



**Project Description Report  
Nunavut Project, Dismal Lakes**

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**December 2010**

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## Introduction

This project description report outlines the "Proposed Diamond Drilling Program" near Dismal Lakes, NU referred to by Guyana Precious Metals Inc. as the Nunavut Project – Dismal Lakes. It was prepared by Guyana Precious Metals Inc. (GPM), Toronto, ON with technical review and assistance from Ken Weagle, Cochrane Ecological Institute, Cochrane, AB. The report accompanies and supports an application for a Class B water Licence from the Nunavut Water Board (NWB), a Class III Land Use Licence from the KITIKMEOT INUIT ASSOCIATION (KIA) and a "Class A" Land Use Permit from Indian and Northern Affairs Canada (INAC). The project description report is provided as additional information required by regulatory agencies and compliments the permit application process.

GPM is proposing to conduct a diamond drilling operation on the claims listed in Table 1 and shown in Figure 1. The program will consist of approximately 40,000 m of diamond drilling, over a period of two (2) years. The holes will be within three target areas. Figures 2, 3a and 3b. The personnel working on the program will be housed in a camp located at the Hope Lake Airstrip.

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## Project Location

### Claim and Leases

The mineral claims and leases cover by the diamond drilling program, in this application, are (Figure 1 and 2):

Claim Number	Claim Name	Status
F97941	RC 1	ACTIVE
F97942	RC 2	ACTIVE
F97943	RC 3	ACTIVE
F97944	RC 4	ACTIVE
F97945	RC 5	ACTIVE
F97946	RC 6	ACTIVE

F97947	RC 7	ACTIVE
F97948	RC 8	ACTIVE
F97949	RC 9	ACTIVE
F97950	RC 10	ACTIVE
F97951	RC 11	ACTIVE
F97952	RC 12	ACTIVE
F97953	RC 13	ACTIVE
F97954	RC 14	ACTIVE
F97959	RC 19	ACTIVE
F97957	RC 17	ACTIVE
F97963	RC 23	ACTIVE
F97964	RC 24	ACTIVE
F97965	RC 25	ACTIVE
F97966	RC 26	ACTIVE
F97967	RC 27	ACTIVE
F97962	RC 22	ACTIVE
F97956	RC 16	ACTIVE
F97955	RC 15	ACTIVE
F97961	RC 21	ACTIVE
F97968	RC 28	ACTIVE
F98041	RC-102	PENDING
F98042	RC-103	PENDING
F98039	RC-100	PENDING
F98040	RC-101	PENDING
Mineral Lease	2797	Active

### Location of any proposed Camp

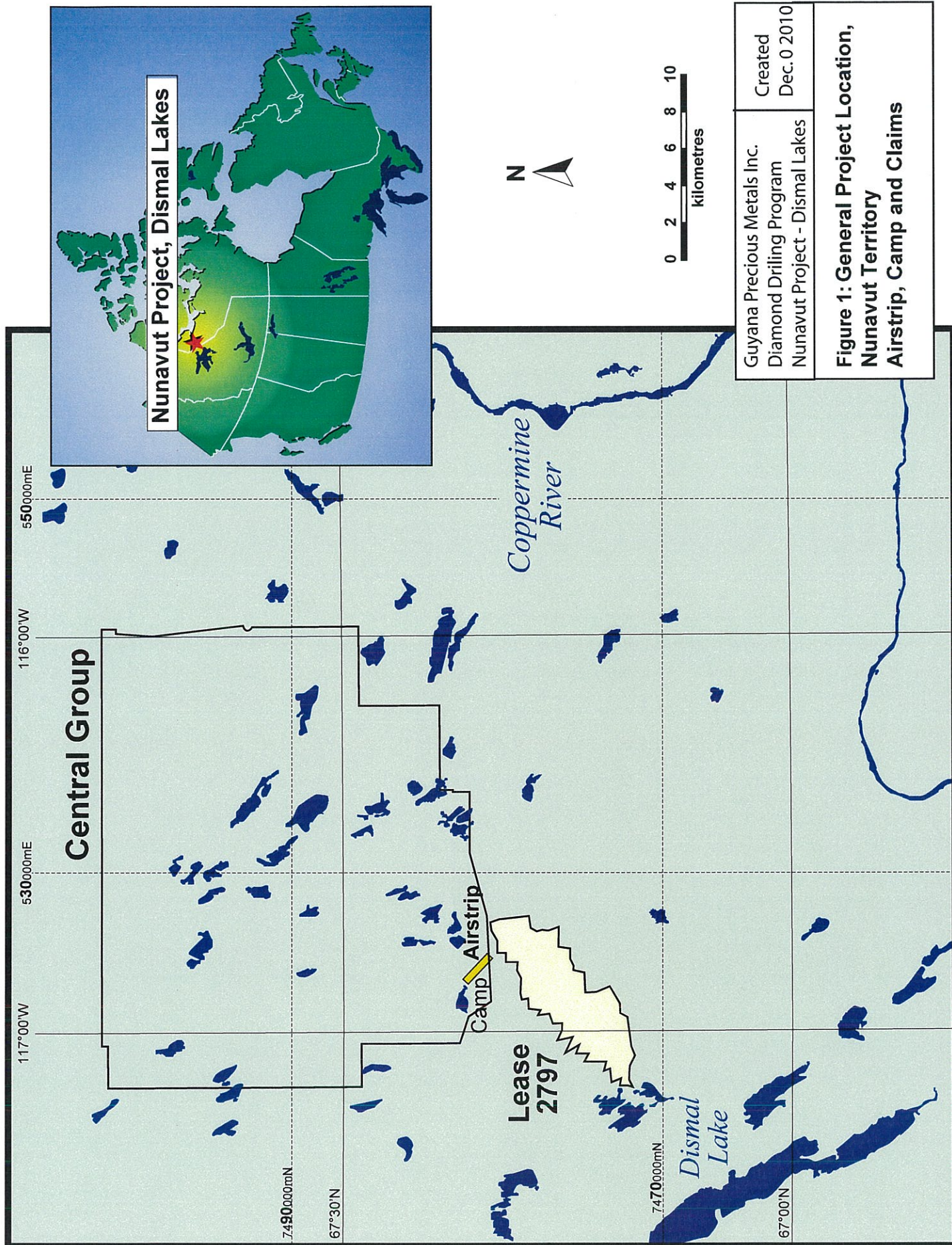
The location of the camp is shown in Figures 1 and 2. The proposed camp location is approximately 60 km southwest of Kugluktuk at the Hope Lake Airstrip. The camp will be located on a flat area at coordinates 67° 25.774'N, 116° 24.779'W (NTS 86N/8) along the side of the airstrip. Both the airstrip and the camp are located on crown land.

