AGNICO EAGLE

MELIADINE GOLD MINE

2022 Annual Report

Prepared for:
Nunavut Water Board
Nunavut Impact Review Board
Government of Nunavut
Fisheries and Oceans Canada
Crown-Indigenous Relations and Northern Affairs Canada
Kivalliq Inuit Association

Prepared by:
Agnico Eagle Mines Limited – Meliadine Division

March 2023

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ABBREVIATIONS

ABA	Acid/Base Accounting
AEMP	Aquatic Ecosystem Monitoring Program
AP	Acid Potential
ARD	Acid Rock Drainage
AWAR	All Weather Access Road
BAP	Best Applicable Practices
BAT	Best Available Technology
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
BV	Emission Services Group of Bureau Veritas
CALA	Canadian Association of Laboratory Accreditation (CALA)
CCME	Canadian Council of Ministers of the Environment
CDMO	Cyanide Management Decommissioning Overview
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
CLO	Community Liaison Officer
COQ	Certificate of Qualification
CP	Containment Pond (or Control Pond or Collection Pond)
DDH	Diamond Drill Hole
DFO	Department of Fisheries and Oceans Canada
EAP	Employee Assistance Program
EC	Electrical Conductance
ECC	Employment and Culture Committee
ECCC	Environment and Climate Changes Canada
EEM	Environmental Effect Monitoring
E&I	Energy & Infrastructure
EIS	Employment information Session
EoMZ	Edge of Mixing Zone
ERT	Emergency Response Team
EWTP	Effluent Water Treatment Plant
FDP	Final Discharge Point
FEIS	Final Environmental Impact Statement
FTE	Full Time Equivalent
GHGRP	Greenhouse Gas Emissions Reporting Program
GN	Government of Nunavut
GPS	Global Positioning System
GTC	Ground Temperature Cable
GWMP	Groundwater Management Plan
HR	Human Resources
HHS	Hunter Harvest Study
ICMC	International Cyanide Management Code
ICMI	International Cyanide Management Institute
ICRP	Interim Closure and Reclamation Plan
IEP	Internal Environmental Permit
IIBA	Meliadine Inuit Impact and Benefit Agreement
IOL	Inuit Owned Land
IQ	Inuit Qaujimajatuqangit

ISV	Inuit Societal Values
KEAC	Kivalliq Elders' Advisory Committee
KHTO	Kangiqliniq Hunter Trapping Organization
KIA	Kivalliq Inuit Associated
KivIA	Kivalliq Inuit Association
KLMA	Kivalliq Labour Market Analysis
KvSEMC	Kivalliq Socio-Economic Monitoring Committee
Leq	Equivalent Continuous Noise Level
LMS	Learning Management System
LOM	Life of Mine
LSA	Local Study Area
MAC	Maximum Average Concentration
MAC	Mean Annual Concentration
MAMMC	Maximum Authorized Monthly Mean Concentration
MDL	Method Detection Limit
MDMER	Metal and Diamond Mining Effluent Regulations
MELCC	Ministère de l'Environnement et de la Lutte contre les Changements Climatique
MF	Mid-Field
MGC	Maximum Grab Concentration
ML	Maximum Limit
ML	Metal Leaching
MMSO	Marine Mammal and Observation
MoU	Memorandum of Understanding
MSB	Multi-Service Building
MWMP	Mine Waste Management Plan
NF	Near-Field
NIRB	Nunavut Impact Review Board
NP	Neutralization Potential
NPAG	Non-Potentially Acid Generating
NPR	Neutralization Potential Ratio
NWB	Nunavut Water Board
OMS	Operation, Maintenance and Surveillance
OP	Ore Storage Pad
OSMP	Ore Storage Management Plan
PAG	Potentially Acid Generating
PPV	Peak Particle Velocity
PVS	Peak Vector Sum
PM	Particulate Matter
QA/QC	Quality Assurance and Quality Control
QE	Qikiqtaaluq Environmental Services
QSL	Terminaux Portuaires du Québec (Quebec Port Terminals)
RIBR	Rankin Inlet Bypass Road
RPD	Relative Percent Difference
SEMC	Socio-Economic Monitoring Committee
SEMP	Socio-Economic Monitoring Program
SEMR	Socio-Economic Monitoring Report
SEMWG	Socio-Economic Monitoring Working Group

SETP	Saline Effluent Treatment Plant
SOP	Standard Operating Procedure
SMP	Shipping Management Plan
SP	Saline Pond
SpC	Specific Conductance
SSWQO	Site-Specific Water Quality Objectives
STP	Sewage Treatment Plant
TAG	Terrestrial Advisory Group
TASK	Trades Awareness, Skills and Knowledge
TC	Terms and Condition
TDS	Total Dissolved Solids
TEMMP	Terrestrial Environment Management and Monitoring Plan
TIRI	Tiriganiaq Open Pits
TMS	Training Management System
TOR	Term of Reference
TSF	Tailings Storage Facility
TSP	Total Suspended Particulate
TSS	Total Suspended Solids
VEC	Valued Ecosystem Component
VMR	Virtual Meeting Room
VSEC	Valued Socio-Economic Component
WBWQM	Water Balance and Water Quality Model
WQM	Water Quality Model
WQ-MOP	Water Quality Management and Optimization Plan
WRSF	Waste Rock Storage Facility
WTC	Water Treatment Complex
WTP	Water Treatment Plan

Units

%	Percent
°C	Degrees celsius
dBA	Decibels A
ft	feet
kg	Kilogram
kPa	Kilopascal
L	Litre
m	Metre
m^3	Cubit M\metre
m^3/day	Cubic metre per day
m^3/year	Cubic metre per year
mg/kg	Milligram per kilogram
mg/L	Milligram per litre
mm	Millimetre
mm/s	Millimetre per second
Mm^3	Million cubic metre
ppm	Parts per million
t	Tonne
tCO2e	Tonne carbon dioxide equivalent
uS/cm	Microsiemens per centimetre

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Comment
1	2023/03/31	All	All	This has been reviewed by Environmental Staff and will be incorporated into training for all mine staff on behalf of the Mine Manager and Senior Management

Prepared By: Meliadine Environment Department

Approved By:

Matt Gillman
Environment Superintendent

Sara Savoie
General Supervisor Environment

SECTION 1. INTRODUCTION

As required by water license 2AM-MEL1631 Part B Item 2: ***The Licensee shall file an annual report with the Board no later than March 31st in the year following the calendar year being reported. The annual report shall be developed in accordance with Schedule B.***

And

As required by water license 2BB-MEL1424 Part B Item 6: ***The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than March 31st of the year following the calendar year being reported,***

The Meliadine Gold Mine operated by Agnico Eagle Mines Limited - Meliadine Division (Agnico Eagle) is located approximately 25 kilometres (km) north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson's Bay, the Project site is located on a peninsula between the east, south, and west basins of Meliadine Lake (63°1'23.8''N, 92°13'6.42''W), on Inuit Owned Land (IOL). The Project components include the 30 km All Weather Access Road (AWAR) between Rankin Inlet and Meliadine, the Itivia fuel farm and laydown area, and the mine site.

Commercial production began at Meliadine on May 14th 2019.

The various components and activities associated with the Project require a number of different authorizations, leases and permits from regulatory agencies including the Nunavut Water Board (NWB), the Nunavut Impact Review Board (NIRB), the government of Nunavut (GN), Kivalliq Inuit Association (KivIA), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC); Environment and Climate Change Canada (ECCC), and Department of Fisheries and Oceans Canada (DFO).

This report is written to address all of the 2022 annual reporting requirements of the project under these authorizations:

- NWB Type A Amended Water License 2AM-MEL1631;
- NWB Type B Water License 2BB-MEL1424;
- NIRB Project Certificate No. 6 (Amendment No.002);
- KivIA Permit KVCA07Q08;
- KivIA Permit KVCA11Q01;
- KivIA Production Lease KVPL11D01; and
- The Meliadine Inuit Impact and Benefit Agreement (IIBA).

Reporting requirements for the Metal and Diamond Mining Effluent Regulations (MDMER) have been submitted directly to ECCC; results are presented herein to comply with the NWB Type A Water License.

Several appendices complement this report. A summary table of the 2022 Annual Report Appendices is provided in Appendix 1.

The following Figure 1 shows the Meliadine site, while Figure 2 presents the facilities at Itivia.

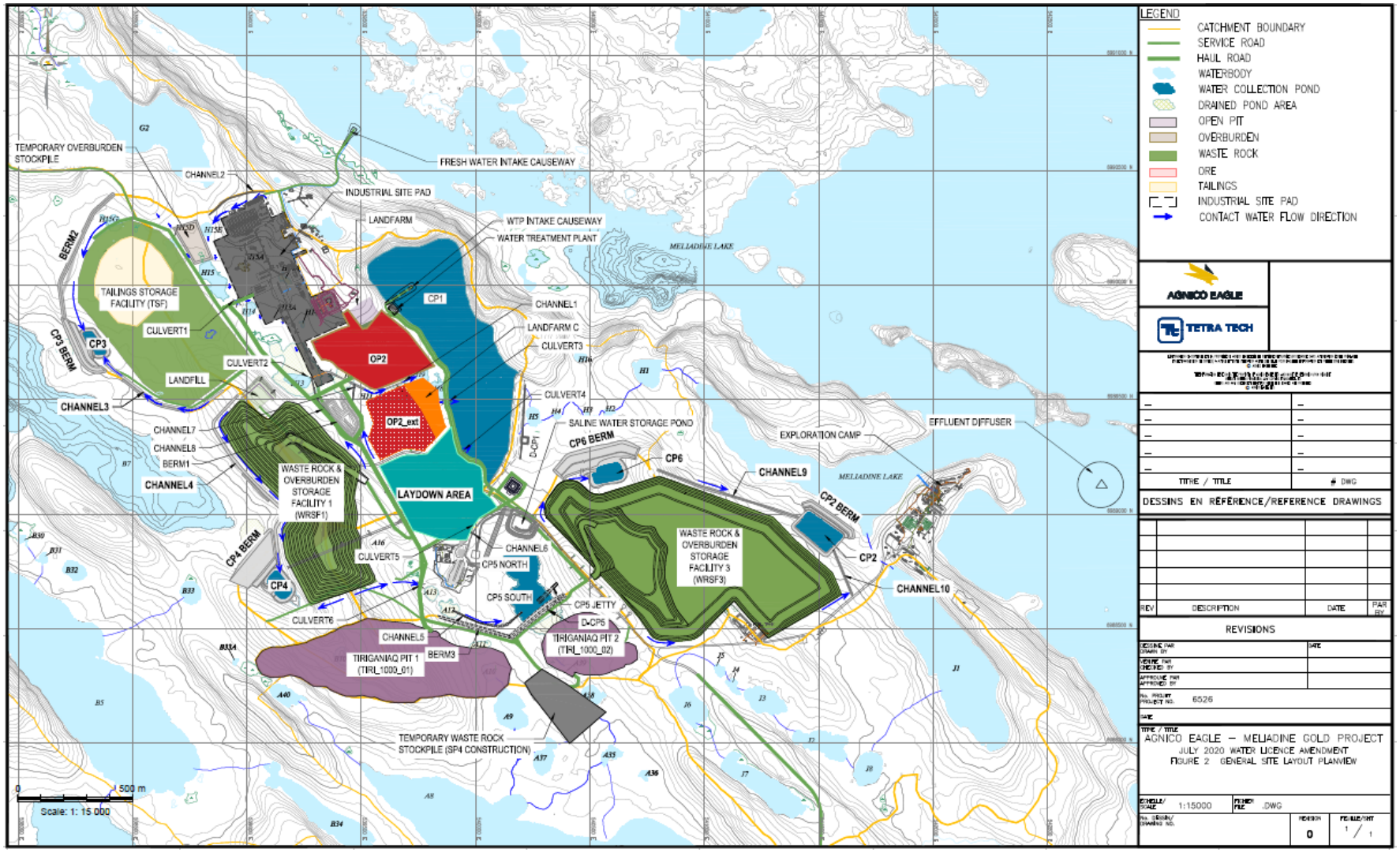

Figure 1: Meliadine Site

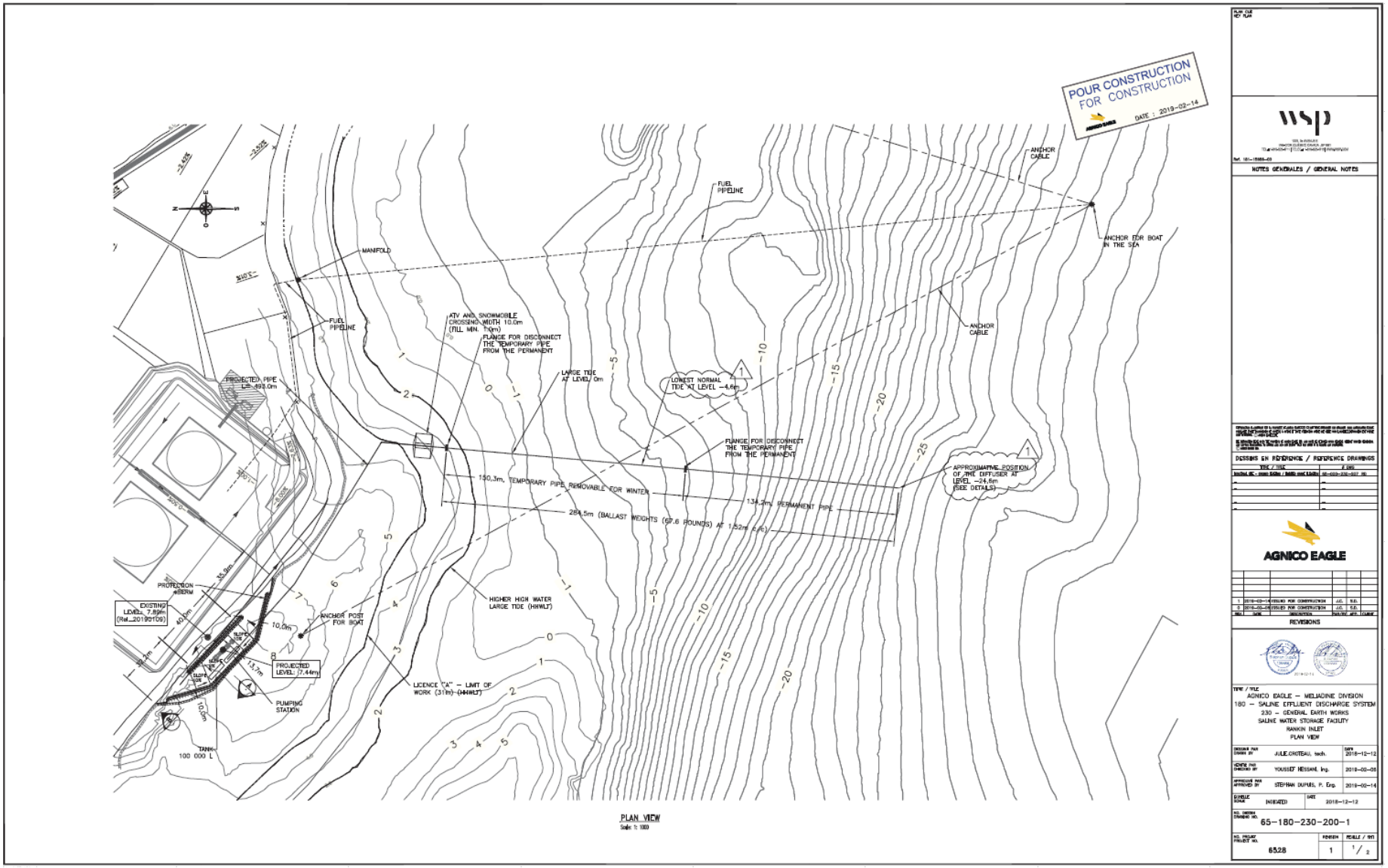

Figure 2: Itivia Facilities

SECTION 2. SUMMARY OF ACTIVITIES

2.1 2022 ACTIVITIES

2.1.1 Exploration activities

As required by water license 2BB-MEL1424 Part B Item 6i*: A summary of drilling/trenching activities and progressive reclamation of drill/trench sites;*

No trenches were dug in 2022 under this water licence, and a total of 164 holes were drilled. Among these, 68 were located inside the production lease KVPL11D01 and were drilled under NWB Water License 2BB-MEL1424. The drill site locations are located in Appendix 2.

The contractor for the drilling was Sarliaq Orbit Garant, and drilling was conducted using diamond drills between January and December 2022. Activities included both on-ice and on-land drilling. Drill site reclamation included removing remaining material and drill casings at each site once drilling was completed. Casings were cut at ground level when they could not be removed.

2.1.2 Construction activities

As required by water license 2AM-MEL1631 Part D Item 4*: The Licensee shall provide a brief summary of the Construction Summary Report required by Part D, Item 3, within the Annual Report required by Part B, Item 2; and*

As required by NIRB Project Certificate No.006 Condition 18: *The Proponent shall provide the NIRB with copies of as-built drawings and final design plans for Project infrastructure as they are developed/finalized to assist with the Board's ongoing monitoring efforts.*

Agnico Eagle submitted the Construction Summary (As-Built) Report for CP2 Pond, CP2 Berm, Channel 9 and Channel 10 to the NWB on November 7, 2022. Construction took place between February and May 2022. Pond CP2 was designed to collect and store runoff water from the Waste Rock Storage Facility 3 (WRSF3), while Channels 9 and 10 were designed to intercept and divert runoff water from the WRSF3 catchment areas.

The Ore Storage Pad 2 (OP2) (Stage 2) Construction Summary (As-Built) Report will be submitted to the NWB in April 2023. Submitted as-built reports and drawings can be found on the NWB Public Registry at the following link: ftp://ftp.nwb-oen.ca.

The main 2022 construction activities are summarized in Table 1 below.

Table 1: Status of the construction activities undertaken in 2022

Activity	Status as of Dec 31, 2022
Construction of Contractor Garage	Completed
Construction of Multi Service Building (MSB) Garage extension	Completed
Construction of Gym Facility	Completed
Construction of Containment Pond 2 and is associated Berm and Channels 9 and 10.	Completed
Construction of Ore Pad 2 extension (OP2 ext.)	Completed
Protection berm (4) for the surface explosive magazines	Completed

Rehabilitation of CP4 Berm and perimeter of the Containment Pond 4 (CP4)	Completed
Rehabilitation of Downstream side of the D-CP1 (Dike for Containment pond 1)	Completed
Widening of the service road between AWAR intersection and Hauling road	Completed
Backfilling of Lake A38, A9, A40, B33A & B33 after the fish-out and dewatering	Completed
Continuation of Waste Rock Storage Facility 1 (WRSF1)	Ongoing
Continuation of Waste Rock Storage Facility 1 (WRSF3)	Ongoing
Continuation of Tiriganiaq Open Pit 1	Ongoing
Construction of Water Treatment Complex	To be completed in 2023
Addition of second grinding thickener tank	To be completed in 2023
Addition of cement handling facility at the Paste Plant	To be completed in 2023
Construction of the CIL/Filter Press extension	To be completed in 2023
Construction of the Power Plant extension	To be completed in 2023
Widening of the AWAR from km 6 to 19.6 (pending regulatory approvals)	To be completed in 2023
Construction of the waterline discharge to sea (Mine Site work only, pending regulatory approvals)	To be completed in 2024

2.1.3 Mining Activities

The Meliadine Gold Mine began commercial gold production on May 14th 2019.

In 2022, the Meliadine Gold Mine continued commercial gold production from the Tiriganiaq Open Pit 1 (TIRI01) and underground operations.

In 2022, a total of 1,828,976 tonnes of overburden waste and 2,942,941 of waste rock were excavated from TIRI01. A total of 432,859 tonnes of ore was mined from the pit.

In 2022, no overburden waste, waste rock or ore were mined from TIRI02. Mining activities at Tiriganiaq Open Pit 2 (TIRI02) were paused since Q2, 2021 and TIRI02 is currently being used for underground saline contact water storage.

From the underground operation, a total of 261,121 tonnes of underground waste was trucked to surface, and a total of 1,345,975 tonnes of ore was mined and trucked to surface.

2.2 2023 MINE WORK PLAN

The 2022 Mine Plan for the Meliadine Gold Mine, prepared for the KivIA as required by Production Lease KVPL11D01 is in Appendix 3 and outlines the activities planned for the project throughout the 2023 year.

In 2023, Agnico Eagle's mining plan is to continue to operate Tiriganiaq Underground Mine and Tiriganiaq Open Pit 1 at the Meliadine mine site.

A total of 2,251,867 tonnes of rock will be extracted from underground in 2023. The mine plan consists of hauling 385,190 tonnes of waste rock, 74,627 tonnes of marginal and 1,397,948 tonnes of ore to surface. Furthermore, 418,474 tonnes of tailings will be returned underground in paste backfill, and 394,102 tonnes of waste will remain underground as rockfill, for a total backfill quantity of 812,576 tonnes.

From the Tiriganiaq Open Pit 1, a total of 5,370,500 tonnes will be extracted over the year.

Waste rock and overburden will be trucked to the waste rock storage facilities (WRSFs) until the end of the mine operation, with distribution according to the operation schedule. In 2023, 1,752,000 tonnes of filtered tailings will come from the Mill: 418,474 tonnes of filtered tailings will be used as underground cemented backfill and 1,333,526 tonnes will be placed in the dry stack within the Tailings Storage Facility (TSF).

Environmental monitoring (wildlife, aquatic effects, groundwater, geochemistry, noise and air) will continue through 2023 in support of all operational undertakings at the Meliadine site as required by the NWB Type A Amended Water License 2AM-MEL1631, NWB Type B Water License 2BB-MEL1424, NIRB Amended Project Certificate No.006, and Metal and Diamond Mining Effluent Regulations (MDMER) regulations.

In 2023, Agnico Eagle is planning to conduct the following activities under production lease KVPL11D01:

- Completion of the Water Treatment Complex (WTC);
- Completion of a second grinding thickener tank;
- Completion of the Power Plant expansion;
- Completion of the CIL/Filter Press expansion;
- Completion of the cement handling facility at the Paste Plant;
- Rehabilitation of different infrastructures on site: Channel 3, CP6 ramp extension, TSF West thermal fill, CP3 thermal fill, CP4 thermal fill, Channel 5 rebuild and fill, D-CP1 channel, CP2 thermal fill,
- Construction of the Operations Landfill (Stage 4) berm raise;
- Construction of the Channel 2 Berm, pending NWB approval;
- Construction of Containment Pond 6 ramp redesign; ;
- Continuation of WRSF1;
- Continuation of WRSF3;
- Continuation of Tiriganiaq Open Pit 1;
- Pending regulatory approval:
    - Widening of the AWAR from km 6 to 19.6,
    - Construction of the waterlines for discharge to sea;
    - Construction of the haul road to Pump.

A general site print is available in Appendix 4.

2.3 QUARRIES

In 2022, a total of 26,670 m^3 and 6,125 m^3 of material was taken from quarries B12 and B6, respectively, under permit KVCA11Q01. The total amount of material taken to date under this permit is 461,409 m^3 and the maximum allowed quantity to be taken is 750,000 m^3, as per 2021 Quarry Permit KVCA11Q01 Extension Agreement.

In 2022, no material was taken from quarries under permit KVCA07Q08. The total amount of material taken to date under this permit is 416,588 m^3. The maximum allowed quantity is 690,000 m^3.

SECTION 3. WATER MANAGEMENT ACTIVITIES

3.1 WATER MOVEMENT

3.1.1 Fresh water obtained from Meliadine Lake

As required by Water Licence 2AM-MEL1631, Schedule B, Item 2: ***Monthly and annual volume of fresh Water obtained from Meliadine Lake*****.**

Monthly and annual volume of fresh Water obtained from Meliadine Lake (MEL-11) under Licence type A.

A total of 463,484 m³ of fresh Water was withdrawn from Meliadine Lake in 2022, or approximately 62.4% of the total authorized volume of fresh water (742,000 m³/year) under the current Licence. The monthly distribution of fresh Water use is presented in Table 2.

Table 2: Monthly and annual volume of Fresh Water withdrawn from Meliadine Lake at monitoring station MEL-11 in 2021 under Licence A.

	January	February	March	April	May	June	July	August	September	October	November	December	**2022 Total**
Water withdrawn, m³	36,208	31,484	41,186	40,091	41,343	35,102	37,984	36,961	35,761	44,461	41,327	41,577	**463,484**

As required by Water Licence 2BB-MEL1424 Part B, Item 6a: ***The daily, monthly and annual quantities in cubic meters of all freshwater obtained from Meliadine Lake at Monitoring Station MEL-1 and MEL-2.***

Monthly and annual volumes of fresh Water obtained for camp or domestic uses from Meliadine Lake (MEL-1) and for drilling from Meliadine, A8 Lakes or small lakes and ponds proximal to the drilling targets (MEL-2) under Licence type B.

The monthly distribution and annual water usage volumes from MEL-1 and MEL-2 are summarized in Table 3 below; a total of 16,588 m³ or approximately 15.6% of the total authorized volume (290 m³/day; 106,000 m³/year) was withdrawn in 2022. The totals provided for the month of February and November vary slightly from the values presented in the monthly NWB reports for those months (1,414 m³ and 700 m³, respectively) due to minor corrections made after the reports were distributed.

Table 3: Monthly and annual quantity of freshwater obtained from Meliadine Lake at monitoring stations MEL-1 and MEL-2 in 2022 under Licence B.

	January	February	March	April	May	June	July	August	September	October	November	December
Water withdrawn, m^3	1,002	1,365	1,173	1,753	1,161	1,319	446	2,830	2,856	1,438	720	524

3.1.2 Fresh water obtained from Meliadine River.

As required by Water Licence 2AM-MEL1631 Schedule B, Item 4: ***Monthly and annual volume of fresh Water obtained from Meliadine River for road dust suppression activities*****.**

In 2022, no water was obtained from Meliadine River for road dust suppression activities. Further, no water from ponds proximal to the road was used for dust suppression on the AWAR in 2022.

As required by Water Licence 2AM-MEL1631 Schedule B, Item 3: ***Monthly and annual volume of fresh Water transferred to Meliadine Lake as a result of dewatering activities.***

No dewatering activities where water was transferred to Meliadine Lake took place in 2022.

Five (5) ponds (A40, B33, B33a, A9 and A38) were dewatered to CP1 during August and September 2022 as part of the permitted fish salvage. Total volume transferred to CP1 related to dewatering activities are presented in Table 4 below.

Table 4: Dewatered Pond volumes to CP1

Dewatered Pond	Volume (m3)
A40	4,182
B33A	732
B33	3,311
A9	719
A38	2,070

3.1.3 Mine Water pumped from underground

As required by Water Licence 2BB-MEL1424 Part B, Item 6b: ***The daily, monthly and annual quantities, in cubic meters, of Mine water pumped from the underground.***

And

As required by Water Licence 2BB-MEL1424 Part B, Item 6j: ***Report all artesian flow occurrences.***

There were no occurrences of artesian flow in 2022. The monthly and annual volumes of mine water pumped from the underground are summarized in Table 5**Error! Reference source not found.** below.

Table 5: Monthly and Annual flow volumes of underground mine water pumped to surface in 2022.

	January	February	March	April	May	June	July	August	September	October	November	December	**2022 Total**
Water pumped, m³	4,780	3,906	3,683	4,176	4,575	7,051	7,581	8,392	9,906	7,579	3,764	3,452	**68,845**

3.1.4 Effluent discharged from CP1 to Meliadine Lake

The monthly and annual volumes of effluent discharged from CP1 to Meliadine Lake over 2022 are summarized in Table 6 below.

Table 6: 2022 Monthly and Annual volumes of water discharged from CP1 to Meliadine Lake

	January	February	March	April	May	June	July	August	September	October	November	December	**2022 Total**
Water pumped, m³	-	-	-	-	-	-	214,709	33,585	188,337	-	-	-	**436,631**

3.1.5 Sludge produced by the EWTP-WTC and SETP-WTC

The monthly and annual volumes of sludge production from the EWTP-WTC treatment process over 2022 are summarized in Table 7 below. Sludge produced by the EWTP-WTC treatment process was pumped to Tiriganiaq Open Pit 2. Sludge management is further discussed in section 3.9.4.3 of Version 13 of the Water Management Plan.

Table 7: 2022 Monthly and Annual volumes of sludge produced by the effluent water treatment plant

	January	February	March	April	May	June	July	August	September	October	November	December	**2022 Total**
Water pumped, m³	-	-	-	-	-	973	2244	1866	1670	-	-	-	**3,350**

3.1.6 Saline Effluent Discharged to Marine Environment at Melvin Bay

No saline effluent was discharged to sea in 2022.

3.1.7 Adaptive Management of Discharge to Meliadine Lake

As required by Water Licence 2AM-MEL1631, Schedule B, Item 6: ***Summary of the Adaptive Management procedures implemented to minimize the discharges into Meliadine Lake during the pre-freshet, open-water and pre-freeze periods.***

Schedule B, Item 6 of the Amended Water Licence 2AM-MEL1631 will come into effect following commissioning of the Waterline (approved by the Minister of Northern Affairs on January 31st 2022).

Operation of the waterline for discharge to Melvin Bay is anticipated to significantly minimize or eliminate discharges to Meliadine Lake throughout the open water season each year. A summary of the Adaptive Management procedures implemented following commissioning of the Waterline will be available in future annual reports, once the Waterline is operational.

More information regarding applicable Adaptive Management strategies can be found in the most up to date version of the Adaptive Management Plan (Agnico Eagle, 2022).

3.1.8 TDS Concentrations Reporting to CP1

As required by Water Licence 2AM-MEL1631, Schedule B, Item 8: ***Discussion on the behavior of the Total Dissolved Solids (TDS) concentrations in surface Contact Water reporting to CP1 during the reported year, and, if any TDS concentration peaks are observed, identification of potential sources that might have contributed to higher loads of TDS.***

Frequent measurements of electrical conductance (EC) of surface contact water were collected from the surface contact water collection ponds and other surface contact runoff infrastructure from the onset of freshet to the start of ice formation in 2022. The intent of this monitoring program was to identify any anomalous trends in TDS loading behaviours across the site.

The processes which may impact TDS patterns in surface runoff on site are numerous and their interactions are complex:

- freshet often brings large volumes of runoff with low TDS concentrations into the water management system, contributing to the dilution of existing surface waters within the mine collection ponds;
- thawing of the active layer may result in the release of solutes locked in the soil from the previous year active layer freeze-back;
- significant rainfall events may flush pre-event solutes from the active layer or may result in infiltration-excess overland flow of rainfall entering contact ponds, depending on the antecedent soil moisture conditions;
- exclusion of solutes as water freezes in ponds can cause TDS concentrations to rise in the water held below-ice during winter (i.e., cryoconcentration).

The results of the monitoring program are provided in units of mg/L-TDS rather than the field measurement units of µS/cm-EC for ease of comparisons with the laboratory analysed TDS datasets and with the TDS concentration limits required by the Licence for discharge to Meliadine Lake.

TDS was computed using the following equation:

$$TDS = ke \cdot EC$$

where TDS is in mg/L and EC is measured in µS/cm at 25°C (specific conductance). The correlation factor, ke, used in the conversions of EC to TDS in the monitoring program was 0.6, derived as an approximate average from ratios of TDS to EC analyzed in MEL-14 samples collected from 2018 to 2022.

Field parameter readings of surface contact runoff collection ponds were generally collected on a daily to weekly basis.

When establishing a monitoring program for EC data in the collection ponds on site, variation in the water quality within the vertical water column must be considered. It has been theorized that one process significantly driving variation across the water column is due to a TDS-exclusion effect in which ice formation leads to migration of TDS from ice into the underlying water (Zhang et al., 2012)[1]. Freeze-thaw cycles – particularly in water bodies which not only maintain a volume over the winter but also do not freeze to the bottom – may result in stratified layers of varying TDS concentrations, often coinciding with thermoclines (Zhang et al., 2012)[1]. Further amplifying this process is the influent of high volumes of runoff with low TDS concentrations which, due to warmer temperatures and lower density (due to lower TDS), may create an additional stratified layer on the surface of the water body. Thus, readings collected at a single elevation within the water column could misrepresent the average TDS of the total volume contained within the collection pond.

Measurements of EC were normally collected at an approximate depth of one meter below each pond surface, generally coinciding with the location of pump intakes in the ponds (to account for stratification of water quality) and subsequently the approximate quality of the water being discharged directly to (in the case of CP2, CP5 and CP6) and towards (in the case of CP3 and CP4 via Channel 1) CP1. Given the shallower nature of CP5 (this facility uses a dam for water retention and was not constructed in bedrock), EC measurements at one meter depth was not always possible. As such, measurements were collected near the bottom of the water column in CP5 which was noted to be mostly representative of the rest of the water column during field visits.

Figures 3 to 8 below provide the results of the EC monitoring conducted at each surface runoff collection pond on site: CP1, CP2, CP3, CP4, CP5, and CP6. TDS-converted EC measurements are supplemented with TDS data collected from compliance monitoring stations associated with each collection pond (e.g. MEL-12 for CP1, MEL-19 for CP2, etc.). TDS-converted EC measurements of CP1 were also supplemented with TDS-converted EC measurements from continuous monitoring of the EWTP-WTC treatment stream, as well as TDS data collected from the final-discharge-point compliance station MEL-14. The figures also present the water volume data for each pond to highlight TDS behaviours associated with changing water volumes.

[1] Yan Zhang, ChangYou LI, XiaoHong Shi, Chao Li. The migration of total dissolved solids during natural freezing process in Ulansuhai Lake. *Journal of Arid Land*, 2012, 4(1): 85-94.

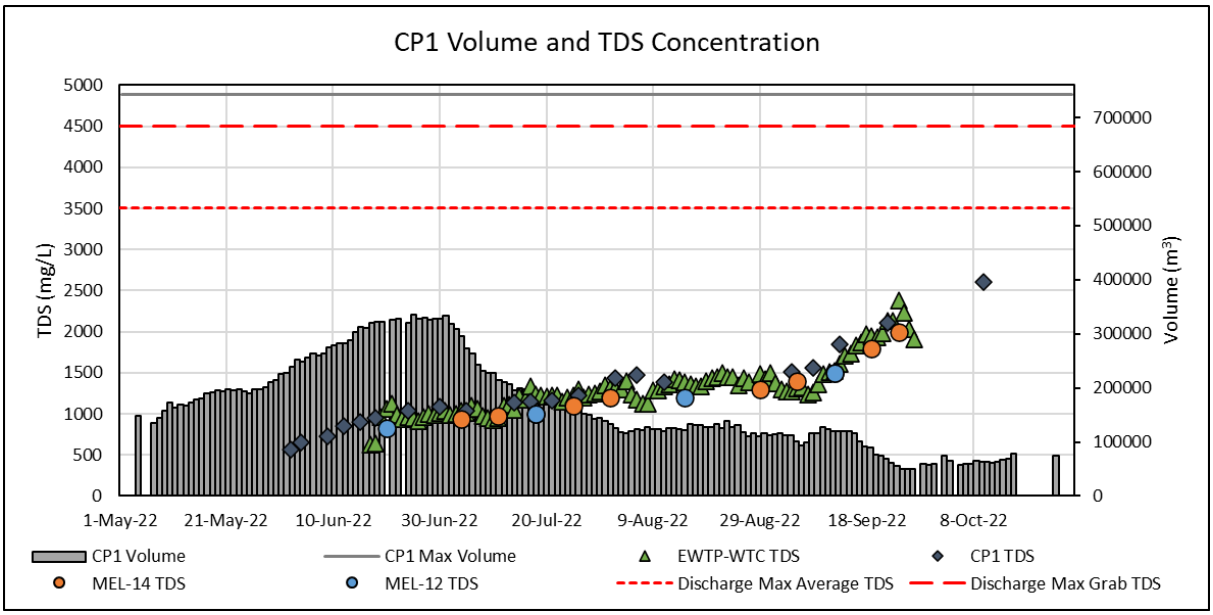

Figure 3: CP1 field readings for EC converted to TDS using a factor of 0.6 mg/L-TDS to 1 uS/cm-SpC, and CP1 water volume data. Data is supplemented with continuous EC readings collected in the EWTP-WTC treatment stream, and TDS results from compliance monitoring stations MEL-12 and MEL-14.

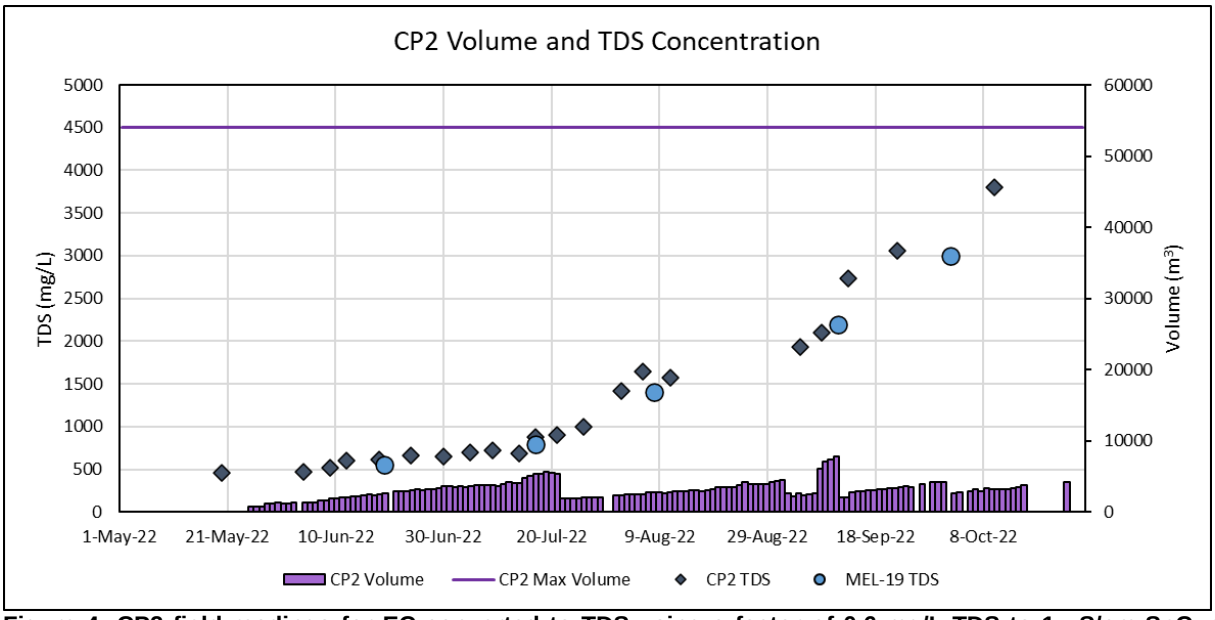

Figure 4: CP2 field readings for EC converted to TDS using a factor of 0.6 mg/L-TDS to 1 uS/cm-SpC, and CP2 water volume data. Data is supplemented with TDS results from compliance monitoring station MEL-19.

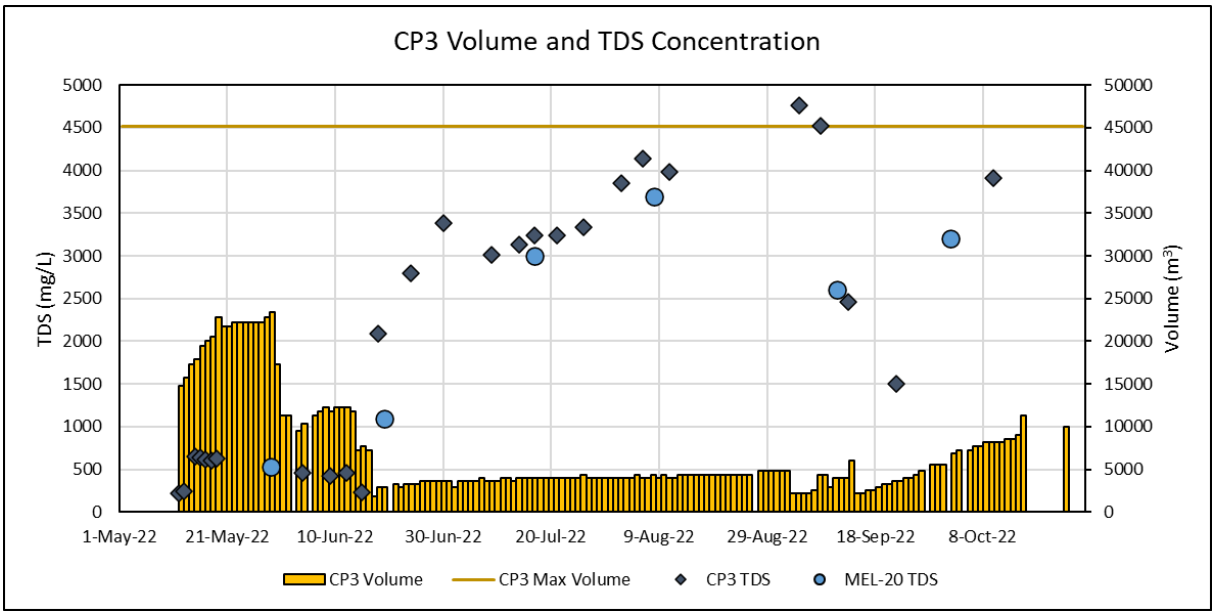

Figure 5: CP3 field readings for EC converted to TDS using a factor of 0.6 mg/L-TDS to 1 uS/cm-SpC, and CP3 water volume data. Data is supplemented with TDS results from compliance monitoring station MEL-20.

