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## WASTE MANAGEMENT – MONUMENT PROJECT

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### INTRODUCTION

This document describes the practices undertaken by New Nadina Explorations Limited exploration project in managing waste from the exploration activities and camp operations.

New Nadina has committed to implementation of the Prospector's and Developer's Association of Canada e3 Plus Principles for Responsible Exploration, which includes an extensive guidance manual on environmental practice during mineral exploration.

Kitchen camp grey water is discharged into a sump, the outflow does not enter a waterbody. All human waste is handled with use of Pacto toilet. Human waste is collected in "Pacto" bags. No flush toilets are utilized.

Waste and garbage is burned in an efficient diesel-air-fueled incinerator. All non-hazardous waste material are either incinerated as per the existing land use permit or transported to Yellowknife for appropriate disposal. Non-burnable scrap or any residual matter is stored, then transported by winter road for disposal in Yellowknife.

During drilling operations on land:

Water is drawn from a water body through filtered intake, and pumped through hose line to the drill. The waterline is heated in winter with propane. Drilling fluids used are all biodegradable, and drilling discharge and cuttings are pumped into a natural depression or bermed. Control of dust from the reverse circulation drill is via containment shed and the site being cleaned under acceptable procedures once the drill is moved. When discharge would enter a water body a Poly-drill system filters the discharge, and cuttings are stored for disposal in a nearby natural depression that does not drain into a waterbody. Absorbent pads are placed under all diesel equipment and drip trays used at refueling stations. Drilling is not expected to pollute water bodies. Upon completion of drilling, any drill casings or anchors are either removed or cut-off at ground level and all scrap is cleaned up and timbers and equipment removed. Drill cuttings are powdered rock, which turns to mineral soil. After a couple years, the only trace of a drill setup may be the cut-off casing.

During drilling operations on lake ice:

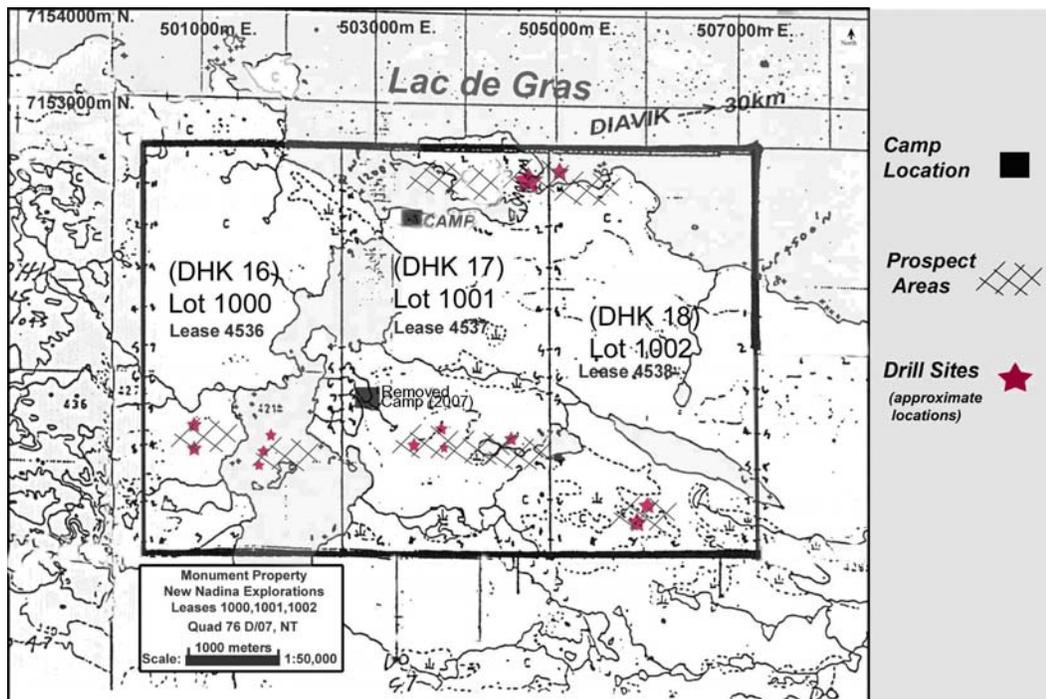
Drilling from ice involves a drill cutting recovery system, such as a Poly-drill system, and cuttings are disposed of in a nearby natural depression away from any watercourse. Drill pumps, and the drill itself are equipped with spill kits and workers use drip mats and absorbent pads at re-fueling stations. Upon completion of diamond drilling, the drilling equipment, pumps and timbers are removed using a helicopter with sling gear, and the steel casing and anchor is either pulled out or cut-off at ground level. Drillers pick up any garbage or debris as a final clean-up, and every drill site is inspected by the supervisor.