### Land use permit boundaries

The Boundaries of the project area are:

NW corner	67° 38.8' N	116° 34.6' W
SE Corner	67° 17.7' N	116° 03' W



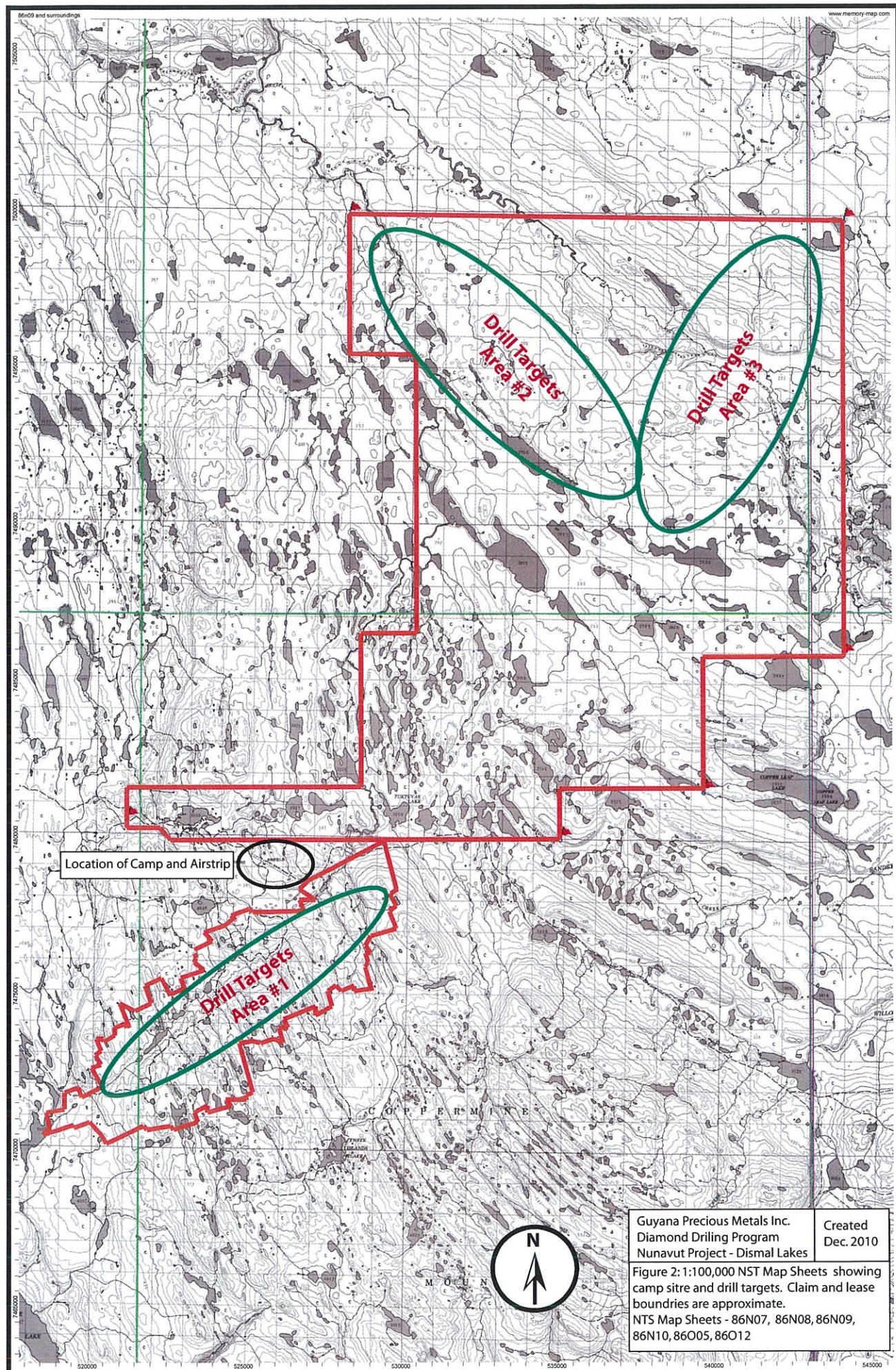


Guyana Precious Metals Inc.  
 Diamond Drilling Program  
 Nunavut Project - Dismal Lakes

Created  
 Dec. 0 2010

**Figure 1: General Project Location,  
 Nunavut Territory  
 Airstrip, Camp and Claims**







## Project Description

### Regulatory Requirements

The acts, regulations and guidelines that apply to project activities are:

1. Territorial Lands Act and Regulations
2. Northwest Territories Waters Act and Regulations
3. Nunavut Land Claims Agreement

The approvals, permits and licenses required and the authorizing agency are:

Licence Permit	Activity	Issuing Authority
Water Use License	Camp and Diamond Drilling	Nunavut Water Board
Land Use Permit	Camp and Diamond Drilling	INAC
Screening	Camp and Diamond Drilling	Nunavut Impact Review Board
Land Use Licence		KIA

### Project History

The general area has been explored for mineral deposits for many decades. The camp and airstrip are situated on crown land. The most recent land use permits and water licenses in the area were held by Coronation Minerals, for a similar diamond drilling project. During this activity the camp at the Hope Lake Airstrip was permitted and operated by and by Matrix Aviation Solutions Inc.

Due to poor commodity price and financing in 2007-2008, the former operators, Coronation Minerals Inc (CMI) was not able to execute their 2008 proposed diamond drilling program. The CMI management was changed and the new Guyana Precious Metals Inc. management took over on March 3, 2009.

### Project Activities

Table 2 summarizes the yearly activities included in this project.

TABLE 2: Summary of development activities

ACTIVITY	2011/ 2012	2012/2013
Diamond Drilling (m)	20,000	20,000
Access	Air	Air
Fuel (l) Total for Season	81,000	81,000
Operation	Year Round 200 day maximum	Year Round 200 day maximum
Temporary Camp	24 persons for 200 days/year	24 persons for 200 days/year
Total Water Use M <sup>3</sup> / year	Drilling - 1,600 M <sup>3</sup> / y Camp – 300 M <sup>3</sup> / y	Drilling - 1,600 M <sup>3</sup> / y Camp – 300 M <sup>3</sup> / y

Maps showing the extent of the general location of the diamond drilling can be found in Figures 2. The details of the camp location can be found in Figure 3.

## Access

The main access to the project area will be by fixed wing aircraft to the Hope Lake Airstrip. This airstrip has been in existence and consistently used for several decades. The project camp will be located adjacent to this airstrip.

The airstrip will be maintained by the subcontractor that is supplying the camp for the project, Matrix Aviation Solutions, Yellowknife, NT.

All access to the drill sites from the camp will be by helicopter.

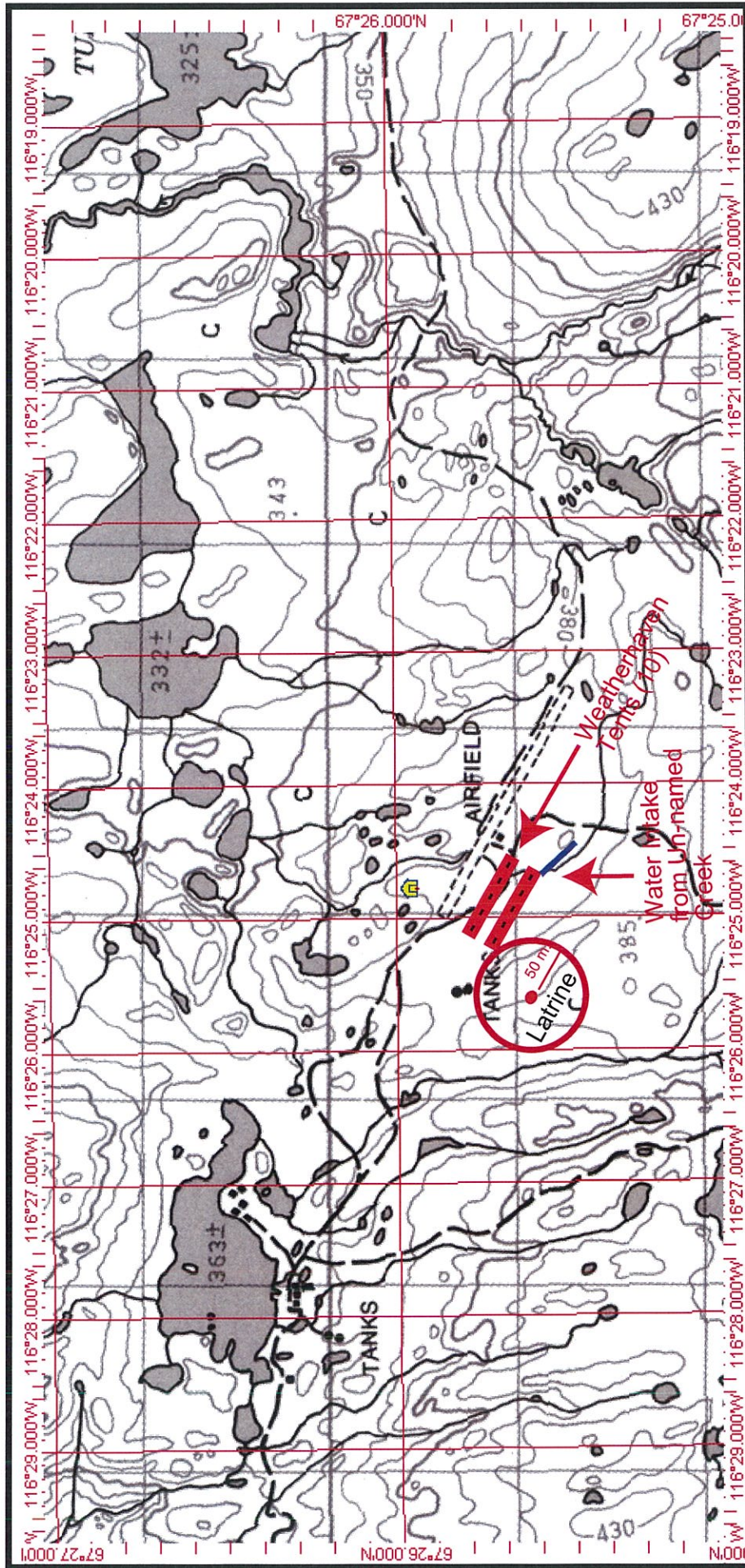
Movement of the diamond drills will be done by helicopter.

