Meliadine Gold Mine
NWB 2AM-MEL1631
February 2023 Monthly Report

Prepared for:
Nunavut Water Board

Prepared by:
Agnico Eagle Mines Limited – Meliadine Division

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SECTION 1 • BACKGROUND

As required under Part I, Item 9 of amended Type A Water License 2AM-MEL1631, this report documents the water management and monitoring activities at the mine site and provides a summary of spills/actions for the month of February, 2023.

SECTION 2 • WATER MANAGEMENT

2.1 WATER USAGE

Table 2.1 details monthly water usage approved under Water License 2AM-MEL1631.

Table 2.1: Summary of the monthly water usage in February 2023

Usage	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 Total
MEL-11[1]	m^3	36,021	37,240	-	-	-	-	-	-	-	-	-	-	73,260
Dust suppression[2]	m^3	0	0	-	-	-	-	-	-	-	-	-	-	0
Dust suppression (CP1)[3]	m^3	0	0	-	-	-	-	-	-	-	-	-	-	0

2.2 DEWATERING ACTIVITIES

No dewatering activities took place during the month.

2.3 WATER DISCHARGE

Table 2.3 details monthly water discharge, including:

- discharge from the EWTP to Meliadine Lake via the Final Discharge Point (MEL-14);
- discharge of treated saline effluent to Melvin Bay via the Final Discharge Point (MEL-26), and
- discharge from the Itivia fuel containment facility (MEL-25).

[1] Camp, Mill, Dust suppression

[2] Water obtained along AWAR/Meliadine River

[3] Reclaim water obtained from CP1 and used for dust suppression on site

Table 2.3: Summary of the monthly water discharge in February 2023

Location	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 Total
MEL-14	m^3	0	0	-	-	-	-	-	-	-	-	-	-	0
MEL-26	m^3	0	0	-	-	-	-	-	-	-	-	-	-	0
MEL-25	m^3	0	0	-	-	-	-	-	-	-	-	-	-	0

No discharge activities took place during the month.

2.4 SEEPAGE AND RUNOFF FROM THE LANDFILL AND LANDFARM

The 2AM-MEL1631 landfill and landfarm were commissioned in November 2017. No seepage or runoff was observed during the month.

2.5 SEWAGE TREATMENT PLANT

Table 2.5 details monthly discharge from the Sewage Treatment Plant (STP), including the treated wastewater discharge to CP1 and sludge removed and disposed of in the WRSF.

Table 2.5: Summary of the monthly disposal/discharge from the STP in February 2023

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 Total
Wastewater Discharge (m^3)		5,141	4,305	-	-	-	-	-	-	-	-	-	-	9,446
Sewage Sludge	Amount (m^3)	17	7	-	-	-	-	-	-	-	-	-	-	24
	Disposal Location	WRSF1	WRSF3	-	-	-	-	-	-	-	-	-	-	-

2.6 MONITORING ANALYTICAL DATA

One (1) sample related to the Water Licence was taken during the month. The analytical results from this sampling event are presented in Appendix. No exceedances occurred in February 2023.

SECTION 3 • MATERIAL MANAGEMENT

3.1 LANDFILL / LANDFARM

Table 3.1 details quarterly Landfill and Landfarm survey results, as well as the amount of material placed in the Landfarm every month.

Table 3.1: Summary of the monthly disposal in the Landfarm and quarterly survey volumes of Landfill and Landfarm

Location	Unit	Q1			Q2			Q3			Q4			2023 Total
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Landfill (Survey)	m^3	25,666			-			-			-			NA
Landfarm (Survey)	m^3	-			-			-			-			NA
Landfarm[4]	m^3	0	41.5	-	-	-	-	-	-	-	-	-	-	41.5

[4] Amount of contaminated solid material (soil) placed in the Landfarm or lined sorting area.

3.2 ORE, WASTE ROCK STORAGE FACILITY, TAILINGS

Table 3.2 details monthly material management, including processed ore, waste rock, and tailings.

