Appendix 56

Meadowbank Landfill Design and Management Plan Version 7

AGNICO EAGLE

MEADOWBANK MINE

Landfill Design and Management Plan

In Accordance with Water License 2AM-MEA1530

Prepared by:
Agnico Eagle Mines Limited – Meadowbank Complex

Version 7
February 2025

EXECUTIVE SUMMARY

This Landfill Design and Management Plan outlines the design of the current operational and conceptual closure industrial waste landfill as part of Agnico Eagle Mines Limited (Agnico Eagle) Meadowbank Mine in Nunavut.

The current landfill is required for the disposal of non-salvageable, non-hazardous solid wastes from mining activities, as well as for disposal of compost from the composting operation. It is located on the Portage Waste Rock Storage Facility (WWRSF) and will consist of several sub landfills that evolve with the placement of waste rock. All the sub-landfills will be identified and mapped.

For the remaining life of mine, for progressive closure and for closure, Landfill #1 and Landfill #2 located on top of the Portage WWRSF could be used for waste disposal, based on capacity requirements and site conditions.

The leachate from the landfill is very weak (diluted) or simply no existent due to the controls on materials placed in the landfill, and therefore specific leachate management is not considered. Any leachate is naturally drained into the Tailing Storage Facility.

At the end of mine life, the landfill waste will be covered by 0.3 to 1 m thickness of rock fill, with an additional 4 m of coarse Non-Potentially Acid Generating (NPAG) waste rock material. The final landfill slopes will be up to 50%. Drainage water will be managed under the current Water Management plan.

To meet Nunavut Water Board (NWB) guidelines, an environmental overview effects assessment was conducted to characterize environmental resources and determine the anticipated environmental effects of the landfills. The primary potential environmental effects from landfill activities included leachate generation, windblown debris and habitat (vegetation) loss. The operation of the landfill has not shown any such environmental effects.

IMPLEMENTATION SCHEDULE

This plan will be immediately implemented (February 2025) and is subject to any modifications proposed by the NWB as a result of the review and approval process**.**

DISTRIBUTION LIST

Agnico Eagle – General Mine Manager

Agnico Eagle – Environment & Critical Infrastructures Superintendent

Agnico Eagle – Environment General Supervisor

Agnico Eagle – Environmental Coordinator

Agnico Eagle – Engineering Superintendent

Agnico Eagle – Mine Superintendent

Agnico Eagle – Energy and Infrastructure Superintendent

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Revision
1	08/10/08			Amalgamation of original report and supplementary documents (Golder Associates, Doc 562 – *Landfill Design and Management Supplementary Information* and AEM document – *Meadowbank Type A Water License – Response to Pre-Hearing Commitments*, Appendix I)
		4	11	Addition of testing protocol and incinerator criteria; Incorporation of Government of Nunavut Environmental Guidelines
		5	14	Addition of protocols for material placement in the landfills; Confirmation that there are no planned design changes as of October 2008 to Landfill #1 or Landfill #2
2	12/12/18	ALL	ALL	Comprehensive update of entire plan
3	17/03/31	ALL	ALL	Comprehensive update of entire plan
4	18/10/02	1.1 3.1 3.2.1 3.3	1 4 5 6	Addition of composting waste stream to site operations, where applicable. Composter output will be sent to landfill.
5	21/03/06	ALL	ALL	Comprehensive Update to reflect the current landfill operation
6	24/03/06	VI	VI	Acronyms and Units added
		2	3	Section updated
		3.1	4	Section updated
		1.2 3.4 3.5 4.1 4.2 5.2	2 7 7 8 8 12	Added details regarding progressive closure and closure
7	20/02/2025	1.1 3.2 3.3 4.1 4.2 4.4 5.2 6.1	1 5-10 13 14 16 18	Added details regarding types of waste, progressive closure and closure

Approved by:

Eric Haley
Superintendent – Environment & Critical Infrastructures

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ACRONYMS

Agnico Eagle	Agnico Eagle Mines Limited – Meadowbank Complex
GN	Government of Nunavut
NPAG	Non-Potentially Acid Generating
NWB	Nunavut Water Board
PAG	Potentially Acid Generating
WRSF	Rock Storage Facility
VEC	Valued environmental components

UNITS

km	kilometre
km^2	squared kilometre
m	metre
m^3	cubic meter
Mt	million metric tonnes
t	metric tonnes

1 INTRODUCTION

1.1 PROJECT OVERVIEW

This Landfill Design and Management Plan (Plan) outlines the design, operation and closure for two solid waste landfills as part of the Agnico Eagle Mines Limited (Agnico Eagle) Meadowbank Mine.

The objectives of this Plan are summarized as follows:

1. To define the location, design and operating procedures to be used in the landfill disposal of non-hazardous solid waste generated at the Meadowbank Mine;
2. To define acceptable/non-acceptable types of solid waste to be placed in the Meadowbank landfill; and
3. To define operating and monitoring requirements for the landfill.

This updated version of the Landfill Design and Management Plan was developed in March 2017 in concordance with the water license requirement, updated in March 2021 to include new sub-landfills location and in February 2025 to include information regarding progressive closure and closure and additional details on waste types. This document will supersede all previous Landfill Design and Management Plans created by Agnico Eagle.

The landfills are required for the disposal of non-salvageable, non-hazardous industrial wastes from standard mining activities that cannot be incinerated.

Hazardous wastes will not be placed in the landfills. Management procedures for hazardous wastes are provided under a separate management plan – Hazardous Materials Management Plan. All other materials considered unsuitable for landfill deposition are packaged for shipment and disposal off site at a licensed facility.

To meet NWB guidelines, an environmental overview effects assessment was conducted to characterize environmental resources and determine the anticipated environmental effects of the landfills. Other applicable regulatory guidelines and criteria were also incorporated into this Plan, as discussed in Section 2.

The overall Meadowbank Mine description, landfill siting options and descriptions, and corresponding environmental overview approach are described in the sections below. The Meadowbank Mine Site facility layout is shown in Figure 1.