Helicopter flight plans will maintain a minimum elevation of 300 m. to avoid disturbance of wildlife.

## Camp Facilities

The camp will be located near the Hope Lake Airstrip as shown in Figure 3. The camp will consist of 10 Weatherhaven insulated, six will be used for accommodations, two for a mess tent, kitchen and dry and two for processing geological samples and equipment maintenance. All tents will be heated with diesel fired space heaters and supplied with electricity from a central 20 kw diesel generator.





Guyana Precious Metals Inc. Diamond Drilling Program Nunavut Project - Dismal Lakes	
Figure 3: 1:50,000 Map of Camp location NST Map Sheets - 86N08	Created Dec 2010

## Waste Management

Garbage and waste materials from the camp will be collected daily. Garbage and waste materials (oil, containers, etc.) generated at the drill sites will be collected daily and returned to the camp. The garbage and waste materials will be sorted into combustible and non-combustible material.

Combustible material will be disposed at in the camp A400(A) Inciner8 two stage incinerator. The information sheet on the incinerator is found in Appendix A. Non-combustible material and oils will be flown to an approved disposal site on a weekly basis. Any residue from the incinerator will be returned be flown to an approved landfill for disposal.

## Sewage and Grey water

Sewage disposal will be by pit privies located at least 30 meters from any water body and the camp tents.

Camp grey water will be disposed of in a purpose built sump located at least 50 meters from the camp and any water body.

## Domestic Water Supply

The estimated water usage for the camp is 1.5 cubic meters per day. The water will be pumped from an unnamed creek near the airstrip to a holding tank at the kitchen and dry tents. From this holding tank water will be distributed to facilities in the camp. Treatment of the domestic water will be by Trojan UV Max system. The specifications for this system can be found in Appendix B.

## Fuel Storage

Fuel will be flown to the Hope Lake airstrip in 205 l drums by fixed wing aircraft. The drums will be stored in a central storage area at the airstrip which has been equipped with an impermeable membrane. It is anticipated that no more that 48 barrels (10,000 liters) will be stored at the airstrip at any one time. The breakdown of the fuel types for the project is given in Table 3.

Table 3: estimated fuel usage for the project.

Fuel	Number of Containers and Capacity of Containers	Total Amount of Fuel (in Litres)	Total fuel per year (l)
Diesel	400	205 litre barrels	80,000

Gasoline	10	205 litre barrels	2,000
Aviation fuel	400	205 litre barrels	80,000
Propane	20 tanks	100 lb tanks	
Other			

The diesel for the drill rigs will be moved from the storage area to the drill sites as required. Each drill will have a minimum of two (2) days fuel on site (approximately 4 barrels). The barrels will be stored on an impermeable membrane at least 30 meters from any water body in the area.

Helicopters will only be refueled at the Hope Lake airstrip using electric pumps and pumping from 205 l barrels.

## Diamond Drilling

It is proposed that 20,000 m of diamond drilling will be conducted per year over the two year program for a total of 40,000 meters of drilling. The drills will be Heli-portable BBS 25 Surface Drills weighing approximately 4545 kg. They will be moved from site to site by helicopter. All drilling will be land based. A typical drill setup is shown in Figure 4.

The exact location of the drill sites will be chosen on site and be provided to the regulatory authorities when chosen. In choosing the sites GPM will use the conditions of the permits and licence to guide their decisions. The general areas for the drill targets are shown on Figure 2, these general areas have been chosen based on previous geophysical work in the claim blocks and lease.

Fuel will be moved to each drill site in 205 liter barrels by helicopter. Fuel will be moved as required with approximately two days supply (4 barrels) being maintained on site.

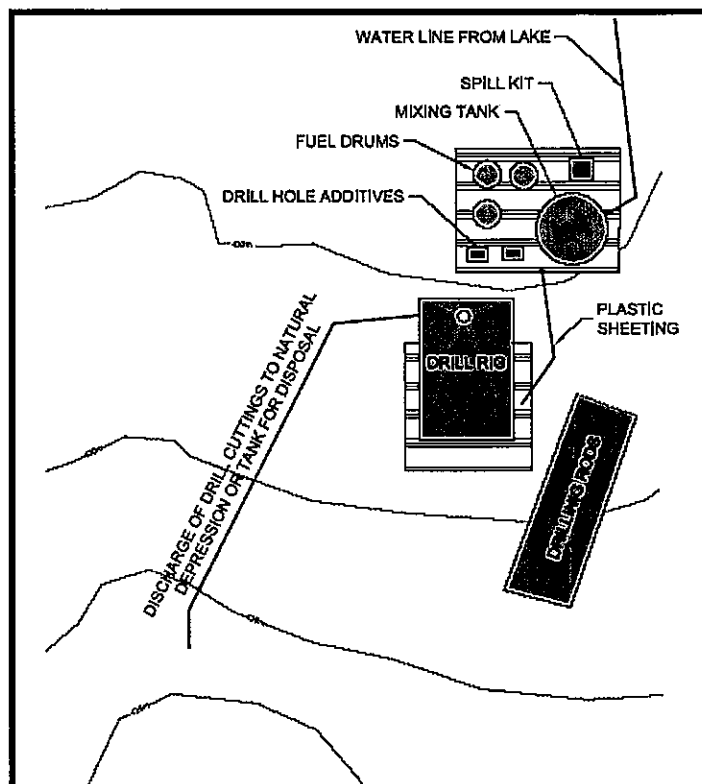
Drill core will be moved from each drill to the core facility at the camp by helicopter at the end of each shift. The core will be stored in core racks near the camp.

Drills will be operated 24 hours per day, in two shifts of 12 hours each.

To counteract freezing in the drill holes calcium chloride (drill salt) will be added to the drill water. This will only be done when necessary. The MSDS sheets for calcium chloride can be found in Appendix C. Calcium chloride will be brought to the project site on an as needed basis. When on site it will be stored in a weather tight and secured shelter until it is used. The primary storage area will be at the Hope Lake airstrip near the fuel storage area. The drill salt will be moved to the drill sites from the camp as needed. The maximum amount of drill salt stored will be 1000 kg. The drill salt is transported in 20 kg bags.



