

# Conceptual Closure and Reclamation Plan & RECLAIM Estimate

**Version 5** 

Water Licence 2BE-MEA1318

Amaruq and Meadowbank Exploration Projects

Agnico Eagle Mines Limited

**March 2016** 

## **DOCUMENT CONTROL**

Version	Date (YMD)	Section	Page	Revision
1	2014-June-11			Draft 1 of the Conceptual Closure and Reclamation Plan
2	2014-08-28			Merged the Meadowbank Exploration and Amaruq Exploration Projects for closure and Reclamation
3	2014-10-05	9	7 & 8	Corrections made to Table 1 and 2 as they were in error. They now match the spreadsheets in Appendices A and B
4	2015-01-12			Trailers from the Meadowbank exploration camp moved to the Amaruq Project site. This change is reflected in the Plan and in the RECLAIM calculations.
5	2016-02-24			Updated the entire Plan to reflect the changes in infrastructure

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# **Table of Contents**

1.	Introduction	4
2.	Closure and Reclamation Principles	4
3.	Closure and Reclamation Approach	5
4.	Infrastructure	6
	4.1 Amaruq Exploration Project	6
	4.2 Meadowbank Exploration Project	6
5.	Conceptual Closure and Reclamation of AMARUQ and Meadowbank Exploration Projects	7
	5.1 Heavy Equipment	7
	5.2 Fuel, Drilling Supplies and Chemicals	8
	5.5 Non-combustible and Combustible Waste	8
6.	Camp Sites	8
7.	Reclamation of Drill Sites	8
8.	Storage of Drill Core	9
9.	Cost of Implementing Reclamation and Closure	9
	Tables and Appendices	
Table	e 1. Summary of RECLAIM costs for Closure and Reclamation of Amaruq Exploration Sub-Project e 2. Summary of RECLAIM Costs for Closure and Reclamation of the Meadowbank Exploration S	ub-
	endix A Amaruq Sub-Project Closure and Reclamation Calculation – Relevant Pages from RECLAII	
	endix B. Meadowbank Sub-Project Closure and Reclamation Calculation — Relevant Pages fr AIM 7	

### 1. Introduction

This plan describes the concepts for the closure and reclamation of the Amaruq and Meadowbank Exploration Project under water licence 2BE-MEA1318.

Agnico Eagle Mines Limited's Amaruq Exploration Sub-Project is located 50 kilometres (km) NNW of its Meadowbank Gold Mine in Nunavut. The intent of the Amaruq Exploration Project is to explore its mineral lease and claims for potential ore deposits. An exploration camp was established in 2013 to undertake geological, geochemical, and/or geophysical exploration. Diamond drilling is also being used in exploring promising areas on the mineral lease and claim block.

Agnico Eagle Mines Limited's Meadowbank Exploration Sub-Project camp is located near Third Portage Lake adjacent to km 100 on the all-weather private access road (AWPAR) between the hamlet of Baker Lake and the Meadowbank mine site. In 2014, trailers located at the Meadowbank exploration camp were prepared for transport over the winter road to the Amaruq site. These were moved in early 2015. The remaining infrastructure at the Meadowbank Exploration Project camp remains in place.

## 2. Closure and Reclamation Principles

The conceptual reclamation and closure plan for the exploration project covered by water licence 2BE-MEA1318 has the objective of mitigating the negative environmental effects of the campsites and exploration activities on the surrounding natural environment. Wherever practicable, progressive reclamation will be employed before final closure and reclamation commences, with the intent of returning negatively impacted areas to productive and lasting use by wildlife and humans as soon as possible.

Agnico Eagle's conceptual closure and reclamation plan for its Amaruq and Meadowbank Exploration Project is guided by the following four principles<sup>1</sup>:

- Physical Stability Any project component that remains after closure should be constructed or modified
  at closure to be physically stable, ensuring it does not erode, subside, or move from its intended location
  under natural extreme events or disruptive forces to which it may be subjected. Closure and reclamation
  will not be successful in the long-term unless all physical structures are designed such that they do not
  pose a hazard to humans, wildlife, aquatic life, or environmental health and safety;
- 2. Chemical Stability Any project component (including associated wastes) that remains after closure should be chemically stable; chemical constituents released from the project components should not endanger human, wildlife, or environmental health and safety, should not result in the inability to achieve the water quality objectives, and should not adversely affect soil or air quality in the long term.

