Spill Prevention and Response Plan

HTX Minerals Corp.

March, 2013

Table of Contents

1. Introduction 1
    1.1 Purpose of the Spill Prevention and Response Plan 1
    1.2 Environmental Policy 1
2. Facilities 2
    2.1 Buildings and Structures at the Camp 2
    2.2 Fuel Storage 3
3. Hazardous Materials Storage and Inventory 3
    3.1 Petroleum Product Transfer 4
    3.2 Remote Location Fuel Storage and Handling Procedures 4
4. Risk Assessment and Mitigation of Risk 4
5. Response to Failures and Spills 4
    5.1 Basic Steps 4
    5.2 Chain of Command 5
6. Taking Action 5
    6.1 Preventative Measures 5
    6.2 Responsibilities During Transport 6
7. Steps to Take When a Spill Occurs 7
    7.1 First Steps to Take When a Spill Occurs 7
    7.2 Secondary Steps to Take 7
8. Spill Response Actions 7
    8.1 Diesel Fuel, Hydraulic Oil and Lubricating Oil 7
    8.2 Gasoline and Jet A/B Fuel 8
    8.3 Propane 9
    8.4 Chemical Spills 9
9. Spill Equipment 10
    9.1 Spill Kits 10
10. Training 10

Tables

1. HTX Minerals Corp. Proposed Camp Location 2
2. Spill Reporting and Response Emergency Contact List 5

Appendices

1. Figures ..... AT END
2. Daily Fuel Inspection Record ..... AT END
3. Materials Safety Data Sheets ..... AT END
4. Spill Report Form ..... AT END
5. Completeing the Spill Report Form ..... AT END
6. Emergency Response Plan ..... AT END

1. Introduction

HTX Minerals Corp.'s (HTX) Spill Prevention and Response Plan (SPRP) will be in effect from July 2013 until October 2018. The SPRP, including any amendments, will be posted at all operational sites, fuel caches, chemical storage areas, as well as in numerous places throughout the camp, including but not limited to, the kitchen and office.

HTX Minerals Corp. is committed to the protection and conservation of the natural environment, the safety and health of all employees and contractors as well community at large, from any potential harmful effects from operations and stored materials.

1.1 Purpose of the Spill Prevention and Response Plan

The SPRP provides clear procedures for the storage and handling of fuels and other toxic materials to reduce the risk of environmental contamination and ensure the safety of all personnel and contractors from the accidental release of deleterious materials. If the accidental release of any deleterious materials should occur, the SPRP outlines clear plans of action.

This Spill Prevention and Response Plan will:

- promote safe use of potentially hazardous materials;
- promote effective and safe recovery of spilled potentially hazardous materials;
- reduce environmental impacts of spills to water or land;
- identify responsibilities and reporting procedures for spill events;
- provide site specific information on the facilities and contingencies in place;
- provide readily accessible emergency information to clean-up crews, management and government agencies, and;
- Comply with federal and territorial government regulations and guidelines pertaining to the preparation of a Spill Prevention and Response Plan and notification requirements in the event of a spill.

1.2 Environmental Policy

This SPRP has been prepared to comply with the commitments made in HTX Minerals Corp.'s environmental policy (see Environmental Management Plan), which are to:

- Assess and minimize potential environmental impacts upon undertaking new tasks;
- Minimize risks to health, safety and the environment by implementing effective controls in facility designs and operations;
- Employ an emergency plan to reduce impacts of unforeseen events;
- Provide a professional environment for staff to plan and direct environmental compliance programs as well as an environment for training and developing environmentally responsible employees;
- Ensure contractors operate according to the companies environmental policies and procedures;
- Comply with all the appropriate environmental laws and regulations
- Verify environmental performance and introduce any required corrective actions;
- Communicate to all employees, government agencies, the public and stakeholders on activities involving health, safety and the environment;
- Reduce the generation of hazardous and non-hazardous waste and to see to the proper disposal of all waste materials;
- Establish measures to protect and conserve natural resources such as water and energy, and;

- Rehabilitate sites which comply, and or exceed, with regulatory standards within an established time frame.

2. Facilities

HTX Minerals Corp. proposes to operate one camp and approximately 8 drill sites on their Itchen Lake Property, which straddles the Nunavut-Northwest territories border, approximately 350 km NW of Yellowknife (see Figure 1 in Appendix 1). The proposed camp is to be built on the Itch 19 claim and be supported by the southern lake (Leanne Lake) on that claim (see Figures 1 and 2 in Appendix 1). The proposed camp layout is illustrated in Figured 2 of Appendix 1 and the coordinates are listed in Table 1. Drill sites will be located throughout the Property in geologically favorable locations where equipment and/or fuel may be temporarily stored in small remote fuel caches for operational use (see Figure 1 in Appendix 1).

Table 1. HTX Minerals Corp. Proposed Camp Location.

Location	Latitude	Longitude
Camp	65°38'59" N	112°10'53" W

2.1 Buildings and Structures at the Camp

Structures

4-5	14'x16' Sleeper Tents
1	14'x16' Camp Office Tent
1	14'x16' Kitchen Tent
1	14'x16' First Aid Tent
1	14'x16' Camp dry
1	12'x14' Generator Shack
1	14'x16' Core Cutting and Processing Tent
2	Outhouses (or Pacto Units)

Vehicles

1	All-Terrain Vehicle (quads)
1	Snowmobile (if required)

Drilling Equipment

1	A5 (or similar) Diamond Drill plus miscellaneous drill equipment and spares.
20	Casing
50	100 ft Hose lengths
2	NQ Core Barrels
1	Overshot
-	Tools Bits Misc Parts

Water Tanks, Pressure Pump, Mud Pump Baskets
Supply pump and Coil heater

Air Transport Equipment

Fixed Wing (Twin Otter or similar)
Helicopter (A star, Long Ranger, 500, or similar)

2.2 Fuel Storage

Diesel, Jet fuel and gasoline will be stored in 205 litre (45 gal) metal drums. Propane will be stored in 100 lbs. cylinders. Diesel, Jet fuel, gasoline and any potentially hazardous materials, will be located within secondary containment systems using "Insta-Berm," "PREVENT AB," or similar models, which utilize chemical and fire resistant fabric (generally a polyurethane coated nylon or vinyl Coated Polyester material) designed for extreme arctic temperatures and appropriate for waste water, petroleum products, and various chemicals.

The fuel caches (camp and drill site) will be a minimum of 31 metres away from the normal high water mark to prevent spills or seepage from entering any water body.

