



MEADOWBANK DIVISION

## **Monitoring Program Summary Report**

**December 2018**

Type A Water License 2AM-MEA1526

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## **SECTION 1 • BACKGROUND**

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As required under Part I, Item 20 of Type A Water License 2AM-MEA1526 (Amendment No.2), 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, Phaser Attenuation Pond, 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 is summarized in Table 2-1 below.

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

Water Location	Source Lake	Jan	Feb	March	April	May	June
Camp	Third Portage Lake	3 237	3 058	3 404	3 320	3 527	3 304
Mill (freshwater tank)	Third Portage Lake	51 594	165 733	92 668	152 367	136 952	49 471
Emulsion plant	No-name Lake	93	68	88	91	94	47
<b>Total Freshwater Usage (m<sup>3</sup>)</b>		<b>54 924</b>	<b>168 859</b>	<b>96 161</b>	<b>155 778</b>	<b>140 573</b>	<b>52 822</b>
<b>Ore Water (m<sup>3</sup>)</b>	Ore	2 606	2 047	2 078	1 500	2 854	3 177
<b>Reclaim Water Usage (m<sup>3</sup>)</b>	Tailings Pond	219 263	122 845	156 278	89 402	149 282	229 403

Water Location	Source Lake	July	Aug	Sept	Oct	Nov	Dec	Total
Camp	Third Portage Lake	3 330	3 270	3 265	3 319	3 409	3 501	39 944
Mill (freshwater tank)	Third Portage Lake	47 009	43 408	49 672	30 397	93 314	73 715	986 300
Emulsion plant	No-name Lake	68	66	60	87.0	75.9	76.7	915
<b>Total Freshwater Usage (m<sup>3</sup>)</b>		<b>50 407</b>	<b>46 744</b>	<b>52 997</b>	<b>33 803</b>	<b>96 799</b>	<b>77 293</b>	<b>1 027 159</b>
<b>Ore Water (m<sup>3</sup>)</b>	Ore	2 895	3 315	2 430	3 002	5 494	8 140	<b>39 538</b>
<b>Reclaim Water Usage (m<sup>3</sup>)</b>	Tailings Pond	284 365	289 366	198 531	223 479	129 131	137 403	<b>2 228 748</b>

### 2.2 WASTE ROCK STORAGE FACILITY SEEPAGE

No water was pumped back to the North Cell TSF from the ST-16 sump in December due to frozen condition.

Agnico Eagle completed in December inspections at the Portage and Vault RSFs. No open water sampling at WEP1 (Station ST-30), WEP2 (Station ST-31), ST-16, NP-2 and the downstream lakes were completed in December. NP2-Winter water sampling through ice into NP-2 Lake was done in December as the ice condition permitted safe sampling.

### 2.3 CENTRAL DIKE SEEPAGE

In December, 176,167 m<sup>3</sup> of water was pumped from the ST-S-5 sump back into the South Cell TSF.

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, no water was pumped back to the mill. No wells monitoring for CN downstream and trench sampling in December due to frozen condition.

## 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, ice wall continued to be observed into Vault Pit.

## 2.7 SEWAGE TREATMENT PLANT

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

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 during summer months. In December, no water was discharged from the Stormwater Management pond to the South Cell TSF.

**Table 2.7.1: Seprotech Effluent Results**

Parameters	Units	December 11, 2018
Ammonia (NH <sub>3</sub> )	mg N/L	0.33
Ammonia-Nitrogen (NH <sub>3</sub> -NH <sub>4</sub> )	mg N/L	27.3
Total Kjeldahl Nitrogen	mg N/L	31.9
BOD-5	mg/L	16
COD	mg/L	76
Total Suspended Solids	mg/L	18
Nitrate	mg N/L	6.61
Nitrite	mg N/L	1.14
pH*	Units	7.40
Fecal Coliform	UFC/100 mL	52
Total Coliform	UFC/100 mL	35,000

\*Parameter measured by STP operators

**Table 2.7.2: LJ-Mix Effluent Results**

Parameters	Units	December 11, 2018
Ammonia (NH <sub>3</sub> )	mg N/L	0.06
Ammonia-Nitrogen (NH <sub>3</sub> -NH <sub>4</sub> )	mg N/L	10.9
Total Kjeldahl Nitrogen	mg N/L	12.9
BOD-5	mg/L	4
COD	mg/L	65
Total Suspended Solids	mg/L	10
Nitrate	mg N/L	11.1
Nitrite	mg N/L	0.57
pH*	Units	7.10
Fecal Coliform	UFC/100 mL	3,100

Total Coliform	UFC/100 mL	23,000
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\*Parameter measured by STP operators

## 2.8 VAULT ATTENUATION POND EFFLUENT

No discharge occurred from the Vault Attenuation Pond into Wally Lake in December.

