



AGNICO EAGLE

MELIADINE MINE

Landfarm Management Plan – 2BB-MEL Water Licence

**February 2024
Version 5**

EXECUTIVE SUMMARY

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

This document presents the Landfarm Management Plan for the Type B Water Licence (2BB-MEL) Landfarm B.

On-site storage and remediation has been established as the preferred method for treatment of light petroleum hydrocarbon contaminated soil that may be generated on the proposed mine site. The landfarm is designed to receive soils, rock, snow, and ice contaminated with petroleum hydrocarbons. This will include light hydrocarbons such as diesel and gasoline being treated in the landfarm.

The priority is to use Landfarm A (Water Licence 2AM) for placement of contaminated material. The current material in Landfarm B will be moved to the Landfarm A facility progressively to facilitate remediation. This volume has been accounted for in the design of the future facility.

A report of landfarm activities will be prepared annually by the Environment Department indicating the volume of material added to the facility, amount of material removed and disposed of or re-use location, all analysis results, volume and type of nutrient addition, visual inspection results, and volume of contact water pumped.

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DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	April 2015			First version of the Landfarm Management Plan	John Witteman, Env. Consultant, Agnico Eagle
2	February 2015	All		Operational revision for the year 2014	Meliadine Environmental department
3	March 2017	All		Operational revision for the year 2017	Meliadine Environmental department
4	February 2018	1.1, 2.1, 2.3.1	1, 3, 6	-Approximate volume of material adjusted to 2200 m3	Meliadine Environmental department
		2.1	4	-Added "Due to increased volume of material placement in 2017, transfer of material from the 2BB landfarm to the 2AM landfarm will likely be required to ensure appropriate decontamination"	
		2.3.1	6	-Added "At this time, no additional contaminated soil is being deposited into the 2BB landfarm; the 2AM landfarm has been commissioned and is operational."	
				-Corrected residual capacity of landfarm to 300m3	
		3.2.1	9	- Added "In-house wet chemistry and portable VOC monitoring" for spill excavation assessments	
		3.1	8	- Antifreeze removed from list of acceptable contaminants for landfarm disposal	
		1.3	2	-Added reference to Oil Pollution Emergency Plan	
5	December 2023	Throughout		- Updated for Water Licence Amendment	Permitting Department
5	February 2024	3.1.1		- Added "Materials containing heavy hydrocarbons will be segregated to the extent practical for disposal/treatment offsite"	Permitting Department
		1.1, 2.1		- Removed hydraulic fluid as an example of a heavy hydrocarbon	

SECTION 1 • INTRODUCTION

1.1 Project History

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

The Landfarm Management Plan (Plan) focuses on minimizing the waste footprint on-site, and maximizing remediation potential through implementation best practices.

During the advanced exploration phase of the Meliadine Mine, the Nunavut Water Board (NWB) approved amendment #6 to Water Licence 2BB-MEL1424, which allowed the operation of light PHC soil stockpile. This approval supported using a landfarm developed inside a bermed and lined area previously used to store fuel bladders. Soil contaminated with light PHC was being deposited in this bermed and lined area for treatment.

When possible, materials contaminated with heavy hydrocarbons (e.g. grease), are to be segregated, packaged, and shipped south for treatment and/or disposal.

1.2 Objectives

On-site storage and remediation has been established as the preferred method for treatment of light PHC contaminated soil that may be generated at the proposed mine. Specifically, remediation through landfarming has been identified as the primary treatment option and, as such, the focus of this Plan is the management of contaminated soil.

This Plan is a component of the Responsible Mining Management System (RMMS). The objectives of this Plan are to:

- provide an overview of the actual contaminated soil management at the Meliadine Mine;
- describe the physical setting, location, and design criteria of the landfarm;
- define acceptable types of contaminated soils to be placed in the landfarm and conditions for removal of treated soil;
- define operating procedures and monitoring requirements for the landfarm; and
- describe contingency options for alternate treatment/storage of PHC contaminated soil.

1.3 Related Documents

Spill prevention is the first stage in the contaminated soil management for the Meliadine Mine. Documents containing information related to this Plan are submitted as part of the Type A and B Water Licenses and include:

- Spill Contingency Plan;
- Environmental Management and Protection Plan; and

- Risk Management and Emergency Response Plan.

