



MEADOWBANK DIVISION

## **Monitoring Program Summary Report**

**May 2017**

Type A Water License 2AM-MEA1525

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## **SECTION 1 • BACKGROUND**

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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

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### 2.1 WATER USAGE

Fresh and reclaim water usage for May 2017 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	Total
Camp	Third Portage Lake	3,623	3,144	3,444	3,490	3,692	17,393
Mill (freshwater tank)	Third Portage Lake	45,068	41,345	33,328	53,001	53,152	225,894
Emulsion plant	No-name Lake	86	97	97	96	101	476
<b>Total Freshwater Usage (m<sup>3</sup>)</b>		<b>48,777</b>	<b>44,586</b>	<b>36,869</b>	<b>56,587</b>	<b>56,944</b>	<b>243,762</b>
<b>Reclaim Water Usage (m<sup>3</sup>)</b>	Tailings Pond	252,232	232,324	247,396	227,667	246,007	1,205,626

### 2.2 WASTE ROCK STORAGE FACILITY SEEPAGE

In May 2017, 16,692 m<sup>3</sup> of water was pumped back to the North Cell TSF from the ST-16 sump. Of that amount, 2,141 and 1,635 m<sup>3</sup> were transferred from respectively the WEP1 and WEP2 sumps to the ST-16 sump.

As per the 2017 Freshet Action Plan, Agnico Eagle completed in May the daily freshet inspections at the Portage and Vault RSFs, and NP-2 Lake. No major issues were observed. 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 as soon as the lake are ice free. NP2-Winter water sampling through ice into NP-2 Lake has been done in May.

### 2.3 CENTRAL DIKE SEEPAGE

In May 2017, 494,484m<sup>3</sup> of water was pumped from the ST-S-5 sump back into the South Cell TSF. Total year to date is 2,227,688 m<sup>3</sup>.

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 May 2017, 3,025 m<sup>3</sup> of water was pumped back from well MW-203 back to the mill. Weekly inspections of the area were conducted this month. Well monitoring for CN downstream of the trench as well as open water monitoring required under the Freshet Action Plan should resume in June when there is open water 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 May, ice was observed on the eastern wall of the Vault Pit, but the ice wall has stopped forming due to the temperature increase. In May, 15,263 m<sup>3</sup> were pumped out from Vault Pit to the Vault Attenuation Pond. A total of 15,345 m<sup>3</sup> was pumped out from Portage Pit North to the South Cell TSF. No water was pumped out from the Portage Pit South.

## 2.7 SEWAGE TREATMENT PLANT

One (1) effluent wastewater sample was collected at the onsite sewage treatment plant (STP) in May 2017.

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. In May, a total of 33,664 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	May 1, 2017
Ammonia (NH <sub>3</sub> )	mg N/L	0.55
Ammonia-Nitrogen (NH <sub>3</sub> -NH <sub>4</sub> )	mg N/L	44.29
Total Kjeldahl Nitrogen	mg N/L	50.87
BOD-5	mg/L	10
COD	mg/L	62
Total Suspended Solids	mg/L	20
Nitrate	mg N/L	2.31
Nitrite	mg N/L	1.81
pH*	Units	7.50
Fecal Coliform	UFC/100 mL	50
Total Coliform	UFC/100 mL	1,300

\*Parameter measured by STP operators

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

Parameters	Units	May 1, 2017
Ammonia (NH <sub>3</sub> )	mg N/L	0.02
Ammonia-Nitrogen (NH <sub>3</sub> -NH <sub>4</sub> )	mg N/L	10.1
Total Kjeldahl Nitrogen	mg N/L	13.55
BOD-5	mg/L	8
COD	mg/L	54
Total Suspended Solids	mg/L	17
Nitrate	mg N/L	17

Nitrite	mg N/L	0.24
pH*	Units	6.40
Fecal Coliform	UFC/100 mL	320
Total Coliform	UFC/100 mL	<1,000

\*Parameter measured by STP operators

## 2.8 VAULT ATTENUATION POND EFFLUENT

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

## 2.9 EAST DIKE SEEPAGE EFFLUENT

Discharge from the East Dike Seepage occurred from May 1 to May 11, 2017. A total of 4,435 m<sup>3</sup> of water was discharged into Second Portage Lake. Total year to date is 52,907 m<sup>3</sup>.

