APPENDIX 29-9. MINE WASTE MANAGEMENT PLAN

AGNICO EAGLE

MELIADINE GOLD MINE

Mine Waste Management Plan

MARCH 2025
VERSION 12
6513-MPS-09

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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 cover system to reduce potential impacts on the environment.

Of the 30 Mt of tailings produced, about 27 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 multiple 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 collection ponds (CPs). The collected water is treated prior to being discharged to the receiving environment.

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Tables in Text

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,	1-2	Update to reflect issuance of the Type A Water Licence.	Golder Associates Ltd.
		1.3	12-15	Removal of original Section 1.3 as was specifically linked to the application.	
		3.3	22-24	Update to reflect receipt of Type A Water Licence	
		5.5, 6.1, 9.1, 9.2	34-35 37-38	The Plan updated to comply with Part B Section 13, and Part F Sections 12 and 20 of the Type A Water Licence 2AM-MEL1631 and commitments made during the licensing process.	
3	March 2018			Minor revisions	Environment, Engineering Departments
4	December 2018	All	All	Plan update in response to approved TSF Design Report (6515-583-163-REP-001)	Environment Department
		1.3	11,14	Update of production timeline	
		3.1, 3.2	20-23	Update of tailing quantities	
		4.1, 4.3, 4.4	24, 27-28	Update of closure cover material values	
		4.2	29	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)	
		5.2, 5.4	30-32		
		5.5, 5.6	33-35	Update of TSF design, parameters and schedule	
		6.1	36-38	Update of tailings placement plan dimensions within each cell of TSF	
		7	43	Update of Water Management based on TSF design report (6515-583-163-REP-001) and infrastructure updates	
		8.2	46-47	Minor dust management revision	
		9.2	50-52	Updates to closure plan based on approved TSF design report (6515-583-163-REP-001)	
		Appendix A		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	

Version	Date	Section	Page	Revision	Author
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 and 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 and quantities according to latest mine plan	Engineering, Environment Departments
10	March 2023	All	All	Update to reflect Meliadine operational status and 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 application	Permitting Department
12	March 2025	All	All	Update to reflect Meliadine operational status and quantities according to latest mine plan Section 6: Removed details on dust sources and suppression measures. These can be found in the Dust Management Plan.	Environment Department

ACRONYMS

ABA	Acid Base Accounting
Agnico Eagle	Agnico Eagle Mines Limited
ARD	Acid Rock Drainage
CP	Collection Pond
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
Mine or Project	Meliadine Gold Mine
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 Storage Pad
PAG	Potentially Acid Generating
PGA	Peak Ground Acceleration
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 Mine is subject to the terms and conditions of both the amended Project Certificate 006 issued by the Nunavut Impact Review Board (NIRB) in accordance with the Nunavut Land Claims Agreement Article 12.5.12 on March 2nd, 2022 (NIRB, 2022) and the Amended Water Licence No. 2AM-MEL1631 (the Licence), issued by the Nunavut Water Board (NWB) on October 25th, 2024 and approved by the Minister of Northern Affairs on November 22nd, 2024 (NWB, 2024). The previous Type A Water Licence (2AM-MEL1631) authorized the mining undertaking at Tiriganiaq open pits and underground. The recently amended Water Licence also 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), following the approval of the most recent Water Licence 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

The previous Water Licence (NWB, 2021) authorized Agnico Eagle to mine the Tiriganiaq deposit with two open pits and one underground operation. The 2024 Water Licence Amendment extends the Life of Mine to 2031 with the open pit mining of F Zone, Wesmeg, Pump, and Discovery deposits. 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, 174.4 Mt of waste rock, 33.4 Mt of overburden waste, and 29.9 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
Mining														
Tiriganiaq Deposit Open Pit														
Tiriganiaq Underground														
Pump Deposit Open Pit														
Wesmeg 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

Mine Waste Stream	Estimated Quantities		Waste Destination
Overburden	33 Mt		Temporary stockpile of Overburden or other suitable material ~ 0.1 Mt for reclamation of TSF
			Closure and site reclamation for the TSF
			Co-disposed with waste rock within WRSFs
Waste Rock	174 Mt		Infrastructure construction (surface and underground)
			WRSFs
			Closure and site reclamation for the TSF
Tailings	30 Mt	27 Mt	As dry stack tailings placed in the TSF
		3 Mt	Used in underground mine as cemented paste backfill