## 2.9 PHASER ATTENUATION POND

No water was pumped from the Phaser Attenuation Pond in December due to frozen condition.

## 2.10 EAST DIKE SEEPAGE EFFLUENT

In December, a total of 10,968 m<sup>3</sup> was discharged into Second Portage Lake.

Three (3) weekly effluent samples were collected at ST-8 in December 2018. 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 December 2018 are shown in Table 2.9.1 below. There have been no exceedances of MDMER criteria.

No sample was collected at East Dike Discharge Effluent for the week of December 2<sup>nd</sup> to December 8<sup>th</sup>, 2018 as required by MDMER Division 2 Section 12(1). The sample was supposed to be taken on December 3<sup>rd</sup>, 2018 but because of plane delays, the sample had to be cancelled. Agnico was supposed to resample the following day, on December 4<sup>th</sup>, 2018, but field execution prevented the sample from being retaken and thus no samples were taken during the aforementioned week. ECCC's Inspector was notified. The Total Suspended Solids (TSS) results for the week before (2 mg/L) and after (3 mg/L) that week were below the authorized limit discharge as per Schedule 4. This does not constitute a non-compliance as per the Water License as the requirement is for a monthly sample.

**Table 2.9.1: East Dike Seepage Results for TSS**

Parameters	Units	Dec 03, 2018	Dec 10, 2018	Dec 17, 2018	Dec 27, 2018	Maximum Average Concentration
Total Suspended Solids	mg/L	NA	3	2	3	2.7

Monthly regular sampling pursuant to the Water License was also conducted at this location. Results are shown in Table 2.9.2 below. There have been no exceedances of MDMER for those criteria.

**Table 2.9.2 December 2018 Monthly Monitoring Results**

Parameters	Units	December 17, 2018
pH*		7.66
Aluminum	mg/L	<0.005
Sulphate	mg/L	7.5
Arsenic	mg/L	<0.0005
Copper	mg/L	<0.0005
Nickel	mg/L	<0.0005
Lead	mg/L	<0.0003
Zinc	mg/L	<0.001
Radium 226	mg/L	Analysis not yet complete
Total Cyanide	mg/L	<0.001

