



**Meliadine Gold Mine
NWB 2AM-MEL1631
December 2023 Monthly Report**

Prepared for:
Nunavut Water Board

Prepared by:
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Table of Contents

SECTION 1 •	BACKGROUND.....	1
SECTION 2 •	WATER MANAGEMENT.....	1
2.1	WATER USAGE.....	1
2.2	DEWATERING ACTIVITIES	1
2.3	WATER DISCHARGE	1
2.4	SEEPAGE AND RUNOFF FROM THE LANDFILL AND LANDFARM	2
2.5	SEWAGE TREATMENT PLANT.....	2
2.6	MONITORING ANALYTICAL DATA	3
SECTION 3 •	MATERIAL MANAGEMENT.....	3
3.1	LANDFILL / LANDFARM	3
3.2	ORE, WASTE ROCK STORAGE FACILITY, TAILINGS	4
SECTION 4	SPILL MANAGEMENT	5
4.1	INTERNAL AND REPORTABLE SPILLS	5

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 December 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 December 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	43,452	40,082	44,346	38,080	47,136	44,663	40,080	48,121	38,470	43,506	501,197
Dust suppression ²	m ³	0	0	0	0	0	0	0	0	0	0	0	0	0
Dust suppression ³	m ³	0	0	0	0	0	264	2,080	3,455	72	108	0	0	5,979

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 AWA/Meliadine River

³ Reclaim water obtained from CP1 or other Contact Water management facilities and used for dust suppression on site

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

Location	Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2023 Total
MEL-14	m ³	0	0	0	0	0	209,024	81,119	54,894	184,508	0	0	0	529,545
MEL-26	m ³	0	0	0	0	0	0	0	0	0	0	0	0	0
MEL-25	m ³	0	0	0	0	2,060	0	510	0	0	0	0	0	2,570

Discharge of treated effluent from the EWTP into Meliadine Lake via the Final Discharge Point (MEL-14) started on June 10th, 2023 and was completed on September 30th, 2023.

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.

As per the approved Landfill (Stage 4) Berm Raise Design Report and Monitoring station MEL-24 description Modification, water accumulated inside the landfill is pumped towards Pond H13, which is the current location seepage from the landfill flows towards.

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 December 2023

		JAN	FEB	MAR	APR	MAY	JUN		JUL		AUG	SEP	OCT	NOV	DEC	2023 Total
Wastewater Discharge (m ³)		5,141	4,305	4,522	4,519	4,764	4,754		5,095		4,913	4,960	4967	4,557	4,748	57,245
Sewage Sludge ⁴	Amount (m ³)	17	7	40.5	38	21	19	1	17	5	36	15	88	165	130	599.5
	Disposal Location	WRSF1	WRSF3	WRSF3	WRSF3	WRSF3	WRSF1	WRSF3	WRSF3	WRSF1	WRSF1	WRSF1	WRSF1	WRSF1	WRSF3	-

⁴ Sewage sludge volumes for the months of March, April and August have been revised in the October report after QA/QC of the data.

2.6 MONITORING ANALYTICAL DATA

One (1) sample related to the Water Licence was taken during the month. The analytical results are presented in Appendix.

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			23,663			22,118			23,155			-
Landfarm (Survey)	m ³	-			143			272			604			-
Landfarm ⁵	m ³	0.05	41.5	3	5.5	46.05	0.25	0.07	1.55	1	5.10	7	2.2	113.27

⁵ 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 December 2023

Material (tonnes)		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Cumulative 2023
Processed Ore		155,514	150,876	171,369	149,029	172,955	137,629	166,668	153,272	147,832	180,840	163,803	167,446	1,917,233
Waste Rock	Removed from open pit mining	50,606	42,866	114,885	159,630	287,354	249,975	372,511	435,222	534,927	470,350	304,961	335,592	3,358,879
	Removed from underground mining	67,109	51,780	70,674	73,390	81,439	56,214	63,078	52,904	65,080	57,339	57,337	59,975	756,320
	Used as underground dry rockfill	51,834	48,024	35,017	18,200	44,224	42,578	29,540	27,102	44,190	39,315	25,282	25,213	430,519
Tailings	Send to TSF	133,227	121,499	132,300	110,473	125,285	112,728	124,335	117,102	110,412	146,175	150,201	129,397	1,512,263
	Used as paste underground backfill	22,287	29,377	39,069	38,556	45,670	24,901	42,333	39,041	37,420	34,665	13,602	38,049	404,970

SECTION 4 SPILL MANAGEMENT

4.1 INTERNAL AND REPORTABLE SPILLS

Spills reported internally 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. Three (3) 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 December 2023

