



Waste Management Plan

**Mel Project
Melville Peninsula, NU**

Date: Jan. 23rd, 2019

Table of Contents

INTRODUCTION.....	3
PROPERTY LOCATION AND DESCRIPTION	4
SITE PHYSICAL, SURFACE AND SUBSURFACE CHARACTERISTICS.....	5
SUMMARY OF PROPOSED WORK	5
PURPOSE OF WASTE MANAGEMENT PLAN	6
DRILLING OPERATIONS AND SITE RECLAMATION	6
SPILL PLAN	7
WASTE MANAGEMENT PLAN REVIEW AND UPDATE.....	7

INTRODUCTION

North Arrow Minerals Inc. ("North Arrow") is a Canadian owned and operated company which conducts diamond exploration programs within Canada. North Arrow recognizes the importance of our role in discovering mineral deposits and that our exploration programs must be conducted in a socially and environmentally responsible fashion.

This document describes the practices undertaken by North Arrow for managing waste from exploration activities at the Mel Project (the "Project"), located on the Melville Peninsula in Nunavut.

The land use activity being proposed includes a seasonal camp that is designed to host up to 12 people. Work conducted will include drilling (diamond and/or reverse circulation), geophysics, till sampling and prospecting. Timing of the land use operation is proposed for early spring, summer and fall months.

North Arrow is committed to maintaining sound environmental practices in all of its activities. To achieve this, North Arrow, with its employees and contractors, will:

- Examine the potential impact to the environment of all proposed activities and take steps to minimize, or where possible, eliminate the impact;
- Ensure that all activities comply with all environmental legislation and regulations;
- On a continuous basis, determine North Arrow's impact to the environment and through continuous improvement, strive to attain higher levels of environmental performance;
- Maintain a high level of environmental protection by applying practices and technologies that minimize impacts and enhance environmental quality;
- Maintain dialogue with the communities and other stakeholders within the area of influence of its exploration programs;
- Progressively rehabilitate disturbed areas, develop closure plans that can be continuously improved, and incorporate new technologies where practical;
- Train all employees and contractors to understand their environmental responsibility related to its Mineral Exploration Properties;

By taking account of the potential impacts before initiating an exploration program, we will ensure that we are leaving as light a footprint as possible during that program.

PROPERTY LOCATION AND DESCRIPTION

The Mel Project is comprised of 46 claims in one block, totalling approximately 56,000 hectares. It is located on the Melville Peninsula, NU, approximately 150 km south of the Hamlet of Hall Beach, and 200 km northeast of the Hamlet of Nauyasat. The proposed land use area lies entirely within the mineral claim boundary (Figure 1).