Fuel drums will be stored on their sides in orderly rows with their bungs and vents in the three o'clock and nine o'clock positions. Drums will be stood up 1-2 days prior to the need to use them in order to allow any contaminates to settle. Upon regular inspection if any drums are found to be leaking or damaged the substance will be used immediately.

Propane cylinders will be equipped with a pressure relief valve that opens and closes to prevent excessive internal pressure due to abnormal conditions. Information marks will stamped onto the collar of cylinders identifying data such as the original date of manufacture and any subsequent re-testing dates. Even though propane is non-toxic and will not contaminate soil, prior to and after use the propane cylinders will be stored with the other fuel in the secondarily contained berms.

Further details on the fuel storage monitoring program are located in Section 6 of this plan and outlined in the Fuel Management Plan. A daily Fuel Inspection will be performed and recorded (Appendix 2).

3. Hazardous Materials Storage and Inventory

All hazardous materials and supplies will be flown into and out of the Property; a manifest is to accompany the movement of all hazardous materials. The hazardous materials to be located on site will consist of the following substances:

- P-50 Diesel – 150 drums totaling 30,750L
- Jet A and/or Jet B turbo fuel – 120 drums totaling 24,480 L
- Gasoline – 6 drums totaling 1,230 L
- Grease (mechanical lubricant),
- Hydraulic Oil,
- Engine Oil,
- Waste Oil (to be removed from camp for proper disposal)
- Propane – 2-4 cylinders totaling 200-400lbs
- Other materials potentially hazardous to the safety of the personnel and the environment.

The Material Safety Data Sheet (MSDS) for the hazardous materials to be stored at the camp are included in Appendix 3**.**

Diesel, Jet fuel, gasoline and propane will be stored in secondary containment at the camp fuel cache (see Figure 2 in Appendix 1). Other chemicals may be used and stored at camp and at the drill sites as required.

3.1 Petroleum Product Transfer

Manual, electric and engine powered pumps, and relevant filtration devices may be used for the transfer of petroleum products from their storage containers to their end-use fuel tanks.

- Cigarette smoking, sparks, open flames, and any potential ignition sources are prohibited from fuel storage and transfer sites at all times.
- Proper grounding procedures will be used when refueling or transferring fuel such as a sequence for grounding including: drum to ground (anchor post), drum to pump, pump to aircraft, nozzle to aircraft, then open cap. Then refueling is finished, reverse order.

3.2 Remote Location Fuel Storage and Handling Procedures

HTX Minerals Corp. may create temporary, remote fuel caches during the field season comprising of drums containing Jet Fuel and/or P-50 to support field activities (ie. drilling)located far from camp. These caches will be temporary and follow CSA approved methods for storage of drummed products.

Appropriate spill kit(s) will be located at each fuel cache. The helicopter will also carry additional absorbent material.

4. Risk Assessment and Mitigation of Risk

Spill kits will be located at numerous locations at the proposed camp (ie. generator shack), at all fuel caches and drill shacks. A description of contents is listed in Section 7 of this plan.

Following is a list of risk sources:

Drummed products holding Jet A/B, Diesel, Gasoline, Waste Fuel, and Waste Oil may leak or rupture.

1) Fuel cylinders holding Propane may produce leakage from valves; cylinders are to be secured at all times.
2) Vehicles and equipment including wheeled vehicles/equipment, aircraft (fixed and rotary wing), quads, generators and pumps may have incidents involving leaking or dripping fuel or oil produced from malfunctions, impact damages, lack of periodic maintenance, improper storage, or faulty operation.
3) Storage, transportation and use of drilling additives.

Regular inspection and maintenance of camp and remote fuel caches and equipment will be carried out to reduce the risks categories listed above. Spill response training will be provided to all personnel with a focus on personnel who handle fuels and other petroleum products.

5. Response to Failures and Spills

In the case of a spill or environmental emergency, an immediate, safe and environmentally responsible reaction is required. All spills will be reported as no spill or incident is minor enough to be ignored.

5.1 Basic Steps

The basic steps of the response plan are as follows:

1. *Ensure* the safety of all persons at all times.

2. *Identify* and find spill substance and its source, and if possible, stop the process or shut off the source.
3. *Inform* the on-site co-coordinator or his/her designate at once, so that immediate actions may be taken including the notification of the spill to the 24- Hour Spill Line and AANDC Water Resource Officer. A copy of the Spill Report form can be found in Appendix 3.
4. *Contain* the spill or environmental hazard.
5. *Implement* any necessary cleanup/remedial action.

5.2 Chain of Command

1. *Immediately* notify and report to the 24-Hour Spill Line at 867-920-8130 (Fax: 867-873-6924), the AANDC in Nunavut at 1-800-567-9604, and Environment Canada personnel at 867-975-4644.
2. Before or after contacting the 24 Hour Spill Line a Spill Report Form is filled out (Appendix 4). A copy of the guidelines for filling out a report form can be found in Appendix 5.
3. Notify Andrew Turner, Project Manager, at 780-439-5380

Table 2. Spill Reporting and Response Emergency Contact List

Contact	Telephone Number
24-Hour Spill Report Line	867-920-8130
AANDC	1-800-567-9604
Environment Canada	867-975-4644, 24-hr page 867-766-3737
Government of Nunavut Department of Environment	867-975-5910
DFO (Central and Arctic Branch)	519-383-1813
Andrew Turner, APEX Geoscience Ltd.	780-439-5380
Nunavut Water Board	867-360-6338

6. Taking Action

6.1 Preventative Measures

The following actions minimize the potential for spills during fuel handling, transfer and storage:

1. Fuel transfer hoses with cam lock mechanisms are to be used
2. Monitor fuel content in receiving vessel during transfer; keeping additional absorbent pads on hand during a transfer of fuel.
3. Clean up drips and minor spills immediately.
4. Conduct periodic inspections of drums, tanks, machines and hoses for leaks and proper storage.
5. Create fuel caches in natural depressions located a minimum of 31 metres from the normal high-water mark of any water body.
6. Secondary containment for fuel caches.
7. Train personnel with a focus on operator personnel, in proper fuel handling and spill response procedures.

HTX Minerals Corp. and all contractors working on their behalf will support the following principles for spill prevention:

- Provide up to date MSDS for all hazardous materials;
- Periodic and on-site recorded inspections of fuel/chemical storage areas;
- Provide training on handling hazardous materials and cleaning spills in accordance to approved procedures;

- Encourage personnel to take reasonable measures to prevent spills;
- Keep drums/containers sealed or closed when not in use;
- Keep storage areas secure from unauthorized access;
- Segregate incompatible materials;
- Ensure chemical storage areas are protected from weather and physical damage, and;
- Provide spill response materials at storage, transfer and refueling areas.