On May 9, East Dike Discharge exceeded TSS results regarding the maximum allowable grab sample concentration (30 mg/L) and maximum average concentration (15 mg/L) permitted by Water License, Part F, Item 6. The event was reported via an email sent to the NU Spill Line on May 11 2017.

Water discharge to Second Portage Lake for the regulatory East Dike Discharge has occurred since August 2015 without interruption and without any exceedance to the NWB Water License 2AM-MEA1525 Part F, Item 6.

The East Dike Discharge effluent was sampled on May 9, 2017 at 8am CT. Laboratory result of the May 9 sample was received on May 11 at 4:05pm. Result for total suspended solid (TSS) of 34 mg/L exceeds the regulatory limit of 30 mg/L maximum authorized concentration in a grab sample. East Dike Discharge to Second Portage Lake has been stopped on May 11, 6:40pm and has been directed to the Portage Pit. Based on a total flow of 990 m<sup>3</sup> between May 9, 8am and May 11, 6:40pm, the quantity of TSS release is estimated at 33.66 kg. All mitigation measures have been done in a timely manner.

Regulated results of April and first week of May are all below the authorized limits: April 3 (TSS – 8 mg/L), April 12 (TSS – 11 mg/L), April 17 (TSS – 11 mg/L), April 24 (TSS – 4 mg/L) and May 1 (TSS – 1 mg/L), with an average of 7 mg/L over this period of discharge. During this period, regulatory results were below the regulatory limit of 30 mg/L maximum authorized concentration and the maximum authorized monthly mean concentration of 15 mg/L. An average of 17.5 mg/L was recorded for May only (considering the result of 34 mg/L on May 9, 2017). Furthermore to regulatory sampling and as part of our internal monitoring to ensure the protection of the receiving environment, Agnico analysed on a weekly basis a TSS sample for our onsite laboratory, which is not accredited but provides real time data for guidance. Samples have been taken on April 7, 14, 21, 28, 30 and May 1 and 5. Results of these sampling were respectively 16.9 mg/L, 1.2 mg/L, 4 mg/L, 20.2 mg/L, 2.7 mg/L, 4 mg/L

and 10.8 mg/L. The average for this period of discharge is 8.5 mg/L, and of 7.4 mg/L for May only. During this period, internal results were below the regulatory limit of 30 mg/L maximum authorized concentration and the maximum monthly mean concentration of 15mg/L. All results before May 9, either from our onsite or accredited laboratory, do not permit to foresee the exceedance on May 9. Agnico Eagle associated this exceedance with the beginning of the freshet.

From May 11 to May 31, there was still no discharge from the East Dike Seepage to Second Portage Lake. Agnico Eagle has put in place a daily TSS monitoring program to follow the water quality. Once the results are satisfying for Agnico Eagle and compliant with the MMER regulation for a period judged acceptable for confirmation that the TSS level meets discharge criteria, the water discharge will resume in Second Portage Lake.

Given the short duration of discharge between the exceedance on May 9 and the stop of the discharge in the receiving environment on May 11, Agnico is confident that the aquatic environment was protected and not impacted. Core receiving environment monitoring in Second Portage Lake has been collected and will confirm these findings.

**Table 2.9.2: May 2017 East Dike Seepage Results during discharge**

Parameters	Units	1-May -17	9-May-17	Maximum Average Concentration
Total Suspended Solids	mg/L	1	34	17.50

Monthly regular sampling pursuant to the Water License was also conducted at this location. Results are shown in Table 2.9.3 below.

**Table 2.9.3: May 2017 Monthly Monitoring Results during discharge**

Parameters	Units	1-May-17
Aluminum	mg/L	0.039
Sulphate	mg/L	6.3
Arsenic	mg/L	<0.0005
Copper	mg/L	0.002
Nickel	mg/L	<0.0005
Lead	mg/L	<0.0003
Zinc	mg/L	<0.001
Radium 226	mg/L	0.002
Total Cyanide	mg/L	0.007