There is also a related Oil Pollution Emergency Plan, which is specific to spills at Agnico Eagle's Itivia Oil Handling Facility located in Rankin Inlet. The Oil Handling Facility is located on the shore of Melvin Bay, which is part of Hudson Bay. The Oil Pollution Emergency Plan was prepared as a requirement of Canadian Shipping Act and associated regulations. It will be submitted to Transport Canada for approval prior to any shipping related to the development of the proposed mine.

1.4 Spill Prevention

Similar to the waste management philosophy, Agnico Eagle actively works towards minimizing spills through the implementation of suitable plans and work procedures. Plans developed from the environmental impact study address the management of spills on land, ice, water, and into the marine environment. When spills do occur, the goal is to limit the spread of the spill, and then manage contaminated material resulting from the spill. The Spill Contingency Plan describes spill prevention measures.

SECTION 2 • LANDFARM DESIGN

2.1 Background

In the event of a spill, on-site storage and remediation is the most practical and efficient method in handling contaminated soil, particularly in an isolated location such as the Meliadine Mine. Any PHC contaminated soils generated during the construction, operation, and closure phases will be adequately managed. Soils contaminated with light PHCs, such as diesel, will be treated on-site in a landfarm. This method involves spreading and placing the contaminated soil within a containment area to promote conditions favorable for the volatilization and aerobic microbial degradation of hydrocarbons.

When possible, materials contaminated with heavy hydrocarbons (e.g. grease), are to be segregated, packaged, and shipped south for treatment and/or disposal.

There are currently PHC contaminated soils stored on-site in the 2BB-MEL1424 Landfarm, resulting from spills that occurred during the exploration and pre-construction phase. This material will be moved to the Water Licence A landfarm facility progressively to facilitate remediation. This volume has been accounted for in the design of the future facility.

A landfarm options analysis prepared for Agnico Eagle by Golder (2007) identified factors relevant to landfarming in the north. These include environmental factors and physical properties of the soil that affect microbial growth and rates of biodegradation, such as temperature, pH, soil moisture, nutrient content, salinity, and soil particle size.

Although rates of biodegradation decline with temperature, landfarming is still a feasible technique in Arctic climates as demonstrated by the Meadowbank landfarm. Degradation in the north is typically restricted because microbial activity stops between 0 to -5 degrees Celsius (°C) limiting biodegradation to the months of June to September (even though bioremediation ceases below -5°C, volatilization of the PHCs does continue but at a much slower rate). Nevertheless, degradation was reported at 90% over two summers on Resolution Island (Paudyn et al. 2008).

It is estimated that soils contaminated with light-end PHCs would require three full summer seasons for complete remediation. When remediated, the soils will be removed from the facility and can be used for construction purposes such as part of the cover of the Tailings Storage Facility (TSF) or stacked in the Waste Rock Storage Facility (WRSF). Based on a remediation period of three seasons, it would be possible to close the Licence B landfarm facility on the third year following the start of construction and usage of the Licence A landfarm facility.

*Due to increased volume of material placement in 2017, transfer of material from the 2BB landfarm to the 2AM landfarm will likely be required to ensure appropriate decontamination.

2.2 Location

The overall site plan showing the main infrastructure for the Meliadine Mine, including the landfarm B, is shown in Figure 2-1.

2.2.1 Proximity of Surface Water

The landfarm is located at the most elevated point of the local topographical area.



Figure 2-1 Main Infrastructure for the Meliadine Mine, including the Landfarm B

2.2.2 Proximity of Groundwater

In the Meliadine Mine area, the groundwater within the active layer is estimated to reach 1.5 m in October. The active layer begins to form in July when temperatures largely remain above 0°C, and deepens to a maximum in October. The shallow groundwater in the area of the landfarm flows towards Meliadine Lake, located approximately 620 m from the landfarm.

To prevent movement of contaminants from the landfarm facility into the groundwater and the surrounding environment, the Meliadine Landfarm has an impervious liner.

2.3 Design

The Landfarm was originally designed as a lined containment to hold PHC fuel bladders for exploration purposes. In 2016, the edges of the landfarm containment were resloped and locations of exposed liner were recovered to ensure protection. The contaminated material placed in the Landfarm can include light hydrocarbons such as diesel and gasoline. The design volume of the Landfarm is based on the allowances for the materials being treated at Meadowbank during

operation, as described below.