6.2 Responsibilities During Transport

Shipper:

- Complies with proper loading, restraint, containment and documentation, in accordance with TDG guidelines
- Ensures goods are classified and labeled properly.
- Ensure proper communication with the carrier
- Ensures safety at all times

Carrier:

- Will supervise and ensure proper loading, restraint, containment and documentation complying with all TDG regulations
- Ensure proper volumes for transport and maintains/replaces safety marks; placards if necessary
- Check and deliver TDG manifest to receiver
- Ensure safety of all personnel and equipment

Receiver:

- Supervises unloading procedures
- Complies with TDG guidelines
- Ensure safety of containment facilities
- Maintain all pumps and the loading/unloading of equipment on site
- Provide onsite emergency communications (radio, telephone)
- Completes regular site inspection of storage facilities
- Records all shipment manifests
- Keeps on site inventory of all dangerous goods
- Maintains safety procedures at all times.

On-site Coordinator

- Supervise and organize spill containment equipment and personnel
- Reports to internal and external parties
- Ensures availability of proper safety equipment
- Notifies personnel of current hazards
- Will provide training for safety and materials handling
- Maintains proper safety procedures at all times
- Must be compliant with all TDG guidelines

7. Steps to Take When a Spill Occurs

7.1 First Steps to Take When a Spill Occurs

- Ensure your own safety and the safety of others around you
- Control danger to human life, if necessary.
- Identify source of the spill
- Notify supervisor and request assistance if needed
- Assess if the spill can be readily stopped
- Contain or stop the spill at the source

7.2 Secondary steps to take

- Determine status of the spill event
- If necessary, pump fuel from a damaged or leaking tank or drum into a refuge container
- Notify the 24-hour Spill Report Line
- Complete and Fax a copy of the Spill Report Form (Appendix I).
- Notify permitting authorities
- If possible, resume cleanup and containment.

8. Spill Response Actions

8.1 Diesel Fuel, Hydraulic Oil and Lubricating Oil

Take action, only if safety permits – stop the source flow if it is safe to do so; eliminate all ignition sources. **NEVER SMOKE** when dealing with these types of spills.

On Land

After all vapors have dissipated, build a containment berm using soil or snow and place a plastic tarp at the foot of the berm for easy capture of spill. Use absorbent pads, or excavate the soil, gravel or snow to remove the spill. Use particulate to remove spill splashed on vegetation. Contact regulatory agencies for approval before any removal of soil, gravel, or vegetation.

On Muskeg

Do not deploy personnel or equipment on marsh or vegetation. Minimize the damage caused by equipment on marsh or vegetation. Flush with low pressure water to move oil into a collection point; remove pooled oil with sorbent pads and/or a skimmer. Burn only in localized areas (trenches, piles or windrows), but do not burn if root systems can be damaged (low water table).

On water

Contain spill as close to release point as possible; after vapors have dissipated, use containment boom to capture spill for recovery. Use absorbent pads to capture small spills and skimmers for larger spills.

On Ice and Snow

Using snow, build a containment berm around the spill and remove the spill with absorbent pads or particulate sorbent material. Contaminated snow and ice must be scraped and shoveled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.

Storage and Transfer

All contaminated water, ice, snow, soil and supplies used for clean-up will be stored in closed labeled containers kept in a well ventilated area away from any incompatible materials.

Disposal

Contaminated material will be sent to an approved facility. The movement of hazardous wastes will be monitored by the DOE, and tracked with a Waste Manifest to be present during all movements and transfers.

8.2 Gasoline and Jet A/B Fuel

Take action, only if safety permits – stop the source flow if it is safe to do so; eliminate all ignition sources. **NEVER SMOKE** when dealing with these types of spills.

On Land

After all vapors have dissipated, build a containment berm using soil or snow and place a plastic tarp at the foot of the berm for easy capture of spill. Use absorbent pads, or excavate the soil, gravel or snow to remove the spill. Use particulate to remove spill splashed on vegetation. Contact regulatory agencies for approval before any removal of soil, gravel, or vegetation.

On Muskeg

Do not deploy personnel or equipment on marsh or vegetation. Minimize the damage caused by equipment on marsh or vegetation. Flush with low pressure water to move oil into a collection point; remove pooled oil with sorbent pads and/or a skimmer. Burn only in localized areas (trenches, piles or windrows), but do not burn if root systems can be damaged (low water table).

On water

Contain spill as close to release point as possible; after vapors have dissipated, use containment boom to capture spill for recovery. Use absorbent pads to capture small spills and skimmers for larger spills.

On Ice and Snow

Using snow, build a containment berm around the spill and remove the spill with absorbent pads or particulate sorbent material. Contaminated snow and ice must be scraped and shoveled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.

Storage and Transfer

All contaminated water, ice, snow, soil and supplies used for clean-up will be stored in closed labeled containers kept in a well ventilated area away from any incompatible materials.

Disposal

Contaminated material will be sent to an approved facility. The movement of hazardous wastes will be monitored by the DOE, and tracked with a Waste Manifest to be present during all movements and transfers.

8.3 Propane

Take action, only if safety permits. Gases stored in cylinders can explode when ignited. Keep vehicles away from the area. **NEVER SMOKE** when dealing with these types of spills.

On Land

Do not attempt to contain the propane release.

On Water

Do not attempt to contain the propane release.

On Ice and Snow

Do not attempt to contain the propane release.

General

It is not possible to contain vapors when released; Water spray can be used to knock down vapors if no chance of ignitions exists. Personnel should leave area immediately unless a small leak is stopped immediately after detection. Personnel should avoid touching release points on containers as frost may form rapidly. If tanks are damaged do not attempt a recovery and allow gas to disperse: Keep away from tank ends. Small fires can be extinguished with dry chemical of CO_2.

Storage and Transfer

It is not possible to contain vapors when released.

Disposal

Contaminated material will be sent to an approved facility. The movement of hazardous wastes will be monitored from generators, carriers and receivers by the DOE, and tracked with a Waste Manifest to be present during all movements and transfers.