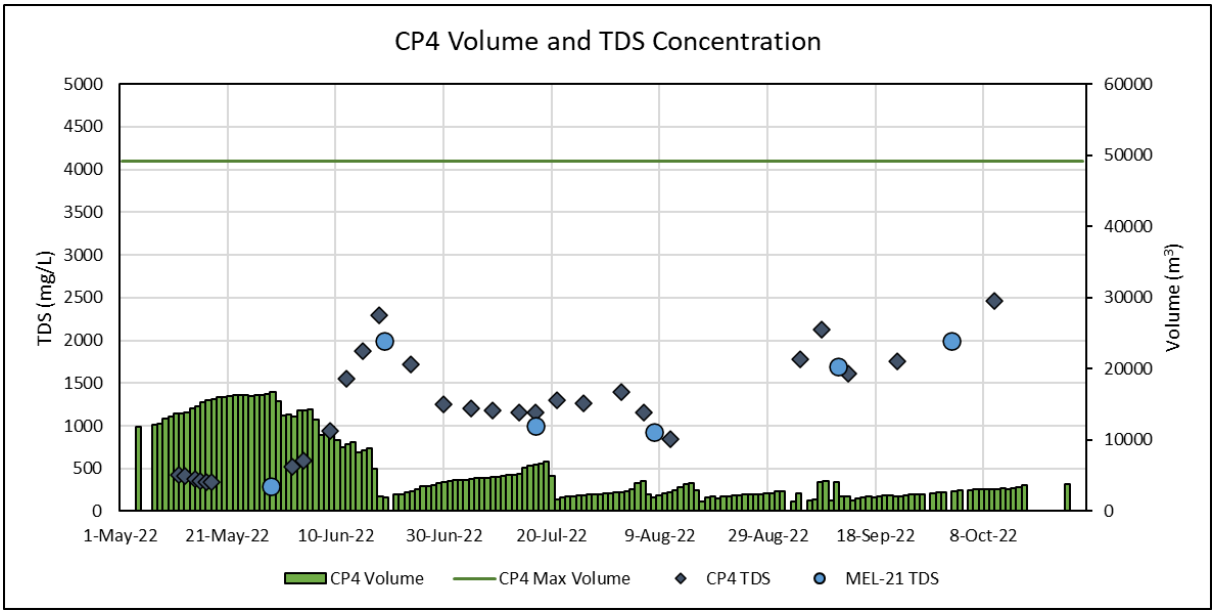

Figure 6: CP4 field readings for EC converted to TDS using a factor of 0.6 mg/L-TDS to 1 uS/cm-SpC, and CP4 water volume data. Data is supplemented with TDS results from compliance monitoring station MEL-21.

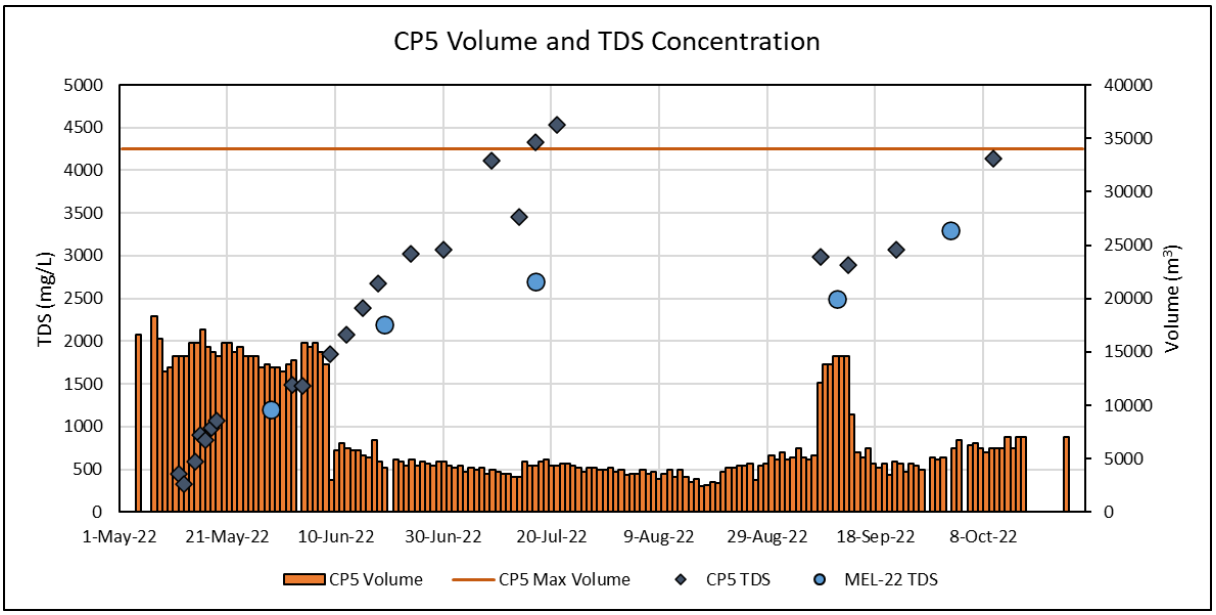

Figure 7: CP5 field readings for EC converted to TDS using a factor of 0.6 mg/L-TDS to 1 uS/cm-SpC, and CP5 water volume data. Data is supplemented with TDS results from compliance monitoring station MEL-22.

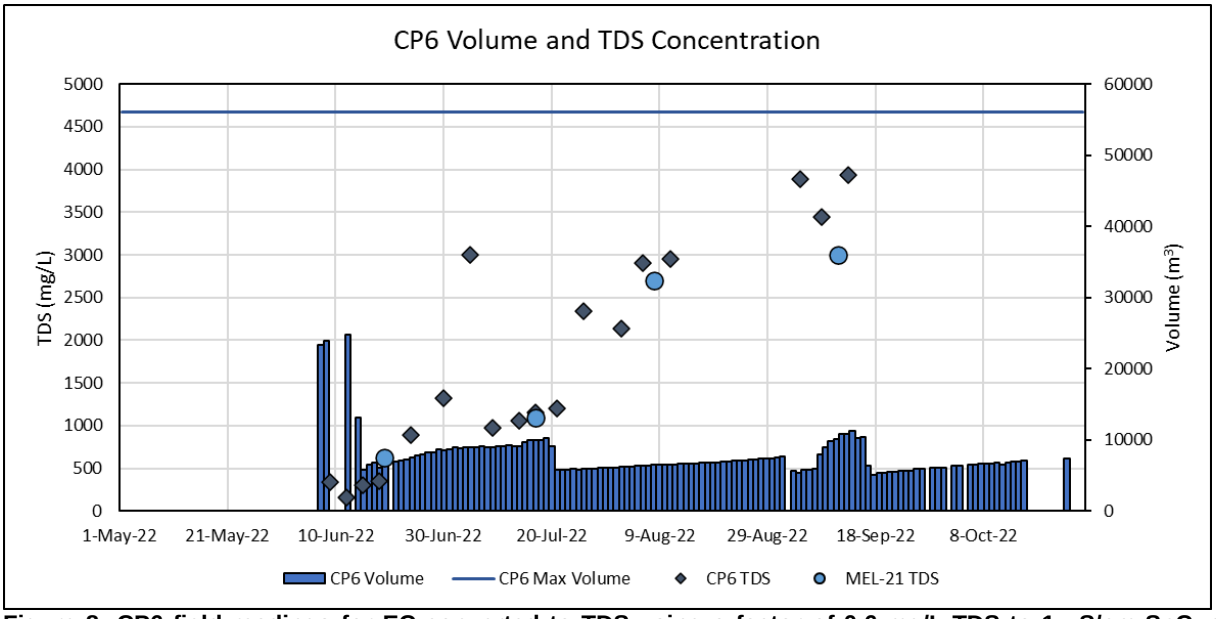

Figure 8: CP6 field readings for EC converted to TDS using a factor of 0.6 mg/L-TDS to 1 uS/cm-SpC, and CP6 water volume data. Data is supplemented with TDS results from compliance monitoring station MEL-23.

A general trend observed at each facility is an increase in TDS over the duration of the open water season. This seasonal trend has been observed in previous years and is generally attributed to be driven by active layer thaw, resulting in the release of any solutes trapped in the active layer, in addition to evaporative processes. A strong correlation between water volume and TDS concentration can also be observed in each pond, in which larger volumes of water correlate to reduced concentrations of TDS. Examples of this can be seen where TDS concentrations reduce during the freshet period, and subsequently increase after pumping commences and water is drawn down in each facility. Another example of this can be seen when TDS concentrations dip in response to a 42 mm rainfall event on

September 6th to 7th (CP2 does not appear to share this response, but it is suspected this is due to the recent construction of the facility in 2022 and subsequent flushing of solutes included recently exposed overburden material not previously subject to annual flushing).

Overall, 2022 can be characterized by low volumes retained in storage throughout the open water season, corresponding to the observed presence of elevated TDS concentrations, with the exception of CP1. Due to the low volumes of elevated TDS present in the other collection ponds, less inflows of elevated TDS were consequently received by CP1, resulting in a marginal impact on the average CP1 TDS concentrations throughout the open water season. No discrete or anomalous sources of higher TDS loads were thus observed in 2022.

3.1.8.1 *Ore stockpile runoff monitoring program*

As recommended by CIRNAC-01 through 2021 Annual Report Comments: Establish a program to measure runoff quantity and quality from Ore Stockpile 2 (OP2).

In 2022, monitoring of water management infrastructure was conducted immediately upstream and downstream of Ore Storage Pad 2 (OP2) and the recently constructed OP2 Extension (hereafter referred to as OP2 collectively). Monitoring included the collection of electrical conductance measurements of the water at various points upstream and downstream of the water management infrastructure adjacent to OP2.

As with section 3.1.8, results of the monitoring program are provided in units of mg/L-TDS rather than the field measurement units of µS/cm-EC for ease of comparisons with the laboratory analysed TDS datasets and with the TDS concentration limits required by the Licence for discharge to Meliadine Lake.

TDS was computed using the following equation:

$$TDS = ke \cdot EC$$

where TDS is in mg/L and EC is measured in µS/cm at 25 °C (specific conductance). The correlation factor, ke, used in the conversions of EC to TDS in the monitoring program was 0.6, derived as an approximate average from ratios of TDS to EC analyzed in MEL-14 samples collected from 2018 to 2022.

Runoff from a large area of OP2 is captured by Channel 1 which runs along the south perimeter of OP2. Channel 1 empties into the internal waterbodies H9 and H8 prior to flowing through Culvert 3 into final collection pond CP1. Upstream of Channel 1 are a series of Culverts, beginning with Culvert 2 and followed by Culverts 15 and 16 before water enters Channel 1.

Monitoring of EC-converted TDS concentrations was performed at the following locations:

- Downstream outlet of Culvert 2;
- Upstream of Channel 1 (downstream of Culvert 16);
- Downstream of Channel 1; and
- Upstream of Culvert 3.

The Culvert 2 monitoring location represents contact water that has been unimpacted by OP2 runoff, while minimizing additional inflows from facilities other than OP2 downstream of this point. The Culvert 3 monitoring location represents the water most impacted by most other upstream facilities (excluding

inflows from CP2, CP5, and CP6, which discharge directly into CP1). Channel 1 (U/S) and Channel 1 (D/S) represent two mid-point locations along the flow path and act as validation points for any variance in TDS observed between the Culvert 2 and Culvert 3 locations. Figure 9: Locations of EC monitoring stations relative to OP2 (red polygon) and the general flow path from Culvert 2 to Culvert 3, and ultimately CP1 (blue line). provides the location of these monitoring stations relative to OP2.

Figure 9: Locations of EC monitoring stations relative to OP2 (red polygon) and the general flow path from Culvert 2 to Culvert 3, and ultimately CP1 (blue line).

Figure 10**: EC-converted TDS concentrations collected at the monitoring stations along the contact water collection path of OP2.** provides the results of the monitoring program in addition to precipitation data. Low variation in TDS concentrations at each of the monitoring stations can be observed at the onset of freshet followed by increasing variation as the open water season progresses. Late season variance is notably reduced, potentially driven by increased precipitation received between August and September, buffering TDS loads received from OP2.

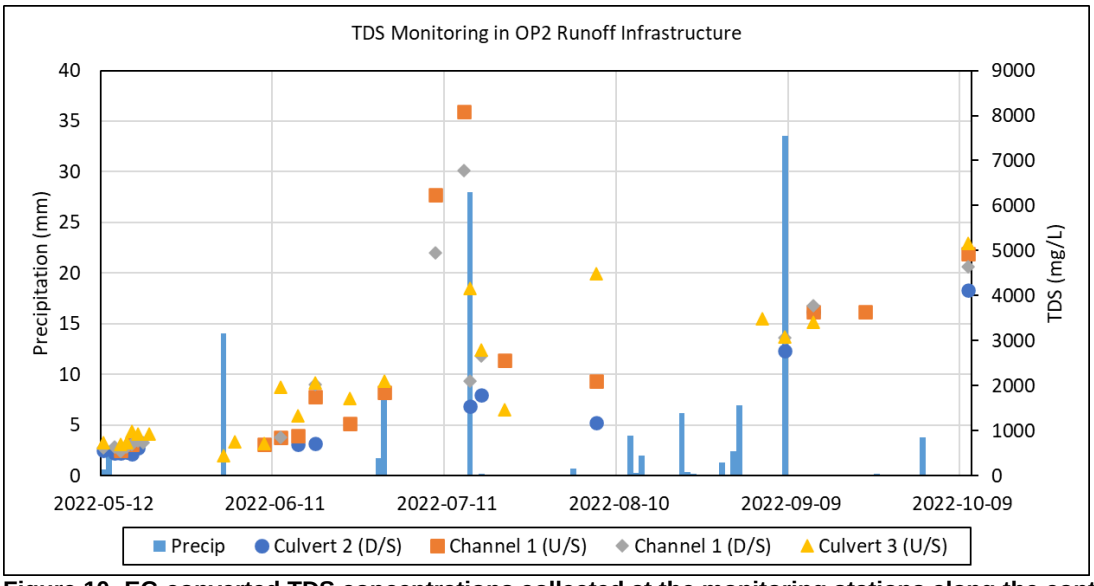

Figure 10: EC-converted TDS concentrations collected at the monitoring stations along the contact water collection path of OP2.

Culvert 2 TDS data represents the lowest concentration of the four stations during sampling events which provides confidence in the assumption of this water being least affected by OP2 runoff and a suitable benchmark to gauge the magnitude of the impact of OP2 TDS loading. Sample events on July 14th-15th show peak TDS concentrations at Channel 1 (U/S), with lower concentrations at Channel 1 (D/S), and further reduced concentrations at Culvert 3 (U/S). Similar results are observed on July 9th, and September 13th. These results are somewhat counterintuitive to the assumption that Culvert 3 (U/S) TDS would have highest TDS load relative to the upstream locations. It is thus possible that additional flow bearing low TDS concentrations was received from the area of natural tundra south of Channel 1 (prior to construction and use of the OP2 Phase 2 area), as shown in Figure 10**: EC-converted TDS concentrations collected at the monitoring stations along the contact water collection path of OP2.**, buffering higher TDS inflows from Channel 1. This potential source of low-TDS runoff may be causing a similar TDS reduction in the downstream portion of Channel 1 and pond H9, reducing the TDS measured at Channel 1 (D/S). Agnico Eagle will continue monitoring runoff from OP2 in 2023 and will work to improve on the areas of uncertainty discussed.

3.1.9 Use of Reclaim Water from Contact Water management facilities

As required by Water Licence 2AM-MEL1631 Part E, Item 1: ***The Licensee shall maximize to the greatest practical extent, the use of Reclaim Water from Contact Water management facilities for use in the mill, drilling, and for dust suppression. The Licensee may use Reclaim Water for dust suppression in areas where any direct flow into a waterbody is not possible and no additional impacts are created.***

In 2022, no water from the Contact Water management facilities was used as reclaim water for milling purposes. The pore water salinity of the filtered tailings has been above the design assumptions for the TSF since initial deposition, with an oscillating downward trend from late 2020. The pore water salinity of the filtered tailings has been elevated due to the saline moisture entrained in the ore being hauled from underground and processed. Previously, when Contact water was used as reclaim water for milling purposes, the pore water salinity of the tailings increased significantly. The pore water of the filtered tailings is a critical control parameter for the performance of the dry stack tailings storage facility (TSF).

For 2022, the use of water collected by the Contact Water management facilities was not practical and the decision was made to continue monitoring the pore water salinity of the tailings and see if the downward trend in the pore water salinity continued throughout 2022 to protect the performance parameters of the TSF. The average pore water salinity of the tailings was slightly below the design assumptions in 2022.

As the pore water salinity of the tailings is below the design assumptions, additional consideration will be given to determining the practicality of utilizing some of the water collected by the Contact Water management system within the process plant without negatively impacting the performance of the mine facilities.

In 2022, approximately 6,353 m^3 of Reclaim Water was used for dust suppression purposes. Water was withdrawn from CP1 and use for dust suppression was localized to the mining footprint area, including the hauling roads and open pit areas. Runoff from these areas is captured by the Contact Water management facilities reporting back to CP1.

No Reclaim water was used for surface drilling operations in 2022.

3.2 WATER BALANCE WATER QUALITY MODEL REPORTING SUMMARY

As required by Water Licence 2AM-MEL1631 Schedule B, Item 5: ***Updated Water Balance and Water Quality Forecast, as required under Part E, Item 13***

The Licensee shall, at a minimum of once every year following commencement of Operations, submit to the Board for review an updated Water Balance and Water Quality Forecast. This update shall include all monitoring parameters and shall identify which Mean Annual Concentrations are within 10% of the respective maximum authorized Monthly Mean Concentrations for regulated parameters. Additionally, the Mean Annual Concentrations for all monitoring parameters in the current reporting year shall be compared to those reported in the previous year, and if the respective concentrations are increased by more than 20%, a detailed technical assessment identifying specific sources of loadings and the proposed parameter forecasts shall be provided to the Board for review.

And

As required by Water Licence 2AM-MEL1631 Schedule B, Item 7: ***Discussions on the available storage capacity for both saline and fresh Water, including the volumes of Water transported to Melvin Bay and the volumes of Water discharged to Meliadine Lake, as well as the projected volumes of water requiring storage in the upcoming year.***

A new Water Balance and Water Quality Model (WBWQM) was developed for the Meliadine project in 2021, superseding previous WBWQM models. The principal changes to the new model were the use of the GoldSim modelling platform with a revised framework and revised inputs from previous models. The model was updated in early 2023 for submission in the 2022 Annual Report.

3.2.1 Model Setup

The WBWQM is built in the GoldSim v14 software platform and is set-up to run on a daily time-step. The primary modelling objective is the prediction of water and solute load transfers within the mine site, and to the receiving environment. The GoldSim WBWQM is configured to predict the transfer of water and solute mass (loadings) from mined and non-contact areas into the relevant water management facilities. All

mixing is assumed to occur instantly, and all mass is conserved throughout the model (i.e., no attenuation is applied to any of the parameters that are tracked).

3.2.2 Water Management Assumptions and Inputs

Details of the surface contact water management and saline groundwater management systems can be found in the WMP and Groundwater Management Plan (GWMP). The general flow network used in the WBWQM is as shown in Figure 11: Conceptual site water management flow diagram for the site..

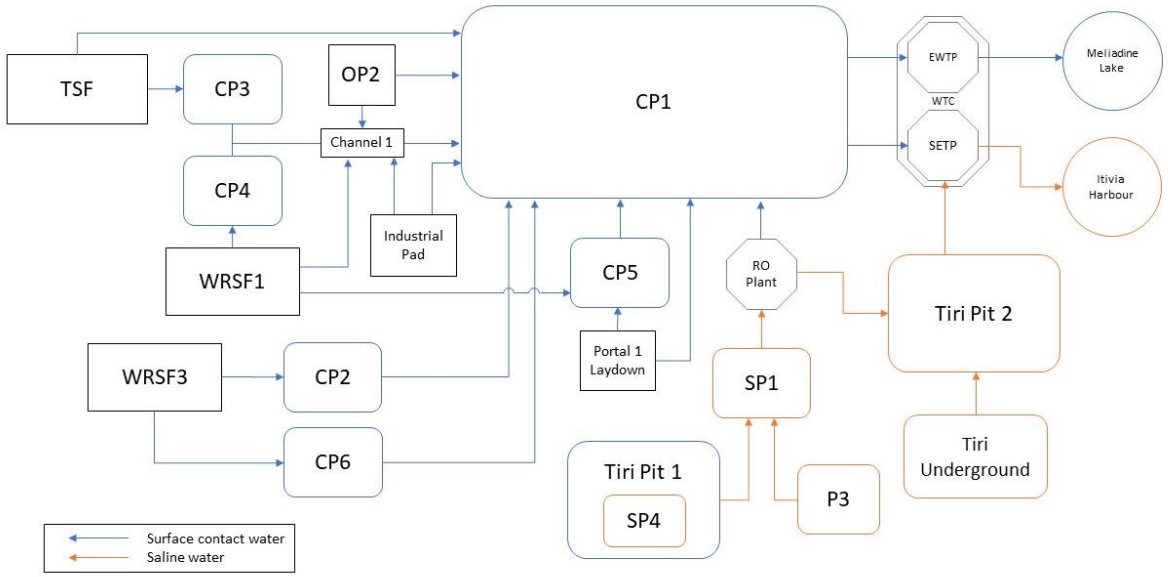

Figure 11: Conceptual site water management flow diagram for the site.

3.2.2.1 *Pond Pumping Rates*

The model assumes pumping rates between CP2, CP3, CP4, CP5, and CP6 to CP1, as well as pumping rates between saline ponds such as SP1, SP4, P3, and Tiri 02 are based on maximum designed pumping rates for each facility while factoring in historic pumping data. Pumping demand is assumed to occur continuously throughout the open water season, from the start of June to the end of October. Actual quantities of recorded pumping rates between surface ponds for 2022 was applied to the model.

3.2.2.2 *Discharge to Itivia Harbour*

Currently, saline water from the underground mine is stored in Tiriganiaq Open Pit 2 (Tiri 02) and as such no actual discharge quantities were applied in the 2022 model year update. Previous discharges applied to the WBWQM include the discharge of saline water from SP4 to Itivia Harbour using trucks. The proposed Waterline (i.e. the installation of an effluent waterline discharging to Itivia Harbour) will deliver treated effluent to Itivia Harbour via a diffuser. This model assumes the waterline will be operational beginning in 2025 with a seasonal discharge from June 20th to September 29th at 20,000 m^3/day. Availability of the waterline is assumed to be 70% to provide conservativism with any operational challenges (i.e., 14,000 m^3/day). This assumption will allow for maintenance throughout the operation period and other planned or unplanned shutdowns.

The model assumes the waterline discharge will be sourced as 60% saline water from Tiri 02 and 40% surface contact water from CP1 until the volume of saline water in Tiri 02 is drawn below 25,000 m^3. After this, the waterline discharge will be sourced as 100% surface contact water from CP1 to minimize discharge to Meliadine Lake. During this period, saline water from the underground mine will continue to fill Tiri 02. If the volume in Tiri 02 reaches 50,000 m^3, the source water will revert to 60% saline water and 40% surface contact water until the Tiri 02 drawdown target is met again.

3.2.2.3 *Discharge to Meliadine Lake*

Currently, treated surface contact water effluent from the EWTP is discharged to Meliadine Lake via a diffuser. The EWTP has an annual discharge window of June 1st to October 7th at 22,000 m^3/day.

Section 3.2.2.1 describes how surface contact water discharge to Meliadine Lake will be minimized in favour of discharge through the waterline. However, the model assumes surface contact water discharge to Meliadine Lake will take priority if the volume of water in CP1 reaches 90% of the maximum operating volume of the facility, or if the volume of water in CP1 is above the maximum freeze-up volume between the window of October 1st to October 7th.

3.2.2.4 *Underground Mine Dewatering*

Groundwater inflows represent the largest portion of water pumped from the Tiriganiaq underground mine to Tiri 02. Predictions of future underground inflow rates to the underground mine were generated using a 3D groundwater model (Golder, 2020)[2]. A moisture content percentage is applied to a mine plan forecast of the monthly tonnes of ore and waste rock removed from the underground mine to represent entrained moisture being removed from the mine. A fixed quantity of freshwater used for paste line flushing is assumed per month. Additionally, a percentage of bleed-water from paste backfill is assumed and applied to forecasted tonnes of paste backfill.

3.2.2.5 *Consumptive Freshwater Uses*

Consumptive freshwater uses (e.g., paste plant, potable water, mill makeup, dust control, etc.) are supplied by withdrawal from Meliadine Lake. They are not included as direct inputs to the water balance model, as this additional water is already incorporated in various components of the mine water balance, such as sewage treatment plant discharge, seepage from placed tailings and paste backfill bleed-water reporting to underground workings.

3.2.2.6 *Sewage Treatment Plant Discharge*

The Sewage Treatment Plant (STP) is rated for a treatment rate of 299 m^3/day, and discharges to CP1.

3.2.2.7 *Climate Inputs*

The climate input series spans a 100-year period from 2020 to 2119, and consists of daily minimum, mean and maximum air temperature and precipitation values derived from the Rankin Inlet climate station, and adjusted to reflect future climate projections under the RCP4.5 representative concentration

[2] Golder. 2020. Meliadine Gold Project. Meliadine Site Water Balance and Water Quality Model. Type A 2AM-MEL1631 Water Licence Amendment. 20144940-779-RPT-Rev1. July 2020.

pathway (OKC, 2022a[3]; 2022b[4]). This station was shown to be representative of climate conditions as measured by the Meliadine climate station and given the much longer and more complete record at Rankin Inlet, this dataset was used to represent climate conditions at the Meliadine site (OKC, 2022a; 2022b). Mean annual precipitation in the RCP4.5 input series over the Operations period is 396.4 mm, and on a monthly average basis, precipitation ranges from a minimum of approximately 14.8 mm in February to a maximum of 63 mm in September. The annual average air temperature is -10.4°C, with minimum and maximum mean temperatures of -34°C in January and 11°C in July, respectively.

Table 8: Average monthly climate conditions at Meliadine for the Operations Phase.

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Min. Temp (°C)	-31.7	-31.3	-26.0	-19.8	-8.0	2.3	7.5	7.8	1.7	-5.1	-15.4	-25.8	-31.7
Avg. Temp (°C)	-27.9	-27.7	-21.8	-15.7	-4.7	6.2	11.8	10.9	3.9	-2.8	-12.0	-22.3	-8.5
Max. Temp (°C)	-24.2	-24.2	-17.7	-11.5	-1.5	10.2	16.1	14.0	6.2	-0.5	-8.6	-18.7	16.1
Precipitation (mm)	18.6	14.8	21.4	22.3	24.2	37.6	42.0	49.1	63.2	37.4	39.5	26.2	396.4
Rain (mm)	0.0	0.0	0.0	0.0	3.4	28.0	40.7	49.7	52.4	18.9	0.8	0.0	193.9
% Rain	0%	0%	0%	0%	14%	74%	97%	100%	83%	51%	2%	0%	35%
Snow (mm)	18.4	11.6	20.6	20.7	20.9	3.5	0.0	0.0	3.5	24.4	34.8	34.3	192.8
% Snow	99%	78%	96%	93%	86%	9%	0%	0%	5%	65%	88%	100%	60%

3.2.2.8 *Water Quality Model Component*

The water quality model component of the WBWQM is built upon the architecture of the water balance model, with water quality signatures assigned to non-contact (undisturbed) areas and mine infrastructure. Water quality inputs to the water quality model, or source terms, are based on either a set of assumptions that reflect empirical observations from the operating mine site, data collected at analogue mine sites, or the results of various geochemical and metallurgical tests that have been undertaken to provide a basis for assigning likely future water quality associated with specific mine components. Conceptually, modelled flows and associated source terms are combined in the GoldSim platform to simulate predicted water quality estimates at key locations across the mine site.[5] The WQM is set-up to run on a daily time-step for the period of 2019 to 2027, consistent with the water balance sub-model. Concentrations of water quality parameters required by Type A Water Licence 2AM-MEL1631 Part F, Item 3 are modelled for all mine water management ponds and sumps. WQM outputs are aggregated on an annual time-step, and are screened against required water quality objectives (Appendix 5, Table 3).

3.2.3 Water Balance Model Methods

This section summarizes the approach, assumptions, conceptual model and inputs used to construct the site-wide water balance model.

[3] OKC (Okane Consultants Ltd.). (2022a). Meliadine Tailings Storage Facility Thermal Modelling. Ref No. 948-029-002 Rev 5. Prepared for Agnico Eagle Mines Ltd. by Okane Consultants Ltd. February 14, 2022.
[4] OKC (Okane Consultants Ltd.). (2022b). Thermal Modelling of Meliadine WRSFs. Ref No. 948-021-005 Rev 5. Prepared for Agnico Eagle Mines Ltd. by Okane Consultants Ltd. February 14, 2022.
[5] Lorax (2022). Meliadine Extension: Water Balance and Water Quality Model Technical Report. Prepared for Agnico Eagle Mines Ltd, by Lorax Environmental Services, February 2022.

3.2.3.1 *Approach and Assumptions*

The site-wide water balance model (WBM) is set-up to represent the interaction of the local climatic regime with the mine plan and WMP, and based on these interactions, to predict the volumes of various water types (i.e., non-contact, surface contact and saline contact) requiring management, treatment and discharge to the receiving environment. Given the potential for upset conditions to occur on sub-monthly time scales (i.e., high magnitude rainfall events, rapid freshet), and the operational necessity of managing mine contact waters on a daily basis, the WBM is set-up to run on a daily time-step.

3.2.3.2 *Sub-catchment Delineation*

To generate water volume estimates from precipitation inputs, the delineation of both the natural and mine-altered watershed areas was necessary for modelling the locations of interest. The catchment areas by year are presented in Appendix 5, Table 1. Sub-catchment nomenclature was based on the water management feature that each mine component reports to via gravity drainage. For example, 'CP1-Natural' refers to the non-contact area drainage that reports to the CP1.

3.2.3.3 *Runoff Flow Factors and Seepage*

Runoff coefficients are assigned to sub-catchments to represent the portion of surface flow generated by the precipitation depth per unit area.

Future estimates of surface runoff, infiltration, interflow and basal seepage from the TSF and WRSFs were modelled by OKC (OKC 2022a; 2022b) for the RCP4.5 climate change scenario and provided at a daily time-step for direct input to the WBWQM.

3.2.3.4 *Potential Evapotranspiration*

Hargreaves-Samani method (Hargreaves and Samani 1985) was used to develop estimates of potential evaporation, using the long-term daily record of minimum, average and maximum daily temperatures, as well as factors related to potential solar insolation (e.g., latitude [63.08°] and day of year).

3.2.3.5 *Lake Ice Growth and Ice Melt*

A temperature-based ice algorithm was implemented to model cryo-concentration in CP1. Lake ice melt is handled by the Bilello equation (Bilello, 1980[6]; Lotsari et al. 2019[7]). The lake ice growth algorithm is not applied to any other facilities than CP1, including saline storage facilities (i.e., Tiri 02, SP1, SP4, and P3).

3.2.4 Water Balance Model Results

The water balance model predictions for key nodes are presented in this section.

3.2.4.1 *CP1 Water Volume*

As shown in Figure 12: Forecasted and observed CP1 volume., the model results indicate a cyclical water elevation and volume response in CP1 each year, characterized by a slight increase via winter inflows

[6] Bilello, M.A. (1980). Maximum Thickness and Subsequent Decay of Lake, River and Fast Sea Ice in Canada and Alaska; CRREL, REPORT 80-6; United States Army Corps of Engineers, Cold Regions Research and Engineering Laboratory: Hanover, NH, USA, 1980; p. 160.
[7] Lotsari, E., Lovisa, L. and Kmri, M. (2019). Impacts of hydro-climatically varying years on ice growth and decay in a Subarctic river. Water; 11(10), 2058; https://doi.org/10.3390/w11102058

and a rapid increase during freshet. Water elevations are then drawn down through each discharge season before freeze-up in Q4 of each year. The maximum predicted pond volume of 384,000 m^3 occurs in response to elevated precipitation and the retention of water in CP1 to prioritize discharge to Itivia Harbour instead of Meliadine Lake.

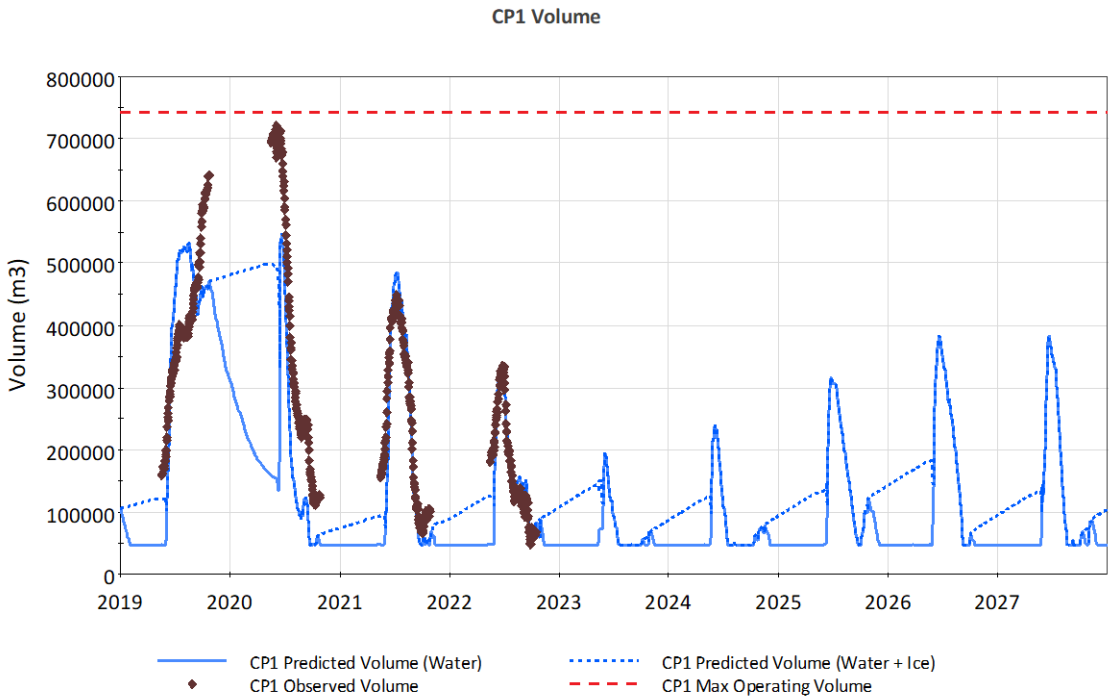

Figure 12: Forecasted and observed CP1 volume.

3.2.4.2 *CP1 Water Quality*

Figure 13: CP1 TDS concentrations for life of mine shows the model results for the TDS concentration in CP1. The TDS trend is characterized by reduced TDS concentration at the onset of freshet followed by increasing TDS concentration as the discharge season progresses. As CP1 volume is reduced, the TDS concentration in the pond is more influenced by the upstream feed water quality as there is less buffering capacity of the water in the pond.

The TDS trend is also characterized by elevated TDS concentration during the winter periods. This a result of the lake ice growth algorithm discussed in section 3.2.3.5. As lake ice grows, the liquid quantity within the pond is reduced while maintaining the pre-ice chemical mass within the pond. As such, the concentration of TDS in the liquid water portion elevates. After the winter period, ice melt occurs and the volume held in ice is returned to the liquid portion, reducing the TDS concentration at freshet.

An anomalously high TDS concentration is observed in the 2025 to 2026 winter period. This is attributed to significant rainfall received in October 2025, following the discharge period. This increase in volume corresponds to an increase in the mass of TDS in CP1 prior to ice formation. As ice forms in the 2025 to 2026 winter period, the liquid portion of water is reduced (driven by the ice growth algorithm), resulting in a higher concentration of TDS in the liquid portion, as the mass of TDS is held constant. The concentration then decreases at freshet, prior to the start of the 2026 discharge period. It is worth

emphasizing that this increase in TDS occurs outside of the discharge season (i.e., during winter months).

Similarly, it should be noted that although annual TDS concentrations rise above the Maximum Authorized Monthly Mean Concentration (MAMMC) of 3500 mg/L most winters, there is no discharge taking place during these periods. The TDS concentration in CP1 during the annual discharge period is predicted to remain below the MAMMC over the life of mine.

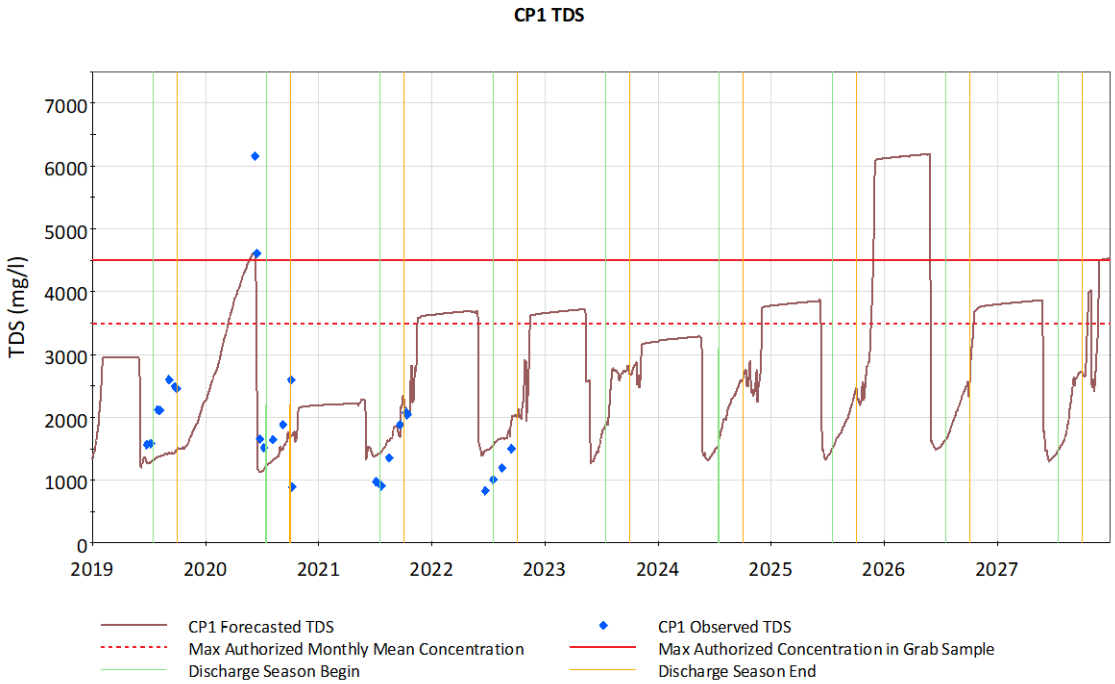

Figure 13: CP1 TDS concentrations for life of mine

All remaining water quality parameters required by the Type A Water Licence 2AM-MEL1631 Part F, Item 3 are within the required criteria (maximum authorized monthly average or sample grab concentration limits). Charts displaying forecasted versus observed concentrations of all Licence parameters in CP1 can be found in Appendix 5.

