May-09	3.7	1	2.9	1		3.3	1				
2-May-09	2.8	1	3.4	2		3.1	2			0.9	2
3-May-09	4.6	1	3.6	2		4.1	2				
4-May-09	2.9	1	3.5	1		3.2	1				
5-May-09	3.5	1	3.4	5		3.5	3				
6-May-09	2.9	13	3.7	1		3.3	7				
7-May-09	3.2	1	3.8	2		3.5	2				
8-May-09	3.9	5	3.9	4		3.9	5				
9-May-09	3.8	3	3.8	5		3.8	4				
10-May-09					x					1.9	13
11-May-09					x						
12-May-09	3.1	6				3.1	6				
13-May-09	3.2	1	3.2	1		3.2	1				
14-May-09	3.5	1	4.0	4		3.8	3				
15-May-09	4.9	3	6.5	8		5.7	6				
16-May-09	3.9	4	13.6	14		8.8	9			2.8	8
17-May-09	4.4	4	9.6	6		7.0	5				
18-May-09	10.0	7	32.7	21		21.4	14	4.5	3		
19-May-09					x					26.9	

Date	Intake 5		Intake 6		No Pumps Running	All SPL Water Intake Pumps				SPL Outlet	
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS		NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean	24-hour Mean	Lab TSS
	NTU	mg/L	NTU	mg/L		NTU	mg/L	NTU	mg/L	NTU	mg/L
20-May-09					x					15.8	19
21-May-09					x						
22-May-09					x					1.1	2
23-May-09					x						
24-May-09					x						
25-May-09					x						
26-May-09					x						
27-May-09					x						
28-May-09					x						
29-May-09					x						
30-May-09					x						
31-May-09	6.5	1	8.7			7.6	1	4.6	3	2.2	
1-Jun-09	2.9	3	4.5	4		3.7	4	4.6	3		
2-Jun-09	2.8	2	3.4	1		3.1	2	4.6	3		
3-Jun-09	3.2	2	4.3	4		3.7	3	4.6	3		
4-Jun-09	2.9	5	5.0	5		4.0	5	4.6	3		
5-Jun-09	3.2	2	5.3	3		4.2	3	4.6	3		
6-Jun-09	5.1	3	7.5	3		6.3	3	4.7	3		
7-Jun-09	6.6	3	6.6	2		6.6	3	4.8	3		
8-Jun-09	6.1	4	5.8	2		6.0	3	4.9	3		
9-Jun-09	8.9	1	7.5	1		8.2	1	5.1	3		
10-Jun-09	10.3	2	10.3	2		10.3	2	5.3	3		
11-Jun-09	11.8	2	11.4	3		11.6	3	5.5	3		
12-Jun-09	13.0	3	11.8	3		12.4	3	5.8	3		
13-Jun-09	13.4	5	13.2	5		13.3	5	6.2	4		
14-Jun-09	13.1	4	15.2	4		14.2	4	6.5	4		
15-Jun-09	14.0	6	13.7	5		13.9	6	6.9	4		
16-Jun-09	15.8	6	14.4	5		15.1	6	7.3	4		
17-Jun-09	15.5	5	27.0	6		21.3	6	7.9	4	5.8	3
18-Jun-09	18.5		17.8			18.2		8.4	4		
19-Jun-09	15.6	6	15.4	4		15.5	5	8.8	4		
20-Jun-09	14.4	6	18.9	10		16.7	8	9.2	4		
21-Jun-09	16.4	7	17.3	7		16.8	7	9.6	4		

Date	Intake 5		Intake 6		No Pumps Running	All SPL Water Intake Pumps				SPL Outlet	
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS		NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean	24-hour Mean	Lab TSS
	NTU	mg/L	NTU	mg/L		NTU	mg/L	NTU	mg/L	NTU	mg/L
22-Jun-09	15.5	6	15.6	7		15.6	7	10.0	4		
23-Jun-09	22.5	7	22.3	6		22.4	7	10.7	4		
24-Jun-09	16.9	7	17.5	8		17.2	8	11.1	5		
25-Jun-09	15.7	7	17.9	7		16.8	7	11.6	5		
26-Jun-09	17.2	6	27.9	11		22.6	9	12.1	5		
27-Jun-09	18.8	5	33.0	12		25.9	9	12.7	5	4.7	4
28-Jun-09	16.5	6	35.1	13		25.8	10	13.3	5		
29-Jun-09	17.2	8	46.3			31.8	8	13.7	5		
30-Jun-09					x						
1-Jul-09					x						
2-Jul-09					x						
3-Jul-09			9.8			9.8		13.8	5		
4-Jul-09			9.8	4		9.8	4	14.0	5		
5-Jul-09			10.3	5		10.3	5	14.2	5		
6-Jul-09			12.0	7		12.0	7	14.5	5		
7-Jul-09					x					3.4	2
8-Jul-09					x						
9-Jul-09					x						

Table 7.3: Dewatering Monitoring for WTP Discharging to TPL, October - December 2009

Date	DD-WTP-01(Out)		DD-WTP-02(Out)		Both WTP Outlets				TPL - ENV	
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean	24-hour Mean	Lab TSS
	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L
26-Oct-09	4.5	14			4.5	14				
27-Oct-09	5.3	9			5.3	9				
28-Oct-09	4.6	3			4.6	3				
29-Oct-09	5.9	6			5.9	6				
30-Oct-09	4.9	4			4.9	4				
31-Oct-09	5.9	3			5.9	3				
1-Nov-09	4.7	4	10.0	7	7.4	6				
2-Nov-09	3.6	3	3.5	5	3.5	4				
3-Nov-09	4.9	5	5.6	8	5.3	7				
4-Nov-09	4.6	5	5.9		5.3	5				
5-Nov-09	4.6	2	4.8	7	4.7	5				
6-Nov-09	5.2		12.5		8.8					
7-Nov-09	4.4	8	4.3	4	4.4	6				
8-Nov-09	6.1	7	5.7	3	5.9	5				
9-Nov-09	11.4	11	5.6	6	8.5	9				
10-Nov-09	3.9	3	4.3	9	4.1	6				
11-Nov-09	4.8	11	6.7	7	5.7	9				
12-Nov-09	4.9	13	3.5	8	4.2	11				
13-Nov-09	2.2	10	3.9	6	3.1	8				
14-Nov-09	1.0	10	2.3	8	1.6	9			1.0	2
15-Nov-09	2.9	2	3.3	11	3.1	7				
16-Nov-09	3.6	5	3.9	4	3.8	5				
17-Nov-09	4.8	2	4.9	1	4.9	2				
18-Nov-09	4.8	10	4.6	5	4.7	8			0.2	3
19-Nov-09	4.1	6	3.2	6	3.6	6				
20-Nov-09	4.6	7	3.1	6	3.9	7				
21-Nov-09	3.9	7	4.3	7	4.1	7				
22-Nov-09	5.5	6	5.3	5	5.4	6				
23-Nov-09	3.8	1	4.0	4	3.9	3				
24-Nov-09	12.0	21	3.1	1	7.5	11	4.9	6		

Date	DD-WTP-01(Out)		DD-WTP-02(Out)		Both WTP Outlets				TPL - ENV	
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean	24-hour Mean	Lab TSS
	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L
25-Nov-09	9.4	7	2.4	1	5.9	4	5.0	6	0.3	4
26-Nov-09	3.6	3	2.6	1	3.1	2	4.9	6		
27-Nov-09	4.6	6	2.7	4	3.6	5	4.9	6		
28-Nov-09										
29-Nov-09	3.9	17	3.5	3	3.7	10	4.8	6		
30-Nov-09										
1-Dec-09	3.3	5	3.2	3	3.3	4	4.8	6		
2-Dec-09	5.2	14	3.5	12	4.4	13	4.7	6	0.1	5
3-Dec-09	3.2	15	4.2	14	3.7	15	4.6	7		
4-Dec-09	2.8	4	2.4	24	2.6	14	4.6	7		
5-Dec-09										
6-Dec-09	3.5	21	2.8	2	3.2	12	4.5	7		
7-Dec-09	3.7	16	3.7	4	3.7	10	4.4	7		
8-Dec-09	3.8	12	3.9	5	3.8	9	4.4	7		
9-Dec-09	3.2	12	3.9	9	3.5	11	4.2	8	0.3	1
10-Dec-09	4.3	18	3.5	6	3.9	12	4.2	8		
11-Dec-09	2.6	18	3.6		3.1	18	4.1	8		
12-Dec-09	3.8	50	4.2	34	4.0	42	4.0	9		
13-Dec-09	3.9	23	4.0	20	4.0	22	4.0	10		
14-Dec-09	3.9	18	2.9	12	3.4	15	3.9	10		
15-Dec-09	6.6	23	4.8	2	5.7	13	3.9	10		
16-Dec-09	6.2	7	8.1	10	7.2	9	4.1	10	1.0	1
17-Dec-09	4.3	4	5.6	3	5.0	4	4.2	10		
18-Dec-09	5.7	6	8.3	6	7.0	6	4.3	10		
19-Dec-09	4.2	7	4.8	9	4.5	8	4.3	10		
20-Dec-09	4.4	4	4.4	5	4.4	5	4.3	10		
21-Dec-09	3.8	3	5.8	4	4.8	4	4.3	10		
22-Dec-09	3.3	2	5.6	3	4.5	3	4.4	10		
23-Dec-09	3.8	2	7.0	3	5.4	3	4.4	10	0.7	1
24-Dec-09	4.6	3	6.7	17	5.7	10	4.5	10		
25-Dec-09	4.9	1	6.3	3	5.6	2	4.5	10		
26-Dec-09	4.2	18	5.4	9	4.8	14	4.5	10		
27-Dec-09	5.1	3	5.1	2	5.1	3	4.4	10		

Date	DD-WTP-01(Out)		DD-WTP-02(Out)		Both WTP Outlets				TPL - ENV	
	24-hour Mean	Lab TSS	24-hour Mean	Lab TSS	NTU 24-hour Mean	TSS 24-hour Mean	NTU 30-day Mean	TSS 30-day Mean	24-hour Mean	Lab TSS
	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L	NTU	mg/L
28-Dec-09	2.5	1	6.9	2	4.7	2	4.4	10		
29-Dec-09										
30-Dec-09	5.1	3	4.0	6	4.5	5	4.4	10	0.5	1
31-Dec-09	2.7	2	3.0	2	2.8	2	4.4	10		