8.4 Chemical Spills

1) Assess hazard of spilled material; REFER TO THE MSDS SHEETS NOW. Members of the emergency response team who are susceptible in certain situations should be replaced with alternatives (i.e. asthmatics where fumes or airborne particles are evident).
2) Assemble necessary safety equipment before responding to a spill (i.e. protective latex or other gloves, goggles or safety glasses, masks or breathers, etc.).
3) Apply absorbents to soak up liquids.
4) Solid chemicals such as dusts or powders should be covered with plastic sheeting, to prevent disbursement of the substance by wind or curious animals.
5) Neutralize acids or caustics. Place spilled material and contaminated clean-up supplies in empty refuge drum, seal for disposal.
6) Contact the 24-hr Spill Line. Continue through steps in section 5.

9. Spill Equipment

HTX Minerals Corp. will install fire extinguishers in all buildings, at helicopter pads, refueling areas, drill sites and other places where flammable substances are stored or handled. Spill kits are to be located at all of the above mentioned locations and any other, where hazardous spills may occur.

9.1 Spill Kits

Spill kits will be in bright blue or yellow 200L containers and will include:

- Basic protective equipment such as goggles and latex gloves,
- Absorbent materials such as pads, pillows, socks and granular
- Large 36”x52” lettered plastic bags for containing contaminated sorbent materials
- 50 Sonic bonded pads 17”x19”x3/8”
- 4 Socks 4’x3”
- 1 SPHAG Sorb ¾ cubic ft.
- 1 Plug-it seal compound 500 ml
- 1 pair Nitrile gloves Large
- 2 pillows 18”x18”

Also on-site

- 2 Rolls of absorbent matting 38”x144’
- 2 Packs (100’s) of Enviro matting 16”x20”
- 4 Shovels (min)
- 6 (min) Empty 45 gal. drums for storing contaminated soil for disposal.

Spill Kits will be located at:

- Camp fuel cache
- Helicopter/fixed wing fuel cache
- Drilling fuel cache
- Generator Shack
- Active drill sites

Additional sorbent materials are located in the storage shelter and at the drillers’ storage and repair tent. Containment booms and extra insta-berms for use in a response to a spill will also be located in the storage shelter in camp.

A checklist of the required items for each spill kit and the equipment storage area will be provided. The list will reviewed when new chemicals are added or an item is taken: any deficiencies will be remedied immediately. MSDS for all chemicals present in the vicinity of the spill kit will be available near the kit location and will be periodically updated. The expiry dates for all the chemicals on the site will be on the MSDS and those chemicals about to expire will be replaced (sample MSDS are included in Appendix 3).

10. Training

The site manager will ensure the effectiveness of the Spill Prevention and Response Plan by ensuring the following:

- Ensure all staff and contractors are given appropriate required training based on evaluating their training needs for spill prevention and spill clean-up;
- Complete detailed annual review and update of the SPRP including the ERP
- Updated versions of the SPRP will be distributed to on-site personnel and all relevant agencies, organizations and selected external responders;
- Update new and changed emergency communications as soon as they become available;
- Keep a formal record of distribution and amendments of the SPRP;
- Make certain emergency spill response exercises and inspections occur;
- Use results of inspections to improve spill response practices, and;

On-site Personnel

A designated Emergency Response Team (ERT) made up of on-site personnel will be established. HTX Minerals Corp. will make certain that the ERT are present at all times and are trained with the emergency spill response resources. HTX Minerals Corp. will make certain that the ERT team are aware of the resource locations and have up to date training methodologies.

Training will include the following:

- Review of the responsibilities of ERT members and a review of this Spill Prevention and Response plan;
- Location of fuel and chemical storages;
- Use of on and off-site spill response equipment training;
- Up-to-date emergency contact lists;
- Causes and possible effects of spills.

All personnel and contractors will undergo an orientation and training program on initial spill response procedures and be familiar with the spill reporting requirements. Fuel handling personnel will receive training in safe operation of the facilities, spill prevention techniques and initial spill response. The Site Manager will keep track of each employees training.

Contractors

All contractors will complete site-specific health and safety training including, but not limited to, WHMIS, TDG and OSHA training.

Practice Drills

A minimum of one practice drill will be held per season to practice emergency response skills and evaluate areas where more practice is needed.

Appendix 1 Figures

410000 420000 430000 440000 450000

113°0'W 112°45'W 112°30'W 112°15'W 112°0'W

7290000 7280000 7270000

65°40'N 65°30'N

CO-05

086H10 086H09 086H08 086H07

3386 4676 4675 3163 4475 4674 4474

K01213 K02270 K02273 K02278

ITCH 1 K16601
ITCH 2 K16602
ITCH 3 K16603
ITCH 4 K16604
ITCH 5 K16605
ITCH 6 K16606
ITCH 7 K16607
ITCH 8 K16608
ITCH 9 K16609
ITCH 10 K16610
ITCH 11 K16611
ITCH 12 K16612
ITCH 13 K16613
ITCH 14 K16614
ITCH 15 K16615
ITCH 16 K16616
ITCH 17 K16617
ITCH 18 K16618
ITCH 19 K16730

K02182 K02183 K02184 K02185 K02186 K02187 K02188 K02189 K02190 K02191 K02192 K02193 K02194 K02195 K02196 K02197 K02198 K02199 K02200 K02201 K02202 K02205 K02206 K02207 K02208

Leanne Lake

Itchen Lake

Nunavut

Northwest Territories

Legend

Infrastructure
- 2013 Proposed Camp Location
- 2013 Proposed Drill Sites
- Esker Sediments

Inuit Owned Lands
- Surface Ownership
- Subsurface Ownership

Landuse
- HTX Claims
- Claims Other Ownership
- Leases

Basemap
- Contours
- Rivers
- Lakes
- Territorial Boundary
- NTS 50k Mapsheets

HTX MINERALS CORP.