At the Meadowbank site and Baker Lake Marshalling Area, hazardous waste materials are stored in secure facilities until they can be backhauled for off-site recycling or disposal in an approved facility.

1.2 LANDFILL SITING

The landfills were positioned considering the following criteria:

- Drainage – sites that drain into areas where water will be collected and monitored as part of the overall mine plan are preferred.
- Avoid Ice Rich Soil Excavation – sites where bedrock is at relatively shallow depth are preferred.
- Disturbed Areas – sites that will be within or near areas that will be disturbed as part of the overall mine plan are preferred.

- Access – sites that are located close to existing access roads are preferred.

The first three criteria are recommendations from the Mine Site Reclamation Guidelines for the Northwest Territories (INAC, 2006).

Based on the above criteria, a landfill is planned at each of the two following locations:

- Landfill #1 is developed in the Portage WRSF (Figure 2). This landfill consists of multiple sub landfills that are built and buried according to the evolution of the WRSF. As the WRSF evolves, the elevation and location of the sub landfills change. Landfill #1 will be used during operation and progressive closure. Based on capacity and site conditions, the Landfill #1 could also be used in closure.; and
- Landfill #2 will be developed at the top of the Portage WRSF during Meadowbank closure if required (Figure 3).

While the preferred landfill location is the top of the Portage WRSF (minimizing the disturbed area), such a landfill would hinder waste rock placement during mining activities. Landfill #2 could present less capacity for waste disposal, based on waste rock placement on top of the Portage WRSF. Thus Landfill #1 will be developed first and serve as the non-hazardous waste disposal site for the life of operation, for progressive closure and for closure. Landfill #2 will serve as the non-hazardous waste disposal site for closure, based on capacity requirements.

2 REGULATORY SETTING

Waste management in Nunavut is regulated under the Nunavut Public Health Act, the Nunavut Environmental Protection Act, the federal Environmental Protection Act, and the federal Transport of Dangerous Goods Act. Agnico Eagle is also bound by the terms and conditions of its production lease with the Kivalliq Inuit Association and its Water License from the NWB.

In addition to mandatory requirements, several waste management guidelines are commonly used in the Northwest Territories and Nunavut. The most recent of these was developed for municipal solid waste and is titled: “Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the NWT” (Ferguson Simek Clark, April 2003, on behalf of the Department of Municipal and Community Affairs, Government of Northwest Territories). Environmental Guideline for Industrial Waste Discharge into Municipal Solid Waste and Sewage Treatment Facilities (GN 2011c) were also used. While not all the recommendations provided in these guidelines are appropriate for the management of industrial waste such as those generated at a gold mine, those principles that are considered applicable have been adopted in the Plan.

The NWB guidelines, *Mine Site Reclamation Guidelines for the Northwest Territories* (INAC 2006) were followed in this current document regarding specific landfill design and mitigation for impacts pertaining to waste. The recommendations from *Implications of Global Warming and the Precautionary Principle in Northern Mine Design and Closure* (BGC 2003) were also incorporated into this document, where appropriate.

3 PLAN FOR THE ON-SITE DISPOSAL OF SOLID WASTE

3.1 APPROACH

The strategy for the disposal of solid waste is to first identify and segregate acceptable disposal items from non-acceptable items. Acceptable items that can be disposed of at the on-site facility are those that are non-hazardous, non-organic, with low leachate and heat generation potential. All other materials are either incinerated, composted prior to landfilling, or hauled off site. This strategy for limiting the materials that can be placed in the landfills greatly reduces the potential for leachate.

All solid wastes that may contain food waste or other organic waste that could attract wildlife are composted in the on-site composter. This includes all organic waste from the camp, camp kitchen, site lunchrooms and offices, as well as, as an alternative, organic waste from the Whale Tail Mine site. The compost output is then sent to the on-site landfill. Wood and general waste that could attract wildlife are compacted and placed in a sea can for shipment off site.

The second part of the strategy is to concentrate disposal of solid waste at two landfills, Landfill #1 and Landfill #2. Landfill #1 is located in the Portage WRSF. It consists of multiple sub landfills that are built and buried according to the evolution of the WRSF. As the WRSF evolves, the elevation and location of the sub landfills change. It will serve the mine for the life of operation, for progressive closure and possibly closure. Landfill #2 will be located near the top of the Portage WRSF if required, on the last rockfill lift, and would serve the mine for mine closure based on capacity requirements. Demolition waste from the plant site removal / reclamation are planned to be disposed of in Landfill #1 and Landfill #2.

The development of the two landfills minimizes the area disturbed and the re-handling of waste. Landfills at the selected locations allow any leachate that may be generated to be collected, monitored and managed with seepage and runoff water from the Portage WRSF. The leachate from the landfills is very weak or simply absent due to the controls on materials placed in the landfill and thus site-specific landfill leachate management is not considered to be required. Any leachate that may become present would runoff into the Tailings Storage Facility which will be capped at the end of mine life.

Based on the above strategy, a liner is not required for the landfills, nor is any special monitoring completed or foreseen to be recommended in the future. However, the landfills conform to the Type A Water License requirements and closure plan for each landfill site for orderly landfill development and to reduce the potential for windblown debris.

The Type A Water License requires the following landfill related monitoring:

- Part I, Item 8 stipulates that the monthly runoff/seepage flow from both Landfill #1 and #2 in cubic meters must be measured, recorded and reported to the Water Board;

- Part I, Item 10 stipulates that the annual geotechnical inspection to be carried out by a geotechnical engineer between the months of July and September should include all earth works including the two landfill sites with the results being included in the report to the Water Board;

- Part I, Item 13 stipulates that seepage and runoff from the landfills is to be observed at a minimum of once per quarter; and

- Part I, Item 14 stipulates that the results and interpretation of the Seepage monitoring required in Part I, Item 13 in the Annual Report required under Part B, Item 2.