Date and time of occurrence	Contaminant	Estimated quantity	Unit	Exact location of incident	Description of incident	Describe immediate corrective actions
Saturday, December 02, 2023 8:00:00 AM	Hydraulic oil	70	L	TIR01	Approx. 70L of hydraulic oil spilled on the ground from a hydraulic hose failure on a drill.	The drill was stopped. Absorbent pads were used to collect the spill and disposed of in a quatrex bag. Contaminated material was scrapped and brought to Landfarm A.
Saturday, December 02, 2023 10:00:00 AM	Hydraulic oil	1	L	Fountain Tire Shop	A hydraulic leak from a haul truck led to a 1 L spill.	Absorbent pads were used to contain and collect the spill. Contaminated materials were disposed of in a quatrex bag.
Sunday, December 03, 2023 12:00:00 AM	Engine coolant	21	L	TIR01	A hose from thermostat housing to radiator split open on an excavator, spilling 21L of coolant.	The equipment was shut down. Absorbent pads were deployed to collect the spill and disposed of in a quatrex bag.
Monday, December 04, 2023 10:00:00 PM	Hydraulic oil	9	L	TIR01	While in operation, a hydraulic hose failed on a drill, resulting in a 9L spill of hydraulic oil.	The drill was stopped. Absorbent pads were deployed and contaminated soil scrapped and disposed of in a quatrex bag.

Sunday, December 10, 2023 10:15:00 AM	Diesel	70	L	KCG shop yard	A Pickup truck was fueled prior to moving it inside the garage for repairs. The water separator filter cap had been removed, resulting in a 70L spill of diesel.	Absorbent pads were placed to collect the spill and disposed of in quatrex bag. Contaminated snow was collected and disposed of in the on site Snow Cell, and recovered contaminated soil disposed as hazmat.
Monday, December 11, 2023 9:30:00 AM	Sewage	10	L	Wing 4 Lift Station	An estimated 10 L of sewage was spilled onto the industrial pad by the wing 4 lift station. Due to a site wide power failure, the transfer pump did not engage allowing the lift station holding tank to overflow. Once power was restored, the environment department conducted an inspection of the site sewage system. During this inspection, an employee observed the presence of sewage outside the wing 4 lift station enclosure. Upon further inspection, the secondary containment was observed to be full and had overflowed.	In response, a vacuum truck was dispatched to pump out the sewage that accumulated in the lift station secondary containment. The ground surface was hand excavated, and the recovered material was brought to Landfarm A.
Monday, December 11, 2023 12:30:00 PM	Sewage	10	L	West Vent Raise	An estimated 10 L of sewage was spilled onto the industrial pad by the west exhaust raise. Residual sewage in vacuum truck transfer hose was released when disconnecting the hose from a wash car holding tank, resulting in the sewage spill.	The operator of the vacuum truck contacted their supervisor and the Environment department soon after the spill event occurred. The Environment department promptly responded to the spill and upon arrival, the ground surface was hand excavated, and the recovered material was brought to Landfarm A.
Monday, December 11, 2023	Engine Oil	0.25	L	SWTP	Cold temperatures caused the crank case vent to freeze on a	The equipment was stopped. Absorbent pads were deployed to

1:30:00 PM					Kaeser M50 Compressor, and the back pressure from the engine forced engine oil out through the dip stick.	collect the spill and disposed of in hazmat drum.
Tuesday, December 12, 2023 12:00:00 AM	Diesel Fuel	20	L	TIR01	Fuel leaked from an excavator while in operations.	The engine was shut down which stopped the fuel pump and depressurized the fuel line. Absorbent pads were used to collect the contaminated materials and disposed of in hazmat tote.
Tuesday, December 12, 2023 5:30:00 PM	Washbay Water	80	L	Washbay South access door	A leak was found on the pit water recirculation pump, resulting in a 80L spill of water from the wash bay door.	The source of the water was identified, and the pump was shut down to stop the water flow. Contaminated snow and ice was recovered and brought to the Snow Cell.
Wednesday, December 13, 2023 12:00:00 PM	Sewage	5	L	Process Plant Lift Station	An estimated 5 L of sewage was spilled onto the industrial pad at the mill lift station. The transfer pump failed to empty the lift station holding tank, resulting in sewage overflowing and causing the spill.	An electrician working in the area observed the lift station alarm. The employee is familiar with the lift station infrastructure and in response, they manually initiated the backup pump to draw down the sewage level and prevent further spillage. The employee observed the presence of sewage effluent outside the lift station enclosure and immediately contacted the environment department. The ground surface was hand excavated, and the recovered material was brought to Landfarm A.
Sunday, December 17, 2023 1:00:00 PM	Hydraulic Oil	5	L	KCG Parking (down line)	While performing a Health & Safety tour/inspection of the work area, a leak underneath a parked haul truck was noticed in the down equipment	Contaminated materials were scrapped and brought to the Landfarm A.