Figure 4: Typical Diamond Drill Layout



## Diamond Drill Water Use

The maximum water use per diamond drill is estimated to be 3.78 m<sup>3</sup>/day. With two drills operating daily water use will be approximately 8 m<sup>3</sup>/day. The water use depends on the nature of the rock fracturing in the area of the drill. Highly fractured rock results in more water loss down hole and therefore less ability to recycle water. The water usage figures provided above are considered to be maximum usage.

Drill water will be obtained from lakes and creeks near the drill sites. All water intakes will comply with **Freshwater Intake End-of-Pipe Fish Screen Guideline, 1995 (Appendix D)**.

## Target Minerals

The target minerals for this project are copper gold nickel PGM and diamonds.

## **Drill Cuttings and Water**

Drill cuttings and water will be directed to a natural depression with no flow to the surrounding environment. The cuttings will settle and water will evaporate. These areas will then be restored during the open water season.

## **Drill Hole Abandonment**

At the end of the program the drill will be dismantled into its main components as per the drilling contractor procedure. The drill will then be demobilized to the Hope Lake airstrip and then removed from the site. At the completion of each hole the drill sites will be inspected for soil contamination. Any remaining waste will be taken to the staging area at the Hope Lake airstrip and incinerated (if possible) or flown out to an approved land fill for disposal. Individual drill sites will be restored immediately after the drill has been moved to the next site. The restoration of the individual drill sites will include:

- Leveling of sumps
- Removal or treatment of oil contaminated soil
- Removal of all drill associated equipment and blocks
- Leveling of any disturbed soil

Photos of all individual drill sites prior to drilling will be taken. Monitoring will be done during occupancy and photos taken. Once the site is restored, it will again be documented with photos. Soil contaminated by hydrocarbons and unnoticed before abandonment will be treated as per the spill contingency plan.

## **Existing Environment**

The environment of the region has been described by Ecological Stratification Working Group, 1995 as the Taiga Shield Ecozone and the Coppermine River Uplands Ecoregion. These descriptions are found below.

### **Taiga Shield Ecozone**

This ecozone lies on either side of Hudson Bay. The eastern segment occupies the central part of Quebec and Labrador, and the western segment occupies portions of northern Manitoba, Saskatchewan, Alberta, and the Northwest Territories. The ecozone is largely defined by two very large biophysical features, the Taiga Forest and the Canadian Shield. The world's oldest rocks are found on the Taiga Shield north of Great Slave Lake.

**Climate** The subarctic climate is characterized by relatively short summers with prolonged periods of daylight and cool temperatures, and winters that are long and very cold. Mean annual temperatures range from -8°C west of Hudson Bay to 0°C in parts of Labrador. In Quebec and Labrador mean annual temperatures usually range between -1°C to -5°C. The cold south flowing Labrador current reduces the moderating effect of the Atlantic Ocean on the climate of the eastern Taiga Shield. Mean summer

temperatures range between 6°C and 11°C, and mean winter temperatures range between 11°C and 24°C. Mean annual precipitation ranges 200-500 mm west of Hudson Bay. East of Hudson Bay it ranges 500-800 mm, except near the Labrador coast where it can locally exceed 1000 mm a year.

**Vegetation** The pattern is one of innumerable lakes, wetlands and open forests interwoven with shrublands and meadows more typical of the arctic tundra. The forest stands form lichen woodlands that merge into areas of open arctic tundra. It is along the northern edge of this ecozone that the latitudinal limits of tree growth are reached. Latitudinally, the central portion of the zone contains open, stunted black spruce and jack pine, accompanied by alder, willow, and tamarack in the fens and bogs. Open, mixedwood associations of white spruce, balsam fir (in the Quebec portion), trembling aspen, balsam poplar, and white birch are found on upland sites and along rivers and streams.

**Landforms and Soils** Most of this ecozone consists of broadly rolling terrain composed of a mosaic of uplands and associated wetlands. It is dominated by Precambrian bedrock outcrops and discontinuous hummocky and ridged morainal deposits. Some lacustrine and marine deposits are also present. A characteristic of the ecozone is the largest concentration of long, sinuous eskers in Canada. Dominating the Precambrian landscape are thousands of lakes and wetlands in glacially carved depressions. Lowlands are covered with peatlands and are commonly waterlogged or wet for prolonged periods. Permafrost is discontinuous but widespread. Brunisolic and Humo-Ferric Podzolic soils are dominant in the southern portion, and Cryosols in the northern portion with a mix of these in the latitudinal centre of the ecozone. Gleysols and Organic Cryosols occur mainly in the lowlands.

**Wildlife** Characteristic mammals include barren-ground caribou which migrate south to winter in the taiga forest and some woodland caribou, moose, wolf, snowshoe hare, arctic fox, beaver, black and grizzly bear, and lynx. There are about fifty species of mammals that inhabit the ecozone. The abundance of water in the Taiga Shield attracts hundreds of thousands of birds (e.g. ducks, geese, loons and swans) which come to nest or rest and feed on their way to arctic breeding grounds. Representative birds include arctic and red-throated loon, northern phalarope, northern shrike, tree sparrow, and gray-cheeked thrush. Along the marine coasts of the ecozone representative species include walrus and seal.

**Land Use** The total population of the ecozone is approximately 33 600. The major centres include Yellowknife, Labrador City, Uranium City, and Churchill Falls, all of which are associated with mining or hydroelectric developments. The ecozone is still an active exploration and development area for metals and diamonds. A little tourism, recreation, and forestry are the main activities. Despite almost a third of the population being found in resource towns, subsistence hunting, fishing, and trapping remain important land uses.



## **Coppermine River Upland Ecoregion**

This ecoregion extends from the McTavish Arm of Great Bear Lake to Howard Lake in the central District of Mackenzie in the Canadian Shield. It is marked by short, cool summers and very cold winters. The mean annual temperature is approximately -7°C. The mean summer temperature is 9°C and the mean winter temperature is -24.5°C. The mean annual precipitation ranges 200-300 mm. The ecoregion is classified as having a predominantly high subarctic ecoclimate. It is part of the tundra and boreal forest transition, where the latitudinal limits of tree growth are reached. The predominant vegetation consists of open, very stunted stands of black spruce and tamarack with secondary quantities of white spruce and a ground cover of dwarf birch, willow, ericaceous shrubs, cottongrass, lichen, and moss. Poorly drained sites usually support tussocks of sedge, cottongrass, and sphagnum moss. Low shrub tundra, consisting of dwarf birch and willow, is also common. This ecoregion includes the western half of the Bear-Slave Upland, which consists mainly of massive Archean rocks that form broad, sloping uplands, plateaus, and lowlands. The surface is typical of the bare rock parts of the Shield. Numerous lakes fill the lowlands, and rounded rocky hills reach 490 m asl in elevation. Bare rock outcrops are common, and Dystric Brunisols with some Turbic, Static, and Organic Cryosols are the dominant soils in the ecoregion. The soils have formed on discontinuous veneers and blankets of hummocky to rolling, sandy morainal, fluvio-glacial, and organic deposits. Permafrost ranges from continuous in the east to extensive discontinuous in the west half of the ecoregion, with low to moderate ice content and sparse ice wedges.

Characteristic wildlife includes caribou, moose, grizzly and black bear, snowshoe hare, fox, wolf, beaver, muskrat, osprey, raven, spruce grouse, and waterfowl. Land uses include hunting and trapping, fishing, and tourism. Diamond exploration is a more recent activity along the northern boundary of the region. Principal communities include Snare Lakes and Rae Lakes.