## PROPERTY LOCATION AND DESCRIPTION

The Monument project, is located on southern shore of Lac de Gras lake, in Canada's Northwest Territories, about 30km southwest by water on Lac de Gras from the Diavik project. The property, mining Lot #1000 (Lease #4536), #1001 (Lease #4537) and #1002 (Lease #4538), is within the Tli Cho Akaitcho Mining District of the Northwest Territories and Lac de Gras is show on National Topographic System (NTS) map sheet 076D/07 at approximately UTM NAD 83 504000E, 7152000N.

The project comprises an exploration camp, with facilities suitable for summer and winter diamond drill programs.

FIGURE: PROJECT LOCATION



## PURPOSE OF WASTE MANAGEMENT PLAN

The purpose, goal and objectives of the waste management plan are to mitigate the effect of exploration activities on the land, water, air, wildlife, fish and vegetation. In addition, by good practice in construction of drill sites, access trails, the camp and other activities, effect on aesthetics and land use are minimized.

It goes without saying, that the plan is also designed to achieve compliance with all applicable Acts, Regulations, authorizations and land use permits.

## SITE PHYSICAL, SURFACE AND SUBSURFACE CHARACTERISTICS

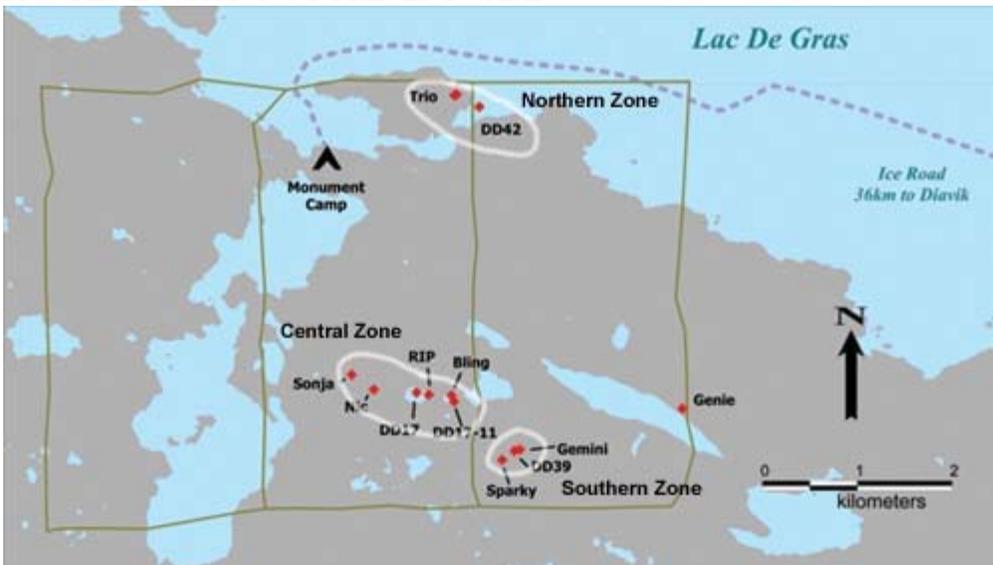
Lac de Gras drainage area covers a large area.

Geotechnically the area is comprised largely of bedrock outcrop, or shallow cover of till.

No activities from the proposed exploration program will have any adverse affects in the area. The past several years of continuous exploration drilling has proven that all drill activities have little to no effects to the environment. New Nadina's current monitoring of these areas show that with the minimal drill footprint the area quickly reverts back to natural conditions upon completion of drilling.