3.2 List of Acceptable and Unacceptable Waste to Landfill

Table 1 presents waste type categories acceptable and unacceptable for landfilling with alternative waste disposal options. This list will be used on site to ensure proper management of waste during operations, progressive closure and after the end of operations. Sections 3.2.1 to 3.2.5 provide additional information on management of specific type of waste.

Table 1: Waste Type Acceptable and Unacceptable for Landfill with Alternative Waste Disposal Options

Waste Type	Acceptable in Landfill	Unacceptable in Landfill	Alternative Waste Disposal Options
1. General Dry Waste and Demolition Waste			
Plastic Including HDPE liner, HDPE pipes and insulation, PVC pipes	x		
Steel, copper, aluminum, iron	x		Recycling (sent south)
Wood	x		
Fiberglass and fiberglass insulation	x		
Roofing	x		
Cardboard and paper	x		
Concrete	x		
Carpet	x		
Bricks	x		
Ceramics	x		
Rubber	x		
Empty caulking tubes	x		
Hardened caulk	x		

Waste Type	Acceptable in Landfill	Unacceptable in Landfill	Alternative Waste Disposal Options
Clothing	x		
Glass	x		
Wire	x		
Small appliances (with batteries removed)	x		
Gyproc	x		
Ash (provided it has cooled to 60ºC or less and follows procedures laid out in the Incinerator Management Plan)	x		
Expanded polystyrene		x	Waste press (disposal south)
2. Wet or Food Waste			
Organic matter Including food, septic tank pumping or sludge from wastewater treatment, dead animals, paper		x	Composter
Food containers and wrappings, unless cleaned		x	Waste press (disposal south)
Composter output	x		
3. Hazardous Material			
Hazardous waste: Mercury Medical waste Solvents Glues Ethylene glycol antifreeze Adhesives (except empty caulking tubes) Ballasts and capacitors in vehicles Mercury switches (found in ABS brakes, convenience lighting) Lead components (battery cable ends and connectors, wheel weights)		x	Disposal as per HAZMAT management procedures
Petroleum products and lubricants, other hazardous fluids: Diesel fuel, gasoline, Jet-A Oils, greases Anti-freeze Solvents used for equipment operation and maintenance Materials contaminated with petroleum products Windshield washer fluid Brake Fluid Transmission Fluid Power Steering Fluid Differential Fluid		x	Disposal as per HAZMAT management procedures

Waste Type	Acceptable in Landfill	Unacceptable in Landfill	Alternative Waste Disposal Options
Ozone depleting substances (ODS), including chlorofluorocarbons (CFCs) or halons: Refrigeration equipment (refrigerant) Air conditioning equipment and motor vehicle air conditioners (refrigerant) Fire extinguishing equipment		x	Disposal as per HAZMAT management procedures As per Environmental Guideline for Ozone Depleting Substances (Government of Nunavut, 2011), CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999 S.C. 1999, c. 33 (Ozone-Depleting Substances Regulations, 1998 SOR/99-7)
Process plant consumables: sodium cyanide, caustic soda (sodium hydroxide), sulphur prills, carbon sodium metabisulphite, nitric acid, calcine lime, flocculants, calcium chloride, borax, silica, lead nitrate, anti-scalants used in mineral extraction		x	Disposal as per HAZMAT management procedures
Water treatment chemicals silica sand flocculants polymers		x	Disposal as per HAZMAT management procedures
Explosives emulsion, caps, and high explosives used for blasting in the mine		x	Disposal as per HAZMAT management procedures / burned at Site
Meadowbank Laboratory chemicals and wastes : various by-products classified as hazardous waste and chemicals such as nitric acid used in the assay laboratory		x	Generally, very limited in quantity and will be handled only by specialist laboratory technicians
4. E-Waste			
Electronics: Batteries Computers (incl. keyboard, mouse, cables, speakers) Computer modules control in vehicule/equipment Laptops, Tablets Cell Phones Printers, copiers, scanners Monitors Televisions Telecom devices Power and air tools Solar panels		x	Recycling (sent south) Disposal as per HAZMAT management procedures
Light bulbs and Fluorescent Lamp Tube		x	Recycling (sent south) Disposal as per HAZMAT management procedures
5. Vehicles and Machinery			

Waste Type	Acceptable in Landfill	Unacceptable in Landfill	Alternative Waste Disposal Options
Vehicles and machinery Provided that all applicable elements from listed in 3. Hazardous Material and 4. E-Waste have been removed Provided that Procedure A have been completed	x		Recycling or resale (sent south, provided that Procedure B have been completed)
6. Tires (Mobile and Heavy Equipment)			
Tires - cut in pieces or shredded	x		Disposal in underground
Whole tires		x	Recycling (sent south) Cut or shredded for disposal in landfill or underground

3.2.1 Asbestos

Asbestos being present naturally in rock formations, asbestos related waste will be generated within the milling and production processes. As such, this type of waste will be disposed of according to the MBK-HSS-IH-PRO Asbestos Waste Management procedure (Appendix A). Once ready for disposal, asbestos waste will be capped quickly to minimize exposure, using mini-landfill type of disposal within the existing Landfills.

3.2.2 Electronic waste (e-waste)

Electronic waste (e-waste) includes unwanted electronic equipment, such as smart devices and used cables, as well as batteries and fluorescent lights (including compact fluorescent lights). Electronic equipment contains toxins such as mercury, lead, cadmium, beryllium and arsenic. E-waste, if not managed properly, can be harmful to human health and to the environment. Fluorescent lights, for example, contain mercury and cannot be disposed of in regular garbage *(Government of Canada, https://ised-isde.canada.ca/site/office-consumer-affairs/en/be-green-consumer/e-waste).*

End of life electronic products stewardship programs are not regulated in Nunavut *(https://epra.ca/provincial-programs)*. Northwest Territories end-of-life electronics recycling program is operated by The Government of the Northwest Territories (GNWT). The GNWT Electronics Recycling Program website presents the list of what types of electronic equipment can be recycled, as presented on Figure 4. In order to provide a specific list of e-waste to be recycled on site, Table 1 aligns with the list presented by the GNWT and with the current practices on site during operations. Telecom devices and solar panels have been added to the list.