The population of the ecoregion is approximately 500.

## **Archaeology Resources**

Existing data on archaeology sites in the area has been requested from the Government of Nunavut, Department of Culture, Language, Elders and Youth and will be used by GPM to assist in the selection of drill sites. GPM will also comply with the *Nunavut Archaeological and Palaeontological Sites Regulations* where they apply to this project.

## **Socio-economic Information**

The total expenditure on this project will depend on the success of the drilling. The program as planned will have an initial expenditure of \$1M. If drill results are successful the budget will increase.

It is estimated that 40% of the money will go to the drill contractor (this will include some Inuit who will be hired as helpers in running the drill). Servicing the drill camp (supplies/ expediting/ cooks/ bull cook) will be mostly Inuit hire sourced from Kugluktuk Inuit based human and business resources. This is estimated to be 30% of the budget. The remaining 30% will fund the administration, geologists and assaying costs.

The crew size for e one drill/ one shift/ per day will be:

- 1 geologist;
- 1 geologist asst/core sampler;
- 1 driller;
- 1 drill helper
- 1 drill crew factotum (gofer);
- 1 cook;
- 1 bull cook;
- 1 expediter (based in Kugluktuk);
- 1 helicopter pilot.

Drilling success will increase the project to two drills with an proportional increase in staff. Of the nine crew members it is estimated that five will be Inuit. (Geologist assistant; 1 drill crew factotum; 1 cook; 1 bull cook; 1 expediter).

The geologist assistant will be given training in proper handling /sampling of core intercepts and attendant record keeping; the drill crew factotum will learn rudiments of drilling and may, given time become a drill helper. The bull Cook will learn proper running of exploration camp. All training will be monitored and supervised by GPM staff.

## **Potential Environmental Effects and Mitigation**

### **Noise**

There will be an increase in ambient noise levels associated with camp facilities, drilling activities and fixed wing and helicopter operations. These increased noise levels are typically short in duration and limited to small areas. The level of activity will however be low with two drills. Any increase in this level of activity would be addressed in an application for an amendment to the land use permit.

Past and ongoing operations in the area have not created an acoustic impact on wildlife. These operations are not expected to significantly change the existing situation. Periods of more extensive drilling activity, which could disturb wildlife, will be scheduled to minimize the impact on wildlife. For example, if large concentrations of migrating caribou arrive on site during the operations the operating schedule will be adjusted to avoid impacts on their migration.

## **Water Quality**

No discharge of water from the camp or the drilling program will enter surface waters. Water used in the drilling process will be collected or channeled away from lakes and watercourses. Disposal of drill cuttings in natural catchments has the potential to drain excess water. These excess waters are not expected to reach existing lakes or watercourses, however, they will be closely monitored and water flow diverted or impounded if any potential discharge to lakes or watercourses is identified.

Sewage will be contained within the pit privies and grey water will be contained in sumps. Both these facilities will be at least 50 meters from water courses and discharge will not occur.

## **Groundwater Disturbance**

The project will take place in a zone of continuous permafrost; consequently groundwater is restricted to deeper parts of the stratigraphy. Geologic units in the area are steeply dipping and this drilling program is designed to intersect these units at an acute angle. This should minimize the potential for artesian water escaping the drill holes. In the event that artesian waters are encountered in a drill hole, abandonment procedures will include plugging off the ground water course and eliminating the discharge of ground water from the drill hole collar.

## **Wildlife Disturbance**

Impact on wildlife in the area are expected to be minimal and of a limited duration. Waste management is an effective tool to minimize encounters with wildlife and GMP enforces a strict regiment to dispose of wastes. Fixed wing and helicopter operators are trained to minimize encounters with wildlife. Staff and contractors on the Project will receive training to reduce wildlife disturbance and ensure safety during drilling operations. Staff members will not be permitted to hunt or fish from the camp.

## **Vegetation**

Drilling operations at the Project are not anticipated to create significant long-term impacts on vegetation. Drill and campsite preparation will be with hand tools creating a minimal disturbance to the natural vegetation. In addition the camp site has been occupied in the past. It is anticipated that this disturbance will be much less significant than mechanical site preparation. After abandoning a site, clean-up work will be designed to promote the restoration of the site compatible with the original undisturbed conditions. A log of all activities at each site will be maintained. This will include a photographic record of the site before and after drilling and a record of the activity during drilling (please refer to the A&R Plan for the project).



## **Fish Habitat**

There is little potential to impact fish habitat from the proposed program. Drilling operations will not use toxic additives and drill fluids will not be discharged into lakes or watercourses. Careful design of sites, placement of petroleum products on sites and limited supplies on drill sites will minimize the potential for contamination from fuels. In conjunction with an effective spill contingency plan and an active training program, drilling activities will have little impact on fish habitat.

## **Archaeological Impacts**

The bulk of the archaeological sites in the area are found on eskers landforms. These areas are not anticipated to be impacted by the proposed project. In the drilling program there will be latitude to adjust drill sites that could conflict with archaeological sites and GPM is committed to minimizing its impact through re-locating sites where required.

## **Permafrost**

No significant or long-term impact on permafrost is anticipated from the drilling program or the camp. Drill holes penetrating the permafrost layer may degrade the active layer in a local area. After abandonment of the site, all conditions that would inhibit the reversal of this degradation will be eliminated.

## **Air Quality**

The scale of the proposed program at the Project will not significantly impact air quality in the region.

## **Cumulative Impacts**

The potential impacts resulting from the Proposal within a regional context will be minimal. The scope and scale of the program is limited and impacts on potential downstream users will be minimized or eliminated through the implementation of a sound environmental management program.

## **Literature Cited**

Ecological Stratification Working Group. 1995. A National Ecological Framework for Canada. Agriculture and Agri-Food Canada, Research Branch, Centre for Land and Biological Resources Research and Environment Canada, State of the Environment Directorate, Ecozone Analysis Branch, Ottawa/Hull. Report and national map at 1:7500 000 scale.

## **Appendix A**

### **Specifications of Incinerator Model A100(A)**



# ***Inciner8 Ltd***

## **Model A400 Waste Incinerator**

***Efficient, clean and durable***

### **Features overview**

- Designed for economical performance.
- Low profile for easy loading and ash removal
- Refractory lined to retain heat for efficiency.
- Available with LP, Natural gas or fuel oil burner
- Optional secondary burner where needed.
- Optional secondary chamber to produce 2 second gas retention time at 850 deg C

### **Ease of use**

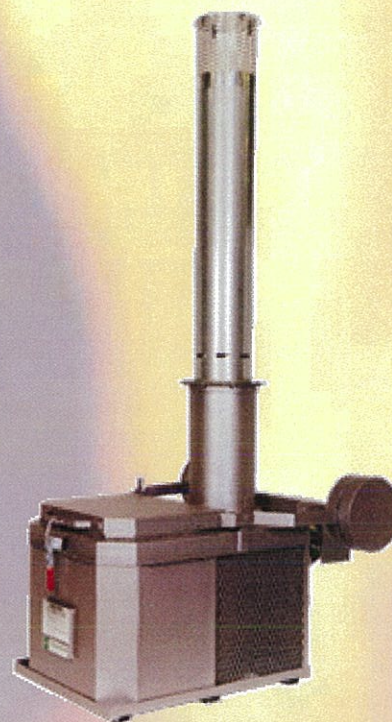
- Auto ignition. No pilots to light. Set the timer and walk away.
- Single burner reduces maintenance cost.
- Built-in skid facilitates placement.