## CAMP OPERATIONS

FIGURE: LOCATION OF PRESENT CAMP



## WATER

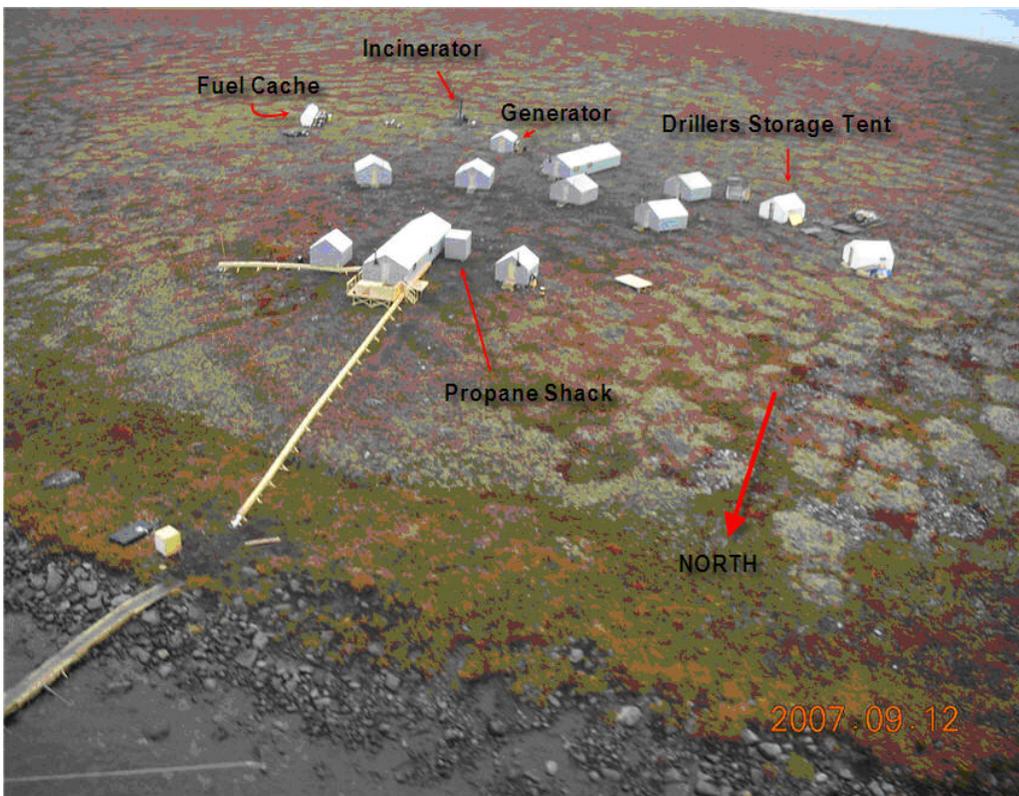
The Monument project has one camp location. The Monument Camp, which is accessible by winter road or fixed wing aircraft. A dock allows float plane access in summer. The camp occupies 2 Ha on the south shore of Lac de Gras (110°55'57"W and 64°29'37"N). Framed and insulated cabins are designed to conserve fuel, and include a kitchen/dry, office/coreshack, 5 sleep cabins, a first-aid cabin, a dry shed and latrine. A generator shack and 4 tent-frames (supply/storage) are also on site.

An on-demand electric pump draws fresh water through filtered suction from Lac de Gras, and pumps it along heat-trace equipped waterline to the kitchen/dry. Water is plumbed to a kitchen sink, 3 wash sinks, 2 showers, and washing machine and discharge of greywater is plumbed to one bermed sump. The outflow does not enter a waterbody.

The characteristics of the grey water sump are as follows:

- Location of the sump is adjacent to kitchen area, just past latrine and 1 meter by 1 meter in size
- When in use the sump is monitored on a daily basis

FIGURE: LAYOUT OF CAMP



No flush toilets are used in the camp and no black water is discharged into water bodies. At present the camp uses a Pacto toilet. The human waste is held and compressed in Pacto bags.