3.2.3 Fluorescent Lamp Tubes

As per Table 1, fluorescent tubes contain mercury phosphor powder and traces of lead and cadmium, which are considered environmental contaminants under the Nunavut *Environmental Protection Act* (EPA). The only disposal method for fluorescent tubes is through an approved hazardous waste recycling or disposal facility (Government of Nunavut, Environmental Protection Service, 2003) and as per the *Disposal Guidelines for Fluorescent Lamp Tubes*.

3.2.4 Ozone Depleting Substances

As per Table 1, ozone depleting substances (ODS) include chlorofluorocarbons (CFCs) or halons; common sources include refrigeration equipment, air conditioning equipment, motor vehicle air conditioners and fire extinguishing equipment (Government of Nunavut, Environmental Protection Service, 2002b). These materials are hazardous in nature; consequently, all disposal of ODS take place at an approved facility.

3.2.5 Tires

Tires can be landfilled or placed underground as presented in Table 1. Small tires can also be sent south for recycling as per our current practices on site during operations. These are common practices presented in closure plans of similar projects. The sections below present the landfilling and disposal underground options for waste tires, as a large amount of tires will need to be managed during the remaining period of operation and in closure.

Based on timing and space availability of underground sectors ready for backfill, both disposal options of landfilling and underground disposal may be used for waste tires during the remaining period of operation and in closure.

3.2.5.1 Landfilling

As per Table 1, disposal of whole tires is not possible in the landfill. This is due to the risk of air and ice entrapment that could trigger settlements and stability issues for the landfill and its rockfill cover. The landfilling of whole tires can also be problematic due to the buoyancy issue caused mainly by trapping of gases from landfill material decomposition. In terms of capacity, whole tires landfilling would also take up a lot of volume.

As rubber is acceptable to be landfilled, it is considered that cut or shredded tires could be landfilled. If tires are cut into large pieces, the pieces would need to be placed on the side to avoid as much as possible large void that could promote water and ice accumulation, which could trigger settlement. During landfilling of tires pieces, limited amount of tires (cut or shredded) should be transported and placed in the landfill to avoid having large number of exposed tires stockpiles uncovered close to moving equipment, which would pose a fire hazard. Covering of tires pieces with NAG waste rock should be done promptly after placement in the landfill.

Landfilling tires requires proper health and safety procedures, logistical planning, as well as strict waste placement procedures. Careful planning of capacity and volume estimate for placement of cut tires will also be required to ensure that landfill capacity remains available for other types of waste.

3.2.5.2 Underground disposal

Tires are composed of relatively inert material. Tires could be placed in the underground mine for permanent storage, in the backfill of permafrost areas. Waste tires could be co-disposed with rockfill required for backfill. Encapsulation and freeze-back would occur, eliminating any movement of contaminants and any chance of settlement or buoyancy problem. In the interest of optimizing capacity and facilitating transportation, large tires should be cut or shredded before transportation to underground. Tires could be brought gradually to underground when mined sectors within permafrost are ready to be closed and backfilled. As per landfilling, placing tires underground will require proper health and safety procedures, logistical planning, as well as strict waste placement procedures. It will also be important to plan the availability of underground areas ready for backfill, in order to avoid large stockpiles of waste tires close to the portal.

3.2.6 Vehicle and machinery

Unused or damaged vehicles and machinery are approved to be placed in the landfill as per Table 1. All hazardous material, electronics and other unapproved waste for the landfill must be removed from the vehicles or machinery before placement in the landfill, as per the list presented in Table 1.

Vehicles and machinery with salvageable value could also be sent south by sealift for resale or recycling.

3.3 TOTAL VOLUME OF WASTE

An estimate of waste volume is required to estimate the approximate size of the landfills; however, an exact waste volume is not a critical parameter in the design because of the flexibility of design to accommodate extensions (larger to accept more waste) or contractions (smaller to accept less waste) of the landfill.

It is expected with the latest life of mine assessment to have sufficient space within the existing planned landfills.

The expected volume of waste produced in closure and required disposal capacity are presented in the Closure and Reclamation Plan. The required landfill capacity will be calculated and regularly reviewed based on the estimated amount of demolition material and decommissioned equipment that will need to be landfilled at the end of the mine life, in addition to general waste forecasted to be generated during the rest of operation and active closure.

3.4 INCINERATOR ASH TESTING PROTOCOL

The incinerator was dismantled in 2023 and is not expected to be operational for the remaining life of mine, and thus no ash monitoring will be required. Please see the Meadowbank Incinerator Waste Management Plan for all information regarding the disposal of ash at the landfill.

4 LANDFILL LOCATION AND CONSTRUCTION

4.1 LANDFILL #1

The locations of Landfill #1 (from 1 to 11) are shown on Figure 2 within the Portage WRSF limits. This landfill will serve as the solid waste disposal facility for the remaining of the mine life. The design of Landfill #1 does not require imported materials or exacting survey data or measurement. This is due to the restriction on materials that can be landfilled and the location of the landfill within the catchment of the Portage WRSF. These factors reduce the need for leachate collection or control or mitigation measures against vectors such as carnivores or raptors. Thus, the main environmental mitigation measure required is a wind screen to reduce windblown debris. As of October 2020, the Landfill #1 has evolved in sub landfills that are built and buried according to the evolution of the WRSF. As the WRSF evolves, the elevation and location of the sub landfills change.

The area to receive waste is bounded by a rock fill berm. The purpose of the rockfill berm is to act as a wind shield for the waste. The sub landfills have a rectangular shape with the length perpendicular to the prevailing wind direction so that much of the waste could be protected from wind by the rockfill berm.

For the remaining life of mine, for progressive closure and for closure, Landfill #1 is expected to be located at the base, on the south side of the Portage WRSF, as presented in Figure 2b. Other sub-landfill locations within the Portage WRSF could still be chosen as part of Landfill#1, based on capacity requirements and site conditions.