<sup>&</sup>lt;sup>1</sup> Principles largely adapted from the Mackenzie Valley Land and Water Board and Aboriginal Affairs and Northern Development, November 2013. *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories* 

- 3. No Long-Term Active Care Agnico Eagle will make all practical efforts to ensure that any project component that remains after closure does not require long-term active care and maintenance. Thus, any post-closure monitoring can only continue for a defined period of time. Physical and chemical stability will help ensure achievement of this principle.
- 4. Future Use (including aesthetics and values) Wherever practical, closed sites should be compatible with the surrounding lands and water bodies upon completion of the closure activities.

### 3. **Closure and Reclamation Approach**

A practical, cost-effective approach will be central to closure and reclamation. The intent is to pursue closure and reclamation based on the four principles noted above such that long-term active care is not required for the camps and drill sites.

The Plan will be updated, and revised as required on a regular basis, and will ultimately result in a final Plan upon closure. Each iteration of the Plan will provide more details and greater certainty regarding the sequence of events to be undertaken for closure and reclamation.

Progressive reclamation will be practiced in reclaiming areas that are no longer needed for exploration by physically and/or chemically stabilizing disturbed land surfaces and promoting re-vegetation. This approach will employ best practices and will ultimately advance the return of reclaimed areas to natural conditions while at the same time reducing the overall cost of final closure and reclamation.

Wastes will be managed on an ongoing basis at the two sites and consequently, there will be little to no accumulation of wastes on-site. When no longer needed, obsolete equipment, metal waste, surplus chemicals, hazardous waste, and buildings will be removed to Agnico Eagle's port and laydown facilities in Baker Lake for shipment south to a certified waste management company for treatment, recycling and/or disposal in another provincial or territorial jurisdiction<sup>2</sup>. At the Amarug site, all domestic and camp waste suitable for incineration will be incinerated in the on-site incinerator with the ash returned to the Meadowbank Gold Mine for disposal in their landfill, if it is suitable for landfilling. For the Meadowbank Exploration Project, all waste will be transported to the Meadowbank Gold Mine for its management.

<sup>&</sup>lt;sup>2</sup> The RECLAIM model described later in this Conceptual Closure and Reclamation Plan assumes that the Meadowbank Gold Mine is not available in the final closure of the Exploration Project. However, ongoing management of wastes during Project operations will use the waste management facilities available at the Meadowbank Gold Mine.

### 4. Infrastructure

### 4.1 Amaruq Exploration Project

The camp site is located more than 31 metres from any water body. The following infrastructure is part of the Amaruq campsite:

- 1. Double walled envirotanks holding petroleum hydrocarbons with a total capacity of 1,750,000 litres. All the combined fuel, diesel and jet-B, is stored in thirty one -50,000 and two-100,000 litre envirotanks.;
- 2. Two small incinerators for incinerating solid, non-hazardous, combustible camp waste and human waste from Pacto toilets;
- 3. A stick built building for the camp's generators;
- 4. Twelve to fifteen insulated tents with wooden floors having the capacity to accommodate up to 50 people. The tents include a core shack, sleepers, TV Room, women's washroom, men's washroom, dry, furnace and water holding tank, dining-kitchen. All tents will be connected to each other with a wooden corridor;
- 5. Eighteen 12 by 60 foot trailers with kitchen dining room, additional bedrooms, water holding tanks, infirmary and office. This raises the number of people that can work onsite to 200;
- 6. A water intake from the lake in front of the camp;
- 7. A sump located at least 31 metres from any water body for gray water; and
- 8. Possibly a floating dock to allow summer access using a floatplane to the camp;
- 9. A BIOdisk and two Bionest water treatment systems installed in shipping containers (sea cans);
- 10. A garage having shipping containers for walls and a stick built roof.

