AGNICO EAGLE

MELIADINE GOLD MINE

Mine Waste Management Plan

JANUARY 2024
VERSION 11_NWB
6513-MPS-09

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ᐊᒡᓃᑯ ᐄᒍ ᐅᔾᕿᒃᑕᕆᐊᓕᕆᔩᒃᑯᑦ (ᐊᒡᓃᑯᒃᑯᑦ) ᒫᓐᓇ ᐊᐅᓚᖅᑎᑦᑎᔪᑦ ᑕᓯᕐᔪᐊᕐᒥᑦ ᒨᓗᒧᑦ ᐅᔾᕿᒃᑕᕆᐊᕐᒥᑦ (ᐅᔾᕿᒃᑕᕆᐊᖅ), 25 ᑭᓛᒥᑕᐃᑦ ᐅᐊᖕᓇᖕᓂᑦ ᑲᖏᖅᖠᓂᕐᒥᑦ ᐅᖓᓯᒃᑎᒋᔪᖅ, ᐊᒻᒪᓗ 80 ᑭᓛᒥᑕᐃᑦ ᓂᒋᖅᐸᓯᐊᓂᑦ ᐱᖓᖕᓇᖅᐸᓯᐊᓂᑦ ᐃᒡᓗᓕᒑᕐᔪᖕᒥᑦ ᐅᖓᓯᒃᑎᒋᔪᖅ ᑭᕙᓪᓕᕐᒥᑦ ᓄᓇᕗᒥᑦ. ᐅᔾᕿᒃᑕᕆᐊᕐᒧᑦ ᐸᕐᓇᐅᑎᒥᑦ ᐃᓚᐅᔪᑦ ᓄᓇᒥᑦ ᐅᒃᑯᐃᖓᔪᖅ ᐊᒻᒪᓗ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔾᕿᒃᑕᕆᐊᑦ ᐱᕙᓪᓕᐊᔭᐅᓂᖓᓄᑦ ᑎᕆᒐᓂᐊᖅ ᒨᓗᑕᓕᒃ, ᒪᕐᕉᖕᓂᒃ ᓄᓇᒥᑦ ᐅᒃᑯᐃᖓᔪᖃᖅᑐᓂ (ᑎᕆᒐᓂᐊᖅ ᓄᓇᒥᑦ ᐅᒃᑯᐃᖓᔪᖅ 1 ᐊᒻᒪᓗ ᑎᕆᒐᓂᐊᖅ ᓄᓇᒥᑦ ᐅᒃᑯᐃᖓᔪᖅ 2) ᐊᒻᒪᓗ ᐊᑕᐅᓯᖅ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔾᕿᒃᑕᕆᐊᖅ.

ᐊᒃᑖᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᐃᑦ ᐊᒻᒪᓗ ᐅᖓᑕᐅᑦᑎᔪᑦ ᓄᓇᒃᑰᕈᑎᒃᑯᑦ ᐊᒡᔭᖅᑐᖅᑕᐅᖃᑦᑕᕐᓂᐊᖅᑐᑦ ᐊᒃᑖᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᖕᓄᑦ ᑭᓯᐊᓂ ᐃᓱᓕᑉᐸᑦ ᐅᔾᕿᒃᑕᕆᐊᑉ ᐊᐅᓚᕐᓂᖓ, ᐊᒡᔭᖅᑐᖅᑕᐅᖃᑦᑕᕐᓗᑎᒃ ᒪᓕᒡᓗᒍ ᐊᐅᓚᕐᓂᕐᒧᑦ ᖃᖓᒃᑰᖓᔪᖅ. ᒪᕐᕉᒃ ᐃᓂᐅᔪᑦ ᖃᐅᔨᔭᐅᓚᐅᖅᑐᑦ ᐊᒃᑖᖅᑕᐅᔪᑦ ᐅᔭᖅᖃᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᐅᓗᑎᒃ (WRSF). ᐅᒃᑯᐊᕐᓂᖏᑦ ᐊᒃᑖᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕖᑦ ᐱᒋᐊᕐᓂᐊᖅᑐᖅ ᐊᔪᕐᓇᙱᑦᑎᖅᐸᑦ ᐃᓚᒋᔭᐅᓗᓂ ᐅᑎᖅᑎᑎᕆᕙᓪᓕᐊᓂᕐᒧᑦ. ᐊᒃᑖᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕖᑦ ᖁᑦᑎᖅᑕᐅᔾᔮᙱᑦᑐᑦ ᐊᒻᒪᓗ ᐱᑯᖅᑐᓂᒃ ᐃᑦᑎᕆᔭᐅᖏᓪᓗᑎᒃ ᐊᒻᒪᓗ ᐃᓚᓯᓂᖃᒃᑲᓐᓂᔾᔮᙱᑦᑐᑦ ᒪᓕᒡᓗᒍ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ. ᐆᓇᕐᓂᕐᒥᒃ ᖃᐅᔨᓴᐃᔾᔪᑏᑦ ᐃᓕᔭᐅᓂᐊᖅᑐᑦ ᐊᒃᑖᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᓄᑦ ᑐᖅᑲᖅᓯᓯᒪᕝᕕᖕᓄᑦ ᖃᐅᔨᓴᕐᓂᐊᕐᓗᑎᑦ ᖁᐊᖑᐃᓐᓇᐅᔭᖅᑐᓕᐅᕐᓃᑦ.

ᐊᒃᑖᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕖᑦ ᐊᒻᒪᓗ ᕿᒪᒃᑎᑦᑐᓄᑦ ᑐᖅᑯᖅᓯᓯᒪᕝᕕᒃ ᐋᖅᑭᒃᑕᐅᓯᒪᔪᑦ ᐊᒻᒪᓗ ᐊᐅᓚᖅᑎᑕᐅᓗᑎᒃ ᒥᑭᓛᒃᑰᖅᑎᓐᓂᐊᕐᓗᒋᑦ ᐊᕙᑎᒥᒃ ᐊᒃᑐᖅᓯᓃᑦ ᐊᒻᒪᓗ ᐃᓱᒪᒋᐸᓗᒋᑦ ᓄᓇ ᐊᒻᒪᓗ ᓄᓇᒧᑦ ᐃᓚᒋᔭᐅᔪᑦ ᐊᔪᙱᓐᓂᐊᕐᓂᖏᓐᓄᑦ. ᖄᖓᓂᑦ ᑯᕕᔪᖅ ᐊᒻᒪᓗ ᑯᕕᓂᐅᔪᖅ ᐃᒪᖅ ᑐᖅᑯᖅᓯᒪᕝᕕᖕᓂᑦ ᓴᖑᑎᑕᐅᓂᐊᖅᑐᑦ ᓱᐸᓗᑎᒍᑦ ᐊᒻᒪᓗ ᑲᑎᑕᐅᓗᑎᒃ ᐃᒪᖃᕐᕕᖕᓄᑦ (CP-ᓄᑦ). ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᖓ ᑎᑭᐅᑎᙱᑉᐸᑦ ᑯᕕᑦᑎᓂᕐᒧᑦ ᐊᑐᕆᐊᓕᖕᒥᑦ ᒪᓕᒡᓗᒍ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯ 2AM-MEL1631-ᒥᑦ ᐱᔭᕆᐊᓕᒃ, ᑲᑎᑕᐅᔪᖅ ᐃᒪᖅ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᖅ ᑯᕕᑎᑕᐅᓂᐊᖂᕐᓗᓂ ᓯᓚᒧᑦ.

EXECUTIVE SUMMARY

Agnico Eagle Mines Limited (Agnico Eagle) is operating the Meliadine Gold Mine (Meliadine Mine), located approximately 25 km north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut.

Waste rock and overburden will be trucked to the waste rock storage facilities (WRSFs) until the end of mine operation, with distribution according to an operation schedule. Closure of the WRSFs will begin when practical as part of the progressive reclamation program detailed in the Meliadine Mine Interim Closure and Reclamation Plan. Thermistors will be installed within the WRSFs to monitor permafrost development. In addition, the Discovery WRSF was identified to contain rock with potential for acid generation or potential to leach metals and will be covered with a thermal cover to reduce potential impacts on the environment.

Of the 31.4 Mt of tailings produced, about 28.1 Mt of filtered tailings will be placed in the tailings storage facility (TSF) as dry stack tailings, while the remaining 3.3 Mt will be used underground as cemented paste backfill. The TSF consists of two cells, which will be operated one by one to facilitate progressive closure during mine operation. A layer of overburden and waste rock will be used for the TSF closure. Thermistors installed within the facility will monitor freeze-back and permafrost development.