Table 3.2: Summary of the monthly material management in February 2023

Material (tonnes)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Cumulative 2023
Processed Ore		155,514	150,876	-	-	-	-	-	-	-	-	-	-	306,390
Waste Rock	Removed from open pit mining	50,606	42,866	-	-	-	-	-	-	-	-	-	-	93,472
	Removed from underground mining	67,109	51,780	-	-	-	-	-	-	-	-	-	-	118,889
	Used as underground dry rockfill	51,834	48,024	-	-	-	-	-	-	-	-	-	-	99,858
Tailings	Send to TSF	133,227	121,499	-	-	-	-	-	-	-	-	-	-	254,726
	Used as paste underground backfill	22,287	29,377	-	-	-	-	-	-	-	-	-	-	51,664

SECTION 4 SPILL MANAGEMENT

4.1 INTERNAL AND REPORTABLE SPILLS

Spills reported internally (17) are listed in the table 4.1 and were managed according to Agnico Eagle's spill contingency plan. Spills were contained and cleaned up, contaminated material was disposed of in an appropriate manner, and the clean-up actions were monitored closely by the Environment Department. Five (5) reportable spills occurred during the month (Refer to the gray shading in Table 4.1).

Table 4.1: Summary of Agnico Eagle's Spill Reports in February 2023

Date and time of occurrence	Contaminant	Estimated quantity	Unit	Exact location of incident	Description of incident	Describe immediate corrective actions
Friday, February 03, 2023 4:00:00 PM	Hydraulic Oil	600.00	L	TIRI-0100MS11	An estimated 600L of hydraulic oil was spilled on to Tiriganiaq pit 1 (Tiri-1). During normal operations, four bolts broke on the main line between the hydraulic oil pump and tank of an excavator, causing the contents of the tank to release.	The immediate response from the employee was to shut down the equipment. As the entire contents of the hydraulic oil tank released, no intervention was required to stop the spill. The contaminated material was then excavated and directed to Landfarm A as per the Spill Contingency Plan.
Sunday, February 05, 2023 2:30:00 PM	Sewage	5.00	L	MSB lift station	An estimated 5 L of sewage was spilled onto the industrial pad at the multi service building (MSB) lift station. Residual sewage spilled out of the vacuum truck hose and onto the industrial pad after a transfer of sewage. The spilled sewage collected directly on the road behind the vacuum truck and was	The spill stopped on its own as all residual sewage had exited the vacuum truck hose. The impacted surface area was hand excavated and an estimated 10 kg of contaminated snow was brought to Landfarm A as per the Spill Contingency Plan.

					contained to the local area.	
Saturday, February 11, 2023 3:30:00 AM	Sodium Hydroxide (NoAH)	450.00	L	MBR3 seacan at STP	An estimated 450 L of sodium hydroxide was spilled on the industrial pad beneath the sewage treatment plant (STP) due to a cracked PVC fitting. A 6 cm hole inside the STP floor allowed for the free liquid to drain to the ground below. The spilled sodium hydroxide collected directly underneath the STP, which was contained to the local area.	Upon observing the spill, the operator shut off the manual valve on the reservoir to stop the spill and deployed chemical spill pads to absorb the spilled material. The spill was contained underneath the STP as heat from building created a layer of ice under and around the infrastructure containing the spill to that area. A neutralizer was used on the sodium hydroxide to adjust the pH of the free liquid to a neutral pH. An industrial vacuum was later used to collect the remaining free liquid which was then transferred into a plastic tote. All contaminated spill rags, free liquid and contaminated ice/snow were brought to the Mill's reagent storage area where it's stored as hazardous waste and will be shipped offsite for disposal.
Sunday, February 12, 2023 9:00:00 AM	Coolant	10.00	L	WRSF 3	The coolant pump on a Haul truck broke, spilling 10L of coolant on WRSF3.	Equipment was stopped. Contaminated material was collected and disposed of as Hazardous material.

Sunday, February 12, 2023 9:00:00 AM	Coolant	2.00	L	MSB Shop	A leak on the coolant tank of a Haul truck spilled approximately 2 L of coolant on the industrial pad at the MSB maintenance shop.	Haul truck was brought into the maintenance shop to be repaired. Contaminated material was collected, disposed in quatrex bag and brought to the hazmat laydown.
Thursday, February 16, 2023 9:00:00 AM	Hydraulic oil	10.00	L	TIRI01	Excavator operator was loading a haul truck with overburden when he noticed a leak of a hydraulic line from his equipment. This resulted in a 10 L spill of Hydraulic oil in TIRI 1.	Absorbent pads were used to collect the oil and to wrap the hose while waiting for mechanics. Absorbent pads were disposed of in quatrex bags and $2m^3$ of contaminated material was moved to Landfarm A.
Monday, February 20, 2023 3:00:00 PM	Diesel Fuel	2.00	L	Foldaway parking lot	The fuel filter on a pickup truck failed while being used. Approximately 2L of diesel fuel was spilled onto the industrial pad.	Absorbents pads were used to collect the spill and a bucket was used to contain the leak. Contaminated material was cleaned up and disposed of in Landfarm A.
Tuesday, February 21, 2023 3:00:00 AM	Diesel Fuel	20.00	L	Fueling Station	While filling a pickup truck, the diesel pump nozzle got stuck spilling 20 L of diesel into the drip tray and within the lined area of the fueling station.	The pump was shut off. The contaminated material was cleaned up and placed in Landfarm A.