### 4.2 Meadowbank Exploration Project

Agnico Eagle Mines Limited's Meadowbank Exploration Project is located near Third Portage Lake at kilometre 100 on the AWPAR between Baker Lake and the Meadowbank Gold Mine.

The following infrastructure is part of the Meadowbank exploration campsite:

- 1. Two double walled envirotanks holding diesel fuel with a total capacity of 85,000 litres;
- 2. One -double walled envirotank holding helicopter jet-A fuel with a total capacity of 75,000 litres;
- 3. One- 12 by 24 foot drillers shack;
- 4. One- 42 by 50 foot coverall for drillers;
- 5. One- 50 by 70 foot Garage; and
- 6. Forty-seven 8 by 20 foot Sea cans.

### 5. Conceptual Closure and Reclamation of AMARUQ and Meadowbank Exploration Projects

The following scenario assumes that Agnico Eagle no longer renews any permits, leases, licenses and other authorizations for the Amaruq and Meadowbank Exploration Project, and enters into reclamation and closure. To be conservative in calculating costs for reclamation and closure, it is assumed that the Meadowbank Gold Mine will not be available to provide services during closure and reclamation activities but that the All Weather Private Access Road (AWPAR) will be available to transport all materials and fuel from the Project camps to Agnico Eagle's port and laydown facilities in Baker Lake.

All equipment, structures, camp and drill supplies, fuel, fuel pumps, envirotanks and wastes will be removed from the project areas prior to expiry of the land use permits and commercial lease. Fuel will first be pumped from all envirotanks to tanker trucks prior to their movement.

If practicable, solid combustible non-hazardous waste will be incinerated onsite with any metals recovered from the ash and placed in containers suitable for shipment. Waste materials to be incinerated include wood tent floors, wood corridors, wood roofs and stick built buildings.

At the Amaruq Exploration site, trailers will be used as a summer camp for reclamation and closure activities. Over a summer, all tents will be disassembled and prepared for transport. All equipment, trailers, drill supplies, envirotanks, fuel and chemicals will also be prepared for transport. Stick built buildings will be disassembled for transport, or demolished and incinerated onsite. Wastes that cannot be incinerated will be prepared for transport. During the winter, a winter road will be used to remove all materials from the site to a staging area next to the AWPAR or directly to Baker Lake. Challengers or equivalents pulling sleighs are expected to move all materials and fuel over the winter road to the staging area. Similarly, Challengers or equivalents will pull all trailers to the staging area or Baker Lake. Finally, transport, flat bed and tanker trucks will move all materials and fuel from the staging area to Agnico Eagle's port facility and laydown in Baker Lake.

Sea cans, empty envirotanks, fuel, fuel pumps and disassembled buildings will all be moved from the Meadowbank Exploration site via the AWPAR to Agnico Eagle's port facility and laydown in Baker Lake. Non-hazardous, solid, combustible waste will be incinerated on site; this includes any stick built structures.

At both sites, the only materials and structures remaining after closure and reclamation will be drill cores stored on permanent racks.

### 5.1 Heavy Equipment

Heavy equipment, generators, incinerators, drills, trailers and other equipment are valuable and reusable. These will be moved to Agnico Eagle's port facility at Baker Lake for storage, sale and/or shipment south on the annual sealift. Equipment having no salvage value will be cleaned of hydrocarbons and shipped south for recycling.

## 5.2 Fuel, Drilling Supplies and Chemicals

Fuel from both camps will be removed from the envirotanks prior to these being moved. Fuel resupply the year before closure will be planned to leave a minimum amount in the envirotanks upon closure. Fuel from the Amaruq site will first be transported in a fuel sleigh by Challenger or tanker truck to the staging area. From here, tanker trucks will transport the fuel to Baker Lake where it will be sold.

All useful drilling supplies such as salt and other drilling compounds such as grease will be removed to Baker Lake for sale, shipment and/or storage.

All chemicals and hazardous materials still in unopened packages at closure will be used elsewhere by Agnico Eagle, sold or shipped south. Open packages and waste materials will be shipped to a certified waste management company for treatment, recycling and/or disposal in another provincial or territorial jurisdiction.