The WRSFs and TSF were designed and will be operated to minimize the impact on the environment and to consider geotechnical and geochemical stability. The surface runoff and seepage water from the storage facilities will be diverted via channels and collected in water containment ponds (CPs). If the water quality does not meet the discharge criteria as per the Type A Amended Water Licence 2AM-MEL1631 requirement, the collected water will be treated accordingly prior to being discharged to the receiving environment.

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DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	April 2015			First draft version of Mine Waste Management Plan as Supporting Document for Type A Water Licence Application, submitted to Nunavut Water Board for review and approval	Tetra Tech EBA Inc.
2	June 2016	1.1, 1.2, 1.3 3.3 5.5, 6.1, 9.1, 9.2	1-2 12-15 22-24 34-35; 37-38	Update to reflect issuance of the Type A Water Licence. Removal of original Section 1.3 as was specifically linked to the application. Update to reflect receipt of Type A Water Licence The Plan updated to comply with Part B Section 13, and Part F Sections 12, and20 of the Type A Water Licence 2AM-MEL1631 and commitments made during the licensing process.	Golder Associates Ltd.
3	March 2018			Minor revisions	Environment, Engineering Departments
4	December 2018	All 1.3 3.1, 3.2 4.1, 4.3, 4.4 4.2 5.2, 5.4 5.5, 5.6 6.1 7 8.2 9.2 Appendix A	All 11,14 20-23 24, 27-28 29 30-32 33-35 36-38 43 46-47 50-52	Plan update in response to approved TSF Design Report (6515-583-163-REP-001) Update of production timeline Update of tailing quantities Update of closure cover material values Inclusion of temporary waste rock stockpile for construction of saline pond 2 (Figure 4.1.1; Tables 4.1.1, 4.1.2, 4.1.3) Update of TSF design, parameters and schedule Update of tailings placement plan dimensions within each cell of TSF Update of Water Management based on TSF design report (6515-583-163-REP-001) and infrastructure updates Minor dust management revision	Environment Department

Version	Date	Section	Page	Revision	Author
				Updates to closure plan based on approved TSF design report (6515-583-163-REP-001) Monitoring program update based on Type A Water Licence 2AM-MEL1631 requirements and TSF design report (6515-583-163-REP-001) Figs 1.2, 5.1, 5.4 updated. Add Figs 5.2, 5.3	
5	March 2019	Table 1.1 Table 4.2, 4.3, 5.1 6.1.1 and 6.1.3		Updated according to current status Update quantities according to the latest mine plan Catchment ponds name changes	Environment Department
		4.1 T 4.1.3 8.1	26 31 45	Name Change from MMER to MDMER	
6	March 2020	All	All	Update to reflect Meliadine operational status from Project to Mine; Major revisions throughout	Engineering, Environment Departments
7	March 2021	All	All	Update to reflect Meliadine operational status Update quantities according to latest mine plan	Engineering, Environment Departments
8	August 2021	All	All	Update to reflect change in waste management strategy and decommissioning of P-Area	Engineering Department
9	April 2022	All	All	Update to reflect Meliadine operational status Update quantities according to latest mine plan	Engineering, Environment Departments
10	March 2023	All	All	Update to reflect Meliadine operational status Update quantities according to latest mine plan	Engineering Department
11_NWB	January 2024	Throughout		Submitted to Nunavut Water Board as part of the Meliadine Mine Water Licence Amendment	Permitting Department

ACRONYMS

ABA	Acid Base Accounting
Agnico Eagle	Agnico Eagle Mines Limited
ARD	Acid Rock Drainage
CP	Containment Pond
DFO	Department of Fisheries and Oceans Canada
EWTP	Effluent Water Treatment Plant
GWMP	Groundwater Management Plan
IFC	Issued for Construction
LOM	Life of Mine
MDMER	Metal and Diamond Mining Effluent Regulation
MEND	Mining Environment Neutral Drainage
ML	Metal Leaching
MWMP	Mine Waste Management Plan
NIRB	Nunavut Impact Review Board
NML	Non-Metal Leaching
NPAG	Non-Potential Acid Generating
NPR	Net Potential Ratio
NWB	Nunavut Water Board
OP	Ore Pad
PAG	Potential Acid Generating
PGA	Peak Ground Acceleration
Project	Meliadine Gold Mine Project
SFE	Shake Flask Extraction
SP	Saline Pond
STP	Sewage Treatment Plant
TSF	Tailings Storage Facility
WMP	Water Management Plan
WRSF	Waste Rock Storage Facility
WTC	Water Treatment Complex

UNITS

%	percent
°C	degrees Celsius
°C/m	degrees Celsius per meter
cm/s	centimetre per second
ha	hectare
kPa	kilopascal
km	kilometre(s)
L	liter(s)
m	metre
mg	milligram
m/s	metre per second
mm	millimetre
mm/h	millimetre per hour
m^2/year	square metre(s) per year
m^3	cubic metre(s)
Mm^3	million cubic metre(s)
t	tonne
t/m^3	tonne per cubic metre
Mt	million tonne(s)
µm	micrometre

SECTION 1 • INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) operates the Meliadine Gold Mine (Meliadine Mine) located approximately 25 kilometres (km) north of Rankin Inlet (Figure 1.1), Nunavut, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. The existing Type A Water Licence (2AM-MEL1631) authorized the mining undertaking at Tiriganiaq open pits and underground. Agnico Eagle is applying for a Water Licence Amendment to support completion of licensing components approved under Project Certificate No. 006, which includes mining of the Wesmeg, Wesmeg North, Pump, F Zone, and Discovery deposits that were included in the 2014 Final Environmental Impact Statement (Agnico Eagle 2014) and Project Certificate No.006.

This document presents an updated version of the Mine Waste Management Plan (MWMP), submitted as part of the Meliadine Mine Water License Amendment.

1.1 Waste Management Objectives

The waste management objectives are to minimize potential impacts to the environment during all phases of mining. The purpose of the MWMP is to provide information to applicable mine departments (Environment, Engineering, Mine, Energy and Infrastructure, etc.) for sound mine waste management practices, proposed and existing infrastructure, and provide strategies for water management (runoff), dust control and monitoring programs.

Mine waste management structures (tailings storage, waste and overburden storage) are utilized to contain and manage mine waste from areas affected by mining activities. Measures have been implemented for the Mine Construction and Mine Operation phases.

1.2 Management and Execution of the Mine Waste Management Plan

Revisions of the MWMP can be initiated by changes in the Mine Development Plan (Mine Plan), operational performance, personnel or organizational structure, regulatory or social considerations, and/ or design philosophy. The MWMP will be reviewed annually by Agnico Eagle and updated as necessary.

1.3 Background

A summary of the Meliadine Mine site conditions is provided in detail in the Meliadine Mine Environmental Management and Protection Plan.

SECTION 2 • MINE WASTE DEVELOPMENT

2.1 Mine Development Plan

Agnico Eagle is currently mining the Tiriganiaq deposit with two open pits and one underground operation. The Meliadine Mine Water License Amendment will support future mining of the Wesmeg, Wesmeg North, Pump, F Zone, and Discovery deposits that were included in the 2014 Final Environmental Impact Statement (Agnico Eagle 2014). These deposits will be mined using open pit mining methods. The mining schedule for the Meliadine Mine life of mine summary for all deposits are presented in Table 2.1.

The current Mine Plan is expected to produce approximately 37.5 million tonnes (Mt) of ore, 179.6 Mt of waste rock, 34.5 Mt of overburden waste, and 31.4 Mt of tailings. Agnico Eagle will continue exploration activities with the objective to extend mine life beyond 2031.

The general mine site layout plan is shown on Figure 2.1.

Table 2.1: Meliadine Mine Development Plan (Mine Plan)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032-2038	2039-2048
Approved Mining														
Tiriganiaq Deposit	■	■	■	■	■									
Construction														
Infrastructure					■	■	■	■	■	■				
Dewatering & Fish out					■	■	■	■	■	■				
Mining														
Tiriganiaq Deposit Open Pit					■	■	■	■	■	■	■	■		
Tiriganiaq Underground					■	■	■	■	■	■	■	■		
Wesmeg Deposit Open Pit					■	■	■	■	■	■	■	■		
Pump Deposit Open Pit									■	■	■	■		
F Zone Deposit Open Pit										■	■	■		
Discovery Deposit Open Pit										■	■	■		
Monitoring														
Closure													■	
Post-Closure														■

2.2 Mine Waste Development Plan

2.2.1 Mine Waste Designation and Destination

Three mine waste streams will be produced: waste rock, tailings, and overburden material.

The term “waste rock” designates all fragmented rock mass that has no economic value and needs to be stored separately. Waste rock is also commonly referred to as “mine rock” in the mining industry. Typically, waste rock is produced during the initial stripping and the subsequent development of open pits and underground workings.