### **Fuel efficiency**

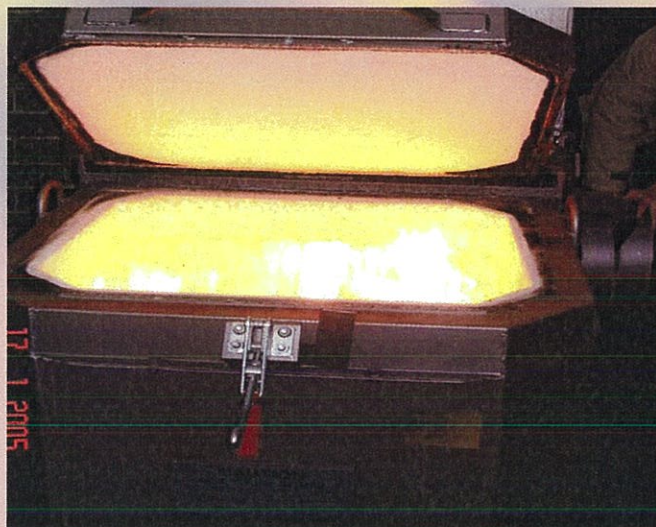
- Rapid incineration means low fuel consumption.
- Higher burn rate than smaller models.
- Thick refractory lining in main chamber retains heat, increasing efficiency.

### **Quality built to last**

- Heat resistant aluminized steel.
- Stainless steel stack.
- Backed by years of incineration experience.



***Standard Model A400***



***View of primary chamber during operation***

### **The benefits of incineration . . .**

#### **Hygienic**

Waste can be destroyed as fast as it accumulates. Nothing is left to spread disease or to attract rodents and flies.

#### **Convenient**

Fill the chamber and turn on the burner. No watching required since timer automatically shuts down burner. Alternative methods frequently require more time to manage and maintain.

#### **Thorough**

Leaves only sterile white ash and brittle bone fragments. Reduces animal carcasses to approximately 5% of sterile residue.



# Inciner8 Ltd

## Model A400(A)

The Model A400 is the mid size unit that we produce in the range of incinerators burning less than 50kg per hour. It is available in different variations, with the most popular being the UK DEFRA approved Model A400(A), which utilises a secondary chamber providing a gas retention time of 2 seconds at 850 degrees Centigrade and maintains this throughout the burn cycle. This makes the Model A400 (A) version ideal for burning animal carcasses in accordance with the animal-by-product act.

The unit is unique in that it uses a dual fired burner motor rather than two separate burner units, this not only is more efficient but provides low maintenance and fuel costs.

The unit can be preset to burn for the required time and has numerous safety cut off features.

The burners come with a unique post burn cool down system, which allows for quicker cool down before restocking.

The model A400 is a top loading design which also benefits from the large loading door allowing easy access and charging. It also has skids to allow easy handling with a forklift.



DEFRA Approved Unit A400(A)

### Specifications

**CHARGING RATE** - Pathological: Up to 200 kg per charge of typical pathological waste . Batch loaded allowing complete burn-out in approximately 4.5 hours, cool down and ash removal before reloading.

Burn rate: Approximately 45kg/hr.

### Model A400

Chamber capacity - 200 kg

Chamber volume (approx.) .36 m<sup>3</sup>

#### **Chamber size (outside)**

Width 91 cm Height 86cm Length 122 cm

Door opening 56 x 74cm

Height to door 77 cm

Height to top of stack 3.3 m

Weight - 896 Kgs

Suggested slab size (l x w x thick) 1.8 m x 2.4 m x 10cm

#### **STACK**

Stainless Steel Stack height 1.52 m 30.5 diameter, 16 gauge (1.52 mm) stainless steel

#### **GENERAL**

Electrical service Standard—115 volt, 60 HZ, 20 amp. Also available—220 volt, 50 HZ, 10 amp

### Model A400(A)

Chamber capacity - 200 kg

Chamber volume (approx.) .36 m<sup>3</sup>

#### **Chamber size (outside)**

Width 91 cm Height 86 cm Length 122 cm

Door opening 56 x 74cm

Height to door 77 cm

Height to top of stack 3.3 m

Suggested slab size (l x w x thick) 1.8 m x 2.4 m x 10cm

Secondary Chamber Volume .52 cubic metres

2 second gas retention time at 850 deg. C

Temperature monitor. Dual fired burner available in LPG, natural gas, Diesel or kerosene.

#### **STACK**

Stainless Steel Stack height 1.52 m, 30.5 diameter, 16 gauge (1.52 mm) stainless steel

#### **GENERAL**

Electrical service Standard—115 volt, 60 HZ, 20 amp. Also available—220 volt, 50 HZ, 10 amp

**Dealer**

Inciner 8 Ltd, Unit 9, Shakespeare House,  
37-39 Shakespeare Street, Southport, PR8 5AB  
Tel +44 (0) 1704548508 Fax +44 (0) 1704 542461  
Email : [info@inciner8.com](mailto:info@inciner8.com) Web : [www.inciner8.com](http://www.inciner8.com)



## **Appendix B**

### **Specifications for Trojan UV Max waster Treatment System**

## RESIDENTIAL AND COMMERCIAL APPLICATIONS





#### WHO IS VIQUA - a Trojan Technologies Company?

VIQUA is a leading water treatment technology company focused on providing our customers – residential and light commercial – confidence in their water. Offering a complete solution package including UV disinfection, water filtration, softeners and ozone products.

#### WHAT IS UV?

Ultraviolet (UV) light is at the invisible, violet end of the light spectrum. The water treatment industry uses a high-powered form of UV light called UV-C or "germicidal UV" to disinfect water.

#### WHO USES UV DISINFECTION SYSTEMS?

For more than 30 years, institutions, consumers and businesses have relied on VIQUA's environmentally friendly UV technology to disinfect their water supplies. Top candidates for UV disinfection systems include:

- Rural homes and cottages
- Nursing homes
- Hospitals
- Schools
- Hotels
- Restaurants
- Resorts and holiday camps
- Community water systems

# TROJAN **UV**MAX™

## Ultraviolet (UV) Light is the Right Choice for Water Purification

### Instills Water Confidence

Owners of a TrojanUVMax™ can drink with confidence knowing 99.99% of illness-causing microorganisms, including *E. coli*, *Cryptosporidium* and *Giardia* are destroyed, supplying safe water to every tap.

### Environmentally-friendly and Chemical Free

UV water purification is a natural process that adds no chemicals and does not affect the taste or odor of water. Other methods, such as those that use chlorine, may create harmful chemicals that have been linked with serious illnesses, such as cancer.

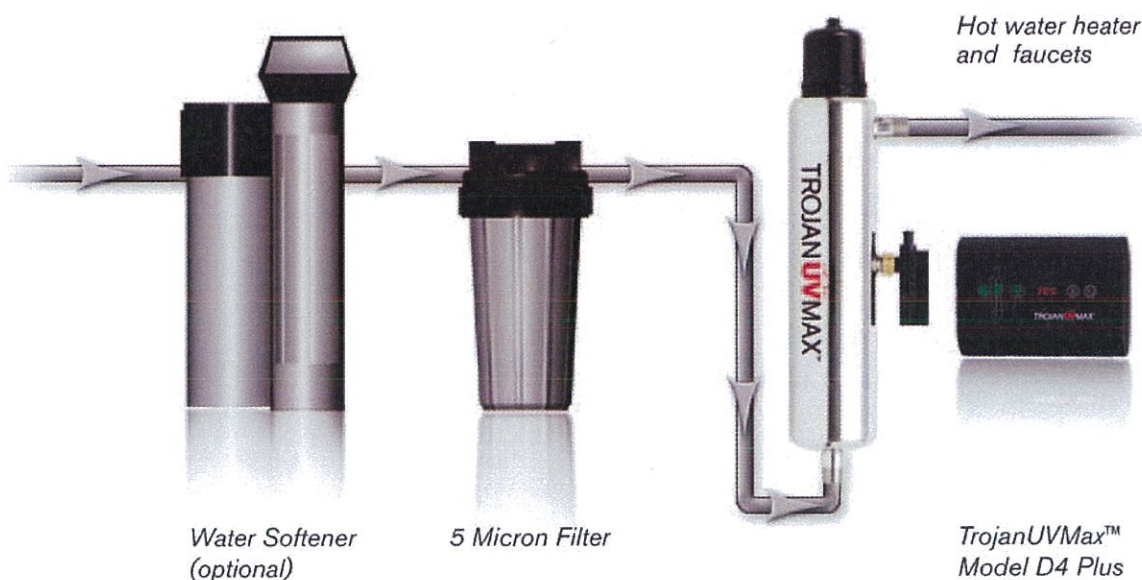
### Trouble-free Maintenance

Maintenance is simple and can be completed in minutes - without tools. It's as easy as replacing the UV lamp once a year and periodically cleaning the sleeve.

