



MEADOWBANK DIVISION

## **Monitoring Program Summary Report**

**June 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, 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 June 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	Total
Camp	Third Portage Lake	3,237	3,058	3,404	3,320	3,527	3,304	19,850
Mill (freshwater tank)	Third Portage Lake	51,594	165,733	92,668	152,367	136,952	49,471	648,785
Emulsion plant	No-name Lake	93.2	68	88	91	94	47	482
<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>669,117</b>
<b>Reclaim Water Usage (m<sup>3</sup>)</b>	Tailings Pond	219,263	122,845	156,278	89,402	149,282	229,403	966,473

### 2.2 WASTE ROCK STORAGE FACILITY SEEPAGE

In June, 27,249 m<sup>3</sup> of water was pumped back to the North Cell TSF from the ST-16 sump. Of that amount, 12,097 m<sup>3</sup> and 6,637 m<sup>3</sup> were transferred from respectively the WEP1 and WEP2 sumps to the ST-16 sump.

As per the 2018 Freshet Action Plan, Agnico Eagle completed in June the daily freshet inspections at the Portage and Vault RSFs. Open water sampling at WEP1 (Station ST-30) and WEP2 (Station ST-31) required under the Freshet Action Plan was completed in June. Due to the presence of ice and safety matters, no sampling was completed in June for ST-16, NP-2 and the downstream lakes.

### 2.3 CENTRAL DIKE SEEPAGE

In June, 195,645 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 June, 5,135 m<sup>3</sup> of water was pumped back from the mill trench back to the mill. Weekly inspections of the area were conducted this month. Trench sampling has been taking according to the Freshet Action Plan. Wells monitoring for CN downstream will resume in July when the wells will be free of ice.

## 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 June, ice wall was observed into Vault pit. A total of 9,947 m<sup>3</sup> were pumped from Phaser pit and 29,408 m<sup>3</sup> were pumped from BB Phaser and transferred to Phaser Pond. A total of 67,855 m<sup>3</sup> has been pumped out from the Phaser pond and transferred to Vault Attenuation Pond. Also, a total of 1,425 m<sup>3</sup> has been transferred from Vault pit to Vault attenuation pond.

## 2.7 SEWAGE TREATMENT PLANT

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

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 June, a total of 18,544 m<sup>3</sup> has been discharged from the Stormwater Management pond to the South Cell TSF.

**Table 2.7.1: Seprotech Effluent Results**

Parameters	Units	June 12 <sup>th</sup> , 2018
Ammonia (NH <sub>3</sub> )	mg N/L	0.41
Ammonia-Nitrogen (NH <sub>3</sub> -NH <sub>4</sub> )	mg N/L	29.3
Total Kjeldahl Nitrogen	mg N/L	41.6
BOD-5	mg/L	14
COD	mg/L	67
Total Suspended Solids	mg/L	8
Nitrate	mg N/L	4.17
Nitrite	mg N/L	0.92
pH*	Units	7.3
Fecal Coliform	UFC/100 mL	190
Total Coliform	UFC/100 mL	6 000

\*Parameter measured by STP operators

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

Parameters	Units	June 12 <sup>th</sup> , 2018
Ammonia (NH <sub>3</sub> )	mg N/L	0.15
Ammonia-Nitrogen (NH <sub>3</sub> -NH <sub>4</sub> )	mg N/L	19.8
Total Kjeldahl Nitrogen	mg N/L	24.8
BOD-5	mg/L	15
COD	mg/L	74
Total Suspended Solids	mg/L	10
Nitrate	mg N/L	11.5
Nitrite	mg N/L	0.35
pH*	Units	6.7
Fecal Coliform	UFC/100 mL	1 600
Total Coliform	UFC/100 mL	40 000

\*Parameter measured by STP operators

## 2.8 VAULT ATTENUATION POND EFFLUENT

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

## 2.9 EAST DIKE SEEPAGE EFFLUENT

Discharge from the East Dike Seepage occurred during the first three days of the month. A total of 2,654 m<sup>3</sup> was discharged into Second Portage Lake in June. Due to an increase in internal TSS levels in the East Dyke discharge, the discharge has been preventively stopped and diverted to the pits. Similar measures have been done in the past. Please note that no exceedance occurred. While the discharge is diverted to the pits, the station name is now ST-S-1.

Monthly regular sampling pursuant to the Water License was conducted at St-S-1. Results are shown in Table 2.9.2 below.