The term “overburden” designates all soils above the bedrock that need to be stripped at surface prior to developing the open pits. Generally, the overburden at the site consists of a thin layer of organic material overlying a layer of non-cohesive soil with variable amounts of silt, sand, and gravel.

Tailings are the processed material by-product of the gold recovery process and generally comprise of sand, silt, and clay sized particles.

The overall usage or destination of the three mine waste materials is presented in Table 2.2, while Figure 2.2 provides a graphical representation of the mine waste management flow sheet.

Table 2.2: Summary of Mine Waste Tonnage and Destination

<table>
<tr><th>Mine Waste Stream</th><th colspan="2">Estimated Quantities</th><th>Waste Destination</th></tr>
<tr><td rowspan="3">Overburden</td><td rowspan="3" colspan="2">35 Mt</td><td>Temporary stockpile of Overburden or other suitable material ~ 0.1 Mt for reclamation of TSF</td></tr>
<tr><td>Closure and site reclamation for the TSF</td></tr>
<tr><td>Co-disposed with waste rock within WRSFs</td></tr>
<tr><td rowspan="3">Waste Rock</td><td rowspan="3" colspan="2">180 Mt</td><td>Infrastructure construction (surface and underground)</td></tr>
<tr><td>WRSFs</td></tr>
<tr><td>Closure and site reclamation for the TSF</td></tr>
<tr><td rowspan="2">Tailings</td><td rowspan="2">31 Mt</td><td>28 Mt</td><td>As dry stack tailings placed in the TSF</td></tr>
<tr><td>3 Mt</td><td>Used in underground mine as cemented paste backfill</td></tr>
</table>

Table 2.3 to Table 2.7 summarizes the schedule and quantities of mine waste to be mined from the open pits and the Tiriganiaq underground mining operations.

Table 2.3: Summary of Mine Waste Production Schedule for Tiriganiaq Deposit (2019-2031)

Year	Mine Waste from Underground (t)	Mine Waste from Tiriganiaq Pit 1 (t)		Mine Waste from Tiriganiaq Pit 2 (t)		Mine Waste from Tiriganiaq Pit #3 (t)		Mine Waste from Tiriganiaq Pit #4 (t)	
	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock
2019*	482,736	334,383		77,301	236,219				
2020*	608,134	554,830	853,138	800,001	2,542,260				
2021*	653,096	2,218,888	3,211,951		1,216,825				
2022*	682,237	1,828,976	2,942,941						
2023	760,507	2,223,091	3,358,879						
2024	859,045	460,672	5,135,734						
2025	965,651		2,554,139		1,359,575				
2026	965,651		2,799,748		906,383				
2027	965,651		376,793						
2028	968,297								
2029	965,651					22,307	366,061	652,292	3,579,067
2030	965,651					859,072	1,392,212	1,171,814	10,511,432
2031	965,651						1,163,122		1,936,032
Total (t)	**10,807,960**	**7,620,840**	**21,233,322**	**877,302**	**6,261,262**	**881,379**	**2,921,394**	**1,824,106**	**16,026,531**

*End of year mined values

Table 2.4: Summary of Mine Waste Production Schedule for Wesmeg/Wesmeg North Deposit (2024-2031)

Year	Mine Waste from Wesmeg Pit #1 (t)		Mine Waste from Wesmeg Pit #2 (t)		Mine Waste from Wesmeg Pit #3 (t)		Mine Waste from Wesmeg Pit #4 (t)		Mine Waste from Wesmeg North Pit #1 (t)	
	Overburden	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock
2024	-	-	-	-	-	-	-	-	-	-
2025	787,056	263,007	-	-	-	-	623,602	513,055	-	-
2026	2,071,488	2,437,432	-	-	-	-	-	-	153,678	-
2027	288,464	3,656,147	-	-	-	-	-	-	1,735,853	445,897
2028	-	2,068,654	-	-	-	-	-	-	1,095,133	6,425,685
2029	-	-	911,072	6,580,468	-	-	-	-	-	8,384,490
2030	-	-	3,014,659	8,782,386	1,500,255	3,275,695	-	-	-	6,804,723
2031	-	-	-	7,166,976	19,947	2,742,677	-	-	-	-
Total (t)	**3,147,008**	**8,425,240**	**3,925,731**	**22,529,830**	**1,520,203**	**6,018,372**	**623,602**	**513,055**	**2,984,664**	**22,060,796**

*End of year mined values

Table 2.5: Summary of Mine Waste Production Schedule for Pump Deposit (2028-2031)

Year	Mine Waste from Pump Pit #1 (t)		Mine Waste from Pump Pit #2 (t)		Mine Waste from Pump Pit #3 (t)		Mine Waste from Pump Pit #4 (t)	
	Overburden	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock
2028	-	-	-	-	1,132,395	494,761	-	-
2029	622,481	271,971	759,240	331,724	-	989,521	1,063,062	2,322,339
2030	-	543,943	-	663,447	-	989,521	-	-
2031	-	543,943	-	663,447	-	-	-	-
Total (t)	**622,481**	**1,359,857**	**759,240**	**1,658,618**	**1,132,395**	**2,473,803**	**1,063,062**	**2,322,339**

*End of year mined values

Table 2.6: Summary of Mine Waste Production Schedule for F Zone Deposit (2029-2031)

Year	Mine Waste from F-Zone Pit #1 (t)		Mine Waste from F-Zone Pit #2 (t)		Mine Waste from F-Zone Pit #3 (t)	
	Overburden	Waste Rock	Overburden	Waste Rock	Overburden	Waste Rock
2029	2,230,524	2,054,442	1,407,189	1,036,882	822,533	3,030,401
2030	557,631	4,108,883	-	2,073,764	-	-
2031	-	4,108,883	-	2,073,764	-	-
Total (t)	**2,788,155**	**10,272,209**	**1,407,189**	**5,184,410**	**822,533**	**3,030,401**

*End of year mined values

Table 2.7: Summary of Mine Waste Production Schedule for Discovery Deposit (2029-2031)

Year	Mine Waste from Discovery Pit #1 (t)	
	Overburden	Waste Rock
2029	1,593,858	18,271,863
2030	938,518	10,963,118
2031	6,161	7,308,745
Total (t)	**2,538,537**	**36,543,725**

*End of year mined values

SECTION 3 • WASTE ROCK AND OVERBURDEN MANAGEMENT

Overburden and waste rock will be co-disposed within the same facilities, with the overburden being encapsulated within the rock to increase overall stability. Geochemically, both materials are similar in that neither requires a means to prevent oxidation. Waste material from underground and the open pits will be trucked to the designated storage facilities, end-dumped and spread into lifts.

3.1 Expected Waste Rock and Overburden Quantities and Distribution

3.1.1 Waste Rock Quantities and Distribution

Approximately 180 Mt of waste rock will be mined from the open pits and underground mine operations, with the majority of the waste rock produced (about 153 Mt) to be placed and stored within the designated WRSFs. The remaining 27 Mt of waste rock will be used for to backfill the Tiriganiaq underground mine, for construction activities (including thermal protection and aggregate production to support the open pits), and used as TSF closure cover material.

The production schedule, quantities, and distribution of waste rock by year is presented in Table 3.1.

3.1.2 Overburden Quantities and Distribution

Approximately 34.5 Mt of overburden will be produced, with about 33.7 Mt of overburden being co-disposed within the WRSFs. The remaining, approximately 0.8 Mt, may be stored in a temporary overburden stockpile that will be used as cover material for progressive closure and reclamation of the TSF area. The approximate quantities and proposed placement location of the overburden is presented in Table 3.2.