Table 7.4: pH and Aluminum Monitoring, March - July 2009

Date	Intake 1		Intake 2		Intake 3		Intake 4		All TPL Water Intake Pumps (#1-4)		TPL - ENV		Intake 5		Intake 6		All SPL Water Intake Pumps (#5&6)		SPL - ENV	
	pH	Total Al	pH	Total Al	pH	Total Al	pH	Total Al	pH 24-hour Mean	Al 24-hour Mean	pH	Total Al	pH	Total Al	pH	Total Al	pH 24-hour Mean	Al 24-hour Mean	pH	Total Al
	units	mg/L	units	mg/L	units	mg/L	units	mg/L	units	mg/L	units	mg/L	units	mg/L	units	mg/L	units	mg/L	units	mg/L
12-Apr-09	6.87	0.002	6.97	0.002	6.88	0.002			6.91	0.002									6.70	0.002
14-Apr-09														0.119				0.119		
20-Apr-09		0.126		0.111		0.131				0.123				0.158				0.158		
29-Apr-09	6.81	0.108	6.83	0.095	6.84	0.080			6.83	0.094			6.90	0.070	6.88	0.096	6.89	0.083		
2-May-09											6.69	0.046	6.86		6.88		6.87		6.80	
10-May-09	6.99	0.105	6.91	0.059	6.89	0.068			6.93	0.077										
17-May-09	6.86	0.098	6.90	0.063	6.88	0.063	7.00	0.221	6.91	0.111			7.00	0.109	7.05	0.212	7.03	0.161		
19-May-09																				0.346
8-Jun-09	7.08	0.237	6.98	0.191	6.98	0.223	7.00	0.221	7.01	0.218			6.98	0.223	6.98	0.223	6.98	0.223		
15-Jun-09	6.78	0.340	6.72	0.278	6.73	0.313	6.75	0.289	6.75	0.305			6.81	0.304	6.75	0.308	6.78	0.306		
22-Jun-09	6.94	0.412	6.95	0.389	6.94	0.453	6.98	0.439	6.95	0.423			6.97	0.335	6.95	0.322	6.96	0.329		
29-Jun-09	6.95		6.94		6.94		6.95		6.95				6.92				6.92			
6-Jul-09	6.87	0.457	6.92	0.416					6.90	0.437					6.88	0.407	6.88	0.407		

Table 7.5: pH and Aluminum Monitoring, October - December 2009

Date	DD-WTP-01		DD-WTP-02		Both WTP Outlets		TPL - ENV
	pH	Total Al	pH	Total Al	pH 24-hour Mean	Al 24-hour Mean	pH
	units	mg/L	units	mg/L	units	mg/L	units
2-Nov-09	7.19	0.357	7.24	0.258	7.22	0.308	
9-Nov-09		0.447		0.339		0.393	
14-Nov-09							6.20
16-Nov-09	7.35	0.397	7.38	0.291	7.37	0.344	
17-Nov-09	6.92		7.02		6.97		
23-Nov-09	7.28	0.367	7.24	0.273	7.26	0.320	
25-Nov-09							6.89
1-Dec-09	7.34	0.117	7.30	0.125	7.32	0.121	
8-Dec-09	6.88	0.337	6.90	0.200	6.89	0.269	
9-Dec-09							6.96
14-Dec-09	6.73	0.350	6.72	0.477	6.73	0.414	
16-Dec-09							7.08
21-Dec-09	7.12	0.281	7.15	0.273	7.14	0.277	
23-Dec-09							7.13
24-Dec-09							7.19
30-Dec-09		0.217		0.270		0.244	

Table 7.6: Stormwater Management Pond #1 Monitoring

Sample Name	TDL1		TDL2
(Former Name)	*(Crusher Intake)*	*(Crusher Intake)*	*(ST-27)*
Parameter	15-Jun-09	22-Jun-09	22-Jun-09
Ammonia (NH3-NH4) (mg N/L)	0.65	2.4	4.1
BOD-5 (mg/L)	3	5	20
COD (mg/L)	41	25	68
Total Suspended Solids (mg/L)	34	13	7
Nitrite-Nitrate (mg N/L)	3.5	0.27	1.6
pH	7.23	7.5	7.13
Total Phosphorus (P) (mg P/L)	0.08	0.8	1.6
AAHB (CFU/ml)	300	>500	188,000
Fecal coliforms (CFU/100ml)	20	50	60,000
Total coliforms (CFU/100ml)	400	6,000	500,000
Atypical colonies (CFU/100ml)	3,100	10,000	2,000,000
Temperature (°C)	15.4	10.4	12.2

Table 7.7: North Portage Pit Pre-Development Zone Monitoring

Sample Name	ST-29 - North Predevelopment Zone		
(Former Name)	*(ST-34)*	*(ST-34)*	*(ST-34)*
Parameter	23-Aug-09	24-Aug-09	25-Aug-09
pH	7.09	7.24	7.51
Turbidity (NTU)	32.1	20.4	-
Aluminium (Al) (mg/L)	-	-	1.94
Antimony (Sb) (mg/L)	-	-	0.0004
Silver (Ag) (mg/L)	-	-	<0.0005
Arsenic (As) (mg/L)	-	-	0.0005
Ammonia (NH3-NH4) (mg N/L)	-	-	3.3
Barium (Ba) (mg/L)	-	-	0.0436
Beryllium (Be) (mg/L)	-	-	<0.0005
Bismuth (Bi) (mg/L)	-	-	<0.0005
Boron (B) (mg/L)	-	-	<0.01
Bromures (mg/L)	-	-	0.06
Cadmium (Cd) (mg/L)	-	-	<0.0001
Calcium (Ca) (mg/L)	-	-	22.5
Chromium (Cr) (mg/L)	-	-	0.0052
Cobalt (Co) (mg/L)	-	-	0.0015
Copper (Cu) (mg/L)	-	-	0.0042
Hardness (mg CaCO3/L)	-	-	115
Tin (Sn) (mg/L)	-	-	<0.005
Iron (Fe) (mg/L)	-	-	2.5
Total Suspended Solids (mg/L)	-	-	19
Magnesium (Mg) (mg/L)	-	-	14.3
Manganese (Mn) (mg/L)	-	-	0.0804
Mercury (Hg) (mg/L)	-	-	<0.00001
Molybdenum (Mo) (mg/L)	-	-	0.0044
Nickel (Ni) (mg/L)	-	-	0.0118
Nitrate (NO3) (mg N/L)	-	-	15.6
Lead (Pb) (mg/L)	-	-	<0.0005
Potassium (K) (mg/L)	-	-	7
Selenium (Se) (mg/L)	-	-	<0.001
Silice (Si) (mg/L)	-	-	4.5
Sodium (Na) (mg/L)	-	-	6.4
Sulfate (SO4) (mg SO4/L)	-	-	56
Tellurium (Te) (mg/L)	-	-	<0.0005
Titanium (Ti) (mg/L)	-	-	0.1
Uranium (U) (mg/L)	-	-	0.005
Vanadium (V) (mg/L)	-	-	<0.0005
Zinc (Zn) (mg/L)	-	-	0.001

Table 7.8: Sewage Treatment Plant Monitoring

	Seprotech L333				Seprotech L333				Seprotech L333					Seprotech L333			
Parameter	6-Jan-09	12-Jan-09	19-Jan-09	26-Jan-09	2-Feb-09	9-Feb-09	16-Feb-09	23-Feb-09	2-Mar-09	9-Mar-09	16-Mar-09	23-Mar-09	30-Mar-09	6-Apr-09	13-Apr-09	20-Apr-09	27-Apr-09
NH3-NH4 (mg N/L)	-	NS	NS	-	NS	10.1	18.4	14	10.5	12.8	11.8	11.1	16	16.2	17.2	35.8	40.4
BOD-5 (mg/L)	1	NS	NS	13	NS	3	11	4	5	5	9	7	3	5	3	5	13
COD (mg/L)	42	NS	NS	127	NS	100	109	97	111	101	77	97	69	68	47	129	84
TSS (mg/L)	-	NS	NS	39	NS	32	30	25	23	14	24	21	4	15	26	13	8
NO2-NO3 (mg N/L)	17.2	NS	NS	42	NS	33	41.8	35.3	31.4	LE	33.5	32.5	37.3	38.3	43.3	55.7	54.7
pH	-	NS	NS	-	NS	-	-	-	4.9	4.6	3.94	4.64	4.39	-	5.35	-	-
P tot (mg P/L)	3.6	NS	NS	13.8	NS	-	13.2	12.7	9.9	12.1	12.9	13.2	15.2	17.6	17.8	14.3	14
Fecal Coliform (UFC/100mL)	10	NS	NS	60	NS	<10	LE	4	<2	0	0	0	0	0	4	0	14
Total Coliform (UFC/100mL)	60	NS	NS	800	NS	36,000	LE	300	160	60	50	20	100	60	600	1,400	1,900
Atypical Colony (UFC/100mL)	140	NS	NS	9900	NS	32,000	LE	14,300	1,620	1,640	440	930	1,800	970	7,200	800	17,100

	Little John L100s				Seprotech L333				Little John L100s				STP - OUT				
Parameter	6-Apr-09	13-Apr-09	20-Apr-09	27-Apr-09	4-May-09	11-May-09	18-May-09	25-May-09	4-May-09	11-May-09	18-May-09	25-May-09	1-Jun-09	8-Jun-09	15-Jun-09	22-Jun-09	29-Jun-09
NH3-NH4 (mg N/L)	16.7	21.9	36.6	23.3	33.3	26.7	24.7	27.9	11.8	11.2	24.7	27.6	29.2	23.8	25.8	30.6	20.7
BOD-5 (mg/L)	36	4	9	16	6	9	11	17	13	16	12	16	12	13	14	13	16
COD (mg/L)	96	54	108	97	107	134	43	62	117	157	60	65	76	115	108	111	81
TSS (mg/L)	55	19	31	13	12	20	23	37	15	11	24	38	38	28	63	19	21
NO2-NO3 (mg N/L)	25	41.1	57.5	36.6	49.8	55.5	45.1	49.8	29.7	33.1	48.1	45	56.5	55.3	48.8	54	42.9
pH	-	5.31	-	-	4.49	5.82	5.81	5.01	6.05	6.04	5.7	5.36	4.59	28	5.36	5.69	5.78
P tot (mg P/L)	17.5	17.2	14.4	-	15.3	17.6	17.1	14.4	15.9	17.6	18	14.6	15.5	18.9	27	18.9	18
Fecal Coliform (UFC/100mL)	<100	4	<10	<10	10	8	1	20	10	4	8	128	28	12	8	20	30
Total Coliform (UFC/100mL)	14,000	600	4,000	<1,000	< 100	100	< 100	< 1,000	< 1,000	1,000	< 1,000	< 1,000	< 1,000	3,000	1,000	2,000	< 10,000
Atypical Colony (UFC/100mL)	>200,000	11,200	49,000	103,000	3,800	> 20,000	> 20,000	38,000	49,000	> 200,000	> 74,000	91,000	43,000	48,000	58,000	40,000	320,000