Details for waste disposal in the landfill during progressive closure and closure is provided with the Reclamation and Closure Plan.

4.1.1 Protocol for Placement of Material

Waste is disposed of directly on the ground and compacted with heavy equipment against the berm or existing row. When the sub landfill is either full of compacted waste or the WRSF evolution causes the sub landfill to be moved, the waste is compacted and then covered with waste rock. A new sub landfill is then built including rock fill berm to act as a wind shield.

4.2 LANDFILL #2

Landfill #2 will be developed on top of the Portage WRSF (Figure 3) at closure if required based on Landfill #1 remaining capacity. Landfill #2 is currently estimated to be a 4 m deep depression in the top of the waste rock pile at the Portage WRSF. The depression will be constructed by the waste rock trucks discharging their loads in a controlled manner such that the dimensions of the depression will be approximately as shown on Figure 3 and 5. The area to receive waste will be bounded on the northwest side by a 2 m high rockfill berm. The rockfill berm will act as a wind shield to reduce the amount of wind-blown debris, while providing material for intermediate cover of the landfill. Waste will be placed to a maximum thickness of 4 m, after which it will be covered with a minimum of 0.3 m thickness of rock fill. A final cover of 4.0m of NPAG waste rock will then be placed over the waste.

4.2.1 Protocol for Placement of Material

Materials destined for burial in the demolition landfill will be dismantled as safely and efficiently as possible, stacked in a stockpile and will then, if required, be cut into manageable sizes for safe transport and placement in the demolition landfill. The demolition debris will be placed in compacted layers and then buried. Once compacted, waste rock will be placed on the debris to infill voids. Once a continuous layer of waste rock has covered the compacted debris then a final cover of a minimum of 4 m of NPAG rock will be placed over the entire landfill area. This protocol applies also to Landfill #1 when used in progressive closure or in closure.

4.3 LEACHATE MANAGEMENT

The leachate from the landfills has a very low strength (dilute) or is simply absent due to controls on materials placed in the landfills, and thus site-specific landfill leachate management is not required. Any leachate generated by the landfill will naturally be directed to the Tailing Storage Facility. Due to the fact that the Portage WRSF will cover Landfill #1 and #2, it is not proposed to have a separate water quality monitoring point for leachate.

4.4 LANDFILL ENCAPSULATION WITHIN THE PORTAGE WRSF

The Portage Rock Storage Facility contains surplus quantities of waste rock from the Portage and Goose pits. A classification system is used to identify the use and storage for all mine rock[1]. Specifically, this system identifies potentially acid generating (PAG) or non-acid generating (NPAG) rock types, as well as those with the potential to leach metals.

The Portage WRSF is constructed as a cell, or series of cells, such that the interior of each cell is composed of PAG and/or ML waste rock, and the exterior of each cell is composed of NPAG waste rock. The Portage WRSF has been capped with a minimum 4 m thick layer of coarse acid-buffering ultramafic rock during operation, except for the top area. Thus, PAG and/or ML waste rock within the WRSF is encapsulated within NPAG waste rock, thereby limiting its exposure to oxidizing agents such as air and water; and providing a buffer for any drainage from the interiors of the cells. .

Owing to their placement within the Portage WRSF, the landfills are/will also become encapsulated within waste rock. Specifically, the slopes of the sub landfills are covered with an advancing waste rock layer during operations such that the sub landfills are covered by a minimum 0.3 to 1 m thickness of waste rock by the end of each sub landfill operations, prior to the final NPAG cover. Agnico Eagle plans to use NPAG waste rock to surround and cover the landfills wherever practical. As noted above, a minimum 4 m thick layer of coarse acid-buffering ultramafic rock would also be placed over the landfill cover as part of planned closure activities for the Portage WRSF.

[1] See Operational ARD/ML Testing and Sampling Plan

5 LANDFILL OPERATION

5.1 CONCEPTUAL OPERATIONS PLAN

The following is a conceptual plan for operating the landfills:

a) Materials Acceptable for Disposal

See Section 3.2.

b) Materials Not Acceptable for Disposal

See Section 3.3.

c) Site Development and Landfilling Method

The sub landfills are filled progressively in an orderly manner. Specifically, waste is placed at one end of the sub landfill at full height and then the active waste area progressively advances. Areas where the waste has been placed to full height and leveled are progressively covered by placement of a minimum 0.3 m thickness of rock fill on top of the waste.

d) Staffing and Equipment

The landfills do not require a full-time attendant. Roll off trucks haul waste to the landfills and a dozer is used to spread, compact and level the waste.

e) Leachate Management

The leachate from the landfills is very weak (dilute) or simply absent due to the controls on materials placed in the landfills. Therefore, specific leachate management is not required.

f) Surface Water and Erosion Control

The slopes of the landfills are covered with rockfill, thus protecting them from erosion. Any water that may runoff from the WRSF will flow to the TSF.

g) Inspections

The environmental department is conducting periodic inspections to ensure compliance with the permit and operation plan.

5.2 CONCEPTUAL CLOSURE PLAN

The following is a conceptual plan for closing the landfills:

a) Estimate of Total Waste Volumes, Tonnage and Life of Landfills

The expected volume of waste produced in closure and required disposal capacity will be discussed in the Closure and Reclamation Plan, as mentioned in Section 3.4. and 4.2.

b) Final Cover Design

- The waste in the landfills will be covered by 0.3 to 1 m thickness of rockfill following waste placement, then covered with an additional 4 m thickness of coarse acid-buffering ultramafic waste rock material;
- The final landfill slopes will be up to 50%; and
- Drainage water if present will be naturally directed to the Tailing Storage Facility or the Open Pits.

c) End use of Landfill After Closure

There is no planned end use of the landfills post-closure. They will become part of the waste rock storage facility.

d) Water Management

Contact water from the landfills in closure will continue to be managed under the current Water Management Plan.

e) Inspections and Monitoring

The monitoring plan for the landfills in closure and post-closure will be presented in the Closure and Reclamation Plan.

