



MEADOWBANK DIVISION

Monitoring Program Summary Report

December 2016

Type A Water License 2AM-MEA1525

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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, Central Dike Seepage, Assay Road Seepage, and sewage treatment plant discharge water quality (which are directed to the onsite storm water management pond).

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

SECTION 2 • WATER MANAGEMENT

2.1 WATER USAGE

Fresh and reclaim water usage for December 2016 is summarized in Table 2-1 below.

Table 2-1: Freshwater Usage (m³)

Water Location	Source	January	February	March	April	May	June	July
Camp	Third Portage Lake	3,181	3,061	3,418	3,297	3,478	3,235	3,441
Mill (freshwater tank)	Third Portage Lake	38,578	47,316	84,254	84,309	37,388	41,429	35,270
Emulsion plant	No-name Lake	135	125	119	138	147	54	116
Total Freshwater Usage (m³)		41,894	50,502	87,791	87,744	41,013	44,718	38,827
Reclaim Water Usage (m³)	South Cell TSF	261,513	207,769	204,407	200,883	268,825	231,995	273,558

Water Location	Source	August	September	October	November	December	Total 2016
Camp	Third Portage Lake	3,530	3,342	3,601	3,570	3,422	40,576
Mill (freshwater tank)	Third Portage Lake	33,516	27,030	44,773	45,980	46,435	566,278
Emulsion plant	No-name Lake	124	116	152	136	93	1,455
Total Freshwater Usage (m³)		37,170	30,488	48,526	49,686	49,950	608,309
Reclaim Water Usage (m³)	South Cell TSF	264,956	259,254	240,238	235,292	252,433	2,901,123

2.2 WASTE ROCK STORAGE FACILITY SEEPAGE

In December 2016, no water was pumped back to the North Cell TSF from the ST-16 sump. Total year to date pumped from ST-16 was 26,340 m³.

Inspections/Monitoring as per the Freshet Action Plan will resume in 2017 Freshet. As well, sampling at WEP1 (Station ST-30), WEP2 (Station ST-31), ST-16, NP2, and the downstream lakes required under the Freshet Action Plan will resume in 2017 Freshet. NP2-Winter water sampling through ice into NP-2 Lake has been done in December.

2.3 CENTRAL DIKE SEEPAGE

In December 2016, 465,316 m³ of water was pumped from the ST-S-5 sump back into the South Cell TSF. Total year to date is 4,597,688 m³.

Sampling was conducted monthly at ST-S-5 and the South Cell TSF (ST-21) as per the requirements of the NWB water license.

Daily visual inspections were also completed by the Engineering Department.

2.4 ASSAY ROAD SEEPAGE

In December 2016, no water was pumped from the interception trench back to the mill as it is all frozen. The total water pumped for 2016 is 11,078 m³.

2.5 SEEPAGE AND RUNOFF FROM THE LANDFILL

The landfill was inspected weekly and no seepage or runoff was observed.

2.6 SEEPAGE AT PIT WALL AND PIT WALL FREEZE/THAW AND PERMAFROST AGGRADATION

In December, water was observed seeping on the eastern wall of the Vault Pit. It was not possible to assess flow. In December, no water was pumped out from Vault Pit to the Vault Attenuation Pond. No water was pumped out of Portage Pit North and South to the South Cell TSF.

2.7 SEWAGE TREATMENT PLANT

One (1) effluent wastewater sample was collected at the onsite sewage treatment plant (STP) in December 2016.

The Seprotech STP results are shown in Table 2.7.1 below; the LJ-Mix STP results are shown in Table 2.7.2. The effluent is discharged to the Stormwater Management pond which is pumped to the South Cell TSF twice a year during summer months.

Table 2.7.1: Seprotech Effluent Results

Parameters	Units	December 12, 2016
Ammonia (NH ₃)	mg N/L	0.30
Ammonia-Nitrogen (NH ₃ -NH ₄)	mg N/L	38.1
Total Kjeldahl Nitrogen	mg N/L	42.5
BOD-5	mg/L	14
COD	mg/L	64
Total Suspended Solids	mg/L	24
Nitrate	mg N/L	6.33
Nitrite	mg N/L	0.97
pH*	Units	7.50
Fecal Coliform	UFC/100 mL	70
Total Coliform	UFC/100 mL	7,200

*Parameter measured by STP operators

Table 2.7.2: LJ-Mix Effluent Results

Parameters	Units	December 12, 2016
Ammonia (NH ₃)	mg N/L	<0.01
Ammonia-Nitrogen (NH ₃ -NH ₄)	mg N/L	0.60
Total Kjeldahl Nitrogen	mg N/L	3.2
BOD-5	mg/L	9
COD	mg/L	51
Total Suspended Solids	mg/L	13
Nitrate	mg N/L	18.7
Nitrite	mg N/L	0.08
pH*	Units	7.00

Fecal Coliform	UFC/100 mL	42
Total Coliform	UFC/100 mL	7,000

*Parameter measured by STP operators

2.8 VAULT ATTENUATION POND EFFLUENT

No discharge occurred from the Vault Attenuation Pond into Wally Lake in December. Total year to date is 1,008,457 m³.