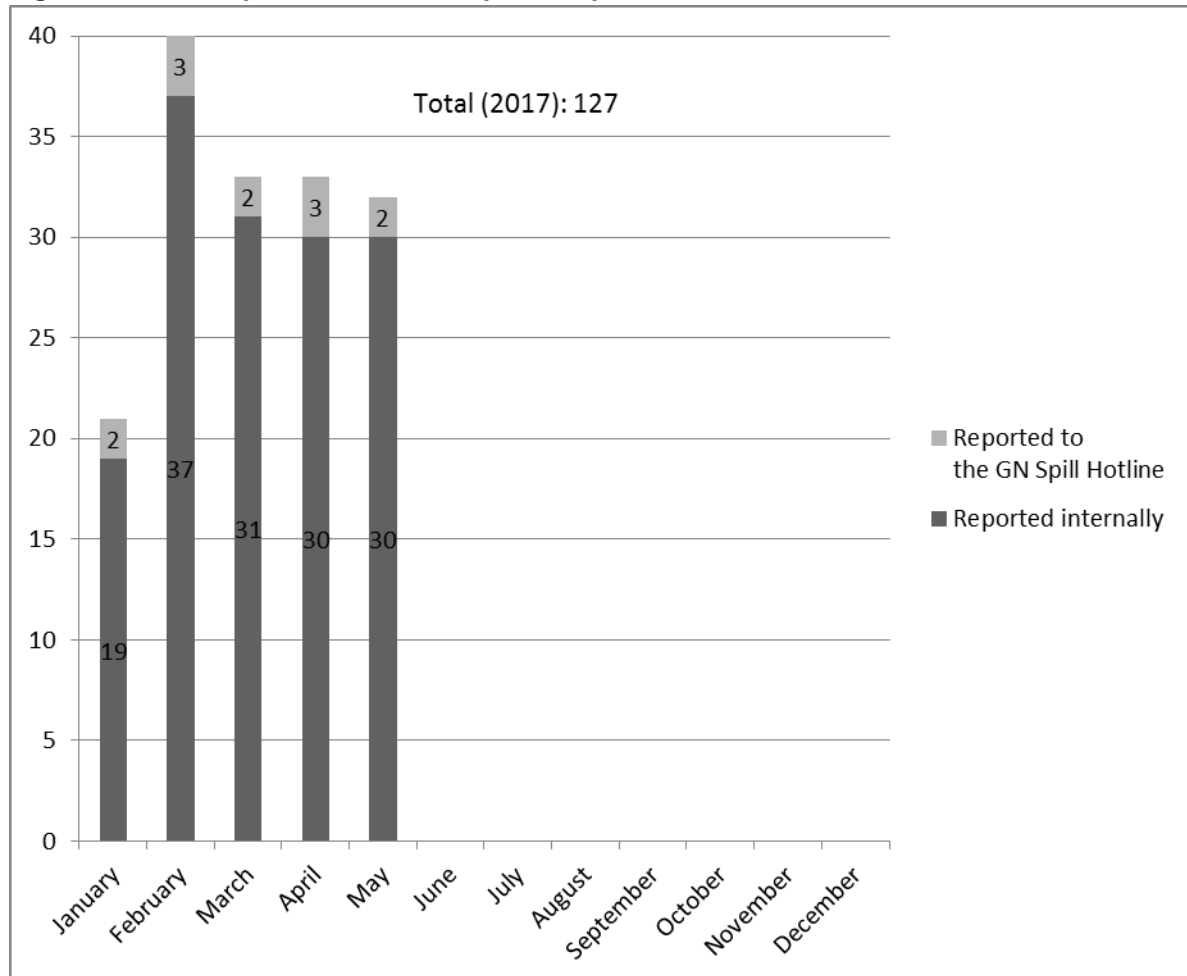
## 2.10 NON CONTACT WATER

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

## SECTION 3 • SPILL MANAGEMENT

Figure 3.1 shows reported and non-reported spills for 2017 broken down per month and Table 3.1 summarizes Agnico spill reports for May 2017. 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 2017 Reported and Non-Reported Spills**