	STP - OUT				STP - OUT					STP - OUT				STP - OUT			
Parameter	6-Jul-09	13-Jul-09	20-Jul-09	27-Jul-09	3-Aug-09	10-Aug-09	18-Aug-09	24-Aug-09	31-Aug-09	7-Sep-09	14-Sep-09	21-Sep-09	28-Sep-09	5-Oct-09	12-Oct-09	19-Oct-09	26-Oct-09
NH3-NH4 (mg N/L)	17.6	19.7	30.8	34.2	36.8	32.6	30	27.3	20.9	26.1	29.3	26.7	28.6	28.5	33.3	37.1	34.3
BOD-5 (mg/L)	22	23	17	9	12	19	23	15	18	14	28	18	30	14	12	23	15
COD (mg/L)	69	103	92	114	139	113	131	137	108	101	96	141	116	120	95	144	156
TSS (mg/L)	49	80	30	44	26	31	31	54	32	32	108	20	44	38	44	46	40
NO2-NO3 (mg N/L)	39.6	35.4	56.8	59.9	56.5	56.2	47.8	53.2	44.1	45.6	53.3	47.2	55.5	49	2.4	63.3	57.2
pH	5.87	6.24	5.92	5.61	5.72	5.48	5.19	4.85	5.24	5.82	5.55	5.83	5.45	5.52	5.83	6.16	5.38
P tot (mg P/L)	19	16.5	19.4	18.5	17.9	18	20.5	19.9	18.4	15.2	19.9	21.1	20.3	17.7	21.3	23.8	22.4
Fecal Coliform (UFC/100mL)	4	16	16	16	40	8	72	1,000	1,200	84	510	20	30	<100	<10	300	<10
Total Coliform (UFC/100mL)	<10,000	1,000	<100 000	<10,000	<1,000	<10,000	3,000	10,000	20,000	1,000	3,000	1,000	<1,000	<1,000	200	3,000	<1,000
Atypical Colony (UFC/100mL)	1,130,000	49,000	2,600,000	1,560,000	111,000	60,000	85,000	220,000	800,000	96,000	183,000	140,000	23,000	31,000	4,600	83,000	2,000

	STP - OUT				STP - OUT				
Parameter	2-Nov-09	10-Nov-09	16-Nov-09	23-Nov-09	1-Dec-09	7-Dec-09	12-Dec-09	21-Dec-09	28-Dec-09
NH3-NH4 (mg N/L)	37	30.8	32.8	38.6	33	31	37	LC	LC
BOD-5 (mg/L)	23	11	9	13	19	16	22	LC	LC
COD (mg/L)	138	90	126	103	158	81	126	LC	LC
TSS (mg/L)	43	48	41	24	9	37	46	LC	LC
NO2-NO3 (mg N/L)	64	56.9	56.8	54.9	48.1	49.7	49.4	LC	LC
pH	5.71	4.86	5.97	5.76	6.74	6.52	6.33	LC	LC
P tot (mg P/L)	20.2	20.7	19.6	18.7	25	18.2	20.1	LC	LC
Fecal Coliform (UFC/100mL)	300	4	30	<100	190	350	1,700	LC	LC
Total Coliform (UFC/100mL)	<1,000	9,000	<1,000	<100	2,000	6,000	6,000	LC	LC
Atypical Colony (UFC/100mL)	119,000	26,000	85,000	2,600	136,000	18,000	70,000	LC	LC

Notes:
January - March: Seprotech operational; Little John 100s in recirculation mode
April - May: Both Seprotech L333 and Little John 100s in operation, but with separate waste streams
June - December: Both Seprotech L333 and Little John 100s in operation, with same waste stream
NS = No Sample; bad weather prevented sampling
LE = Lab Error
LC = Lab Closed for Holidays

Table 7.9: Meadowbank Bulk Fuel Storage Facility Monitoring

Parameter	Maximum Concentration of Grab Sample*	7-Sep-09
Benzène	370 µg/L	<0.2 µg/L
Toluène	2 µg/L	<0.1 µg/L
Éthylbenzène	90 µg/L	<0.1 µg/L
Xylenes (o,m,p)		<0.47 µg/L
Total oil and grease	15 mg/L	<2 mg/L
Hydrocarbons (C10-C50)		<0.1 mg/L
Arsenic (As)		0.0056 mg/L
Copper (Cu)		0.0034 mg/L
Iron (Fe)		0.15 mg/L
Nickel (Ni)		0.0048 mg/L
Lead (Pb)	1 µg/L	<0.0005 mg/L
Zinc (Zn)		<0.001 mg/L

Note:
* Part F, Item 6 of water license 2AM-MEA0815

Table 7.10: Baker Lake Bulk Fuel Storage Facility Monitoring

Parameter	Maximum Concentration of Grab Sample*	ST-40 22-Jun-09
Total Suspended Solids	30 mg/L	9 mg/L
pH	6.0 - 9.0	7.65
Arsenic (As)	1 mg/L	0.0013 mg/L
Copper (Cu)	0.6 mg/L	0.0019 mg/L
Iron (Fe)		0.51 mg/L
Nickel (Ni)	1 mg/L	0.0011 mg/L
Lead (Pb)	0.10 mg/L and 1 µg/L*	<0.0005 mg/L
Zinc (Zn)	1 mg/L	0.010 mg/L
Hydrocarbons (C10-C50)		<0.1 mg/L
Total oil and grease	5.0 mg/L	2 mg/L
Benzène	370 µg/L	<0.2 µg/L
Chlorobenzène		<0.2 µg/L
1,2-Dichlorobenzène		<0.2 µg/L
1,3-Dichlorobenzène		<0.1 µg/L
1,4-dichlorobenzène		<0.2 µg/L
Ethylbenzène	90 µg/L	<0.1 µg/L
Styrène		<0.1 µg/L
Toluène	2 µg/L	<0.1 µg/L
Xylènes		<0.4 µg/L
Chloroforme		<1 µg/L
Chlorure de vinyle		<0.2 µg/L
1,2-dichloroéthane		<0.1 µg/L
1,1-Dichloroéthylène		<1 µg/L
cis-1,2-dichloroéthylène		<0.2 µg/L
trans-1,2-Dichloroéthylène		<0.2 µg/L
1,2-dichloroéthylène (cis+trans)		<0.2 µg/L
Dichlorométhane		<0.9 µg/L
1,2-dichloropropane		<0.1 µg/L
1,3-dichloropropane		<0.1 µg/L
1,3-dichloropropène (cis+trans)		<0.1 µg/L
1,1,2,2-tétrachloroéthane		<0.1 µg/L
Tétrachloroéthylène		<0.2 µg/L
Tétrachlorure de Carbone		<0.2 µg/L
1,1,1-Trichloroéthane		<0.2 µg/L
1,1,2-Trichloroéthane		<0.1 µg/L
Trichloroéthylène		<0.1 µg/L
Pentachloroéthane		<0.4 µg/L
Hexachloroéthane		<0.1 µg/L
1,1-Dichloroéthane		<0.2 µg/L

Note:

* Part F, Item 23 of water license 2AM-MEA0815 - lists lead twice, with two different license requirements

Table 7.11: Blast Monitoring

Date of blast	Location	Blast pattern #	Planned Tonnage (t)	PPV (mm/s)	Peak Sound Pressure (pa)	# Holes in Blast Pattern	Monitoring Location
10-Jan-09	PORTAGE (NORTH)	5135005	52511	5	35	96	PORTAGE (NORTH) 1
18-Jan-09	PORTAGE (NORTH)	5135007	59898	4	76	187	PORTAGE (NORTH) 1
18-Jan-09	PORTAGE (NORTH)	5135009		4	76		PORTAGE (NORTH) 1
20-Jan-09	PORTAGE (NORTH)	5145013	37588	4	132	76	PORTAGE (NORTH) 1
15-Feb-09	PORTAGE (NORTH)	5145017	53397	5	10	176	PORTAGE (NORTH) 1
18-Feb-09	PORTAGE (NORTH)	5145019	64662	8	247	112	PORTAGE (NORTH) 1
8-Mar-09	PORTAGE (NORTH)	5145021	38838	5	165	78	PORTAGE (NORTH) 1
14-Mar-09	PORTAGE (NORTH)	5145021	33091	3	2	66	PORTAGE (NORTH) 1
17-Mar-09	PORTAGE (NORTH)	5145021	29843	4	60	74	PORTAGE (NORTH) 1
23-Mar-09	PORTAGE (NORTH)	5145023	47600	11	67	187	PORTAGE (NORTH) 1
29-Mar-09	PORTAGE (NORTH)	5145025	29185	11	41	215	PORTAGE (NORTH) 1
3-Apr-09	PORTAGE (NORTH)	5140032	50309	10	110	175	PORTAGE (NORTH) 1
5-Apr-09	PORTAGE (NORTH)	5135011	59424	3	38	317	PORTAGE (NORTH) 1
7-Apr-09	PORTAGE (NORTH)	5140034	53706	6	120	174	PORTAGE (NORTH) 1
8-Apr-09	PORTAGE (NORTH)	5135011 Ramp	15189	3	112	66	PORTAGE (NORTH) 1
12-Apr-09	PORTAGE (NORTH)	5140036	47382	10	314	182	PORTAGE (NORTH) 1
13-Apr-09	PORTAGE (NORTH)	5150002	38534	3	52	113	PORTAGE (NORTH) 1
29-Apr-09	PORTAGE (NORTH)	5135015	56314	4	340	195	PORTAGE (NORTH) 1
5-May-09	PORTAGE (NORTH)	5140048	39338	7	167	140	PORTAGE (NORTH) 1
10-May-09	PORTAGE (NORTH)	5140052	37079	5	121	86	PORTAGE (NORTH) 1
12-May-09	PORTAGE (NORTH)	5140046	43158	3	149	143	PORTAGE (NORTH) 1
15-May-09	PORTAGE (NORTH)	5145029	40024	2	16	157	PORTAGE (NORTH) 1
16-May-09	PORTAGE (NORTH)	5150016	31325	2	25	147	PORTAGE (NORTH) 1
23-May-09	PORTAGE (NORTH)	5145033	76124	2	46	123	PORTAGE (NORTH) 1
24-May-09	PORTAGE (NORTH)	5140054	32502	2	171	117	PORTAGE (NORTH) 1
26-May-09	PORTAGE (NORTH)	5140056	43042	4	100	161	PORTAGE (NORTH) 1
28-May-09	PORTAGE (NORTH)	5135019	41397	2	138	154	PORTAGE (NORTH) 1
31-May-09	PORTAGE (NORTH)	5150020	81399	1	71	150	PORTAGE (NORTH) 1
3-Jun-09	PORTAGE (NORTH)	5145037	50670	1	11	197	PORTAGE (NORTH) 1
6-Jun-09	PORTAGE (NORTH)	5145039	45099	2	33	154	PORTAGE (NORTH) 1
8-Jun-09	PORTAGE (NORTH)	5145045	33954	11	134	120	PORTAGE (NORTH) 1

