



MEADOWBANK DIVISION

**Monitoring Program Summary Report**  
**January 2015**

Type A Water License 2AM-MEA0815

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## **SECTION 1 • BACKGROUND**

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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, 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**

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### **2.1 WATER USAGE**

Freshwater usage for January 2015 is summarized in Table 2.1 below. The total freshwater consumption for the month was 90,104 m<sup>3</sup>. The total amount of reclaim water used in the mill for January was 231,414 m<sup>3</sup>. Reclaim water is now supplied the TSF South Cell (since November 19<sup>th</sup>, 2014).

**Table 2-1: Freshwater Usage (m<sup>3</sup>)**

	<b>January</b>
Freshwater Storage Tank	89,933
Emulsion Plant	171
Water Truck	0
<b>Total</b>	<b>90,104</b>
<b>Year to date total</b>	<b>90,104</b>

### **2.2 WASTE ROCK STORAGE FACILITY SEEPAGE**

In January, the sump at ST-16 was frozen and therefore water was not pumped to the North Cell TSF.

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. 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 is frozen and therefore not pumped back to the mill in January. Weekly visual inspections of the area were conducted. For the month of January a total of 871 m<sup>3</sup> of water was pumped from well MW-203 back to the mill. Well monitoring for CN downstream of the trench, has also ceased as all the water in the wells is frozen. Repairs to the containment areas and sumps inside the mill were completed.

### **2.4 SEWAGE TREATMENT PLANTS**

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

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	January 6, 2015
Ammonia	mg N/L	0.01
Ammonia-Nitrogen	mg N/L	9.8
Total Kjeldahl Nitrogen	mg N/L	13.7
BOD-5	mg/L	9
COD	mg/L	96
Total Suspended Solids	mg/L	16
Nitrate	mg N/L	18.7
Nitrite	mg N/L	0.24
pH*	Units	5.80
Fecal Coliform	UFC/100 mL	19
Total Coliform	UFC/100 mL	200

\*Parameter measured by STP operators

**Table 2.3.2: LJ-Mix Effluent Results**

Parameters	Units	January 6, 2015
Ammonia	mg N/L	<0.01
Ammonia-Nitrogen	mg N/L	9.0
Total Kjeldahl Nitrogen	mg N/L	8.8
BOD-5	mg/L	2
COD	mg/L	117
Total Suspended Solids	mg/L	<1
Nitrate	mg N/L	23
Nitrite	mg N/L	0.01
pH*	Units	4.3
Fecal Coliform	UFC/100 mL	22
Total Coliform	UFC/100 mL	1,000

\*Parameter measured by STP operators

## 2.5 VAULT ATTENUATION POND EFFLUENT

There was no Vault Attenuation Pond discharge during the month.

## 2.6 EAST DIKE SEEPAGE EFFLUENT

East Dike Discharge was continuous for the month of January. During the month, a total of 15,269 m<sup>3</sup> was discharged thru the diffuser into Second Portage Lake. 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	6-Jan-15	13-Jan-15	19-Jan-15	26-Jan-15	Average Concentration
Total Suspended Solids	mg/L	8	3	12	5	8

## **2.7 NON CONTACT WATER**

In January, 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. Fourteen (14) spills occurred on site and 1 was 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
2015/01/02	Hydraulic Oil	50L	Pushback Parking	Broken "O" ring and lose hose clamp on Haul Truck 22.	Absorbant pads were put down. Site Services scraped remaining area with loader. Absorbant pads went to the incinerator and contaminated snow went in the yellow roll off.	No
2015/01/03	Hydraulic Oil	50L	Haul Truck Winter Parking	Loose hydraulic hose on Haul Truck.	Absorbant pads were placed on the spill. Contaminated snow was scraped with loader. Absorbant pads were sent to hazmat area to be burned in the incinerator. Contaminated snow was sent to yellow roll off.	No
2015/01/15	Hydraulic Oil	15L	AWAR KM 69	2 hydraulic hoses blown on the dozer blade.	Machine was shut down. Absorbant pads were placed on the spill and underneath the dozer and disposed of in the Hazmat area. Contaminated material cleaned up and disposed adequately.	No
2015/01/16	Motor oil	75L	Vault Pit	Engine failure on loader 04 caused coolant / motor oil leak.	Absorbant pads were placed on the spill. Contaminated material was picked up and sent to the contaminated soil pad (landfarm).	No
2015/01/17	Hydraulic Oil	33L	Vault Pit	Hydraulic hose blown on Baco 09	Loaded contaminated soil in haul truck and delivered it to contaminated soil containment area (landfarm).	No
2015/01/17	Hydraulic Oil	3L	Quarry 19	Hydraulic hose blown under the loader 966.	Picked up with a hand shovel immediately, transported loader back to Meadowbank with a tractor trailer. Contaminated soil disposed in the yellow roll off.	No
2015/01/18	Hydraulic Oil	6L	Site Services Coverall	Machine was frozen and would not start. When machine was moved, hydraulic oil started leaking.	Hydraulic Oil was cleaned up with Backhoe and disposed in the yellow roll off.	No
2015/01/18	Engine Oil	95L	Haul truck Winter parking area	Mechanical failure on Haul Truck.	Contaminated snow cleaned up and disposed adequately.	No
2015/01/22	Hydraulic Oil	33L	Haul Truck Winter Parking	Hydraulic hose blown on HTR 03 Tow Haul.	Contaminated soil picked up by site services with their 446 rubber tire back-hoe.	No

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2015/01/24	Diesel	55L	Vault Coverall	The overflow drain on top of the fuel truck was frozen when the Fuel truck was parked at the Vault Coverall. The coverall is heated so overflow drain thawed and the heat from the coverall caused expansion and the overflow drain started leaking.	Fuel Truck was checked to ensure no other leaks were present. Area was scraped clean with 345 Baco #7. Contaminated material was sent to contaminated soil pad (landfarm).	No
2015/01/24	Hydraulic Oil	80L	Vault Pattern 5109725	Hydraulic pump broke	Machine was shut down while spill was cleaned and Pump was replaced.	No
2015/01/25	Hydraulic Oil	20L	Pit E3	Left hand front travel brake hose on Baco 10 blown.	Spill pads were used to clean oil in the track motor guard. Area was scraped with grader.	No
2015/01/29	Coolant	50L	Haul Truck Winter Parking	Radiator leaked on HTR 26.	Area was taped off so no one could drive through the spill area. Site Services was notified to clean up spill with loader. Contaminated material disposed in the yellow roll off.	No
2015-01-29	Hydraulic Oil	235L	Vault Pit to ramp and waste dump	Broken hydraulic hose on Haul truck	Contaminated material was cleaned up and disposed adequately.	Yes