**Table 3.1: Summary of Agnico Eagle Internal Spill Reports, May 2017**

<b>Date of Spill</b>	<b>Hazardous Material</b>	<b>Quantity</b>	<b>Units (L / Kg)</b>	<b>Location</b>	<b>Cause of spill</b>	<b>Clean-up action taken</b>	<b>Reported to Spill GN HotLine</b>
May 3, 2017	Antifreeze	15	L	Vault pit	Broken antifreeze line	Contaminated soil picked up and disposed of appropriately	No
May 4, 2017	Hydraulic oil	25	L	Vault pit	Broken hydraulic hose	Contaminated soil picked up and disposed of appropriately	No
May 4, 2017	Coolant	30	L	Vault pit	Broken coolant hose	Contaminated soil picked up and disposed of appropriately	No
May 5, 2017	Hydraulic oil	30	L	Vault pit	Broken O'ring	Contaminated soil picked up and disposed of appropriately	No
May 5, 2017	Diesel	40	L	Vault pit	Breather malfunction	Contaminated soil picked up and disposed of appropriately	No
May 5, 2017	Diesel	40	L	Vault pit	Breather malfunction	Contaminant wasn't collected due to the Shovel already loading. Incident reported to shop.	No
May 5, 2017	Hydraulic oil	20	L	Portage pit	Broken hydraulic hose	Contaminated soil picked up and disposed of appropriately	No
May 6, 2017	Diesel	30	L	Vault pit	Breather malfunction	Contaminated soil picked up and disposed of appropriately	No
May 6, 2017	Diesel	40	L	Vault pit	Breather malfunction	Contaminated soil picked up and disposed of appropriately	No
May 6, 2017	Coolant	40	L	Portage pit	Heated hose rupture	Contaminated soil picked up and disposed of appropriately	No
May 6, 2017	Diesel	30	L	Vault pit	Breather malfunction	Contaminated soil picked up and disposed of appropriately	No

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May 7, 2017	Coolant	75	L	Vault parking	Radiator failure	Contaminated soil picked up and disposed of appropriately	No
May 8, 2017	Hydraulic oil	40	L	Vault pit	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of in the landfarm	No
May 8, 2017	Hydraulic oil	60	L	AWAR KM38	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of appropriately	No
May 9, 2017	TSS	33,66	Kg	Effluent of the East Dike Seepage	Probably due to freshet with snow melting	Discharge was stopped in SPL on May 11 and directed back to Portage pit	Yes
May 11, 2017	Hydraulic oil	5	L	Portage pit	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of in the landfarm	No
May 12, 2017	Coolant	30	L	Vault Camp	Radiator failure	Spill was contained and contaminated soil picked up and disposed of in the landfarm	No
May 14, 2017	Coolant	15	L	West Road	Broken coolant hose	Contaminated soil picked up and disposed of appropriately	No
May 14, 2017	Coolant	20	L	Vault kitchen parking	Leak on the truck	Contaminated soil picked up and disposed of appropriately	No
May 14, 2017	Hydraulic oil	60	L	Vault road	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of in the landfarm.	No
May 14, 2017	Hydraulic oil	80	L	East Diversion Ditches Road	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of in the landfarm	Yes
May 14, 2017	Hydraulic oil	6	L	Portage Rock Storage Facility	Broken hydraulic hose	Contaminated soil picked up and disposed of in the landfarm	No
May 14, 2017	Diesel	30	L	Portage pit	The air vent was leaking fuel	Spill was contained and contaminated soil picked up and disposed of in the landfarm.	No

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May 19, 2017	Hydraulic oil	20	L	Portage pit	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of appropriately	No
May 20, 2017	Hydraulic oil	60	L	Portage pit	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of appropriately	No
May 21, 2017	Hydraulic oil	5	L	Portage pit	Broken O'ring	Spill was contained and contaminated soil picked up and disposed of appropriately	No
May 21, 2017	Hydraulic oil	35	L	Vault pit	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of appropriately	No
May 22, 2017	Hydraulic oil	10	L	Meadowbank Camp	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of appropriately	No
May 28, 2017	Coolant	10	L	Vault pit	Broken coolant hose	Spill was contained and contaminated soil picked up and disposed of appropriately	No
May 28, 2017	Hydraulic oil	40	L	Saddle Dam 3	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of appropriately	N
May 29, 2017	Hydraulic oil	60	L	Vault camp	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of appropriately	N
May 31, 2017	Hydraulic oil	50	L	Vault parking	Broken hydraulic hose	Spill was contained and contaminated soil picked up and disposed of appropriately	N