As in 2021, model predictions overestimated the concentrations of total ammonia and phosphorous compared to observed concentrations in CP1. This result is attributed to nutrient attenuation by algal growth which has periodically been observed in CP1. This nutrient attenuation process is not captured in the GoldSim model, resulting in overestimation of the modelled concentrations. To support this hypothesis, further investigation is required. Validation of cryo-concentrated water (i.e., concentrated liquid water under ice) water quality predictions was not conducted in 2022 as low water levels resulted in CP1 freezing to bottom.

3.2.4.3 *MEL-14 Final Discharge Point Water Quality*

As per the Water License Part E Section 13, results from the WBWQM were compared to Maximum Authorized Monthly Mean Concentrations (MAMMCs) to identify forecasted Mean Annual Concentrations (MACs) that fell within 10% of their respective MAMMCs. Additionally, observed MACs from the current

reporting year were compared to those reported in the previous year to identify parameters whose concentrations have increased by more than 20% year-over-year. The results are discussed below and can be found in Appendix 5, Table 3.

The initial portion of the assessment was conducted using MEL-14 monitoring station data and WBWQM results. MAC results produced by the WBWQM represent dissolved concentrations as TSS is not a modeled parameter. To correct for this, a conservative TSS assumption is applied. It is assumed that treated MEL-14 effluent (represented in the model by CP1 water quality during periods of discharge) contains the MAMMC of 15 mg/L TSS. As a majority of material disturbed by mining operations is comprised of waste rock, the particulate composition of TSS was assumed to have the average elemental concentration of waste rock produced by the project. Table 9**Error! Reference source not found.** presents the particulate fraction concentration per 15 mg/L TSS that was applied to the MAC results from the WBWQM. These particulate fraction values are determined based on the composition of waste rock (ppm or mg of element per kg of waste rock).

Table 9: Suspended Solids Composition and Contribution to total concentrations at MEL-14.

Element	Particulate Composition (ppm or mg of element per kg of rock)	Particulate fraction concentration (mg/L) per 15 mg/L TSS
Al	62700	0.941
As	65.7	0.000985
Cu	70.4	0.00106
Ni	71.6	0.00107
Pb	7.19	0.000108
Zn	84.7	0.00127

Assessment of the TSS-adjusted forecasted MACs identified no parameters falling within 10% of their respective MAMMCs over LOM.

In accordance with the second part of the Licence requirement, average observed copper concentrations rose 23% (0.0020 mg/L to 0.0025 mg/L) from 2021 to 2022, compared to the previous year-over-year increase of 1% from 2020 to 2021. No sources of anomalous copper loading were identified to have occurred in 2022. It is believed the 23% increase is within normal variation, given the 2022 value of 0.0025 mg/L is 1.25% of the copper MAMMC of 0.2 mg/L. At this magnitude, an increase of 23% does not represent a significant increase with respect to the MAMMC.

3.2.4.4 *Tiri 02 Water Volume*

Figure 14 shows the results of the modeled and observed volumes of saline water in Tiri 02. Saline water will be stored in Tiri 02 until 2025 after which water will be discharged through the waterline to Itivia Harbour.

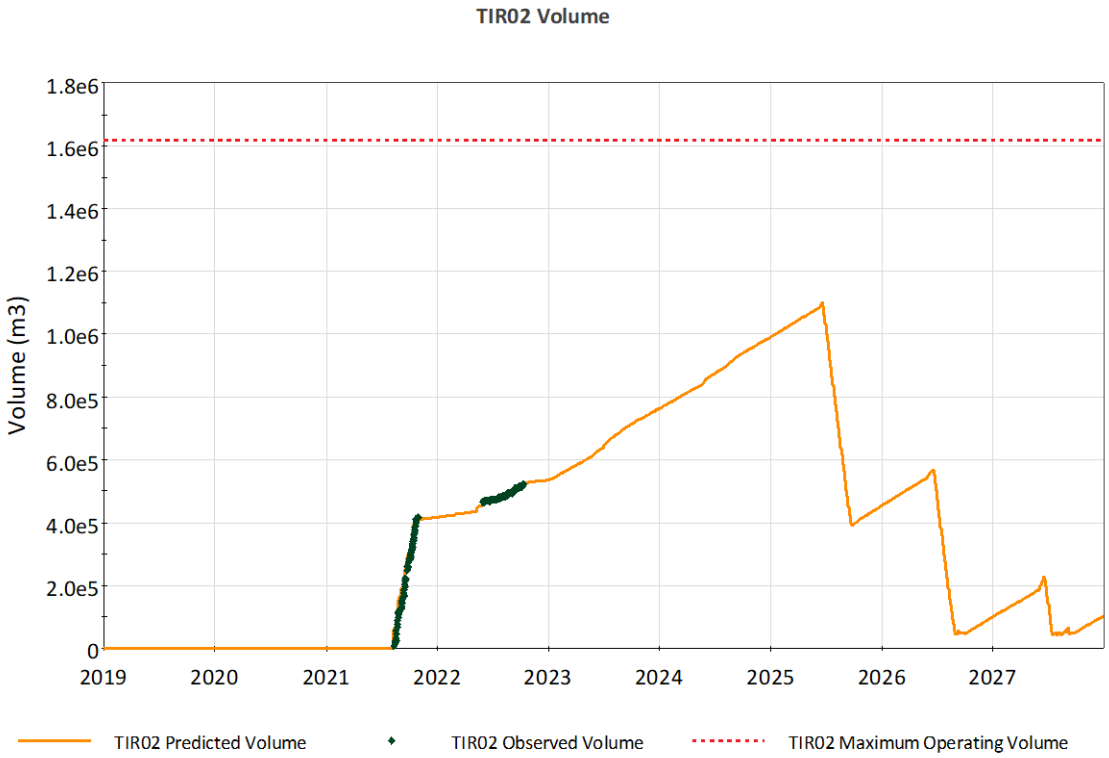

Figure 14: Forecasted saline water volume in Tiri 02 against observed volumes.

Sections 3.2.2.3 and 3.2.2.4 describe the model inputs controlling the volume of water in Tiri 02. An increase in groundwater inflow rates to the underground mine would result in saline water reaching the maximum operating volume sooner. However, actual groundwater inflow rate estimations are presently lower than those predicted in the model.

Figures showing water volume model results for SP4 are presented in Appendix 5.

3.2.4.5 *Tiri 02 Water Quality*

Model results and observed concentrations of TDS, Ammonia and Radium-226 concentrations are shown in Figure 15, Figure 16, and Figure 17. The summary of TDS, Ammonia and Radium-226 forecasted concentrations for TIRI02 is also presented in Appendix 5, Table 4.

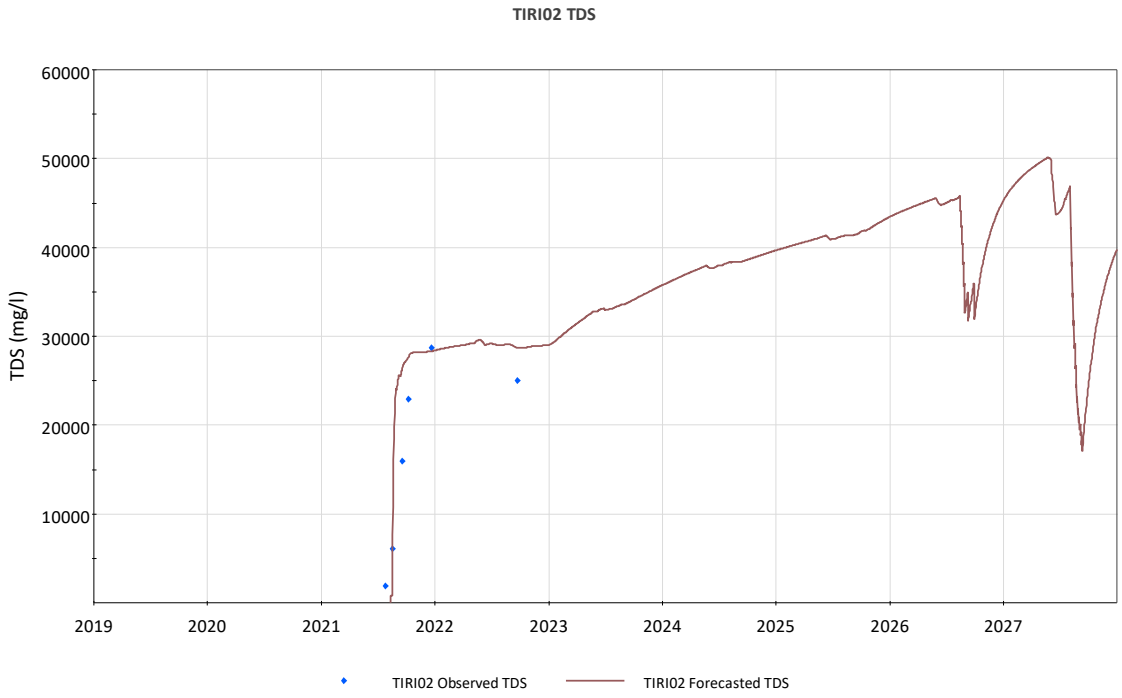

Figure 15. Forecasted versus observed TDS concentrations in TIRI02.

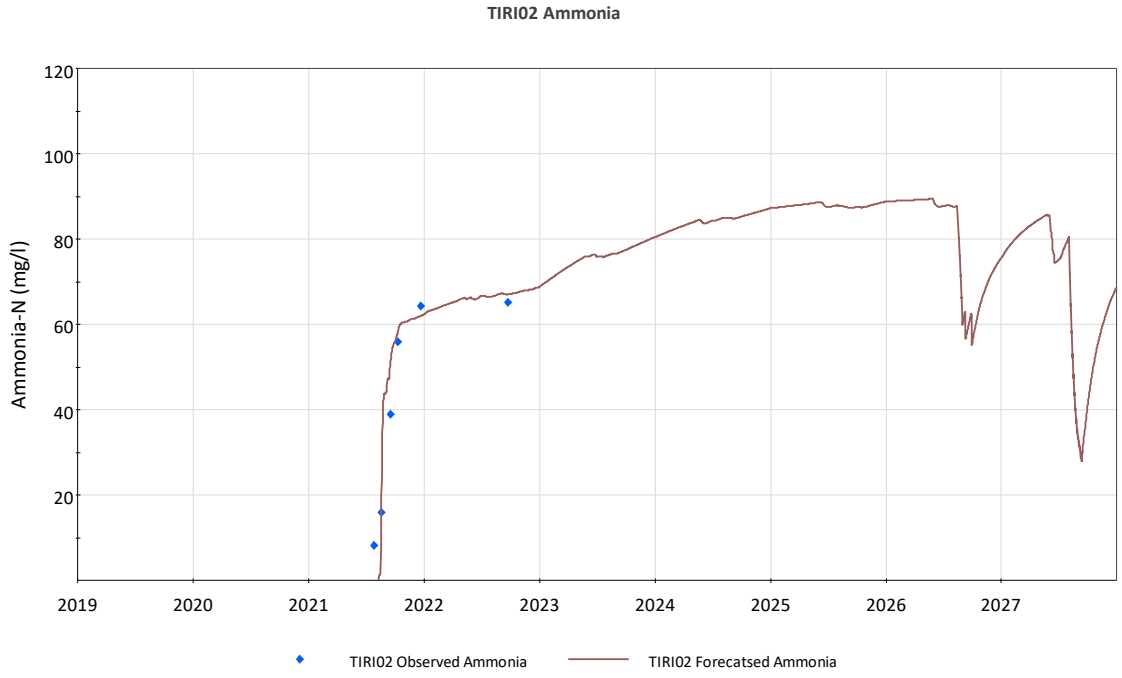

Figure 16 Forecasted versus observed ammonia concentrations in TIRI02.

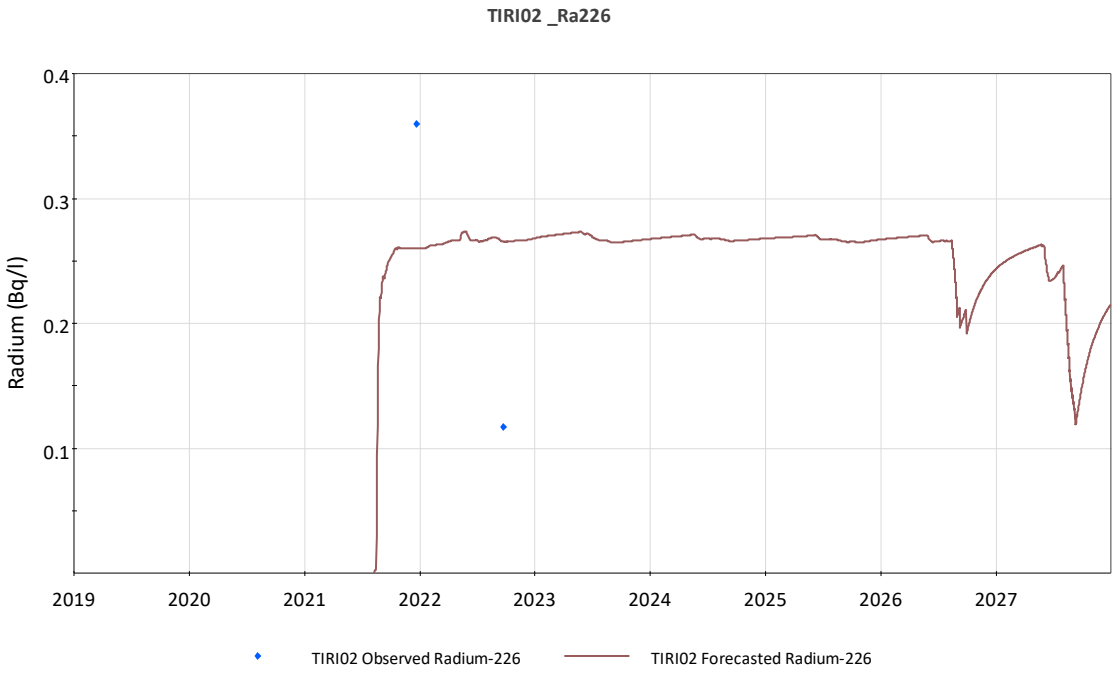

Figure 17. Forecasted versus observed radium concentrations in TIRI02.

Recently observed concentrations of TDS, ammonia and radium were collected from a water column profile conducted in September 2022. As stratification of the water column due to cryo-concentration (as discussed in section 3.1.8) occurs in Tiri 02, a weighting was applied to concentrations measured at varying depth within the water column based on the respective volume associated with each sample depth.

Observed TDS and ammonia concentrations in Tiri 02 generally trend well with predicted values. This is to be expected due to limited inputs and outputs from the facility. Historic water quality reporting to Tiri 02 and flowmeter measured pumping data from underground and SP4 drive the water quality in storage, and thus any retrospective deviation in observed concentration would be due to inaccuracies in historic data or unknown runoff quantities reporting to Tiri 02.

Source term water qualities were based solely on connate groundwater sampling programs, but with the added quantities of water input to the mine via paste flushing, paste backfilling, and potential runoff infiltration, Agnico Eagle will revisit this assumption and refine the model method for the assigned source term water quality pumped to Tiri 02 from the underground mine.

Limited Radium-226 observations in Tiri 02 do not indicate any obvious trends, however monitoring of underground mine water will continue as per the GWMP to identify potential risks associated with radium concentrations.

3.3 WATER QUALITY MANAGEMENT AND OPTIMIZATION PLAN (WQ-MOP)

The Water Quality Management and Optimization Plan (WQ-MOP) was developed to provide a procedure for determining acceptable discharge criteria and an in-lake monitoring benchmark in Meliadine Lake (Golder, 2021). The process included three phases:

- Phase 1: Develop total dissolved solids (TDS) discharge criteria and an in-lake monitoring benchmark for Meliadine Lake during the 2020 discharge season;
- Phase 2: Complete a detailed field study that included fish survival test with the discharge and aquatic organism growth and reproduction tests in the lake, and chemistry analysis of the discharge and the receiving environment on a regular basis;
- Phase 3: Develop long-term discharge criteria and an in-lake monitoring benchmark for Meliadine Lake that will be applicable for future operating conditions at the Meliadine Mine.

At this time, all 3 phases of the WQ-MOP have been completed. The proposed TDS targets for the discharge have been ratified and incorporated as criteria in the Type A Amended Water Licence. The following targets were set from the WQ-MOP:

- A maximum monthly mean concentration (or as per Golder maximum average concentration - MAC) and maximum concentration in a grab sample (or maximum grab concentration - MGC) of 3,500 and 4,500 mg/L TDS, respectively;
- An edge of mixing zone (EoMZ) target of 1,000 mg/L TDS in the Meliadine Lake receiving environment at a radius of 100 m surrounding the diffuser.

An adaptive management strategy is applied for water quality monitoring of CP1 discharge to Meliadine Lake beyond 2020. The thresholds and management responses associated with adaptive management are detailed in Table 10 below.

Table 10: WQ-MOP Thresholds and Management Responses associated with Adaptive Management

Adaptive Management Level	Threshold	Management Activity/Response/Action
Green (Level 0) Normal Operating Condition	Measured concentrations are less than the MAC discharge limit and the edge of mixing zone threshold level	Continue monitoring as per Water Licence requirements Continue water management as per Water Management Plan
Yellow (Level 1)	Two consecutive end-of-pipe TDS concentrations equivalent to, or greater than, the MAC discharge limit, or Two consecutive edge-of-mixing zone TDS concentrations equivalent to, or greater than, 75% of the edge of mixing zone threshold	Conduct a follow-up sampling event to confirm trigger Collect additional edge of mixing zone sample (s) for chronic toxicity testing Increase sampling frequency at the end of pipe to twice weekly or at edge of mixing zone to bi-weekly
Orange (Level 2)	Three consecutive end-of-pipe TDS concentrations equivalent to, or greater than, the MAC discharge limit, or An end-of-pipe TDS measurement is equivalent to, or greater than the MGC	Conduct a follow-up sampling event to confirm trigger Decrease the rate of effluent discharge or temporarily cease pumping of the discharge Consider alternative management of CP1 water (e.g.,

	discharge limit, or Three consecutive edge-of-mixing-zone TDS concentrations equivalent to, or greater than, 75% of the edge-of-mixing zone threshold	divert to waterline)
Red (Level 3)	Two consecutive end-of-pipe TDS concentrations greater than 4,500 m/L	Cease pumping of the discharge to Meliadine Lake Conduct a follow-up sampling event to confirm trigger Consider alternative management of CP1 water, such as diversion of CP1 water into the waterline

In 2022, the adaptive management level remained in in the Green (Level 0) – Normal Operating Conditions, as all TDS concentrations measured at MEL-14 were below the MAC and the edge of mixing zone samples were below the threshold level. Hence, monitoring was conducted according to the Water Licence and the Water Management Plan. Results are presented and discussed in more details in section 7.3.1 below.

3.4 ADDITIONAL INFORMATION

As required by Water License 2AM-MEL1631 Schedule B, Item 26*: Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.*

And

As required by water license 2BB-MEL1424 Part B Item 6n*: Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported*

No additional information was requested in 2022.

SECTION 4. CRITICAL INFRASTRUCTURE MANAGEMENT ACTIVITIES

4.1 GEOTECHNICAL MONITORING

The safe and responsible management of critical infrastructure is a core activity for Agnico Eagle. A primary objective of Agnico Eagle's governance policy for critical infrastructure is to assure a high standard of care is applied to the entire lifecycle: design, construction, operation, closure and legacy (for elements of critical infrastructure that must function beyond closure).

The primary elements of the policy are:

- The development of specific roles with specific responsibilities;
- Regular and consistent reporting;
- Accountability at all levels, from operations to corporate;
- The use of Best Available Technology (BAT) and Best Applicable Practices (BAP); and
- The use of a risk-based approach to manage the risks associated with critical infrastructure.

As required by water license 2AM-MEL1631 Part I, Item 14: ***The Licensee shall submit to the Board as part of the Annual Report required by Part B, Item 2, a Geotechnical Engineer's Inspection Report. The Report shall include a cover letter from the Licensee outlining an implementation plan addressing each of the Geotechnical Engineer's recommendations.***

And as required by water license 2AM-MEL1631, Schedule B, Item 1*:*

a. An overview of methods and frequency used to monitor deformations, seepage and geothermal responses;

The performance of the dikes (D-CP1 and D-CP5) is assessed according to the guidelines provided in the Operation, Maintenance and Surveillance (OMS) manual for the facilities. This program consists of both documented visual inspections and geotechnical instrumentation monitoring. In 2022, visual inspections were conducted according to the following schedule:

- Daily – Conducted by personnel working on or adjacent to the water management infrastructure as part of their daily activities, such as environmental technicians, survey staff and dewatering crews.
- Weekly - Conducted during open water season by a qualified engineer or technician;
- Monthly – Conducted during open water season by the Agnico Eagle Responsible Person; and
- Annual – Conducted by a third party consulting engineer (Tetra Tech) during open water season.

The visual inspections include observations of cracking, settlement, seepage and deformation in addition to photographs. Any areas of movement are marked both physically on the dikes themselves by spray painting the locations and on plan drawings of the facilities in order to track changes in conditions.

In addition to the monthly documented visual inspection (during open water), a review of the operational performance and assessment of the geotechnical monitoring instrumentation is conducted every month

by the Responsible Person. The schedule of collecting monitoring data in 2022 generally followed the OMS guidelines and is summarized in Table 11.

Table 11: Summary of 2022 Permanent Dike Geotechnical Monitoring Program

Instrumentation	Frequency of Data Collection
Thermistors	Updated twice per day (data loggers)
Survey Monuments	Monthly
Upstream Water/Ice Elevations	Daily (Open water); Monthly (Ice)

The performance of all other water management and earthworks structures were assessed in 2022 during the Annual Geotechnical Inspection conducted by Tetra Tech. The results of this inspection are available in Appendix 6.

b. A comparison of measured versus predicted performance;

Based on the visual inspections and geotechnical monitoring data, the permanent water retention dikes (D-CP1 and D-CP5) are generally performing as expected, with no significant geotechnical concerns identified in 2022. Deformation, seepage and geothermal response will continue to be monitored as per the OMS guidelines throughout 2023.

No significant geotechnical concerns were noted with any other water management infrastructure during the annual inspection. The results of this inspection and detailed analysis are available in Appendices 6 to 8.

c. A discussion of any unanticipated observations including changes in risk and mitigation measures implemented to reduce risk;

There were no unanticipated observations in 2022.

d. As-built drawings of all mitigation works undertaken;

Mitigation works undertaken in 2022 included the addition of run-of-mine rockfill near collection pond 4 (CP4) and downstream of D-CP1. An as-built drawing of the fill placed near CP4 and placed at the downstream of D-CP1 are included in Appendix 9.

e. Any changes in the design and/or as-built condition and respective consequences of any changes to safety, water balance and water quality;

Run-of-mine rockfill was added between the Berm CP4 and CP4 and downstream of D-CP1. The finished surface of the rockfill placed near CP4 was graded towards CP4 while the fill placed downstream of D-CP1 was graded towards the collection channel. The fills were placed to limit water ponding and improve the performance of the structures. No meaningful changes are expected to the water quality of these structures and there are no expected changes to the water balance.

f. Data collected from instrumentation used to monitor earthworks and an interpretation of that data;

It should be noted that data presented in subsections 4.1.1 to 4.1.8 below was collected from instrumentation at the end of year (November and December 2022).

4.1.1 Instrumentation at D-CP1

Horizontal ground temperature cable (GTC) plots indicate a cooling trend in the base of the key trench over 2022, with an average decrease of -0.3°C occurring over the past year. The reversal of the previous warming trend is considered due to a combination of a cold 2021/2022 winter and reduced snow accumulation on the dike. The plots are shown in Appendix B of the 2022 Annual Geotechnical Inspection Report (Appendix 6). Temperatures in the key trench ranged from an average high of –4.0°C in early January 2022 to an average low of -8.0°C in early June 2022. Generally, the average horizontal ground temperature cable nodes at the base of the key trench have remained below -3.5°C throughout the year.

Vertical ground temperature cable plots shown in Appendix B of the 2022 Annual Geotechnical Inspection Report (Appendix 6) indicate that the dike remained below 0°C until June 2022 and after November/December 2022, while the foundation remained below 0°C throughout 2022.

D-CP1 survey monitoring points M-1 to M-6 indicate a range of total vertical displacement between 33 mm and 92 mm since they were installed on September 19, 2017. The dike operating water levels were based on a settlement of 120 mm; the measured settlement has been less than this to date.

4.1.2 Instrumentation at D-CP5

Horizontal ground temperature cable plots shown in Appendix E of the 2022 Annual Geotechnical Inspection Report (Appendix 6) indicate a cooling trend on average of -0.6°C in the key trench from January 2022 to January 2023. The reversal of the previous warming trend is considered due to a combination of a cold 2021/2022 winter and reduced snow accumulation on the dike. The average temperatures in the key trench ranged from –8.2°C in May 2022 to an -3.2°C in December 2022.

Three settlement survey monuments were installed over the liner crest in the dike. CP5 survey monitoring points indicate a settlement between 24 and 61 mm since installation. The dike operating water levels were based on a settlement of 100 mm; the measured settlement has been less than this to date.

4.1.3 Thermistors in the P-Area

The P-Area was decommissioned in 2020. The thermistors previously located on berm DP1B (DP1B-1 and DP1B-2) were removed in 2021. The thermistors on berm DP2A (DP2A-1) and berm DP3A (DP3A-1, DP3A-2, and DP3A-3) are still in place and temperature measurements are recorded four times per year. Thermistors records are provided in Appendix 6.

4.1.4 Thermistors in Berm CP2

Three (3) GTCs (GTC-01, GTC-02, and GTC-03 Berm CP2) were installed in Berm CP2 to measure the active layer depth in the berm and subgrade ground temperatures during the construction of CP-2 Pond, thermal berm and associated drainage channels this year. The GTC plots are shown in Appendix C of the 2022 Annual Geotechnical Inspection Report (Appendix 6). The maximum active layer depth in 2022 ranged from 1.4 m to 1.6 m. The ground temperature at Elevation 52.7 m ranged from –7.5°C to –7.9°C on November 26th, 2022.

4.1.5 Thermistors in Berm CP3

Three (3) GTCs (GTC-01, GTC-02, and GTC-03 Berm CP3) were installed in Berm CP3 to measure the active layer depth in the berm and subgrade ground temperatures. The GTC plots are shown in Appendix D of the 2022 Annual Geotechnical Inspection Report (Appendix 6). The maximum active layer depth in 2022 varied from 2.5 m to 4.0 m. The ground temperature at Elevation 63.0 m ranged from –4.2°C to –4.8°C on November 26th, 2022.

4.1.6 Thermistors in Berm CP4

Two (2) GTCs (GTC-01, GTC-02 Berm CP4) were installed in Berm CP4 to measure the active layer depth in the berm and subgrade ground temperatures. The GTC plots are shown in Appendix D of the 2022 Annual Geotechnical Inspection Report (Appendix 6). The maximum active layer depth in 2022 ranged from 2.4 m to 2.5 m. The ground temperature at Elevation 63.0 m ranged from –5.0°C to –5.2°C on November 26, 2022.

4.1.7 Thermistors in Berm CP6

Three (3) GTCs (GTC-01, GTC-02, GTC-03 Berm CP6) were installed in Berm CP6 to measure the active layer depth in the berm and subgrade ground temperatures. The GTC plots are shown in Appendix G of the 2022 Annual Geotechnical Inspection Report (Appendix 6). The maximum active layer depth in 2022 ranged from 2.4 m to 2.6 m. The ground temperature at Elevation 60.0 m ranged from –6.1°C to –6.6°C on November 26, 2022.

4.1.8 Other Thermistors

In addition to recently installed thermistors to monitor temperatures in and below critical water management infrastructures, numerous other thermistor cables have been installed around the mine site to monitor natural ground temperatures as part of previous ground investigation campaigns. In 2022, a total of three (3) new thermistor cables were installed on site. These three (3) were installed in Berm CP2 to measure the active layer depth in the berm and subgrade ground temperatures.

Top priority (P1) is now given to reading thermistors installed in existing infrastructure, with these readings typically taken on a monthly basis for the first year then quarterly afterwards, with the exception

of the dikes and the TSF. Shallow GTCs installed in areas of potential future expansion are given the next priority (P2) with a quarterly reading frequency, followed by deep thermistors in future deposition areas which are read bi-yearly (P3). Also read twice per year are any additional cables located around the site (P4). The updated location of these thermistors is provided in the 2022 Geotechnical Inspection Report (Appendix 6).

Seven (7) of the previously installed site thermistors were functional in 2022. Readings taken in 2022 in the remaining operational site-wide thermistors are generally consistent with previous trends.

g. A summary of maintenance work undertaken as a result of settlement or deformation of dikes and dams; and berms

As discussed above in Sections *d* and *e*, run-of-mine rockfills was added between the Berm CP4 and CP4 and also downstream of D-CP1. The finished surfaces of the rockfill placed near CP4 was graded towards CP4 while that the fill placed downstream of D-CP1 was graded towards the collection channel. As-built drawings of the fill placed near CP4 and of the fill placed downstream of D-CP1 are shown in Appendix 9. The fills were placed to limit water ponding and improve the performance of the structures.

4.1.9 Permafrost monitoring

In general, permafrost aggrades into the fills placed on the natural ground and Agnico Eagle has not observed permafrost degradation across the industrial pad. Some localized permafrost degradation has been observed within/adjacent to some of the water management structures (downstream collection channel of D-CP1, CP3, CP4, channel 1, channel 3 and access, channel 5, channel 9, and channel 10) as well as the saline water treatment plant. These areas correspond to areas where ice rich materials are present within the natural ground and where the natural vegetation has been removed and/or where water is allowed to accumulate. Agnico Eagle monitors these areas and repairs them when required. Additionally, the lessons learned from the performance of older infrastructure is being implemented into new infrastructure to minimize future permafrost degradation.

Further information on the observed localized permafrost degradation (areas of settlement) can be found in the 2022 Annual Geotechnical Inspection Report (Appendix 6).

4.1.10 Follow-up on 2021 Annual Report Comments

As per answers provided to the NIRB on the 2021 Annual Report Comments (CIRNAC-3), a discussion is provided below on whether the presence of elevated TDS in waste rock and tailings has the potential to affect the long-term performance of the WRSF and TSF.

Testing to determine the unfrozen water content curve below 0°C on the tailings was completed in December 2022, the results are under review and may be incorporated into future designs of the TSF if significantly different from the assumptions already used.

The current TSF design is such that it remains physically stable under thawed conditions. Therefore, freezing point depression due to TDS within the pore water of the tailings is not expected to negatively affect the long-term physical performance of TSF.

The current WRSF designs are such that they remain physically stable under thawed waste conditions. Therefore, freezing point depression is not expected to negatively affect the long-term physical performance of WRSF's.

Further, to follow-up on the answer provided to the NIRB on the 2021 Annual Report Comments (KivIA-14),
the sediment observed at the toe of the TSF is a combination of dust and fines from the rockfill shell that washes down slope as the snow accumulation melts during freshet and following precipitation events.

4.2 GEOCHEMICAL MONITORING

This section provides a summary of geochemical monitoring results conducted in 2022. Additional information, including summary statistics and complete ABA and elemental composition results, can be found in the 2022 Metal Leaching and Acid Rock Drainage Monitoring Report in Appendix 10 of the Annual Report.

In accordance with Water License 2AM-MEL1631 Schedule B, Item 9*: Geochemical monitoring results including:*

a. Operational acid/base accounting and paste pH test work used for waste rock designation (PAG and NPAG rock);

The Acid/Base Accounting (ABA) and paste pH test work used for waste rock designation is in the 2022 Metal Leaching and Acid Rock Drainage Monitoring Report located in Appendix 10 and summarized below.

b. As-built volumes of waste rock used in construction and sent to the Waste Rock Storage Facilities with estimated balance of acid generation to acid neutralization capacity in a given sample as well as metal toxicity;

Waste rock from the mining activities in the open pits and underground was placed in WRSF1, WRSF3 or was used for construction purposes in 2022. As built volumes of waste rock used in construction and sent to the WRSFs are presented in the Mine Waste Management Plan (Appendix 31).

All monitoring data with respect to geochemical analysis carried out at the Meliadine Mine in 2022 can be found in the 2022 Metal Leaching and Acid Rock Drainage Monitoring Report located in Appendix 10.

c. All monitoring data with respect to geochemical analyses on site and related to roads and quarries;

All monitoring data with respect to geochemical analysis carried out at the Meliadine Mine in 2022 can be found in the 2022 Metal Leaching and Acid Rock Drainage Monitoring Report located in Appendix 10.

d. Leaching observations and tests on pit slope and dike exposure;

Leaching was not observed on the dike exposures (D-CP1 and D-CP5) or the pit slopes (Tiriganiaq Open Pit 1, Tiriganiaq Open Pit 2, SP1, SP4, CP2, CP3, CP4, and CP6).

e. Any geochemical outcomes or observations that could imply or lead to environmental impact;

No outcomes or observations implying to or leading to environmental impact occurred in 2022. The majority of the geochemical samples were observed as having low potential for Acid Rock Drainage (ARD) generation (i.e., non-PAG). Two samples of underground waste rock were classified as *uncertain*, meaning that there is an uncertain chance that the samples in question have the potential to produce ARD. One sample from open pit was classified as potentially acid generating (PAG), meaning there is the potential for the rock to produce ARD.

These 3 samples are considered a low risk given the excess neutralization in all other waste rock samples collected and represent a minor proportion (< 1%) of all waste rock samples collected in 2022 (i.e., 384 samples for open pit and underground waste rock, excluding duplicate samples). It also should be noted that a considerable quantity (421,116 tonnes) of underground waste rock was kept underground for backfilling purposes.

f. Geochemical data associated with tailings solids, tailings, cyanide leach residue, and bleed from the cyanide destruction process including an interpretation of the data;

The geochemical monitoring data associated with the filtered tailings is included in Appendix 10 with a summary explained below in section 4.2.4. A discussion of the tailings supernatant and bleed from the cyanide destruction process is included in section 4.2.5 concurrent with the tailings supernatant.

g. Results related to the Borrow pits/ quarries and roads, including the All-Weather Access Road.

No samples were collected from the Borrow pits/quarries in 2022.

4.2.1 ARD Assessment Methodology

Neutralization Potential

Based on Agnico Eagle's Geochemical Characterization Guide (2021), results of Modified Sobek NP should be compared with NP calculated from carbonate, and subsequently the more conservative method used to represent Neutralization Potential (NP) in NPR calculation and ARD assessment.

In 2021, NP quantified from the Modified Sobek titration method (NP-mod) was consistently lower when compared with NP calculated from carbonate (NP-Ca) and therefore NP-mod was used for ARD assessment. It should be noted that in previous years, NP-Ca was used since it was the more conservative parameter at the time of interpretation. The change to NP-mod in 2021 compared with previous years is attributed to carbonate content which was biased low in laboratory analyses conducted prior to April 2021 with the pyrolysis method, as discussed in Section 3 of Appendix 10 of the 2021 Annual Report.

Furthermore, following the carbonate re-analysis investigation detailed in Section 3 of Appendix 10, SRK Consulting recommended the use of Modified Sobek NP (NP-mod) for ARD potential calculations moving

forward (SRK 2021) due to the presence of the iron and manganese bearing carbonates (ankerite and siderite), which cause NP-Ca to overestimate actual NP.
Therefore, NP-mod was used for ARD calculations in 2022.

Acidic Potential

Acid Potential (AP) was calculated based on the amount of sulphide sulphur, calculated by difference of total sulphur and sulphate sulphur, as per Agnico Eagle's Geochemical Characterization Guide (2021). As stated in Agnico Eagle's 2020 Metal Leaching and Acid Rock Drainage Monitoring Report, project prediction studies indicated that the main sulphide minerals in the waste rock was pyrite, but also with arsenopyrite and lesser pyrrhotite, and chalcopyrite (Golder, 2014). As a result, the main consideration for AP is the presence of sulphide minerals at Meliadine.

ARD Assessment

The potential for ARD was assessed using NP/AP ratios (or neutralization potential ratios, NPR). Ratios below 2 were used to indicate potential for ARD (PAG or potentially ARD generating), whereas ratios above 2 indicate low potential for ARD (non-PAG). Ratios between 1 and 2 are considered *uncertain*, meaning that there is an uncertain chance that the samples in question have the potential to produce ARD.

4.2.2 Underground waste rock

ARD Potential

ARD classification for 2022 samples is presented in Appendix 10. As predicted by Golder (2014), the majority of operational waste rock samples collected to date are non-PAG.

Two (2) 2022 samples fall within the "uncertain" classification. These samples represent a total of 3575 tonnes of waste, of which 2872 tonnes were brought to surface. Underground waste brought to surface was placed on the TSF for progressive reclamation covering.

These samples are considered a low risk given the excess neutralization in all other samples collected.

Metal Leaching

Metal leaching was predicted by Golder (2014) to be low enough that management of waste rock to inhibit leaching was not required. However, based on project screening studies, arsenic was determined to be the main element of interest and analysis of this element (and all regulated elements) were part of operational monitoring since mining began.

To ensure arsenic concentrations are within project predictions, results have been compiled and compared against average and maximum arsenic concentrations reported by Golder (2014). Solid phase arsenic concentrations mainly fall within the average concentration, with only one sample in the past six years exceeding the maximum concentration reported by Golder (2014). A statistical summary for arsenic with complete element composition are provided in the 2022 Metal Leaching and Acid Rock Drainage Monitoring Report in Appendix 10 of this document.

4.2.3 Tiriganiaq Open Pit 1 Waste Rock

ARD Potential

One sample collected in 2022 had an NPR below 1, with all remaining samples in 2022 yielding NPRs greater than 2. This sample, with an NPR of 0.96 (indicating PAG), was collected near a narrow, localized band of iron formation containing sulphides. This zone is isolated (terminates) in the pit wall and does not continue in the rest of the future pit development area.

As TIR01 is often used to source rock for construction of infrastructure, an investigation was initiated into the potential for the rock represented by the PAG sample to have been used for fill outside of the waste rock storage facilities (WRSFs). The investigation revealed that the sample was collected from a large blast pattern consisting of 23,712 tonnes, of which 210 tonnes of rock was used as fill material on the mine service road to soften a road hump. The investigation concluded that the rock represented by the sample was not part of the material used for the roadwork and was instead deposited in WRSF.

As due diligence, Agnico Eagle will collect rock samples originating from this blast pattern from the fill used on the service road for additional ARD testing to confirm no PAG material was used.
This sample is considered low risk given the excess neutralization potential in the other samples collected in 2022.

Metal Leaching
Metal leaching was predicted by Golder (2014) to be low enough that management of waste rock to inhibit leaching was not required. However, based on project screening studies, arsenic was determined to be the main element of interest and analysis of this element (and all regulated elements) were part of operational monitoring since mining began.

To ensure arsenic concentrations are within project predictions, results have been compiled and compared against average and maximum arsenic concentrations reported by Golder (2014). Solid phase arsenic concentrations mainly fall within the average concentration, with no samples exceeding the maximum concentration reported by Golder (2014) (Appendix 10).

4.2.4 Filtered Tailings

ARD Potential

Samples collected in 2022 had an average NPR of 2.3, while three (3) samples had an NPR below 1.

Despite the presence of tailings samples classified as PAG and uncertain from 2019 to 2022 sampling, Agnico Eagle does not consider the tailings to pose an ARD risk for the site, for the following reasons:

- the tailings are being stored in a facility that will freeze back (i.e. re-develop permafrost) and inhibit water movement within a few years post-operations;
- placement of the tailings includes compacting by a vibrator packer and sloping to shed water off the facility, which will lower oxygen diffusion into the tailings and limit water contact, both established mechanisms to reduce ARD;
- there is enough carbonate in the tailings that ARD may never occur as the actual ratio that ARD onset is expected is much closer to 1.0;

- if ARD could develop, permafrost freeze back will occur before (at least one hundred years before) the onset of ARD due to the amount of carbonate in the tailings and arctic climate slowing reaction rates. The late potential onset of acidic conditions is based on the slow oxidation rate of sulphides, and therefore slow rate of neutralization consumption of carbonates and if slow enough, silicate neutralization. While tailings may be classified as uncertain, they still contain enough carbonate to neutralize the acidity produced until many decades after operations have ended. Furthermore, it is also worth noting that the analytical laboratory completed an investigation showing that past carbonate analyses were biased low (section 3), meaning that there is more carbonate than previously shown, which would only extend the delay to consumption of carbonate; and

progressive reclamation is a part of the facility management for closure, meaning a cover will be placed over most of the tailings before the mine ceases operations.