Date of blast	Location	Blast pattern #	Planned Tonnage (t)	PPV (mm/s)	Peak Sound Pressure (pa)	# Holes in Blast Pattern	Monitoring Location
12-Jun-09	PORTAGE (NORTH)	5145041	52024	5	16	200	PORTAGE (NORTH) 1
15-Jun-09	PORTAGE (NORTH)	5135021	37303	12	158	144	PORTAGE (NORTH) 1
21-Jun-09	PORTAGE (NORTH)	5145043	43475	12	4	315	PORTAGE (NORTH) 1
24-Jun-09	PORTAGE (NORTH)	5135PS1		4	87	93	PORTAGE (NORTH) 1
25-Jun-09	PORTAGE (NORTH)	5145051	22860	5	20	215	PORTAGE (NORTH) 1
29-Jun-09	PORTAGE (NORTH)	5135031	42550	8	64	158	PORTAGE (NORTH) 1
30-Jun-09	PORTAGE (NORTH)	5145PS1	0	5	61	46	PORTAGE (NORTH) 1
1-Jul-09	PORTAGE (NORTH)	5150022	31440	4	54	145	PORTAGE (NORTH) 1
3-Jul-09	PORTAGE (NORTH)	5145051	41668	6	88	215	PORTAGE (NORTH) 1
4-Jul-09	PORTAGE (NORTH)	5135033	44730	9	89	160	PORTAGE (NORTH) 1
8-Jul-09	PORTAGE (NORTH)	5145047	41129	10	39	307	PORTAGE (NORTH) 1
9-Jul-09	PORTAGE (NORTH)	5150024	32029	5	91	162	PORTAGE (NORTH) 1
11-Jul-09	PORTAGE (NORTH)	5135023	47784	6	151	197	PORTAGE (NORTH) 1
12-Jul-09	PORTAGE (NORTH)	5140058-1	34076	7	124	155	PORTAGE (NORTH) 1
15-Jul-09	PORTAGE (NORTH)	5145057	27449	6	154	125	PORTAGE (NORTH) 1
16-Jul-09	PORTAGE (NORTH)	5140058-2	15045	6	30	8	PORTAGE (NORTH) 1
17-Jul-09	PORTAGE (NORTH)	5145069	39126	5	152	112	PORTAGE (NORTH) 1
19-Jul-09	PORTAGE (NORTH)	5140060	36877	7	128	110	PORTAGE (NORTH) 1
20-Jul-09	PORTAGE (NORTH)	5135027	22834	5	84	206	PORTAGE (NORTH) 1
21-Jul-09	PORTAGE (NORTH)	5135069	17153	6	70	96	PORTAGE (NORTH) 1
23-Jul-09	PORTAGE (NORTH)	5135069	18473	7	92		PORTAGE (NORTH) 1
24-Jul-09	PORTAGE (NORTH)	5135035	15811	19	112	46	PORTAGE (NORTH) 1
26-Jul-09	PORTAGE (NORTH)	5135075	39243	10	84	113	PORTAGE (NORTH) 1
27-Jul-09	PORTAGE (NORTH)	5135027	27722	5	77	206	PORTAGE (NORTH) 1
28-Jul-09	PORTAGE (NORTH)	5145061	53664	6	95	152	PORTAGE (NORTH) 1
29-Jul-09	PORTAGE (NORTH)	5135041	28493	4	108	99	PORTAGE (NORTH) 1
30-Jul-09	PORTAGE (NORTH)	5140084	18715	8	203	78	PORTAGE (NORTH) 1
31-Jul-09	PORTAGE (NORTH)	5130PS4		13	151	33	PORTAGE (NORTH) 1
1-Aug-09	PORTAGE (NORTH)	5145063	54394	6	83	154	PORTAGE (NORTH) 1
3-Aug-09	PORTAGE (NORTH)	5140082	46216	9	133	131	PORTAGE (NORTH) 1
5-Aug-09	PORTAGE (NORTH)	5140066	51600	7	117	200	PORTAGE (NORTH) 1
6-Aug-09	PORTAGE (NORTH)	5125001	16875	13	94	51	PORTAGE (NORTH) 1
7-Aug-09	PORTAGE (NORTH)	5145065	27160	5	33	182	PORTAGE (NORTH) 1
8-Aug-09	PORTAGE (NORTH)	5135043	15843	5	89	102	PORTAGE (NORTH) 1

Date of blast	Location	Blast pattern #	Planned Tonnage (t)	PPV (mm/s)	Peak Sound Pressure (pa)	# Holes in Blast Pattern	Monitoring Location
9-Aug-09	PORTAGE (NORTH)	5135043	17800	6	175	102	PORTAGE (NORTH) 1
12-Aug-09	PORTAGE (NORTH)	5140062	24313	9	127	155	PORTAGE (NORTH) 1
13-Aug-09	PORTAGE (NORTH)	5135037	11845	15	178	50	PORTAGE (NORTH) 1
14-Aug-09	PORTAGE (NORTH)	5140062	28485	9	108	155	PORTAGE (NORTH) 1
16-Aug-09	PORTAGE (NORTH)	5140064	13489	7	50	186	PORTAGE (NORTH) 1
16-Aug-09	PORTAGE (NORTH)	5140064	13489	11	50	186	PORTAGE (NORTH) 1
17-Aug-09	PORTAGE (NORTH)	5135037	13392	6	45	21	PORTAGE (NORTH) 1
21-Aug-09	PORTAGE (NORTH)	5127001	13489	12	1	27	PORTAGE (NORTH) 1
26-Aug-09	PORTAGE (NORTH)	5135045	21154	8	54	70	PORTAGE (NORTH) 1
29-Aug-09	PORTAGE (NORTH)	5127007	78052	12	149	155	PORTAGE (NORTH) 1
30-Aug-09	PORTAGE (NORTH)	5135081	52921	10	181	147	PORTAGE (NORTH) 1
1-Sep-09	PORTAGE (NORTH)	5140070	40083	5	77	226	PORTAGE (NORTH) 1
2-Sep-09	PORTAGE (NORTH)	5127011	48640	11	91	93	PORTAGE (NORTH) 1
3-Sep-09	PORTAGE (NORTH)	5135077	39010	5	88		PORTAGE (NORTH) 1
4-Sep-09	PORTAGE (NORTH)	5127009	56266	8	144	109	PORTAGE (NORTH) 1
6-Sep-09	PORTAGE (NORTH)	5135079	63265	7	79	193	PORTAGE (NORTH) 1
7-Sep-09	PORTAGE (NORTH)	5145071	32243	8	56	179	PORTAGE (NORTH) 1
8-Sep-09	PORTAGE (NORTH)	5130004	38671	11	93	172	PORTAGE (NORTH) 1
9-Sep-09	PORTAGE (NORTH)	5140070	36581	6	150	226	PORTAGE (NORTH) 1
11-Sep-09	PORTAGE (NORTH)	5140072-1	28210	5	55	203	PORTAGE (NORTH) 1
14-Sep-09	PORTAGE (NORTH)	5127013	50668	7	48	109	PORTAGE (NORTH) 1
15-Sep-09	PORTAGE (NORTH)	5145071	18155	5	72	179	PORTAGE (NORTH) 1
17-Sep-09	PORTAGE (NORTH)	5140072-2	40330	5	44	133	PORTAGE (NORTH) 1
17-Sep-09	PORTAGE (NORTH)	5127015	27836	5	46	83	PORTAGE (NORTH) 1
19-Sep-09	PORTAGE (NORTH)	5135087	49023	6	8	140	PORTAGE (NORTH) 1
20-Sep-09	PORTAGE (NORTH)	5127021	34706	7	9	74	PORTAGE (NORTH) 1
22-Sep-09	PORTAGE (NORTH)	5127015	19980	8	78	83	PORTAGE (NORTH) 1
23-Sep-09	PORTAGE (NORTH)	5127017	63699	12	133	186	PORTAGE (NORTH) 1
23-Sep-09	PORTAGE (NORTH)	SWPS2		15	124	23	PORTAGE (NORTH) 1
26-Sep-09	PORTAGE (NORTH)	5127019	91328	12	124	150	PORTAGE (NORTH) 1
28-Sep-09	PORTAGE (NORTH)	5127019	23745	15	124	38	PORTAGE (NORTH) 1
1-Oct-09	PORTAGE (NORTH)	5135091	22153	5	190	165	PORTAGE (NORTH) 1
2-Oct-09	PORTAGE (NORTH)	5135091	22680	4	35	74	PORTAGE (NORTH) 1
3-Oct-09	PORTAGE (NORTH)	5135045B	22167	6	73	79	PORTAGE (NORTH) 1