The ongoing annual removal of surplus chemicals and hazardous waste, and the immediate clean-up of spilled materials will minimize the quantity of material requiring handling, packaging and removal upon closure.

### 5.5 Non-combustible and Combustible Waste

All non-combustible, non-hazardous and hazardous liquid and solid waste from Amaruq and Meadowbank Exploration Project will be transported to Baker Lake in proper containers for shipment south to a certified waste management company for treatment, recycling and/or disposal in another provincial or territorial jurisdiction

### 6. Camp Sites

The camp areas will be allowed to re-vegetate naturally once cleared of all buildings and other infrastructures. Revegetation is expected to be slower in higher, drier areas than in low-lying, moist areas. Where they exist, irregular surfaces will be left in place as these capture snow over the winter, which in turn provides moisture to plants in the spring. Where applicable, fertilizer may be used to promote re-vegetation. The use of fertilizer is generally most effective in moist sites and while it helps on drier sites, the response of the tundra plant community will be slower.

### 7. Reclamation of Drill Sites

All drill sites will be reclaimed. Following completion of a drill hole, and if possible, the casing will be pulled. If it cannot be pulled, the casing will be cut off at or below ground level. Water and drill cuttings will naturally flow down the hole or casing and freeze in place thereby plugging the drill hole. Fertilizer and/or peat moss may be applied to drill sites in the spring or over the summer period. These additives can assist in the recovery of the

plants in the immediate vicinity of the drill hole and for the re-establishment of vegetation where plants were lost.

### 8. Storage of Drill Core

Upon closure, the core will be evaluated for long-term storage stability. Core stored in unstable conditions will be restacked on more durable pads for long-term storage and access.

## 9. Cost of Implementing Reclamation and Closure

RECLAIM 7.0 was used in calculating the costs of reclamation and closure. The calculation of costs is conservative. It assumes no reliance on the Meadowbank Gold Mine for services during closure, but does assume that the All-weather Private Access Road will remain available for use. However, a 50 kilometre long winter road will be built from the AWPAR to the Amaruq camp site as part of closure and reclamation. A summary of costs is provided in tables 1 and 2 for the Amaruq and Meadowbank Exploration sites, respectively. Appendices A and B provide more detail on the calculated costs for the two Projects.

Table 1. Summary of RECLAIM costs for Closure and Reclamation of Amaruq Exploration Sub-Project

Summary of Costs – Amaruq Exploration Project						
CAPITAL COSTS	COMPONENT NAME	COST				
BUILDINGS, WATER INTAKE AND EQUIPMENT		\$162,930				
INTERIM CARE AND MAINTENANCE		\$0				
	SUBTOTAL: Capital Costs	\$162,930				
INDIRECT COSTS		COST				
MOBILIZATION/DEMOBILIZATION	Amaruq Project	\$161,052				
POST-CLOSURE MONITORING AND MAINTENANCE		\$0				
ENGINEERING	5%	\$8,146				
PROJECT MANAGEMENT	5%	\$8,146				
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	1%	\$1,621				
BONDING/INSURANCE	1%	\$1,621				
CONTINGENCY	20%	\$32,586				
	SUBTOTAL: Indirect Costs	\$213,172				
TOTAL COSTS		\$376,102				

Table 2. Summary of RECLAIM Costs for Closure and Reclamation of the Meadowbank Exploration Sub-Project

Summary of Costs – Meadowbank Exploration Sub-Project						
CAPITAL COSTS	COMPONENT NAME	COST				
BUILDINGS AND EQUIPMENT		\$47,958				
INTERIM CARE AND MAINTENANCE		\$0				
	SUBTOTAL: Capital Costs	\$47,958				
INDIRECT COSTS		COST				
MOBILIZATION/DEMOBILIZATION		\$21,332				
POST-CLOSURE MONITORING AND MAINTENANCE		\$0				
ENGINEERING	5%	\$2,398				
PROJECT MANAGEMENT	5%	\$2,398				
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	1%	\$480				
BONDING/INSURANCE	1%	\$480				
CONTINGENCY	20%	\$9,592				
	SUBTOTAL: Indirect Costs	\$36,678				
TOTAL COSTS		\$84,636				