2.3.1 Soil Volume Requirements

Remediation of the existing contaminated soil in the Licence B Landfarm is ongoing. The total capacity of the Landfarm is approximately 2,500 m³ and the actual quantity of contaminated soil being remediated is approximately 2,200 m³. The estimated remaining capacity for future contaminated material represents approximately 300 m³, until the decontamination activity from the Water License 2BB landfarm is transferred to the Water License 2AM landfarm. However, the priority is to use Landfarm A for placement of contaminated material.

It is estimated that soils contaminated with light-end PHCs would require three full summer seasons for complete remediation (Agnico Eagle, 2008). When remediated, the soils will be removed from the Landfarm and used on-site, placed in the WRSF or used as cover at the TSF.

SECTION 3 • LANDFARM OPERATION AND MANAGEMENT

Agnico Eagle will be responsible for managing and implementing the Landfarm operation plan. Operation and monitoring of the Landfarm as well as determining the training requirements for personnel will be the responsibility of the Environment department.

3.1 Acceptable Landfarm Material

The priority is to use Landfarm A for placement of contaminated material.

3.1.1 Contaminants

The Landfarm facility will only treat and/or store light PHC contaminated soils that have been generated through mine related activities at the Meliadine Mine. Materials containing heavy hydrocarbons will be segregated to the extent practical for disposal/treatment offsite. Material from the Hamlet of Rankin Inlet or other sites will not be accepted without approval from the NWB, Crown Indigenous Relations and Northern Affairs Canada, Water Resources Inspectors, and the Kivalliq Inuit Association.

The following products are acceptable for treatment in the Landfarm if used on-site and has resulted in contamination of soil:

- diesel fuel;
- gasoline;
- aviation fuel (Jet A);
- hydraulic oil;
- other light oil (e.g., engine oil, lubricating oil); and

In the event that the contaminant source is unknown, soil samples will be analyzed for PHCs and possibly additional contaminants prior to placement in the Landfarm. These additional parameters could include BTEX, PAH, total metals, oil and grease, and volatile organic compounds. Analysis for additional compounds will be determined by the Environment Department on a case-by-case basis. Concentrations of contaminants will be compared to the site background values (for metals) and/or criteria in the Government of Nunavut (GN) *Guidelines for Contaminated Site Remediation* (GN 2009); however, Agnico Eagle proposes to use different criteria that is more applicable to Meliadine Mine (refer to Section 3.5 for more details). If this analysis indicates soil contamination above background or GN guidelines for any substance not approved for landfarming (i.e., non-PHC contaminants), the spill material will not be placed in the Landfarm. This is to ensure that PHC contaminated soils are not contaminated with other products.

Spills of non-PHC material (e.g., solvents) will be placed in drums and stored on-site for shipment south to approved facilities during shipping season.

3.1.2 Grain Size

Bioremediation of very coarse-grained larger soil material is inhibited as it does not readily retain moisture. However, volatilization will occur more rapidly (SAIC 2006). It has been noted that this material likely contains lower concentrations of contaminants due to a lower volume and surface area ratio, and can typically be screened out prior to landfarming (SAIC 2006). As a result, soils and rock material with grain size less than 2.5 centimetres (cm) will be segregated from larger-grained material, where possible. This will occur at the spill location or in the landfarm using a screen sieve, should it prove necessary. The two soil fractions will be treated separately in the Landfarm when possible.

3.2 Contaminated Soil Additions

3.2.1 Spill Excavation

Soil contaminated with the above-described petroleum hydrocarbon materials will be excavated and transported to the Landfarm facility in dump trucks or other available means of transportation. Care will be exercised to ensure that the entire spill is excavated (verified by olfactory, visual, in-house wet chemistry, portable VOC monitor or sampling if necessary, by the Environment Department) and that none of the contaminated material is lost during transport.

3.2.2 Placement in the Landfarm

As above, larger coarse material (rocks) will be separated from the finer material (sand and gravel) in the Landfarm when possible and assessed visually for PHC staining and product. If the material is saturated it will be spread to allow volatilization in the designated area of the landfarm.

Materials identified as acceptable in the Landfarm will be dispersed as space permits. A record will be kept by the on-site Environmental department of the amount of contaminated soil placed in the Landfarm and the location of each load within it.

3.3 Contaminated Snow

Petroleum hydrocarbon contaminated snow and ice will be placed in a designated area of the Landfarm and treated as contact water after snowmelt. After snowmelt, the water will be pumped through the site's EVAC water treatment system. The treated water will be discharged in the environment, if discharge criteria are met, as prescribed in the License 2BB-MEL1424.