Date of blast	Location	Blast pattern #	Planned Tonnage (t)	PPV (mm/s)	Peak Sound Pressure (pa)	# Holes in Blast Pattern	Monitoring Location
5-Oct-09	PORTAGE (NORTH)	5135095	20912	16	55	145	PORTAGE (NORTH) 1
6-Oct-09	PORTAGE (NORTH)	5135093	28944	5	22	108	PORTAGE (NORTH) 1
7-Oct-09	PORTAGE (NORTH)	5135095	27783	9	122	114	PORTAGE (NORTH) 1
9-Oct-09	PORTAGE (NORTH)	5135101	54918	5	109	163	PORTAGE (NORTH) 1
10-Oct-09	PORTAGE (NORTH)	5140086	25880	5	34	71	PORTAGE (NORTH) 1
13-Oct-09	PORTAGE (NORTH)	5135099	27365	11	249	246	PORTAGE (NORTH) 1
15-Oct-09	PORTAGE (NORTH)	5130008	27365	5	85	167	PORTAGE (NORTH) 1
20-Oct-09	PORTAGE (NORTH)	5135097	46872	6	73	106	PORTAGE (NORTH) 1
24-Oct-09	PORTAGE (NORTH)	5135127	18427	8	210	65	PORTAGE (NORTH) 1
29-Oct-09	PORTAGE (NORTH)	5135073	20588	22	75	113	PORTAGE (NORTH) 1
2-Nov-09	PORTAGE (SOUTH)	5145POP	0	16	418	0	PORTAGE (SOUTH) 1
4-Nov-09	PORTAGE (NORTH)	5145065	60575	4	82	182	PORTAGE (NORTH) 1
6-Nov-09	PORTAGE (SOUTH)	5140104	15525	8	29	54	PORTAGE (SOUTH) 1
8-Nov-09	PORTAGE (NORTH)	5130PS9	0	2	57	26	PORTAGE (NORTH) 1
12-Nov-09	PORTAGE (SOUTH)	5140096	53031	29	192	162	PORTAGE (SOUTH) 1
14-Nov-09	PORTAGE (SOUTH)	5140096	41729	30	204	139	PORTAGE (SOUTH) 1
15-Nov-09	PORTAGE (NORTH)	5135103	2080	2	21	79	PORTAGE (NORTH) 1
16-Nov-09	PORTAGE (SOUTH)	5140128	9700	4	55	97	PORTAGE (SOUTH) 1
18-Nov-09	PORTAGE (SOUTH)	5140094	77289	11	110	116	PORTAGE (SOUTH) 1
19-Nov-09	PORTAGE (NORTH)	5130PS10	0	1	23	33	PORTAGE (NORTH) 1
20-Nov-09	PORTAGE (SOUTH)	5140094	0	21	259	164	PORTAGE (SOUTH) 1
22-Nov-09	PORTAGE (NORTH)	5145073	0	1	10	304	PORTAGE (NORTH) 1
23-Nov-09	PORTAGE (SOUTH)	5140124	25178	13	37	100	PORTAGE (SOUTH) 1
24-Nov-09	PORTAGE (NORTH)	5145073	52893	1	23	190	PORTAGE (NORTH) 1
25-Nov-09	PORTAGE (NORTH)	5140076	50558	3	33	176	PORTAGE (NORTH) 1
27-Nov-09	PORTAGE (SOUTH)	5140098	19427	6	64	71	PORTAGE (NORTH) 1
27-Nov-09	PORTAGE (NORTH)	5145075	48897	2	8	183	PORTAGE (NORTH) 1
28-Nov-09	PORTAGE (SOUTH)	5140092	48533	9	56	176	PORTAGE (SOUTH) 1
28-Nov-09	PORTAGE (SOUTH)	5135129	0	10	41	76	PORTAGE (SOUTH) 1
29-Nov-09	PORTAGE (NORTH)	5140FM2	51637	9	48	187	PORTAGE (NORTH) 1
30-Nov-09	PORTAGE (NORTH)	5145077	21857	2	37	75	PORTAGE (NORTH) 1
1-Dec-09	PORTAGE (SOUTH)	5140090	44159	8	36	158	PORTAGE (SOUTH) 1
2-Dec-09	PORTAGE (SOUTH)	5140088	27203	6	32	110	PORTAGE (SOUTH) 1
4-Dec-09	PORTAGE (NORTH)	5140078	58502	2	30	198	PORTAGE (NORTH) 1

Date of blast	Location	Blast pattern #	Planned Tonnage (t)	PPV (mm/s)	Peak Sound Pressure (pa)	# Holes in Blast Pattern	Monitoring Location
6-Dec-09	PORTAGE (SOUTH)	5135131	66977	10	219	245	PORTAGE (SOUTH) 1
7-Dec-09	PORTAGE (NORTH)	5130034	44013	14	74	161	PORTAGE (NORTH) 1
9-Dec-09	PORTAGE (SOUTH)	5135125	54948	10	82	201	PORTAGE (SOUTH) 1
11-Dec-09	PORTAGE (NORTH)	5145079	39845	2	67	156	PORTAGE (NORTH) 1
12-Dec-09	PORTAGE (SOUTH)	5135135	29740	7	27	99	PORTAGE (SOUTH) 1
14-Dec-09	PORTAGE (NORTH)	5135137	36196	3	56	170	PORTAGE (NORTH) 1
15-Dec-09	PORTAGE (SOUTH)	5135123	54465	11	252	202	PORTAGE (SOUTH) 1
16-Dec-09	PORTAGE (SOUTH)	5135133	26651	6	30	97	PORTAGE (SOUTH) 1
18-Dec-09	PORTAGE (SOUTH)	5135121	41733	12	235	165	PORTAGE (SOUTH) 1
19-Dec-09	PORTAGE (SOUTH)	5130022	28786	7	134	109	PORTAGE (SOUTH) 1
21-Dec-09	PORTAGE (SOUTH)	5135119	38729	13	NA	141	PORTAGE (SOUTH) 1
22-Dec-09	PORTAGE (SOUTH)	5130024	24786	9	NA	95	PORTAGE (SOUTH) 1
23-Dec-09	PORTAGE (SOUTH)	5135113	46586	7	NA	75	PORTAGE (SOUTH) 1
24-Dec-09	PORTAGE (NORTH)	5150026	7288	4	NA	46	PORTAGE (NORTH) 1
24-Dec-09	PORTAGE (SOUTH)	5130076	28491	7	NA	0	PORTAGE (SOUTH) 1
25-Dec-09	PORTAGE (NORTH)	5140116	25684	2	NA	98	PORTAGE (NORTH) 1

Notes:
highlighted values exceed the DFO PPV criteria of 13 mm/s

Table 7.12: YSI Turbidity Meter Calibration

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
13-Mar-09	0.00	0.59	0.00	RT
	10.00	7.24	10.00	RT
	100.00	102.30	100.00	RT
16-Mar-09	0.00	2.39	0.36	SG
	10.00	13.43	10.16	SG
	100.00	103.90	100.30	SG
17-Mar-09	0.00	0.69	0.21	SG
	10.00	13.45	10.21	SG
	100.00	102.20	100.10	SG
18-Mar-09	0.00	0.79	0.09	SG
	10.00	11.32	10.08	SG
	100.00	101.80	100.30	SG
19-Mar-09	0.00	1.04	0.08	SG
	10.00	11.21	10.10	SG
	100.00	101.30	100.10	SG
20-Mar-09	0.00	1.38	0.36	SG
	10.00	11.73	10.00	SG
	100.00	101.23	100.20	SG
21-Mar-09	0.00	-0.86	0.38	SG
	10.00	9.55	9.91	SG
	100.00	100.30	100.20	SG
23-Mar-09	0.00	1.19	0.13	SG
	10.00	11.08	10.38	SG
24-Mar-09	0.00	0.15	0.15	SG
	10.00	9.99	9.99	SG
25-Mar-09	0.00	-0.14	0.27	SG
	10.00	9.49	10.07	SG
28-Mar-09	0.00	2.20	0.02	NS
	10.00	14.19	9.93	NS
29-Mar-09	0.00	0.14	0.01	NS
	10.00	10.87	9.99	NS
30-Mar-09	0.00	0.15	0.00	JK
	10.00	10.05	9.97	JK
31-Mar-09	0.00	0.15	0.00	NS
	10.00	10.93	10.05	NS
1-Apr-09	0.00	0.17	0.00	NS
	10.00	10.94	9.98	NS
2-Apr-09	0.00	0.21	0.00	NS
	10.00	10.95	10.00	NS
3-Apr-09	0.00	0.22	0.00	NS
	10.00	10.95	10.01	NS
4-Apr-09	0.00	0.27	0.00	JK
	10.00	10.93	10.05	JK
5-Apr-09	0.00	0.23	0.03	JK
	10.00	11.02	9.98	JK
6-Apr-09	0.00	0.26	0.01	NS
	10.00	10.96	10.00	NS

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
7-Apr-09	0.00	0.17	0.00	NS
	10.00	10.90	9.98	NS
9-Apr-09	0.00	0.18	0.06	SG
	10.00	10.88	9.99	SG
10-Apr-09	0.00	0.04	0.03	SG
	10.00	10.06	9.99	SG
11-Apr-09	0.00	0.03	0.03	SG
	10.00	10.02	9.99	SG
12-Apr-09	0.00	0.03	0.02	SG
	10.00	9.99	10.00	SG
13-Apr-09	0.00	0.03	0.03	SG
	10.00	10.00	10.00	SG
14-Apr-09	0.00	0.02	0.02	SG
	10.00	10.01	10.01	SG
15-Apr-09	0.00	0.02	10.01	SG
	10.00	0.00	10.00	SG
16-Apr-09	0.00	0.01	0.01	SG
	10.00	10.03	10.02	SG
17-Apr-09	0.00	0.00	0.00	SG
	10.00	10.03	10.02	SG
18-Apr-09	0.00	0.00	10.05	SG
	10.00	0.00	9.99	SG
20-Apr-09	0.00	-0.01	0.00	SG
	10.00	9.97	10.00	SG
21-Apr-09	0.00	0.01	0.00	SG
	10.00	10.02	10.00	SG
22-Apr-09	0.00	0.00	0.00	SG
	10.00	10.02	10.00	SG
23-Apr-09	0.00	0.31	0.01	NS
	10.00	11.09	10.00	NS
24-Apr-09	0.00	0.29	0.03	NS
	10.00	11.09	10.00	NS
	0.00	0.31	0.01	JK
	10.00	11.09	10.02	JK
25-Apr-09	0.00	0.30	0.01	NS
	10.00	11.10	10.00	NS
26-Apr-09	0.00	0.31	0.02	JK
	10.00	11.11	10.28	JK
27-Apr-09	0.00	0.31	0.01	NS
	10.00	11.09	10.00	NS
28-Apr-09	0.00	0.35	0.00	JK
	10.00	11.10	10.05	JK
29-Apr-09	0.00	0.32	0.02	NS
	10.00	11.12	9.95	NS
1-May-09	0.00	0.32	0.00	JK
	10.00	11.11	9.99	JK
	0.00	0.33	0.00	NS
	10.00	11.11	9.99	NS