**Table 2.9.2 June 2018 Monthly Monitoring Results (St-S-1)**

Parameters	Units	June 30 <sup>th</sup> , 2018
pH*		7.46
Alkalinity	Mg CaCO <sub>3</sub> /L	27
Aluminium	mg/L	0.095
Silver	mg/L	<0.0001
Arsenic	mg/L	0.0007
Ammonia nitrogen	Mg N/L	0.01
Barium	mg/L	0.0071
Cadmium	mg/L	<0.00002
Chloride	mg/L	1.3
Chrome	mg/L	0.0010
Copper	mg/L	0.0012

Total Cyanide	mg/L	0.001
Hardness	mg CaCO <sub>3</sub> /L	31
Iron	mg/L	0.19
Fluoride	mg/L	0.11
Total Suspended Solids	mg/L	1
Manganese	mg/L	0.0054
Mercury	mg/L	<0.00001
Molybdenum	mg/L	<0.0005
Ammonia NH <sub>3</sub> (non-ionized)	mg N/L	<0.01
Nickel	mg/L	0.0017
Nitrate	mg N/L	0.07
Nitrite	mg N/L	<0.01
Lead	mg/L	<0.0003
Selenium	mg/L	<0.001
Dissolved Solids	mg/L	48
Sulfate	mg SO <sub>4</sub> /L	8.4
Thallium	mg/L	<0.0008
Zinc	mg/L	<0.001

\*Parameter measured by environmental technicians

## 2.10 NON CONTACT WATER

In June, Agnico Eagle completed inspections at ST-5 and ST-6 as per the 2018 Freshet Action Plan. Portage Area East (ST-5) and West diversion ditches (ST-6) water quality results are shown in Tables 2.10.1 and 2.10.2, respectively. 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.

**Table 2.10.1: Portage Area East Diversion Ditch (ST-5) Results**

Parameters	Units	26-June-18
Total Suspended Solids	mg/l	<1

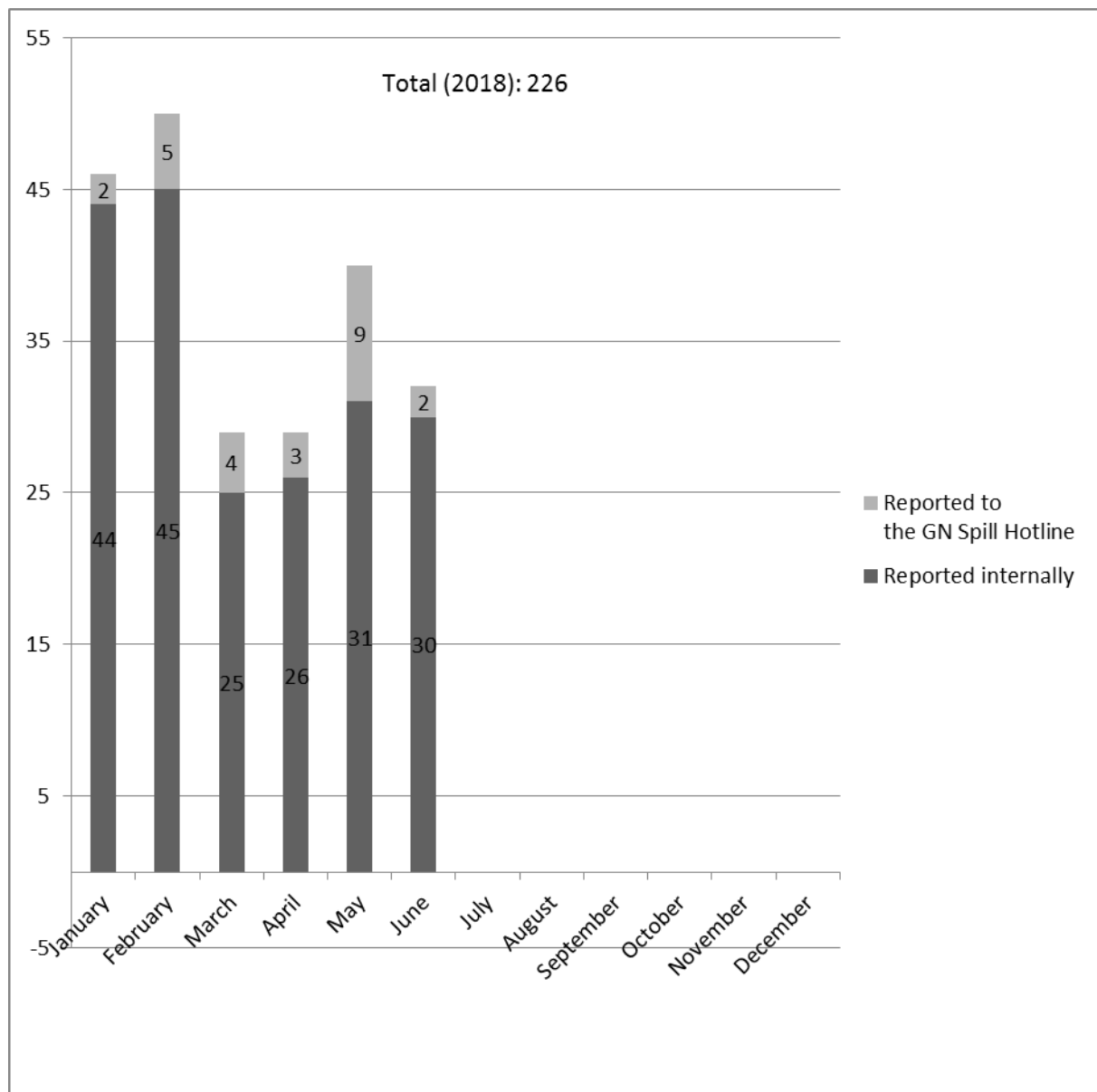
**Table 2.10.2: Portage Area West Diversion Ditch (ST-6) Results**