3.4 Remediation

Remediation of fine grained PHC contaminated soil in landfarms occurs naturally through volatilization and aerobic microbial degradation. Soil aeration and nutrient amendment are recognized as methods of improving rates of remediation. While it is recognized that pH, salinity, moisture content, and microbial population density also contribute to rates of degradation, these factors will not be explicitly investigated or managed unless remediation rates are too slow to allow meeting targets set for closure.

3.4.1 Absorbent Materials

Coarse-grained soils are not readily bio-remediated, but concentrations of PHC contaminants may still be reduced through volatilization. Oil absorbent pads will be used to help remove visible product from coarse-grained material.

3.4.2 Aeration

Natural aeration would occur with material sparsely placed in the Landfarm, if possible. The goal will be to mechanically aerate the soil with earth-moving equipment. The soil will be run through a gravel separator to separate the large rock from the smaller grained materials. Following this, the material will be turned over to promote aeration to allow the PHC to volatilize.

3.4.3 Soil Moisture

Prior to turning over the soil, site personnel will ensure that the soil has sufficient moisture to prevent generation of significant dust. It will be equally necessary to ensure soil is not overly saturated. If soil is too dry, non-contaminated water from within the Landfarm containment area will be used as a moisture source. If no accumulated water is available, freshwater will be used.

3.5 Removal of Soil From the Landfarm

Agnico Eagle currently follows the Government of Nunavut Remediation Guidelines (as outlined in the following sections); however, as with the 2AM-MEL Licence will apply the soil remediation criteria used to the Abandoned Military Site Reclamation Protocol guidelines for the protection of human health and the management limit, which are more appropriate for the Meliadine site.

3.5.1 Government of Nunavut Remediation Guidelines

The following parameters will be measured and compared with the GN industrial remediation criteria to determine whether PHC contaminated soil has been adequately remediated:

- benzene, toluene, ethylbenzene and xylene (BTEX); and
- petroleum hydrocarbon fractions 1 - 4.

The GN remediation criteria are characterized for agricultural/wildlife, residential/parkland, commercial, and industrial land uses. At the Meliadine Mine, remediation to agricultural/wildlife criteria is targeted; however, if these criteria cannot be met, industrial criteria will be followed.

The GN remediation criteria for coarse-grained soils and Licence 2BB-MEL Part D, item 15 criteria will be applied. Table 3-1 presents the applicable Tier 1 criteria for coarse-grained soil, assuming agricultural/wildlife or industrial land uses.

Table 3-1 Summary of Relevant GN Tier 1 Soil Remediation Criteria for Surface Soil (mg/kg)

	Land Use Criteria (mg/kg)	
	Agricultural/Wildlife	Industrial
Benzene	0.03	0.03
Toluene	0.37	0.37
Ethylbenzene	0.082	0.082
Xylene	11	11
PHC Fraction 1	30	320
PHC Fraction 2	150	260
PHC Fraction 3	300	1,700
PHC Fraction 4	2,800	3,300

mg/kg = milligram per kilogram

3.5.2 Sampling and Analysis

Landfarm soils will be sampled bi-annually, at the earliest possible time and at the end of the summer season, to determine if remediation objectives have been met. Representative composite samples will be taken to estimate remaining PHC concentrations. For each 10 m of windrow length, two composite samples will be collected, one consisting of three surface sub-samples and the other from three sub-samples at 1 m depth. Sub-samples will be taken approximately 3.3 m apart, and will be taken randomly in the sub-cell.

Sample collection will follow the QAQC protocols established for the Project which includes collecting one duplicate for every ten samples.

After two seasons of treatment in the Landfarm, degradation rates will be assessed to estimate the total remediation time required for PHC contaminated soil under these conditions. If remediation to GN guidelines is feasible within the life-of-mine timeframe, Landfarm operations will continue with aeration. If rates of degradation are not sufficient through this method, alternative options will be further investigated as described in Section 4.2.

3.5.3 Soil Removal

Coarse-grained soils will be assessed near the end of the summer season by the Environment department technicians for PHC product and odour. A photoionization detector (PID) may be employed to assist in petroleum-based vapour detection. When PHC odours are no longer detected, the material will be removed to the WRSF, or used at the TSF for cover material.

