Meliadine Gold Mine
NWB 2AM-MEL1631
January 2022 Monthly Report

Prepared for:
Nunavut Water Board

Prepared by:
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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 January 2022.

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 January 2022

	Monthly Usage (m^3)
Camp, Mill, Dust suppression (MEL-11)	36,208
Dust suppression (water obtained along AWAR/Meliadine River)	0
Total January	**36,208**
Year to date 2022	**36,208**

2.2 DEWATERING ACTIVITIES

No dewatering activities took place during the month.

2.3 MELIADINE DISCHARGE

No discharge to Meliadine Lake occurred during the month.

2.4 MELVIN BAY DISCHARGE

No discharge to Melvin Bay occurred during the month.

2.5 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.

2.6 SEWAGE TREATMENT PLANT

4,078 m^3 of treated wastewater was discharged into CP1 during the month. Approximately 8.8 m^3 of sludge was removed during the month. The sludge is either disposed of in WRSF1 or WRSF3.

2.7 CONTAINMENTS

No discharge from the Itivia fuel containment facility (Station Mel-25) occurred during the month.

2.8 MONITORING ANALYTICAL DATA

Two (2) samples related to the Water Licence was taken during the month. The analytical results from this sampling event are presented in the Appendix. No exceedances occurred in January 2022.

It should be noted that both samples taken during January were collected at sampling station MEL-11. For the first sample collected on January 11th, one bottle broke during shipping to the laboratory, and other bottles were missing in the shipment. Since some parameters could not be analyzed because of broken/missing bottles, another MEL-11 sample was collected on January 17th.

SECTION 3 • MATERIAL MANAGEMENT

3.1 LANDFILL / LANDFARM

The volume of material placed into the landfill is evaluated through periodic surveys. According to the most recent survey done on December 30th, 2021 the landfill contained approximately 23,314 m³ of material.

No material was put into the Type A Landfarm during the month.

3.2 ORE

Approximately 151,752 tonnes of ore were processed through the Mill during the month.

3.3 WASTE ROCK STORAGE FACILITY

A total of 36,977 tonnes of waste rock was removed in the underground mine development process during the month while 51,769 tonnes of waste rock were removed from open pit mining. 40,509 tonnes were used as underground dry rockfill.

3.4 TAILINGS

120,073 dry tonnes of filtered tailings were sent to the Tailing Storage Facility during the month. 31,679 tonnes of tailings were used for paste underground backfill.

SECTION 4 SPILL MANAGEMENT

4.1 INTERNAL AND REPORTABLE SPILLS

Spills reported internally (13) 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. Two (2) 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 January 2022

Date and time of occurrence	Contaminant	Estimated quantity	Unit	Exact location of incident	Description of incident	Describe immediate corrective actions
Sunday, January 09, 2022 7:00:00 AM	Cooling Fluid	4.00	L	KCG Garage Area	A coolant pump froze and broke on a drill that was being moved.	The drill was stopped, and a containment was put under the coolant pump to prevent further spilling. The drill was brought back to the garage for repair. The coolant contaminated ground was recovered into a Quatrex bag for disposal as hazmat. Contaminated snow was recovered into 3 pails for disposal according to procedure.
Sunday, January 09, 2022 8:30:00 AM	Hydraulic Oil	55.00	L	KCG Parking Lot	Hydraulic cooler failed on a tire truck which was idling outside at operation temperature.	The leak was controlled, and the contaminated snow was recovered and disposed of into the Snow Cell.
Monday, January 10, 2022 5:30:00 AM	Engine Oil	30.00	L	WRSF1	The crank case breather tube froze on a light truck due to extreme cold weather, leading the engine oil pressure to raise until it blew out from the turbo and dip stick.	The truck engine was stopped. Spill pads were used and disposed of as hazmat. Contaminated snow was brought to the Snow Cell.
Thursday, January 13, 2022 5:00:00 PM	Contact Water	80.00	L	KCG Laydown	A water tank was overfilled due to a faulty high-level alarm, causing a spill of contact water on the ground by the KCG laydown garage. The contact water was not contaminated.	The ice/snow was recovered and brought to the snow dump at CP1.

Friday, January 14, 2022 10:00:00 AM	Engine Oil	10.00	L	KCG Shop Yard	A mechanical failure on the engine of an excavator lead to the spill (the oil cap plug was blown off due to the pressure generated).	Spill pads were used and disposed of as hazmat. Contaminated snow was recovered and put into the snow cell.
Saturday, January 15, 2022 3:00:00 PM	Grey Water	70.00	L	Main Camp, Wing 10 Lift Station	The heat trace tripped, causing the discharge of the lift station to freeze. The lift station overfilled and grey water leaked out the top and spilled outside the lift station between wings 10 and 11.	The recovered snow/ice was disposed of into CP1 snow dump.
Sunday, January 16, 2022 3:00:00 PM	Freshwater	8.00	m^3	New Wash Bay Staircase	The exterior section of the fresh water pipe between the arctic corridor and the new wash bay froze, leading to pipe failure and resulting in a non-contaminated water spill. Investigation revealed failed heat trace (breaker trip) and rough insulation (construction deficiency) are root causes of the failure.	The freshwater was not recovered as it is not contaminated.
Friday, January 21, 2022 6:00:00 AM	Sewage Water	60.00	L	Lift Station north of the Mill	The lift station overflowed at the lift station after the control box lid came open. The control box filling with snow caused the pumps to shut off. The control box is usually closed with 2 screws and clips but the screws were missing and clips were not strong enough to hold the door against the wind.	The lift station was emptied and Electrical department was called to fix/replace control box. The contaminated material was recovered and put into the WRSF.

