



MEADOWBANK DIVISION

Monitoring Program Summary Report
May 2015

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, 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 May 2015 is summarized in Table 2.1 below. The total freshwater consumption for the month was 73,807 m³. It should be noted that in May, no water was taken from the unnamed lake to supply the Emulsion Plant as the pump in the lake needs to be repaired and has not functioned since January. The water is supplied through the Meadowbank freshwater supply and is trucked to the emulsion plant. Approximately 215 m³ is the May consumption for the Emulsion Plant. The total amount of reclaim water used in the mill for May was 240,272 m³. Reclaim water is supplied by the TSF South Cell.

Table 2-1: Freshwater Usage (m³)

	May
Freshwater Storage Tank	73,807
Emulsion Plant	0
Water Truck	0
Total	73,807
Year to date total	486,108

2.2 WASTE ROCK STORAGE FACILITY SEEPAGE

In May, the sump at ST-16 started to thaw around May 21 and therefore the pumping of water restarted to the North Cell TSF on May 26. A total of 1,625m³ was pumped out.

As per the Freshet Action Plan, AEM commenced daily visual inspections at the RSF and NP-2 Lake. As the sump water is partially unfrozen and the NP-2 Lake is still frozen no sample monitoring started. As soon as NP-2 and other locations thaw the sample monitoring will start as per the Freshet Action Plan. To date, the water level in ST-16 area was very low preventing any possible seepage through the till plug.

2.3 ASSAY ROAD SEEPAGE

In May, the assay road seepage areas started to thaw around May 21. Water in the interception trench and the original containment berm and sumps is still frozen and therefore was not pumped back to the mill in May. As soon as open water is observed the sample monitoring program will start as per the Freshet Action Plan. AEM is conducting daily visual inspections of the areas. For the month of May a total of 347 m³ of water was pumped from well MW-203 back to the mill. Total year to date pumped from MW-203 is 2,704m³. Well monitoring for CN downstream of the trench will commence once the wells unthaw.

2.4 SEWAGE TREATMENT PLANTS

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

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

Table 2.3.1: Seprotech Effluent Results

Parameters	Units	May 4, 2015
Ammonia	mg N/L	0.04
Ammonia-Nitrogen	mg N/L	12
Total Kjeldahl Nitrogen	mg N/L	15.7
BOD-5	mg/L	23
COD	mg/L	85
Total Suspended Solids	mg/L	25
Nitrate	mg N/L	19.2
Nitrite	mg N/L	0.79
pH*	Units	6.20
Fecal Coliform	UFC/100 mL	580
Total Coliform	UFC/100 mL	3,000

*Parameter measured by STP operators

Table 2.3.2: LJ-Mix Effluent Results

Parameters	Units	May 4, 2015
Ammonia	mg N/L	<0.01
Ammonia-Nitrogen	mg N/L	1.31
Total Kjeldahl Nitrogen	mg N/L	2.65
BOD-5	mg/L	24
COD	mg/L	49
Total Suspended Solids	mg/L	12
Nitrate	mg N/L	24.6
Nitrite	mg N/L	0.05
pH*	Units	5.7
Fecal Coliform	UFC/100 mL	2
Total Coliform	UFC/100 mL	800

*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 May. During the month, a total of 12,755 m³ was discharged thru the diffuser into Second Portage Lake. Total year to date discharge is 72,748 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	5-May-15	11-May-15	18-May-15	26-May-15	Average Concentration
Total Suspended Solids	mg/L	1	3	1	1	2

2.7 NON CONTACT WATER

In May, 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. Sixteen (16) spills occurred on site and one 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 eventually disposed of at the on-site incinerator. Spill clean-up material containing a majority of snow is disposed in the TSF.

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
2015/05/03	Diesel	10L	Vault WTP	Fuel leaking from fuel truck parked inside the WTP	Absorbant Pads were placed on the spill and contaminated material disposed of adequately	No
2015/05/06	Hydraulic Oil	45L	Pushback parking	Leak from a haul truck	Pick up contaminated soil and send it to the landfarm	No
2015/05/07	Diesel	6L	Pattern 5116802 Vault	Fuel tank leak	Absorb pads were put down. Loader cleanup the area and contaminated material disposed adequately.	No
2015/05/07	Hydraulic Oil	50L	D-Dump	Hydraulic component failure on equipment	Used spill pads. Shoveled all contaminate snow and disposed of adequately.	No
2015/05/07	Transmission oil	20L	Baker Lake guest house	Broken hose on loader	Contaminated snow removed and brings back to Meadowbank mine site for adequate disposal.	No
2015/05/08	Hydraulic Oil	25L	AWAR Km 62	Failure of hydraulic pump	Contaminated snow removed and brought to Meadowbank mine site for adequate disposal.	No
2015/05/09	Hydraulic Oil	70L	South of pushback	Equipment failure	Contaminated material cleaned up and adequately disposed of.	No
2015/05/10	Hydraulic Oil	15L	Fountain Tire area	Component failure on HTR 12	Absorbant pad was put on the spilled area to contain the spill. Site service cleaned up the contaminated material and disposed of adequately.	No
2015/05/11	Engine oil	12.5L	Maintenance shope dome side	Pushed oil out of the breather tube as the engine failed	Absorbant pad was put on the spilled area to contain the spill and site service was advised to scrape and clean up.	No
2015/05/14	Hydraulic Oil	20L	Vault BAC10	Changed components of hydraulic tank and hose leaked	Had a Quadrex to contain the spill and the rest has been picked with absorbant pads.	No
2015/05/15	Hydraulic Oil	10L	Outside Maintenance shop Bay 7	Hydraulic hose broken on equipment	Contain most of the spill with absorbant pads. Site service came over to cleaned up and adequately disposed of the contaminate material.	No

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2015/05/21	Diesel	250L	Baker Lake Tank Farm	Fuel Tanker operator hooked up fuel arm to wrong compartment. When fuel was turned on, it came out of the overflow pipe on the tanker.	Operator hit the emergency stop button at the refueling station. Spill pads were placed on spill area. A second operator with a 980 loader was able to scrape away some material. Another set of spill pads was laid down where the operator scraped the contaminated material. Refer to spill report sent to regulators on May 22 and follow up on May 29.	Yes
2015/05/21	Engine/Transmission oil	30L	Bottom of South Pit Ramp	Vehicle was in contact with boulder at the bottom of South Pit ramp and punctured the Engine Oil Pan and Transmission Oil Pan.	Absorbant Pads were placed on the spill and contaminate material adequately cleaned up.	No
2015/05/24	Engine Oil	35L	Truck shop dome side	Punctured oil pan on Truck 17	Contaminated material cleaned up and adequately disposed of.	No
2015/05/25	Hydraulic Oil	30L	Pushback parking	Broken hose on HTR 12	Spill picked up by IT 28 and put in contaminated soil bin.	No
2015/05/26	Hydraulic Oil	25L	Pit E3	Broken hose on equipment	No clean up because of loaded holes for blast near.	No