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*	920,000	606,000	5,262,000						
2025	831,000		3,394,000						
2026	780,000		1,156,000						
2027	966,000		1,448,000						
2028	968,000		698,000		1,360,000				
2029	966,000				906,000	22,000	366,000	652,000	3,579,000
2030	966,000					859,000	1,392,000	1,172,000	10,511,000
2031	966,000						1,163,000		1,936,000
Total (t)	**10,550,000**	**7,766,000**	**22,325,000**	**877,000**	**6,261,000**	**881,000**	**2,921,000**	**1,824,000**	**16,026,000**

*End of year mined values

Table 2.4: Summary of Mine Waste Production Schedule for Wesmeg/Wesmeg North Deposit (2026-2031)

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										-
2026	787,000	263,000	811,000	1,936,000	544,000	985,000				
2027	2,071,000	2,437,000					624,000	513,000	154,000	446,000
2028	288,000	3,656,000							1,736,000	6,426,000
2029		2,069,000	100,000	4,645,000					1,095,000	8,384,000
2030			3,015,000	8,782,000						6,805,000
2031				7,167,000						
Total (t)	3,146,000	8,425,000	3,926,000	22,530,000	544,000	985,000	624,000	513,000	2,985,000	22,061,000

*End of year mined values

Table 2.5: Summary of Mine Waste Production Schedule for Pump Deposit (2025-2031)

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
2025	427,000	642,000	491,000	827,000				
2026				106,000				
2027								
2028					1,230,000	537,000		
2029						1,074,000	1,154,000	2,522,000
2030						1,074,000		
2031								
Total (t)	427,000	642,000	491,000	933,000	1,230,000	2,685,000	1,154,000	2,522,000

*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	2,231,000	2,054,000	1,407,000	1,037,000	823,000	3,030,000
2030	558,000	4,109,000		2,074,000		
2031		4,109,000		2,074,000		
Total (t)	2,789,000	10,272,000	1,407,000	5,185,000	823,000	3,030,000

*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	1,594,000	18,272,000
2030	939,000	10,963,000
2031	6,000	7,309,000
Total (t)	2,539,000	36,544,000

*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 174 Mt of waste rock will be mined from the open pits and underground mine operations, with the majority of the waste rock produced (about 149 Mt) to be placed and stored within the designated WRSFs. The remaining 26 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 33 Mt of overburden will be produced, with about 32 Mt of overburden being co-disposed within the WRSFs. The remaining, approximately 1 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*	6,182,000	1,080,000	450,000	201,000	426,000	4,024,000			
2025	5,694,000	1,565,000	349,000	290,000	432,000	1,590,000	1,469,000		
2026	5,226,000	1,531,000	366,000	240,000	1,147,000	1,836,000	106,000		
2027	5,810,000	1,564,000	622,000	228,000	1,848,000	1,548,000			
2028	13,644,000	1,628,000	640,000	223,000	4,839,000	3,656,000	2,658,000		
2029	48,905,000	1,572,000	635,000	227,000	3,834,000	6,714,000	10,529,000	7,122,000	18,272,000
2030	46,677,000	1,511,000	632,000	229,000	3,838,000	11,782,000	10,538,000	7,183,000	10,963,000
2031	24,723,000	1,511,000	646,000	224,000	1,362,000	7,167,000		6,504,000	7,309,000
Total (t)	174,410,000	16,758,000	5,950,000	2,928,000	22,826,000	43,161,000	25,300,000	20,809,000	36,544,000
Volume (m^3) Permitted (Mt^1)	87,205,000 179.6	8,379,000 17.1	2,975,000 6.4	1,465,000 3.3	11,413,000 22.8	21,581,000 44.2	12,650,000 28.3	10,404,000 20.8	18,272,000 36.5

[1] Numbers from the Mine Waste Management Plan (Version 11_NWB, January 2024) submitted to the NWB as part of the Water Licence Amendment Application (Agnico Eagle, 2024)