Mobilization/Demobilization:	Amaruq Exploration Project					
ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
MOBILIZE HEAVY EQUIPMENT						
Challenger + Sled or equivalent	To be used on the Amaruq winter road to the AWPAR	km	150	MHER	3.4	\$510
Flat-bed truck	A flat-bed truck will come from Baker Lake to Amaruq via AWPAR & ice road(150 km	km	150	MHER	3.4	\$510
Transport truck of equivalent	A transport truck or equivalent will pull the trailers from Amaruq to Baker Lake	km	150	MHER	3.4	\$510
Fuel truck	Fuel truck or sledge will come from Baker Lake and will be used to transport fuel removed from the envirotanks. Fuel to be sold in Baker Lake.	km	150	MHER	3.4	\$510
Loader	Loader will come from Baker Lake to load the flat- bed truck with camp materials .	km	150	MHER	3.4	\$510
Light duty vehicles	Two light duty trucks will come from Baker Lake (150 km x 2)	km	300	MHER	3.4	\$1,020
MOBILIZE MISC. EQUIPMENT						
Minor tools and equipment		allow	1	#N/A	2000	\$2,000
MOBILIZE CAMP						
Reclamation activities	A existing trailer will be used for accommodation during reclamation activities	allow	0	#N/A	0	\$0
Accommodation and food on site	Six workers for 3 weeks at Amaruq site	allow	126	ACCM	175	\$22,050
MOBILIZE WORKERS						
Reclamation activities - travel time	Travel from Baker Lake to Amaruq by float plane (6 workers x 2 hours)	man hours	12	MW	31	\$372
WORKER ACCOMODATIONS	Existing trailer will be used during reclamation					
MOBILIZE FUEL	Onsite fuel will be used.					
WINTER ROAD						
Construction and operation		km	50	WRC	2000	\$100,000
DEMOBILIZE HEAVY EQUIPMENT						
Challenger + sled	Return to Baker Lake	km	150	MHER	3.4	\$510

Flatbed trucks	Return to Baker Lake	km	150	MHER	3.4	\$510
Transport truck or equivalent	Return to Baker Lake	km	150	MHER	3.4	\$510
Loader	Return to Baker Lake	km	150	MHER	3.4	\$510
Light duty vehicles	Return to Baker Lake - 2 trucks	km	300	MHER	3.4	\$1,020
DEMOBILIZE WORKERS						
crew transportation	Six flights are expected between Baker Lake and Amaruq during summer reclamation activities. None during winter.	each	6	MW	5000	\$30,000
					Total	\$161,052

Building / Equipment	Amaruq Exploration sub- Project					
ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
Remove Buildings						
15 tents - sleepers, core logging, dry, storage, washrooms, etc.	Tents removed from site to staging area next to the AWPAR, and later to Baker Lake	m <sup>2</sup>	632	BRW	\$27.50	\$17,380
18 Trailers, each having an area of 67 m2	There is no unit cost for removing trailers so Agnico Eagle used \$1500 to move each trailer from Amaruq to Baker Lake	each	18	each	\$1,500.00	\$27,000
Stick built buildings, corridors, roof and dock	Wooden tent floors, corridor, stick built buildings and dock demolished and incinerated on site	m <sup>2</sup>	120	BRW	\$27.50	\$3,300
Freshwater intake	Remove intake, piping and dock from lake	each	1	each	\$3,000	\$3,000
Drills	remove 6 drills from Amaruq to staging area followed by transport on the AWPAR to Baker Lake	each	6	#N/A	\$1,500	\$9,000
Water Treatment Facilities	Modular water treatment plants in sea cans. There is no unit cost and Agnico Eagle used \$1500 for loading and moving each to Baker Lake.	each	3	each	\$1,500	\$4,500
Incinerators	Modular incinerators located in stick built building. There is no unit cost and \$1500 was used to load and transport each to Baker Lake.	each	2	each	\$1,500	\$3,000
Fuel Envirotanks	34 empty fuel tanks to staging area and later to Baker Lake using AWPAR	each	34	#N/A	\$2,500	\$85,000
Landfill for demolition waste	There is no landfill associated with Project					
Grade and Contours pads	No pad contouring required					
Puncture lined sumps	There are no lined sumps					
Reclaim Roads	1.1 km of road onsite					
Scarify roads		ha	0.7	SCRY	\$2,500	\$1,750
Remove culverts	There is no cost code - estimating \$1,500/culvert	each	4		\$1,500	\$6,000
Specialized Items						
Dispose of misc. debris and laydown area refuse	remove waste from Amaruq to staging area followed by transport to Baker Lake		1	#N/A	\$3,000	\$3,000
					Total	\$162,930