Tuesday, February 21, 2023 7:30:00 AM	Hydraulic Oil	5.00	L	Bus Parking	The hydraulic line on the Hyster leaked, spilling a 5 L of hydraulic oil in the MSB parking lot	Absorbent pads were used to collect the spill. Approximately 0.5 m^3 of contaminated snow and ice was disposed of at Landfarm A.
Tuesday, February 21, 2023 4:00:00 PM	Sewage	25.00	L	Power Plant Lift Station	An estimated 25L of sewage was spilled onto the industrial pad at the Power Plant lift station. When the valve to the pump at the vacuum truck was opened, the 3" suction hose split spraying sewage on the ground.	The operators closed the valve on the sucker truck and stopped the vacuum. The contaminated snow and ice was excavated and brought to Landfarm A.
Wednesday, February 22, 2023 10:00:00 PM	Hydraulic oil	60.00	L	Fountain Tire pad	A hydraulic hose failed on a haul truck, resulting in a 60 L hydraulic oil spill on the industrial pad.	The equipment was shut down and absorbent pads placed to contain the spill. The contaminated material was cleaned up and placed in Landfarm A.
Saturday, February 25, 2023 4:00:00 AM	Hydraulic oil	15.00	L	KCG parking area	A hydraulic line failed on a haul truck resulting in a 15 L hydraulic oil spill on the KCG parking pad.	Absorbent pads were placed to contain the spill. Contaminated material was scrapped off with a shovel and disposed of in a quatrex bag.

Saturday, February 25, 2023 11:00:00 AM	Hydraulic oil	60.00	L	TIRI01	Driller was operating a surface drill in TIRI01 when a hydraulic line failed spilling 60 L of hydraulic oil on the ground.	The drill was stopped and clean up initiated. Absorbent pads were used to collect the fluid and a shovel was used to clean up the contaminated material. Contaminated material was disposed of as hazardous material.
Sunday, February 26, 2023 7:00:00 AM	Transmission Fluid	1.00	L	MSB Parking	A transmission oil leak was identified under a pickup truck in the MSB parking lot. An estimated 1 L of transmission oil was spilled onto the industrial pad.	Absorbent pads were used to collect the spill. Contaminated material (snow and ice) was cleaned up and disposed of at Landfarm A.
Sunday, February 26, 2023 8:00:00 AM	Drill Cutting	50.00	L	E542495.4 N6986538.4	An estimated 50 L of drill cutting water from drill 4 was spilled on the surface of the ice at lake A19. The generator powering the water recovery pan pump failed allowing the water recovery pan to overflow.	The driller stopped the water pressure pump to prevent additional water from entering the water recovery pan and stop the overflow. Contaminated material was recovered and disposed of in WRSF3.
Tuesday, February 28, 2023 4:30:00 AM	Hydraulic oil	30.00	L	TIRI01	Operator was backing up at the excavator to get loaded. He did not see a rock on the ground and ran over it. The rock hit a hydraulic line resulting in a leak of 30 L hydraulic oil.	Absorbent pads and a bucket were used to contain the spill. The line was repaired, and cleanup was initiated. The contaminated material was disposed of in Landfarm A.

Tuesday, February 28, 2023 3:30:00 PM	Engine Oil	4.00	L	South of Mill	A compressor failure caused a release of compressor engine oil. This resulted in a spill of 4 L of Engine oil on the industrial pad.	Absorbent pads were used to contain the spill. The contaminated material cleaned up with an excavator and placed into quatrex bag for disposal as hazardous waste.