## TYPICAL INSTALLATION

### INSTALLATION AND OPERATION REQUIREMENTS

- UV transmittance must be greater than 75%. Through your dealer, Trojan offers a free water testing service for hardness, iron and UV transmittance.
- A 5 micron (nominal) sediment filter must be installed before the UV system.
- Lamps must be replaced after 1 year of operation.
- Sleeve and UV sensor window will require regular cleaning. See Owner's Manual for details.





### Safety Cap and Special Lamp Plug

Our safety cap prevents children from accessing the lamp or electrical components. The special lamp plug ensures that no one can power the UV lamp if it's not in the UV chamber.

### Test of Sensor Operation

With the push of a button you can confirm the proper operation of the sensor.

### Unique Lamp/Sleeve Assembly

Lamps and sleeves are assembled together for ease of handling. They can be replaced separately, in minutes and without tools.

### Reference Card

The reference card outlines the most important system functions and maintenance for your quick, on-the-spot questions.

### Helpful Lamp Replacement Reminder

The Lamp timer display starts at 365 and counts down the days to annual lamp replacement.

### Mute Button

If a warning alarm sounds, simply press this button to silence the alarm.

### Lamp Timer Reset Button

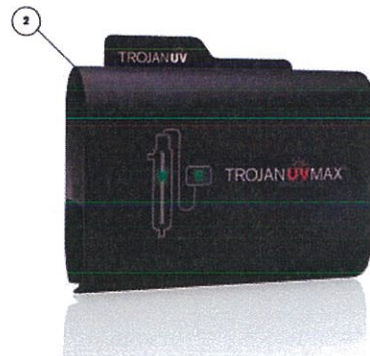
Once annual lamp replacement is completed, press this button to restart the Lamp timer.

### Confidence in Proper System Operation

Indicator lights show the status of system components. Warning lights appear when system maintenance is required.

1 Model A power supply

2 Model B4 and C4 power supply





MODEL	A	B4	C4	D4/D4 Plus	E4/E4 Plus	F4/F4 Plus
*Flow Rates	0-3 GPM (0-11 LPM)	3-6 GPM (11-23 LPM)	7-16 GPM (26-60 LPM)	7-16 GPM (26-60 LPM)	12-29 GPM (45-110 LPM)	20-45 GPM (76-170 LPM)
No-tools maintenance	✓	✓	✓	✓	✓	✓
Constant current electronic power supply	✓	✓	✓	✓	✓	✓
Safety cap & special lamp plug	Safety cap only	✓	✓	✓	✓	✓
Lamp operation indicator	✓	✓	✓	✓	✓	✓
Power supply operation indicator	✓	✓	✓	✓	✓	✓
Sensor operation indicator	--	--	--	D4 Plus	E4 Plus	F4 Plus
Sensor with diagnostic test	--	--	--	D4 Plus	E4 Plus	F4 Plus
Reference card	--	✓	✓	✓	✓	✓
Lamp timer display	--	--	--	✓	✓	✓
Lamp timer reset button	--	--	--	✓	✓	✓
Mute button	--	--	--	✓	✓	✓
Solenoid valve				Optional	Optional	Optional
External control relay				Optional	Optional	Optional
Chamber material	304 SST	304 SST	304 SST	304 SST	316 SST	316 SST
Inlet/Outlet	3/8" FNPT	3/4" NPT	3/4" NPT	3/4" NPT	1" NPT	1" NPT
<b>ELECTRICAL</b>						
Voltage	120 or 230V AC	100-240V AC	100-240V AC	100-240V AC	100-240V AC	100-240V AC
Frequency	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Max. current	0.4 Amp	0.4 Amp	0.5 Amp	0.5 Amp	0.85 Amp	1.2 Amp
Max. power consumption	22 Watts	36 Watts	50 Watts	50 Watts	83 Watts	130 Watts
Lamp power	14 Watts	25 Watts	40 Watts	40 Watts	70 Watts	110 Watts
<b>DIMENSIONS</b>						
Chamber	15.5" x 2.5" 39 x 6.5cm	14.5" x 4" 37 x 10cm	20.5" x 4" 52 x 10cm	20.5" x 4" 52 x 10cm	30" x 4" 76 x 10cm	44.25" x 4" 112.5 x 10cm
Power supply	2.8" x 3.3" 7 x 8cm	8.5" x 6" 22 x 15cm	8.5" x 6" 22 x 15cm	8.5" x 6" 22 x 15cm	8.5" x 6" 22 x 15cm	8.5" x 6" 22 x 15cm

\* Flow rates are shown at 85% UVT.

## WARRANTY

The TrojanUVMax™ comes with a full, non-prorated three year warranty against manufacturer's defects on the power supply and all electrical components; a ten year guarantee on the UV chamber; and a one year warranty on lamps and sensors. See full warranty at [www.viqua.com](http://www.viqua.com) for a complete set of terms.

# VIQUA™

A TROJAN TECHNOLOGIES COMPANY

425 Clair Road West Guelph, Ontario, Canada N1L 1R1

T 519 763 1032 F 519 763 5069 [www.viqua.com](http://www.viqua.com)

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## General (All Models)

### Operating Parameters

Maximum operating pressure	125 PSI (862 kPa)
Maximum ambient air temperature	122 °F (50°C)
Minimum ambient air temperature	32°F (0°C)
Maximum hardness	120 ppm (7 grains per gallon)
Maximum iron	0.3 ppm
Minimum UVT	75%
Installation	Vertical or horizontal *

\* Systems with sensors must be installed vertically.



**Appendix C**  
**MSDS Sheet - Calcium chloride**



BOX 698, DAVIDSON, SASK., CANADA S0G 1A0  
PHONE: (306)567-2814 FAX: (306)567-2888

### PRODUCT DATA

**PRODUCT:** Calcium Chloride High Test Fines

ITEM	%	METHOD
Calcium Chloride, min.	94.0	ASTM E449-84
Alkali Chlorides, max.	4.9	ASTM E449-84
Total magnesium, as MgCl, max.	0.4	ASTM E449-84
Heavy Metal as Pb, max.	0.005	13964
Calcium Hydroxide, max.	0.20	ASTM E449-84
Sulphate (calculated as SO <sub>4</sub> ), max.	0.20	13964
Calcium Carbonate	0.20	13964
Iron, max	0.005	LDG-AM-82-73
Other Impurities, not including H <sub>2</sub> O, max.	0.98	

### SIEVE ANALYSIS

Based on STD TYLER MESH

ITEM	%
Passing #10 sieve	99
Passing #20 sieve	45
Passing #35 sieve	20
Bulk density	75 lbs/ft <sup>3</sup>



**MSDS****CALCIUM CHLORIDE-94%****PRODUCT INFORMATION****CHEMICAL NAME:** Calcium Chloride**SYNONYM(S):** High Test Fines, High Test Powder, High Test Beads,**CHEMICAL FAMILY:** Inorganic salt**Product use:** Calcium chloride is used to dehydrate natural gas with high sulfur content, gas from remote or offshore wells, or from wells with low flow rates.**MOLECULAR FORMULA:** CaCl<sub>2</sub>**SHIPPING NAME:** Calcium Chloride**PIN - UN NUMBER:** Not controlled**WHMIS:** D2B**MANUFACTURER:** The Dow Chemical Company Ltd.

