



MEADOWBANK DIVISION

## **Monitoring Program Summary Report**

**October 2015**

Type A Water License 2AM-MEA1525

Table of Contents

SECTION 1 • BACKGROUND..... 3

SECTION 2 • WATER MANAGEMENT ..... 4

2.1 WATER USAGE .....4

2.2 WASTE ROCK STORAGE FACILITY SEEPAGE .....4

2.3 ASSAY ROAD SEEPAGE .....4

2.4 SEWAGE TREATMENT PLANT .....4

2.5 VAULT ATTENUATION POND EFFLUENT .....5

2.6 EAST DIKE SEEPAGE EFFLUENT.....5

2.7 NON CONTACT WATER .....6

SECTION 3 • SPILL MANAGEMENT ..... 7

## **SECTION 1 • BACKGROUND**

---

As required under Part I, Item 20 of Type A Water License 2AM-MEA1525, 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**

---

### **2.1 WATER USAGE**

Freshwater usage for October 2015 is summarized in Table 2.1 below. The total freshwater consumption for the month was 40,685 m<sup>3</sup>. The total amount of reclaim water used in the mill for October was 266,026 m<sup>3</sup>. Reclaim water is supplied by the TSF South Cell.

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

	<b>October</b>
Freshwater Storage Tank	40,412
Emulsion Plant	172
Water Truck	0
<b>Total</b>	<b>40,584</b>
<b>Year to date total</b>	<b>722,425</b>

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

In October no water was pumped back to the North Cell TSF from the ST-16 sump as it was frozen. Total year to date is 20,029 m<sup>3</sup>.

AEM continues to complete weekly inspections at RSF and NP-2 Lake. The monitoring required under the Freshet Action Plan will resume next spring. NP-2 Lake and the RSF seepage (ST-16) areas are now frozen.

### **2.3 ASSAY ROAD SEEPAGE**

In October, water was pumped from the original sump, trench and MW-203 back to the mill. The total volume pumped was 1,188 m<sup>3</sup>. Total year to date pumped from MW-203, the interception trench and containment is 30,380 m<sup>3</sup>. Weekly inspections of the area were conducted in October. Water was frozen in the original sump and trench preventing the sampling effort in late October. Well monitoring for CN downstream of the trench, has also ceased as water in the wells was frozen.

### **2.4 SEWAGE TREATMENT PLANT**

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

The Seprotech STP results are shown in Table 2.4.1 below; the LJ-Mix STP results are shown in Table 2.4.2. The results of the discharge indicate the system is working well. The effluent is discharged to the stormwater management pond and is pumped to the TSF

(2x/year). This water becomes part of the reclaim pond. There is no discharge to the receiving environment.

**Table 2.4.1: Seprotech Effluent Results**

Parameters	Units	October 5, 2015
Ammonia	mg N/L	0.22
Ammonia-Nitrogen	mg N/L	29.7
Total Kjeldahl Nitrogen	mg N/L	35.5
BOD-5	mg/L	7
COD	mg/L	57
Total Suspended Solids	mg/L	23
Nitrate	mg N/L	8.89
Nitrite	mg N/L	0.98
pH*	Units	6.90
Fecal Coliform	UFC/100 mL	420
Total Coliform	UFC/100 mL	4300

\*Parameter measured by STP operators

**Table 2.4.2: LJ-Mix Effluent Results**

Parameters	Units	October 5, 2015
Ammonia	mg N/L	<0.01
Ammonia-Nitrogen	mg N/L	4.7
Total Kjeldahl Nitrogen	mg N/L	4.72
BOD-5	mg/L	5
COD	mg/L	43
Total Suspended Solids	mg/L	17
Nitrate	mg N/L	26.1
Nitrite	mg N/L	0.12
pH*	Units	4.5
Fecal Coliform	UFC/100 mL	<10
Total Coliform	UFC/100 mL	1000

\*Parameter measured by STP operators

## 2.5 VAULT ATTENUATION POND EFFLUENT

Discharge from the Vault Attenuation Pond was stopped September 10<sup>th</sup>. Total year to date discharged is 1,065,433 m<sup>3</sup>. AEM does not plan to discharge water anymore from this location in 2015.