2.9 EAST DIKE SEEPAGE EFFLUENT

Discharge from the East Dike Seepage occurred for the entire month of December. A total of 13,344 m³ of water was discharged into Second Portage Lake in December 2016. Total year to date is 180,416 m³.

Four (4) weekly effluent samples were collected at ST-8 in December 2016. TSS results did not exceed the maximum allowable grab sample concentration (30 mg/L) and maximum average concentration (15 mg/L) permitted by Water License, Part F, Item 6. TSS monitoring results for November 2016 are shown in Table 2.9.2 below.

Table 2.9.2: December 2016 East Dike Seepage Results

Parameters	Units	5-Dec-16	12-Dec-16	19-Dec-16	27-Dec-16	Maximum Average Concentration
Total Suspended Solids	mg/L	1	2	<1	2	1.4

Monthly regular sampling pursuant to the Water license was also conducted at this location. Results are shown in Table 2.9.3 below. There have been no exceedances of MMER or Water License criteria.

Table 2.9.3: December 2016 Monthly Monitoring Results

Parameters	Units	5-Dec-16
Aluminum	mg/L	0.038
Sulphate	mg/L	0.6
Arsenic	mg/L	<0.0005
Copper	mg/L	0.0013
Nickel	mg/L	0.001
Lead	mg/L	<0.0003
Zinc	mg/L	0.007
Radium 226	mg/L	<0.002
Total Cyanide	mg/L	<0.001

2.10 NON CONTACT WATER

No water sampling at ST-5 and ST-6 were completed in December due to frozen condition.

SECTION 3 • SPILL MANAGEMENT

Figure 3.1 shows reported and non-reported spills for 2016 broken down per month and Table 3.1 summarizes AEM spill reports for December 2016. All spills reported internally and to regulators were managed appropriately on site according to AEM's spill contingency plan. Spills were contained and cleaned, contaminated material was disposed to the appropriate area (landfarm, TSF if required), and the clean-up actions were monitored closely by the Environment Department. There was no off site impact to any watercourses.