\*Parameter measured by environmental technicians

## **2.11 NON CONTACT WATER**

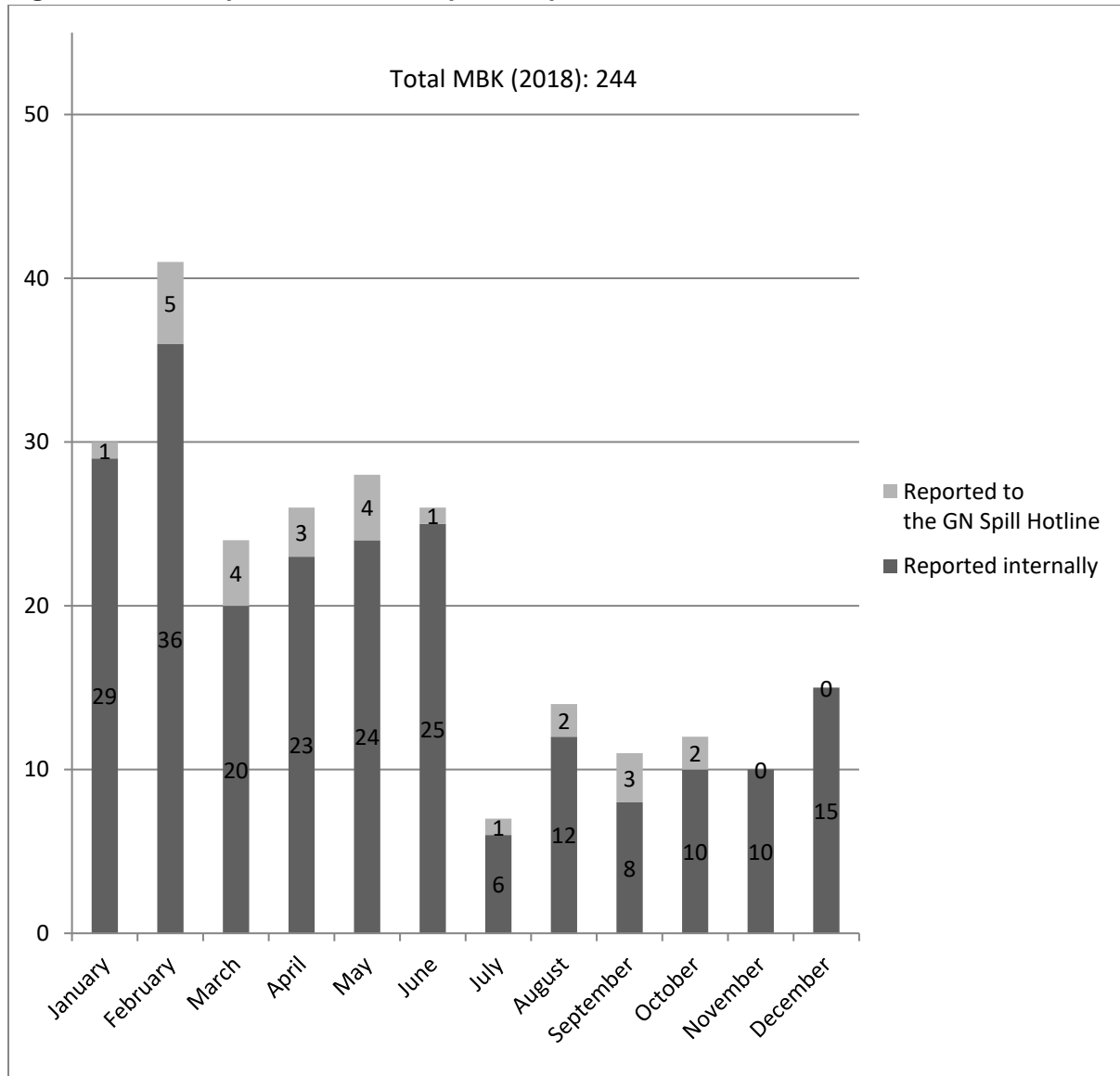
No water sample at Portage Area East (ST-5) and West (ST-6) diversion ditches in December due to frozen condition.

### SECTION 3 • SPILL MANAGEMENT

Figure 3.1 shows reported and non-reported spills for 2018 broken down per month and Table 3.1 summarizes Agnico Eagle spill reports for December.

All spills reported internally (15) were managed appropriately on site according to Agnico's spill contingency plan. No spill was reported to regulators in December. 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 2018 Reported and Non-Reported Spills**





**Table 3.1: Summary of Agnico Eagle Internal and Reported Spill Reports, December 2018**

Date of Spill	Hazardous Material	Qty	Units (L / Kg)	Location	Cause of spill	Clean-up action taken
December 2, 2018	Diesel	10	L	Meadowbank Pushback parking	Frozen fuel breather	Spill was contained and contaminated soil picked up and disposed of appropriately
December 4, 2018	Hydraulic Oil	20	L	Vault Pit	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 7, 2018	Hydraulic Oil	75	L	Vault parking	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 12, 2018	Coolant	95	L	Meadowbank E3 ramp	Coolant hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 13, 2018	Hydraulic Oil	45	L	Vault Pit	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 17, 2018	Hydraulic Oil	85	L	BB Phaser Pit	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 21, 2018	Hydraulic Oil	15	L	Portage Pit E	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 21, 2018	Hydraulic Oil	5	L	Portage Pit E	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately

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December 21, 2018	Hydraulic Oil	5	L	Meadowbank Pit	O-ring failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 22, 2018	Hydraulic Oil	5	L	Vault pit	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 23, 2018	Hydraulic Oil	20	L	Portage Pit E	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 26, 2018	Hydraulic Oil	6	L	Meadowbank Maintenance Shop	Hydraulic tank gasket failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 27, 2018	Coolant	20	L	Vault parking	Engine cooling system hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 27, 2018	Steering Fluid	4	L	Vault parking	Steering hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
December 30, 2018	Coolant	90	L	Meadowbank Pushback parking	Equipment failure	Spill was contained and contaminated soil picked up and disposed of appropriately