Itchen lake Property, NU & NT, Canada

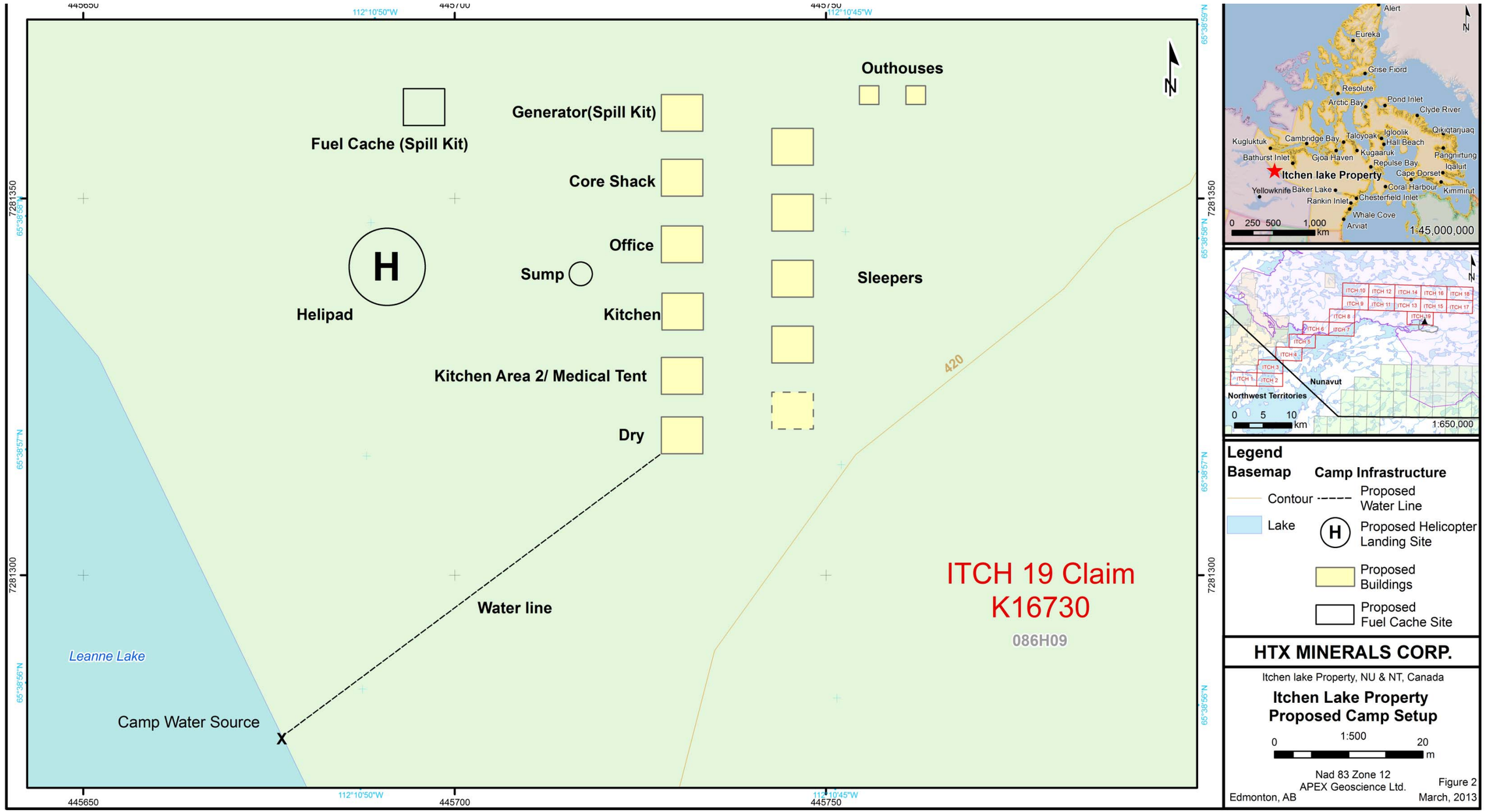
2013 Itchen Lake Proposed Exploration Program

1:150,000

0 2.5 5 Km

Nad 83 Zone 12
APEX Geoscience Ltd.
Edmonton, AB

Figure 1
March, 2013


445650
112°10'50"W
445700
445750
112°10'45"W
65°38'59"N
65°38'58"N
65°38'57"N
65°38'56"N
7281350
7281300
N
Outhouses
Generator(Spill Kit)
Fuel Cache (Spill Kit)
Core Shack
Office
Sump
H
Helipad
Sleepers
Kitchen
Kitchen Area 2/ Medical Tent
Dry
420
Water line
ITCH 19 Claim
K16730
086H09
Leanne Lake
Camp Water Source
X
Alert
Eureka
Grise Fiord
Resolute
Arctic Bay
Pond Inlet
Clyde River
Qikiqtarjuaq
Igloolik
Hall Beach
Taloyoak
Kugluktuk
Cambridge Bay
Gjoa Haven
Kugaaruk
Bathurst Inlet
Repulse Bay
Pangnirtung
Iqaluit
Itchen lake Property
Cape Dorset
Coral Harbour
Kimmirut
Yellowknife
Baker Lake
Chesterfield Inlet
Rankin Inlet
Whale Cove
Arviat
0 250 500 1,000 km
1:45,000,000
ITCH 10
ITCH 12
ITCH 14
ITCH 16
ITCH 18
ITCH 9
ITCH 11
ITCH 13
ITCH 15
ITCH 17
ITCH 8
ITCH 19
ITCH 6
ITCH 7
ITCH 5
ITCH 4
ITCH 3
ITCH 1
ITCH 2
Nunavut
Northwest Territories
0 5 10 km
1:650,000
Legend
Basemap
Contour
Lake
Camp Infrastructure
Proposed Water Line
Proposed Helicopter Landing Site
Proposed Buildings
Proposed Fuel Cache Site
HTX MINERALS CORP.
Itchen lake Property, NU & NT, Canada
Itchen Lake Property
Proposed Camp Setup
0 1:500 20 m
Nad 83 Zone 12
APEX Geoscience Ltd.
Edmonton, AB
Figure 2
March, 2013

Appendix 2 Daily Fuel Inspection Record

Daily Fuel Inspection Record

Date	Main Fuel Cache				Main Generator Shed			Water Pump			Refueling Station			Sleep Tents			Comments
	Bungs and Rims	Corrosion	Spill Kit/Fire extinguisher	Signs	Inst-berm	Hoses/Values Fittings	Spill Kit/Fire extinguisher	Inst-berm	Hoses/Values Fittings	Spill Kit/Fire extinguisher	Inst-berm	Hoses/Values Fittings	Spill Kit/Fire extinguisher	Inst-berm	Hoses/Values Fittings	Spill Kit/Fire extinguisher	

Appendix 3 MSDS – Materials Safety Data Sheets

Material Safety Data Sheet

JET B AVIATION TURBINE FUEL

1 . Product and company identification

Product name : JET B AVIATION TURBINE FUEL

Synonym : Jet B; Jet B DI; JP-4; Jet F-40; NATO F-40; Turbine Fuel, Aviation, Wide Cut Type (Can/CGSB-3.22).

Code : W219, SAP: 150, 151, 152

Material uses : Used as aviation turbine fuel. May contain a fuel system icing inhibitor.

Manufacturer : PETRO-CANADA
P.O. Box 2844
150 – 6th Avenue South-West
Calgary, Alberta
T2P 3E3

In case of emergency : Petro-Canada: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Clear liquid.