Figure 3-1 2016 Reported and Non-Reported Spills

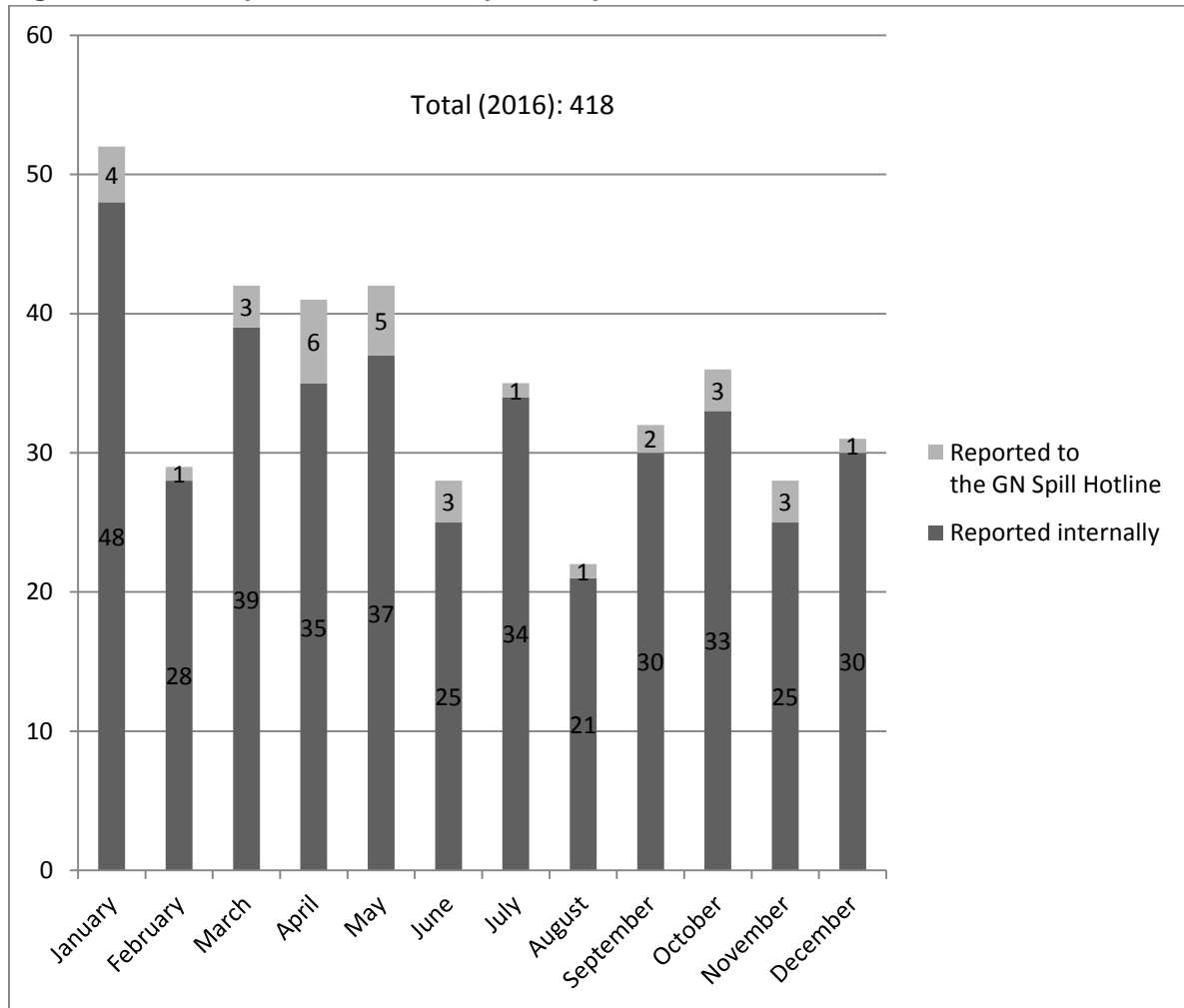


Table 3.1: Summary of Agnico Eagle Internal Spill Reports, December 2016

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill GN
December 4, 2106	Hydraulic oil	20 L	Vault Pit	Broken hydraulic hose	Contaminated material soil was picked up and disposed of in yellow contaminated soil roll off container.	No
December 4, 2016	Hydraulic oil	50 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	No
December 5, 2016	Hydraulic oil	5 L	Amaruq Exploration Road KM 18.7	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	No
December 7, 2016	Coolant	50 L	Vault Pit Top bench	Broken coolant line.	Contaminated soil was picked up and disposed of adequately.	No
December 10, 2016	Coolant	30 L	Primary Crusher	Broken coolant line.	Nothing, material will be process in the crusher.	No
December 16, 2016	Coolant	10 L	Portage pit	Broken coolant line.	Nothing, contaminated material couldn't be recovered because spilled over a distance too big.	No
December 16, 2016	Hydraulic oil	10 L	Vault Rock Storage Facility	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	No
December 17, 2016	Hydraulic oil	50 L	Winter parking	Wind blowing during maintenance	Contaminated soil was picked up and disposed of adequately.	No
December 17, 2016	Hydraulic oil	80 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	No
December 18, 2016	Hydraulic oil	30 L	South pit View point	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	No
December 19, 2016	Engine oil	70 L	Amaruq Exploration Road KM 24	Broken engine head gasket	Contaminated soil was picked up and disposed of adequately.	No
December 19, 2016	Hydraulic oil	20 L	Amaruq Exploration Road KM 17	Hydraulic filter froze	Contaminated soil was picked up and disposed of adequately.	No
December 19, 2016	Hydraulic oil	65 L	Amaruq Exploration Road KM 24	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	No
December 19, 2016	Coolant	9 L	Maintenance Shop	Unknown	Contaminated snow was picked up and disposed of adequately.	No
December 20, 2016	Hydraulic oil	25 L	Vault parking	Broken transmission line	Contaminated soil was picked up and disposed of at the landfarm	No
December 21, 2016	Hydraulic oil	20 L	Pushback parking	Sealing wheels leak	Contaminated soil was picked up and disposed of at the landfarm	No
December 22, 2016	Hydraulic oil	70 L	Portage pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm	No
December 23,	Hydraulic oil	22 L	Pushback	Broken	Contaminated soil was picked	No

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2016			parking	hydraulic hose	up and disposed of at the landfarm	
December 23, 2016	Engine oil	15 L	Vault Pit	Engine overheated	Contaminated soil was picked up and disposed of at the landfarm	No
December 23, 2016	Hydraulic oil	60 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	No
December 23, 2016	Transmission oil	340 L	Portage pit	Transmission failed on equipment	Contaminated soil was picked up and disposed of adequately.	Yes
December 24, 2016	Hydraulic oil	5 L	Vault Pit	Hydraulic pan leak	Contaminated soil was picked up and disposed of at the landfarm	No
December 24, 2016	Hydraulic oil	50 L	Portage pit	O-ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm	No
December 25, 2016	Hydraulic oil	35 L	Vault Camp	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm	No
December 26, 2016	Engine oil	5 L	Pushback parking	Leak on equipment	Contaminated soil was picked up and disposed of at the landfarm	No
December 27, 2016	Coolant	20 L	Vault parking	Hub cap damaged	Contaminated soil was picked up and disposed of adequately.	No
December 28, 2016	Hydraulic oil	90 L	Vault Pit	O-ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm	No
December 29, 2016	Hydraulic oil	5 L	Amaruq Road	O-ring failure on hydraulic line	Contaminated soil was picked up and disposed of at the landfarm	No
December 30, 2016	Hydraulic oil	19 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of at the landfarm	No
December 30, 2016	Coolant	73 L	Vault Pit	Broken coolant line.	Contaminated soil was picked up and disposed of adequately.	No
December 31, 2016	Hydraulic oil	50 L	Vault Pit	Broken hydraulic hose	Contaminated soil was picked up and disposed of adequately.	No