					lineup. Upon investigation, the leak was from the duo-cone seal on the final drive.	
Sunday, December 17, 2023 2:30:00 PM	Hydraulic Oil	15	L	TIR01	A hydraulic hose failed on an excavator while operating, resulting in a 15L spill of hydraulic oil.	The equipment was stopped. Absorbent pads were deployed to collect the spill and disposed of in quatrex bag.
Monday, December 18, 2023 4:50:00 AM	Diesel	1	L	TIR01	After being parked for a short period, a worker noticed the smell of diesel. A very small diesel spill was observed as the result of an improperly installed fuel filter.	Absorbent pads were deployed to collect the spill and disposed of in a quatrex bag.
Wednesday, December 20, 2023 4:30:00 AM	Diesel	20	L	6 Mil containment area	An operator was refueling a truck and the nozzle failed to stop (did not click off when full).	Pump was shut off. The secondary containment was deployed for fueling, so the fuel collected was disposed of in a used fuel tote. Absorbent pads were deployed and disposed of in a quatrex bag.
Thursday, December 28, 2023 2:00:00 PM	Hydraulic Oil	10	L	Mechanic Parking	During the Mechanic crew change day, Environment Technician was notified of a small spill in the maintenance yard.	The contaminated materials were scrapped and disposed of in a hazmat containment.
Friday, December 29, 2023 5:00:00 AM	Air Compressor Oil	10	L	TIR01	When the mechanic inspected a drill, he found a leak between the compressor receiver & the compressor radiator collar.	Mechanic shut off the drill to stop the leak. Contaminated snow was put into the Landfarm and used absorbent pads were disposed of as hazmat.
Friday, December 29, 2023 8:00:00 AM	Hydraulic Oil	15	L	30' from Dyno gate	An hydraulic hose ruptured on a skidsteer while in operations, spilling around 15 L of hydraulic fluid.	Absorbent pads were deployed to collect the spill and disposed of in a proper location.
Sunday, December 31, 2023 7:30:00 AM	Oil	6	L	TIR01	An employee backed up his truck and hit a large rock that had rolled under the truck, damaging the oil filter.	Truck was stopped. Contaminated snow was scooped up and placed at the Landfarm.

Appendix – Monitoring Analytical Data

Sample date		12/4/2023
Sample name		MEL-11
Parameter	Unit	
WQ02- Conventional Parameters		
pH	pH units	6.95
Turbidity	NTU	0.2
Conductivity	umhos/cm	110
Hardness, as CaCO ₃	mg/L	30.9
Total alkalinity, as CaCO ₃	mg/L	22
Carbonate, as CaCO ₃	mg/L	< 1.0
Bicarbonate, as CaCO ₃	mg/L	22
TDS	mg/L	60
TDS, calculated	mg/L	54
TSS	mg/L	< 1
Total organic carbon	mg/L	3.3
Dissolved organic carbon	mg/L	3.0
WQ03- Major Ions		
Chloride	mg/L	14
Cyanide	mg/L	< 0.00050
Cyanide (free)	mg/L	< 0.0020
Cyanide (WAD)	mg/L	< 0.00050
Silica	mg/L	0.54
Sulfate	mg/L	6.5
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	0.19
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	0.00058
Barium	mg/L	0.0100
Beryllium	mg/L	< 0.00010
Boron	mg/L	< 0.050
Cadmium	mg/L	< 0.000010
Chromium	mg/L	< 0.0010
Copper	mg/L	0.00080

Iron	mg/L	< 0.010
Lead	mg/L	< 0.00020
Lithium	mg/L	< 0.0020
Manganese	mg/L	0.0034
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	0.0526
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	0.0088
Antimony	mg/L	< 0.00050
Arsenic	mg/L	0.00057
Barium	mg/L	0.0097
Beryllium	mg/L	< 0.00010
Boron	mg/L	< 0.050
Cadmium	mg/L	< 0.000010
Calcium (Dissolved)	mg/L	10.2
Chromium	mg/L	< 0.0010
Copper	mg/L	0.00080
Iron	mg/L	< 0.0050
Lead	mg/L	< 0.00020
Lithium	mg/L	< 0.0020
Magnesium (Dissolved)	mg/L	1.74
Manganese	mg/L	< 0.0010
Mercury	mg/L	< 0.00001
Molybdenum	mg/L	< 0.0010
Nickel	mg/L	< 0.0010
Potassium (Dissolved)	mg/L	1.18
Selenium	mg/L	< 0.00010
Silver	mg/L	< 0.000020
Sodium (Dissolved)	mg/L	7.35
Strontium	mg/L	0.0541
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