Metal Leaching

Given the presence of arsenic in the ore rock and background concentrations in the area, results for this element are summarized below and presented in Appendix 10.

Arsenic concentrations in filtered tailings samples ranged from a minimum of 5,800 mg/kg to a maximum of 14,000 mg/kg, with a median of 8,800mg/kg in 2022. These values are higher when compared to waste rock since ore is associated with increased abundances of sulphides, including arsenopyrite.

Forecasted arsenic concentrations in surface contact water across life of mine are provided in the water balance and water quality model (WBWQM) as part of the Annual Report (section 3.2).

4.2.5 Filtered Tailings Supernatant

Sampling of the filtered tailings supernatant began in June of 2019 and continued in 2022 with sampling occurring on a regular basis. Since this water is recycled through the mill, it also contains cyanide leach residue and the bleed from the cyanide destruction circuit. Water is filtered off the tailings from the filter press and samples are collected from the effluent downstream of the filter press. Since this effluent is recycled through the mill and is not discharged, with the exception of the water contained in the filtered tailings, it is not surprising to see the metals and general parameters becoming concentrated as the mill uses little fresh water to make up the water that is entrained with the filtered tailings.

At the end of February 2022, one tailings liquid sample was not collected due to the shutdown at the mill. Beginning of May 2022, the tailings liquid sampling point was under construction and 2 scheduled samples were cancelled during this period.

Appendix 11 indicates the results of the tailings supernatant sampling in 2022. As the water is recycled through the mill, the metals, TDS and other parameters initially increased and then have stabilized in 2019 while others have slowly increased. In 2022, the metals and other parameter concentrations were in general consistent throughout the year and similar to 2021. Dissolved metals are discussed below rather than total metals as there may be some interference from the solid tailings if the filter press is not functioning as per design.

For dissolved arsenic, values in 2022 were slightly lower to 2021 values as milling continued throughout 2022. The minimum value of dissolved arsenic was 0.848 mg/L with the maximum value at 20.1 mg/L. The dissolved arsenic mean value for 2022 was 6.84 mg/L. These numbers are not unexpected as the gold is associated with sulphides, such as arsenopyrite, and the water is recycled through the mill. Total cyanide values were variable during the year. The highest concentration for total cyanide was recorded on August 21 at 211 mg/Land the lowest concentration was measured for the sample collected on October 2 at 1.9 mg/L mg/L. The mean for 2021 was 41.6 mg/L.

It is important to state again that the water in the mill is recycled and only a small portion of the mill effluent is entrained in the filtered tailings. As discussed in section 7.3.1.18 Agnico Eagle is monitoring the water quality in CP3 as per the Water Licence requirements.

4.3 WASTE ROCK AND ORE STOCKPILED ON SITE

In accordance with Water License 2BB-MEL-1424 Part B Item 6c*: An estimate of the current volume of waste rock and ore stockpiled on site;*

See Table 4.1 of the Mine Waste Management Plan (MWMP) for as-built and expected waste rock usage on site per major location. Plans and sections of WRSF1 and of WRSF3 at the end of 2022 are presented in Appendix 12. Waste rock was placed in accordance with Mine Waste Management Plan.

See Table 4.3 of the Ore Storage Management Plan (OSMP) for as-built and expected ore stored on site at OP2.

An estimate of waste rock temporally stored in OP1 and OP2 and ore stockpiled on OP1 is provided in Table 12 below. The monthly cumulative stockpiles vary (and can go down) according to production and construction needs.

Table 12: Ore and waste rock stockpiles on site excluding major locations (Tonnes) [8]

Date	Underground Ore	Open Pit Ore	Cumulative Ore	Waste Underground	Waste Open Pit	Waste Cumulative
19-Jan			176,779			101,661
19-Feb			170,116			148,632
19-Mar			138,423			195,971
19-Apr			117,832			208,337
19-May			105,348			123,660
19-Jun			125,705			20,280
19-Jul			127,396			16,966
19-Aug			113,351			22,843
19-Sep			118,412			12,360
19-Oct			123,236			18,384
19-Nov			129,868			49,420

[8] Major locations refer to WRSF1 and WRSF3 for the waste rock, and OP2 for the ore. As mentioned above, as-built and expected waste rock and ore stockpiled at major locations on site are provided in the MWMP and OSMP, respectively.

Date	Underground Ore	Open Pit Ore	Cumulative Ore	Waste Underground	Waste Open Pit	Waste Cumulative
19-Dec			144,088			499,600
20-Jan	192,736	-	192,736			83,489
20-Feb	220,468	-	220,468			110,236
20-Mar	199,258	-	199,258			85,623
20-Apr	151,789	-	151,789			No Survey
20-May	101,101	546	101,647			74,544
20-Jun	79,320	9,852	89,172			No Survey
20-Jul	61,716	22,316	84,032			13,173
20-Aug	61,192	31,358	92,550			31,952
20-Sep	61,547	38,956	100,503			10,620
20-Oct	72,106	48,205	120,311			46,017
20-Nov	71,357	82,890	154,247			No Survey
20-Dec	59,886	120,719	180,605			22,539
21-Jan	107,237	57,802	165,039	1,188	-	1,188
21-Feb	103,517	74,224	177,741	-	-	-
21-Mar	99,629	51,213	150,842	1,055	2,100	3,155
21-Apr	112,868	56,981	169,849	1,164	11,261	12,425
21-May	135,807	70,344	206,151	1,164	5,149	6,313
21-Jun	155,799	7,163	162,962	-	5,149	5,149
21-Jul	135,738	11,654	147,392	880	-	880
21-Aug	148,165	33,289	181,454	880	-	880
21-Sep	185,426	50,689	236,115	880	11,825	12,705
21-Oct	178,361	113,103	291,464	-	-	-
21-Nov	202,190	187,688	389,878	-	-	-
21-Dec	204,988	217,296	422,284	-	-	-
22-Jan	2,169	-	2,169	1,571	1,364	2,935
22-Feb	1,273	-	1,273	-	-	-
22-Mar	289	-	289	10,880	-	10,880
22-Apr	658	-	658	84	-	84
22-May	720	-	720	13,819	-	13,819
22-Jun	2,292	-	2,292	18,885	4,445	23,330
22-Jul	1,068	-	1,068	5,620	-	5,620
22-Aug	1,013	-	1,013	8,653	-	8,653
22-Sep	777	-	777	1,180	-	1,180
22-Oct	3,009	-	3,009	10,275	1,469	11,744
22-Nov	1,312	-	1,312	2,746	-	2,746
22-Dec	1,820	-	1,820	54,176	-	54,176

As per answers to 2021 Annual report Comments provided to the NIRB (CIRNAC-4), Table 13 below presents year-over-year quantities of actual waste rock and ore tonnage compared to the FEIS predicted quantities.

Table 13: Actual waste rock and ore tonnage compared to FEIS predictions

Year	Actual Waste Rock tonnage[1]	FEIS Waste Rock predicted tonnage[2]	Actual Ore Tonnage[3]	FEIS Ore predicted tonnage[2]
2019	718,955	13,416,000	1,108,666	661,000
2020	4,003,532	38,017,000	1,402,899	2,370,000
2021	5,081,872	37,800,000	1,960,544	3,501,000
2022	3,625,178	18,199,000	1,778,834	1,658,000

1 From MWMP, Table 4.1

2 From FEIS SD 2-8 Mine Waste Management Plan – Meliadine Gold Project, Nunavut, Table 1 (Agnico Eagle 2014)

3 From OSMP, Table 3.2

4.4 TAILINGS STORAGE FACILITY

4.4.1 Tailings Storage Facility Capacity

As required by Water License 2AM-MEL1631 Schedule B, Item 10*: An update on the remaining capacity of the Tailings Storage Facility.*

Active tailings placement into the tailings storage facility (TSF) continued throughout the year. A total of 794,796 m^3 (1,311,413 t) of tailings were placed in the facility in 2022 for a remaining design capacity of 3,846,844 m^3 (6,347,293 t) as shown in Table 14. Plans and cross sections of the TSF at the end of 2021 and 2022 are presented in Appendix 13.

In addition to tailings, a total of 133,322 m^3 (250,645 t) of waste rock was placed as progressive cover material around the side-slopes of the facility in 2022. According to design specifications, an additional 847,225 m^3 (1,592,783 t) of rock remains to be placed.

Tailings were placed in accordance with Mine Waste Management Plan.

Table 14: 2021 Volumes of Material Placed in TSF

	Tailings Placed (m^3)	Waste Rock Placed (m^3)
January 2022	**57,723**	**7,948**
February 2022	**75,495**	**7,354**
March 2022	**70,007**	**12,778**
April 2022	**70,349**	**17,631**
May 2022	**52,454**	**7,464**
June 2022	**96,067**	**13,249**
July 2022	**49,758**	**12,373**
August 2022	**63,382**	**2,439**
September 2022	**51,212**	**12,975**
October 2022	**49,233**	**19,137**
November 2022	**75,599**	**8,997**
December 2022	**86,517**	**10,977**
Total 2022	**794,796**	**133,322**
Total at end of 2022	**2,771,415**	**427,900**
Remaining Capacity	**3,846,844**	**847,255**

4.4.2 Tailings Freeze-back and Capping Thickness

As required by Water License 2AM-MEL1631 Schedule B, Item 19: ***A summary of on-going field trials to determine effective capping thickness for the Tailings Storage Facility and Waste Rock Storage Facilities for the purpose of long term environmental protection.***

No field trials to determine effective capping thickness for the TSF were undertaken in 2022. Tailings freeze-back however, was monitored monthly through the four (4) thermistors installed in 2019 and an addition four (4) thermistors installed in 2022 to monitor the tailings at elevations above the original instruments. The data indicates that tailings material monitored by the thermistors were generally frozen throughout the year, except near the placement elevation and all tailings were frozen by December 2022.

Temperatures in the original ground below the TSF were continuously below 0°C throughout 2022. Figures displaying the GTC data from the various TSF thermistors are located in Appendix J of the 2022 Geotechnical Inspection Report (Appendix 6).

SECTION 5. WASTE MANAGEMENT ACTIVITIES

5.1 LANDFILL AND LANDFARM MONITORING

As required by Water License 2AM-MEL1631 Schedule B, Item 11: ***Summary of quantities and analysis of Seepage and runoff monitoring from the Landfill, Landfarm, Waste Rock Storage Facilities, Borrow pits and Quarries.***

and

As required by Water License 2AM-MEL1631 Schedule B, Item 12: ***Summary report of all general Waste disposal activities including monthly and annual quantities in cubic metres of Waste generated and locations of disposal.***

The landfill and the landfarm were commissioned in November 2017. No seepage was observed from either facilities in 2022. Monitoring and inspection will continue on a regular frequency.

No seepage was observed around operating quarries and borrow pits located on site and along the AWAR as per routine inspections completed by the Environment Department.

All waste, produced at Meliadine, falls into 4 major categories:

1) Hazardous waste;
2) General (dry, non-hazardous) waste;
3) Food waste; and
4) Contaminated soil.

Hazardous waste (including paint, environmentally hazardous substances, hydrocarbon contaminated soil non-treatable at the Landfarm, oily contaminated solids etc.) is segregated according to material type, stored in sea containers, and shipped south during the sealift season. All hazardous waste on site was shipped by Nunavut Sealift and Supply Inc., to Qikiqtaaluq Environmental Services (QE) facility in Quebec, via Port of Bécancour. Documentation for the transfer of hazardous waste can be found in Appendix 14.

At the port, hazardous and non-hazardous waste was managed by QE and Terminaux Portuaires du Quebec (QSL) on behalf of Agnico Eagle before being transported to *Ministère de l'Environnement et de la Lutte contre les changements climatiques* (MELCC)*,* authorized disposal facilities.

In 2022, a total of 961.525 tonnes of hazardous waste was shipped from Meliadine via one sealift from Rankin Inlet to the Port of Bécancour, in 182 (20 ft) marine containers. The hazardous waste was transported to *Solva-Rec Environnement inc*. (Solva-Rec), *GFL Environmental Services*, *Métaux Depot, Recyclage N. Legault and Mauser Packaging*.

In addition, 39.83 tonnes of used tires were transported in 8 (20 ft) marine containers to *Revalorisation TPOL Inc.* Finally, 2.68 tonnes of domestic and food waste were transported in 2 marine containers to GFL Environmental – Matrec Champlain.

These compagnies are all registered companies or disposal facilities located in the Province of Quebec.

General waste, such as glass, concrete, wood and ash is landfilled on-site and off-site. Type A landfill was commissioned in November 2017, and in September 2018, the landfill was expanded to contain an extra 11,000 m³ (landfill stage 2). In September and October 2020, the landfill stage 3 expansion works raised the perimeter berm by a nominal amount to increase the storage capacity by 2,696 m^3, to a total storage volume of 22,201 m^3. In December 2022, a Design report was submitted to the NWB for the landfill Stage 4 berm raise, to increase the landfill capacity to 60,725 m^3. Construction is planned to take place in March and April of 2023.

Similar to previous years, measures were applied in 2022 to improve waste segregation at the source, allowing for increased volumes of wood and cardboard being burnt rather than landfilled. Waste segregation at the source, in addition to landfill material being compacted mitigates dust emissions from the landfill.

The volume of landfilled waste is estimated through periodic surveys, and the waste placed into Type A landfill during 2022 is estimated at 2,532 m^3, while it was estimated at 5,100 m³ in 2021.

In 2022, soil remediation activities took place in Landfarm A and Landfarm B. Three times during the year, windrows were aerated and additional nutrients were added.

On August 25th, 2022, samples were collected in Landfarm A's soil windrows and sent for analysis of petroleum hydrocarbons fractions 1 to 4 (F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX) at an accredited laboratory. Results were compared to the Government of Nunavut (GN)'s Environmental Guideline for Contaminated Site Remediation (GN, 2009) criteria for the agricultural/wildlife and industrial land uses, as per the Landfarm Management Plan. Soils showing compliant results with the agricultural/wildlife and/or industrial land uses criteria were moved from Landfarm A to WRSF1. Approximately 170 m^3 of remediated material was moved. According to a survey conducted on August 5th, 2022 Landfarm A contained approximately 522 m^3 of material (prior to the transfer of compliant soils). It should be noted surveys of the Landfarm are generally not conducted during the winter months, as the presence of snow would not allow a representative survey of the soil quantity.

No soils were moved from Landfarm B in 2022. Further, no additional contaminated material was placed into Landfarm B in 2022, as Landfarm B will eventually be decommissioned with the extension of WRSF3. According to the latest survey conducted on August 5th, 2022, Landfarm B contained approximately 376 m^3 of material.

An estimate of 20.6 m^3 of contaminated soil was placed in Landfarm A in 2022 from spill clean up, monthly volumes are indicated in Table 15.

Table 15: 2022 Volume of waste transferred to the Landfarm

Month	Volume of contaminated soil placed in Landfarm A (m^3)
January	0
February	0
March	0.3
April	10.3
May	1.5
June	0.5
July	0.5
August	1.5
September	1.1
October	3.5
November	0.5
December	0.9
Total	**20.6**

5.2 INCINERATOR

As per Water License 2AM-MEL1631 Schedule B, Item 13: ***Report of Incinerator test results including the materials burned and the efficiency of the Incinerator as they relate to water and the deposit of waste into water.***

Food waste, including food packaging, was incinerated to avoid landfilling the material, and attracting wildlife.

Agnico Eagle hired the Emission Services Group of Bureau Veritas (BV) to perform an atmospheric emission characterization program (Source Emission Survey) at the outlet (stack) on the incinerator. The objectives of this program, which took place on August 31st to September 8th, 2022, were as follows:

- Assess compliance parameters for solid waste incineration as outlined in the Government of Nunavut Environmental Guideline for Incineration of Solid Wastes;
- Compare the emission results to the applicable standards;
- Ensure that the sampling work meets recognized quality assurance and quality control protocols.

As shown in Table 16, all tests complied with the applicable standard for mercury (Hg), dioxins, and furans. The standards originate from the "*Environmental Guideline for the Burning and Incineration of Solid Waste*" published by the Department of Environment of the Government of Nunavut based on the Canadian Council of Ministers of the Environment (CCME) Canada - Wide Standards for Dioxins and Furans and Mercury Emissions. The complete report can be found in Appendix 15.

Table 16: 2022 Stack Testing Mercury and Dioxins and Furans Results

Parameter	Unit	Test 1	Test 2	Test 3	Average	Applicable Standard	Compliance
Mercury	ug/m 3 dry @ 11% O2	0.0367	0.0202	0.0102	0.0224	20	Yes
Dioxins and Furans (PCDD/F)	pg/m 3 dry @ 11% O2	3.9608	2.1274	1.8642	2.6508	80	Yes

Agnico Eagle also proceeded with incinerator ash testing. Leachable metals annual averages since 2019 are presented in Table 17, while 2022 monthly results are presented in Table 18. All 2022 results were compliant with the GN's Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities (GN, 2011), with the exception of leachable Arsenic.

As per the Incineration Management Plan, following observed Arsenic exceedance, ash sampling frequency was increased to monthly at the beginning of 2022 (instead of quarterly). Once results meet all parameter guidelines for Industrial Waste Discharge for 3 consecutive months, quarterly sampling will resume. Non-compliant ash is packed and will be disposed of according to the Incineration Management Plan. The root cause of arsenic exceedances is being investigated.

Table 17: 2019 – 2022 Annual Averages - Incinerator Ash Monitoring

Leachable Metals	Guideline for Industrial Waste Discharge (mg/L)*	Unit	2019	2020	2021	2022
Arsenic	2.5	mg/L	0.25	0.375	1.88	4.53
Barium	100	mg/L	0.57	0.25	0.25	0.28**
Cadmium	0.5	mg/L	0.095	0.05	<0.05	<0.3
Chromium	5	mg/L	6.25	0.275	0.50	0.21**
Lead	5	mg/L	0.10	0.1	<0.1	<0.1
Mercury	0.1	mg/L	0.0010	0.001	<0.001	<0.001
Selenium	1	mg/L	0.10	0.1	<0.1	<0.1
Silver	5	mg/L	0.010	0.01	<0.01	<0.01
Zinc	500	mg/L	0.10	0.1	4.83	3.54**

*Government of Nunavut Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities (2011).

** Detection limit values were divided in half in average calculation.

Table 18: 2022 Incinerator Ash Monitoring

Leachable Metals	Guideline for Industrial Waste Discharge (mg/L)*	Unit	01/08	02/05	03/05	04/02	05/04	06/03	07/03	07/10	07/14	08/08	09/07	10/13	11/08	12/06
Arsenic	2.5	mg/L	5	8.2	9.6	2.2	0.5	8.0	2.5	1.0	2.1	13	0.2	4.1	6.7	0.3
Barium	100	mg/L	<0.2	0.7	0.6	0.4	0.9	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	0.2	<0.2	<0.2
Cadmium	0.5	mg/L	<0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3	<0.05	<0.05	<0.3	<0.05	<0.05	<0.3
Chromium	5	mg/L	<0.1	<0.1	0.6	0.2	0.8	<0.1	0.2	<0.1	<0.1	<0.1	0.6	<0.1	<0.1	0.2
Lead	5	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mercury	0.1	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Silver	5	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	500	mg/L	2.9	<0.1	0.8	<0.1	<0.1	0.9	0.2	0.9	12	2.4	<0.1	29.0	0.2	<0.1

*Government of Nunavut Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities (2011).

5.3 ADDITIONAL INFORMATION

As required by Water License 2AM-MEL1631 Schedule B, Item 26: ***Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.***

And

As required by water license 2BB-MEL1424 Part B Item 6n*: Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported*

The Board did not request any additional details on waste disposal in 2022.

SECTION 6. ENVIRONMENTAL INCIDENT MANAGEMENT

As per Water License 2AM-MEL1631 Schedule B, Item 14: ***List and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.***

And

As required by water license 2BB-MEL1424 Part B Item 6f*: A list of unauthorized discharges and a summary of follow-up actions taken*

In 2022, a total of 56 reportable incidents occurred at Meliadine. Amongst these incidents, 41 were reported under Water Licence 2AM-MEL1631 (including 1 event reported as due diligence) and 15 were reported under Water Licence 2BB-MEL1424. In addition to these reportable incidents, one event was reported as due diligence under Water Licence 2AM-MEL1631 and is not included in the table below.[9] The total reportable and non-reportable incidents for years 2019 to 2022 are provided in Figure 18 below.

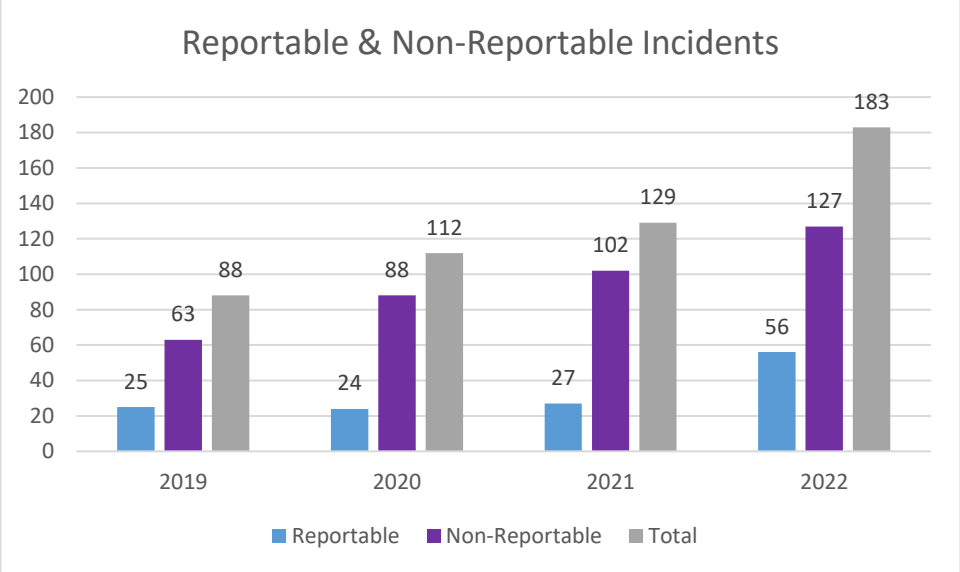

Figure 18: Total Reportable and Non-Reportable Incidents from 2018 to 2022

All reportable spills were reported to the 24-hour spill reporting line as required by the Government of Nunavut's Environmental Protection Act, paragraph 5.1 (a), the conditions under the NWB License 2AM-MEL1631 Water Licence, Part H, Item 8(b) or the conditions under the NWB License 2BB-MEL1424, Part H, Item 4(b). For all reportable spills, a follow up report was submitted 30 days or less following the event as required under the Nunavut Water Board License 2AM-MEL1631 Water Licence, part H, item 8(c).

[9] Surface water runoff was observed south of Itivia at sampling station MEL-SR1 on May 10th. Water sample and field readings were taken and turbidity field readings showed results indicative (but not confirmatory) - that TSS concentrations could exceed the NWB Water Licence 2AM-MEL1631 criteria, and the potential exceedance was reported via the NT-NU 24-hour spill report line. Laboratory results were received May 25th and a concentration of 14 mg/L was measured at MEL-SR1, indicating there was no exceedance of the Type A Water Licence criteria.

All 2022 reportable spills/exceedances are summarized in Table 19, and complete spill reports and follow up reports can be found in Appendix 16. Non-reportable spills are summarized in Appendix 17.

Table 19: 2022 Reportable spills or limit exceedances

Date of spill/exceedance	Hazardous Material	Quantity for spills or analyses results for exceedance	Unit	Location	Cause of the spill
January 25, 2022	Process Water	15	m^3	Process Plant	Equipment Failure
January 30, 2022	Oil Contaminated Waste Water	1,000	L	MSB Maintenance Shop	Human Error
February 8, 2022	Engine Oil	15	L	Lake B38	Equipment Failure
February 18, 2022	Untreated Sewage	80	L	KCG Lift Station	Human Error
February 26, 2022	Untreated Sewage	1,500	L	Power Plant Lift Station	Equipment Failure
February 27, 2022	Untreated Sewage	Unknown (At least 150)	L	Wing 10 & 11 Lift Station	Equipment Failure
February 27, 2022	Untreated Sewage	25	L	MSB Lift Station	Human Error
March 5, 2022	Diesel Fuel	10	L	Lake A8	Equipment Failure
March 6, 2022	Thickener Water	45	m^3	Process Plant	Equipment Failure
March 9, 2022	Grey Water	2	m^3	Main Camp Kitchen	Equipment Failure
March 10, 2022	Thickener Water	10	m^3	Process Plant	Equipment Failure
March 11, 2022	Thickener Water	5	m^3	Process Plant	Equipment Failure
March 18, 2022	Drill Cuttings	15	L	Lake A8	Human Error
March 20, 2022	Diesel Fuel	10	L	Lake A8	Human Error
March 24, 2022	Emulsion	2	kg	Emulsion Pad	Unknown
March 25, 2022	Untreated Sewage	25	L	KCG Sewage Lift Station Tank	Human Error
March 27, 2022	Drilling Recirculation Water	20	L	Lake A8	Equipment Failure
March 29, 2022	Drilling Recirculation Water	20	L	Lake A8	Equipment Failure
March 30, 2022	Untreated Sewage	30	L	MSB Lift Station	Human Error
April 1, 2022	Drilling Recirculation Water	100	L	Lake A8	Human Error
April 1, 2022	Drilling Recirculation Water	150	L	Lake A8	Human Error
April 3, 2022	Contaminated Water	6	L	Lake A8	Equipment Failure

Date of spill/exceedance	Hazardous Material	Quantity for spills or analyses results for exceedance	Unit	Location	Cause of the spill
April 14, 2022	Diesel Fuel	0.5	L	Lake A8	Equipment Failure
April 18, 2022	Engine Oil	0.5	L	Lake A8	Human Error
April 22, 2022	Thickener Water	10	m^3	Outside the Process Plant	Human Error
April 24, 2022	Untreated Sewage	200	L	MSB Lift Station	Equipment Failure
April 25, 2022	Untreated Sewage	25	L	MSB Lift Station	Human Error
May 4, 2022	Drilling Recirculation Water	75	L	Lake B38	Equipment Failure
May 8, 2022	Saline water	800	L	Haul Road North of TIRI02	Equipment Failure
May 8, 2022	Total Suspended Solids	110	mg/L	MEL-SR16	Freshet
May 11, 2022	Untreated Sewage	15	L	Wing C Lift Station	Equipment Failure
May 17, 2022	Various Substances	Unknown	N/A	Lake A8	Human Error
May 24, 2022	Various Substances	Unknown	N/A	Lake B38	Human Error
May 29, 2022	Ammonium Nitrate	100	kg	MSB Lift Station	Human Error
June 13, 2022	Untreated Sewage	25	L	Wing 2 Lift Station	Equipment Failure
July 7, 2022	Untreated Sewage	50	L	Wing 2 Lift Station	Equipment Failure
July 28, 2022	Emulsion	2	m^3	Emulsion Plant	Human Error
August 2, 2022	Untreated Sewage	400	L	Wing 10 Lift Station	Human Error
August 2, 2022	Untreated Sewage	20	L	Wing C Lift Station	Human Error
August 9, 2022	Wash Bay Solids	300	L	Industrial Pad	Human Error
August 16, 2022	Partially Treated Bionest Effluent	20	L	Exploration Bionest (Exploration Camp)	Human Error
September 13, 2022	Untreated Sewage	25	L	MSB Lift Station	Human Error
September 13, 2022	Untreated Sewage	30	L	MSB Lift Station	Equipment Failure
September 14, 2022	Untreated Sewage	5	L	MSB Lift Station	Equipment Failure
September 14, 2022	Fine Grain Material	Unknown	N/A	Perimeter Access Road Southwest of the TSF	Other

Date of spill/exceedance	Hazardous Material	Quantity for spills or analyses results for exceedance	Unit	Location	Cause of the spill
September 23, 2022	Untreated Sewage	5	L	MSB Lift Station	Human Error
September 30, 2022	Hydrochloric Acid	205	L	Process Plant	Human Error
October 15, 2022	Hydraulic Oil	250	L	Ore Pad 1	Equipment Failure
October 18, 2022	Untreated Sewage	30	L	Beside Sewage Treatment Plant	Human Error
November 2, 2022	Wash Bay Water	800	L	Industrial Pad	Equipment Failure
November 15, 2022	Untreated Sewage	10	L	Wing 3 Lift Station	Human Error
November 17, 2022	Untreated Sewage	5	L	Wing 3 Lift Station	Equipment Failure
November 20, 2022	Emulsion	1.5	m^3	Industrial Pad	Human Error
November 24, 2022	Untreated Sewage	30	L	Wing 3 Lift Station	Equipment Failure
December 17, 2022	Untreated Sewage	50	L	Main Camp Lift Station	Equipment Failure
December 22, 2022	Untreated Sewage	40	L	Power Plant Lift station	Equipment Failure

**Green indicates incidents reported under Water Licence 2BB-MEL1424 *Orange indicates incidents reported as due diligence *Blue indicates exceedances*

In early 2021, and as reported in the 2021 Annual Report, a laydown pad was built southeast of Tirganiaq Open Pit 2, in the northern portion of the Pond J6 at the western extremity of the J watershed. On December 7th, 2022, a Warning Letter was received from Fisheries and Oceans Canada (DFO) related to the infilling of pond J6.

Following all environmental incidents, Agnico Eagle works towards understanding the causes and what remedial actions can be implemented to avoid re-occurrence. After disclosing the incident to regulators in 2021, Agnico Eagle assessed the J6 pond incident to understand the cause of the incident and rapidly implement a series of corrective actions to address the situation and to reduce the risks of re-occurrence.

The learning outcome of Agnico Eagle's internal assessment was to reinforce communication between departments and improve documentation and approval processes. To address these factors, corrective measures were implemented including the following:

- Improvement to Environment Department review and sign-off on relevant workplans through the implementation of an Internal Environmental Permit (IEP) at Meliadine;
- Formalizing interdepartmental communication by including an Environment Department representative at weekly planning meetings for the relevant departments; and
- Awareness campaigns educating management across site on environmental regulations and associated obligations.

To support exploration geology at the Meliadine Operation, Agnico Eagle and Orbit Garant carried out drilling activities that placed drill rigs on top of the ice surface of waterbody A8, an activity authorized under

Nunavut Water Board Water Licence no. 2BB-MEL1424. From March to May 2022, spills of material on the ice surface of waterbody A8 occurred and were reported within the 24 hour time period by Agnico Eagle through the NT-NU Spill Line. On December 21st, 2022, Agnico Eagle and Orbit Garant received Warning Letters from CIRNAC related to spills which occurred during drilling on ice activities in 2022.

Efforts to understand the cause of the events, implement corrective measures, and collaborate with regulators were initiated immediately during the 2022 drilling on ice season following the events cited in the aforementioned letter. Information on each event was provided to regulators in due time through the spill reports, spill follow-up reports and related communications. Collaborations over 2022 with various stakeholders amongst which CIRNAC, Environment Canada and Climate Change (ECCC), Kivalliq Inuit Associated (KIA), Agnico Eagle, and Orbit Garant included:

- A Letter of Intent dated April 28, 2022, from Orbit Garant addressed to Agnico Eagle and shared with CIRNAC and ECCC which committed to several actions to mitigate spill occurrences during the 2023 drilling on ice season;
- A collaborative effort by Agnico Eagle and Orbit Garant to clean up the ice surface and the shore of A8 through May and June 2022, as documented in the NT/NU Spill #2022188 Follow-Up Report;
- A meeting with CIRNAC and ECCC on May 17, 2022, during which Agnico Eagle and Orbit Garant committed to the development and implementation of a comprehensive drilling on ice Action Plan prior to the start of the 2023 winter drilling;
- The development of the Action Plan which focused on reducing the risk of re-occurrence;
- Review and discussion of the Action Plan and updated procedures with CIRNAC and ECCC through teleconference held on October 26, 2022, and with CIRNAC, ECCC, and KIA through teleconference held on January 11, 2023;
- Sharing of the Action Plan with CIRNAC and ECCC via email on October 28, 2022, and sharing of the revised Action Plan and improved procedures with CIRNAC, ECCC, and KIA on January 12, 2023; and
- A “dry run” of the improved procedures related to drilling in ice held at a drill rig located on land on February 1, 2023 which included CIRNAC, KIA, Agnico Eagle, and Orbit Garant.

Collectively, the actions taken work together to ensure that appropriate controls are in place to maintain compliance with regulatory requirements and commitments to best practice. Agnico Eagle is confident that the improvements made are key factors toward the goal of achieving zero non-compliance events.

In addition to the measures listed above for 2022, several environmental incidents prevention measures were put in place and are summarized below.

As per previous years practice, all treated water from the Exploration Camp Sewage Treatment Plant (STP) was transferred by truck either to the Main Camp STP for a second treatment, or to CP1 instead of being discharged to Meliadine Lake, lowering the risk of exceedances.

As mentioned above, an IEP was implemented at Meliadine with the objective to reduce the risk of environmental incident occurrence. This form requires the Environment Department review and sign-off on relevant workplans.
To help prevent spills and also ensure all spills are reported internally, spill prevention training continued to be provided to employees in 2022. It is believed that employee’s increased spill management awareness

leads to more events being properly identified as spills and reported as such. The spill training program is improved on a continuous basis by the Environment Department.

Training activities include the following:

- All employees and contractors must participate in an induction session online prior to the arrival at the mine site, which includes a training section on spill management (prevention, reporting and cleaning);

- Every employee and contractor who operates a vehicle on site must participate in training on vehicle operation. Spill management is a component of this training session;

- Toolbox talks on spill management are regularly conducted by the environment department, with focus on high risk departments. In 2022, spill-related toolboxes presentations focused on spill reporting and spill mitigation.

- All site personnel receive quarterly updates on environmental performance including total reportable and non-reportable spills;

- Intelex spill reporting software training is provided to department managers on a monthly basis where required;

An annual mock spill exercise was completed on July 22nd, 2022, at Itivia as per required regulations. In 2022, a total of 13 front-line staff participated in the exercise, including 8 Agnico Eagle emergency response team members (ERT), 2 Agnico employee, 1 representative from the Rankin Inlet fire department, and 1 representative from Intertek present. CIRNAC and the Government of Nunavut were also invited to join the mock spill exercise. However, due to their restricted availability, they were unable to join. Two parts of the exercise were conducted: a review of emergency response equipment and a mock spill scenario. First, Agnico Eagle's Environment department reviewed with Intertek personnel the contents of the emergency response equipment and the appropriate radio protocol and ship-to-shore procedures. The mock scenario involved a breach/compromise at the connection between the ship-to-shore fuel line and the shore manifold, resulting in the fictive release of P-50 diesel fuel to the tidal flats. An estimated 500 litres of diesel were released through the fictional line. Agnico Eagle's Environmental staff led the exercise, in which Intertek personnel participated. The exercise allowed participants to gain experience in spill intervention and awareness of spill management equipment. Overall, the participants' actions and responses to the mock spill were satisfactory. It was determined that all participants had a sufficient understanding of the roles and responsibilities of all spill responders. Lessons learned from the event will ensure a more efficient response in the future, if needed. The detailed mock scenario report can be found in Appendix 18.

SECTION 7. MONITORING

Site Sampling Stations and EEM Receiving Environment Sampling Locations are illustrated in Figure 19 and Figure 20.

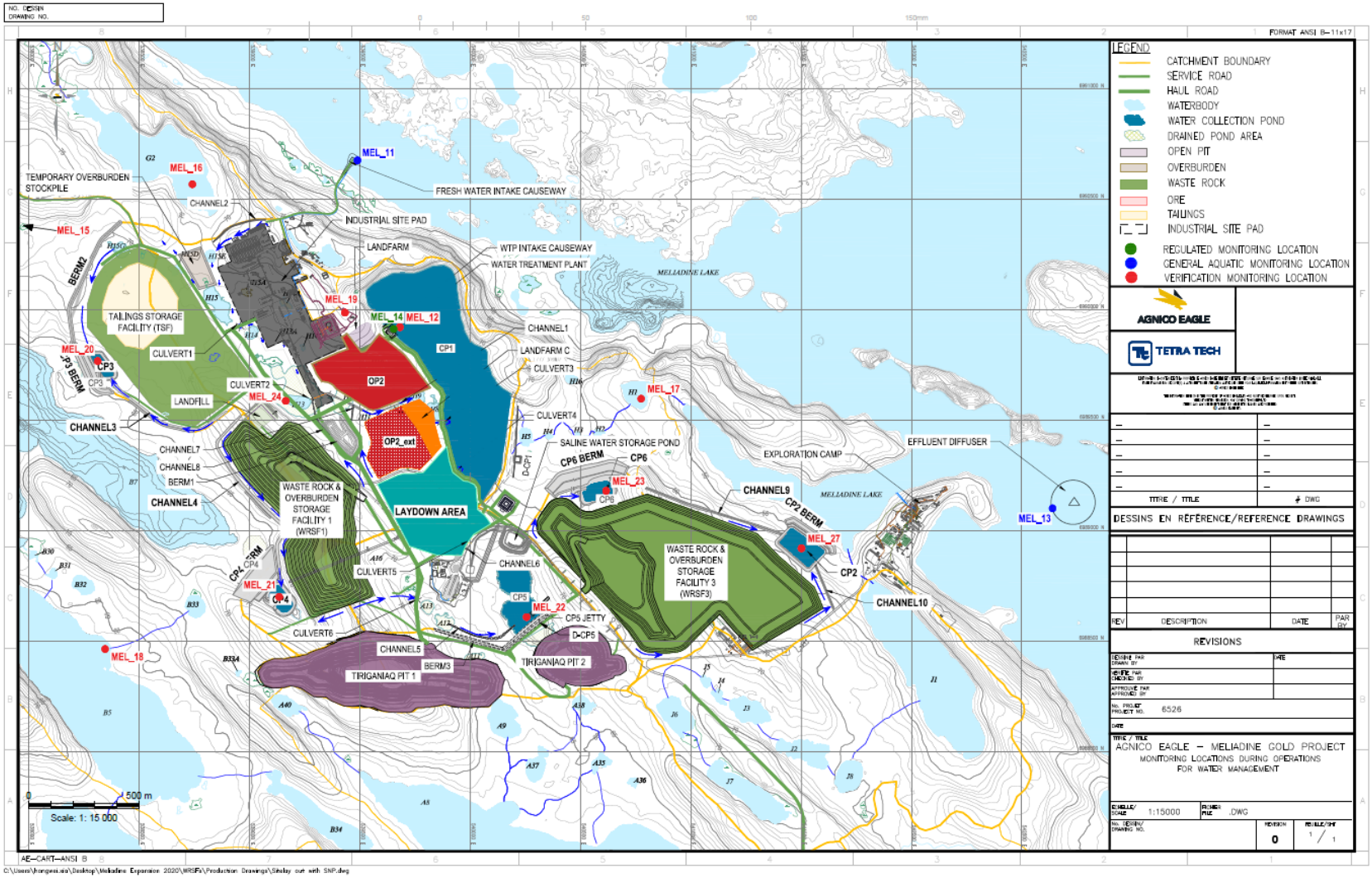

Figure 19: Meliadine Site Sampling Locations

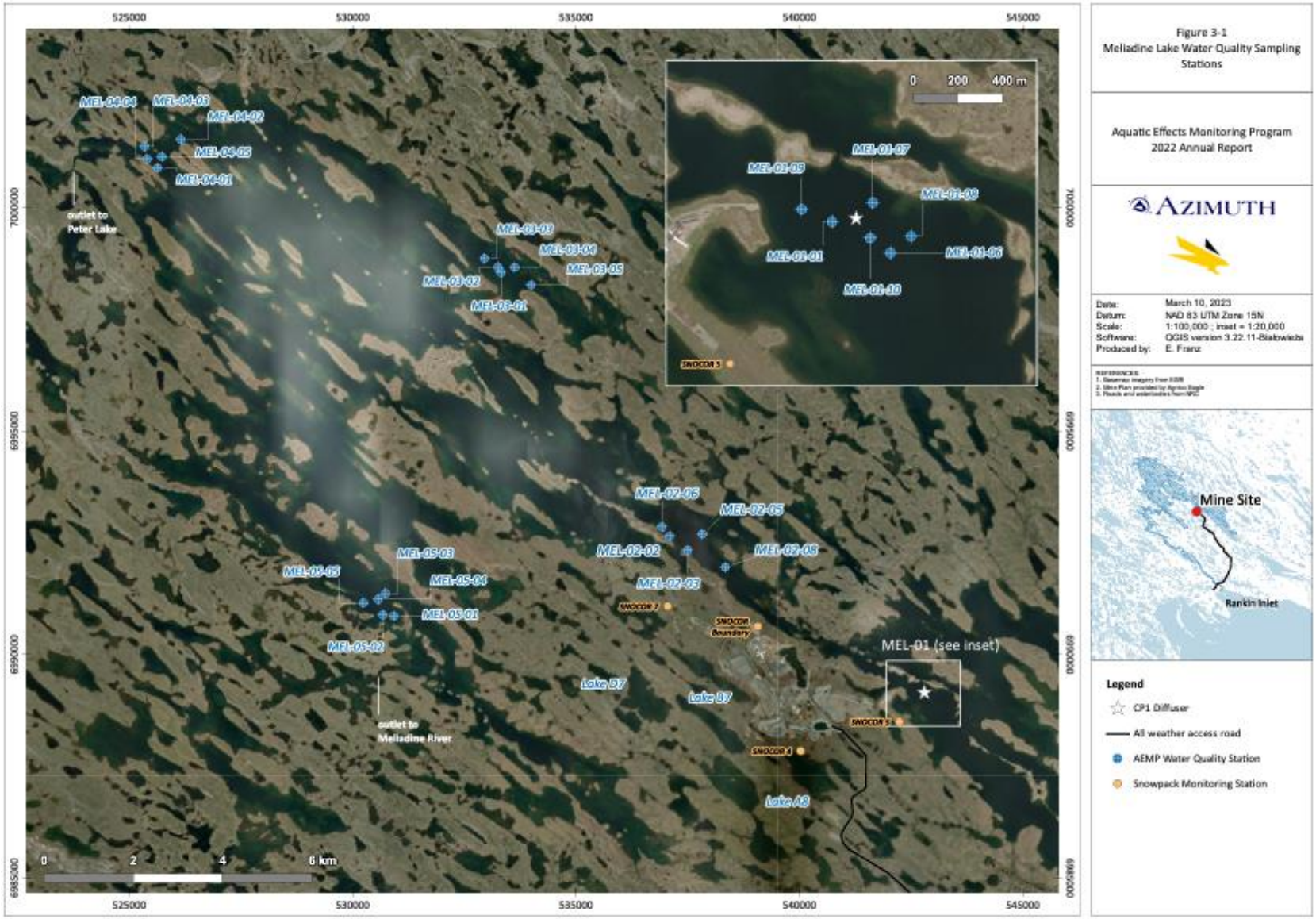

Figure 20. EEM Receiving Environment Sampling Locations

As required by Water License 2AM-MEL1631 Schedule B, Item 17: ***The results of monitoring related to the Environmental Management and Protection including:***

a. Aquatic Effects Monitoring Program;

Refer to section 7.1, all results can be found in Appendix 19.

b. Metal and Diamond Mining Effluent Regulation (MDMER) Monitoring;

Refer to section 7.2, all results can be found in Appendix 20.

c. Mine site Water quality monitoring, including groundwater monitoring; and

Refer to section 7.3, all results can be found in Appendix 20 and 21.

d. Visual AWAR Water quality monitoring

Refer to section 7.4.

and

As required by Water License 2BB-MEL1424 Part B Item 6d: ***Tabular summary of all data generated under the Monitoring Program,***

Sampling is no longer required from the Water Licence 2BB-MEL1424, explanation is provided in section 7.3.1.