Human waste and garbage is burned in an efficient diesel-air-fueled incinerator, and residual matter is sent to Yellowknife for disposal.

Non-burnable scrap is stored, packaged and then transported by winter road for proper disposal in Yellowknife.

The Monument camp uses approximately 50 to 75 litres per person per day, compared to the Canadian average domestic water consumption of over 300 litres per day (Conference Board of Canada, data for 2000). The total for the camp, when fully occupied is 1,000 to 1,500 litres/day.

#### SUMMARY OF WATER USAGE

ACTIVITY	AVERAGE WATER USE (m3/day) DEPOSITION (mc)	LOCATION OF WATER WITHDRAWAL	LOCATION OF WATER DEPOSITION	TIMING
Drilling	One drill = 40 m3/day two drills = 80 m3/day	Lac de Gras	Surface depressions, at least 100m from lakeshore	July – October and March - June
Camp	When fully occupied = 1,000 to 1,500 litres per day	Lac de Gras	See below	July – October and March - June

### OTHER WASTE AT CAMP

The Monument camp sorts waste into the following categories.

1. Food wastes
2. Paper, cardboard and other burnable waste.
3. Conventional household recycling items (food and beverage cans, plastic food containers, etc.).
4. Hazardous waste items (Pb-acid batteries, other batteries, solvents and paint).
5. Waste from machinery (oils, grease, etc.)
6. Major items such as scrap camp materials, etc.

Food and burnable wastes are incinerated at least twice per day during camp operations as per the existing Land Use Permit using a diesel fired incinerator recommended by the Land Use Inspector.

All conventional household type recycling items are bagged and sent to Yellowknife for appropriate disposal.

Hazardous waste items comprise largely batteries, either consumer type solid batteries (AA, D cells, etc) or lead-acid batteries. These are packaged suitably for transportation by air to Yellowknife and disposed of through an authorized disposal agency. The batteries are not stockpiled at site, but removed promptly.

All waste oil from drills, generators, snow mobiles and other equipment, is put in waste oil barrels and shipped off site by plane to Yellowknife. Oil filters are burnt in the incinerator, and then the remaining metal parts crushed for removal off site. Aerosol cans such as some solvents are punctured to ensure that they are not under pressure, burnt in the incinerator and then crushed for removal off site.

There may be minor amounts of emptied cans from paint or solvents, and these are disposed of appropriately by sending to Yellowknife along with waste oil.

Antifreeze is also put in waste barrel for removal when barrel is sufficiently full. Where possible used antifreeze is filtered to be re-used and reduce waste.

Major items – such as scrap camp building materials are taken out either on ice road or plane for appropriate disposal with permit from the Yellowknife waste handling facility.

### INCINERATOR OPERATION

Where appropriate, New Nadina will apply the federal government guidelines on incinerator operation. (Document: “TECHNICAL DOCUMENT FOR BATCH WASTE INCINERATION” – Environment Canada).

The incinerator is operated by the camp manager, or individuals who have been trained by the camp manager. When others operate the incinerator, the camp manager monitors the operation. The incinerator consumes about 10 to 15 litres of diesel fuel per day during normal camp operations. As the amount of waste generated daily is small, due to the small size of the camp, formal digital records are not kept of the volume or weight of residual matter removed.

All ash from the incinerator is stored in old fuel drums, all drums sent to Yellowknife at end of each program.

## **DRILLING OPERATIONS**

### **ON LAND**

All drilling on land is completed as far as possible, creating the least disturbance of vegetation by attempting to complete as many holes as reasonable, using angle holes, from individual drill sites. Drill water pumped away from site and drill cuttings either pumped away from site or bagged (RC - Reverse Circulation) and removed from site. Rather than engineered sumps, drill water is discharged into natural depressions at least 100 metres from water bodies. Natural depressions are utilized in order to minimize ground disturbance that would be caused by excavating artificial sumps. Due to the discontinuous nature of the permafrost, water does not pond in these sumps but seeps away naturally and no discharge of drill cuttings reaches water bodies.

Field observations have shown that ground vegetation grows rapidly through drill cuttings without adverse effect.