Odour : Gasoline like.

WHMIS (Canada) :

Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : DANGER!

EXTREMELY FLAMMABLE LIQUID AND VAPOUR. FLAMMABLE. VAPOUR MAY CAUSE FLASH FIRE. CAUSES SKIN IRRITATION. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.

Extremely flammable liquid. Irritating to skin. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapour or mist. Avoid contact with eyes, skin and clothing. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure. Contains material which may cause birth defects, based on animal data. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.

Ingestion : Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract.

Skin : Irritating to skin.

Eyes : May cause eye irritation.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

2 . Hazards identification

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : Contains material which may cause birth defects, based on animal data.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Complex mixture of petroleum hydrocarbons (C6-C14)	64741-41-9	60 - 100
Benzene	71-43-2	0.1 - 0.5
Fuel System Icing Inhibitor (FSII) (if added**): (Diethylene Glycol Monomethyl Ether)	111-77-3	0.1 - 0.15
Anti-static, antioxidant, corrosion inhibitor and metal deactivator additives.	Not applicable	< 0.1

** Please note that Jet B DI, JP-4, Jet F-40 and NATO F-40 all contain Fuel System Icing Inhibitor (FSII). corrosion inhibitor

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First-aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : Flammable liquid (NFPA).

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.

5 . Fire-fighting measures

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite. May accumulate in confined spaces.

Special remarks on explosion hazards : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. Ensure the storage containers are grounded/bonded.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Benzene	**ACGIH TLV (United States). Absorbed through skin.** TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: polyvinyl alcohol (PVA), Viton. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Clear liquid.

Flash point : Closed cup: -31°C (-23.8°F) [NFPA]

Auto-ignition temperature : 240°C (464°F) [NFPA]

Flammable limits : Lower: 1.3% [NFPA]
Upper: 8% [NFPA]

Colour : Clear and colourless.

Odour : Gasoline like.

Odour threshold : Not available.

pH : Not available.

Boiling/condensation point : 50 to 270°C (122 to 518°F)

Melting/freezing point : Not available.

Relative density : 0.75 to 0.8 kg/L @ 15°C (59°F)

Vapour pressure : 21.1 kPa (158 mm Hg) @ 37.8°C (100°F)

Vapour density : 3.5 [Air = 1]

Volatility : Not available.

Evaporation rate : Not available.

Viscosity : Not available.

Pour point : Freezing point: <-51ºC (<-60ºF) for all types of Jet B including F40

Solubility : Insoluble in water. Partially miscible in some alcohols. Miscible with other petroleum solvents.

10 . Stability and reactivity

Chemical stability : The product is stable.

Hazardous polymerisation : Under normal conditions of storage and use, hazardous polymerisation will not occur.

Materials to avoid : Reactive with oxidising agents, diborane and halogen compounds.

Hazardous decomposition products : May release COx, NOx, SOx, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Complex mixture of petroleum hydrocarbons (C6-C14)	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Diethylene Glycol Monomethyl Ether	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
	LC50 Inhalation Vapour	Rat	>50000 mg/m³	4 hours
Benzene	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LD50 Oral	Rat	930 mg/kg	-
	LC50 Inhalation Vapour	Rat	13200 ppm	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Carcinogenicity

11 . Toxicological information

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Complex mixture of petroleum hydrocarbons (C6-C14)	-	2A	-	-	-	-
Benzene	A1	1	A	+	Proven.	+

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN1863	FUEL, AVIATION, TURBINE ENGINE	3	II		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Flammable liquid
Irritating material
Carcinogen

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

15 . Regulatory information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : All components are listed or exempted.

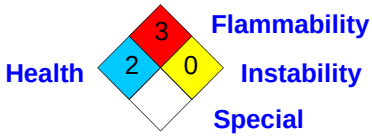
16 . Other information

Label requirements : EXTREMELY FLAMMABLE LIQUID AND VAPOUR. FLAMMABLE. VAPOUR MAY CAUSE FLASH FIRE. CAUSES SKIN IRRITATION. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

Health	*	2
Flammability		3
Physical hazards		0
Personal protection		H

National Fire Protection Association (U.S.A.) :



References : Available upon request.
TM/MC Marque de commerce de Petro-Canada - Trademark

Date of printing : **12/7/2009.**

Date of issue : 7 December 2009

Date of previous issue : No previous validation.

Responsible name : **Product Safety - DSR**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : Internet: www.petro-canada.ca/msds

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

UNITED 923

MATERIAL SAFETY DATA SHEET

320 37th Avenue, St. Charles, Illinois 60174 • 214 Dolomite Drive, Downsview, Ontario M3J2N2
www.unitedlabsinc.com
To Reorder Call: 800-323-2594

1. PRODUCT AND COMPANY IDENTIFICATION

FOR MEDICAL AND TRANSPORTATION EMERGENCIES
24 Hour INFOTRAC (US and CANADA): **800-535-5053**

PRODUCT NAME	USE/DESCRIPTION	REVISION DATE
UNITED 923 HYDRASLIK SAE 10W	Hydraulic Oil Premium Grade	May 13, 2008

HEALTH (0 = Maximum Safety) **1**

Always follow Label Directions and Cautions.

4 Extreme **3** High **2** Moderate **1** Slight **0** Minimal

See Hazards Identification Section of this MSDS for more detailed information.

FLAMMABILITY (0 = Maximum Safety) **1**

Susceptibility of Material to Burning.

4 Extremely flammable.
3 Ignites at normal temperature.
2 Ignites when moderately heated.
1 Must be preheated to burn.
0 Will not burn.

REACTIVITY (0 = Maximum Safety) **0**

Susceptible to Release of Energy.

4 May detonate-vacate area if materials are exposed to fire.
3 Strong shock of heat may detonate-use monitors from behind explosion resistant barriers.
2 Violent chemical change possible-use hose stream from distance
1 Unstable if heated-use precaution.
0 Normally stable.

PERSONAL PROTECTION: B

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	CAS#	%Range	ACGIH (TLV-TWA)	OSHA (PEL-TWA)	LD50 (Species/Route)	LC50 (Species)
Petroleum Hydrocarbon Blend	64742-54-7	30-60	5 mg/m3	5 mg/m3	NE	NE
Petroleum Hydrocarbon Blend	64742-57-0	30-60	5 mg/m3	5 mg/m3	NE	NE
Petroleum Hydrocarbon Blend	64742-57-0	30-60	5 mg/m3	5 mg/m3	NE	NE
Zinc dialkyldithiophosphate	68649-42-3	< 1	NE	NE	NE	NE

3. HAZARDS IDENTIFICATION

Eyes: May result in mild eye irritation.
Skin: Prolonged or repeated contact may result in skin irritation.
Inhalation: Inhalation of high vapor concentrations at elevated temperatures, may result in respiratory irritation.
Ingestion: May result in gastrointestinal tract irritation.