6 POTENTIAL ENVIRONMENTAL EFFECTS

The landfills are designed and built as part of the Portage WRSF. The access road to the Rock Storage Facility is used to access the sub landfills considered as Landfill #1. Access to Landfill #2 will also be by the access road to the Portage WRSF.

Landfill activities that were identified to have potential effects on VECs include site preparation and construction, operations, and closure.

Potential effects from the landfills on VECs were assessed as follows:

- Degradation of permafrost;
- Change in surface water and groundwater drainage patterns due to proposed landfill footprint (altered landscape);
- Change in groundwater and surface water quality from leachate percolation, leading to degradation of aquatic habitat;
- Change in air quality from dust and windblown debris;
- Loss of vegetation cover and terrestrial mammal habitat due to proposed landfill footprint;
- Attraction of predatory and small mammals to waste; and
- Loss of sites of heritage significance or traditional ways of life.

Several mitigation measures, including management and monitoring plans were implemented as part of the overall Meadowbank Mine and are also incorporated into landfill construction, operations, and closure. The plans that set out detailed site-specific protection measures and procedures that serve to protect the VECs include:

- Water Management Plan;
- Air Quality and Dustfall Monitoring Plan;
- Terrestrial Ecosystem Management Plan;
- Hazardous Materials Management Plan;
- Interim Closure and Reclamation Plan; and
- Water Quality and Flow Monitoring Plan.

6.1 EFFECTS SUMMARY

The primary potential environmental effects from landfill activities included leachate generation, windblown debris and habitat (vegetation) loss. Given the effective implementation of mitigation plans, no residual environmental effects to VECs from construction, operation or closure of the landfills are anticipated. See summary below:

- The leachate that will be generated by the landfills is of very low strength (dilute) or simply absent due to restrictions on the materials that is placed in the landfills. Water drainage from the landfill area would naturally be directed to the Tailing Storage Facility or Open Pits and would be managed under the Water Management Plan during operations and closure.

- Rockfill berm acts as a wind shield to reduce amount of windblown debris.

- Habitat loss is minimized because the landfills is designed and built within the footprint of the Portage WRSF. With the implementation of terrestrial habitat reclamation strategies, the final surfaces of the landfills are graded to blend into the existing topography and enhance conditions for wildlife. Terrestrial habitat reclamation strategies will be incorporated as part of the Closure and Reclamation Plan.

7 PLAN REVIEW AND CONTINUAL IMPROVEMENT

The Landfill Design and Management Plan will be reviewed regularly by the Meadowbank Environmental Department in consultation with the engineering department and updated if necessary. Improvements suggested through these reviews would be implemented in consultation with the Nunavut Water Board.

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Figure 1: Meadowbank Mine Site Facility Layout