Table 3.1: Schedule, Quantities, and Distribution of Waste Rock by Year

Year	Total Waste Rock from Mine Operation	Utilization of Waste Rock (t)			Waste Rock to be Placed in WRSFs (t)				
	(t)	Surface Construction/ Thermal Protection	Rockfill for Underground Backfill	TSF Closure Cover	WRSF1	WRSF3	WRSF6	WRSF7	WRSF9 (DISC)
2019*	718,955	355,753	90,024	141,154					
2020*	4,003,532	244,412	316,982	162,246	748,978	2,530,915			
2021*	5,081,872	1,839,140	387,891	250,407	2,575,006	29,428			
2022*	3,625,178	1,145,345	421,116	250,645	1,223,993	584,078			
2023**	4,119,386	1,211,026	394,102	262,033	552,251	1,699,974			
2024	5,994,779	1,442,789	342,000	538,419	368,408	3,303,163			
2025	5,655,427	1,564,805	647,684	290,411	2035976	1,116,551			
2026	7,109,214	1,530,952	628,856	240,339	2740266	1,968,801			
2027	5,444,489	1,563,862	621,831	228,444	2034621	995,730			
2028	9,957,397	1,628,274	640,153	222,514	2690876	3,766,224	1,009,356		
2029	48,184,880	1,571,799	635,439	227,032	2713401	6,722,612	10,921,009	7,121,725	18,271,863
2030	51,074,775	1,511,395	631,677	229,002	2870452	18,998,713	8,687,771	7,182,647	10,963,118
2031	28,673,240	1,510,663	646,438	224,216	2283647	2,496,842	7,698,250	6,504,438	7,308,745
Total (t)	**179,643,124**	**17,120,215**	**6,404,193**	**3,266,864**	**22,837,875**	**44,213,031**	**28,316,386**	**20,808,810**	**36,543,725**
Volume (m^3)	**89,821,562**	**8,560,108**	**3,202,097**	**1,633,432**	**11,418,938**	**22,106,516**	**14,158,193**	**10,404,405**	**18,271,863**

*End of year total mined values

Table 3.2: Schedule, Quantities, and Distribution of Overburden by Year

Year	Total Overburden from Mine Operation (t)	Overburden Stockpile for TSF Closure Cover (t)	Overburden to be Placed in WRSFs (t)				
			WRSF1	WRSF3	WRSF6	WRSF7	WRSF9 (DISC)
2019*	411,684	0	411,683	0	0	0	0
2020*	1,354,831	0	572,937	781,894	0	0	0
2021*	2,218,888	0	2,218,888	0	0	0	0
2022*	1,828,976	0	0	1,653,711	0	0	0
2023**	2,223,091	0	0	2,223,091	0	0	0
2024	460,672	37,851	0	422,821	0	0	0
2025	1,410,658	0	0	1,410,658	0	0	0
2026	2,225,166	313,138	153,678	1,758,350	0	0	0
2027	2,024,317	0	1,735,853	288,464	0	0	0
2028	2,227,528	0	1,095,133	0	1,132,395	0	0
2029	10,084,556	0	674,599	911,072	2,444,783	4,460,245	1,593,858
2030	8,041,950	287,030	1,743,856	4,514,915	0	557,631	938,518
2031	26,108	26,108	0	0	0	0	0
Total (t)	**34,538,425**	**664,128**	**8,606,627**	**13,964,976**	**3,577,177**	**5,017,876**	**2,532,376**
Volume (m^3)	**21,995,523**	**422,945**	**5,481,062**	**8,893,485**	**2,278,097**	**3,195,595**	**1,612,724**

*End of year total mined values

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3.2 Waste Rock Storage Facility Locations

The design locations of the WRSFs took into consideration the environmental, social, economic, and technical aspects of waste rock management, including maintaining minimum distances between the toe of the WRSFs and the open pits, haul and access roads and adjacent lakes.

To achieve the above considerations, areas were identified for the combined storage of waste rock and overburden material as shown in Figure 2.1. These areas can be described as follows:

- **WRSF1**: Located north of the Tiriganiaq and Wesmeg deposit
- **WRSF3**: Located on the west end of the Wesmeg and Tiriganiaq deposits
- **WRSF6**: Located south of the Pump deposit
- **WRSF7**: Located south of the F Zone deposit
- **WRSF9:** Located northeast of the Discovery deposit.

3.3 Waste Rock Storage Facility Design Parameters

Table 3.3 summarizes some of the key physical parameters used for the as-built design of the WRSF1 and WRSF3, both these structures are well advanced in construction. All required WRSFs will be constructed similarly to WRSF1 and WRSF3, with material placed in controlled lifts. The side slopes of each lift of material will be at the angle of repose, while the overall side slopes of each facility will be determined by stepping in each lift of material. Figure 3.1 shows a typical cross section of WRSF1. The other WRSFs will be constructed the same way, with final design details provided to Regulators for approval at least 60 days prior to construction (as per Water Licence).

In parallel, the Meliadine Mine Adaptive Management Plan will be utilized to assess the performance of the WRSFs. Opportunities to increase the capacity of the facilities may present themselves dependent on the mining sequence.

Table 3.3: Waste Rock Storage Facility Design Parameters for WRSF1 and WRSF3

Design Parameters	WRSF1	WRSF3
Maximum height of each overburden and waste rock bench (m)	5	5
Side slope of each lift of waste rock	Angle of repose (approximately 1.2H:1V)	
Typical width of the horizontal offset between adjacent waste rock lifts (m)	16.5	16.5
Average overall side slopes of each WRSFs (from bottom toe of first lift to top crest of final lift)	3(H):1(V)	4H:1V (north side slope) or 3H:1V (south/east/west side slopes)
Side slope for each lift of overburden	Angle of repose (approximately 1.8H:1V)	
Typical width of horizontal offset between adjacent overburden lifts (m)	20.5	N/A
Internal overburden setback distance from toe of WRSF for the first lift (m)	40	40
Maximum crest elevation above the sea level (masl)	112.0	97.0
Assumed waste rock in place bulk density (t/m^3)	1.88	
Assumed overburden in place bulk density (t/m^3)	1.62	

3.4 Anticipated Design Performance of WRSFs

Updated slope stability analyses for WRSF1 and WRSF3 were conducted during the detailed design of these facilities. Using the geometric parameters presented in Table 3.3, the results of the stability analysis indicates that the calculated minimum factors of safety for the WRSFs meet or exceed the industry and Agnico Eagle acceptable factors of safety.

Thermal analyses were also updated to estimate the thermal regime of the WRSFs and foundations during mine operations and after closure. Although the results for both facilities indicate that material placed in the winter period will likely stay in a frozen condition while the material placed in the summer period will eventually freeze back, the stability of both facilities is closely linked to the temperatures of the underlying ground.

3.5 Waste Rock and Overburden Deposition

The general construction sequence of the WRSFs will be as follows:

- A topographical survey of the original ground will be conducted, and stakes placed to mark the dumping limits;
- Overburden and/or waste rock will be hauled and end-dumped to its designated location. The material will be spread after dumping with a dozer and track-packed. Side slopes of each lift will be the natural angle of repose.

Various strategies to promote freeze-back and permafrost development will be deployed, including:

- Snow/ice removal prior to material placement over either original ground or an existing lift;
- Overburden placement of first couple lifts restricted to 2.5 m maximum height and will only be placed when underlying ground is frozen.

Temperatures within the waste and the underlying ground will be closely monitored throughout the operational lifespan of the facilities and will be discussed in further detail in Section 8.0. An adaptive, performance-based management approach will be applied to the WRSFs and opportunities to increase the capacities may present themselves depending on the mining sequence and foundation temperatures.

3.6 Additional Waste Material Placed in WRSFs

Although the WRSFs were designed to accommodate mine waste material, additional waste matter may also be periodically deposited within the facilities. Placement of the additional waste must be approved by the Responsible Person, who will assess any potential thermal or stability risk.

- Solid STP material. Agnico Eagle invested in a screw press technology in 2019 to remove approximately 85% of the water from the treated sewage. The remaining semi-solid product will be placed and covered with overburden/waste rock in the WRSFs under Section 3.2 of the Sewage Treatment Plant (STP) Upgrade Operation and Maintenance Manual (Agnico Eagle, 2021c). The volume of sewage material will be recorded on a monthly basis, pursuant to Part I Item 8h of the Licence.
- Sewage contaminated snow may be disposed of in the WRSF upon approval of the Responsible Person.

SECTION 4 • TAILINGS MANAGEMENT

Tailings generated by mill production at Meliadine will be dewatered by pressure filtration to a solids content of approximately 85% by weight. The filtered tailings will have the consistency of damp, sandy silt and will be transported by haul truck to either the paste plant for use underground as backfill or for placement and storage in the TSF in a process conventionally referred to as "dry stacking".

4.1 Expected Quantities and Distribution

4.1.1 Tailings Quantities and Distribution

Approximately 31.4 Mt of tailings will be produced over the LOM of 2031. Approximately 28.1 Mt or 89% of the tailings will be deposited within the TSF and the remaining 3.3 Mt or 11% will be used as underground cemented paste backfill.

The current production schedule, quantities, and distribution of tailings by year are presented in Table 4.1.