*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		411,683				
2020*	1,354,831		572,937	781,894			
2021*	2,218,888		2,218,888				
2022*	1,828,976			1,653,711			
2023*	2,223,091			2,223,091			
2024*	606,000			606,000			
2025	918,000			0	918,000		
2026	2,143,000	38,000		2,105,000			
2027	2,849,000	313,000	154,000	2,382,000			
2028	3,254,000		1,736,000	288,000	1,230,000		
2029	9,078,000		1,770,000	100,000	1,154,000	4,460,000	1,594,000
2030	6,542,000	287,000	1,744,000	3,015,000		558,000	939,000
2031	6,000	26,000					
Total (t)	**33,433,000**	**664,000**	**8,608,000**	**13,155,000**	**3,302,000**	**5,018,000**	**2,533,000**
Volume (m^3)	**21,295,000**	**423,000**	**5,482,000**	**8,379,000**	**2,103,000**	**3,196,000**	**1,613,000**
Permitted (Mt)[2]	**34.5**	**0.7**	**8.6**	**14.0**	**3.6**	**5.0**	**2.5**

*End of year total mined values

[2] Numbers from the Mine Waste Management Plan (Version 11_NWB, January 2024) submitted to the NWB as part of the Water Licence Amendment Application (Agnico Eagle, 2024)

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, Agnico Eagle will utilize and adaptive, performance-based management system 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, WRSF3, and WRSF6

Design Parameters	WRSF1	WRSF3	WRSF6
Maximum height of each overburden and waste rock bench (m)	5	5	5
Side slope of each lift of waste rock	Angle of repose (approximately 1.3H:1V)		
Typical width of the horizontal offset between adjacent waste rock lifts (m)	16.5	16.5	10
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)	3(H):1(V)
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	12
Internal overburden setback distance from toe of WRSF for the first lift (m)	40	40	40
Maximum crest elevation above sea level (masl)	112.0	97.0	99
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, WRSF3, and WRSF6 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.
- Minor amounts of Potentially Acid Generating (PAG) material may be encountered during mining (not including Discovery) and will be placed at least 20m from the toe of the lift.

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. Additional waste matter may include:

- Solid Sewage Treatment Plant (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 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 7h 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 30 Mt of tailings will be produced over the LOM of 2031. Approximately 26.7 Mt or 90% of the tailings will be deposited within the TSF and the remaining 3.2 Mt or 10% 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*	1,966,000	423,000	1,543,000
2025	2,281,000	145,000	2,136,000
2026	2,373,000	147,000	2,225,000
2027	3,103,000	146,000	2,957,000
2028	3,111,000	153,000	2,958,000
2029	3,103,000	155,000	2,947,000
2030	3,103,000	144,000	2,958,000
2031	3,103,000	159,000	2,944,000
Total (t)	**29,903,000**	**3,172,000**	**26,729,000**

Permitted (Mt)[3]	**31.4**	**3.3**	**28.1**

*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 feasibility level design of the expanded 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

[3] Numbers from the Mine Waste Management Plan (Version 11_NWB, January 2024) submitted to the NWB as part of the Water Licence Amendment Application (Agnico Eagle, 2024)

Table 4.2: Design Parameters for the Tailings Storage Facility

Parameters	Value
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	4.0 m to 4.5 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 12.5 Mm^3 (20.6 Mt) of filtered tailings. Detailed design of an expanded TSF is expected to completed in 2025.

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 lifts of tailings over original ground are 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.

5.7 Temporary Storage Pad for Tailings

During the caribou migration period only, a temporary storage pad for tailings may be used to provide additional storage for dry tailings for operational flexibility. The temporary storage pad is located on the existing Meliadine Mine industrial pad, between the Process Plant and the TSF and is surrounded by a seacan wall. The pad consists of a layer of geotextile overlaid with a granular pad. If the pad is used, tailings temporarily stored on the pad will be transferred to the TSF whenever possible during the caribou migration, according to the applicable caribou migration work suspension protocol. The pad is temporary in nature and once the tailings have been transferred to the TSF, the pad will be removed and placed in the TSF as soon as practical following the caribou migration.

Runoff from the temporary storage pad is captured within the site's water management infrastructures and eventually reports to CP1. As for dust suppression measures, they will be applied as necessary (e.g., spraying water), and the seacan wall will also mitigate dust transport from temporarily stored tailings.

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.

Sources of dust related to mine waste management and suppression measures are detailed in the Dust Management Plan.

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 cover system
- 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 overall 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 cover system 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 Report or Annual Inspection Report
	Geochemical monitoring	Approximately eight samples per 100,000 tonnes of mined material as per Mining Environment Neutral Drainage (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 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 the Dust Management Plan 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. Detailed design of the expanded TSF is expected in 2025. 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 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 23 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 4 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 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 suppression measures presented in the Dust Management Plan will be employed 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 Net Potential Ratio (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 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.