Appendix – Monitoring Analytical Data

MEL-11		2/4/2023
Parameter	Unit	
WQ02- Conventional Parameters		
pH	**pH units**	7.28
Turbidity	**NTU**	0.2
Specific conductivity	**umhos/cm**	140
Hardness, as CaCO3	**mg/L**	39.0
Total alkalinity, as CaCO3	**mg/L**	28
Carbonate, as CaCO3	**mg/L**	< 1.0
Bicarbonate, as CaCO3	**mg/L**	28
TDS	**mg/L**	90
TDS, calculated	**mg/L**	70
TSS	**mg/L**	< 1
Total organic carbon	**mg/L**	4.3
Dissolved organic carbon	**mg/L**	4.0
WQ03- Major Ions		
Chloride	**mg/L**	20
Cyanide	**mg/L**	< 0.00050
Cyanide (free)	**mg/L**	0.0023
Cyanide (WAD)	**mg/L**	< 0.00050
Silica	**mg/L**	0.72
Sulfate	**mg/L**	8.6
WQ04- Nutrients and Chlorophyll a		
Ammonia Nitrogen (as N)	**mg/L**	< 0.050
Nitrate (as N)	**mg/L**	< 0.10
Nitrite (as N)	**mg/L**	< 0.010
Total Kjeldahl nitrogen	**mg/L**	0.37
Total phosphorus	**mg/L**	< 0.020
Orthophosphate (P)	**mg/L**	< 0.010
WQ06- Total Metals		
Aluminum	**mg/L**	< 0.0030
Antimony	**mg/L**	< 0.00050
Arsenic	**mg/L**	0.00065
Barium	**mg/L**	0.0128
Beryllium	**mg/L**	< 0.00010
Boron	**mg/L**	< 0.050
Cadmium	**mg/L**	< 0.000010
Chromium	**mg/L**	< 0.0010
Copper	**mg/L**	0.00104

Iron	**mg/L**	0.016
Lead	**mg/L**	< 0.00020
Lithium	**mg/L**	< 0.0020
Manganese	**mg/L**	0.0067
Mercury	**mg/L**	< 0.00001
Molybdenum	**mg/L**	< 0.0010
Nickel	**mg/L**	< 0.0010
Selenium	**mg/L**	< 0.00010
Silver	**mg/L**	< 0.000020
Strontium	**mg/L**	0.0715
Thallium	**mg/L**	< 0.000010
Tin	**mg/L**	< 0.0050
Titanium	**mg/L**	< 0.0050
Uranium	**mg/L**	< 0.00010
Vanadium	**mg/L**	< 0.0050
Zinc	**mg/L**	< 0.0050
WQ07- Dissolved Metals		
Aluminum	**mg/L**	< 0.0030
Antimony	**mg/L**	< 0.00050
Arsenic	**mg/L**	0.00062
Barium	**mg/L**	0.0126
Beryllium	**mg/L**	< 0.00010
Boron	**mg/L**	< 0.050
Cadmium	**mg/L**	< 0.000010
Calcium (Dissolved)	**mg/L**	12.0
Chromium	**mg/L**	< 0.0010
Copper	**mg/L**	0.00099
Iron	**mg/L**	0.0067
Lead	**mg/L**	< 0.00020
Lithium	**mg/L**	< 0.0020
Magnesium (Dissolved)	**mg/L**	2.23
Manganese	**mg/L**	< 0.0010
Mercury	**mg/L**	< 0.00001
Molybdenum	**mg/L**	< 0.0010
Nickel	**mg/L**	< 0.0010
Potassium (Dissolved)	**mg/L**	1.35
Selenium	**mg/L**	< 0.00010
Silver	**mg/L**	< 0.000020
Sodium (Dissolved)	**mg/L**	9.51
Strontium	**mg/L**	0.0726
Thallium	**mg/L**	< 0.000010
Tin	**mg/L**	< 0.0050
Titanium	**mg/L**	< 0.0050

Uranium	**mg/L**	< 0.00010
Vanadium	**mg/L**	< 0.0050
Zinc	**mg/L**	< 0.0050
WQ10- Volatile Organics		
Benzene	**mg/L**	< 0.00020
Ethylbenzene	**mg/L**	< 0.00020
Toluene	**mg/L**	< 0.00020
Xylenes	**mg/L**	< 0.00040
m,p-Xylenes	**mg/L**	< 0.00040
o-Xylene	**mg/L**	< 0.00020
F1 (C6-C10)-BTEX	**mg/L**	< 0.025
F1 (C6-C10)	**mg/L**	< 0.025
F2 (C10-C16)	**mg/L**	< 0.1
F3 (C16-C34)	**mg/L**	< 0.2
F4 (C34-C50)	**mg/L**	< 0.2