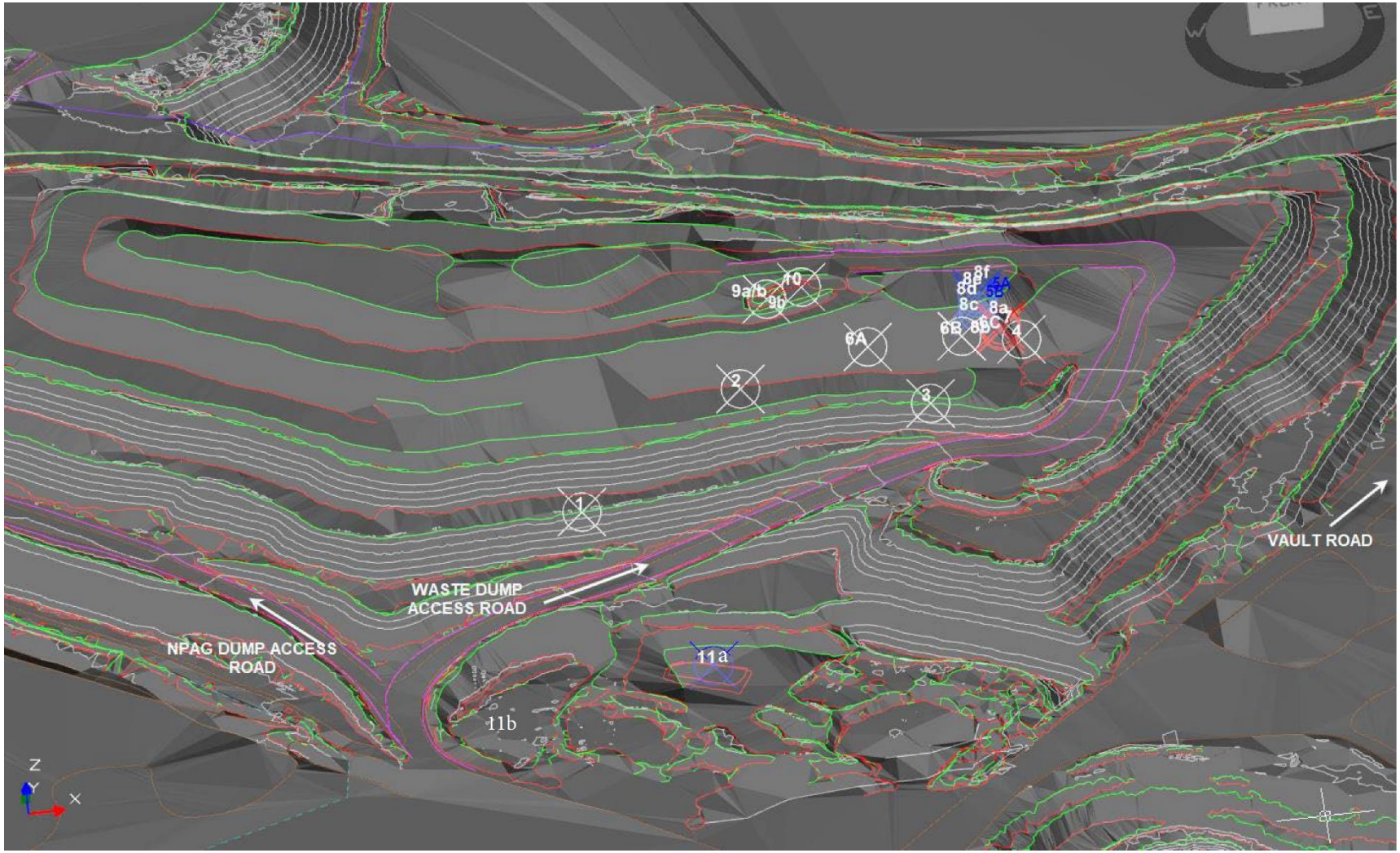


Figure 2: Landfill #1 with sub-landfill Locations

Figure 3: Approximate location of the Landfill #2 on top of Portage WRSF

Figure 4: List of recyclable electronics, Government of the Northwest Territories Electronics Recycling Program

Source: https://www.gov.nt.ca/ecc/en/services/waste-reduction-and-recycling/electronics-recycling-program

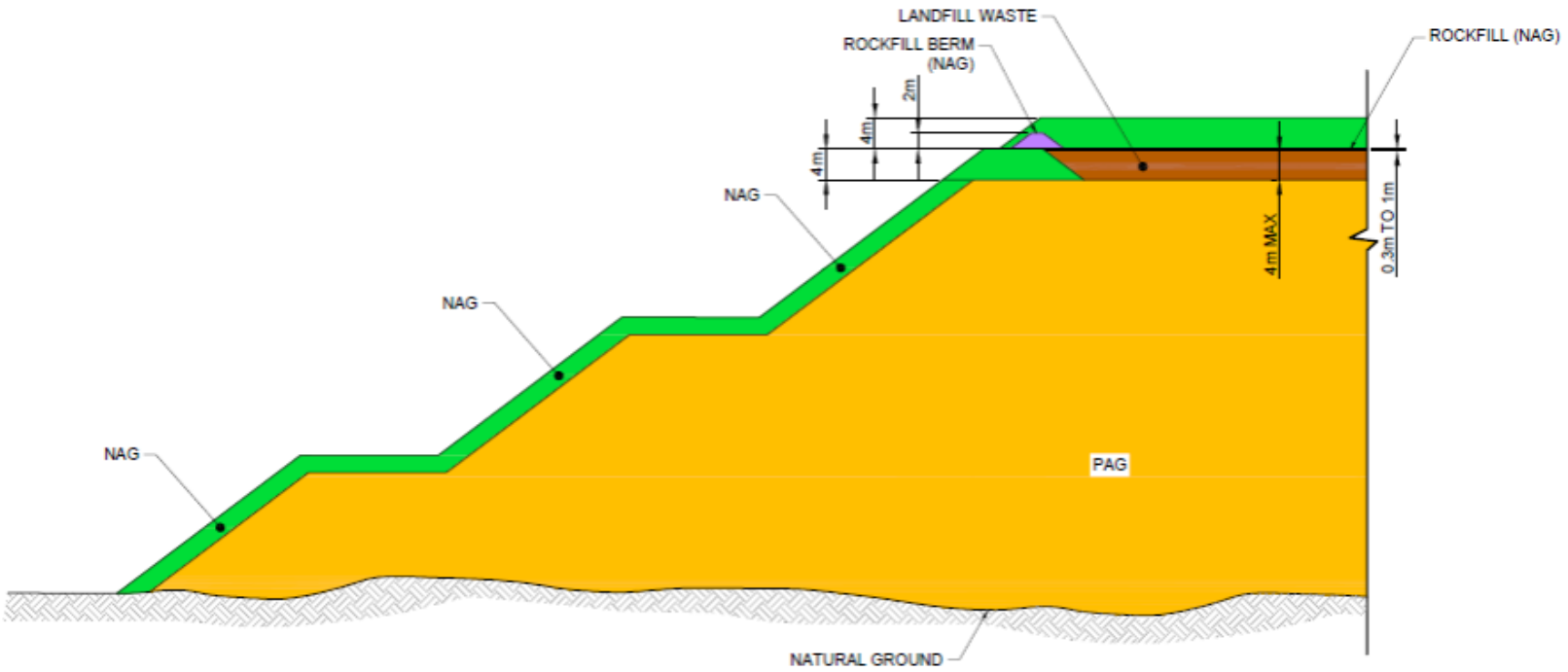


Figure 5: Landfill #2 Conceptual Cross Section

APPENDIX A

MBK-HSS-IH-PRO ASBESTOS WASTE MANAGEMENT PROCEDURE

Asbestos Waste Management

PROCEDURE NUMBER: MBK-HSS-IH-PRO Asbestos Waste Management

People concerned	• **Agnico-Eagle employees, contractors**	**Prepared by**	**Health and safety**
		Authorized by **Reviewed by**	**Norman Ladouceur** **Health and safety assistant Superintendent** **Rick Maunu – OHSC rep.**
Effective date :	April 29, 2013	***"Safety First, Safety Last … Safety Always!"*** ***"No Repeats" – Our Stepping Stone to ZERO HARM***	

This procedure corresponds to the required minimum standard. Each and everyone also have to comply with the rules and regulations of the Nunavut Government in terms of health and safety at work.

Objective: To ensure a safe means of disposing of Asbestos containing materials.