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
2-May-09	0.00	0.78	0.03	JK
	10.00	11.08	10.51	JK
3-May-09	0.00	0.30	0.00	NS
	10.00	11.00	10.02	NS
4-May-09	0.00	0.34	0.01	JK
	10.00	11.10	10.06	JK
5-May-09	0.00	0.34	0.00	NS
	10.00	11.09	10.00	NS
6-May-09	0.00	0.35	0.01	NS
	10.00	11.17	10.00	NS
8-May-09	0.00	0.09	-0.01	SG
	10.00	10.09	10.00	SG
9-May-09	0.00	0.01	0.00	SG
	10.00	10.03	10.00	SG
10-May-09	0.00	-0.10	9.95	SG
	10.00	0.00	9.99	SG
11-May-09	0.00	0.01	9.98	SG
	10.00	0.00	10.00	SG
12-May-09	0.00	0.02	0.00	SG
	10.00	9.99	10.00	SG
13-May-09	0.00	0.01	0.00	SG
	10.00	10.02	10.00	SG
14-May-09	0.00	0.02	0.00	SG
	10.00	10.01	10.00	SG
15-May-09	0.00	0.03	0.00	SG
	10.00	10.02	10.01	SG
16-May-09	0.00	-0.02	0.01	SG
	10.00	10.02	10.01	SG
17-May-09	0.00	0.00	0.00	SG
	10.00	10.01	10.00	SG
18-May-09	0.00	0.00	0.00	SG
	10.00	10.05	10.00	SG
19-May-09	0.00	0.01	0.00	SG
	10.00	10.02	10.00	SG
20-May-09	0.00	-0.01	9.99	SG
	10.00	0.00	10.00	SG
21-May-09	0.00	-0.06	-0.01	NS
	10.00	10.02	10.01	NS
22-May-09	0.00	0.43	0.04	JK
	10.00	11.17	10.01	JK
23-May-09	0.00	0.37	0.00	NS
	10.00	11.21	10.01	NS
24-May-09	0.00	0.61	-0.14	JK
	10.00	11.11	10.07	JK
25-May-09	0.00	0.41	0.00	NS
	10.00	11.30	10.03	NS
26-May-09	0.00	0.39	0.01	JK
	10.00	11.19	10.00	JK

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
27-May-09	0.00	0.10	0.00	NS
	10.00	10.87	9.98	NS
28-May-09	0.00	0.09	0.01	NS
	10.00	10.91	10.00	NS
	0.00	0.10	0.00	JK
	10.00	10.91	10.03	JK
29-May-09	0.00	0.08	0.01	NS
	10.00	10.91	9.99	NS
	0.00	0.11	0.00	JK
	10.00	10.89	10.02	JK
30-May-09	0.00	0.11	0.00	NS
	10.00	10.92	10.00	NS
31-May-09	0.00	0.13	0.00	NS
	10.00	10.91	9.99	NS
	0.00	0.14	0.07	JK
	10.00	10.90	10.15	JK
1-Jun-09	0.00	0.13	0.00	JK
	10.00	10.97	10.00	JK
2-Jun-09	0.00	0.05	-0.02	NS
	10.00	10.13	10.01	NS
	0.00	0.16	-0.02	JK
	10.00	10.97	10.68	JK
3-Jun-09	0.00	0.18	0.00	JK
	10.00	10.98	10.03	JK
	0.00	0.19	0.00	JK
	10.00	10.94	10.02	JK
4-Jun-09	0.00	0.07	0.02	SG
	10.00	10.22	10.02	SG
5-Jun-09	0.00	0.03	0.01	SG
	10.00	10.05	10.02	SG
6-Jun-09	0.00	0.04	0.02	SG
	10.00	10.12	10.03	SG
7-Jun-09	0.00	0.05	0.00	SG
	10.00	10.08	10.00	SG
8-Jun-09	0.00	0.03	0.00	SG
	10.00	10.05	10.00	SG
9-Jun-09	0.00	0.00	-0.03	MT
	10.00	10.06	9.99	MT
10-Jun-09	0.00	0.23	0.01	MT
	10.00	10.18	10.02	MT
11-Jun-09	0.00	0.01	0.01	MT
	10.00	10.01	10.00	MT
12-Jun-09	0.00	0.18	0.00	SG
	10.00	10.94	10.00	SG
13-Jun-09	0.00	0.04	-0.03	MT
	10.00	10.20	9.97	MT
	100.00	101.30	100.00	MT

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
14-Jun-09	0.00	0.18	0.00	TS
	10.00	10.03	9.99	TS
	100.00	100.10	100.00	TS
15-Jun-09	0.00	0.03	0.00	SG
	10.00	10.02	10.01	SG
	100.00	100.01	100.00	SG
16-Jun-09	0.00	0.60	0.01	TS
	10.00	11.32	9.99	TS
	100.00	103.20	100.00	TS
17-Jun-09	0.00	0.61	0.02	TS
	10.00	11.23	10.01	TS
	100.00	103.20	100.00	TS
18-Jun-09	0.00	0.65	0.01	TS
	10.00	11.11	10.02	TS
	100.00	103.20	100.00	TS
19-Jun-09	0.00	0.65	0.03	TS
	10.00	11.25	10.01	TS
	100.00	103.20	99.90	TS
20-Jun-09	0.00	0.54	0.05	TS
	10.00	11.17	10.02	TS
	100.00	103.20	100.10	TS
21-Jun-09	0.00	0.03	0.01	MT
	10.00	9.96	10.00	MT
	100.00	99.30	99.90	MT
22-Jun-09	0.00	0.60	-0.02	TS
	10.00	11.30	10.03	TS
	100.00	105.30	100.00	TS
23-Jun-09	0.00	-0.01	-0.02	MT
	10.00	9.93	9.98	MT
	100.00	99.30	100.30	MT
24-Jun-09	0.00	0.04	-0.99	TS
	10.00	10.00	9.99	TS
	100.00	99.90	100.00	TS
25-Jun-09	0.00	-0.04	0.02	TS
	10.00	9.96	9.98	TS
	100.00	99.80	100.00	TS
26-Jun-09	0.00	0.02	0.01	TS
	10.00	10.02	10.01	TS
	100.00	99.20	100.10	TS
27-Jun-09	0.00	-0.03	0.02	NS
	10.00	10.03	10.00	NS
	100.00	99.90	99.90	NS
28-Jun-09	0.00	0.02	-0.01	NS
	10.00	10.02	9.99	NS
	100.00	100.00	100.00	NS
29-Jun-09	0.00	-0.01	-0.01	ST
	10.00	10.01	9,99,	ST
	100.00	99.90	100.00	ST

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
1-Jul-09	0.00	0.71	-0.03	JK
	10.00	11.21	10.01	JK
	100.00	104.90	100.00	JK
2-Jul-09	0.00	0.64	0.02	MT
	10.00	10.81	10.03	MT
	100.00	103.60	100.10	MT
3-Jul-09	0.00	0.61	0.03	MT
	10.00	10.98	10.03	MT
	100.00	104.10	100.20	MT
4-Jul-09	0.00	0.61	0.05	MT
	10.00	11.02	10.01	MT
	100.00	103.60	99.90	MT
5-Jul-09	0.00	0.74	0.00	JK
	10.00	10.22	10.00	JK
	100.00	104.90	100.00	JK
6-Jul-09	0.00	0.72	0.01	MT
	10.00	10.91	10.04	MT
	100.00	104.10	100.20	MT
7-Jul-09	0.00	0.66	0.00	MT
	10.00	10.42	10.02	MT
	100.00	103.20	99.90	MT
8-Jul-09	0.00	0.74	0.00	MT
	10.00	11.19	10.02	MT
	100.00	104.40	100.10	MT
9-Jul-09	0.00	0.74	0.01	MT
	10.00	11.21	10.00	MT
	100.00	104.40	100.00	MT
10-Jul-09	0.00	0.71	0.01	MT
	10.00	11.11	10.01	MT
	100.00	103.90	100.00	MT
11-Jul-09	0.00	0.65	0.00	MT
	10.00	11.02	10.02	MT
	100.00	104.10	100.20	MT
12-Jul-09	0.00	0.71	0.01	MT
	10.00	11.02	10.01	MT
	100.00	103.90	100.00	MT
13-Jul-09	0.00	0.66	0.00	MT
	10.00	11.10	10.00	MT
	100.00	104.60	100.00	MT
14-Jul-09	0.00	0.76	0.03	MT
	10.00	11.31	10.02	MT
	100.00	104.30	100.0.1	MT
15-Jul-09	0.00	0.74	-0.01	MT
	10.00	10.98	10.00	MT
	100.00	104.20	100.20	MT
16-Jul-09	0.00	0.03	0.00	SG
	10.00	10.02	10.00	SG
	100.00	99.90	100.00	SG