Table 4.1: Schedule, Quantities, and Distribution of Tailings by Year

Year	Tailings Solids from Mill (t)	Tailings Solids to be Used as Underground Backfill (t)	Tailings Solids to be Placed in Dry Stacked TSF (t)
2019*	976,706	113,892	862,814
2020*	1,393,722	301,469	1,092,253
2021*	1,714,892	351,037	1,363,855
2022*	1,756,971	445,558	1,311,413
2023**	1,918,143	487,637	1,430,506
2024	1,919,550	531,451	1,388,099
2025	3,102,500	145,039	2,957,461
2026	3,102,500	147,135	2,955,365
2027	3,102,500	145,576	2,956,924
2028	3,111,000	152,647	2,958,353
2029	3,102,500	155,464	2,947,036
2030	3,102,500	144,196	2,958,304
2031	3,102,500	158,575	2,943,925
Total (t)	**31,405,984**	**3,279,676**	**28,126,308**

*End of year total mined values

4.1.2 Waste Rock Quantities and Distribution

The expected quantities of waste rock to be placed at the TSF as progressive cover material and yearly distribution are provided in Table 3.1.

4.1.3 Overburden Quantities and Distribution

The expected quantities of overburden to be placed as closure cover and distribution are provided in Table 3.2.

4.2 Tailings Storage Facility Location

The TSF is located on high ground west of the mill and east of Lake B7, as shown in Figure 2.1. The direct distance from the mill to the tailings stack ranges from 400 to 800 m. The minimum setback distance from the edge of Lake B7 is approximately 200 m.

4.3 Tailings Storage Facility Design Parameters

Prefeasibility design of the TSF (Tetra Tech 2024b) utilizes tailings placement in a two (2)-cell system. The two-cell system (Cell 1 and Cell 2) is designed to limit dust generation, control tailings surface erosion, and to facilitate the progressive reclamation and closure of the TSF. As the tailings reach final elevation, the tailings will be progressively encapsulated with either waste rock or a layered combination of waste rock and overburden. A typical cross section is shown in Figure 4.1.

Table 4.2 summarizes some of the key physical parameters used for the design of the TSF.

Table 4.2: Design Parameters for the Tailings Storage Facility

Parameters	Value
Meliadine Mine Maximum TSF crest elevation	129 masl
Reference ground elevation	65 masl
Average height of TSF over original ground surface	62 m
Side slope for lower placed tailings (or below elevation 100 m)	4H:1V
Side slope for upper placed tailings (or above elevation 100 m)	3H:1V
Slope of the final tailings surface at crest	4%
Waste rock (NAG) cover system thickness on slopes	3.7 m to 4.2 m
Waste rock (NAG) cover system thickness on plateau	2.5 m
Overburden cover system thickness on plateau	0.5 m
Assumed moisture content of tailings to TSF	17.6% (by mass)
Assumed tailings solid content to TSF	85% w/w (by weight)
Minimum target dry density of compacted tailings	1.65 t/m^3
Assumed waste rock in place bulk density	1.88 t/m^3
Assumed overburden in place bulk density	1.62 t/m^3
Total footprint of the TSF	1,071,842 (m^2)

Based on the above design criteria, the TSF has a capacity for 20.6 Mm^3 (12.5 Mt) of filtered tailings.

4.4 Anticipated Design Performance of TSF

The TSF is designed to minimize the impact to the environment and the design does not rely on freeze-back of the tailings to meet the design intent of the structure. However, the freeze-back of the TSF and the foundations will provide additional benefits such as increasing stability and minimizing seepage from the TSF during operation and closure of TSF.

The stability analysis (Tetra Tech 2024a) of the TSF indicates that the calculated minimum factors of safety meet or exceed the acceptable factors of safety. Thermal analysis predicts that the majority of tailings will be frozen after the closure cover is placed and will remain frozen for many years after mine closure.

4.5 Tailings Deposition

Generally, deposition at the TSF consists of the following sequence:

- The filtered tailings are hauled to the TSF with haul trucks, end dumped, and bladed into lifts of maximum height 0.3 m using a dozer. Each tailings lift is then compacted using a vibratory drum roller. This compaction is intended to promote runoff, reduce the potential for oxygen ingress and water infiltration, and maintain geotechnical stability.
- 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.
- Surface water or excess snow/ice is removed from the natural ground within the footprint prior to tailings placement.

To promote freeze-back, the initial lift of tailings over original ground has been placed during winter conditions. An adaptive, performance-based management approach has been used at the TSF to adapt the yearly deposition strategy to actual mill and paste plant production quantities.

Ground temperatures are closely monitored throughout the year to measure freeze-back of the facility. Temperature data indicates that despite an increase in the estimated average yearly height of tailings placed in each cell from design assumptions for the first two years of operations, freeze-back of the facility is occurring and no performance-related issues have been observed to date.

4.6 Additional Waste Materials Placed in TSF

Due to the design specifications regarding placement of the tailings and waste rock at the facility, generally no other waste materials will be placed in the TSF during its operational life. Exceptions must be approved by the Responsible Person and include:

- Used filter cloths from the Mill. These cloths are collected from the process plant and brought periodically to the TSF for placement. Each cloth is unrolled and placed flat on the tailings surface before backfilling with tailings material as per specified; and
- Limited volume of STP sludge. A temporary decantation pond was constructed and used for storage of STP sludge in Cell 2 during 2019. This pond was decommissioned in Q2 2020 by covering with waste rock. Tailings placement continued over the decommissioned pond as per the deposition plan. No additional STP sludge will be placed in the TSF.

SECTION 5 • WATER MANAGEMENT ASSOCIATED WITH MINE WASTE MANAGEMENT

The water management objectives for the Mine are to minimize potential impacts to the quantity and quality of surface water at the Mine and surrounding waterbodies. Seepage and runoff water from the waste management facilities are managed with water diversion channels, water retention dikes/berms, and water collection ponds.

Additional details regarding the water management systems and infrastructures are provided in the Meliadine Mine Water Management Plan.

SECTION 6 • DUST MANAGEMENT ASSOCIATED WITH MINE WASTE MANAGEMENT

The possible sources of dust related to the waste rock, overburden, and filtered tailings management during construction, operation, and closure include:

- Site preparation prior to placement of waste materials i.e., stripping, excavation and/or placement of foundation pad;
- Wind erosion of fine particles from the WRSFs and TSF surface;
- Vehicle traffic dislodging fine particles from the surface of WRSFs and TSF, and associated service and haul roads to WRSFs and TSF;
- Waste rock, overburden, and filtered tailings handling and transfer - loading, hauling, unloading, placement and compaction; and
- Placement of closure and capping layers.

Dust suppression measures, which are considered to be typical of the current mine practices (i.e., Meadowbank Complex) and consistent with best management practices, will be considered through design, operation and closure phases to control the dust.

Dust is expected to be a minor issue during the operation of the WRSFs as the waste rock produced at the mine generally comprises large pieces of rock that is not be susceptible to wind erosion. Although overburden contains material that is fine-grained and thus more susceptible to wind erosion, the plan is to store the majority of the overburden materials within the core of the WRSFs. Dust from the overburden materials is therefore not expected to be a concern.

The surface compaction of the filtered tailings lifts and limiting traffic over the compacted surface will significantly reduce the potential for wind erosion of the tailings surface. Dust related to TSF operation during the winter season will be further managed by limiting the exposed surface area of the tailings. Other control measures considered in the design of TSF to minimize dust generation include:

- Placement of waste rock cover over the final perimeter tailings slope surface as soon as possible. Safety berms around the perimeter of the waste rock slopes are expected to both trap dust from leaving the TSF and cut exposure of the tailings surface to wind erosion;
- TSF will be operated by cells to limit the tailings surface area exposed to wind and facilitate progressive closure;
- Consideration of prevailing north-northwest wind direction by development of the southern portion of Cell 1 first and progression northward;
- Tailings surface will be covered progressively once it reaches the design elevation; and
- Flat side slope of 4(H):1(V) for the TSF was adopted to minimize the erosion potential and maintain overall stability of the tailings stack;
- Using snow, thin ice surface, or other materials to cover inactive surface of TSF to reduce exposed tailings surface area;

- Potential usage of approved chemical dust suppressant.

Dust generated from vehicles travelling on the surface of the associated access roads will be controlled principally by spraying water on the traffic area, and potentially by applying an approved chemical dust suppressant to the area which will be carried out regularly by mine services during dry periods in the summer. Watering the haul and access roads is only possible when temperatures are above freezing. When the temperature is below freezing, dust suppression using water or chemicals will pose a safety hazard for travel; therefore, reducing the speed limit will be the principal way of controlling dust during these periods. More details on the dust management for traffic are described in the Meliadine Mine Roads Management Plan and Dust Management Plan.

Other control measures considered in design and operation related to dust generation by vehicles travelling include:

- Roads will be designed as narrow and short as possible while maintaining safe construction and operation practices;
- Coarse size rock will be used as much as possible for road construction;
- Roads will be regularly graded to mix the fines found on the road surface with coarser material located deeper in the roadbed; and
- As required, roads and travel areas will be topped with additional aggregate.