Concerned departments:	**Required equipment:**
Health and Safety, Energy and Infrastructure, Mine, Engineering and Environment	• HEPA Vacuum cleaners • Proper Protective Equipment (PPE) • Properly labeled Refuse Bins

Risks /Impacts legend


Health & Safety


Process/Quality


Costs


Environment

Procedure	Risks/ Impacts
Background With the recent safety and protective measures put in place on site to protect the worker's health and overall exposure to asbestos, several additional waste streams have been identified that require special care when being disposed of. Therefore some new procedures have been developed for implementation. These procedures are designed to minimize workers from exposure to asbestos and also to prevent uncontrolled discharge to the surrounding environment.	Avoid personal injury. Follow established procedures for proper disposal of asbestos containing materials.
Disposal Procedures 1) All used HEPA vacuum filters, HVAC filters, Tyvek coveralls and respirator cartridges/filters are to be place in a designated refuse bin near the HEPA vacuum cleaning stations. These materials will be treated as asbestos waste. Any Asbestos Containing Dust or materials suspected of being contaminated with asbestos that	Dispose of asbesos containing materials as per established procedures.

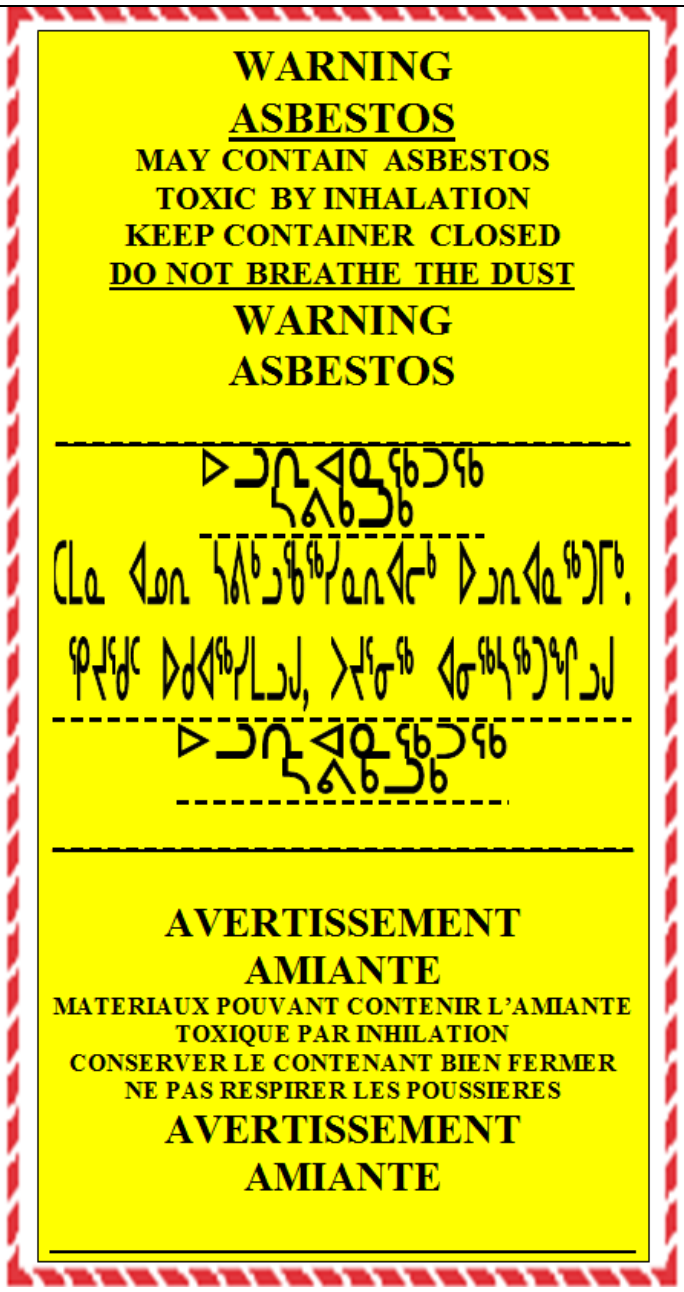
cannot be thoroughly cleaned and that do not have any substantial value, should be placed in the designated garbage bins as well.

2) The designated bins will be labeled with the proper workplace label for asbestos (See below). The bin will contain double layered, 6 mil polyethylene (plastic) bags. After placing any asbestos containing materials into the bags, workers are requested to tighten the inner bag by hand twisting it and folding it over. The refuse bin lid should then be closed. The bin lid does not have to be air tight as long as the bags are tightened. When the inside bag is full, trained workers (wearing PPE) shall replace the full bags with new double layered (one inside the other) bag.

3) The full bags are to be placed in a labeled sea can by the waste generator. The used filters from the Process Plant HVAC system will be put into cardboard boxes, and placed into the labeled sea can by the Site service department.

4) When the sea cans (4) are full (every 2 to 3 weeks), Field Service Supervisor/Lead Hand is to make arrangement with Mine Operations Supervisor or Auxiliary Supervisor 24 hours in advance to arrange for the cover of asbestos waste. Once a time is determined Field Services will haul the material to a location that is determined by the Mine Production Engineer. The chosen location for asbestos waste disposal must be in the Portage Rock Storage Facility. The asbestos waste should be dumped in the Pag dump ONLY since the N-Pag might be re-used for closure purposes. The Mine Production Engineer will arrange to have this location surveyed. Once the Asbestos Wastes is dumped, a Haul Truck with waste rocks is going to bury the Asbestos Wastes and a dozer will

ensure it is well covered. Persons handling Asbestos Waste shall be trained in the safe handling and shipping for waste asbestos, have access to material safety data sheets and be provided with appropriate PPE. Only trained asbestos personnel should have access to the designated AW storage area.	
Asbestos Work Place Label – to be used on all containers, refuse bins, garbage cans containing possible asbestos. 	Ensure proper asbestos workplace labels are used on all containers containing or may contain asbestos.


WARNING
ASBESTOS
MAY CONTAIN ASBESTOS
TOXIC BY INHALATION
KEEP CONTAINER CLOSED
DO NOT BREATHE THE DUST
WARNING
ASBESTOS
AVERTISSEMENT
AMIANTE
MATERIAUX POUVANT CONTENIR L'AMIANTE
TOXIQUE PAR INHILATION
CONSERVER LE CONTENANT BIEN FERMER
NE PAS RESPIRER LES POUSSIERES
AVERTISSEMENT
AMIANTE

Map of the Asbestos Waste Sea-Cans (4)