Parameters	Units	26-June-18
Total Suspended Solids	mg/l	<1

### 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 June. All spills reported internally (30) and to regulators (2) were managed appropriately on site according to Agnico'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 2018 Reported and Non-Reported Spills**





**Table 3.1: Summary of Agnico Eagle Internal Spill Reports, June 2018**

<b>2018 Reported Spills (Internal and Reported to Regulators)</b>						
<b>Date of Spill</b>	<b>Hazardous Material</b>	<b>Qty</b>	<b>Units (L / Kg)</b>	<b>Location</b>	<b>Cause of spill</b>	<b>Clean-up action taken</b>
2-Jun	Hydraulic oil	50	L	Mine Meadowbank	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
3-Jun	Diesel	30	L	Construction - Amaruq	Overfilling	Spill was contained and contaminated soil picked up and disposed of appropriately
3-Jun	Coolant	25	L	Mine Meadowbank	Coolant hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
3-Jun	Hydraulic oil	10	L	Maintenance Meadowbank	Leak	Spill was contained and contaminated soil picked up and disposed of appropriately
4-Jun	Hydraulic oil	20	L	Mine Meadowbank	O-ring failure	Spill was contained and contaminated soil picked up and disposed of appropriately
4-Jun	Coolant	70	L	Mine Meadowbank	Contact between to heavy equipment causing damage to the radiator	Spill was contained and contaminated soil picked up and disposed of appropriately
6-Jun	Coolant	5	L	Amaruq Road - Meadowbank	Coolant hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
7-Jun	Hydraulic oil	10	L	Mine Meadowbank	Leak	Spill was contained and contaminated soil picked up and disposed of appropriately

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7-Jun	Hydraulic oil	30	L	Mine Meadowbank	Oil coming from the boom cylinder	Spill was contained and contaminated soil picked up and disposed of appropriately
8-Jun	Hydraulic oil	40	L	Mine Meadowbank	O-ring failure	Spill was contained and contaminated soil picked up and disposed of appropriately
8-Jun	Diesel	5	L	Drill and Blast Mine Meadowbank	Breather overflowed	Spill was contained and contaminated soil picked up and disposed of appropriately
8-Jun	Diesel	30	L	Meadowbank	Leaking from the fuel plug	Spill was contained and contaminated soil picked up and disposed of appropriately
8-Jun	Diesel	5	L	Mine Meadowbank	Breather overflowed during refueling	Spill was contained and contaminated soil picked up and disposed of appropriately
9-Jun	Hydraulic oil	60	L	Mine Meadowbank	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
9-Jun	Diesel	50	L	Drill and Blast Mine Meadowbank	Breather overflowed during refueling	Spill was contained and contaminated soil picked up and disposed of appropriately
11-Jun	Hydraulic oil	10	L	Mine Meadowbank	Hose connexion failure	Spill was contained and contaminated soil picked up and disposed of appropriately
11-Jun	Diesel	115	L	Amaruq	Perforated tote during fuel transfer	Spill was contained and contaminated soil picked up and disposed of appropriately
11-Jun	Hydraulic oil	2	L	Amaruq	Leak	Spill was contained and contaminated soil picked up and disposed of appropriately
14-Jun	Hydraulic oil	50	L	Drill and Blast Mine Meadowbank	Hydraulic pump leaking causing an overflow	Spill was contained and contaminated soil picked up and disposed of appropriately
15-Jun	Hydraulic oil	10	L	Mine Meadowbank	Quick attach hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately

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15-Jun	Hdraulic oil	65	L	Mine Meadowbank	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
15-Jun	Hydraulic oil	80	L	Mine Meadowbank	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
16-Jun	Hydraulic oil	10	L	Mine Meadowbank	Steering hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
16-Jun	Hydraulic oil	80	L	Mine Meadowbank	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
17-Jun	Hydraulic oil	25	L	Mine Meadowbank	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
18-Jun	Hydraulic oil	30	L	Mine Meadowbank	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
18-Jun	Hydraulic oil	250	L	Meadowbank	Broken seal on a track tensioner cylinder	Spill was contained and contaminated soil picked up and disposed of appropriately
22-Jun	Hydraulic oil	50	L	Open Pit Meadowbank	Residual oil from maintenance repairs	Spill was contained and contaminated soil picked up and disposed of appropriately
25-Jun	Coolant	65	L	Mine Meadowbank	Coolant hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
28-Jun	Coolant	25	L	Mine Meadowbank	Coolant hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
28-Jun	Hydraulic oil	5	L	Construction - Amaruq	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately
28-Jun	Hydraulic oil	1	L	Construction - Amaruq	Hydraulic hose failure	Spill was contained and contaminated soil picked up and disposed of appropriately