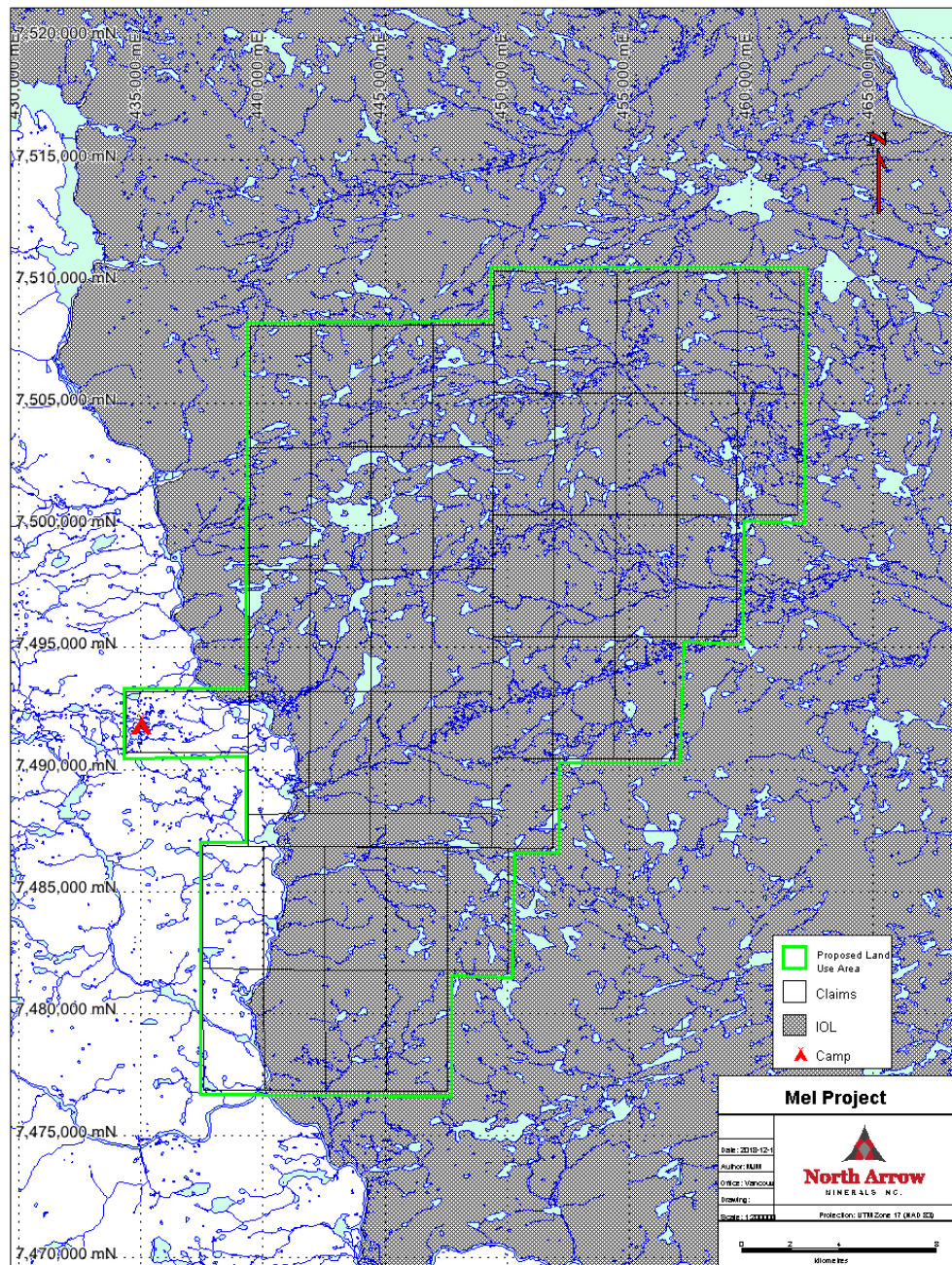


Figure 1: Project and Land Use Area Map

The project area is located within the tundra in Nunavut, above the Arctic circle.

The property is located within the Arctic eco-zone, which contains continuous permafrost. The average temperature is between -25°C (without wind-chill) in winter and +15° C in summer. Precipitation values are low, generally less than 250 mm for the year.

The landscape in the proposed work area is dominated by exposed bedrock, interspersed with unconsolidated glacial deposits of variable depth, with many streams and river valleys, as well as swamps and bogs.

Wildlife in the region includes caribou, muskox, polar bears, arctic hares, arctic foxes, wolves, a variety of birds, and sik-siks.

SUMMARY OF PROPOSED WORK

Exploration planned for the property is a small drill program designed to test a number of land- and lake-based geophysical targets. In addition to drilling, till sampling, prospecting, and geophysical surveying may also be conducted. As this is an early stage exploration project, a limited crew consisting of approximately 12 personnel (2-4 drillers, 1 drill foreman, 2 geologists, 1 helicopter pilot, 1 helicopter engineer, 1 camp manager, 1 cook/first aid attendant, and 1 camp maintenance/wildlife monitor) will be required. All crew members will stay at the camp, and field crews will be transported between the field and camp daily using the helicopter (summer and winter) and or snowmobile (winter).