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
18-Jul-09	0.00	0.05	0.01	SG
	10.00	10.03	10.00	SG
	100.00	100.00	100.00	SG
20-Jul-09	0.00	0.21	-0.03	JK
	10.00	11.55	10.05	JK
	100.00	106.00	100.30	JK
21-Jul-09	0.00	0.20	0.01	SG
	10.00	10.33	10.03	SG
	100.00	102.00	100.10	SG
22-Jul-09	0.00	0.16	0.01	JK
	10.00	11.58	10.05	JK
	100.00	107.10	99.40	JK
23-Jul-09	0.00	0.17	0.00	JK
	10.00	11.57	10.02	JK
	100.00	105.90	100.30	JK
27-Jul-09	0.00	0.17	0.00	JK
	10.00	11.51	10.05	JK
	100.00	106.20	100.10	JK
3-Aug-09	0.00	0.03	0.01	NS
	10.00	9.97	9.99	NS
	100.00	99.90	100.00	NS
6-Aug-09	0.00	0.08	0.01	NS
	10.00	99.90	9.98	NS
	100.00	100.30	100.00	NS
9-Aug-09	0.00	0.01	0.01	MT
	10.00	9.97	9.99	MT
	100.00	99.60	100.00	MT
12-Aug-09	0.00	0.01	0.01	NS
	10.00	9.97	9.99	NS
	100.00	99.60	100.00	NS
13-Aug-09	0.00	0.32	0.17	JK
	10.00	11.46	10.16	JK
	100.00	106.30	101.50	JK
14-Aug-09	0.00	0.28	0.00	JK
	10.00	12.49	9.11	JK
	100.00	106.10	100.10	JK
17-Aug-09	0.00	0.13	0.01	SG
	10.00	9.93	9.98	SG
	100.00	99.20	100.20	SG
19-Aug-09	0.00	0.30	0.02	JK
	10.00	11.43	10.36	JK
	100.00	106.10	100.30	JK
20-Aug-09	0.00	0.23	0.01	SG
	10.00	10.31	10.01	SG
	100.00	103.20	100.00	SG
21-Aug-09	0.00	0.16	0.00	SG
	10.00	10.09	10.01	SG
	100.00	101.20	100.00	SG

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
23-Aug-09	0.00	0.17	0.01	SG
	10.00	10.33	100.00	SG
	100.00	100.50	100.00	SG
24-Aug-09	0.00	0.04	0.00	SG
	10.00	10.30	10.01	SG
	100.00	100.10	100.00	SG
	0.00	0.06	0.01	SG
	10.00	10.03	10.01	SG
	100.00	100.10	100.00	SG
26-Aug-09	0.00	0.13	0.00	SG
	10.00	10.02	10.01	SG
	100.00	100.00	100.00	SG
28-Aug-09	0.00	0.07	0.00	MT
	10.00	10.07	10.00	MT
	100.00	100.00	99.90	MT
31-Aug-09	0.00	0.02	0.01	NS
	10.00	9.97	10.03	NS
	100.00	99.90	99.90	NS
2-Sep-09	0.00	0.02	0.00	MT
	10.00	10.86	10.03	MT
	100.00	100.20	100.10	MT
4-Sep-09	0.00	-0.22	0.00	NS
	10.00	11.04	10.00	NS
	100.00	101.30	100.00	NS
9-Sep-09	0.00	0.05	-0.01	NS
	10.00	10.04	9.96	NS
	100.00	100.40	100.00	NS
16-Sep-09	0.00	0.84	0.01	SG
	10.00	11.73	10.00	SG
	100.00	106.30	100.00	SG
18-Sep-09	0.00	0.21	0.01	SG
	10.00	10.86	10.01	SG
	100.00	100.50	100.00	SG
21-Sep-09	0.00	0.24	0.00	JK
	10.00	11.71	10.00	JK
	100.00	106.30	99.90	JK
25-Sep-09	0.00	0.00	0.00	MT
	10.00	9.99	9.99	MT
	100.00	100.00	100.00	MT
28-Sep-09	0.00	0.00	0.00	MT
	10.00	9.97	9.99	MT
	100.00	99.10	99.70	MT
30-Sep-09	0.00	-0.01	-0.01	MT
	10.00	9.97	9.97	MT
	100.00	99.70	99.70	MT
2-Oct-09	0.00	0.00	0.00	MT
	10.00	10.01	10.01	MT
	100.00	98.20	100.00	MT

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
5-Oct-09	0.00	0.04	0.03	Robert
	10.00	10.08	10.02	Robert
	100.00	101.50	100.50	Robert
7-Oct-09	0.00	0.01	0.03	Robert
	10.00	10.04	10.02	Robert
	100.00	100.60	100.30	Robert
9-Oct-09	0.00	0.58	-0.05	JK
	10.00	12.09	9.99	JK
	100.00	107.30	99.80	JK
12-Oct-09	0.00	0.56	-0.04	JK
	10.00	12.06	9.94	JK
	100.00	107.10	99.40	JK
14-Oct-09	0.00	0.52	0.06	JK
	10.00	12.07	10.00	JK
	100.00	107.20	99.70	JK
16-Oct-09	0.00	0.52	0.00	JK
	10.00	12.03	10.04	JK
	100.00	107.00	100.50	JK
19-Oct-09	0.00	0.56	0.00	JK
	10.00	12.07	10.03	JK
	100.00	107.30	100.30	JK
26-Oct-09	0.00	-0.05	-0.01	NS
	10.00	9.88	10.02	NS
	100.00	98.60	100.00	NS
	0.00	-0.05	-0.01	N.S.
	10.00	9.88	10.02	N.S.
	100.00	98.60	100.00	N.S.
27-Oct-09	0.00	-0.02	-0.02	MT
	10.00	10.01	10.01	MT
	100.00	100.30	100.30	MT
	0.00	-0.02	-0.02	M.T.
	10.00	10.01	10.01	M.T.
	100.00	100.30	100.30	M.T.
28-Oct-09	0.00	-0.05	-0.01	N.S.
	10.00	10.04	9.99	N.S.
	100.00	100.00	100.00	N.S.
29-Oct-09	0.00	0.61	0.03	M.T.
	10.00	12.04	9.96	M.T.
30-Oct-09	0.00	-0.01	0.03	N.S.
	10.00	9.94	9.97	N.S.
31-Oct-09	0.00	0.02	0.01	M.T.
	10.00	10.27	9.98	M.T.
1-Nov-09	0.00	0.01	0.00	M.T.
	10.00	9.92	10.00	M.T.
2-Nov-09	0.00	0.01	-0.01	M.T.
	10.00	10.00	10.01	M.T.
3-Nov-09	0.00	0.06	0.00	N.S.
	10.00	10.08	10.00	N.S.

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
4-Nov-09	0.00	0.03	-0.04	M.T.
	10.00	10.00	10.03	M.T.
5-Nov-09	0.00	-0.06	-0.01	M.T.
	10.00	10.07	9.99	M.T.
6-Nov-09	0.00	0.68	0.00	JK
	10.00	12.08	10.09	JK
	100.00	106.50	100.20	JK
7-Nov-09	0.00	0.04	0.01	SG
	10.00	10.14	10.01	SG
	100.00	99.50	100.00	SG
8-Nov-09	0.00	0.76	0.16	JK
	10.00	12.09	10.29	JK
	100.00	106.20	100.40	JK
9-Nov-09	0.00	0.10	0.01	SG
	10.00	10.06	10.00	SG
	100.00	100.40	100.00	SG
10-Nov-09	0.00	0.10	0.00	SG
	10.00	10.06	10.00	SG
	100.00	100.40	99.90	SG
11-Nov-09	0.00	-0.01	0.00	SG
	10.00	9.98	10.00	SG
	100.00	99.60	99.90	SG
12-Nov-09	0.00	0.74	0.00	JK
	10.00	12.10	10.06	JK
	100.00	106.50	100.00	JK
13-Nov-09	0.00	0.23	0.00	SG
	10.00	11.16	10.02	SG
	100.00	102.40	100.00	SG
14-Nov-09	0.00	0.71	0.00	JK
	10.00	12.10	10.01	JK
	100.00	106.40	100.50	JK
15-Nov-09	0.00	-0.01	0.00	SG
	10.00	10.00	10.00	SG
	100.00	100.20	100.10	SG
16-Nov-09	0.00	0.10	0.01	SG
	10.00	10.21	10.01	SG
	100.00	100.30	100.00	SG
17-Nov-09	0.00	0.08	0.03	SG
	10.00	10.07	10.01	SG
	100.00	100.20	100.00	SG
18-Nov-09	0.00	0.76	0.01	JK
	10.00	12.17	10.06	JK
	100.00	107.10	100.10	JK
19-Nov-09	0.00	0.78	0.03	JK
	10.00	12.18	10.02	JK
	100.00	107.10	100.10	JK
20-Nov-09	0.00	0.02	0.01	NS
	10.00	10.04	10.02	NS
	100.00	100.10	100.00	NS

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
21-Nov-09	0.00	0.04	0.00	NS
	10.00	10.04	10.00	NS
22-Nov-09	0.00	-0.05	0.01	NS
	10.00	10.03	10.02	NS
23-Nov-09	0.00	-0.05	0.01	NS
	10.00	10.03	10.02	NS
	100.00	104.30	100.00	NS
24-Nov-09	0.00	0.02	0.00	NS
	10.00	10.03	10.01	NS
25-Nov-09	0.00	0.02	0.00	NS
	10.00	9.95	9.97	NS
	100.00	92.80	99.90	NS
26-Nov-09	0.00	0.02	0.00	NS
	10.00	9.95	10.01	NS
27-Nov-09	0.00	0.05	0.05	NS
	10.00	10.02	10.00	NS
	100.00	93.20	100.20	NS
28-Nov-09	0.00	0.04	-0.01	M.T.
	10.00	10.01	10.00	M.T.
30-Nov-09	0.00	-0.02	0.02	NS
	10.00	9.99	10.00	NS
	100.00	93.30	100.00	NS
1-Dec-09	0.00	0.05	0.02	NS
	10.00	10.04	10.00	NS
2-Dec-09	0.00	0.01	-0.01	M.T.
	10.00	9.96	9.99	M.T.
	100.00	94.60	100.00	M.T.
3-Dec-09	0.00	-0.03	-0.10	M.T.
	10.00	9.93	10.01	M.T.
4-Dec-09	0.00	0.16	0.01	SG
	10.00	10.22	10.01	SG
	100.00	100.20	100.00	SG
5-Dec-09	0.00	0.01	0.00	SG
	10.00	10.01	10.00	SG
	100.00	100.00	100.00	SG
6-Dec-09	0.00	0.01	0.00	SG
	10.00	10.03	10.00	SG
	100.00	100.00	100.00	SG
7-Dec-09	0.00	-0.99	0.00	SG
	10.00	10.00	10.00	SG
	100.00	100.00	100.00	SG
8-Dec-09	0.00	-0.03	0.01	SG
	10.00	9.96	9.99	SG
	100.00	100.10	100.00	SG
9-Dec-09	0.00	0.05	0.01	SG
	10.00	9.98	9.99	SG
	100.00	95.40	99.90	SG