P.O box 1012

Sarnia, Ontario

N7T 7K7

DOW Emergency Number: 780-998-8282 (Ft Saskatchewan, Alberta)

519-339-3711 (Sarnia, Ontario)

450-652-1000 (Varenes, Quebec)

**SUPPLIER:** Panther Industries Inc.

Box 628

Davidson, Sask. S0G 1A0

**EMERGENCY TELEPHONE NUMBER:** (306)567-2814**HAZARDOUS INGREDIENTS**

INGREDIENTS:	WEIGHT %	C.A.S. REGISTRY NUMBER:
Calcium Chloride	94-97%	10043-52-4

**OTHER INGREDIENTS**

INGREDIENTS:	WEIGHT%	C.A.S. REGISTRY NUMBER:
Strontium Chloride	0-1%	10476-85-4
Sodium Chloride	1-2%	07647-14-5
Potassium Chloride	2-3%	07447-40-7
Water		07732-18-5

**PHYSICAL DATA****PHYSICAL STATE:** Solid.**PH:** data to indicate the product is basic**ODOUR AND APPEARANCE:** Odourless white to off white pellets.**ODOUR THRESHOLD:** Not applicable**VAPOUR PRESSURE:** <0.005 mmHg, at 20 °C.**VAPOUR DENSITY:** Not applicable**BOILING POINT:** 1670°C**SOLUBILITY IN WATER:** Very soluble**MELTING POINT:** Approx. 772°C, 1424°F**SPECIFIC GRAVITY:** 2.2**FIRE AND EXPLOSION DATA****CONDITIONS OF FLAMMABILITY:** Not applicable.**MEANS OF EXTINGUISHING:** This material does not burn. If exposed to fire from another

## MSDS

## CALCIUM CHLORIDE-94%

source, use suitable extinguishing agent for that fire.

**FLASH POINT:** Not applicable.

**UPPER FLAMMABLE LIMIT:** Not applicable.

**LOWER FLAMMABLE LIMIT:** Not applicable.

**SPECIAL FIRE FIGHTING PROCEDURES:** Keep people away. Isolate fire area and deny unnecessary entry. Firefighters should wear positive-pressure self-contained breathing apparatus (SCBA) and full protective fire fighting clothing (included fire fighting helmet, coat, pants, boots, and gloves.)

**EXPLOSION HAZARDS:** Hydrogen chloride is a hazardous combustion product at temperatures in excess of 1600 degrees Celsius.

### REACTIVITY DATA

**STABILITY:** Stable. Hygroscopic.

**HAZARDOUS POLYMERIZATION:** Will not occur

**HAZARDOUS DECOMPOSITION PRODUCTS:** Does not decompose.

**CONDITIONS TO AVOID:** None known.

**INCOMPATIBILITY:** Corrosive to some metals. Corrosive when wet. Flammable hydrogen may be generated from contact with metals such as zinc or sodium. Avoid contact with sulfuric acid. Heat is generated when mixed with water. Spattering or boiling can occur.

### HEALTH HAZARD DATA

**INHALATION:** Vapors are unlikely due to physical properties. Dust may cause irritation to upper respiratory tract. Calcium Chloride has an LD<sub>50</sub> of 1940 mg/kg oral mouse

**SKIN CONTACT:** Short single exposure not likely to cause significant skin irritation.

Prolonged or repeated exposure may cause skin irritation, even a burn. May cause more severe response if skin is damp or if material is confined to skin. May cause more severe response if skin is abraded (scratched or cut). When dissolving, the heat produced may cause more intense effects as well as thermal burns. Not classified as corrosive according to DOT. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

**EYE CONTACT:** Dusts may cause severe irritation with corneal injury, pellets may cause slight eye irritation. Effects may be slow to heal. When dissolving, the heat produced may cause more intense effects as well as thermal burns.

**INGESTION:** Single dose oral toxicity is considered to be low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. Ingestion may cause gastrointestinal irritation or ulceration.

**Toxicological data:** Effects of chronic exposure: These effects are; Repeated exposure may cause irritation or even a burn to the skin, eyes and nasal cavity.

**IRRITANCY:** Slight.

**MUTAGENICITY:** Negative

**SENSITIZATION TO PRODUCT:** Not available.

**REPRODUCTIVE TOXICITY:** Not available.

### ANIMAL TOXICITY DATA:

LD<sub>50</sub> - 967-1668 mg/kg oral, rat.  
>5000 mg/kg skin, rabbits

### FIRST AID PROCEDURES

**INHALATION:** Remove to fresh air if effects occur. Consult a physician.

**EYE CONTACT:** Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

**SKIN CONTACT:** Wash off in flowing water or shower.

**INGESTION:** If swallowed, seek medical attention. Give 2-4 glasses of water or milk and don't induce vomiting unless directed to do so by medical personnel.

## MSDS

## CALCIUM CHLORIDE-94%

**NOTE TO PHYSICIAN:** If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

### PREVENTATIVE MEASURES

**RESPIRATORY PROTECTION:** In dusty atmospheres, use an approved dust respirator. Atmospheric levels should be maintained below the exposure guideline.

**EXPOSURE GUIDELINES:**

Calcium chloride:	Dow IHG is 10 mg/m3
Sodium chloride:	Dow IHG is 10 mg/m3
Potassium chloride:	Dow IHG is 10 mg/m3

**EYE AND FACE PROTECTION:** Use safety glasses. For dusty operations or when handling solutions of the material, wear chemical goggles.

**SKIN PROTECTION:** When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material. Selection of specific items such as faceshield, gloves, boots, apron or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water and launder clothing before reuse. If hands are cut or scratched, use gloves impervious to this material even for brief exposures.

**STORAGE REQUIREMENTS:** Keep containers tightly closed when not in use. Store in a dry place. Protect from atmospheric moisture.

**ENGINEERING CONTROLS:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

**HANDLING:** Heat developed during diluting or dissolving is very high. Use cool water when diluting or dissolving (temperature less than 80F, 27C)

### ENVIRONMENTAL PROTECTION DATA

**PROCEDURES TO BE FOLLOWED IN CASE OF A LEAK OR SPILL:** Contain spill. Shovel and sweep up spill and place in a suitable and properly labelled container. Flush residue with large amounts of water. Keep contaminated water from entering sewers and water courses.

**WASTE DISPOSAL:** All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations.

**AQUATIC TOXICITY:** Material is practically non-toxic to aquatic organisms on an acute bases (LC50/EC50 > 100 mg/L in most sensitive species).

### PREPARATION INFORMATION

**MSDS PREPARED BY:** Technical Department  
Panther Industries Inc.  
Davidson, Sask.  
Ph. (306) 567-2814

**DATE PREPARED/REVISED:** Feb 17 2004

**DATE PRINTED:** Feb 17 2004

**REFERENCES:** 1. Patty's Industrial Hygiene and Toxicology 3rd Ed.1981 by Clayton & Clayton John Wiley & Sons, New York.  
2. Manufacturer's MSDS.