Appendix B. Meadowbank Sub-Project Closure and Reclamation Calculation – Relevant Pages from RECLAIM 7

Mobilization/Demobilization:	Meadowbank Exploration Sub-Project						
ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	
	EQUIPMENT (100 km from Baker						
Lake to site)	T						
Flatbed truck	Flatbed truck from Baker Lake to camp site at KM 100 on the AWPAR	km	100	MHER	3.4	\$340	
Crane	A crane to lift sea cans onto flatbeds trucks	km	100	MHER	3.4	\$340	
Loader	For miscellaneous clean-up of waste on site	km	100	MHER	3.4	\$340	
Fuel Truck		km	100	MHER	3.4	\$340	
Light duty vehicles	2 - light duty trucks from Baker Lake	each	200	MHER	3.4	\$680	
MOBILIZE MISC. EQUIPMENT							
Minor tools and equipment		allow	1	each	2300	\$2,300	
MOBILIZE WORKERS	Workers will travel daily from Baker Lake						
Reclamation activities - travel time	6- workers from Baker Lake (2 hours travel time x 40 days)	man hours	481	MW	31	\$14,910	
WORKER ACCOMMODATIONS	Workers will travel daily from Baker Lake						
MOBILIZE FUEL	Fuel held onsite in envirotanks will be used for reclamation.						
WINTER ROAD	The existing AWPAR will be used during the summer period for reclamation.						
DEMOBILIZE HEAVY EQUIPMENT	See above in Mobilization						
Flatbed truck		km	100	MHER	3.4	\$340	
Crane		km	100	MHER	3.4	\$340	
Loader		km	100	MHER	3.4	\$340	
Light duty vehicles	Two light duty trucks	km	200	MHER	3.4	\$680	
DEMOBILIZE CAMP	No camp is to be established						
DEMOBILIZE WORKERS	Workers will travel daily from Baker Lake						
crew travel time	6- workers from Baker Lake (2 hours by truck)	hrs	12	MW	31	\$372	
crew transportation	use light trucks for transportation - no charge	each		#N/A	0	\$0	
WINTER ROAD	No winter road						
					Total	\$21,332	

Exploration Camp at AWPAR KM 100	Meadowbank Exploration Sub- Project					
ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
REMOVE BUILDINGS						
Stick built drillers shack	Stick built buildings will be demobilised and incinerated on site	m <sup>2</sup>	28	BRW	\$27.50	\$770
Sea cans	47 sea cans - 15 m <sup>2</sup> area each - moved to Baker Lake for shipment south by sea	m²	705	BRW	\$27.50	\$19,388
Storage Facilities for drillers	Coverall for drillers - dissemble for transport to Baker Lake	m <sup>2</sup>	195	BRW	\$40.00	\$7,800
Garage	Dissemble for transport to Baker Lake	m <sup>2</sup>	325	BRW	\$40.00	\$13,000
Fuel tanks	3 - fuel envirotanks	each	3	#N/A	\$1,000	\$3,000
LANDFILL FOR DEMOLITION WASTE	No landfill will be established					
GRADE AND CONTOUR PADS	No pads will require grading or contouring					
PUNCTURE LINED SUMPS	There are no liners on site					
RECLAIM ROADS	There are no roads on site					
SPECIALIZED ITEMS						
Dispose of misc. debris and laydown area refuse	Pack any extraneous waste in empty sea cans for transport south to Baker Lake	each	1	each	#N/A	\$4,000
					Total	\$47,958