7.1 AQUATIC ECOSYSTEM MONITORING PROGRAM (AEMP)

The AEMP is the monitoring program used to evaluate short-term and long-term effects of the mine on the aquatic environment and verify that the mine is operating as planned. Other objectives of the AEMP include evaluating the accuracy of predictions in the FEIS and providing information to inform management decisions.

The scope of the 2022 AEMP involved water quality monitoring and a phytoplankton community study in Meliadine Lake and water quality monitoring in three smaller lakes located near the mine: Lake B7, Lake D7, and Lake A8.

For the Meliadine Lake study, water sampling was completed at the near-field (NF) area (MEL-01) in the East Basin and mid-field (MF) area (MEL-02) once under the ice in April and monthly during the open water season (July, August, and September). Reference Area 1 (MEL-03) was sampled monthly during the open water season, and Reference Areas 2 and 3 (MEL-04 and MEL-05) were sampled in August, coinciding with the phytoplankton sampling program. Water quality sampling was completed at the Peninsula Lakes in July and August. The complete AEMP report can be found in Appendix 19.

7.1.1 Meliadine Lake Study

The AEMP was designed to assess whether mining activities are affecting water quality and the health of the aquatic ecosystem in Meliadine Lake. Discharge of treated surface contact water (effluent) is the mining-related activity with the greatest potential to cause changes in water quality, particularly in the East Basin. Water quality in Meliadine Lake is also subject to natural and interannual climate variability. Based on regional climate data from Rankin Inlet, 2019 and 2021 were two years with the highest annual precipitation going back to 1980. The effect of high rainfall was evident in higher concentrations of several parameters in August and September 2019, which was a year with relatively low discharge of effluent to Meliadine Lake.

Effluent Quality

The mine discharged effluent (treated contact water) to Meliadine Lake from July 1st to August 2nd and from August 23rd to September 25th. Discharge was stopped in August because the water level in the Collection Pond 1 (CP1) reached its lower operating level. Less water was discharged in 2022 compared to 2021 and 2020 due to the combined effect of less precipitation in the winter and spring/summer and more capacity in CP1 (lower freeze-up level) ahead of spring freshet. Effluent samples were collected weekly when water was discharged to Meliadine Lake, and there were no exceedances of the effluent quality limits in the Water Licence. Furthermore, no effects were observed to Rainbow Trout or zooplankton (Daphnia magna) in the acute toxicity tests or in the chronic toxicity test with Lemna minor (aquatic plant). Together, the effluent chemistry data and toxicity test results demonstrate that water discharged to Meliadine Lake is safe for aquatic life.

Meliadine Lake Water Quality

There were no exceedances of AEMP Action Levels in 2022. The concentrations for parameters of interest were well below guidelines meant to protect aquatic life and drinking water quality.

Water chemistry results from 2022 indicate some parameters in Meliadine Lake are elevated compared to the baseline and pre-construction phases (pre-2018). In general, changes in water quality have been more pronounced in the East Basin (MEL-01) compared to the mid-field (MEL-02) and far-field reference areas. Parameters that have increased over time throughout Meliadine Lake include major ions (chloride, calcium, sulfate, etc.), organic carbon, and a few metals (arsenic, molybdenum, strontium, and uranium).

The relative influence of effluent versus high precipitation on water quality in Meliadine Lake is difficult to accurately estimate with the available data. However, the timing of lake-wide changes for some parameters coincides with high rainfall totals in 2019 and 2021, which suggests that interannual climate variability has contributed to some of the changes in water quality observed in Meliadine Lake in recent years.

PhytoPlankton Community

Phytoplankton, or algae, form the base of the aquatic food web, providing energy and nutrients for various aquatic invertebrates that are important sources of food for fish. The phytoplankton study was conducted

in August at the NF, MF, and reference areas to determine if effluent is causing effects to the phytoplankton community. The focus of the assessment during the early operations has been on determining if effluent is causing nutrient enrichment and increases in primary productivity in the East Basin of Meliadine Lake. Nutrient enrichment is evaluated by looking at indicators of primary productivity (chlorophyll-a and phytoplankton biomass) and the structure of the phytoplankton community.

Productivity – Phytoplankton biomass is variable from year to year, particularly in the East Basin. The two years with the highest biomass, 2019 and 2021, had the highest rainfalls recorded over the last four decades. The observed increase in biomass in 2019 and 2021 was temporary, with biomass in the subsequent year (2020 and 2022, respectively) decreasing to levels similar to the MF and reference areas. Unlike phytoplankton biomass, which hasn't shown any trend, chlorophyll-a has steadily increased in the NF and MF areas during operations. It's unclear why chlorophyll-a follows a different trend than biomass, but neither of the endpoints was strongly correlated with phosphorus, nitrogen, or organic carbon concentrations in the East Basin.

Community Structure – The phytoplankton community composition (number and biomass of various taxa) at the NF and MF areas closely resembles the reference areas in most years going back to 2016, (the first year of sampling at all five study areas). Two years stand out where the phytoplankton community was noticeably different in the NF and MF areas: 2020 (NF and MF) and 2022 (NF only). The phytoplankton results for these years/areas had relatively low community biomass. 2020 and 2022 were also very different in terms of effluent discharge and loading to the East Basin (high in 2020, low in 2022), yet the phytoplankton community structure followed a similar pattern of change in the NF area. This suggests that the underlying factor(s) responsible for changes in the phytoplankton community structure may be unrelated to mining.

Results of the multi-year phytoplankton monitoring program indicate there have been increases in chlorophyll-a concentrations in the NF, but no discernable trends in biomass and community composition in the NF. While the specific factors influencing interannual and spatial differences in phytoplankton biomass and chlorophyll-a are not fully understood, there is little evidence of effluent-related nutrient enrichment or toxicological impairment to the phytoplankton community in the East Basin of Meliadine Lake.

The FEIS (Agnico Eagle, 2014) predicted that the phytoplankton community structure in the East Basin of Meliadine Lake could change due to increases in nitrogen, but the changes would be minor compared to baseline conditions. Furthermore, phytoplankton productivity was predicted to remain within the range of baseline conditions. The findings from the multiyear phytoplankton study are consistent with the predictions in the FEIS.

7.1.2 Peninsula Lakes Study

Snowpack Chemistry

Off-site migration of dust and aerial emissions have the potential to affect water quality in lakes close to the mine. The snowpack sampling program is completed in late winter (typically April) to determine the extent and magnitude of off-site migration of metals and other parameters of interest. The snowpack chemistry results from 2022 indicate concentrations of metals and major ions in snow samples collected north of the main camp and near WRSF3 were similar to background. The sampling location on the north side of Lake A8 had higher concentrations of several metals compared to background, in particular arsenic and iron. This monitoring station is south of Tiriganiaq Pits 1 and 2 and downwind from the prevailing wind direction. The findings are consistent with the 2020 and 2021 snowpack chemistry results and provide context for interpreting the source of changes in water quality for Lake A8, Lake B7, and Lake D7.

Peninsula Lakes Water Quality

Water quality monitoring was completed at three replicate stations in each of the Peninsula Lakes in July and August. Lake A8 and Lake B7 are located next to major infrastructure; Lake A8 is located south of Tiriganiaq Pit 1 and 2 and Lake B7 is located west of the Tailings Storage Facility (TSF). Lake D7 is located west of Lake B7. Water quality data from Lake D7 provides information on the spatial extent of potential mining-related effects from dust, emissions, and alterations to the landscape and hydrology during construction and operations.

Water quality results from Lake A8, Lake B7, and Lake D7 in 2022 were generally comparable to recent years and there were no exceedances of AEMP Action Levels in any of the samples collected in 2022. Water quality in Lake D7 has remained stable in recent years despite increased surface activity at the mine. Arsenic and molybdenum exceeded their respective Normal Ranges in 2022, but the magnitude of the difference was less than 20% and concentrations in 2022 were similar to concentrations observed in recent years. Water quality in Lake B7 and Lake A8 has changed significantly for some parameters during operations. Sulfate and arsenic are the two parameters where the timing and magnitude of the change point to the mine as the underlying cause. Since 2019, sulfate concentrations increased by 70-80% in Lake A8 and Lake B7. Over that same period, arsenic concentrations increased 4-fold in Lake A8 and 8-fold in Lake B7. The proximity of the lakes to the TSF, the prevailing wind direction, the temporal trend compared to the mine plan, and the snowpack chemistry data suggest the TSF is the probable source.

7.1.3 Conclusions from the 2022 AEMP

- There were no exceedances of AEMP Action Levels for any parameters in Meliadine Lake or the Peninsula Lakes linked to activities at the mine in 2022. The AEMP Action Levels are lower than the water quality guidelines for the protection of aquatic life, the human health drinking water guidelines, or in the case of fluoride, arsenic, or iron, the site-specific water quality objectives (SSWQO).
- Effluent has contributed to higher concentrations of some major ions, nutrients, and metals in the East Basin of Meliadine Lake over time. The effect of effluent on water quality in other areas of the Meliadine Lake is difficult to distinguish compared to the confounding effect of natural and regional interannual climate variability. On-going water quality monitoring should help decipher the effect of effluent discharge vs precipitation on water quality in Meliadine Lake. Changes in water quality in the East Basin align with what was predicted in the FEIS.
- Phytoplankton biomass has not shown year-over-year changes in the East Basin during operations (2018-2022) that are consistent with nutrient enrichment or toxicological impairment. Furthermore, the composition of the phytoplankton community in the East Basin has closely resembled the community in the MF and reference areas except for 2020 and 2022. The subtle differences in the community composition among the different areas and between years may be partly related to changes in water quality associated with high rainfall in the preceding years (2019 and 2021).
- Surface activities at the mine have caused changes in water quality in Lake A8 and Lake B7. The source of the change is likely the off-site migration of fine particulate dust from the TSF based on the results from the snowpack sampling program in April. The spatial extent of the changes in water quality appears to be localized to Lake B7 and Lake A8 based on a) the snowpack chemistry data from locations north and south of the mine, and b) the water quality results from Lake D7 remaining stable during operations and similar to baseline conditions. The 2022 water quality results from the Peninsula Lakes study are consistent with predictions in the FEIS, namely that water quality would change in the small waterbodies near the mine (e.g., Lake B7), but concentrations would not exceed guidelines for the protection of aquatic life, drinking water quality, or site-specific water quality objectives.

Other than routine monitoring as per the AEMP Design Plan, no other management actions or special studies are required for the AEMP in 2023.

7.2 MDMER AND EEM SAMPLING

This section relates to the monitoring programs conducted under the Metal and Diamond Mining Effluent Regulations (MDMER) and its Environmental Effects Monitoring (EEM) Studies. Reporting requirements for MDMER have been submitted directly to Environment and Climate Change Canada; the list of sampling location GPS coordinates can be found in Table 20.

Table 20. MDMER and EEM GPS coordinates

Station ID	GPS coordinates
MEL-14 (Effluent characterization)	63˚2'15.5"N 92˚13'06.3"W
MEL-13 (Water Quality Monitoring Exposure Area)	63˚01'44.6"N 92˚09'14.6"W
MEL-03-01 (Water Quality Monitoring Reference Area)	63˚06'52.2"N 92˚20'23.6"W
MEL-26	62˚48'01.99"N 92˚06'00.05"W
MWE-1/WC (Water Quality Monitoring Exposure Area)	62°47'49,24"N 92°05'52,97"W
MWREFA-2	62°46'55,38"N 92°07'0,43"W

In 2022, discharge of treated effluent from CP1 to Meliadine Lake (MEL-14) occurred between July 1st to August 2nd and between August 23rd to September 25th.. No discharge to Melvin Bay (MEL-26) occurred in 2022.

As requested in Schedule 6 of the Metal and Diamond Mining Effluent Regulations, monthly mean concentrations, pH range and volume of effluent (generated) were submitted directly to ECCC and can be shared upon request.

7.3 MINE SITE WATER QUALITY

As required by Water Licence 2AM-MEL1631 Schedule B-16: ***The results and interpretation of the Monitoring Program in accordance with Part D, Part I and Schedule I.***

7.3.1 *Licenced Water Sampling Stations*

Below is a short description of each of the monitoring stations from the Water Licences 2AM-MEL1631 and 2BB-MEL-1424. All water sampling results can be found in Appendix 20. Also, for stations regulated by MDMER or Water Licence limits, graphs with critical parameters are presented.

7.3.1.1 *MEL-1 Raw water supply intake at Meliadine Lake*

MEL-1 is the raw water supply intake at Meliadine Lake for the exploration camp. No sampling is required, only volume records as provided in section 3.1.1.

7.3.1.2 *MEL-2 Raw water supply intake at Pump, A8 or other Lakes*

MEL-2 is the raw water supply intake at A8 or other lakes. No sampling is required, only volume records as provided in section 3.1.1.

7.3.1.3 *MEL-5 Bermed Fuel Containment Facilities*

MEL-5 was the point of discharge for the bermed fuel containment facilities for the exploration camp. Since it was decommissioned, sampling is not required any longer.

7.3.1.4 ***MEL-6 Landfarm Treatment Facility***

MEL-6 is the effluent from the Landfarm B Treatment Facility prior to release. The landfarm is not decommissioned yet but no water was released since 2016 as the water is transferred to the Landfarm A oil separator system and treated before being discharged in CP1.

7.3.1.5 ***MEL-7 Effluent from Exploration camp STP***

MEL-7 is the final effluent discharge from the biodisk and the bionest at the exploration camp. Since November 2017, the treated water from the exploration STP is trucked to CP1 or to the Main Camp STP depending on recent water quality trends. Monitoring for this station still occurs when the exploration camp STP is in operation to ensure the efficiency of the treatment system, but discharge directly to Meliadine Lake no longer occurs. In 2022, no samples were collected from monitoring station MEL-7 since the exploration camp STP was not in operation.

7.3.1.6 ***MEL-8 Point of discharge or runoff from the Non-Hazardous Waste Landfill***

MEL-8 was the point of discharge from the non-hazardous waste landfill for the exploration camp. Since it was decommissioned, sampling is not required anymore.

7.3.1.7 ***MEL-SR-1-TBD***

MEL-SR-TBD are surface runoff sampling points pertaining to runoff downstream of construction areas at Meliadine Site and Itivia Site, seeps in contact with roads, earthworks and any runoff and/or discharge from borrow pits and quarries. These are regulated monitoring stations in the Water Licence which includes water quality criteria that must be achieved to maintain compliance. Total suspended solids (TSS) results for all MEL-SR samples collected in 2022 are presented in Figure 21.

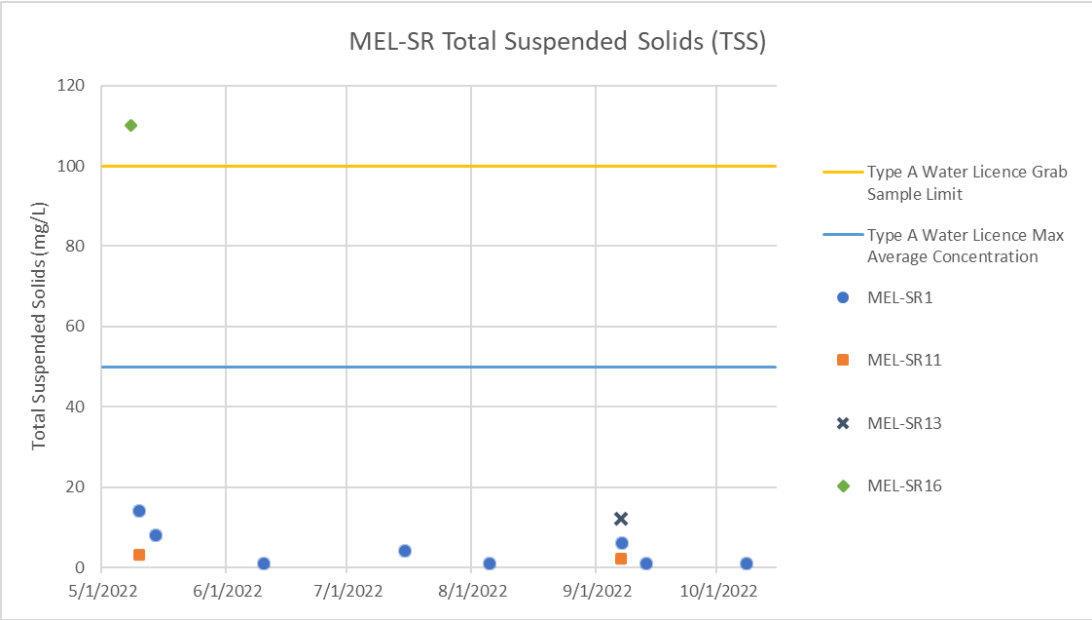

Figure 21. Total Suspended Solids (TSS) results for MEL-SR samples

One(1) TSS exceedance occurred in 2022, at the monitoring station MEL-SR16. Below is a brief description of the event and the mitigating actions taken to prevent further exceedances at the location. The complete follow-up report can be found in Appendix 16.

On May 8th, during a routine inspection, surface runoff water was observed at compliance station MEL-SR16, located downstream of the Exploration Camp Road. A sample was collected for laboratory analysis to assess water quality. The Hydrogeology Specialist who carried out sampling reported that:

- The water flowing at MEL-SR16 appeared turbid;
- The flow was of low volume.

In response to these observations, straw logs and wood chip logs were installed on both sides of the road to filter out entrained sediment and to minimize flow velocity to encourage decantation. Turbidity was also measured, and a MEL-SR sample was taken for analysis. Within 24 hours of the observation, the exceedance was reported as due diligence considering the potential exceedance of Part D Item 18 of the NWB Amended License 2AM-MEL1631.

Runoff across the road and associated entrainment of sediment is the suspected cause of the TSS exceedance. All surface runoff in the area was later closely monitored during routine inspections and following heavy rainfall events to ensure appropriate sediment controls were in place to minimize TSS transport. Moreover, water from the upstream ponded area on site has been collected via water truck as feasible and moved to CP2 or CP5 to reduce the likelihood of water running across the road during heavy rainfall.

7.3.1.8 ***MEL-11 Water Intake***

MEL-11 is the water intake from Meliadine Lake. It is an aquatic monitoring location subject to compliance assessment to confirm that sampling is carried out using established protocols, including quality assurance/quality control provisions, and addresses identified issues. General monitoring is subject to change as directed by an Inspector, or by the Licencee, subject to approval by the NWB.

7.3.1.9 ***MEL-12 Water treatment plant (Pre-treatment)***

MEL-12 represents pre-treatment CP1 water located at the Effluent Water Treatment Plant in the Water Treatment Complex (EWTP-WTC). The sample is collected from an inlet pipe within the plant and is not collected directly from CP1. It is a verification monitoring program, which is to be carried out for operational and management purposes by the Licencee.

7.3.1.10 ***MEL-03-01 Reference area in Meliadine Lake (MDMER reference station)***

MEL-03-01 is sampled in Meliadine Lake. It is also the MDMER reference station for final discharge. It is a general aquatic monitoring location subject to compliance assessment to confirm sampling is carried out using established protocols, including quality assurance/quality control provisions, and addresses identified issues. General monitoring is subject to change as directed by an Inspector, or by the Licencee, subject to approval by the NWB.

In 2022, all Total Suspended Solids (TSS) sample results were below detection limit (1 mg/L), and all Total Dissolved Solids (TDS) (calculated) sample results were at or below 42 mg/L, with an average of approximately 41 mg/L. TSS and TDS results from sampling at this monitoring station in 2022 are presented in Figure 22 and Figure 23, respectively.

7.3.1.11 ***MEL-13 Mixing Zone in Meliadine Lake (MDMER exposure station)***

MEL-13 is sampled in the mixing zone in Meliadine Lake. It is also the MDMER exposure station for final discharge. It is a general aquatic monitoring location which is subject to compliance assessment to confirm sampling is carried out using established protocols, including quality assurance/quality control provisions, and addresses identified issues. General monitoring is subject to change as directed by an Inspector, or by the Licencee, subject to approval by the NWB.

In 2022, all TSS sample results were at or below the detection limit of 1 mg/L, and all TDS (calculated) sample results were at or below 62 mg/L, with an average of approximately 57 mg/L. TSS and TDS results from sampling at this monitoring station in 2022 are presented in Figure 22 and Figure 23, respectively.

7.3.1.12 ***MEL-14 Water treatment plant (Post-treatment)***

MEL-14 is the final discharge point (FDP) monitoring station and is sampled in the Effluent Water Treatment Plant of the Water Treatment Complex (EWTP-WTC) prior to the water being discharged to the environment. It is a regulated monitoring station in the Water Licence and in the MDMER regulation. It includes discharge water quality criteria that must be achieved to maintain compliance.

In 2022, TSS results for MEL-14 did not show any particular trend, with no significant increase or decrease of concentration. The yearly average concentration was 3 mg/L and the highest result was 4 mg/L. No exceedance occurred in 2022 for this parameter with all grab samples and monthly average concentrations within permitted limits (30 and 15 mg/L, respectively). TSS results from sampling at monitoring station MEL-14 in 2022 are presented in Figure 22.

With regards to TDS (calculated), all MEL-14 samples were compliant with the 3,500 mg/L maximum average calculated TDS concentration and 4,500 mg/L maximum grab calculated TDS concentration from the Amended Type A Water Licence. The average calculated TDS concentration at MEL-14 in 2022 was 1,321 mg/L and the highest measured calculated TDS concentration was 2,000 mg/L. TDS results from sampling at monitoring station MEL-14 in 2022 are presented in Figure 23. A discussion pertaining to the TDS loading sources on site can be found in Section 3.1.8.

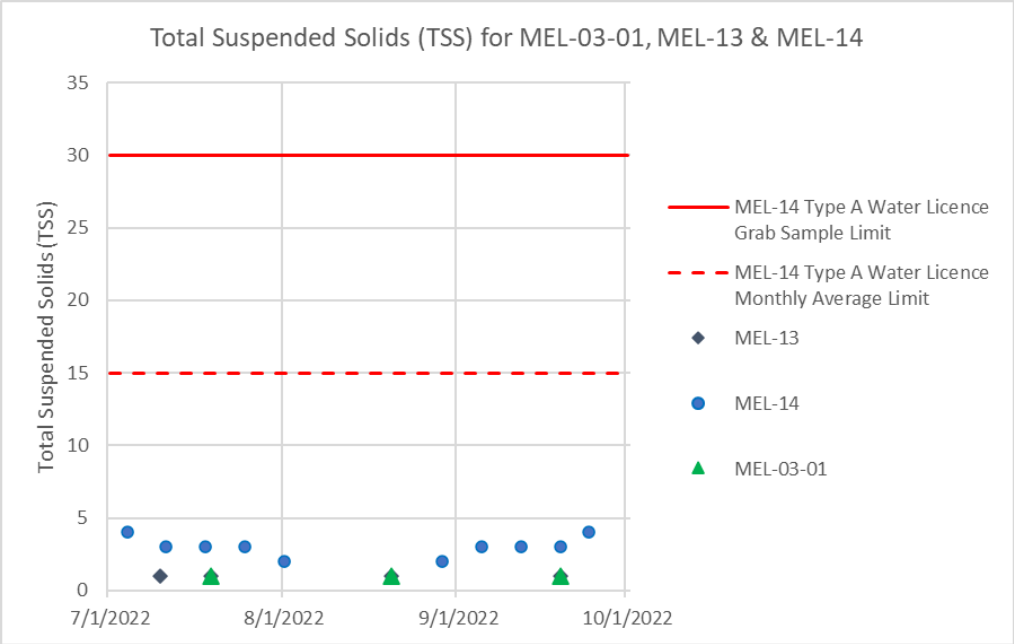

Figure 22. Total Suspended Solids (TSS) results for MEL-03-01, MEL-13, and MEL-14 monitoring stations.

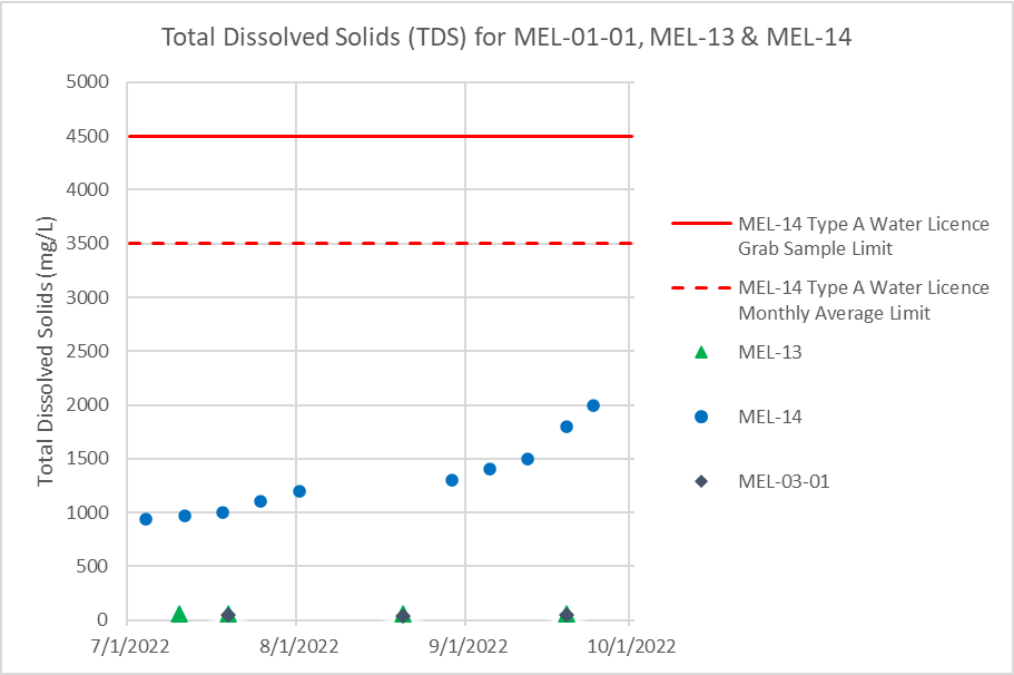

Figure 23. Total Dissolved Solids (TDS) results for MEL-03-01, MEL-13, and MEL-14 monitoring stations.

7.3.1.13 ***MEL-15 Local Lake E3***

MEL-15 is sampled in lake E3 located west of the mine site. It is a verification monitoring location which is sampled for operational and management purposes by the Licencee.

7.3.1.14 ***MEL-16 Local Lake G2***

MEL-16 is sampled in lake G2 located north west from the mine site. It is a verification monitoring location which is sampled for operational and management purposes by the Licencee.

7.3.1.15 ***MEL-17 Local Pond H1***

MEL-17 is sampled in lake H1 located east from the mine site. It is a verification monitoring location which is sampled for operational and management purposes by the Licencee.

7.3.1.16 ***MEL-18 Local Lake B5***

MEL-18 is sampled in lake B5 located south-west from the mine site. It is a verification monitoring location which is sampled for operational and management purposes by the Licencee.

7.3.1.17 ***MEL-19 CP2***

MEL-19 was a collection pond identified as CP2 in the 2015 Water Management Plan and in the 2016 pre-Amended Type A Water Licence. This was planned as a small pond for the collection of the natural catchment drainage from the outer berm slopes of the Landfarm and industrial pad. However, CP2 was

not required under the actual construction of the site and resulting runoff pathways and accumulation areas. In the amended Water Licence, MEL-19 is identified as CP2 and serves as a collection pond for drainage from Waste Rock Storage Facility 3 (WRSF3). CP2 and associated CP2 Berm, Channel 9 and Channel 10 construction took place between February and May 2022. Sampling at monitoring station MEL-19 commenced during the 2022 open water season at the frequency specified in the Licence. It is a verification monitoring location which is sampled for operational and management purposes by the Licencee.

7.3.1.18 ***MEL-20 CP3***

MEL-20 is sampled in CP3 (collection pond) which is the collection of drainage from the Tailings Storage Facility (TSF; dry stack tailings) located west of the mine site. It is a verification monitoring location sampled for operational and management purposes by the Licencee.

7.3.1.19 ***MEL-21 CP4***

MEL-21 is sampled in CP4 (collection pond) which is the collection of the drainage from the Waste Rock Storage Facility (WRSF1) located west of the mine site. It is a verification monitoring location sampled for operational and management purposes by the Licencee.

7.3.1.20 ***MEL-22 CP5***

MEL-22 is sampled in CP5 (collection pond) which collects the drainage from WRSF1 and the Portal 1 area. CP-5 is located in the previous footprint of Lake A54 and is located south of the mine site. It is a verification monitoring location sampled for operational and management purposes by the Licencee.

7.3.1.21 ***MEL-23 CP6***

MEL-23 is sampled in CP6 (collection pond) which collects the drainage from WRSF3 located east of the mine site. It is a verification monitoring location sampled for operational and management purposes by the Licencee.

7.3.1.22 ***MEL-24 Seepage from the landfill***

MEL-24 is defined as seepage from the landfill between the landfill and Pond H3 in the amended Water Licence. It is a verification monitoring location which is sampled for operational and management purposes by the Licencee. In December 2022, a proposal for modification of the description of the monitoring station MEL-24 in Table 2 of Schedule I of the amended Water Licence was submitted to the NWB. This submission was done in parallel of the Design Report for the construction of the Operation Landfill (Stage 4) submission.

As per the Design Report, the Operation Landfill (Stage 4) will utilize a pumping system to facilitate the removal of water ponded against the perimeter berm if the rate of seepage is insufficient for water removal. Water pumped from the Landfill will be directed to Pond H13, which is the current location seepage from the Landfill flows towards.

Thus, Agnico Eagle proposed to modify the MEL-24 description for the following: “Seepage from the Landfill between the Landfill and Pond H13 or water pumped from the Landfill and directed to Pond H13”.

7.3.1.23 ***MEL-25 Secondary Containment at the Itivia Fuel Storage Facility***

MEL-25 is sampled from the secondary containment area at the Itivia Site Fuel Storage and Containment Facility. It is a regulated monitoring station in the Water Licence. It includes discharge water quality criteria that must be achieved to maintain compliance.

Three notices for discharge from MEL-25 were sent in 2022 to the appropriate regulatory bodies. As per the Licence, water quality was confirmed in compliance with the water quality criteria prior to discharge. The dates and volume for each 2022 discharge event are presented in Table 21.

Table 21: Dates of discharge and discharged volume from monitoring station MEL-25 to tundra.

Date of Discharge	Volume (m^3)
June 5th to June 13st	2521
July 24th to July 25th	254
September 28th	360

7.3.1.24 ***MEL-26 Melvin Bay Final Discharge Point***

MEL-26 is sampled at the Melvin Bay final discharge point (FDP; end of pipe before offsite release) for treated saline effluent. It is a regulated monitoring station under MDMER. It includes discharge limits that must be achieved to maintain compliance.

In 2022, no water was discharged to Melvin Bay through MEL-26.

7.3.2 ***Underground sampling***

Underground contact water and non-contact groundwater monitoring is carried out as per the Groundwater Management Plan. The monitoring program is used to verify trends in the quantity and quality of water, and to conduct adaptive management when those trends diverge from those anticipated.

Water samples collected in the underground mine over 2022 include diamond drill hole (DDH) water intersects and underground saline contact water.

DDH water intersects are flushed prior to sample collection as a means to provide representation of “non-contact” groundwater within the fractured rock surrounding the underground mine. DDH water samples were collected quarterly at a minimum and as water was intersected (7 total samples over 2022). Samples were analyzed for relevant parameters to provide a representation of the background connate groundwater quality, which is the primary contributor of saline water received by the underground mine.

Water quality results for DDH samples collected in 2022 are provided in Appendix 21. In general, results for the 7 samples indicate stable and consistent concentrations for most parameters. Results showed an average TDS concentration of 50,957 mg/L, ranging from 46,400 mg/L to 58,800 mg/L. This represents a decrease of 4% compared year-over-year to the average TDS from samples collected in 2021.

Most metals listed under MDMER Schedule 4 (arsenic (As), copper (Cu), lead (Pb), nickel (Ni), and zinc (Zn) remain below the MDMER limits. In 2022, one sample collected on May 7th resulted in an arsenic

concentration of 0.546 mg/L, near the MDMER grab limit of 0.6 mg/L. However, it is suspected that this sample is an outlier due to the magnitude of the elevated concentration compared to similar samples. Moreover, an elevated concentration of 88 mg-N/L total ammonia was detected in this sample, indicating it was likely contaminated during sampling, as the average total ammonia concentration of other groundwater samples in 2021 and 2022 was below 6 mg/L. Other than the outlier, most concentrations for MDMER Schedule 4 total metals (As, Cu, Pb, Ni, Zn) are below the laboratory detection limits for the 2022 DDH water intersect samples. Few samples showed total metal concentrations equal to or slightly above the laboratory detection limits.

Underground contact water samples were collected monthly for water quality analysis from a port located on surface along the underground to surface pipe. The port is therefore located post clarification treatment and prior to redistribution of the water to surface contact saline water storage (Tiriganiaq Open Pit 2).This sampling point is a combination of sump (contact) water originating from the various levels of the mine, including groundwater, make-up water, drilling water, and paste line flushing water. Further information about the groundwater quality monitoring program is available in Section 4.1.2 of the Groundwater Management Plan.

7.3.3 ***QA/QC Sampling***

The objective of quality assurance and quality control (QA/QC) is to assure that the chemical data collected represent the material being sampled, are of known quality, are adequately documented, and are scientifically defensible. Data quality was assured throughout the collection and analysis of samples using specified standardized procedures, by employing external Canadian Association of Laboratory Accreditation (CALA) laboratories and by staffing the program with experienced technicians.

All analytical chemistry analyses are performed by external CALA-accredited laboratories. In most cases, these analyses are performed by Bureau Veritas (BV) Laboratories, an accredited facility located in Nepean, Ontario. Agnico Eagle may also require the services of other laboratories, such as BV Laboratories in Edmonton (Alberta), ALS (BC), SGS in Lakefield (Ontario) and H2Lab in Val d'Or (Quebec). All data from these labs undergo a rigorous internal QA/QC process, including the use of duplicate samples.

Acute and sublethal toxicity tests were performed by AquaTox Testing & Consulting Inc. in Puslinch, Ontario Testing was conducted as stipulated in the corresponding Environment Canada Biological Test Methods. QA/QC measures were implemented by the laboratory, including the use of reference toxicants. All toxicity tests conducted in 2022 met the acceptable limits and test results are therefore considered acceptable.[10]

Field blanks and duplicates were collected in 2022 as part of the internal quality control procedures. A field blank is a sample prepared in the field using laboratory-provided deionized water to fill a set of sample containers, which is then submitted to the laboratory for the same analysis as the field water samples. Field blanks are used to detect potential sample contamination during collection, shipping and analysis. Duplicate field water quality samples are collected simultaneously in the field at the same

[10] For the *Daphnia Magna* testing conducted on sample collected on July 4th, 2022, the reference toxicant result exceeded the 95% warning limits, but fell within the 99.7% control limits, for historical data. No other unusual circumstances were observed and therefore the test result is considered acceptable.

sampling location and using identical sampling procedures. They are used to assess sampling variability and sample homogeneity. In 2022:

- MDMER and EEM monitoring programs consisted of: 3 duplicate samples and 3 field blanks which were collected from a total of 17 samples, representing 17.6% of samples taken;
- Surface water monitoring programs consisted of: 18 duplicate samples, 16 field blanks which were collected from a total of 84 samples, representing 21% and 19% of samples taken, respectively.

Overall, collected and analyzed duplicate samples represent 20.8% of the field samples collected throughout 2022, which is higher than the QA/QC duplicate program objective of 10%.

No samples were taken from the STP (MEL-07) in 2022 due to the station being non-operational for the entirety of the year. All sewage collected at the exploration camp was transferred to the main camp STP sewage tank for treatment and therefore no sewage passed through the STP sampling location.

Analytical precision is a measurement of the variability associated with duplicate analysis of the same sample in the laboratory. Duplicate results were interpreted using the relative percent difference (RPD) between measurements. The equation used to calculate the RPD is:

$$RPD\ (\%) = \frac{(A - B)}{(A + B)/2} \times 100$$

Where A is the field sample concentration, and B is the duplicate sample concentration.

Large variations in RPD values are often observed between duplicate samples when the concentrations of analytes are low and approaching the method detection limit. Consequently, a RPD equal to or higher than 20% for concentrations of field and duplicates samples that both exceed 10 times the method detection limit (MDL) is considered notable. The analytical precision of one QA/QC sampling event is characterized as:

- High, when less than 10% of the parameters have variations that are notable;
- Medium, when 10 to 30% of the parameters have variations that are notable;
- Low, when more than 30% of the parameters have variations that are notable.