Dust from material handling is not expected to be problematic on site. Long end dumps, which can generate significant amounts of dust, will not occur since waste rock, overburden and filtered tailings will be dumped in lifts and spread with a dozer. Where possible, multiple handlings of materials that have the potential to generate dust will be avoided. However, should dust related to material handling occur on site, specific control measures will be evaluated and applied, as required.

At closure, the TSF will be fully covered to prevent further wind erosion of the tailings. The proposed closure cover includes a layer of 0.5 m thick overburden followed by a layer of 2.5 m thick waste rock on the top of the facility. The TSF closure slopes cover includes a 4.0 m to 4.5 m thick waste rock layer depending on the elevation. The overburden will be surrounded by waste rock in the WRSFs; therefore, dusting is not expected to be an issue. The need for dust control at closure will be further evaluated during closure activities.

SECTION 7 • RECLAMATION AND CLOSURE OF THE WRSFs AND TSF

Detailed mine closure and reclamation activities are provided in the Meliadine Mine Interim Closure and Reclamation Plan.

Key mine development activities during the closure process include:

- Place final closure cover on top of tailings surface
- Finalize placement of Discovery WRSF thermal cover
- Decommission non-essential mine infrastructure and support buildings
- Conduct monitoring and maintenance

Breaching of dikes and berms will be completed at the end closure after water quality meets licence criteria for direct discharge to the environment.

Geochemical testing indicates that the waste rock and overburden from the Tiriganiaq, Wesmeg, Pump and F Zone deposits is NPAG and non-metal leaching (NML). Kinetic tests completed on all waste rock types and at various scales show that drainage water quality is expected to meet MDMER monthly mean effluent limits, including results for arsenic. Therefore, a closure cover system is not proposed for the WRSFs.

The Discovery WRSF (WRSF9) contains rock with potential for acid generation or potential to leach metals and will require a thermal cover to reduce potential impacts on the environment.

The WRSFs were designed for long-term stability and no additional re-grading will be required at closure except WRSF9. It is anticipated that the native lichen community will naturally re-vegetate the surface of the WRSFs over time.

Monitoring will be carried out during all stages of the mine life to demonstrate geotechnical and geochemical stability and the safe environmental performance of the facilities. If any non-compliant conditions are identified, then maintenance and planning for corrective measures will be completed in a timely manner to ensure successful completion of the Meliadine Mine Final Closure and Reclamation Plan.

Results of geochemical characterization indicates that most of the tailings produced to-date at the mine fall under the “uncertain” category, while ML has not been observed to be an issue. Despite this classification, the TSF is not considered to pose an ARD risk due to the placement methodology used, assumption of freeze-back within the facility and progressive reclamation cover placement.

The preliminary closure cover design adopted for the TSF will be further evaluated and updated based on the TSF performance monitoring, water quality monitoring and evaluation, and the overall mine closure plan. The final closure cover design for the TSF will be developed before mine closure.

Progressive reclamation includes closure activities that take place prior to permanent closure in areas or at facilities that are no longer actively required for current or future mining operations. Reclamation activities can be done during operations with the available equipment and resources to reduce future reclamation costs, minimize the duration of environmental exposure, and enhance environmental protection. Progressive reclamation may shorten the time for achieving reclamation objectives and may provide valuable experience on the effectiveness of certain measures that might be implemented during permanent closure. The WRSFs and TSF will be operated to facilitate progressive reclamation. Closure and reclamation activities of these facilities will use currently accepted management practices and appropriate mine closure techniques that will comply with accepted protocols and standards.

Monitoring will be carried out during all stages of the mine life to demonstrate geotechnical stability and the safe environmental performance of the facilities. If any non-compliant conditions are identified, then maintenance and planning for corrective measures will be completed in a timely manner to ensure successful completion of the Meliadine Mine Closure and Reclamation Plan.

7.3 Closure and Reclamation of Mine Waste Water Management Systems

The contact water management systems for the WRSFs and TSF will remain in place until mine closure activities are completed and monitoring results demonstrate that water quality conditions are acceptable for the discharge of all contact water to the environment with no further treatment required. Once the water quality meets the discharge criteria established through the water licensing process, the water management infrastructures will be decommissioned to allow the water to naturally flow to the receiving environment.

SECTION 8 • MONITORING PROGRAM

This section presents a summary of the monitoring programs that will be carried out during construction and operation related to mine waste storage management. The monitoring programs presented here include stability and deformation, ground temperature and annual inspections per the Licence. Surface contact water monitoring is described in the WMP and in the Water Quality and Flow Monitoring Plan. General monitoring is subject to change as directed by an Inspector, or by the Licensee, subject to approval by the NWB.

8.1 Monitoring Activities for WRSFs

Table 8.1 summarizes the monitoring activities for the WRSFs and incorporates the latest design reports.

Table 8.1: Waste Rock Storage Facilities Monitoring Activities

Monitoring Component		Monitoring Frequency	Reporting
Verification Monitoring	Quantities of waste rock produced	Monthly	Monitoring data will be used by Agnico Eagle internally.
	Routine visual inspections of WRSFs	Daily during active rock placement, Monthly to semi-annually after placement	
	Elevation and geometry survey	Annually	
	Waste rock and overburden sampling	On as-needed basis	
	Seepage collection and monitoring	Monthly over the open water season	
General Monitoring	Quantities of waste rock placed into facilities	Monthly	Monitoring data will be reported to the Regulators in the Annual Water Licence report or Annual Inspection Report
	Geochemical monitoring	Approximately eight samples per 100,000 tonnes of mined material as per MEND (2009) recommendations	
	Thermal and freeze-back monitoring	Monthly during first year; then quarterly	
	Dust monitoring related to WRSFs	Governed by Air Quality Monitoring Plan	
	Geotechnical inspection by qualified Geotechnical Engineer	Annually or more frequent at the request of an Inspector	

8.1.1 Verification Monitoring Program for WRSF

Verification monitoring data will be used by Agnico Eagle for the management of waste rock and overburden. The following verification monitoring data will be collected, compiled, and managed internally:

- Each WRSF was designed to store a specific volume of waste rock and overburden material during mine operations. Monthly quantities of the waste rock and overburden produced and placed during mine operation will be recorded.
- During the active development of each WRSF, daily visual inspections will be carried out in relation to the performance and condition of each structure as per Mine Act requirements. When placement activity ceases on an interim or seasonal basis, the inspection frequency will shift to monthly. Following the completion of a WRSF, inspections will continue on a semi-annual basis until closure. The purpose of these inspections is to identify and document any potential hazards or risks to the facility, such as deformations, unusual seepage, slumping, local failure, etc.
- The maximum heights of the WRSFs are estimated to be approximately 40 m. During operations, an annual elevation survey of the WRSFs will be performed to estimate the overall volume placed, determine the reclamation progress, and provide input information to the operation plan.
- Surface runoff and seepage from the WRSFs will be monitored during the construction and operation phases by visual inspection during the ice-free season. Additional inspections will be carried out after rainfall events and during the freshet period. The detailed information on the monitoring of surface runoff and seepage from the WRSFs is described in the WMP.

8.1.2 General Monitoring Program for WRSF

The following general monitoring data will be reported to the NWB through either the Water Licence Annual Report or an Annual Inspection Report:

- Monthly quantities of the waste rock and overburden placed into the WRSFs during mine operation will be recorded. Samples will be taken as per MEND (2009) recommendations.
- The placed waste rock and overburden are expected to freeze-back and permafrost is likely to develop within the WRSFs with time. Thermistors will be installed in each WRSF to monitor the rate of freeze-back and permafrost development progress in the facilities during closure. Temperature readings will be taken monthly during the first year after installation and then quarterly to track permafrost development within the WRSFs.
- Dust related to waste rock and overburden management is not expected to be an issue by employing the dust suppression measures presented in Section 6.0 through design, operation, and closure phases. Air quality at the mine site will be monitored during construction, operation, and closure through air quality monitoring stations and reported annually.
- The performance of the WRSFs will be inspected and assessed during the annual geotechnical site inspection by a geotechnical or civil engineer registered in Nunavut. The visual assessment and recommended actions to be taken related to the WRSFs will be summarized in the Annual Inspection Report. Inspections may occur more frequently at the request of the Inspector. Records of all inspections will be maintained for the review of the Inspector upon request.

The results from the general monitoring program related to waste rock and overburden management will be reported to the Regulators in the Annual report or in the Annual Geotechnical Inspection Report.

8.2 Monitoring Activities for the TSF

Table 8.2 summarizes the monitoring activities for the TSF. The TSF Detailed Design Report was approved by the NWB in December 2018. A more detailed monitoring plan was included in the report and has been incorporated in the following tables.