Fixed-wing support for the camp will be variable, utilizing a ski or float equipped aircraft for the movement of personnel, supplies and equipment to the camp. A Long Ranger 206 or similar helicopter will transport field crews to the drill site(s) from the camp location and will be used to transport the lightweight drill rig during drill moves.

The drilling activities will be entirely helicopter-supported (i.e. transport of drill rig, fuel and personnel), and will cause minimum disturbance to the land use area. Each drill site will use a maximum area of 20 m x 20 m, or 400 m², and upon the completion of each drill hole the metal casings will be removed or cut-off at ground level, and all materials (including empty fuel drums) will be removed from the drill site area. The exact number and location of drill sites is unknown at this time, but a reasonable estimate would be 6-12 locations within the property.

A winter program would finish before break-up (approx. May-June), with the potential to recommence once snow and ice have melted (July-August), if warranted.

During drilling operations, drill water and cuttings will be pumped into a natural depression or hand-dug sump a minimum of 31 m from the normal high-water mark of any nearby water body. All drill muds/greases used will be nontoxic and biodegradable.

Additional exploration may be conducted on the property during the term of the land use permit. Till sampling, prospecting and ground geophysical surveying have all proved to be useful exploration methods in the past and may be carried out again, if warranted. These programs are generally smaller in size and scope and would be conducted over two to four-week periods.

PURPOSE OF WASTE MANAGEMENT PLAN

The objective of this plan is to define a waste management system that will minimize the effect of exploration activities on the land, water, air, wildlife, fish and vegetation. Lasting impacts of the proposed land use can be mitigated with thorough protocols and reclamation practices at all work sites, including the exploration camp.

This plan takes into consideration both waste prevention and minimization and the guiding principle of pollution prevention. That is, source reduction as the most preferred method, followed by reuse, recycle/recovery, treatment, and the least preferred method being disposal.

DRILLING OPERATIONS AND SITE RECLAMATION

Drill sites will be reclaimed on an ongoing basis. Drill setups will be in place for periods of approximately three to five days. Upon completion, each drill site location will be checked for garbage and debris, and hand-dug sumps will be backfilled and recontoured to match the local landscape.

Returned water from drilling activities on land will be pumped into a nearby natural depression and/or hand-dug sump more than the requisite 31 m above the normal high watermark of the nearest water body. This will allow the water to be naturally filtered, removing fine rock cuttings. Any and all drilling muds/greases used will be biodegradable, and any additives used will be non-toxic. Returned water/fluid from drilling activities on ice will be captured in a “closed loop” recycling system with no discharge to the water or ice. The cuttings from the return water will be filtered out and captured in bags specifically designed to capture drill cuttings. These bags will be taken to shore and emptied into a natural depression or hand dug sump the requisite distance (31 m) away from the highwater mark of any water body. Once the contents are emptied, the bags will either be reused or taken back to camp for proper disposal.

Metal casings will be removed upon completion of each drill hole or cut-off near ground level when retrieval isn't possible. Holes drilled on ice will have the casings removed, and then will be cemented to prevent any contamination of the water body.

Before leaving each site a final inspection will be completed by the project manager (or their designate) to ensure that refuse has been removed from the area and that there is little to no evidence of the land use operation.

Motor oil and drilling additives will be stored in their respective containers at camp and at the drill, along with the appropriate spill response equipment. Empty containers will be backhauled from the drill on a regular basis to the camp where they will be reused (i.e. refilled) or shipped south at the end of the program to be disposed of at an approved facility upon arrival at the port of Montreal.

Combustible garbage will be incinerated at the camp using an incinerator like that shown in Appendix 1. Prior to combustion, all waste products will be placed into animal-proof storage

boxes. Non-combustible materials (i.e. waste oil, scrap metal) will be packaged and shipped to an approved facility in either Hall Beach or Naujaat. If approval is not obtained from one of the communities, these materials will be shipped south on the annual sealift/barge for disposal at an approved recycling facility upon arrival at the port of Montreal.