Results of the QA/QC data (RPD calculations) are presented in the tables included in Appendix 20 for the MDMER and EEM and Surface Water monitoring programs. The following is a brief summary of the QA/QC results, per sampling program:

- MDMER and EEM: All duplicate samples collected were considered as having high analytical precision. Some duplicate samples collected at station MEL-14 (1 duplicate) and MEL-03-01 (1 duplicate) showed notable RPD values for less than 10% of analyzed parameters.
- Surface Water: All duplicate samples collected were considered as having high analytical precision. Some duplicates collected at stations MEL-12, MEL-15, MEL-18, MEL-20 MEL-21, MEL-22 and MEL-SR1 showed notable RPD values, for less than 10% of analyzed parameters.

Results show that the QA/QC plan was followed and samples were collected by qualified technicians. QA/QC methods are further discussed in the Quality Assurance/Quality Control Plan.

Temperature, pH, dissolved oxygen, turbidity and specific conductivity are measured in the field using hand held meters such as HACH test kit – 2100 Q Portal Turbidimeter (turbidity), YSI (pH, dissolved oxygen, temperature and conductivity) and Eureka Manta II (pH, dissolved oxygen and conductivity). The instruments are calibrated before each sample event to ensure optimal performance and record of the calibration are kept in a calibration log. The calibration data regarding these instruments is presented in Appendix 22.

QA/QC methods and results for specific field programs (i.e., AEMP, geochemical monitoring) are discussed separately in their respective reports and are provided in appendices.

7.3 SEEPAGE

As required by Water Licence 2AM-MEL1631 Schedule B, Item 11*:* Summary of quantities and analysis of Seepage and runoff monitoring from the Landfill, Landfarm, Waste Rock Storage Facilities, Borrow pits and Quarries.

In 2022, no seepage was observed from the landfill or the landfarm, no seepage was observed from borrow pits or quarries.

7.4 VISUAL AWAR WATER QUALITY MONITORING

Inspections were regularly conducted at Itivia, along the AWAR and Bypass Road throughout the year, and in response to rainfall. Any visible turbidity plumes or erosion at Itivia, along the AWAR/Bypass Road, at culverts or bridges were documented by Environmental Technicians.

Pre-freshet and freshet inspections were conducted at Itivia, crossings along the AWAR and the Bypass Road in 2022. These inspections are conducted to monitor for and document potential hazards such as blockages impeding the free flow of water resulting in ponding, washing out of roads and unintentional rerouting of flow, detecting the presence/absence of flow, erosional concerns and turbidity plumes. Inspections were weekly at minimum over freshet. During inspections, areas for concern were noted and corrected appropriately (i.e., straw log deployment, notifying the Energy & Infrastructure (E&I) Department of maintenance requirements). A total of 4 Itivia inspections were carried out prior to and during freshet 2022, between May 11th and June 1st. 8 All Weather Access Road (AWAR) and Bypass Road inspections were carried out before and during freshet 2022, between May 7th and June 1st.

Throughout 2022, no significant events were observed in the AWAR and Bypass inspections. Minor issues occurred due to the melting snowbank and damage to the C02 culvert; however, these issues did not create significant erosions and impeded flow. Ponding water along AWAR reached its maximum acceptable level, as reported in inspections on May 18th and 20th, 2022, and reduced below the road height on the following inspection on May 25th, 2022. The inspection completed on June 1st indicates that most of the snow was melted from the increasing temperatures.

7.5 BLAST MONITORING

In compliance with Term and Condition 11 of NIRB Project Certificate No. 006, Agnico Eagle has developed a Blast Monitoring Program. The objective of the Blast Monitoring Program is to minimize the effects of blasting on fish and fish habitat, water quality and terrestrial Valued Ecosystem Components (VECs).

Peak particle velocity (PPV) and overpressure monitoring data were recorded throughout 2022 during blasting activities at Meliadine. During 2022, one surface location was monitored: Tiriganiaq Open pit 1 (TIR01). No blasting activities occurred at Tiriganiaq Open Pit 2 (TIR02) in 2022. The locations of the blast monitoring stations used in 2022 are shown in Table 22 and Figure 24 below.

Table 22. Tiriganiaq Open pits 1 & 2 (TIR01 & TIR02) Surface blast monitoring station coordinates

LOCATION	EASTING	NORTHING	DESCRIPTION
Explo Camp	541927.162	6989073.053	Permanent location used for TIR01 & TIR02 (installed 2020-08-20)
Comm Tower P1	539803.785	6988836.212	Permanent location used for TIR01 & TIR02 (installed 2020-08-20)

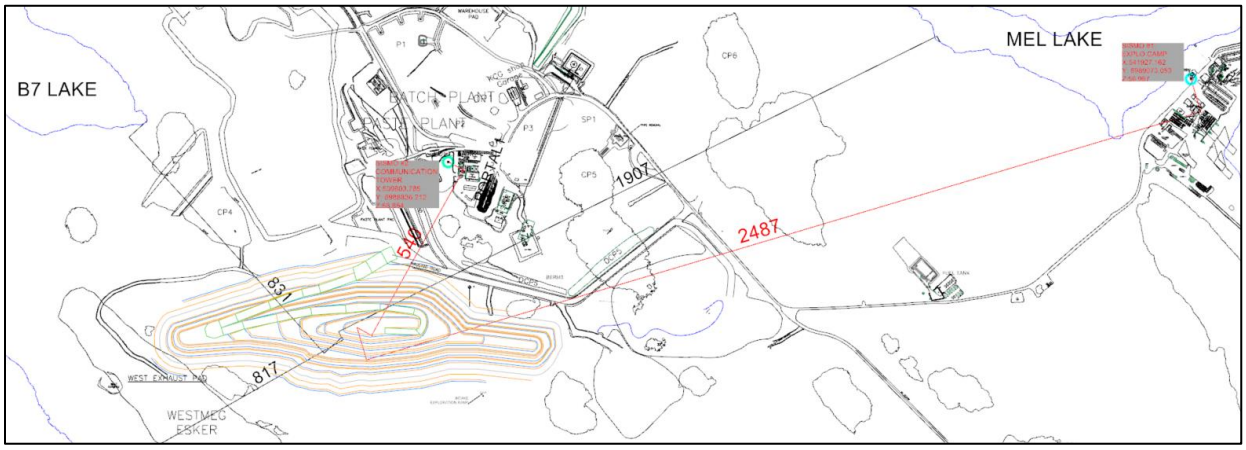

Figure 24. Surface Blast Monitoring Station Locations used for Tiri01 Blasts (Distance in Meters)

To improve vibration monitoring practices and data accuracy, permanent monitoring installations were commissioned on August 20th 2020, which allow the seismograph to be directly anchored into the bedrock via attachment to a steel rod drilled through the tundra. These permanent stations thereafter replaced the temporary locations used previously.

Blasts were monitored using an Instantel Minimate Blaster, which is fully compliant with the international Society of Explosives and Engineers performance specifications for blasting seismographs (Instantel, 2005). The transducer is installed as per the model specifications and measures transverse, vertical and longitudinal ground vibrations. Transverse ground vibrations agitate particles in a side to side motion. Vertical ground vibrations agitate particles in an up and down motion. Longitudinal ground vibrations agitate particles in a back and forth motion progressing outward from the event site (Instantel, 2005). The Minimate Blaster calculates the PPV for each geophone and calculates the vector sum of the three axes. The final result is the Peak Vector Sum (PVS) and is the resultant particle velocity magnitude of the event:

$PVS = \sqrt{(T^2 + V^2 + L^2)}$

Where:
T = particle velocity along the transverse plane
V = particle velocity along the vertical plane
L = particle velocity along the longitudinal plane

Detailed blast monitoring data compilation and results are available in Appendix 23. In 2022, no PPV or pressure value exceeded the guidelines, of 13 mm/s and 50 kPa, respectively. The average PPV value for 2022 was 1.58 mm/s, with a minimum of 0.13 mm/s and a maximum of 4.92 mm/s. The average pressure value for 2022 was 2.07 kPa, with a minimum of 0.17 kPa and a maximum of 6.46 kPa.

The 2022 Meliadine Blast Monitoring Report for the Protection of Nearby Fish Habitat is presented in Appendix 23.

7.6 NOISE MONITORING

The objective of the noise monitoring program is to validate predictions of noise levels made in the FEIS, confirm the findings of the noise impact assessment (Vol. 5 – Atmospheric Environment and Impact Assessment; Golder, 2014), and inform the implementation of noise mitigation measures. Specifically, measurements of noise levels are made in at least three or four locations previously identified over a period of at least two 24-hour periods. Results are compared to FEIS predictions for the 24-h L_{eq}, the $L_{eq\text{-}nighttime}$ design target, and the site's noise monitoring criteria (24-h L_{eq}).

Since high winds in the area tend to significantly reduce the amount of available data, technicians aim to conduct two or more monitoring events (noise surveys) for each station, lasting a minimum of 48 h (2 days). In 2022, two monitoring events were successfully conducted at stations NPOR006a, NPOR008, and NPOR014a, and three monitoring events were conducted at station NPOR017a. In total, the surveys lasted 65 – 116 h.

Noise monitoring stations are illustrated on following Figure 25.

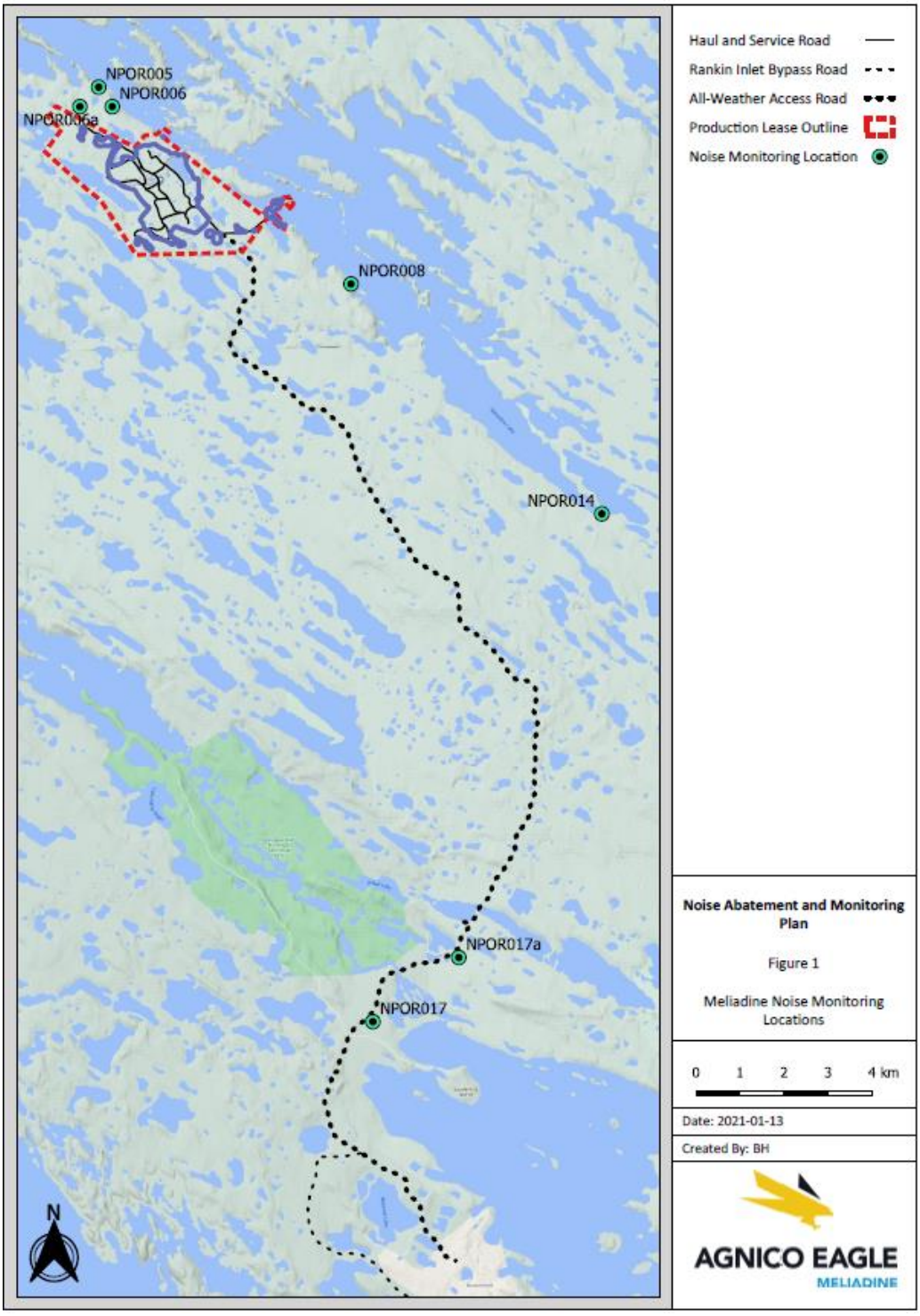

Figure 25. Meliadine Noise Monitoring Locations

Following processing of the data in accordance with standard methods (Alberta Energy Resource Conservation Board Directive 038), sufficient valid data was available for the calculation of at least two 24-h L_{eq} values for each monitoring station in 2022. Final values are shown in Table 23.

Table 23. Summary of noise monitoring results in 2022. Values exceeding FEIS predictions, criteria and/or design targets are in bold.

Location	**Monitoring Start**	**Monitoring End**	*Noise Monitoring Criterion* $L_{eq(24\ h)}$ *(dBA)*	*FEIS Prediction* $L_{eq(24\ h)}$ *(dBA)*	**Measured $L_{eq(24\ h)}$ (dBA)**	*Design Target* $L_{eq\ (nighttime)}$ *(dBA)*	**Measured $L_{eq\ (nighttime)}$ (dBA)**
NPOR006a	7/17/22 16:18	7/20/22 8:35	*45*	*39.8*	38.9	-	-
	7/25/22 9:49	7/28/22 11:27			37.1		-
NPOR008*	7/21/22 9:01	7/24/22 9:01	*45*	*41.7*	31.5	*40*	28.6
	8/26/22 16:22	8/29/22 23:59			40.0		**(40.1)^**
NPOR014a	7/30/22 11:39	8/03/22 9:08	*45*	*44.7*	39.2	-	-
	8/13/22 10:45	8/18/22 5:40			36.7		-
	7/21/22 9:37	7/24/22 13:36			33.4		-
NPOR017a	8/02/22 14:18	8/05/22 14:37	*45*	*43.4*	36.3	-	-
	9/13/22 16:26	9/16/22 11:56			41.9		-
	7/17/22 16:18	7/20/22 8:35			38.9		-

*An additional survey was conducted at NPOR008 from July 9 – August 1 but all data was filtered out due to high winds. ^Marginal exceedance of design target due to local wind gusts – no mine-related noise audible. "-" indicates not applicable.

For all stations and monitoring events, 24-h L_{eq} values were less than FEIS predictions and the site's noise monitoring criteria for this averaging time.

For NPOR008, one marginal exceedance of the night-time design target exceeded the FEIS prediction (41.7 dBA) during monitoring event 2 (August 26th – 29th) with a measured night-time L_{eq} of 40.1 dBA. However, this exceedance was determined to be caused by local elevated wind gusts and was not mine-related.

To date, no noise-related complaints have been received for the Meliadine site. Based on these findings, no changes to existing noise monitoring plans and mitigation measures are proposed at this time.

The complete Noise report can be found in Appendix 24.

7.7 AIR

7.7.1 Air Quality monitoring

Through its ambient air quality monitoring program, Agnico Eagle aims to measure airborne particulates, dustfall, and the gaseous compounds (NO_2 and SO_2) using a combination of active and passive sampling methods. In accordance with the Air Quality Monitoring Plan, monitoring in 2022 included year-round passive measurement of dustfall at four onsite sampling stations, as well as NO_2 and SO_2 at two locations, over one month averaging periods. Monitoring of suspended particulates (TSP, $PM_{2.5}$, and PM_{10}) occurred year-round at two onsite monitoring stations. Agnico Eagle also conducted summertime dustfall transect sampling (25, 50, 100, 300 m distances from the road) at three locations along the All Weather Access Road (AWAR) and one location along the Rankin Inlet Bypass Road.

Dustfall Locations are identified in Figure 26.

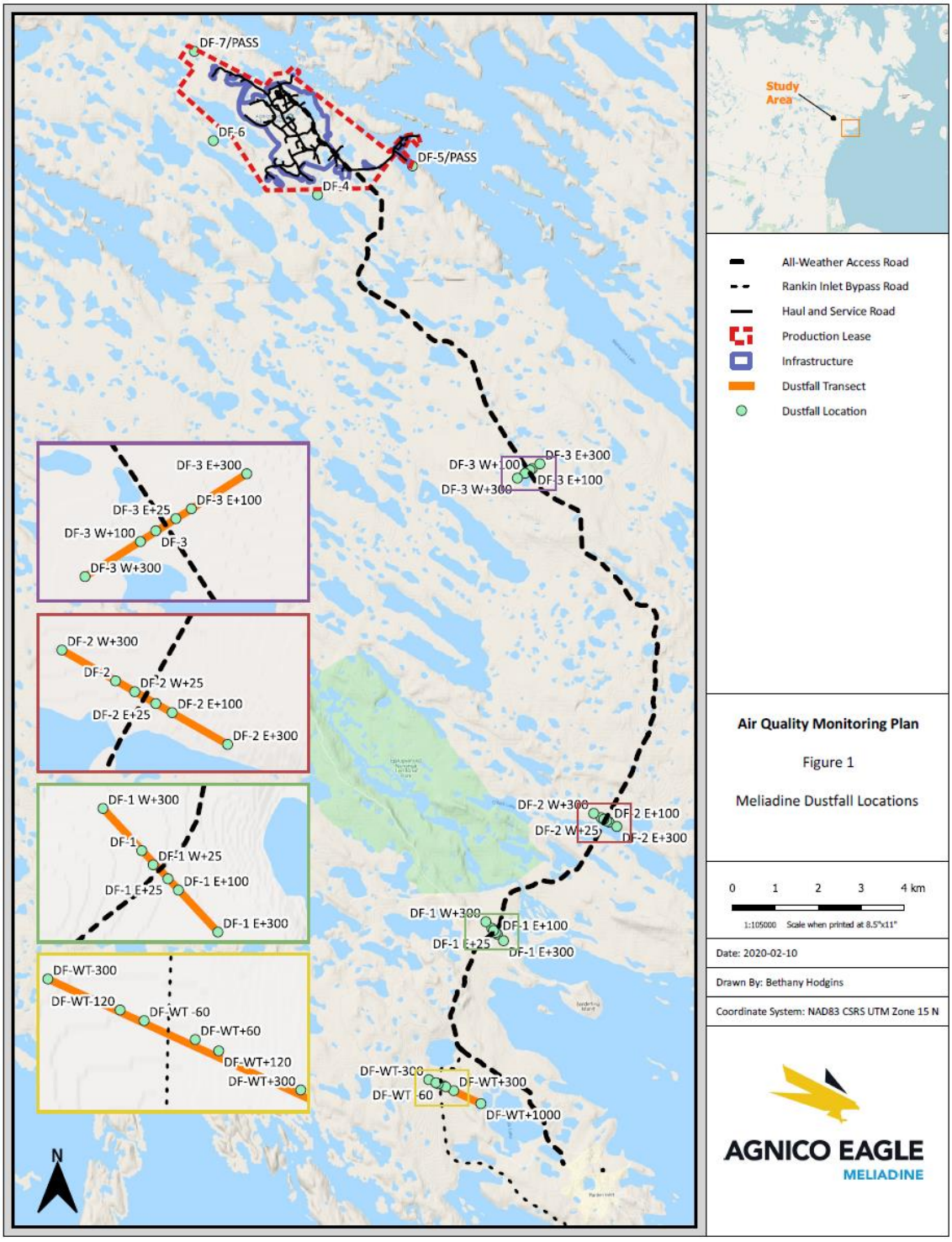

Figure 26. Dustfall Locations

Dustfall results are compared to Alberta's Ambient Air Quality Guidelines (Alberta Environment and Parks, 2019) for recreational and industrial areas (AB-Rec, AB-Ind), for context. These guidelines are

based on nuisance concerns and are not in place for the protection of environmental or human health. It is anticipated that guidelines for recreational areas may regularly be exceeded in close proximity to the AWAR or mine site, and that guidelines for industrial areas may occasionally be exceeded. Across all onsite perimeter dustfall monitoring stations (DF-4, DF-5, DF-6, and DF-7), 42 of the 43 samples collected in 2022 were less than the AB-Rec guideline. One sample exceeded both AB-Rec and AB-Ind (DF-5; March 11 – April 10), which is anticipated to occur occasionally. Historically, an increase in measured dustfall rates has occurred since mid-2017 when the construction period began, as anticipated, but exceedances of even the AB-Rec guideline continue to be relatively uncommon (<12% of samples in any year).

For AWAR and By-Pass Road dustfall monitoring transects (DF-1, DF-2, DF-3, and DF-WT, summer-only sampling), average rates of dustfall were similar to or less than to those observed previously. Even in very close proximity to the road (25 m), average rates of dustfall over the summer season for AWAR stations were less than the AB-Rec guideline. Dust suppressant in the form of calcium chloride dry product was applied along the length of the AWAR in April, and partial applications were completed in June, August, and September.

Suspended particulates (TSP, $PM_{2.5}$, and PM_{10}) are scheduled to be assessed every 6 d in two locations (DF-5 and DF-7) using four Partisol air samplers. With the exception of two TSP samples (DF-5; March 18 and 24) all results for suspended particulates (287 samples) were below regulatory guidelines for the 24-h averaging time (Government of Nunavut Ambient Air Quality Standards (GN, 2011)/BC Ambient Air Quality Objectives (BC, 2021)) and maximum concentrations predicted in the Final Environmental Impact Statement (FEIS) for the Meliadine Gold Project (Golder, 2014). The two TSP samples exceeding the 24-h guideline are likely related to a specific nearby construction event, and are not considered indicative of any developing trend of air quality concern. Annual averages for suspended particulates were less than relevant regulatory guidelines and 2014 FEIS predictions in all cases. Concentrations of metals of concern to the Project in TSP (cadmium and iron) were also less than 2014 FEIS-selected health-based screening values and FEIS maximum model predictions in all samples.
As in previous years, calculated annual average concentrations of NO_2 and SO_2 were well below the Government of Nunavut Ambient Air Quality Standards, and were also less than 2014 FEIS maximum predicted values.

As described in the Air Quality Monitoring Plan, a permanent weather station was installed at the Meliadine site, and daily averages for wind speed, direction, temperature, and solar radiation are provided.

Incinerator stack testing was performed in August – September 2022. Average measured concentrations of mercury and total dioxins and furans were below the GN standards for these parameters.The complete stack testing report is available in Appendix 15.

Since monitoring results in 2022 were within applicable air quality standards and FEIS predictions, and/or did not indicate any air quality trends of concern, no additional adaptive management measures are planned. Monitoring in 2023 will proceed according to the Air Quality Monitoring Plan.

The air monitoring full report can be found in Appendix 25.

7.7.2 Greenhouse Gas Emissions

Agnico Eagle is required by Environment Canada's Greenhouse Gas Emissions Reporting Program (GHGRP) to track greenhouse gas emissions. Calculated emissions for the Meliadine site (including Rankin Inlet operations) were reported on June, 2022 for the 2021 year. Total emissions were 127,359 tonnes CO_2e, which is less than the FEIS-predicted maximum of 317,000 tonnes CO_2e.

Environment Canada's Greenhouse Gas Emissions Reporting Program for the 2022 year will be completed by June 1st, 2023.

7.7.3 Climate

A permanent weather station was installed at the Meliadine site. The station records various data including daily and hourly data for the average, maximum and minimum temperature, the average and maximum wind speed, wind direction and solar radiation. In November 2020, a new weather station was installed to the northeast of the camp, featuring a new precipitation gauge (Geonor T-200B), and sensors for temperature, barometric pressure, and solar radiation. Table 24 summarizes 2022 annual temperature and precipitations records (from both the site weather station and Environment Canada at the Rankin Inlet Airport weather station, for comparison).

Table 24. 2022 Climate Conditions

Environmental Variable	Environment Canada (Rankin Inlet Airport)	Meliadine Site Weather Station
Temperature (°C)		
Mean Annual Temperature	-9.4	-9.3
Min. Annual Temperature	-40.9	-39.8
Max Annual Temperature	25.3	29.1
Precipitation		
Total Annual Snowfall (cm)	52.9	-
Total Annual Rain (mm)	169.6	-
Total Annual Precipitation (mm)	212.6	269.5

*****Sensors on precipitation gauge Geonor T-200B use vibrating wire technology, which is very sensible to movement or wind. High winds may induce erroneous data.

The maximum annual temperature (from Meliadine weather station) of 29.1°C was recorded on July 14, 2022 and the minimum annual temperature of -39.8°C was recorded on five days in February (February 2, 3, 11, 20, and 21) of 2022. The mean annual temperature was -9.3°C (Table 24). Total recorded annual precipitation at the Meliadine weather station was 269.5 mm and snowmelt began May 28, 2022 when the average daily air temperature consistently exceeded 0°C. The precipitation data were available in real-time in 2022 and were used for year-round precipitation data. Environmental variables continued to be monitored on an ongoing basis.

7.8 WILDLIFE MONITORING

All Meliadine employees and contractors are required to report wildlife sightings. All supervisors ask their employees to report wildlife sightings; wildlife logs are posted throughout the Meliadine camp and are easily accessible to employees to facilitate wildlife reporting after work shifts. All observations, problematic interactions, wildlife surveys conducted weekly along the AWAR, caribou migration, operation shut downs related to caribou migration, aerial observations when helicopters are active, onsite audits (i.e. for wildlife attractants) conducted by third parties, and mitigation actions taken following problematic

issues are reported in the monthly report to the Government of Nunavut, the Kangiqliniq Hunters and Trappers Organization and Kivalliq Inuit Association.

Department toolbox meetings were completed in 2022 for environmental subjects including wildlife and caribou migration. The toolbox presentations can be found in Appendix 26.

7.8.1 TEMMP

The objectives of the Terrestrial Environment Management and Monitoring Plan (TEMMP) annual report are to summarize annual data collected from wildlife and vegetation monitoring programs, and to describe natural variation and potential Project-related effects to wildlife populations within and adjacent to the Project. The data was collected according to procedures and sampling or monitoring intervals outlined in the Project's Standard Operating Procedures (SOPs) and the TEMMP. The 2022 TEMMP Annual Report describes monitoring objectives and methods, 2022 survey results, mitigation activities, and management recommendations (i.e., adaptive management). The complete 2022 TEMMP report can be found in Appendix 27. Complementary studies (Caribou Behaviour, Caribou Trail Camera, Arctic Raptors, Hunter Harvest studies) were conducted in 2022 and are included in Appendices of the TEMMP. Wildlife observations that can be found in Appendix 28.

Incorporation of Inuit Qaujimajatuqangit

Eight meetings and site visits were held in 2022 where Inuit Qaujimajatuqangit (IQ) was collected. Two local field assistants worked on site in 2022. Local participation in monitoring programs considered COVID-19 health and safety measures for the protection of local communities.

Direct Habitat Loss

Direct habitat loss is assessed every three years and was assessed in 2021 (next assessment in 2024).

Indirect Habitat Loss

Indirect habitat loss for caribou and wildlife habitat (soils and vegetation) is assessed every three years and was assessed in 2022 (next full assessment in 2025).

Wildlife Observations

Wildlife Sighting/Track Survey

- Wildlife sighting/track surveys were completed by Agnico Eagle personnel along the All Weather Access Road (AWAR) and infrastructure throughout the year.
- A total of 3,775 individuals from 10 identified wildlife species and 3 unidentified wildlife species groups (e.g., gull species) were recorded during surveys along the AWAR in 2022.

- A total of 537 individuals from 10 identified wildlife species and 3 unidentified wildlife species groups (e.g., gull species, duck species) were recorded during surveys on the Mine site in 2022.

Wildlife Incidentals

There were 341 recorded incidental observations, representing 910 individuals of 19 species, around the Mine site (including the camp area) and the AWAR in 2022.

Den Sites

- Surveys were completed between 16 March to 20 March 2022 to locate dens of Arctic fox, grey wolf, polar bear, grizzly bear, and wolverine along the waterlines alignment. No dens were identified.
- Additional den surveys were performed around the Meliadine Mine Site, AWAR and the Rankin Inlet Bypass Road (RIBR) during the summer. All dens identified were Arctic fox dens. Six dens were located around the Meliadine Mine Site, two along the AWAR and one along the RIBR. One den near the Meliadine Mine Site was active in 2022.

Bird Nests

Two common raven nests, one cackling goose nest, one barn swallow, one American robin nest, and one snow bunting nest were observed on Site 2022.

Incidents and Mortalities

A total of 41 mortalities across 4 different species was reported at the Project from 13 January to 19 December 2022; all of these mortalities were suspected or confirmed to be caused as a direct result of Project activities. The majority of mortalities were Arctic foxes, 37 of which were trapped under GN guidance and euthanized in 2022. Four incidental reports were completed in 2022. No caribou mortalities were reported in 2022.

Wildlife Deterrents

Wildlife deterrents (i.e., propane cannons and fake owls) were implemented at five locations to deter birds from nesting on site.

Barren-ground Caribou

Caribou Behaviour Monitoring

- Statistical analysis of 2020 to 2022 data found that caribou farther from infrastructure (>300 m) displayed lower proportions of response behaviours.
- The proportion of response behaviours in groups increased following disturbances, but behaviours usually returned to baseline levels after six minutes.
- Caribou displayed a greater likelihood to be walking, alert, or running in surveys where there were disturbances such as vehicle traffic.

Caribou Remote Camera Study

- As in 2020 and 2021, a study was conducted in 2022 using motion-trigger cameras to study caribou interactions with the Project infrastructure during their annual migration, and particularly the AWAR.
- The cameras were successful at capturing many caribou crossing the AWAR, with peak caribou passage occurring two weeks later in 2022 compared to 2021, consistent with patterns of inter-annual variability observed in the collar data. Caribou crossing timing and locations in 2022 were consistent with locations identified in 2020, 2021, and with locations identified by IQ from Inuit Elders and community members.
- Physical attributes of the road did not appear to influence crossing locations. More caribou were observed on cameras on the northern half of the road. Esker material is more common as a substrate on the northern half of the road which may suggest caribou prefer crossing on esker material.

Caribou Advisory

- Surveys to monitor migration of the Qamanirjuaq herd through the project were performed from 16 June through 01 August 2022. Caribou were detected during surveys from 19 June to 16 July, and closure of the Site and/or AWAR was triggered between 19 June to 15 July.
- The AWAR was closed for 273.50 hours across 13 days. Vehicle traffic on site was restricted for 269.70 hours across 17 days.
- Open pit operations, Exploration Camp, and activities at the Main Camp were restricted or shutdown for 266.70 across 16 days.
- Flights were cancelled to mitigate disturbance to caribou on July 11 and July 12.

Hunter Harvest

- The 2022 Hunter Harvest Study included 44 participants amongst which 31 reported harvesting caribou. A total of 547 caribou were reported as harvested in 2022.
- A total of 10 muskox, 8 wolverine, and 14 wolves were harvested in 2022. Other harvested terrestrial mammals included Arctic hare. In the marine environment, beluga (27 individuals) was

the most common species harvested followed by ringed seal (22 individuals), narwal (5 individuals), and bearded seal (1 individual).

- Considerably fewer birds were harvested by Rankin Inlet participants in 2022 (136 individuals) than in 2021 (394 individuals). In 2022, Canada goose and snow goose were harvested at the highest levels and made up 65% of all harvest bird species. Common eider, ptarmigan (Lagopus sp.), sandhill crane, and northern pintail were also harvested.
- Arctic char (878 fish), lake trout (124 fish), and Arctic cod (115 fish) were the most common species caught by fisherman. Relatively small numbers of Arctic grayling and lake whitefish were caught in 2022.

Birds

- Agnico Eagle contributed to the Environment and Climate Change Canada (ECCC) PRISM surveys in 2018 and 2019 and will continue to do so every five years (next survey in 2023/2024).
- Study design included two surveys, one to assess the location of occupied territories during the pre-incubation and incubation periods, and one to assess site productivity during the late brood rearing period. Occupancy models were used to determine influence of disturbance on nest occupancy for peregrine falcons and rough-legged hawks. The analysis did not find an effect of distance to disturbance on nest occupancy for either species.

Soil and Vegetation Monitoring

- A soil and vegetation health field program was carried out by an ecologist from 28 July to 2 August, 2022. No dust deposition was visually observed at the reference locations. However, dust deposition on vegetation was observed on vegetation near the AWAR and a few sampling plots at the Mine. Vegetation die-back was observed at one sampling location near the Mine. Agnico Eagle will continue inspecting vegetation visually to assess possible impacts of dust deposition on vegetation.
- Results from the 2022 soil and vegetation health monitoring and indicate that soil characteristics and vegetation health remain comparable to baseline conditions, with the exception of a small, localized area near the WRSF and Tailings Facility, which was observed to have higher arsenic concentrations in the soil and vegetation compared to past sampling. Results from the FEIS (Golder, 2014 - Volume 5 and 6, Sections 5.2 and 6.4 respectively) indicate there are areas where naturally occurring arsenic concentrations are high and above the CCME (2012) SQGs within the footprint, including the AWAR.

Non-native Plants

- Non-native plant surveys were completed along the AWAR and Project footprint from 28 July to 3 August.

- No non-native or invasive plant species were observed.
- From 2019 to 2021, many observations of what was then identified as flixweed (*Descurainia sophia*) were documented (Agnico Eagle, 2019; Agnico Eagle, 2020; Agnico Eagle 2022a). However, these samples have been confirmed by researchers from the University of Saskatchewan that this species is northern tansy mustard (*Descurainia sophioides*), a species native to Nunavut (Agnico Eagle, 2022b).

7.8.2 Marine Environment

A Marine Mammal and Seabirds Observation (MMSO) report was completed for all observations done during the 2022 sealift season by the shipping companies Groupe Desgagnés and Woodward Group of Companies (Woodward). The purpose of the MMSO program is to mitigate interactions between marine mammals and seabirds and Project vessels and to collect information on marine wildlife presence.

To address Term and Condition 68 from the NIRB Project Certificate 006, a technical analysis was carried out on vessel vessel traffic in Hudson Strait and Hudson Bay to review the Meliadine Mine's contribution to vessel activity in the area, and the results of a literature review conducted on vessel activity and marine bird mitigation in the study area. The technical analysis is presented in Appendix 29. In summary, results showed Meliadine's contribution to the overall vessel traffic in the study area in 2022 is approximately 6%. The majority of vessels with AIS tracks in 2022 are tugs/barges, followed by general cargo ships, and fuel tankers. Most of these vessels are servicing communities, as well as the Meliadine and Meadowbank Mines. Current mitigation measures, monitoring programs conducted as part of the shipping activities and shipping route allow for the vessels to remain well away from know concentrations of marine wildlife and defined important habitat.

Since 2020, the MMSO Report is coordinated for the shipping between the Meliadine Mine and the Meadowbank Complex (Meadowbank and Whale Tail Mines), contributing to cumulative effects monitoring.

In 2020 through 2022, ERM provided updated training materials for vessel crew that were delivered by Agnico Eagle to shipping companies supplying Meadowbank and Meliadine. These training materials were provided to Groupe Desgagnés and Woodward and included updated instructions for vessel crew on:

- setbacks from sensitive marine wildlife habitats such as marine mammal haul-outs and seabird colonies,
- mitigation procedures should marine mammals or seabirds be observed in or near the vessel path, and
- training materials for dedicated MMSO crew observers including detailed methods for marine mammal and seabird surveys, data sheets, and training videos.

The 2022 MMSO program resulted in greater survey effort compared to 2021. Since the improvement in training in 2020, all years (2020 through 2022) have resulted in greater survey effort compared to previous years. A total of 27 Groupe Desgagnés and Woodward vessels serviced the Projects between July and November during the 2022 shipping season: 13 for Meadowbank, seven for Meliadine, and seven serviced both Meadowbank and Meliadine.

The complete 2022 MMSO report can be found in Appendix 30.

Setbacks from Sensitive Habitats

In compliance with Whale Tail Mine Certificate No. 008, Term and Condition 39, project vessels must follow a setback distance of 500 m from colonies and aggregations of seabirds and marine mammals while transiting through the Hudson Strait, Hudson Bay, and Chesterfield Inlet. In addition, vessels must follow a setback distance of 2 km from Marble Island, as per Meliadine's Shipping Management Plan (SMP) (Agnico Eagle, 2022b). Vessel tracks were mapped along with identified sensitive areas for wildlife; where detailed data was available, vessels were shown to avoid these areas where safe to do so. Groupe Desgagnés and/or Woodward had several occasions where tracks appeared to intersect with 500 m setback polygons, or the 2 km setback polygon around Marble Island. However, in all but one case (one point within the Marble Island polygon), no ship track point was located within a setback polygon. Track data is based on satellite AIS (Automatic Identification System); therefore, ship track intersections likely occurred due to lack of ship track resolution and the intersection of existing points to create a continuous shipping track.

Vessel Mitigation

Vessels are required to transit south of Coats Island whenever the weather is safe to do so. The majority (89%) of vessels servicing the Meadowbank and Meliadine projects in 2022 travelled south of Coats Island, with the exception of three occasions, one of which occurred in August due to windy conditions in Hudson Bay, and the other two occurred in October, both due to inclement weather.

Marine Mammal Monitoring

In 2022, 92 transects were surveyed for marine mammals, and 47 stationary surveys were completed. There was a total of 32 sightings (19 during dedicated surveys and 13 incidentally) of marine mammals during the 2022 shipping season, compared to 35 (surveys and incidentally) in 2021, 12 (surveys and incidentally) in 2020, seven (all during surveys) in 2019, none in 2018, and six (all incidental) in 2017. The majority of all marine mammal sightings between 2017 and 2022 were recorded in the Hudson Strait or near Marble Island and Chesterfield Inlet. There is an insufficient number of marine mammal sightings recorded to conduct a density analysis. No marine mammal-vessel interactions (e.g., strikes) were recorded by Groupe Desgagnés or Woodward in 2022, or in previous years (2017 through 2021).

Seabird Monitoring

No interactions between vessels and seabirds were recorded during the MMSO in 2022, or in previous years. Seabird survey effort on moving vessels in 2022 was similar to 2021 and higher than early years, with 163 surveys completed. Over five years of moving vessel surveys for seabirds between 2018 and 2022, 49 species and 8,624 individual birds were recorded. No new species were recorded in 2022. The most common species recorded in 2022 were northern fulmar, razorbill, herring gull, and common murre. For the second year, common murre were reported in large numbers; while they can occur in the eastern portion of the shipping zone near Newfoundland, they are not common through the majority of the survey area. It is possible that identifications of common murre were actually thick-billed murre, which occur throughout the survey area. Across all years, thick-billed murre and northern fulmar are consistently among the most commonly recorded species.

Seabird detectability and density were estimated using models which account for lower detectability of birds with greater distance from survey transects. Detectability estimates were mostly consistent between years, with the highest estimate in 2022, followed by 2019 and 2021. Despite the higher detectability estimate, 2022 had the lowest predicted seabird density. The spatial effort of surveys in 2022 was higher than all previous years, but the number of seabirds recorded was similar to other years. The differences in estimated density are a reflection of variability in the effort and number of birds detected between years.

Stationary vessel surveys in 2022 were frequently lacking records of survey time, creating a lower sample size of surveys which were used for analysis. A total of 2,592 individuals from 37 species were recorded during stationary vessel surveys from 2019 to 2022. Nearly 50% of records were from 2021, and the remaining records were almost all from 2022 and 2020. The detection rate for stationary vessel surveys is roughly half of that for moving vessel surveys. This result is generally consistent with the data, which indicate that both detections and number of birds recorded per survey were lower for stationary surveys compared to moving surveys.