Agnico Eagle, 2021a. Meliadine Gold Mine Groundwater Management Plan, Version 7, August 2021.

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

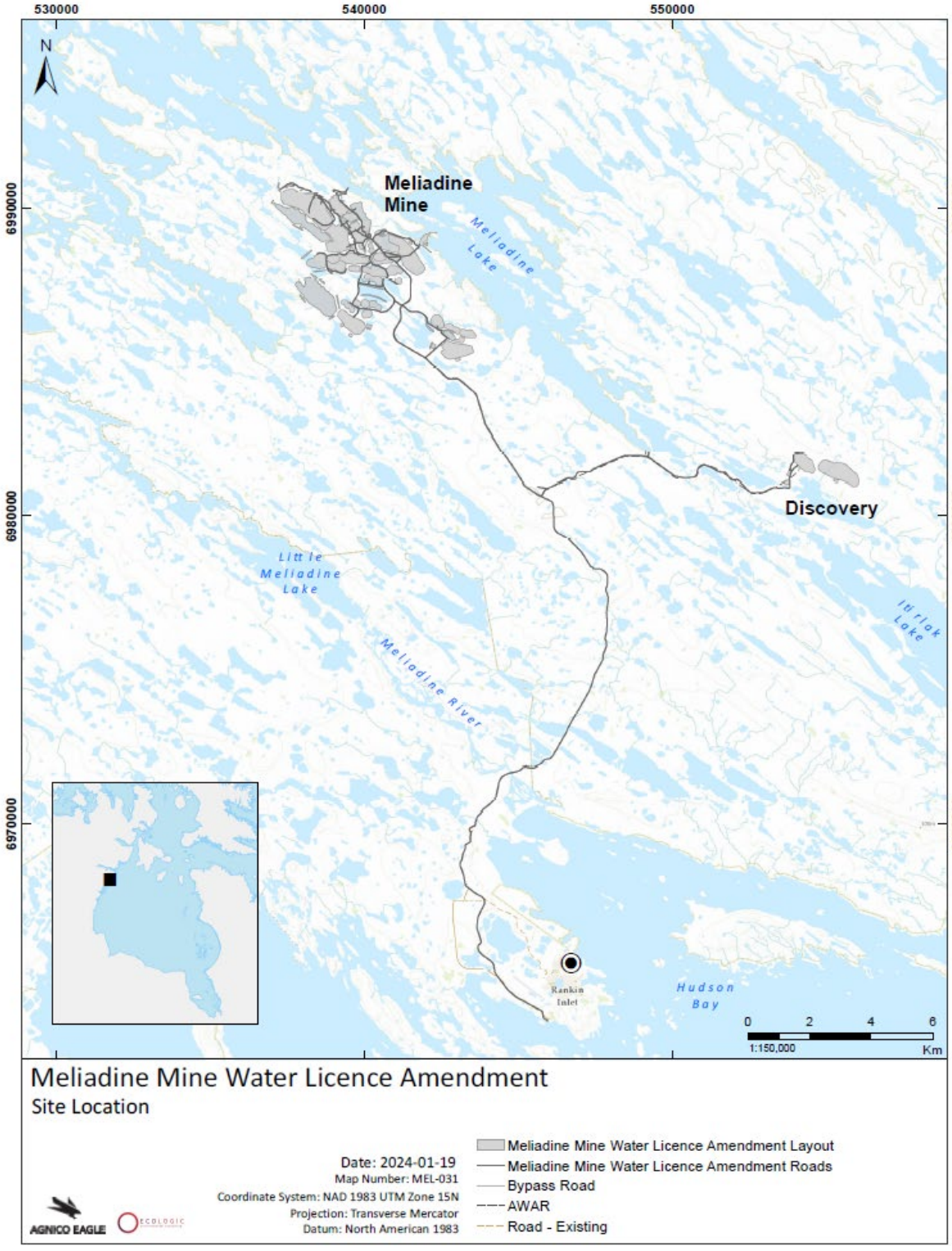


Figure 2.1: General Site Layout Plan

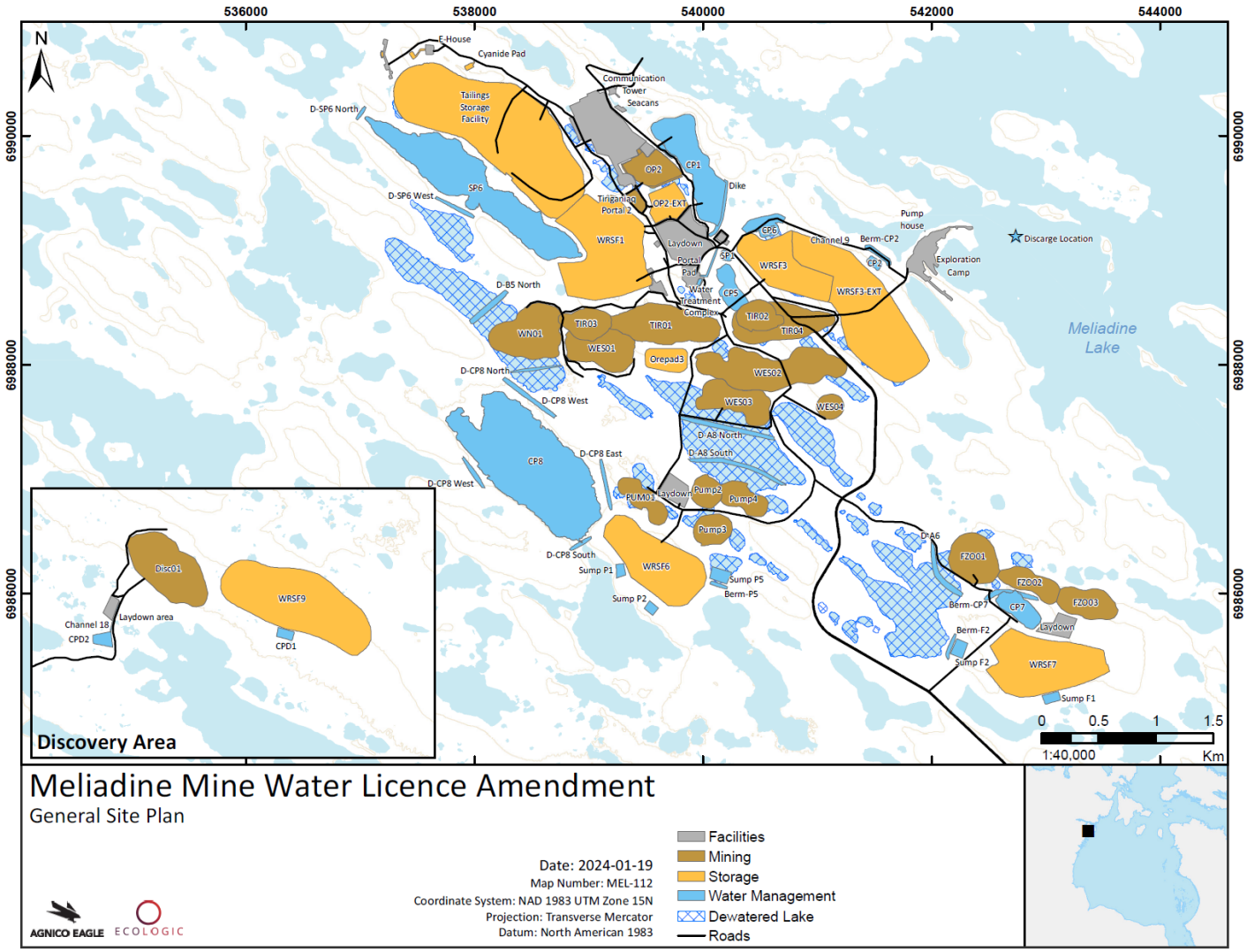


Figure 2.2: Mine Waste Management Flow Diagram