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
10-Dec-09	0.00	0.12	0.01	JK
	10.00	10.20	10.00	JK
	100.00	100.10	100.00	JK
11-Dec-09	0.00	1.12	0.01	JK
	10.00	12.09	9.97	JK
	100.00	107.10	100.10	JK
12-Dec-09	0.00	1.04	0.00	JK
	10.00	12.10	10.01	JK
	100.00	107.10	100.30	JK
13-Dec-09	0.00	0.53	0.00	SG
	10.00	11.21	10.01	SG
	100.00	101.30	100.00	SG
14-Dec-09	0.00	0.46	0.00	SG
	10.00	10.08	10.01	SG
	100.00	100.00	100.00	SG
15-Dec-09	0.00	0.38	0.00	SG
	10.00	10.04	10.00	SG
	100.00	100.00	100.00	SG
16-Dec-09	0.00	0.05	0.00	SG
	10.00	10.01	10.00	SG
	100.00	100.00	100.00	SG
17-Dec-09	0.00	0.03	0.01	NS
	10.00	9.80	9.96	NS
18-Dec-09	0.00	0.12	0.02	NS
	10.00	9.97	10.00	NS
	100.00	96.50	99.50	NS
19-Dec-09	0.00	0.11	0.01	NS
	10.00	9.80	9.98	NS
20-Dec-09	0.00	0.12	-0.02	PA
	10.00	9.88	10.03	PA
	100.00	97.20	100.30	PA
21-Dec-09	0.00	0.01	-0.01	PA
	10.00	9.96	9.97	PA
	100.00	100.10	100.10	PA
22-Dec-09	0.00	-0.03	0.00	NS
	10.00	9.93	10.00	NS
23-Dec-09	0.00	-0.01	-0.03	PA
	10.00	9.97	10.02	PA
	100.00	97.40	100.40	PA
24-Dec-09	0.00	-0.04	-0.04	PA
	10.00	10.02	9.96	PA
	100.00	100.30	100.00	PA
25-Dec-09	0.00	-0.05	0.00	NS
	10.00	9.90	9.99	NS
26-Dec-09	0.00	-0.04	-0.02	M.T.
	10.00	9.94	9.98	M.T.
	100.00	97.60	99.70	M.T.
27-Dec-09	0.00	0.06	0.00	NS
	10.00	9.92	9.99	NS

YSI Turbidity Meter calibration				
Date	**Standard**	**Initial reading**	**Final reading**	**Initial**
		NTU	NTU	
28-Dec-09	0.00	0.04	0.00	M.T.
	10.00	9.95	9.97	M.T.
30-Dec-09	0.00	0.01	0.01	M.T.
	10.00	9.94	10.02	M.T.
	100.00	97.90	100.00	M.T.
31-Dec-09	0.00	0.04	0.02	M.T.
	10.00	9.94	9.99	M.T.

Table 7.13: Hoskin pH Meter Calibration

Date	Standard	Initial reading	Final reading	Slope (mV)	Initial
16-Nov-09	7.00	6.78	7.00	58.8	SG
	4.00	3.89	4.00		SG
17-Nov-09	7.00	7.01	7.03	58.6	SG
	4.00	4.01	4.02		SG
18-Nov-09	7.00	7.07	7.00	57.6	JK
	4.00	4.07	4.00		JK
8-Dec-09	7.00	7.26	7.01	-58.4	SG
	4.00	4.14	4.00		SG
9-Dec-09	7.00	7.02	7.01	-58.5	SG
	4.00	4.01	4.00		SG
14-Dec-09	7.00	7.08	7.00	-58.7	SG
	4.00	4.13	4.00		SG
16-Dec-09	7.00	7.01	7.00	-58.7	SG
	4.00	4.01	4.00		SG
17-Dec-09	7.00	7.01	7.00	-62.0	NS
	4.00	4.01	4.00		NS
30-Dec-09	7.00	7.27	error	-58.9	MT
	4.00	3.92	4.01		MT

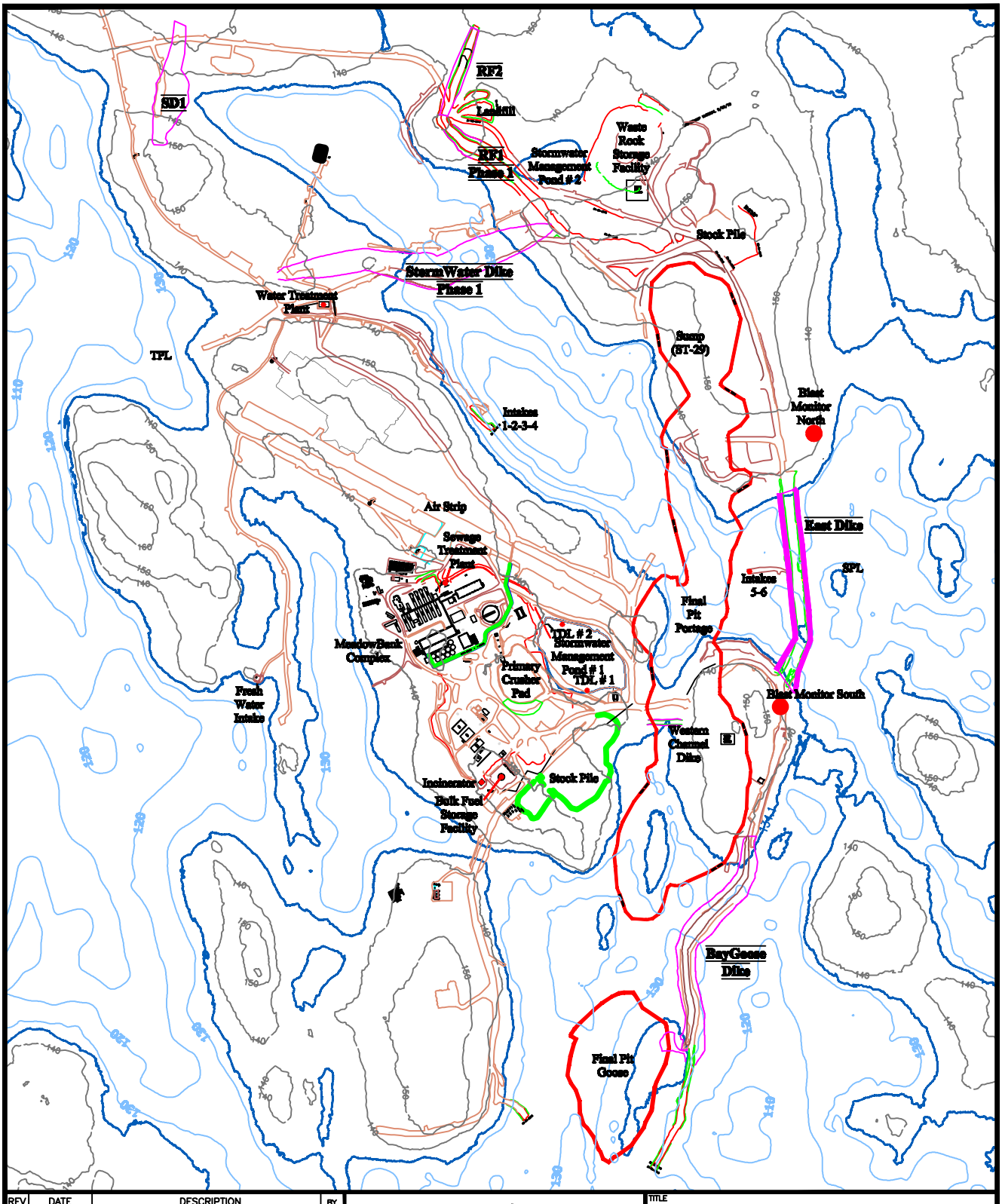
Note:
Hoskin Scientific 340I

Table 7.14: Water Usage

Month	Type of Use	Water Usage (m^3)
January	Batch Plant	132
	Water Treatment Plant	1,593
	January Total	**1,725**
February	Batch Plant	311
	Water Treatment Plant	1,495
	February Total	**1,806**
March	Batch Plant	845
	Water Treatment Plant	1,748
	March Total	**2,593**
April	Batch Plant	564
	Water Treatment Plant	1,892
	April Total	**2,456**
May	Batch Plant	570
	Water Treatment Plant	2,054
	May Total	**2,624**
June	Batch Plant	570
	Water Treatment Plant	2,070
	Water for Dust Control	1,960
	June Total	4,600
July	Batch Plant	264
	Water Treatment Plant	2,299
	Water for Dust Control	2,345
	July Total	**4,908**
August	Batch Plant	268
	Water Treatment Plant	2,537
	Water for Dust Control	1,807
	August Total	**4,612**
September	Batch Plant	402
	Water Treatment Plant	2,617
	Water for Dust Control	667
	September Total	**3,686**
October	Batch Plant	90
	Water Treatment Plant	2,454
	Water for Dust Control	0
	October Total	**2,544**
November	Batch Plant	16
	Water Treatment Plant	2,404
	Water for Dust Control	0
	November Total	**2,420**
December	Batch Plant	11
	Water Treatment Plant	2,466
	Water for Dust Control	0
	December Total	**2,477**
	2009 Total Water Usage	**36,451**

Figures

FORMAT ANSI A – PORTRAIT



REV	DATE	DESCRIPTION	BY

REVISIONS

AGNICO-EAGLE

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
Figure 1
Meadowbank Sampling Location

PROJECT No.	DATE 27/04/2010
DRAWN BY P. DAUDELIN	SHEET 1 / 1
APPROVED BY	
DRAWING NO.	REVISION

N:\Environmental\DRAWING\Sampl_loca.dwg, 27 Apr 2010

FILE NO. .DWG