SECTION 8. CLOSURE

8.1 PROGRESSIVE RECLAMATION

8.1.1 Mine Site

As required by Water License 2AM-MEL1631 Schedule B, Item 18: ***A summary of any progressive closure and reclamation work undertaken including photographic records of site conditions before and after completion of operations, and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.***

And

As required by Water License 2BB-MEL1424 Part B, Item 6k: ***A description of all progressive and/or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;***

In 2022, progressive reclamation of the TSF took place. As per the Mine Waste Management Plan (MWMP) and Interim Closure and Reclamation Plan (ICRP), the closure plan for the TSF is to progressively place an engineered cover over the tailings surface. As-built (2019-2022) and expected quantities of material (waste rock and overburden) for progressive cover material at the TSF over LOM are presented in the MWMP.

A starter waste rock berm was initially placed along the outside perimeter to contain the initial lifts of the tailings; the berm will become a part of the closure cover. Additional lifts of compacted waste rock (with a maximum lift thickness of 1 m) are placed as the tailings surface is brought up as erosion and thermal protection. Safety berms are placed on each lift of the waste rock that also help to reduce dust generation from the tailings surface. In 2022, 250,645 tonnes of waste rock were used for the progressive closure cover of the TSF.

No other reclamation occurred at the mine site.

8.1.2 AWAR

In 2022, no reclamation occurred along the AWAR.

8.1.3 Quarries

In 2022, no reclamation occurred at quarries.

8.2 RECLAMATION COSTS

As required by Water License 2AM-MEL1631 Schedule B, Item 20: ***An updated estimate of the current restoration liability based on project development monitoring, results of restoration research and any changes or modifications to the Appurtenant Undertaking.***

And

As required by Water License 2BB-MEL1424 Part B Item 6h: ***An updated estimate of the current Meliadine West Gold Project restoration and liability, as required under Part B, Item 3, based upon the results of the restoration research, project development monitoring, and any modifications to the site plan*****;**

A permanent closure and reclamation financial security cost estimate was prepared in March 2014 using the RECLAIM model, version 7.0. According to that estimate, the closure and reclamation of all Project facilities amounted to $47,449,337. This estimate was included in the Preliminary Closure and Reclamation Plan (April 2015) prepared as part of the Type A Water License application. In negotiations between CIRNAC, Agnico Eagle and KivIA the quantum of security was increased to $49,555,000.

On July 1, 2017, the Production Lease KVPL11D01 between KivIA and Agnico Eagle came into effect; the security was confirmed at $49,555,000. Agnico Eagle posted a Reclamation Security Deposit, equal to 50% of this estimate ($24,777,500) with KIA.

In 2019, an Interim Closure and Reclamation Plan (ICRP) was prepared. CIRNAC's RECLAIM Reclamation Cost Estimating Model Version 7.0 workbook has been used for this estimate, as per the Guidelines for Closure and Reclamation Cost Estimates for Mines, issued by CIRNAC, Mackenzie Valley Land and Water Board and the Government of the Northwest Territories (CIRNAC, MVLWB & GNWT, 2017). The 2019 estimated closure and reclamation costs for the Meliadine Mine represented a total of $ 59,514,717. This total includes $ 34,462,041 of direct costs and $ 25,052,677 of indirect costs.

In 2020, a second version of the ICRP was prepared (SNC Lavalin Inc., April 2021). The general purpose of this ICRP was to update the interim closure and reclamation plan produced for the development phase of the Project, including the activities part of the Meliadine Water Licence Amendment, which are approved in the Meliadine FEIS and in the NIRB Project Certificate 006 (NIRB, 2019). The detailed financial security cost estimate for the Meliadine ICRP 2020 was updated using the RECLAIM Version 7.0 workbook. The updated 2020 estimated closure and reclamation costs for the Meliadine Mine represents a total of $69,687,246. This total includes $40,887,775 of direct costs and $28,799,471 of indirect costs.

The 2020 ICRP was updated again in December 2022, to comply with the below requirements:

- Part J, Item 2 of the Nunavut Water Board (NWB) Amended Water Licence 2AM-MEL1631:

  The Licensee shall, within eighteen (18) months of approval of this Licence by the Minister, submit to the Board for approval an updated Interim Closure and Reclamation Plan prepared in accordance with the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB/AANDC, 2013) and consistent with the Mine Site Reclamation Policy for Nunavut (INAC, 2002). In addition to the information required in the Guidelines and Policy, the updated ICRP shall also include the following information: Additional details on the Closure and post-Closure soil and Water quality Monitoring Programs, as information becomes available from operational data and from future versions of all applicable management plans.

- Commitment 37 (recommendation reference: CIRNAC-TRC-10) for the Waterline FEIS Addendum, Saline Effluent Discharge to Marine Environment (Nunavut Impact Review Board (NIRB) Project Certificate No. 006, Amendment No, 002):

> AEM committed to incorporating the details about the potential effects of the burial of waterlines, on reclamation and closure strategy, into the next iteration of the Interim Closure and Reclamation Plan.

It should be noted that the latest version of the ICRP submitted to the NIRB and NWB on December 23rd, 2022 did not include any modification to the estimated closure and reclamation costs.

Further, as part of the International Cyanide Management Code certification process, a Cyanide Management Decommissioning Overview (CDMO) document was prepared by Agnico Eagle, which includes a detailed estimation of the cost related with decommissioning of the Mine's cyanide facilities. The CDMO is presented in Appendix P of the updated ICRP.

SECTION 9. STUDIES/REVISIONS/MODIFICATIONS

9.1 SUMMARY OF STUDIES

As required by Water License 2AM-MEL1631 Schedule B, Item 21: ***A summary of any studies requested by the Board that relate to Water use, Waste disposal or Reclamation, and a brief description of any future studies planned.***

And

As required by Water License 2BB-MEL1424 Part B, Item 6l: ***summary of any specific studies or reports requested by the Board, and a brief description of any future studies planned or proposed;***

No studies were requested by the NWB in 2022.

9.2 SUMMARY OF REVISIONS

As required by Water License 2AM-MEL1631:
Schedule B, Item 22: ***Where applicable, revisions will be completed as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.***

And

Part B, Item 16:
The Licensee shall review the Plans or Manuals referred to in this Licence as required by changes in operation and/or technology and modify the Plans or Manuals accordingly. Revisions to the Plans or Manuals are to be submitted in the form of an Addendum to be included with the Annual Report required by Part B, Item 2, complete with a revisions list detailing where significant content changes are made, and should incorporate design changes and adaptive engineering required and implemented during construction and on the basis of actual site conditions and monitoring results over the life of the Project.

And

As required by Water License 2BB-MEL1424 Part B Item 6g: ***Any revisions to the Spill Contingency Plan, Site Water Management Plan, Used Water Management Plan, Waste Management Plan, Waste Rock and Ore Storage Plan, Landfill and Landfarm Management Plans, Abandonment and Restoration Plan, as required by Part B, Item 12, submitted in the form of an Addendum;***

The following Table 25 provides a summary the management plans and identifies the ones updated and the main revisions brought to them. They are available in Appendix 31.

Table 25. Management Plan Revisions

Management Plan	Version	Revision
2022 Annual Report Update		
Ammonia Management Plan	4	Minor text revisions, Update of Figure 1, Updates to reflect Amended Type A Water Licence changes
Aquatic Effects Monitoring Program (AEMP) Design Plan	2	AEMP Design Plansubmitted to the NWB to meet requirements of Type A Water Licence Amendment application.Version 2_NWB addressed comments received from regulators regarding the April 2022 Draft for Discussion.

Blast Monitoring Program	5	General Update
Cyanide Management Plan	2	Plan developed in 2022 for International Cyanide Management Code (ICMC) certification.
Explosives Management Plan	9	General Update
Freshet Action Plan (Appendix B of the Water Management Plan)	8	General update including minor text edits, addition of OP2 Stage 2 Monitoring at freshet, updates of Figures 4 and 5, removed Appendices
Groundwater Management Plan (Appendix A of the Water Management Plan)	9	General update including minor text edits, update of Predicted groundwater volumes section, of Saline Effluent Treatment, Storage and Haulage section, of the Medium-Term Mitigation Measures – Groundwater Monitoring and Grouting section, of Table 2, Table 3 and Table 4
Mine Waste Management Plan	10	Update to reflect Meliadine operational status Update quantities according to latest mine plan
Oil Pollution Emergency Plan / Oil Pollution Prevention Plan (OPEP/OPPP)	8	Updated to include Level 2 facility information, minor updates to spill response kit content, minor updates to contact information, updated to align with CSA 182(1)(a) spill reporting requirement
Ore Storage Management Plan	5	Update quantities according to the latest mine plan
Spill Contingency Plan	13	General Update, updated to address E2 Regulations, Sections 6.5, 6.6, 6.7 updates to spill type, response and disposal methods, Section 8 update of training and simulation exercises, Section 10 updates to MDMER information, Section F.1 updated to comply with ICMC requirements
Water Management Plan	13	Minor changes to the local hydrology section text, Addition of channel 2 berm planned in Q2 2023, Modification of as-built numbers in section 3.2, Text update on section P-area containment ponds, Addition of description on SP3 saline pond Update of as-built numbers for channels 9 and 10, Management activities accomplished in 2022 and planned for 2023, Modification of predicted Groundwater inflows for version V14 of the Golder model, Update of Effluent discharge numbers for 2022
Current Management Plans Not Updated as Part of the 2022 Annual Report		
Adaptive Management Plan for Water Management	2	NA
Air Quality Monitoring Plan	3	NA
Analysis of the Risk of Temporary Mine Closure	1	NA
Borrow Pits and Quarries Management Plan	6	NA
Bulk Fuel Storage Facility: Environmental Performance Monitoring Plan	1	NA
Dust Management Plan	6	NA
Environmental Management and Protection Plan (EMPP)	9	NA
Greenhouse Gas Reduction Plan	1	NA
Hazardous Materials Management Plan	5	NA
Incineration Management Plan	7	NA
Itivia Bulk Fuel Storage Facility Environmental Performance Monitoring Plan	1	NA
Landfarm Management Plan	4	NA
Landfill and Waste Management Plan	8	NA
Meliadine Interim Closure and Reclamation Plan	3	NA

Noise Abatement and Monitoring Plan	3	NA
Ocean Discharge Monitoring Plan	4	NA
Phase 1 AWAR Monitoring Plan between Rankin Inlet and the Meliadine Site	3	NA
Quality Assurance and Quailty Control (QA/QC) Plan	4	NA
Risk Management and Emergency Response Plan	4	NA
Roads Management Plan	9	NA
Sediment and Erosion Management Plan	3	NA
Shipping Management Plan	9	NA
Terrestrial Environment Management and Monitoring Plan (TEMMP)		
Water Quality and Flow Monitoring Plan	2	NA
Water Quality Management and Optimization Plan	4	NA
Wildlife Protection and Response Plan	8	NA

9.3 MODIFICATIONS

As required by Water License 2AM-MEL1631 Schedule B, Item 15: ***A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.***

And

As required by Water License 2BB-MEL1424 Part B Item 6e*: A summary of modification and/or major maintenance work carried out on the Water Supply Facilities, Bulk Fuel Storage Facility, Bermed Fuel Containment Facilities, and Wastewater Treatment Facility, including all associated structures, and an outline of any work anticipated for the next year*

In 2022, landfarm remediation work took place, as mentioned in section 5.

As for maintenance work carried out in 2022, and as presented in Table 1 and in Section 4.1, rehabilitation of the CP4 Berm and of the perimeter of CP4 was conducted. Rehabilitation of the downstream side of the D-CP1 was also carried out.

In December 2022, Agnico Eagle submitted a modification proposal to the NWB of the description of monitoring station MEL-24 in Table 2 of Schedule I of the amended Water Licence 2AM-MEL1631. In parallel of this modification proposal, Agnico Eagle submitted a Design Report and drawings (Technical Memorandum) for the construction of the Operation Landfill (Stage 4) Berm Raise (Agnico Eagle, 2022), which was approved by the NWB in February 2023.

The design of the Operation Landfill (Stage 1) (Tetra Tech, 2017) did not include a water collection system, as internal runoff captured by the Landfill was expected to gradually seep through the northeast perimeter berm, where it would naturally flow to Pond H13 to be managed by the existing Mine water

management system. However, the addition of material to the existing berms is expected to cause permafrost to aggrade within the berms, which could inhibit seepage by reducing the hydraulic permeability of the berms. Thus, an additional means of water management is expected to be required to remove runoff captured by the Landfill.

As per the Design Report, the Operation Landfill (Stage 4) will utilize a pumping system to facilitate the removal of water ponded against the perimeter berm if the rate of seepage is insufficient for water removal. Water pumped from the Landfill will be directed to Pond H13, which is the current location seepage from the Landfill flows towards. Therefore, Agnico Eagle proposed to modify the MEL-24 description for the following: “Seepage from the Landfill between the Landfill and Pond H13 or water pumped from the Landfill and directed to Pond H13”.

As presented in Section 2.2, some rehabilitation work on different infrastructures on site is planned for 2023, including Channel 3, CP6 ramp extension, TSF west thermal fill, CP3 thermal fill, Channel 5 rebuilt and fill, D-CP1 Channel and CP2 thermal fill. Agnico Eagle will also be improving the berms located at the bottom of the access ramp of Saline Pond 1.

SECTION 10. OTHERS

10.1 ACTIVE PERMITS

Below is the list of active permits and authorizations for Meliadine.

Table 26. List of active permits and authorizations for Meliadine

Issued By	ID	Description	Issue	Expiry
KIA	KVPL11D01	Production lease	2017/06/30	2027/06/29
KIA	KVCA07Q08	Tiriganiaq/Westmeg/Meliadine quarry permit	2021/09/22	2024/09/12
KIA	KVCA11Q01	Exploration road quarries	2021/08/18	2024/04/19
KIA	KVRW11F02	Exploration road right-of-way	2022/07/31	2032/07/31
KIA	n/a	Water Compensation Agreement	2016/02/11	2031/03/31
KIA	IIBA	Inuit Impact & Benefit Agreement	2017/03/01	-
NWB	2BB-MEL1424	Bulk Sampling and exploration drilling water license	2009/07/31	2024/07/21
NWB	2AM-MEL1631	Mining undertaking water license	2021/06/23	2031/03/31
NIRB	006 Amendment 02	Project certificate (Meliadine Phase 1)	3/2/2022	N/A
NIRB	16QN071	Screening decision (Itivia Quarry)	-	-
GN-NAD	102631 or LE-03-320-0036	Land lease, laydown Itivia	2021/07/01	2031/06/30
GN-CGS	L-51809T	Right-of-Way permit AWAR on Municipal land	2017/06/01	2027/05/31
GN-CGS	L-51808T	Right-of-Way Lease Bypass Road km 2-7	2017/06/01	2027/05/31
GN-NAD	102893 or LE-03-320-0046	Right-of-way lease bypass road km 1-2	2017/07/01	2027/07/01
GN-ENV	2019-058	Wildlife Research Permit	2022/04/01	2023/03/31
GN-ED&T	LE-03-320-0036	Nunavut Airports Space Lease	2021/07/01	2031/06/30
CIRNAC	55K/16-42-2	Saline Effluent Discharge and Diffuser Lease	2019/07/19	15 years after issued

In 2022, no research activities were undertaken that would trigger the requirement for a scientific research licence under the Nunavut Scientists Act.

10.2 INSPECTIONS

As required by Water License 2AM-MEL1631 Schedule B, Item 24: ***A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.***

In 2022, Agnico Eagle worked with regulators throughout the year to develop in-person site visits and site inspections. During these site visits, public health guidelines were followed as applicable. Table 27

summarizes inspections and site visits that took place in 2022. Follow-up information to the site visits and inspections was provided to regulators by Agnico Eagle as applicable.

Table 27: Inspections and site visits by regulators in 2022

Date	Authority	Topic	Feedback/Outcome
March 11, 2022	CIRNAC	Site Inspection	An inspection of reportable spill number 2022-019 was conducted and focused on the thickener tank area. Follow-up information was required by CIRNAC via inspection report dated March 15th, 2022, relative to: • the monitoring frequency of the location; • the decision to dispose of the processing water in the mill , • the clean-up of frozen processing water around the construction/ storage area on the industrial pad, and • the completion of the observed thickener tank. The actions were addressed by Agnico Eagle between March 11th and March 24th. In summary, Agnico Eagle confirmed that until the investigation is completed and the cause of the spill is fixed visual inspections of the thickener would be increased, and that there was space available for the spill material to thaw before being reintroduced in the Mill's processing water circuit. Moreover, Agnico Eagle confirmed that should there be any constraints to a full clean-up of the area, CIRNAC would be notified and that the observed thickener tank is completed.
April 19, 2022	CIRNAC	Site inspection	An inspection of reportable spill number 2022-136 was conducted and focused on the waterbody A8 area. Follow-up information and documentation requests were submitted by CIRNAC via email on April 20th, 2022, relative to various parts of the drilling on ice process. Agnico Eagle provided the follow-up information and documentation via email on April 28th, 2022. In summary, Agnico Eagle provided working on ice procedures, water usage information, clarification on the process to empty cuttings from the drills, details on the cutting disposal method and location, the spill retainment procedure as well as example of internal inspections.
May 13, 2022	CIRNAC	Follow-up site inspection	A follow-up to the April 19th, 2022 inspection was conducted and focused on the waterbody A8 area and the completion of the drilling on ice activities. CIRNAC informed AEM that a follow-up inspection would be conducted May 18th, 2022 to conduct sampling on waterbody A8 and follow-up information was requested relative to actions that would be taken to finalize clean-up following completion of the 2022 drilling on ice activities as well as actions that would be taken prior to the 2023 drilling on-ice season, to avoid and mitigate spill occurrences. A teleconference call was organized between CIRNAC, ECCC, Agnico Eagle and its drilling contractor Orbit Garant on May 17th, 2022 during which these items were further discussed and parties agreed an action plan for the 2023 season would be developed collaboratively. Relative to finalization of clean-up following completion of the 2022 drilling on ice activities, photos and description of the actions taken were sent to CIRNAC via a sharepoint on May 17th, 2022.

May 18, 2022	CIRNAC & ECCC	Sampling Inspection	A follow-up to the April 19th and May 13th inspection was conducted to sample the waterbody A8 area. Four samples were collected on waterbody A8 and were analyzed in ALS Laboratories in Winnipeg.
July 12, 13 &19 2022	DFO & CIRNAC	AWAR & Site Inspection	A routine compliance inspection took place over three spereate days due to closure of the AWAR during the caribou migration. The Itivia marshalling facility, the tailings storage facility, the MEL-14 monitoring station and spill closure locations were visited. Follow-up information on TSS management at Itivia, fine grain material observerd along the CP-3 access road and TSF inspection records were requested by CIRNAC and Agnico Eagle provided the requested information via email.
July 26 & 27, 2022	NIRB	Annual Site Visit	An annual site visit was conducted on July 26th and 27th, 2022 to assess compliance with the amended Project Certificate 006. A general site tour was completed; the following locations were visited: Dyno Area, Construction laydown pad, Dyno road, Berm 2, Tailings storage pad, CP3, Landfill, TIRI-01, WRSF 1, SP4, TIRI-02, Landfarm B, Exploration camp, Reclamation Plots, Pipe Laydown Area, CP5, CP1, Landfill A and Oil Water Separator, Incinerator, Old EWTP, Million Fuel Tank, Portal 2, Snow Cell, SWTP, CP4, Meliadine Lake Discharge, CP2, RO, SP1, S[3, CP6, Fuel Tanks, WTC, Freshwater intake, weather station, and walking trail, as in its visited order. No follow-up was required after the site visit was concluded.
August 25, 2022	KIA	Site Visit	A routine site visit was conducted to see the potential airstrip and wind mill/turbine locations as well as to complete an overall site tour. The following locations were visited: WRSF1, WRSF3, SP1, TSF, TIRI01, TIRI02 Pits and CP1. No follow-up was requested after the site visit was concluded.
September 24 & 25, 2022	ECCC	Site Inspection	A general site inspection was conducted to assess compliance with the Metal and Diamond Mine Effluent Regulations, the Environmental Emergency Regulations, the Cross-border Movement of Hazardous Waste and Hazardous Recyclable Material Regulations, the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations and the Fisheries Act. Three follow-ups were requested from ECCC via email concerning AWAR culvert coordinates, Spills Contingency Plan, Fuel transfers in 2022. The requested documentations were provided by Agnico Eagle via email.
October 26, 2022	TC	Oil Handling Facility Inspection	A routine inspection of Meliadine's oil handling facility was conducted. The inspection started at the Itivia office, after which spill response equipment and seacan inventory was reviewd. The inspection was concluded by observing an active fuel transfer. Follow-up information was requested by TC relative to the content of Meliadine's OPEP/OPPP and Agnico Eagle has accounted for these request in the updated version of the plan submitted as part of the 2022 Annual Report.

10.3 AWAR

In 2019, Agnico Eagle began transporting treated saline effluent by truck for discharge to sea, resulting in increased traffic on both the AWAR and the Bypass Road. Discharge to sea activities were also carried out during the 2020 and 2021 open water seasons. In 2022, no treated saline effluent was transported and discharged to Melvin Bay, resulting in less traffic on the AWAR in 2022 compared to 2021. Table 28shows the 2022 traffic observed on the AWAR in comparison to the FEIS's predictions. 2022 AWAR traffic data is presented in the TEMMP report in Appendix 27. AWAR Traffic data is collected by the gatehouse personnel. Due to the important turnover in gatehouse personnel for a part of 2022, traffic data, which is normally recorded daily, was not recorded on a few isolated days. As a result, when a traffic data was not available for a few days in a month, an average of the available traffic data was used and extrapolated to the days with missing data. This could result in a minor deviation within the data, but it is still considered representative.

In order to monitor rates of dust deposition along the AWAR, Agnico Eagle has established 3 transects at kilometers 4, 10, and 23 (DF-1, DF-2, and DF-3, respectively). Each transect includes samples at 25 m, 100 m, and 300 m on the east (downwind) and west (upwind) side of the road. The use of transects rather than single samplers is in line with common practice and allows Agnico Eagle to verify if dustfall rates decline from the AWAR as predicted in the FEIS.

As discussed above in section 7.7, for AWAR and Bypass Road dustfall transects monitoring stations, average rates of dustfall were similar to or less than to those observed previously. Even in very close proximity to the road (25 m), average rates of dustfall over the summer season for AWAR stations were less than the AB-Rec guideline. These results indicate low rates of dustfall overall, as discussed in the Air Quality Monitoring Report in Appendix 25.

Table 28. 2022 AWAR monthly traffic summary

Month	Total traffic	**Predicted traffic (FEIS)**
January	844	1178
February	792	1064
March	1143	1178
April	1217	1140
May	1728	1178
June	1417	1062
July	1696	1087
August	2094	1099
September	1398	1056
October	2401	1178
November	2098	1140
December	1553	1178
Total	18381	13538

10.4 MARITIME TRANSPORTATION

During the 2022 shipping season,a total of 27 vessels, (two of which were tugs, 14 cargo, and 11 fuel) travelled to Meadowbank (13 vessels), Meliadine (seven vessels), or to both Meadowbank and Meliadine (seven vessels) between July 3 and November 11, 2022. Post-oil transfer reports can be found in Appendix 32.

A summary of Groupe Desgagnés and Woodward Vessels during the shipping season is presented in Table 29. No incident (vessel strikes with marine mammals or marine birds) was reported during the 2022 maritime transportation. Agnico Eagle continued to implement in 2022, in accordance with the TEMMP, a protocol to ensure that all equipment and bulk supplies must arrive to Mine site free of soil or plant debris to minimize the risk of invasive plant introduction. Invasive plant inspection surveys was completed on cargo in Becancour, prior to being loaded onto shipping vessel. Carrier had closely followed the procedure and have confirmed that each equipment/sea can was free of invasive plant. Inspection forms can be found in Appendix F of the 2022 TEMMP Report, in Appendix 27.

Table 29. Summary of Groupe Desgagnés and Woodward Vessels during the shipping season (July to November 2022)

Vessel Name	Fuel or Cargo	Project and Number of Trips			Total Trips
		Meadowbank	Meliadine	Meadowbank and Meliadine	
Kivalliq W	Fuel	1	-	1	**2**
Kitikmeot W	Fuel	2	-	-	**2**
Tuvaq W	Fuel	2	-	-	**2**
Marlin Ametrine	Fuel	2	-	-	**2**
Qikiqtalluk W	Fuel	-	2	1	**3**
Nordika Desgagnés	Cargo	1	2	1	**4**
Atlantic Elm Tug	Cargo	1	-	-	**1**
Atlantic Beech Tug	Cargo	1	-	-	**1**
Acadia Desgagnés	Cargo	1	-	-	**1**
Claude Desgagnés	Cargo	-	1	1	**2**
Sedna Desgagnés	Cargo	-	1	-	**1**
Zélada Desgagnés	Cargo	1	-	1	**2**
Miena Desgagnés	Cargo	1	1	2	**4**
Total		**13**	**7**	**7**	**27**

10.5 INTERNATIONAL CYANIDE MANAGEMENT CODE CERTIFICATION

In 2022, the Meliadine Mine was audited for the first time for the International Cyanide Management Code (ICMC) Certification, for both Transport and Mine Operations protocols. Agnico Eagle received confirmation of certification from the International Cyanide Management Institute (ICMI) for both Transport and Mine Operations aspects of the ICMC early 2023.

As per previous years, a cyanide information brochure was made available to employees and the public. Copies are available at the Agnico Eagle office in Rankin Inlet and are also online www.aemnunavut.ca/documents/.

SECTION 11. PUBLIC CONSULTATION

As required by Water License 2AM-MEL1631 Schedule B, Item 25: ***A summary of public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events and information sessions.***

And

As required by Water License 2BB-MEL1424 Part B, Item 6m: ***A summary of public consultation/participation, describing consultation with local organizations and residents of the nearby communities, if any were conducted*****;**

And

As required by NIRB Project Certificate No.006 Condition 103: ***The Proponent is encouraged to consult with the Kangiqliniq Hunters and Trappers Organization and the Kivalliq Socio-Economic Monitoring Committee and to make all reasonable efforts to engage Elders and community members of the Kivalliq communities in order to have community level input into updates to its monitoring plans, programs and mitigative measures. This type of engagement will ensure that these programs and measures have been informed by traditional activities, cultural resources, and land use as such may be implicated or impacted by ongoing Project activities. All plans are to include a feedback mechanism for consulting with residents of the Kivalliq, including the provision of results from the Proponent's wildlife monitoring programs to each community. The Proponent shall submit updated plans to the NIRB within 30 days' of their revision and/or finalization.***

11.1 COMMUNITY MEETINGS IN CHESTERFIELD INLET

On May 3rd, 2022, an engagement session was held with Chesterfield Inlet hamlet representatives to present the 2022 Sealift Season schedule. During the session, the following topics were presented:

- Vessel routing from Quebec to Nunavut and routing to Rankin Inlet
- Monitoring of marine mammals and seabirds
- All Weather Access Road (AWAR) closure process
- Caribou Monitoring
- Process to find live information about the vessel routing
- Process to ask questions and raise concerns via Tusaajugut 'We are Listening'

Nunavut Sealink & Suppy Inc—Desgagnés Transarctik representatives and Agnico Eagle Environment team were present during the teleconference to answer any questions or concerns.

Throughout 2022, Agnico Eagle ensured Chesterfield Inlet community members and key stakeholders were continuously informed and consulted on various topics. In 2022, the following community engagement activities took place in Chesterfield Inlet:

- One (1) support meeting with Chesterfield Inlet to discuss community development opportunities as well as the future of both Meadowbank and Meliadine Mines;
- One (1) meeting with Chesterfield HTO to discuss on the future of both Meliadine and Meadowbank Mines, as well as about donations program;

- One (1) consultation with Aqigiq (Chesterfield) HTO board for Whale Tail Extension;
- Two (2) employment information sessions to promote career opportunities at AEM in the communities;
- One (1) event hosted by Agnico Eagle in Chesterfield Inlet: Nunavut Day On the Land Celebrations.

The purpose and outcomes of the above engagement initiatives are summarized in Appendix 33.

11.2 COMMUNITY MEETINGS IN RANKIN INLET

Agnico Eagle ensured Rankin Inlet community members and key stakeholders were continuously informed and consulted. In 2022, the following highlights some of the community engagement and initiatives which took place in Rankin Inlet (with the full list provided in Appendix 33):

- One (1) consultation with the Hamlet of Rankin Inlet in relation to the waterline lease submittal on hamlet land;
- One (1) consultation with Rankin Inlet public to answer comments and questions on the waterline;
- One (1) Coffee and Chat with Rankin Inlet public where the Meliadine General Manager and Agnico Eagle employees answered questions, concerns and received feedback;
- Six (6) meetings took place with Rankin Inlet Hamlet in relation to ongoing business within the community;
- Four (4) meetings took place with cabin owners to provide updates and receive comments on fish offset options, quarry activities, ATV trails and dust;
- One (1) meeting with Rankin Inlet CEDO to discuss summer student program and learn about the Community Freezer Project;
- Agnico Eagle hosted the Rankin Inlet Family Day;
- One (1) Pre-employment Training Program was held in Rankin Inlet;
- Three (3) Employment Information Sessions were held in Rankin Inlet.

In 2022, as part of the International Cyanide Management Code (ICMC), Agnico Eagle informed the community and first responders of Rankin Inlet regarding the cyanide transportation along the All-Weather Access Road (AWAR). Engagement included:

- In-person meeting with the community first responders to share cyanide transportation procedure, safety measures and collect feedback and comments on the current process;
- Agnico Eagle visited the Rankin Inlet Fire Department and RCMP to provide information on the upcoming Cyanide transportation and share information pamphlet. This in-person visit allowed Agnico Eagle to receive comments and feedback as well as answer any concerns regarding the process.

Appendix 33 provides a comprehensive list of all the engagements, consultations and initiatives that took place with key stakeholders in Rankin Inlet.

11.3 MEETINGS WITH RANKIN KHTO

In 2022, eleven (11) meetings were held with the Rankin Inlet HTO. Agnico Eagle continued to have regular engagements on project activities throughout 2022, including regular communication between the Meliadine Environment team and Rankin KHTO.

Meeting topics included:

- AWAR measures and Caribou migration season;
- Meliadine waterline project update, dewatering and fish out;
- Meliadine TAG meeting to support the construction of the Meliadine Waterline;
- Boat launch review;
- Rankin Inlet Fishing Derby;
- Updates on current and upcoming projects at the mine.

Appendix 33 provides a comprehensive list of all the engagements, and consultations that took place with Rankin Inlet HTO in 2022.

In 2022, the Meliadine Environment department and KHTO Wildlife Coordinator kept communication regularly throughout the year through bi-weekly meetings, email and phone and punctual in person meetings. General topics included wildlife monitoring and the caribou migration.

11.4 COMMUNITY LIAISON COMMITTEE MEETINGS – RANKIN INLET

In 2022, Agnico Eagle did not attend any meetings with the Meliadine Community Liaison Committee in Rankin Inlet due to COVID-19 pandemic restriction. The Committee is facilitated and chaired by the Hamlet of Rankin Inlet as a specific working group of the Hamlet and sometimes included representation from various groups and organizations. In 2020, Agnico Eagle planned to establish their own Community Liaison Committee to ensure that groups such as Elders, Youth, Hunters and Trappers Organizations, RCMP, etc. are regularly consulted on the operations, however, due to COVID-19 this initiative was paused. In 2023, Agnico Eagle plans to implement a new initiative to encourage a dialogue exchange between Agnico Eagle and the local sub-groups (youth, women, Elders, etc.) of Rankin Inlet. In 2022, this new initiative was launched in a form of newsletter to share update on Agnico Eagle's Nunavut operations to Baker Lake Community Liaison Committee members. Agnico Eagle intends to implement this new initiative in 2023 with Rankin Inlet Community Liaison Committee members.

A copy of the 2022 newsletter can be found in Appendix 34.

11.5 ELDERS AND IQ VALIDATION

In 2021, Agnico Eagle developed a Kivalliq Elders' Advisory Committee (KEAC) comprised of 21 Elders from Baker Lake, Chesterfield Inlet, Rankin Inlet, Whale Cove and Arviat to integrate Inuit Qaujimajatuqangit (IQ), Inuit Societal Values (ISV) and community knowledge into Agnico Eagle's

exploration, planning, workforce, wellness and operational plans. The selection of the committee members was led by Agnico Eagle's IQ Coordinator through extensive consultations with wildlife organizations and local leaders.

In 2022, engaging with Elders was ongoing – Agnico Eagle ensured to consult with Elders to collect and validate information. In 2022, the following engagement initiatives took place with the Elders and members of the Kivalliq Elders Advisory Committee:

- One (1) introductory meeting between Agnico Eagle and Arviat Elders;
- One (1) IQ consultation with Baker Lake Elders;
- One (1) meeting with the KEAC to draft and approve the terms of reference for the committee;
- Two (2) meeting with the KEAC on Meliadine and Whale Tail extension projects as well as gather comments and concerns on the Meliadine Extension windfarm;
- One (1) consultation with the KEAC to identify an Inuktitut name for the Inuit Employment Strategy.

The purpose and outcomes of the above engagement initiatives are summarized in Appendix 33.

11.6 SITE TOURS FOR RANKIN INLET RESIDENTS

Each year, Agnico Eagle offers a variety of ways for the residents of Rankin Inlet, as well as various other groups or individuals from the Kivalliq, to visit the Meliadine site. In 2022, Rankin Inlet community members were able to participate in a "no contact" site visit in October to the Meliadine operation. During the 'no contact' visit the residents of Rankin Inlet were brought to site via a bus, however, they did not enter any buildings or have direct contact with any employees on-site. The bus drove the community members to see parts of the site and they were able to step out at pre-defined spots.

11.7 COMMUNITY ENGAGEMENT INITIATIVES

Community initiatives that Agnico Eagle participated in during 2022 are summarized in Appendix 33.

Agnico Eagle and KHTO continue collaborating with regards to wildlife monitoring as supported by the Collaboration Agreement signed by both parties in December 2021. The KHTO participated to the 2022 Hunter Harvest Study (HHS), as well as other community hunters.

The 2022 HHS Report is in Appendix M of the TEMMP report (Appendix 27) and summarizes results of the 2022 HHS, accuracy of impact predictions and management recommendations. Additionnal recruitment efforts were made in 2022 during community visits in Rankin Inlet and with the use of social media, which resulted in increased participants compared to previous years, however unfortunately recruitment of local outfitters or guides proved challenging and it remains an objective to further develop this aspect during the 2023 HHS process.

11.8 COMMUNITY COORDINATORS PROGRAM

The Community Coordinators program consists of full or part-time Agnico Eagle Officer in all Hamlets in the Kivalliq Region, including Agnico Eagle's offices in the communities of Rankin Inlet and Baker Lake.

The objective of the community based Agnico Eagle Officer is to provide a point of contact in each community to facilitate communications, provide services, and coordinate activities in the following areas:

- Support Human Resources (HR) department and the recruitment team;
- Assist HR and other Agnico Eagle departments to locate employees or potential employees as required;
- Provide advice and assistance to Agnico Eagle to organize and hold information sessions in the community on Agnico Eagle projects, initiatives, and engagement activities, including Labour Pool and business opportunities initiatives outlined in the Meliadine IIBA;
- Provide updates to the Hamlet Council and to other community stakeholders on Agnico Eagle activities;
- Distribute Agnico Eagle information and promotional materials;
- Participate in Agnico Eagle's Nunavut donation initiatives and processes;
- Participate in organization community events and education initiatives.

This increased community involvement by the Community Officers will allow Agnico Eagle to achieve recruitment goals and the obligations for the NIRB and IIBA; therefore, rendering this position essential to Agnico Eagle's Nunavut operations. In 2022, CLOs were present in six (6) communities most of the year. However, by the end of 2022, four (4) CLOs were present in the following communities—Rankin Inlet, Baker Lake, Arviat, Coral Harbour.

11.9 SHIPPING TOUR

In 2022, prior to the beginning of the barge season, Agnico Eagle toured the following communities: Arviat, Whale Cove, Coral Harbour, and Chesterfield Inlet, and held a teleconference with the Hamlet of Baker Lake.

Members of Agnico Eagle's Community Relations, Environment, and Logistics teams attended the meetings and teleconference in addition to Nunavut Sealink & Suppy Inc—Desgagnés Transarctik representatives. As per requirement, Agnico Eagle invited Department of Fisheries and Oceans representatives to attend these meetings and teleconference. The main objectives of the tour were to present the upcoming shipping season and hear feedback and concerns from the communities that may assist in adaptive management practices. The agenda of each meeting was generally the same, where certain topics were either expanded or limited depending on the audience and their interests.

- Sealift Operations
- Proposed scenario – Baker Lake
- Routing from Quebec to Nunavut
- Routing to go to Baker Lake
- Proposed scenario – Rankin Inlet
- Routing to go to Rankin Inlet
- All-weather Access Road Management
- Caribou Migration
- Process to find live information about the vessel routing
- Process to ask questions and raise concerns via Tusaajugut 'We are Listening'

11.10 COMMUNICATION

In 2018, Agnico Eagle launched a Facebook page for Meliadine which acts as another method with which it can inform the Kivalliq communities of important information, including road closures, recruitment information, and public meetings. This additional medium of communication was suggested by multiple stakeholder groups, including the Kivalliq Socio-Economic Monitoring Committee.

Agnico Eagle continues to use the Meliadine Facebook page as a key medium of communication with employees and Kivalliq communities. In 2022, the social media platform was used to keep communities of impact informed and build awareness on the following topics:

- COVID-19 related support available from Agnico Eagle during the pandemic;
- Return to work information for employees at home;
- Baker Lake and Rankin Inlet community office hours of operation;
- Employment information Session (EIS) dates in Kivalliq communities;
- Business Opportunities Posts;
- Job posting – Sanajiksanut Program launch;
- Sealift Season & Cyanide transportation;
- All Weather Access Road – Awareness and Road Rules;
- Caribou Migration and related road closures.

The above social media posts are outcomes of active management plans for example, the 'Sealift Season' posts are directly related to the Shipping Management Plan and the 'Caribou Migration' posts are product of the Wildlife Protection and Response Plan. Social media posts were used to encourage engagement from community members. In 2022, Agnico Eagle Nunavut Facebook pages made in total 355 posts, out of which 162 posts were for the Meliadine page, 156 for the Meadowbank Complex page, and 37 for the Hope Bay Project page.

In 2022, the Nunavut AEM website had blog posts on the following topic:

- Hope Bay Project – Suspension of Production at the Doris Mine;
- COVID-19 Update – Nunavummiut Return to Work ;
- Supporting an Active Lifestyle for Healthy Communities: Rankin Inlet's Agnico Eagle Arena;
- Proud to support Ilitaqsiniq (Nunavut Literacy Council) in their efforts to grow Nunavut's literacy rates;
- Meliadine Celebrates Million Ounce Milestone and Prepares for Potential Expansion;
- Sanajiksanut Program;
- Agnico Eagle Meadowbank Complex Reports Transportation Incident on the All-Weather Access Road from Baker Lake;
- Agnico Eagle Baker Lake Career Day.

All the blog posts were re-shared on the Nunavut Facebook pages to reach wider community audience and to encourage engagement from the community of impact.

In 2020, a new webpage was developed: Water Management at Meliadine. This webpage consisted information on the following topics: Saline Water Diffuser, Meliadine Waterline Project, CP1 Discharge, Meliadine Water License Amendment. In 2022, the webpage continued to be updated regularly with new monitoring data and other relevant information.

The Agnico Eagle Nunavut team continues to use various social media platforms in an innovative manner to remain connected and engaged with the impacted communities:

- CP1 Discharge – specific website page;
- Nunavut Labor Pool Facebook campaign – schedule shared on social media;
- Sanajiksanut Program launch and creation of a website land page;
- Virtual Meeting Room (VMR) – social media campaign for the “Future of Meliadine” session.

