



MEADOWBANK DIVISION

Monitoring Program Summary Report
December 2014

Type A Water License 2AM-MEA0815

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SECTION 1 • BACKGROUND

As required under Part I, Item 25 of Type A Water License 2AM-MEA0815, this report documents the water management and monitoring activities at the mine site for the month. This includes water usage, Portage Attenuation Pond discharge water quality, Vault Attenuation Pond discharge water quality, East Dike Seepage discharge water quality, RSF Seepage, Assay Road Seepage and sewage treatment plant discharge water quality (which is directed to the onsite storm water management pond).

In addition, a summary of spills/actions for the month are reported.

SECTION 2 • WATER MANAGEMENT

2.1 WATER USAGE

Freshwater usage for December 2014 is summarized in Table 2.1 below. The total freshwater consumption for the month was 74,650 m³ for a total year to date of 1,096,829 m³ which represent 95% of the freshwater use amendment limit of 1,150 000 m³ for 2014.

The total amount of reclaim water used in the mill for December was 261,304 m³. Beginning on November 19th, 2014, reclaim water was taken from the TSF South Cell instead of TSF North Cell. Tailings deposition also started in the South Cell which has become the new reclaim pond.

Table 2-1: Freshwater Usage (m³)

	December
Freshwater Storage Tank	74,483
Emulsion Plant	166
Water Truck	0
Total	74,650
Year to date total	1,096,829

2.2 WASTE ROCK STORAGE FACILITY SEEPAGE

In December, the sump at ST-16 was frozen and therefore water was not pumped to the North Cell TSF. A total of 32,169 m³ was pumped in 2014 from ST-16 directly to the TSF storage area.

AEM continues to complete weekly visual inspections at the RSF and NP-2 Lake. As sump water is frozen, monitoring water quality for CN WAD at these locations has not been possible. Frozen lake ice conditions permitted technicians to go on NP-2 Lake to take a monthly sample in December. This was the last sampling event for 2014 on NP-2 Lake and monitoring will restart in the spring as per the Freshet Action Plan.

2.3 ASSAY ROAD SEEPAGE

Water in the interception trench and the original containment berm and sumps were frozen and were not pumped back to the mill in December. Weekly visual inspections of the area were conducted. For the month of December a total of 871 m³ of water was pumped from well MW-203 back to the mill. Total year volume that has been pumped from well and containment sump is 14,698 m³. Well monitoring for CN downstream of the trench, has also ceased as all the water in the wells are frozen. Repairs to the containment areas and sumps inside the mill were completed on December 31st, 2014.

2.4 SEWAGE TREATMENT PLANTS

One (1) effluent wastewater sample was taken from the onsite sewage treatment plant (STP's) in December.

The Seprotech STP results are shown in Table 2.3.1 below; the LJ-Mix STP results are shown in Table 2.3.2. The results of the discharge indicate the system is working well. The effluent is discharged to the stormwater management pond and is sent to the TSF and back to the mill as reclaim water. This water recirculated and is not discharged to land nor into the receiving environment.

Table 2.3.1: Seprotech Effluent Results

Parameters	Units	December 1, 2014
Ammonia	mg N/L	0.02
Ammonia-Nitrogen	mg N/L	13.9
Total Kjeldahl Nitrogen	mg N/L	18.0
BOD-5	mg/L	21
COD	mg/L	93
Total Suspended Solids	mg/L	26
Nitrate	mg N/L	20.00
Nitrite	mg N/L	0.49
pH*	Units	5.80
Fecal Coliform	UFC/100 mL	72
Total Coliform	UFC/100 mL	3,200

*Parameter measured by STP operators

Table 2.3.2: LJ-Mix Effluent Results

Parameters	Units	December 1, 2014
Ammonia	mg N/L	<0.01
Ammonia-Nitrogen	mg N/L	4.0
Total Kjeldahl Nitrogen	mg N/L	5.1
BOD-5	mg/L	4
COD	mg/L	43
Total Suspended Solids	mg/L	7
Nitrate	mg N/L	22.10
Nitrite	mg N/L	0.11
pH*	Units	4.10
Fecal Coliform	UFC/100 mL	1
Total Coliform	UFC/100 mL	<10000

*Parameter measured by STP operators

2.5 PORTAGE ATTENUATION POND EFFLUENT

July 5th, 2014 was the last day of discharge from the Portage Attenuation Pond. Total year to date is 207,813 m³ of water was discharged into Third Portage Lake.

As of November 19th, AEM is no longer using the Portage Attenuation Pond (South Cell) as an attenuation pond, rather tailings are deposited and reclaim water is being recirculated from the South Cell tailings storage facility.

2.6 VAULT ATTENUATION POND EFFLUENT

Vault Attenuation Pond discharge was completed on August 14, 2014. Total year to date (including dewatering water) discharge volume was 329,101 m³.

2.7 EAST DIKE SEEPAGE EFFLUENT

East Dike Discharge was continuous for the month of December. During the month, a total of 16,881 m³ was discharged thru the diffusor into Second Portage Lake for a total year to date of 143,638 m³. Monitoring results are shown in Table 2.7.1 below.

TSS results did not exceed the maximum average concentration (15 mg/L) and maximum allowable grab sample concentration (30 mg/L) permitted by the Water License, Part F, Item 4.

Table 2.7.1: East Dike Seepage Discharge Results

Parameters	Units	8-Dec-14	16-Dec-14	22-Dec-14	29-Dec-14	Average Concentration
Total Suspended Solids	mg/L	<1	6	3	3	3.13

2.8 NON CONTACT WATER

In December, there was no water discharged through the non-contact water diversion ditches as the ditches were frozen.

SECTION 3 • SPILL MANAGEMENT

AEM has developed a thorough internal system of tracking spills on-site. Table 3.1 summarizes the AEM spill reports for the month. One (1) spill occurred on site and 0 were reported to the GN spill hotline. AEM contained, cleaned up and disposed of the spill material adequately.

Table 3-1: Summary of AEM Internal Spill Reports

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-12-30	Hydraulic oil	30 L	Winter Parking	Broken seal due to cold weather	All the contaminated material was cleaned-up and adequately disposed of.	No