## 2.6 EAST DIKE SEEPAGE EFFLUENT

Discharge from the East Dike Seepage occurred for the whole month. A total of 17,959 m<sup>3</sup> was discharged into Second Portage Lake during the month. Total year to date discharged is 131,606 m<sup>3</sup>.

Four weekly effluent samples were collected at ST-8 in October. 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 6. Monitoring results are shown in Table 2.6.1 below. Regular sampling pursuant to MMER is also conducted at this location. There have been no exceedances of MMER criteria.

**Table 2.6.1: East Dike Seepage Discharge Results**

Parameters	Units	6-Oct-15	13-Oct-15	20-Oct-15	26-Oct-15	Average Concentration
Total Suspended Solids	mg/L	<1	7	1	4	3.1

## 2.7 NON CONTACT WATER

Portage Area East diversion ditch (ST-5) results are shown in Table 2.7.1 below and Portage Area West diversion ditch (ST-6) results are shown in Table 2.7.2. TSS results didn't 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 6.

**Table 2.7.1: Portage Area East Diversion Ditch (ST-5) Results**

Parameters	Units	5-Oct-15
Total Suspended Solids	mg/l	1

**Table 2.7.2: Portage Area West Diversion Ditch (ST-6) Results**

Parameters	Units	5-July-15	3-Aug-15	15-Sept-15	5-Oct-15	Average Concentration
Total Suspended Solids	mg/l	3	<1	7	16	6.6

## 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. Eight (8) spills occurred on site and one (1) was reportable to the GN spill hotline. AEM contained, cleaned up and disposed of the spill material adequately. The majority of the clean-up material was taken to the AEM Landfarm. Absorbent pads are disposed of at the on-site incinerator.

**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
2015/10/01	Compressor oil	30L	Vault Pit	A rock, overturned by the tracks of a loader, came into contact with the compressor oil tank fitting causing an oil leak.	The contaminated soil was picked up and adequately disposed of in the yellow roll-off bin.	No
2015/10/06	Diesel	10L	South pit ramp	The undercarriage of a truck hit the ground puncturing the oil pan.	The contaminated soil was picked up and adequately disposed of in the yellow roll-off bin.	No
2015/10/10	Hydraulic oil	70L	Pit E3	A hydraulic hose broke causing a leak.	The contaminated soil was picked up and adequately disposed of in the yellow roll-off bin.	No
2015/10/11	Tailings slurry	500L	RF-2 along Tailings pond	While switching the tailings deposition point in the North Tailings Cell, a slurry spill occurred. While separating the inactive tailings pipe to complete the pipe clean up, some residual slurry left in the pipe spilled on the road surface.	The contaminated soil was picked up by a loader and disposed of in the tailings pond. Reported to regulators.	Yes
2015/10/11	Hydraulic oil	20L	Site Services coverall parking	A hydraulic hose broke causing a leak.	The contaminated soil was picked up and adequately disposed of in the yellow roll-off bin.	No
2015/10/15	Hydraulic oil	30L	AWAR Km 95	A hydraulic hose broke.	The contaminated soil was picked up and adequately disposed of in the yellow roll-off bin.	No
2015/10/18	Hydraulic oil	95L	Maintenance shop	Brake cooler line broke causing leak of oil.	Absorbent pads were placed on the ground to contain the spill. Contaminated pads were adequately disposed of in the yellow roll-off bin.	No
2015/10/21	Hydraulic oil	15L	Winter parking	Oil leaked during maintenance operations on a bucket.	The contaminated soil was picked up and adequately disposed of in the yellow roll-off bin.	No