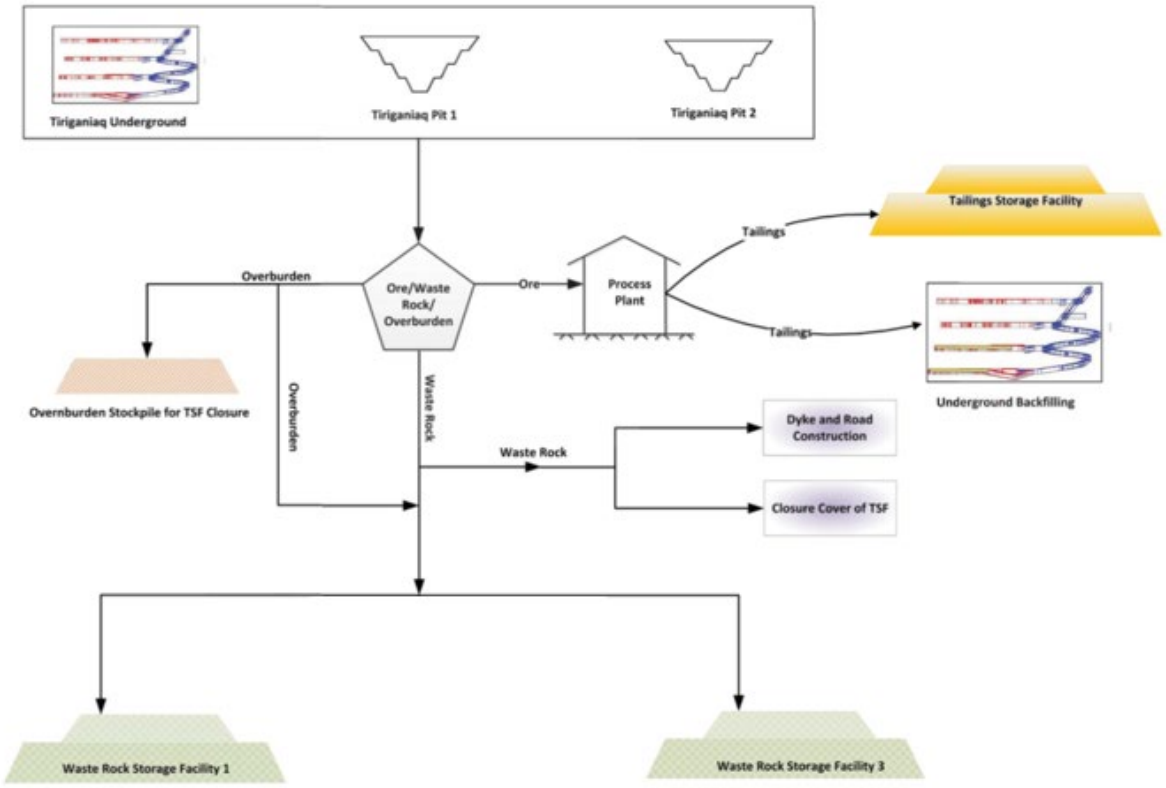
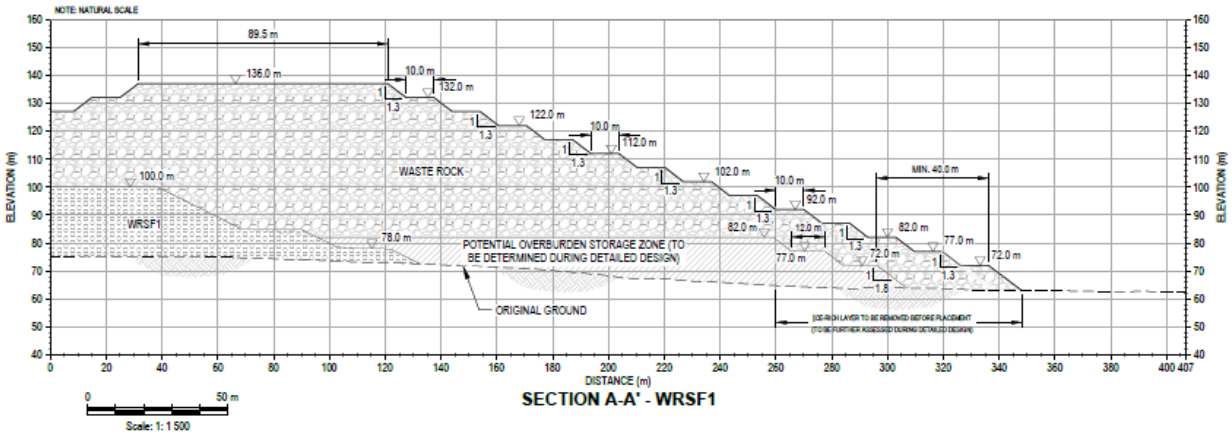


Figure 3.1: WRSF1 Typical Section



AGNICO EAGLE

Figure 4.1: Typical Design Cross-Section for TSF