4. FIRST AID MEASURES

Eyes: Flush with plenty of water for at least 15 minutes while holding eyelids open. If irritation persists, call a physician or poison control center.
Skin: Wash with soap and water. If irritation persists, call a physician or poison control center.
Inhalation: Remove to fresh air. Apply CPR if needed. If irration persists, call a physician or posion control center.
If Swallowed: DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center.

5. FIRE FIGHTING MEASURES

Flash Point (TCC) : >200°F/>93°C **Explosive Limits:** Lower (LEL): ND Upper (UEL): ND
Flame Projection (Aerosol): NA
Hazardous Products of Combustion: When strongly heated, as in a fire, this product may produce oxides of carbon, phosphorous, sulfur, hydrogen sulfide and chlorinated hydrocarbons.
Fire and Explosion Hazards: Avoid contact with strong oxidants and acids, heat, sparks and flame.
Extinguishing Media: Carbon dioxide, Dry chemical.
Fire Fighting Instructions: Wear self-contained breathing apparatus w/full protective clothing. Containers should be cooled with water to prevent vapor pressure build up. Burning product may float on water floods. Prevent runoff from entering sewers, streams or public water courses.

6. ACCIDENTAL RELEASE MEASURES

Small Spills: Soak up with an inert absorbent, such as clay or vermiculite and place in designated disposal container. Flush area well with water.
Large Spills: Prevent entry into sewers or waterways by diking. Soak up with an inert absorbent, such as clay or vermiculite and place in designated disposal container. Flush area well with water.

7. HANDLING AND STORAGE

Store in a cool, dry area away from heat, sparks, and flame. Keep containers closed. Avoid prolonged exposure to vapors and mists. Keep out of reach of children. Wash face and hands with soap and water after using this product. Launder contaminated clothing before reusing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eyes: Safety glasses recommended.
Skin: Chemical resistant gloves recommended.
Respiratory: None required if good ventilation is maintained. If TLV is exceeded, use NIOSH/MSHA approved respirator.
Engineering Controls: Provide adequate mechanical ventilation and local exhaust is generally adequate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: >400°F/204°C **Specific Gravity** 0.83-0.90 (H2O=1) **Vapor Pressure:** ND **Melting Point:** ND
Vapor Density: ND **Evaporation Rate:** Slower **Solubility in Water:** Negligible **pH:** NA
Appearance and Odor: Red liquid with mild odor.

10. STABILITY AND REACTIVITY

Hazardous Polymerization: Will not occur.
Hazardous Decomposition: When strongly heated, as in a fire, this product may produce oxides of carbon, phosphorous, sulfur, hydrogen sulfide and chlorinated hydrocarbons.
Chemical Stability: Stable
Incompatibility: Avoid strong oxidizing agents.

11. TOXICOLOGICAL INFORMATION

Carcinogenicity (NTP/IARC/OSHA): None
California Proposition 65: Does this product contain chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm? None

12. ECOLOGICAL INFORMATION

ND

13. DISPOSAL CONSIDERATIONS

Consult your local, state, and federal regulations for proper disposal guidelines. Disposal regulations may be different for each state and/or locality.

14. TRANSPORT INFORMATION

DOT: Available upon request
TDG: Available upon request
UN: Availabale upon request

15. REGULATORY INFORMATION

VOC(Volatile Organic Compounds): None
TSCA (Toxic Substances Control Act): Listed
SARA Title III Section 302 EHS: ND
SARA Title III Section 311/312: ND
SARA Title III Section 313 Toxic Chemicals: Zinc dialkyldithiophosphate CAS# 68649-42-3 <1.0% (trace amount)
WHMIS Classification:
This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations/ WHMIS) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

Read and follow all label directions and precautions before using this product. These products are intended for industrial and institutional use only. NOT FOR HOUSEHOLD USE OR RESALE. KEEP OUT OF REACH OF CHILDREN.

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	Dec. 9, 2008
	8750-53 Ave.	PHONE:	780-468-4064
	Edmonton, AB T6E 5G2	FAX:	780-469-1899
PRODUCT NAME:	**LINSEED SOAP**		
PRODUCT USE:	Lubricant.		
CHEMICAL FAMILY:	Not available	CAS#:	Not available

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION:	Not WHMIS controlled.
WORKPLACE HAZARD:	Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDG)

PROPER SHIPPING NAME:	Not regulated under TDG
TDG CLASSIFICATION:	Not applicable
UN NUMBER (PIN):	Not applicable
PACKING GROUP:	Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Mouse	ACGIH-TLV
No hazardous ingredients available.					

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY:	[ ] EYE CONTACT [ ] SKIN [ ] INHALATION [ ] INGESTION
EYE CONTACT:	May cause slight irritation.
SKIN CONTACT:	May cause slight irritation.
INGESTION:	No information available. Not considered toxic based on information available for similar materials.
INHALATION:	Not a likely source of contact during normal use.
CARCINOGENICITY:	No information available.
TERATOGENICITY:	No information available.

REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICITY:	No information available.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Wipe away excess. Remove contaminated clothing and wash affected area thoroughly with soap and water. If irritation develops or persists, obtain medical attention.
EYE CONTACT:	Immediately flush with gently flowing warm water until material is removed and irritation ceases. If irritation persists, obtain medical attention.
INGESTION:	If conscious give 1 to 2 glasses of water and induce vomiting; keep head below hips to prevent aspiration of vomitus. Obtain medical attention. Never give anything by mouth if patient is unconscious, rapidly losing consciousness or convulsing.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration if required. If breathing difficulties, or distress, continue obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Brown paste; slight soapy odour	
SPECIFIC GRAVITY:	Not applicable	
BOILING POINT (°C):	100	
MELTING POINT (°C):	0	
SOLUBILITY IN WATER:	Soluble	pH: 9.5 – 11.5
PERCENT VOLATILE BY VOLUME:	Not applicable	
EVAPORATION RATE:	Not applicable	
VAPOUR PRESSURE (mmHg):	Not applicable	
VAPOUR DENSITY (air = 1):	Not applicable	
BULK DENSITY	Not applicable	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not flammable
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Use media suitable for packaging and surrounding materials.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire fighting personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX]	UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	None known.	
CONDITIONS OF REACTIVITY:	None known.	
HAZARDOUS DECOMPOSITION PRODUCTS:	Not determined.	
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX]	MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Not applicable.
VENTILATION:	Not applicable.
PROTECTIVE GLOVES:	Personal preference.
EYE PROTECTION:	Safety glasses with side-shields recommended.
OTHER PROTECTIVE EQUIPMENT (Specify):	Wear clothing adequate to protect against exposure. Ensure eye-wash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Wash thoroughly after handling. Avoid contact with eyes, skin or clothing. Launder contaminated clothing before reuse. No specific storage requirements.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Scoop up excess material. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal. Wipe up remaining spill with absorbent compound to prevent slipping hazard.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. This material can be landfilled in most areas; check with local operator. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH,
BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE ISSUED:	December 9, 2008	BY:	Product safety committee
SUPERSEDES:	December 19, 2005	PHONE:	780-440-4923