SPILL PLAN

Drill sites will be fully equipped with secondary containment of all fuels and hazardous materials, and spill contingency equipment will be present at all locations where fuel and hazardous materials are stored. Please see document “Spill Contingency Plan – Mel Project” submitted along with the land use application for further information regarding fuel handling and the storage of fuel and hazardous material for the Project.

WASTE MANAGEMENT PLAN REVIEW AND UPDATE

This waste management plan is current as of the submission date. It will be reviewed yearly and prior to the start of any work program. It will also be reviewed continuously by the proponent, and all contractors working at the Project.

Table 1: Summary of Wastes and Disposal Method

Item	Class	Primary Disposal	Secondary Disposal	Environmental Effect
Grey water and Sewage	Non-toxic mineral waste	Directly into natural depressions and hand-dug outhouse pits	Outhouse pits will be treated with lime upon seasonal shutdown of the camp	Minor
Drill cuttings	Non-toxic mineral waste	Directly into natural depressions or hand-dug sumps	N/A	Minor
Drill wastes: used oils, fuels, lubricants	Hazardous or potentially hazardous	Securely packaged and removed to camp	Approved facility down south (i.e. backhauled on sealift), Hall Beach or Naujaat	None - removed
Domestic refuse	Non-mineral waste	Incinerate (combustible); backhaul on sealift (non-combustible)	N/A	Minor - release of smoke into atmosphere; none – removed (non-combustible)

North Arrow acknowledges that any other burning, other than with an approved incinerator located at the camp, will not be permitted.

Wastes generated in the field will be stored such that they are not accessible to wildlife and will be brought back to camp at regular intervals. Sewage (i.e. brown water) generated in the field will be buried to avoid attracting wildlife.

APPENDIX 1

CAMP INCINERATOR

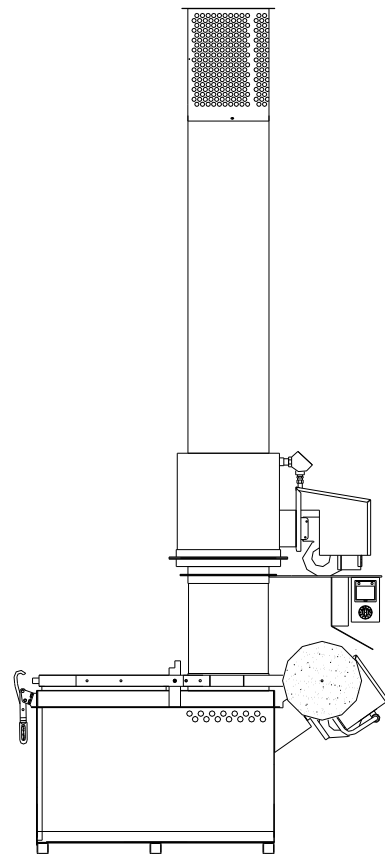


Model A200X **Incineration System**

Unique Design Compliant with Air Quality Regulations

- ☐ Recirculating flue gases assure clean operation.
- ☐ Built by specialists in incinerator systems.
- ☐ Designed for safe, easy operation with simple to use controls.
- ☐ Includes many benefits of high-priced systems, yet within the budgets of small facilities.
- ☐ 200 pound rated load capacity.
- ☐ Easy to use... Set timers and walk away. Thermocouple controls temperature.
- ☐ Available with LP, Natural Gas, or Oil burners. Afterburner is standard.