Table 8.2: Tailings Storage Facility Monitoring Activities

Monitoring Component		Monitoring Frequency	Reporting
Verification Monitoring	Tailings production rate and solid content	Continuous	Monitoring data will be used by Agnico Eagle internally, and will be reported to the Regulators upon request
	Design verification of placed tailings (moisture content, maximum dry unit weight, particle size, in-situ density)	Quarterly/Bi-annually	
	Routine visual geotechnical inspections of TSF	Weekly	
	Elevation and geometry survey	Annually	
	Water quality monitoring of CP3	Monthly over the open water season or when water is present	
General Monitoring	Quantities of tailings placed into facilities	Monthly	Monitoring data will be reported to the Regulators in Annual Water Licence Report or Annual Inspection Report
	Thermal and freeze-back monitoring	Monthly during first year and quarterly thereafter	
	Dust monitoring related to TSF	Daily during operation phase	
	Geochemical monitoring	Bi-monthly	
	Geotechnical inspection by qualified Geotechnical Engineer	Annually or more frequent at the request of an Inspector	

8.2.1 Verification Monitoring Program for TSF

A summary of the verification monitoring program for the TSF is presented below.

- The tailings production rate at the mill and solid content will be continuously monitored during mine operation.
- Off-site geotechnical testing of tailings properties (maximum dry unit weight, moisture content and particle size) tailings will be carried out quarterly to ensure that the placed tailings meet the design criteria. Bi-annual testing of in-situ density and moisture contents will be conducted by a third-party geotechnical firm.
- Visual inspections and monitoring can provide early warning of many conditions that can contribute to structure failures and incidents. Pursuant Part F Item 21 of the Licence, Agnico

Eagle will undertake weekly visual inspections of the TSF and note areas of seepage, unusual settlement or deformation, cracking or other signs of instability. Records of all inspections will be maintained.

- The average final height of the TSF will be approximately 33 m. An annual elevation survey of the TSF will be performed to estimate the overall volume placed, determine the reclamation progress, and provide input information to the operation plan.
- The runoff and seepage monitoring procedures and protocols for the WRSFs during mine operation will also apply to the TSF. Specifically, CP3 water quality will be monitored at a monthly frequency or when water is present in accordance with Part I Item 5 of the Licence.

8.2.2 General Monitoring Program for TSF

A summary of the general monitoring program for the TSF is presented below.

- The monthly quantities of tailings placed into the TSF will be recorded.
- In accordance with Part I Item 12 of the Licence, a TSF thermal monitoring regime will be implemented. This will include a minimum of eight (8) thermistor cables being installed in the TSF to monitor the permafrost development within the facility during operation and closure. The planned locations of these thermistors. The temperature readings are taken quarterly (i.e., 4 times per year) to verify thermal conditions and assumptions (and were taken monthly during Year -1). The monitoring schedule will be reviewed and modified as necessary. The measured temperatures within the TSF will also provide the background information for the study of permafrost development.
- Dust related to tailings management is not expected to be an issue by employing the dust suppression measures presented in Section 6.0 through design, operation, and closure phases. Air quality at the mine site will be monitored during construction, operation, and closure through air quality monitoring stations.
- Filtered tailings samples will be taken from the mill bi-monthly and analyzed for the percentage of sulphur and carbon. The results from these analyses will be used to differentiate NPAG and PAG based on the derived NPR. The collected samples will be sent to an accredited commercial laboratory with specialization in ARD/ML for acid-base accounting (ABA) and elemental analysis.
- Pursuant Part I Item 13 of the Licence, the performance of the TSF will be inspected and assessed during the annual geotechnical site inspection by a geotechnical or civil engineer registered in Nunavut. The visual assessment and recommended actions to be taken related to the TSF will be summarized in the Annual Inspection Report. Inspections may occur more frequently at the request of the Inspector. Records of all inspections will be maintained for the review of the Inspector upon request.

The results from general monitoring program related to tailings management will be reported to the Regulators in the Annual Water Licence Report or in the Annual Geotechnical Inspection Report.

REFERENCES

Agnico Eagle, 2018. Tailings Storage Facility (TSF) Design Report and Drawings 6515-583-163-REP-001. Submitted to Nunavut Water Board November 2018.

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Agnico Eagle, 2021c. Operation & Maintenance Manual (OMM) – Sewage Treatment Plant Upgrade. Version 5. 6526-460-132-REP-001. March 2021.

MEND, 2009. Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials. MEND Report 1.20.1. Mining Environment Neutral Drainage Program, Natural Resources Canada. December 2009.

Tetra Tech. 2024a Stability Analyses for the Proposed Tailings Storage Facility (TSF), Meliadine Mine Water Licence Amendment, Nunavut

Tetra Tech. 2024b Water Management Infrastructure and TSF PFS Engineering Design for Meliadine Mine Water Licence Amendment, Nunavut

APPENDIX A • FIGURES

Figure 1.1: General Mine Site Location Plan

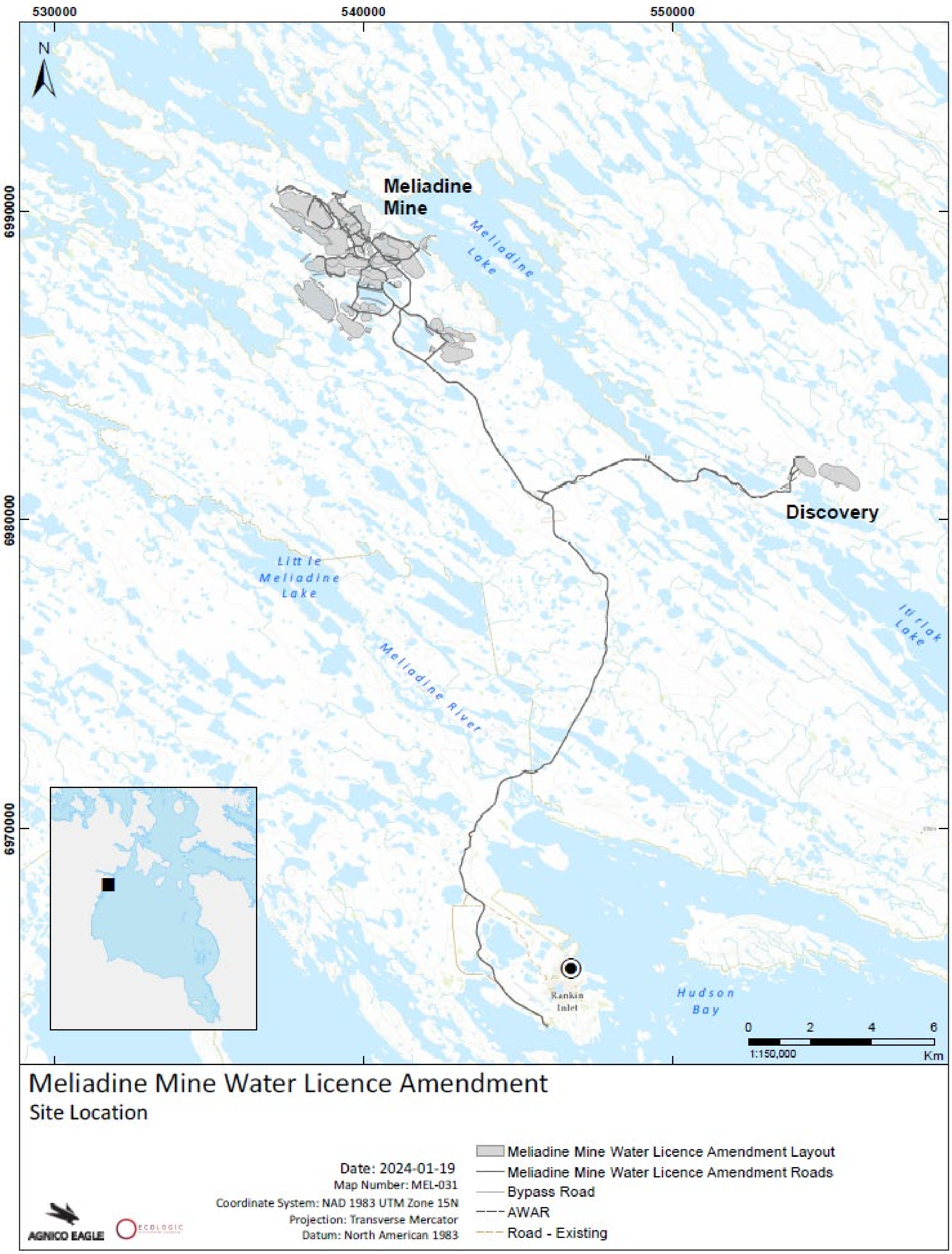

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Figure 2.1: General Site Layout Plan