The drills require about 40 m<sup>3</sup>/day of water per drill while coring depending on operating hours, versus moving and maintenance hours.

### **ON LAKE ICE**

During drilling on lake ice all drill water and cuttings involves a drill cutting recovery system, such as a Poly-drill system, and cuttings are disposed of in a nearby natural depression away from any watercourse. Upon completion of diamond drilling, the drilling equipment, pumps and timbers are removed using a helicopter with sling gear, and considerable effort is taken to clean the site, with all ice or snow that shows any foreign matter being completely removed for disposal on land. Photographs are regularly taken of completed drill sites.

Any waste machinery materials are covered in the section above on camp.

## **SPILL PLAN**

New Nadina's site is fully equipped with spill contingency equipment and the company has a separate spill contingency plan not included in this document. The last active program in the camp was the fall of 2009 and since then only minor spills have occurred, these have been reported to appropriate authorities and cleaned up as per regulations. This includes using spill absorbent pads and removal of contaminated soil with all waste into a drum and shipped to Yellowknife for appropriate disposal.

## **CORE STORAGE**

Drill core and cutting samples generated during the Monument exploration activities is partially shipped off site for analysis and partly stored at safe location adjacent to drill site or at camp, as an archive of the geological information. Drill core is stored in core boxes, piled and strapped, partially covered to prevent ingress of precipitation or in suitable bulk sample containers.

## **OTHER ITEMS**

There have been exploration activities at the Monument site since the 1990's. New Nadina has cleaned up any material left behind by previous explorers. When New Nadina built the all season camp the company recycled camp equipment, removed and reclaimed two prior camps: Lac de Sauvage (Diavik) and Monument tent camp (New Nadina 2007) and now has the one camp as stated.

## SUMMARY OF DISPOSAL METHODS

ITEM	CLASS	RATIONAL	PRIMARY DISPOSAL	SECONDARY DISPOSAL	ENVIRONMENTAL EFFECT AT THE MONUMENT EXPLORATION PROJECT
Ash or incinerator residue	Hazardous or potentially hazardous	Treat and dispose offsite	Into drums, then removed to Yellowknife	Appropriate disposal in Yellowknife	Minor release of smoke into atmosphere
Lead Acid and Consumer Batteries	Hazardous or potentially hazardous	Recycle	Packaged and removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Refrigerators, freezers, etc.	Hazardous or potentially hazardous	Recycle	Packaged and removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Chemical wasters	Hazardous or potentially hazardous	Treat and dispose offsite	Packaged and removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Electrical equipment	Hazardous or potentially hazardous	Recycle	Packaged and removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Sewage	Non-Mineral waste	Treat and dispose onsite	Burned in incinerator	See "Ash" above	None – all is removed
Contaminated soils	Hazardous or potentially hazardous	Treat and dispose offsite	Into drums, then removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Used oils, lubricants, etc.	Hazardous or potentially hazardous	Treat and dispose offsite	Into drums, then remove to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Domestic refuse	Non-Mineral Waste	Treat and dispose onsite	Burned in incinerator	See "Ash" above	None – all is removed
Bulky and scrap metals	Non-Mineral Waste	Recycle as per Yellowknife capacity	Packaged and removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Plastics	Non-Mineral Waste	Treat and dispose offsite	Packaged and removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Construction materials	Non-Mineral Waste	Treat and dispose offsite	If wood, re-use or burn at site, and other materials removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Rubber products	Non-Mineral Waste	Recycle as per Yellowknife capacity	Packaged and removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed
Materials for recycling (glass and plastic bottles, cans, etc.)	Non-Mineral Waste	Recycle as per Yellowknife capacity	Packaged and removed to Yellowknife	Appropriate disposal in Yellowknife	None – all is removed

## WASTE MANAGEMENT PLAN REVIEW AND UPDATE

This waste management plan is current as of the date above.

It will be reviewed yearly prior to the start of any drilling program. It will also be reviewed as and when required in between those periods either due to issues recognized by those operating the camp, by the Land Use Inspector, or be changes in regulations, permit conditions, etc.