11.11 TERRESTRIAL ADVISORY GROUP

The 2022 Terrestrial Advisory Group Annual Report documents the work conducted throughout 2022 toward the establishment of the Terrestrial Advisory Group (TAG). Even though the Term of References (TORs) were only finalized early 2023, Meliadine stakeholders were still engaged throughout 2022. This document ensures compliance with Terms and Conditions (TC) 132 of the NIRB Project Certificate No.006-002 (PC No.006-002) which stipulates:

‘’***The Proponent shall, in consultation with the groups listed as Responsible Parties above, and any other parties considered by the Group to be necessary, establish a Terrestrial Advisory Group (TAG). The TAG shall hold its first meeting prior to any construction/installation of the waterlines. The central mandate of the TAG will be to continually review and refine impact management, mitigation, and monitoring details within the Terrestrial Environment Management and Monitoring Plan (TEMMP). The TAG Members will collaborate to share and consider methods, results, and analysis from caribou and terrestrial environment studies and monitoring Inuit Qaujimaningit, Inuit Qaujimajatuqangit, Traditional and Community Knowledge shared by knowledge holders, and other terrestrial environment monitoring data as it becomes available. The Proponent will consider the information shared by the TAG Members for incorporation into the Project’s impact management, mitigation, and monitoring measures related to the protection of terrestrial wildlife and wildlife habitat as appropriate. Agnico Eagle shall be responsible for demonstrating how the information shared and considered by the TAG has been incorporated into the Project’s impact management, mitigation, and monitoring measures related to the protection of terrestrial wildlife and wildlife habitat as appropriate***.’’

A total of two (2) meetings took place in 2022. Both meetings were held in person in Winnipeg, Manitoba, and were virtually accessible through videoconference using Microsoft Teams. The focus of 2022 was the creation of the Meliadine TAG and finding consensus with the TORs. Multiples subjects were discussed. The 2022 TAG Report can be found in Appendix 35.

SECTION 12. SOCIO ECONOMIC

12.1 SOCIO-ECONOMIC MONITORING PROGRAM (SEMP, SEMC, SEMWG, SEMR)

As required by NIRB Project Certificate No.006 Condition 87: ***The Proponent is strongly encouraged to participate in the work of the Kivalliq Socio-Economic Monitoring Committee along with other agencies and the communities of the Kivalliq region, and to identify areas of mutual interest and priority for inclusion into a collaborative monitoring framework that includes socio-economic priorities related to the Project, communities, and the Kivalliq region as a whole.***

And

As required by NIRB Project Certificate No.006, Condition 88: ***The Proponent is encouraged to work in collaboration with other socio-economic stakeholders including for example, the KIA, GN, AANDC, and communities of the Kivalliq region, to establish a socio-economic working group for the Project to develop and oversee the Meliadine Socio-economic Monitoring Program. The working group should develop a Terms of Reference which outlines each member's roles and responsibilities with regards to, where applicable, project-specific socio-economic monitoring throughout the life of the Project. The Terms of Reference are to be provided to the NIRB upon completion, and within one year of issuance of the Project Certificate.***

And

As required by NIRB Project Certificate No 006, Condition 89: ***The Proponent shall develop the Meliadine Socio-economic Monitoring Program to monitor the predicted impacts outlined in the FEIS as well as regional concerns identified by the Kivalliq Socio-economic Monitoring Committee (SEMC). Where possible, the Proponent is encouraged to work in collaboration with all other socio-economic stakeholders such as the KIA, GN, AANDC and the communities of the Kivalliq region in developing this program, which should include a process for adaptive management and mitigation in the event unanticipated impacts are identified. Details of the Meliadine Socio-economic Monitoring Program are to be provided to the NIRB upon finalization, and within one year of issuance of the Project Certificate.***

In 2022, Agnico Eagle continued to meet the requirements in the above conditions through its work in the following:

- The Socio-Economic Monitoring Program (SEMP) acts as a framework for the monitoring program. It outlines the indicators, metrics, units of measurements, etc., including those that are mandated by the Project Certificates. Agnico Eagle commits to reporting on the SEMP annually. In 2022, Agnico Eagle proposed new indicators for Cultural and Traditional Lifestyle and Individual and Community Wellness (Housing and Food Security) Valued Socio-Economic Component (VSECs) to the Socio-Economic Monitoring Working Group (SEMWG). The motivation behind the review was to enhance Agnico Eagle's monitoring efforts and ensure subsequent community-based initiatives are based on immediate requirements. Based on the feedback from the SEMWG, the updated SEMP consists:
    - Two (2) new indicators under Cultural and Traditional Lifestyle VSEC
    - Four (4) new *housing* indicators under Individual and Community Wellness VSEC
    - Two (2) new *food security* indicators under Individual and Community Wellness VSEC

The updated SEMP can be found in Appendix 36.

- The SEMWG traditionally included GN and CIRNAC, however, in 2020 KivIA has officially joined the SEMWG. The aim of this working group is to support Agnico Eagle's SEMP and the Kivalliq Socio-Economic Monitoring Committee (KvSEMC). In 2022, Agnico Eagle organized one (1) teleconference with the SEMWG to propose: new indicators and metrics for the SEMP, Socio-Economic Monitoring Report re-design, and to receive an update 2021-2022 Kivalliq SEMC.

- The KvSEMC meets annually to present data and consider socio-economic impacts and benefits of mining projects generally on the Kivalliq region. Members of the KvSEMC include Government of Nunavut (including specific departmental representation), Government of Canada, Kivalliq Inuit Association, Hunters and Trappers Organizations, Community representatives, community organizations and Project owners. The Government of Nunavut chairs the KvSEMC. Feedback provided in the KvSEMC informs the final Socio-Economic Monitoring Report. Additionally, the KvSEMC can recommend additional monitoring priorities. In 2022, Kivalliq Socio-Economic Monitoring Committee meeting was scheduled in December. Agnico Eagle participated in the three (3) days committee meeting along with 24 organizations. During the meeting Agnico Eagle provided an overview of key results of the 2020 and 2021 Socio Economic Monitoring Reports. Additionally, other Kivalliq and Nunavut organizations provided update at the SEMC on 2020 and 2021 regional socio-economic results, social & cultural programs in place to support Nunavummiut, and upcoming projects related to infrastructure, housing, employment, and business support.

- The Socio-Economic Monitoring Report (SEMR) is the annual report on the SEMP. It is a comprehensive socio-economic monitoring report that contains Project-level data (data collected by Agnico Eagle at each Project site or regionally) and community-level data (data provided by or in communities), including data that is mandated by the Project Certificate. It is reviewed by the SEMWG prior to its submission, to allow for those groups to provide insight. In 2022, Agnico Eagle proposed a re-designed format of the SEMR to the SEMWG which was approved. In the new report formatted report, the sequencing of the Valued Socio-Economic Components (VSECs) has been re-ordered to enhance the flow from demographic through economic to social. Each VSEC section will be briefer and begin with a high-level summary, allowing sections to act as standalone documents. They will be written in more reader-friendly language, using simpler infographics and avoiding repetition or unnecessary technical detail. In the report, the data will be presented in singular graphs encompassing the three sites to simplify information and improve document flow.

- In 2020, at a SEMWG meeting Agnico Eagle proposed to move the deadline of the SEMR to meet the NIRB Annual Report submission deadline. This was based on past discussions with the SEMWG. This effectively moves the deadline from June 30 to March 31. The main impact of the change in reporting deadline is that some community-level data would not be available, and therefore some community-level data would be reported with a year-delay annually, however the benefit would be to better align reporting and review processes for Agnico Eagle and reviewers. The change was approved by the SEMWG. Therefore, Agnico Eagle is appending the 2021 Agnico Eagle Kivalliq Projects Socio-Economic Monitoring Report, in Appendix 37.

12.1.1 Socio-Economic Monitoring Report (SEMR)

As required by NIRB Project Certificate No.006, Condition 111: ***In its annual reporting to the NIRB, the Proponent is strongly encouraged to provide detailed descriptions of all employee programs and training including: a. Descriptions of the goals of each program offered; b. Language of instruction; c. Schedules and location(s) of when each program was offered; a. Uptake by employees and/or family members where relevant, noting Inuit and non-Inuit participation rates; and, b. Completion rates for enrolled participants, noting Inuit and non-Inuit rates.***

And
As required by NIRB Project Certificate No.006, Condition 97*: The Proponent's project-specific socio-economic monitoring program should be updated to address the potential impacts to education and training which may arise from temporary, final and/or post-closure phases.*

And

As required by NIRB Project Certificate No.006, Condition 98: ***The Proponent is encouraged to work with the members identified as potential stakeholders in the socio-economic monitoring working group and with the Kivalliq Socio-Economic Monitoring Committee to review and monitor education utilization rate trends on an on-going basis to understand if the Project can be determined to be having an impact on the education system of the Kivalliq region and/or on any communities in particular.***

And

As required by NIRB Project Certificate No.006 Condition 108*: The Proponent is encouraged to consider providing access to counseling and treatment programs for substance and gambling addictions, and programs which address domestic, parenting, and marital issues that could affect employees and/or their families.*

And

As required by NIRB Project Certificate No.006, Condition 101: ***The Proponent shall include with its annual reporting to the NIRB a summary of employee origin information as follows: a. The number of Inuit and non-Inuit employees hired from each of the Kivalliq communities, specifying the number from each; b. The number of Inuit and non-Inuit employees hired from each of the Kitikmeot and Qikiqtani regions, specifying the number from each; c. The number of Inuit and non-Inuit employees hired from a southern location or other province/territory outside of Nunavut, specifying the locations and the number from each; and d. The number of non-Canadian foreign employees hired, specifying the locations and number from each foreign point of hire.***

And

As required by NIRB Project Certificate No.006, Commitment 99*: The Kivalliq Socio-Economic Monitoring Committee and its membership are encouraged to engage in the monitoring of demographic changes including the movement of people into and out of the Kivalliq communities and the territory as a whole. This information may be used in conjunction with monitoring data obtained by the Proponent from recent hires and/or out-going employees in order to assess the potential effects of the Project on migration.*

And

As required by NIRB Project Certificate No.006, Commitment 109*: The Proponent is encouraged to work with the Kivalliq Socio-Economic Monitoring Committee to monitor potential indirect effects of the Project, including indicators such as the prevalence of substance abuse, gambling issues, family violence, marital problems, rates of sexually transmitted infections and other communicable diseases and others as deemed appropriate.*

And

As required by NIRB Project Certificate No.006, Condition 110: ***The Proponent shall provide the NIRB with a description of wellness and cultural diversity/acceptance programming made available to employees and family or community members and shall report the following information with respect to each program to the NIRB annually: a. Language of instruction; b. Uptake by employees and/or family members where relevant, noting Inuit and non-Inuit participation rates; c. Completion rates for enrolled participants, noting Inuit and non-Inuit rates; and d. Issues as may relate to program content which may have been noted or present either on site or in the community and which affect Project employment or employee wellness.***

And

As required by NIRB Project Certificate No.006, Condition 115: ***The Proponent is encouraged to work collaboratively with the Government of Nunavut Department of Health to monitor the impacts of the Meliadine Gold Project on health services within the LSA communities and specifically, Rankin Inlet***.

And

As required by NIRB Project Certificate No.006, Condition 93: ***The Proponent is encouraged to register all trades occupations, journey persons and apprentices working with the Project and to register any trades occupations listed in its forecast, as well as to provide the Government of Nunavut with information regarding the number of registered apprentices and journeypersons from other jurisdictions employed at the Project during each year of the Project's life.***

The section below summarizes Agnico Eagle's key socio-economic reporting, related primarily to employment and training. For the full report on the Project's socio-economic monitoring, please refer to Appendix 37.

Reports can also be viewed on the Socio-Economic Monitoring Committee website www.nunavutsemc.com or on Agnico Eagle's website http://aemnunavut.ca/media/documents/.

12.2 WORKFORCE

Agnico Eagle calculates the workforce based on headcount (snapshot of active employees taken at the end of the year, which includes full-time and part-time employees) and full-time equivalents (number of full-time positions based on hours worked, where one full time position is equivalent to 2,184 hours worked in a year).

- The number of active Agnico Eagle employees (headcount) working at Meliadine on December 31, 2022 was 826, of which 114 employees were Inuit employees.

- The number of contractors employed at the project is only calculated using full-time equivalents (FTEs) due to the cyclical nature of contractor work. Therefore, during 2022 there were approximately 636 full time equivalent (FTE) contractor positions, of which approximately 65 are filled by Inuit.

Taken together, there were 1,462 active employees (Agnico Eagle permanent, temporary, on-call, students and contractors), working full- and part-time jobs, at the end of 2022.

Agnico Eagle defines job statuses as follows:

- Permanent employee: an employee whose current job is not specifically tied to a short-term project and the position is expected to be required throughout the life of mine (LOM).
- Temporary employee: an employee whose current job will not continue beyond a specified period.
- On-call employee: an employee who has an undefined contract and is called upon when the need arises. It is expected that on-call employees will move to temporary or permanent positions as they become available.

The Table 30 below indicates the employment demographics for community of hire by headcount.

Table 30. Home communities of Agnico Eagle Inuit employees (by headcount)

Community of Hire	2022 Agnico Eagle headcount
Arviat	11
Baker Lake	5
Naujaat	1
Rankin Inlet	40
Chesterfield Inlet	4
Whale Cove	3
Coral Harbour	18
Kitikmeot	0
Qikiqtani	1
Outside of Kivalliq	31
Total	**114**

Agnico Eagle pays for the transportation of all Kivalliq-based employees from their home community to the mine for each work rotation. For employees coming from Arviat, Baker Lake, Chesterfield Inlet, and/or Whale Cove, Agnico Eagle has a service contract with Calm Air to transport employees by charter plane to Rankin Inlet. For employees coming from Coral Harbour and/or Naujaat, a commercial ticket is bought from their home communities to the Rankin Inlet airport. All employees are then driven by bus to site, including those from Rankin Inlet. For all other employees not located in the Kivalliq region, transportation is provided from Mirabel and Val-d'Or via a charter flight operated by Nolinor Aviation.

12.2.1 Employee retention

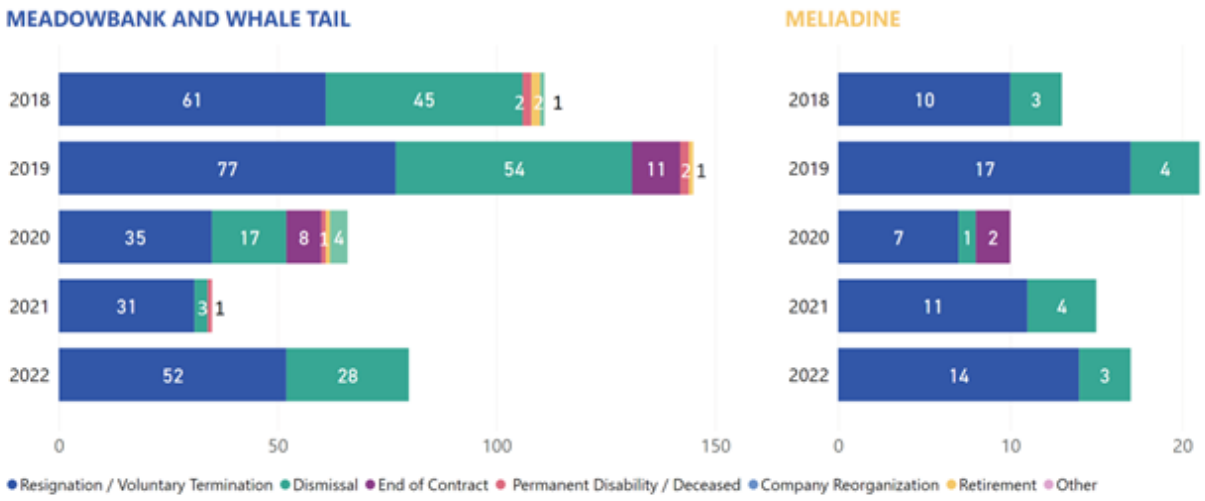

Figure **27** provides a breakdown of Inuit turnover (employees who leave Agnico Eagle's employment each year) by reason for leaving for Meadowbank/Whale Thail and Meliadine.

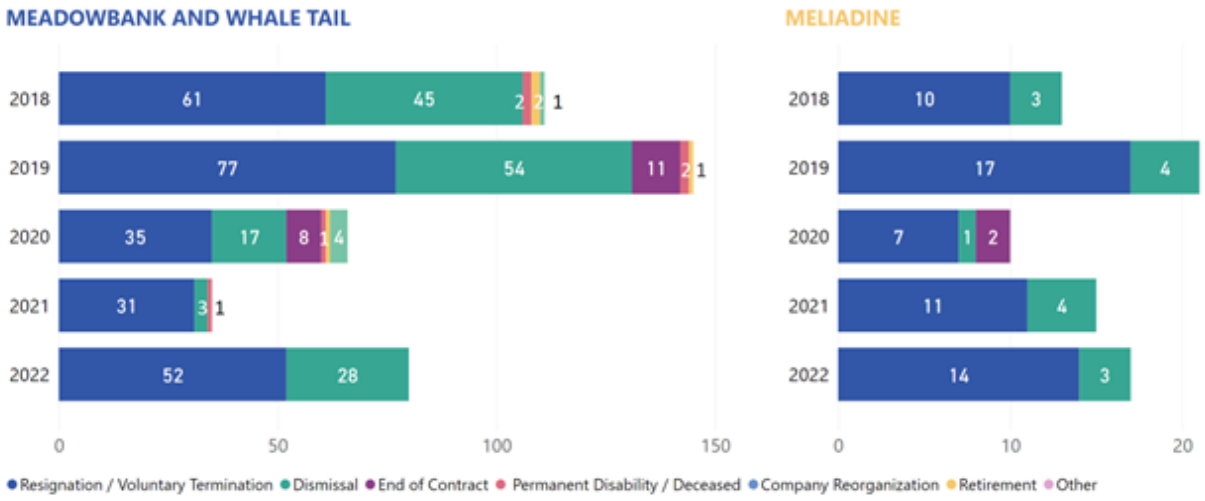

Figure 27: Breakdown of Inuit turnover by reason for leaving Meadowbank/Whale Tail and Meliadine.

In 2022, 97 Inuit employees departed, out of which 80 were from Meadowbank/Whale Tail and 17 from Meliadine. In total resignations / voluntary departure accounted for 66 out of 97 terminations of Inuit employees, with the remaining turnover (31 Inuit employees) attributed to dismissal. There was an increase in both resignations/voluntary departure and dismissals when compared to the previous year.

Agnico Eagle conducts one-on-one exit interviews to gather information on reasons for resignation and voluntary departure. Exit interviews collect qualitative information on common reasons why employees have left.

The most recent reasons for resignations at Meadowbank / Whale Tail and Meliadine included:

- Moving to another job (14),
- Family situation (9),
- Not liking camp life and / or missing family (7),
- No professional advancement (2),
- Not liking the job (3),
- Conflict with an employee / supervisor (2),
- Lack of access to child support (3), and
- Other (57).

The turnover rate for Inuit employees at all Agnico Eagle projects is consistently higher than that for non-Inuit employees. At Meliadine, Inuit employee turnover was 17% in 2022 (unchanged) compared to 13% for non-Inuit. Overall, Inuit employee turnover was lower in 2022 compared to the historical high in past years.

The 2022 Inuit and Nunavummiut Employment Survey further revealed that both Inuit employees and their spouses find employment at the mine challenging, which likely contributes to the higher turnover rates for Inuit employees. Worrying about family and / or loneliness were mentioned by 62% of respondents when asked about the most difficult thing when being at work (mine site). Management of household (e.g., getting groceries, running errands, and household maintenance), taking care of children, or loneliness were mentioned by 63% respondents as being most difficult for their spouse when they are away for work.
Agnico Eagle is working to implement programs to address high Inuit turnover rates and exit interview concerns. These include:

- Improvement in the Rapid Inuit Specific Education (RISE) Program, which was created to prepare Inuit for future employment opportunities.
- Re-start of Nunavut Leadership Development Program (LDP) to allow Inuit professional advancement and development.
- Re-start of cultural and social activities on-site after brief pause due to COVID-19

12.2.2 Summer Student Employment Program

Agnico Eagle offers two (2) summer employment programs that are accessible to students. One of them is from Agnico Eagle's company-wide policy that offers a summer employment program to the children of all Agnico Eagle employees (both Inuit and non-Inuit) that are undertaking post-secondary education. The other is the Inuit Summer Employment Program, initiated in 2019, targeting Inuit students in high school or post-secondary education. This program tries to match students to positions in their areas of interest.

In 2022, Agnico Eagle had four (4) Inuit Summer Students based in Rankin Inlet working with the Community Relations department, three (3) in Meliadine working with the Environment department, and one (1) working with the Maintenance department at Meliadine.

As per Agnico Eagle policies, students must be 18 years or over to work at the operation, and over 16 years old to work in the offices in Baker Lake or Rankin Inlet.

12.2.3 Counselling and Treatment Programs

Agnico Eagle continues to provide individual and family wellness programs. The Employee Assistance Program (EAP) was used 190 times in 2022, representing an increase in use since 2021 when it was accessed 120 times, but being below 2020 use (208 times).

Agnico Eagle provides a variety of wellness programs for on-site employees:

- Mental Health & First Aid Training sessions at both sites, given by external trainers, staff, and key health community stakeholders (nurses, RCMP, KivIA);
- Preventative health outreach, including sexual health and mental health information and resources;
- Overnight site visits for spouses of employees over Christmas and New Year;
- A psychologist to be on-site for the full month of January in 2022 to help employees and contractors cope with the impact of COVID-19.

As part of the wellness program, Agnico Eagle continues to support cross-cultural understanding and celebration at both sites that include arts and crafts events, Nunavut Days celebration, local Elder and family showcasing Inuit traditional hunting gear, games, and clothing on-site, and local artists presenting and selling articles to mine site employees.

In addition, Agnico Eagle supported several community mental health initiatives in 2022. This included:

- **Coral Harbour Mental Health:** In 2022, 15 young individuals were taken on a 2-day trip on the land. Agnico Eagle provided $10,000 in monetary contribution towards this activity. The purpose of the trip was to conduct small group discussions on suicide prevention and mental health. Traditional counselling methods were used during the trip to convey the following messages: drugs and alcohol are non-essential to life, suicide is never an option, and there is always someone out there to provide help. The group was also taught about Inuit traditions and how to access food during winter.
- **Coral Harbour Suicide Prevention:** A local certified mental health professional in Coral Harbor trained ten (10) adults in the community on suicide prevention and early intervention. Agnico Eagle provided $8,500 in monetary contribution towards this training.
- **Nunavut Embrace Life Council:** Agnico Eagle supported the annual, territory-wide Mental Health Art Contest with a monetary contribution of $2,500.

12.3 TRAINING

Agnico Eagle's Training Management System (TMS) and the Learning Management System (LMS) tracks and reports on training activities. The list of training provided can be found in Appendix 38.

12.3.1 Sanajiksanut Program

Sanajiksanut (or the Sanajiksanut Program) is the primary vehicle through which Agnico Eagle recruits and hires new Inuit employees. In 2021, Agnico Eagle and KivIA agreed to modify the existing process through a Memorandum of Understanding (MoU). As a result, the Work Readiness and the Mandatory Trainings were combined to become the Pre-employment Training Program (10-day community-based training). This change reduced the number of steps for applicants and decreased the delay in applicants gaining employment.

In 2022, the Sanajiksanut Program was redesigned and officially launched. The vision for the Sanajiksanut is to have a recruitment process and approach that is inclusive and accessible for Inuit candidates. The new recruitment process is forward looking to ensure that a new and qualified generation

of Inuit employees excels in various positions at Agnico Eagle's mine sites. The Sanajiksanut Program is based on four (4) key principles:

1. **Partnership with Ilitaqsiniq (Nunavut Literacy Council)** – Agnico Eagle partnered with Ilitaqsiniq (Nunavut Literacy Council) to implement a community-based approach to the training and adapt the recruitment process to the Nunavummiut clientele. The revised pre-employment training is designed by Inuit for Inuit and delivered by an Inuit instructor from Ilitaqsiniq.
2. **Inuit workforce planning** – To facilitate access to employment and increase career opportunities and growth for the Inuit workforce, the Inuit recruitment planning is conducted with the operational team.
3. **Recruitment process changes** – To meet the needs of the community members who are looking for employment at Agnico Eagle, revised communication channels have been implemented to reach candidates when an opportunity arises.
4. **Mining Awareness** – Appeal younger generation who are the future of the Nunavut workforce by the implementation of career awareness programs in the Kivalliq schools and colleges.

The Sanajiksanut Program consists of four (4) steps:

Step 1: Employment Information Sessions

In 2022, as part of the Sanajiksanut Program, employment information sessions were held in various communities to give information about the mines, the work lifestyle, and career opportunities as well as information about applying for jobs online. While sessions were canceled during Q1 of 2022 because of COVID-19, sessions resumed in May 2022. Agnico Eagle completed a total of 17 information sessions, attended by 78 people.

Step 2: Online Application Process Facilitated by Employment Information Sessions

To facilitate online applications, Agnico Eagle has a Community Liaison Officer (CLO) in each Kivalliq community who can deliver employment information sessions and provide one-to-one assistance to candidates interested in applying online. In 2022, CLOs were present in six (6) communities for most of the year, with four (4) CLOs remaining by end of 2022 in Rankin Inlet, Baker Lake, Arviat, Coral Harbour. A Labour Pool Coordinator at the Agnico Eagle Rankin Inlet Office supports CLOs as well as the applicants. The Labour Pool Coordinator and an Inuit Employment counselor travelled to the communities to conduct employment information sessions and to provide support to potential applicants. The Sanajiksanut Team was also available by phone to support applicants. In 2022, a centralized email address was created to facilitate communications between the applicants and the Sanajiksanut Team.

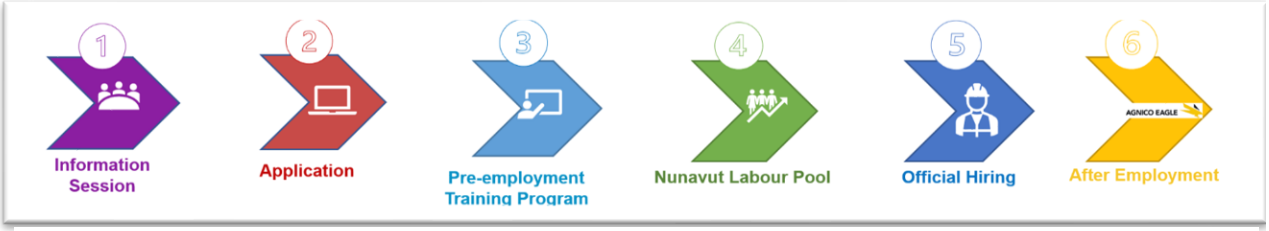

Figure 28: Sanajiksanut Program

Step 3: Pre-Employment Training Program

In 2022, five (5) Pre-Employment Training programs were delivered, with a total of 40 participants. The training sessions re-started in May due to COVID-19 restrictions earlier in the year. Also, the Sanajiksanut Team provided five (5) follow up training sessions for participants who had done the first part of the previous training format (Work Readiness) before the pandemic. The follow up training sessions were held as follows: one (1) in Coral Harbour, two (2) in Arviat, one (1) in Rankin Inlet and one (1) in Naujaat. Including these 2-day follow-up training sessions provided by the Sanajiksanut Team, 40 additional participants completed the training program, for a total of 80 participants in 2022.

Agnico Eagle also organized 2-day 'Career Days' at Baker Lake on November 9 and 10, 2022. The Career Days informed community members of the Kivalliq about the mining activities, Agnico Eagle operations in Nunavut, the various career opportunities, and the future projects to come. The Sanajiksanut Team was there to meet with candidates and have them apply to potential job opportunities. Inuit employee Role Models also participated in the event and spoke about career paths and their experiences working at the Agnico Eagle mine site. In addition, Career Awareness Videos were presented and included Agnico Eagle Inuit employees who spoke about their position and why they liked working for Agnico Eagle Mines. A total of 130 students participated and approximately 150 members of the community attended.

Step 4: Labour Pool List Coordinated by the Labour Pool Coordinator

The Labour Pool List is a list of candidates who have successfully completed the steps of the Sanajiksanut Program. These candidates are eligible for opportunities with Agnico Eagle or Agnico Eagle's contractors. The list is managed by the Labour Pool Coordinator. In 2022, the Labour Pool List was updated, with candidates tracked against each step of the recruitment process. Since the changes in the recruitment process, Agnico Eagle was able to hire 160 Inuit employees.

In 2022, Agnico Eagle was able to add an additional member to the Sanajiksanut Team. This addition allowed Agnico Eagle to enhance the recruitment process by adding more career opportunities for Inuit employees. Furthermore, the Sanajiksanut Team was more present and visible in the communities and participated in different Inuit employment initiatives (such as Employment Information Sessions, Career Days, Events) and increased interest in employment.

12.3.2 Training Hours

The following categories of training are available:

- Mandatory: Mandatory training related to compliance with the Nunavut Mine Act, as well as training that is mandated according to Agnico Eagle Health and Safety policies. Many of these training sessions are offered via e-learning prior to employee's arrival on site.
- General: Training activities required at a departmental level and covers many employees working in different departments. General training includes training on light duty equipment as well as enterprise software systems and cross-cultural training.
- Specific: Focused on developing individual competencies related to a specific position. This training qualifies individual workers for promotion following their progression through the Career Path. These training programs are provided by in classroom (theory) learning as well as practical (one-on-one) learning.
- Emergency Response Training (ERT).

The following Table 31 provides the training hours provided to Agnico Eagle employees at Meliadine (excluding contractors) in 2022:

Table 31. Training hours provided to Agnico Eagle employees at Meliadine

Type of Training	Inuit	Non-Inuit	Total
Mandatory	531	6,923	7454
General	354	3,259	3613
Specific	7,066	17,017	24083
Specific Practical Evaluation	127	1,206	1333
Specific Primary Evaluation	0	0	0
ERT	150	3,259	3784
Total	**8,304**	**32, 039**	**40, 343**

12.4 TRAINING PROGRAMS

12.4.1 E-learning

Before coming to an Agnico Eagle site for the first time, newly hired employees must complete their Mandatory Training online, which consists of six (6) modules: General Induction, WHMIS, Fire Suppression, Job Hazard Analysis and Work Card, Spill Response, and Occupational Health and Safety (Personal Protective Equipment, Ladder Safety, Surface Standard Operating Procedure). The General Induction chapter provides general information about Agnico Eagle and working life at the mines, waste management, as well as information on the IIBAs and archaeological awareness. The e-learning training material has been translated into English, French, and Inuktitut. In 2022, the Training Chart was deployed and implemented. The training chart is a tool used as part of the TMS to track compliance of training requirements based on employee position.

12.4.2 Cross-Cultural

In 2022, the training content and delivery were reviewed, and the decision was made to put the training on hold until it could be revamped. The training did not enhance cultural awareness and was too Agnico Eagle-centric. Aqqiumavvik was selected as the partner to develop new content for the training to include IQ and ISV values and to be more interactive by adding to-do-activities. The delivery of the training is expected in 2023.

Prior to the pause, the Cross-Cultural Training Program was a 5 hour in-class training course. In 2022, Meliadine delivered total of 580 hours of cross-cultural training to Agnico Eagle and Contractor employees.

12.4.3 Career Paths

Agnico Eagle operates the Career Path program, which identifies the incremental steps that an employee must complete to advance in their chosen career of interest. The objective of the Career Path Program is to achieve 100% internal promotions for Inuit and no external candidates (southerners) hired to fill a position that is part of the program. In 2022, the Energy and Infrastructure Career Path and the Underground Career Path were reviewed at Meliadine and the Meadowbank Complex, and the Underground and Mine Operations Career Path were enhanced.

12.4.4 Apprenticeship Program

The Apprenticeship Program combines on-the-job learning and in-school technical instruction to allow Inuit employees the opportunity to be educated and trained in the trade of their choice. By the end of the program, the apprentice is able to challenge their Certificate of Qualification (COQ) to become a Journeyperson and will have the opportunity to challenge their Red Seal Exam. Currently, Agnico Eagle offers (9) trades: baker, cook, carpenter, millwright, electrician, heavy duty equipment technician, welder, housing maintainer and plumber.

In 2019, the program was reviewed in order to substantially increase our support to apprentices while they are at school for their technical instruction. Logistical, material, educational and financial support is provided to our Apprentices.

In 2022, one (1) employee completed their apprenticeship training with Agnico Eagle, achieving a Millwright Red Seal. Two (2) apprentices went to technical training in Alberta.

- At Meliadine one (1) pre-trades apprentice successfully passed their trades entrance exam. Meliadine had a total of one (1) pre-apprentice, and three (3) apprentices. In total four (4) apprentices (including pre-apprentice) successfully completed the program.

12.4.5 Trainee Programs

Agnico Eagle continues to support training efforts across projects. At Meadowbank / Whale Tail and Meliadine, specific training increased for Inuit employees.

Training efforts for 2022 were as follows:

- Eight (8) trainees were enrolled in the **Underground Trainee Program**, and of those, seven (7) successfully completed the program at Meliadine.
- Eight (8) trainees completed the **Haul Truck Trainee Program** at Meadowbank. At Meliadine, a similar program has not been rolled out yet.
- Three (3) trainees completed the **Long-Haul Truck Trainee Program** at Meadowbank.
- Agnico Eagle successfully reintegrated the **Process Plant Trainee Program** at Meliadine. At Meadowbank, Agnico Eagle had to delay this program twice due to a planned and unplanned shut down in the mill. A new trainee program will start in 2023. There were no graduates from this program in 2022.

Chart 24 shows the participants in and/or graduates of a range of career and skills programs supported by Agnico Eagle.

Program	***2013***	***2014***	***2015***	***2016***	***2017***	***2018***	***2019***	***2020***	***2021***	***2022***
Arviat Diamond Drillers & Welders Program Graduates	*24*	*18*	*18*	*15*	*6*	-	-	-	-	-
Underground Trainee Program										
Participants	-	-	-	-	-	*8*	*8*	*8*	*4**	*8*

Graduates	*-*	*-*	*-*	*-*	*-*	*-*	*8*	*4*	*4*	*7*
Haul Truck Trainee Program										
Participants	*19*	*33*	*28*	*34*	*26*	*43*	*8*	*7*	*2**	*8*
Graduates							*6*	*4*	*2*	*8*
Process Plant Trainee Program	-	-	-	-	-	-	-	-	-	-
Long Haul Truck Trainee Program	-	-	-	-	-	-	-	*1*	-	*3*

The **Underground Trainee Program** at Meliadine is a 42-day (462-hour) program that has been managed by Nunavut Arctic College and supported by Agnico Eagle. The training program intends to develop skilled workers, who can, upon completion of the program, be hired by the Underground Department. At the Meadowbank Complex, Agnico Eagle created a trainee program affiliated with CMAC. This program is a 42 days (504-hour) program. Trainees go through the Underground Common Core, given by a CMAC Instructor on-site, followed by training by Agnico Eagle trainers. By the end of the program, the trainees have the knowledge, the practice, and the experience to work in general labor.

The **Haul Truck Trainee Program**, ran at Meadowbank, is a 42-day (504-hour) program to certify haul truck operators, which includes training on a simulator, in the classroom, and on the job. The program is aimed at existing employees in entry-level positions (e.g., dishwashers, janitors, chambermaids.).

The **Process Plant Trainee Program** is a 28-day program which provides employees with an understanding of the mining and milling process and trains them to be competent and certified to fill positions as a process plant helper or a utility person.

The **Long-Haul Truck Trainee Program** is a 28-day (336-hour) program to certify long haul truck operators, which includes training on a simulator, in the classroom, and on the job. The program is aimed at existing employees in the mining department. A maximum of four (4) trainees is permitted at a time with one (1) trainer to provide the best training possible.

12.4.6 Adult Educator

For employees who are pre-apprentices and apprentices, the Adult Educator works with the employees to improve maths skills based on the types of questions they will see in technical training, test taking skills, reading comprehension, and scientific concepts. The goal is for the apprentice to be well prepared to attend technical training. For relief supervisors and leaders, Adult Educators provided one-on-one support to build leadership skills such as communication, resilience, managerial courage, organization, leading your peers, and professionalism.

In 2022, a full-time Adult Educator was present at Meadowbank Complex from March until December (activities were paused from January to March due to COVID-19). The Adult Educator worked with four (4) Inuit employees in the apprenticeship program, as well as five (5) Inuit who were in relief supervisor or leader roles.

In October 2022, the Adult Educator role was extended to also cover the Meliadine Mine Site. At Meliadine, the Adult Educator worked with four (4) Inuit employees in the apprenticeship program, as well as three (3) Inuit who were in relief supervisor or leader roles.

12.4.7 Emergency Response Team (ERT) Training

At Agnico Eagle, the most important priority is to keep employees safe. Meliadine Emergency Response Team (ERT) consists of internal employees that volunteer to respond to emergencies such as fire. In

2022, Meliadine ERT consisted of 73 active Emergency Response and Mine Rescue members, including three (3) Inuit team members.

In 2022, Agnico Eagle hosted their own ERT competition with Meadowbank and Meliadine to promote training between the ERT teams, and to get both mines to share best practices related to emergency rescue.

12.5 GENERAL SOCIO-ECONOMIC PROVISIONS

12.5.1 Housing and Home Ownership

As required by NIRB Project Certificate No.006 Condition 112: ***The Proponent is encouraged to investigate measures and programs designed to assist Project employees with pursuing home ownership or accessing affordable housing options.***

And

As required by NIRB Project Certificate No.006 Condition 114: ***The Proponent is encouraged to collaborate with the Government of Nunavut – Nunavut Housing Corporation prior to the development and inception of its programs relating to financial literacy and planning to ensure that relevant and accurate information about housing and home ownership is available and considered for inclusion.***

In 2022, Agnico Eagle and its stakeholder collaborators completed its work pursuant to the Kivalliq Region Energy Efficient Worker Housing Program (Program), a Natural Resource Canada funded project. Having identified the main components behind the innovation gaps in Nunavut, Agnico Eagle undertook a closer examination of the housing challenges and opportunities in Nunavut with two objectives in mind:

- What can be a sustainable approach to support the Nunavummiut, Inuit employees, and Inuit organizations in addressing the structural challenges associated with the housing crisis;
- Consider housing options for recruitment and retention strategies of Inuit employees.

This work will be defining the strategy by which Agnico Eagle will be supporting the path forward to addressing the systemic gaps in achieving more housing units in Nunavut..

12.5.2 Labour Force

Agnico Eagle submitted the latest staff schedule on May 27, 2019. The 2021 Kivalliq Labour Market Analysis Report is presented in Appendix 39.

Kivalliq Labour Market Analysis (KLMA)

In 2022, the Employment and Culture Committee (ECC), which includes representatives from KivIA and Agnico Eagle, decided to review the frequency of IIBA KLMA obligations.

Whereas:

- ECC discussed on the relevance of conducting annual update of the KLMA knowing that most of the Kivalliq Labour supply data and information is only updated and made available every 5 years via Canada Census of population.
- Labour Demand information is available every year since it is mostly data generated by Agnico Eagle.

- Most recent KLMA (2021 edition) brought a new structure with Report Cards which facilitates updates.
- ECC needs time to analyze, prioritize, plan and implement KLMA recommendations. With the current timeline, ECC has to restart its commission of a third party to conduct next year's KLMA only 4 months after receiving the latest version.

Therefore:

- ECC decided to adjust KLMA timeline updates to have enough time to work on recommendations and target specific matters to better understand Kivalliq Labour Market (ex.: Youth as the next workforce generation, Workforce willingness indicator, etc.).
- ECC decided to align KLMA updates with accessible data on Labour Supply.
- ECC decided to develop a MOU to IIBAs and change actual wording of Schedule C, Section 15.1.
- ECC recommended updating KLMA timeline to include time to conduct the analysis and 2 years to work on recommendations.

Results:

Parties agreed to a Memorandum of Understanding (MOU). KLMA timeline is updated to include time to conduct analysis and work on recommendations. KLMA will be performed every three (3) years. Hence, the 2021 Kivalliq Labour Market Analysis (KLMA) is presented in Appendix 39.

12.5.3 Training and Development

Agnico Eagle works with training organizations and government departments regularly through the Kivalliq Socio-Economic Monitoring Committee, through the IIBA with the Kivalliq Inuit Association, through the Memorandum of Understanding with the Government of Nunavut, and through one-on-one partnerships and collaboration with organizations such as the Hamlet of Arviat, the Nunavut Literacy Council, Nunavut Arctic College, Aglu Consulting, and more.

The listing of formal certificates and licenses was sent to NIRB on November 7, 2018. There have not been any updates since the last submission.