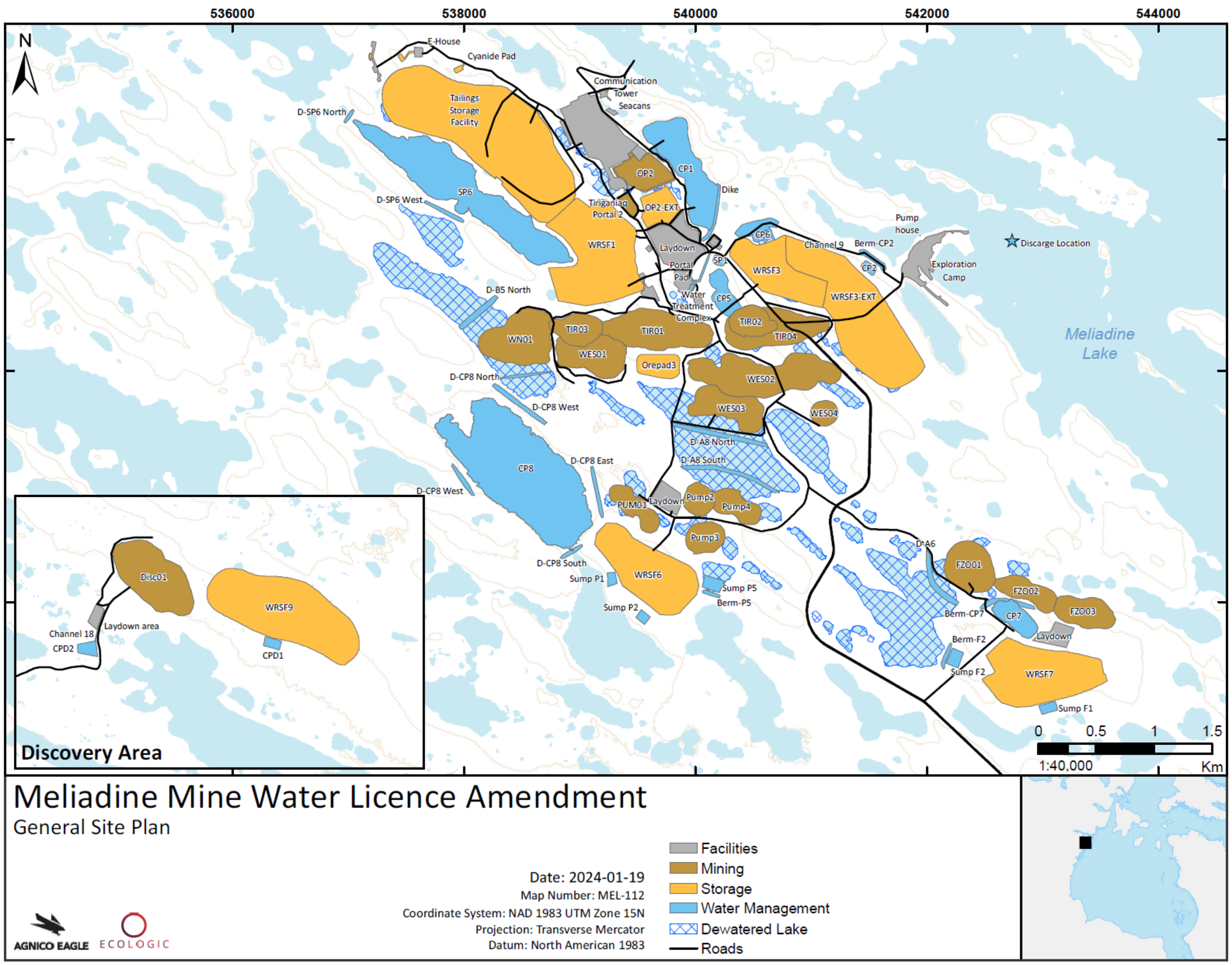

Figure 2.2: Mine Waste Management Flow Diagram

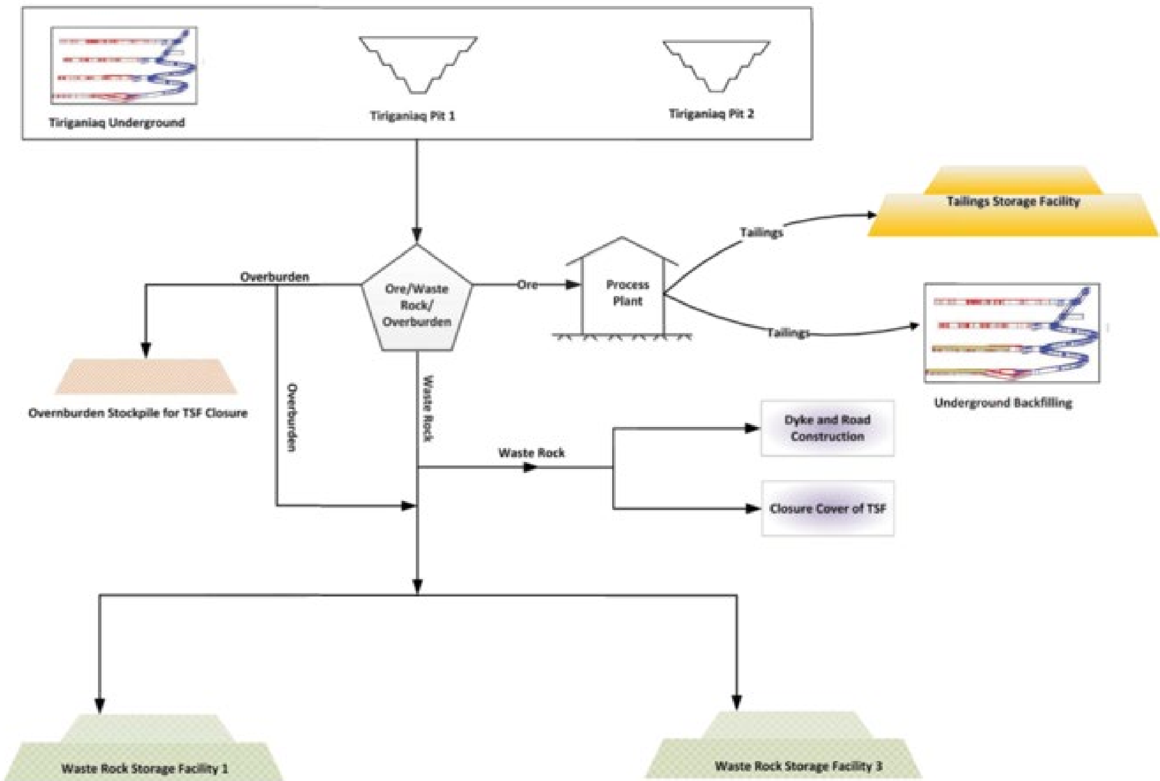

Figure 3.1: WRSF1 Typical Section

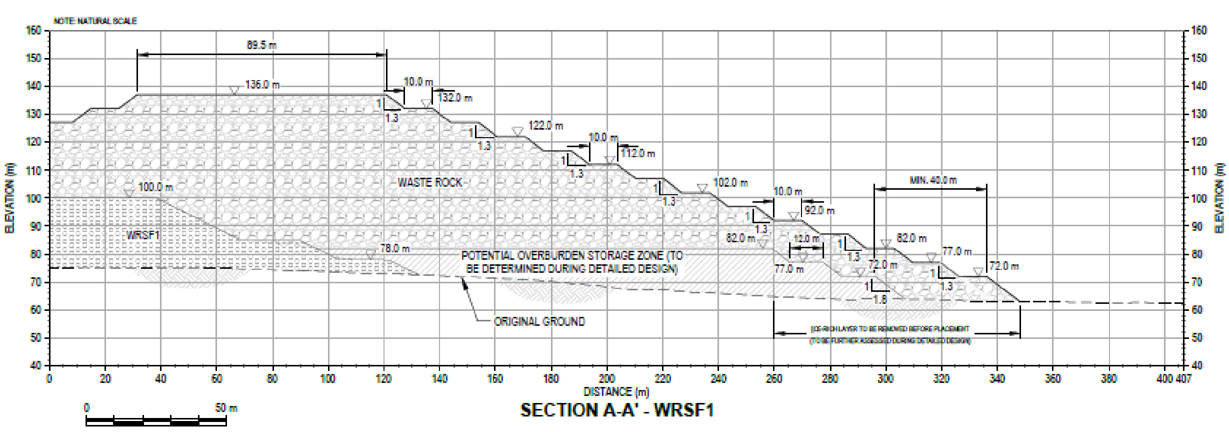

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Figure 4.1: Typical Design Cross-Section for TSF