**LOWEST OPERATING COST IN THE
INDUSTRY!**



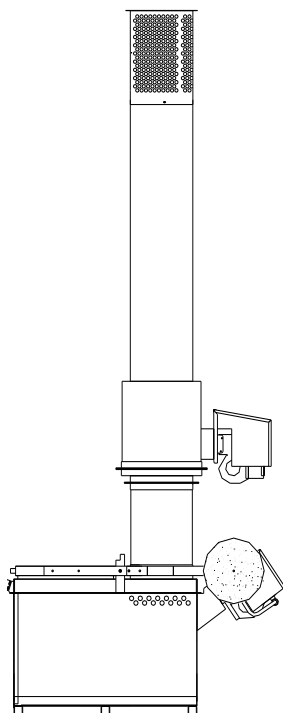
*One simple solution to solid/liquid waste disposal
Immediately eliminates potential to spread diseases*

Firelake Mfg. LLC

919 Cottontail Trail, Mt. Crawford, VA 22841

866-252-3757 www.firelakeincinerators.com

Benefits and Features of the A200X Series



- Concave refractory bottom specifically designed to insure burnout and total destruction of solid and liquid wastes.
- Secondary chamber with burner.
- Insulated, refractory-lined chambers and stacks for durability, energy retention, and emissions control.
- High temperature refractory lined chamber walls.
- Factory assembled, aluminized steel jacket lined with high-temperature refractory.
- Factory cured chambers and stacks.
- Assembly on-site can be done with common farm equipment.
- Counter-balanced fill door.
- Manual set burn time and automatic shut off.
- Burn times are adjustable by operator to meet varying loads.
- Choice of fuels: LP, Natural Gas, or Fuel Oil.
- Stack Test Data available on many models.
- We provide permit and compliance assistance at no cost.

Specifications Summary

A200X Propane, Natural Gas, or Diesel Fired Incineration System complete with two burners, thermocouple and control, secondary burn chamber, stainless and / or refractory lined stack and chambers, and manual operating timer.

WASTE CHAMBER				INSTALLATION Must be installed in accordance with local codes and ordinances, subject to regulatory agencies. Outside installation is recommended with a simple metal roof or three-sided metal shelter, providing a minimum of four foot clearance from any combustible roof materials. Minimum of 18” clearance is required for penetration of combustible roof materials. Inside installations may have special insurance requirements.	
Chamber capacity					
(Type 4 waste-pathological)	200 lbs	91 kg			
Chamber volume (approximate)	6.3 cu. ft.	.18 cu. m.			
Chamber size (inside)	Width	20”	51 cm		
	Height	22”	56 cm		
	Length	36”	91 cm		
Door opening	18”W x 24”L	46 cm x 61 cm			
Height to door	30”	76 cm			
Overall dim’s w/stack 140”H x 42”Wx 65”L 3.5m x 107 cm x 165cm					
Suggested min. slab size (l x w x thick) 8’ x 6’ x 4” 1.8 m x 2.4m x 10cm					
STACK				GENERAL Electrical service Standard – 115 volt, 60 HZ, 20 amp Also available – 220 volt, 50 HZ, 10 amp BURNERS LP or Natural or Diesel burner(s) with spark ignition and flame safety shut-off. OPERATION Manual timer with thermocouple control TOTAL WEIGHT 1350 lbs. (approximate) 600 kg	
Diameter	2 burner system	14”	35.5 cm		
Material	14 gauge (2 mm) lined Aluminized Steel and/or unlined stainless steel				
REFRACTORY THICKNESS					
Primary	3.0”(2800F)	7.6 cm			
Secondary	1.5”(2800F)	3.8 cm			
Stack	1.5”(2800F)	3.8 cm			
APPROX. FUEL CONSUMPTION					
		A200 LP	A200 NATURAL GAS	A200 Diesel	
Upper burner		0.83 GPH	83 CFH	0.5 GPH	
Lower burner		3.0 GPH	275 CFH	2.5 GPH	

* Fuel consumption approximate. Actual fuel use depends on BTU content of waste.

Firelake Mfg. LLC

919 Cottontail Trail, Mt. Crawford, VA 22841

866-252-3757

www.firelakeincinerators.com