When analysis of the fine-grained material at the end of a season indicates that concentrations of contaminants are below GN guidelines, the appropriate section of soil suitable for removal from the facility is completed. Interim monitoring may also be conducted of the headspace with a portable instrument (e.g., flame ionization detector), however, prior to any material removal, samples will be confirmed to be of suitable quality by an accredited laboratory beforehand.

When remediated, the soils will be removed from the facility and can be used for construction purposes such as normal overburden (i.e., part of the cover of the TSF) or stacked in the WRSF.

3.6 Water Management

Since the Landfarm facility is uncovered to facilitate natural weathering, water accumulating inside the bermed area may come into contact with contaminated material.

3.6.1 Snow Management

Non-contaminated snow will be removed as much as possible during winter to minimize the quantity of spring melt inside the berm. Care will be taken to ensure contaminated snow/soil is not disturbed by leaving a base layer of snow of no less than 10 cm in place. Following snowmelt, any contaminated product left from winter spill clean-up operations could be padded up.

3.6.2 Water Management

While, the Landfarm will have an impermeable liner, visual inspections by the Environment department will be conducted for seepage of contact water coming through the perimeter berm, or the accumulation of water within the containment berm. This will be conducted on a weekly basis starting after freshet and continuing until October when water is likely to be present. In the event of water accumulation or seepage, the ponded water will be pumped through the site's oil-water separator (EVAC by Ci.Agent) to remove PHC residue and will be analyzed for BTEX, lead, and oil and grease prior to discharge to the environment, only if discharge criteria from the Water Licence 2BB-MEL1424 part D, item 15, are met (Table 3-2).

Table 3-2 Licence 2BB-MEL1424 Part D, Item 15 STP

Licence 2BB-MEL-1424	
Criteria limits (ug/L)	
Benzene	370
Ethylbenzene	2
Toluene	90
Lead	1
Oil & Grease	15,000 and no visible sheen
Phenols	20

3.7 Landfarm Closure and Reclamation

After removal of all remediated soil and prior to closure and reclamation of the Licence B Landfarm, the berm and base will be sampled on a 10 m grid to determine if these soils are free from PHC contamination. Results of this analysis will be compared to GN and CCME criteria set out in Table 3-1. No excavation will be necessary if the agricultural/wildlife criteria are met. If industrial criteria are used, the Landfarm will be covered with a 2 m thick layer of waste rock, or other suitable material used for reclamation. The surrounding berm will be breached to avoid water accumulation on the landfarm.

3.8 Summary of Activities

A summary of Landfarm activities including monitoring of the physical condition is provided in Table 3-3. An annual report will be prepared indicating the volume of material added to the facility, amount of material removed, disposal or reuse location, all analysis results, volume and type of nutrient addition, visual inspection results, and volume of contact water pumped. This information will be appended to Agnico Eagle's NWB Annual Report.

Table 3-3 Summary of Landfarm Activities, Analyses, and Records

Activity	Analysis	Frequency of Analysis	Record
Excavation of spill and transport of contaminated material to landfarm.	If unsure of full excavation - F1-F4, BTEX If contaminant source unknown, F1-F4, BTEX, metals, oil and grease, VOCs	As needed	Date, time and location of spill and excavation; estimated volume of spill; estimated quantity of excavated soil; storage/disposal location of excavated soil, if applicable. Any evidence of remaining product
Soil aeration	NA	As possible	Date and time of the aeration; location; soil condition (moisture, odour, granulometrie, etc.)
Sampling for progress of remediation	Hydrocarbon vapour in headspace (by PID); F1-F4, BTEX (laboratory)	Vapour – as needed; Laboratory – Bi-annually	Date and time; location; odour; laboratory report
Soil removal from landfarm	Removal subject to meeting GN criteria	Once GN criteria are met	Date and time; location; quantity of soil removed; final location
Ponded contact water	Table 3-2 – as specified in Water Licence 2BB-mel1424 Part D, Item 15	Prior to any dewatering; if re-used in landfarm, no sampling necessary	Date and time, location, laboratory report, in Annual Report
Seepage	Visual inspection; Table 3-2 – as specified in Water Licence 2BB-mel1424 Part D, Item 15	Weekly during summer	Location, extent, approximate depth, evidence of sheen
Identification of maintenance requirements	Visual inspection of landfarm	Twice over the summer	Inspected areas; condition of berm and base; previously unidentified safety concerns

SECTION 4 • CONTINGENCY OPTIONS

This section describes the contaminated soil management plan, should a large spill event occur, and if Landfarm treatment proves not successful.