Monday, January 24, 2022 4:00:00 AM	Grease Contaminated Water	80.00	L	Main Camp Lift Station	A valve failure created an overflow of the liftstation at the main camp's grease trap. Most of the water stayed inside the seacan, but some of the water flowed to the ground outside.	The contaminated water into the seacan was recovered with the vacuum truck and put back into the lift station for treatment. The check valves were replaced. Approximately 1 m3 of contaminated material was recovered and put into the WRSF.
Tuesday, January 25, 2022 5:00:00 AM	Grease Contaminated Water	80.00	L	Main Camp Lift Station	Valves malfunction led to the overflow of the grease trap at the lift station.	
Tuesday, January 25, 2022 11:00:00 AM	Hydraulic Oil	5.00	L	In front of Main Camp Parking Lot.	The quick coupler on a loader failed, leading to the oil release.	The equipment was stopped. Contaminated snow was recovered and put into the snow cell.
Tuesday, January 25, 2022 6:00:00 PM	Process Water	15,000.00	L	West side of Process Plant	A blockage on the Process Plant Thickener resulted in approximately 15 m3 of water being released to the ground onto the plant site industrial pad. The process was shut down to stop the spill.	The plant was shut down to stop the release. Berms were created to contain the spill and minimize the impacted area. A sample was collected for analysis. An excavator, loader and haul truck were used to clean up the spilled material. All material collected will be placed in the process plant sump where it will be returned to the process plant system.
Sunday, January 30, 2022 12:00:00 PM	Oil Contaminated Waste Water	1,000.00	L	Hazmat Seacan (Church)	An operator was using a skid steer to load oil contaminated waste water totes into a seacan. The skid steer forks punctured the tote, spilling 1000 L to the ground.	Frozen condition and the flat surface contained the spill to the local area. The spill was cleaned up and contaminated material was disposed of in the contaminated snow cell.

Appendix – Monitoring Analytical Data

MEL-11	Sample date	1/17/2022
Parameter	**Unit**	
WQ02- Conventional Parameters		
pH	**pH units**	7.34
Turbidity	**NTU**	0.2
Specific conductivity	**umhos/cm**	130
Hardness, as CaCO3	**mg/L**	37.2
Total alkalinity, as CaCO3	**mg/L**	24
Carbonate, as CaCO3	**mg/L**	< 1.0
Bicarbonate, as CaCO3	**mg/L**	24
TDS	**mg/L**	80
TDS, calculated	**mg/L**	66
TSS	**mg/L**	< 1
Total organic carbon	**mg/L**	3.9
Dissolved organic carbon	**mg/L**	3.8
WQ03- Major Ions		
Chloride	**mg/L**	19
Cyanide	**mg/L**	0.00050
Cyanide (free)	**mg/L**	< 0.0010
Cyanide (WAD)	**mg/L**	< 0.00050
Silica	**mg/L**	0.36
Sulfate	**mg/L**	8.1
WQ04- Nutrients and Chlorophyll a		
Ammonia Nitrogen	**mg/L**	< 0.050
Nitrate	**mg/L**	< 0.10
Nitrite	**mg/L**	< 0.010
Total Kjeldahl nitrogen	**mg/L**	0.27
Total phosphorus	**mg/L**	0.024
Orthophosphate (P)	**mg/L**	< 0.010
WQ06- Total Metals		
Aluminum	**mg/L**	0.0035
Antimony	**mg/L**	< 0.00050
Arsenic	**mg/L**	0.00053
Barium	**mg/L**	0.0114
Beryllium	**mg/L**	< 0.00010
Boron	**mg/L**	< 0.050
Cadmium	**mg/L**	< 0.000010
Chromium	**mg/L**	< 0.0010
Copper	**mg/L**	0.00108
Iron	**mg/L**	0.020
Lead	**mg/L**	< 0.00020
Lithium	**mg/L**	< 0.0020

Manganese	**mg/L**	0.0051
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**	0.0690
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**	0.00053
Barium	**mg/L**	0.0114
Beryllium	**mg/L**	< 0.00010
Boron	**mg/L**	< 0.050
Cadmium	**mg/L**	< 0.000010
Calcium (Dissolved)	**mg/L**	11.5
Chromium	**mg/L**	< 0.0010
Copper	**mg/L**	0.00121
Iron	**mg/L**	0.0079
Lead	**mg/L**	< 0.00020
Lithium	**mg/L**	< 0.0020
Magnesium (Dissolved)	**mg/L**	2.17
Manganese	**mg/L**	< 0.0010
Mercury	**mg/L**	< 0.00001
Molybdenum	**mg/L**	< 0.0010
Nickel	**mg/L**	0.0010
Potassium (Dissolved)	**mg/L**	1.33
Selenium	**mg/L**	< 0.00010
Silver	**mg/L**	< 0.000020
Sodium (Dissolved)	**mg/L**	9.04
Strontium	**mg/L**	0.0722
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