4.1 Large Spill Event

A large spill event producing a quantity of soil may occur, in this event, soils will be placed in the A Landfarm.

4.2 Alternate Treatment Options

Should Landfarm treatment not perform as anticipated in which the rates of degradation are not sufficient to meet GN Tier 1 criteria within the life-of-mine and the anticipated closure period, the following alternative treatment options will be considered. Implementation will only occur once a detailed protocol and revised plan is approved by the NWB.

4.2.1 Soil Amendment

Since pH, salinity, moisture content, and microbial population density all affect rates of biodegradation by microbes, these factors may be monitored and adjusted through soil amendments if they are not found to be optimal (SAIC 2006). In addition, the dispersion of soil could be repeated to maximize air exposure if space in the Landfarm allows.

4.2.2 Tier 2 – Modified-Criteria Approach

According to the GN *Environmental Guideline for Contaminated Site Remediation* (GN 2009), in cases where site conditions, land uses, receptors, or exposure pathways are different from those assumed in the development of the Tier 1 criteria, modified criteria may be permitted. This process requires the collection of site-specific information on exposure and risk estimates, and is subject to GN approval. For the Meliadine Mine, landfarmed soils are to be encapsulated in a WRSF rather than used in surface applications, as assumed in Tier 1, reducing the likelihood of exposure to any remaining contamination. Therefore, the Tier 2 approach could be warranted if Tier 1 criteria cannot be met. Any consideration for this approach would be based on soil sampling results and science based information.

4.2.3 Direct Placement in Waste Rock Storage Facility or on Tailings Storage Facility

Another option for management of contaminated soil, if bioremediation proves ineffective, would be the direct placement of this material in a WRSF or on the TSF. Although the use of PHC contaminated soils in these storage areas is not optimal, the quantity generated on-site is small in comparison to the quantity of waste rock and cover on the TSF. While this method would not result in the treatment of soil, it is a viable contingency option because it would allow for the safe disposal of the contaminated material. Encapsulation and freeze-back would occur, eliminating any movement of contaminants. Over time, this material would undergo natural degradation. Consideration of this option would also include a suitable monitoring program for PHCs, which would be incorporated into the Closure and Reclamation Plan.

SECTION 5 • ASSESSMENT AND REPORTING

5.1 Feasibility

After three seasons of treatment in the Landfarm, degradation rates of PHC contaminants will be assessed to estimate the total remediation time required under these conditions. If remediation to GN guidelines is feasible within the life-of-mine timeframe, Landfarm operations will continue, with aeration and possible nutrient amendments, as described above. If rates of degradation are not sufficient through this method, alternative options will be further investigated (Section 4).

5.2 Reporting

Reporting of Landfarm activities will be submitted annually by Environment department, indicating the volume of material added to the facility, amount of material removed and disposal or re-use location, confirmatory analysis results, and, whether or not nutrient amendment was used.

5.3 Plan Review and Continual Improvement

The Landfarm Management Plan will be reviewed and updated on annual basis, as required, to reflect changes in operations and/or technology.

REFERENCES

Agnico Eagle (Agnico Eagle Mines Limited). 2008. Landfarm Design and Management Plan In Accordance with Water License 2AM-MEA0815, Meadowbank Gold Project, 20 p. + Figures and Appendix. October 2008.

Golder (Golder Associates Ltd). 2007. Technical Memorandum: Landfarm Option Analysis, Meadowbank Gold Project, Nunavut. Prepared for: Agnico-Eagle Mines Ltd. August 23, 2007.

Government of Nunavut, March 2009. Environmental Guideline for Contaminated Site Remediation <http://env.gov.nu.ca/sites/default/files/Guideline%20Contaminated%20Site%20Remediation.pdf>

Paudyn, K. et al, 2008. Remediation of hydrocarbon contaminated soils in the Canadian Arctic by landfarming. Cold Regions Science and Technology, v53, p 102-114, n 1 June 2008

SAIC (Science Applications International Corporation), 2006. Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils. Final report presented to: Contaminated Sites Division and Emergencies Engineering Technologies Office (EETO), Environmental Technology Centre, Environment Canada. SAIC Canada Project #: 11953.B.S08. CM #: 001659. March 31, 2006.