MATERIAL SAFETY DATA SHEET
Jet Fuel

MSDS: 941

REVISION DATE: 2/26/2009

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Jet Fuel**

SYNONYMS: Jet Fuel, Kerosene, Jet A, Jet A-1, JP-8, Petroleum Distillate Fuel

PRODUCT CODE:

Jet A	(212110)	Jet A-1	(212212)
Jet A-1 (50)	(212211)	JP-8	(212130)

This Material Safety Data Sheet applies to the listed products and synonym descriptions for Hazard Communication purposes only. Technical specifications vary greatly depending on the product and are not reflected in this document. Consult specification sheets for technical information. This product contains ingredients that are considered to be hazardous as defined by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

IMPORTANT: Read this MSDS before handling or disposing of this product. Pass this information on to employees, customers and product users.

MANUFACTURER: U. S. OIL & REFINING CO.

ADDRESS: 3001 Marshall Ave., Tacoma, WA 98421

EMERGENCY PHONE: (253)-383-1651
FAX PHONE: (253)-272-2495
CHEMTREC PHONE: (800) 424-9300
NATIONAL RESPONSE: (800) 424-8802

CHEMICAL FAMILY: Hydrocarbon

PRODUCT USE: Jet Fuel is a complex blend of hydrocarbons derived from various refinery streams, This product is intended for us as a fuel or for use in an engineered process. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.

PREPARED BY: U.S. OIL & REFINING CO.

CAS #: 8008-20-6

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

NAME	CAS NUMBER	CONCENTRATION %
Kerosene/Hydrocarbon mixture	8008-20-6	90 - 100%
Cyclohexane	110-82-7	0 – 1%
1,2,4 Trimethylbenzene	95-63-6	0 – 2%
Benzene	71-43-2	0 - .2%
Toluene	108-88-3	0 - .5%
Xylene	1330-20-7	0 – 2%
Naphthalene	91-20-3	0 – 3%
Ethylbenzene	100-41-4	0 - 0.5%

SECTION 3: HAZARDS IDENTIFICATION

Warning! Combustible! Mist or vapors can cause a flash fire. Liquid, mist or vapors can cause eye, skin and respiratory tract irritation. Ingestion of liquid and aspiration into the lungs can result in chemical pneumonia.

PHYSICAL STATE: Liquid
Color: Water white to light amber
Odor: Faint petroleum odor

ROUTES OF ENTRY: Dermal Contact. Eye Contact. Inhalation. Ingestion.

POTENTIAL HEALTH EFFECTS

EYES: Eye irritation may result from contact with liquid, mists and/or vapors. In severe cases, permanent eye damage may occur.

SKIN: Contact with the skin may cause irritation. Skin irritation leading to dermatitis may occur upon prolonged or repeated contact. Symptoms include redness, itching and dermatitis. Repeated contact may cause harmful effects in other parts of the body.

INGESTION: This material can irritate the mouth, throat, and/or stomach. Aspiration into the lungs may cause chemical pneumonia. Symptoms include burning sensation of the mouth, nausea and vomiting. In severe cases loss of consciousness may occur.

INHALATION: Vapors or mists can irritate the nose, throat and/or lungs and can cause central nervous system depression. Symptoms include headache, nausea, fatigue and dizziness. In severe cases loss of consciousness or death may occur.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: This product contains petroleum distillates similar to those shown to produce skin tumors on laboratory animals. Avoid prolonged or repeated skin contact.

Caution is recommended for personnel with pre-existing central nervous system diseases. Personnel with pre-existing central nervous system diseas, skin disorders, or chronic respiratory diseases should avoid exposure to this product.

OVER-EXPOSURE SIGNS/SYMPTOMS: Headache, nausea, vomiting, dizziness, central nervous system- respiratory depression, convulsions, loss of consciousness, coma or death. Eye or skin irritation.

See toxicological information (section 11)

SECTION 4: FIRST AID MEASURES

EYES: Flush eyes with plenty of water for a minimum of 15 minutes. Seek medical care if irritation persists.

SKIN: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation or pain persists. Launder or dry-clean clothing prior to re-use. Discard contaminated leather goods.

INGESTION: WARNING! DO NOT INDUCE VOMITING. If aspirated into the lungs, may cause chemical pneumonitis. Seek medical attention promptly.

INHALATION: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get immediate medical attention if breathing is difficult or stops.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Ingestion/Inhalation of this product or subsequent vomiting may lead to aspiration, which may cause pneumonitis.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABILITY OF THE PRODUCT:	**Combustible liquid**
FLAMMABLE LIMITS IN AIR, (% BY VOLUME):	LOWER: Approx 0.7 UPPER: Approx 5.0
FLASH POINT:	Closed Cup >38° C, (100° F)
AUTOIGNITION TEMPERATURE:	Not determined
PRODUCTS OF COMBUSTION:	Normal combustion forms water vapor and carbon dioxide. Incomplete burning can produce carbon monoxide and particulate matter.
FIRE/EXPLOSION HAZARDS IN THE PRESENCE OF VARIOUS SUBSTANCES:	Combustible liquid. When heated above the flash point, this material will release vapors that can ignite when exposed to open flame, sparks and static discharge. Mists or sprays may be flammable at temperatures below the normal flash point. Keep away from heat and open flame.
FIRE-FIGHTING MEDIA AND INSTRUCTIONS:	Combustible Liquid. Use dry chemical, foam or carbon dioxide to extinguish the fire. Consult foam manufacturer for appropriate media, application rates and water/foam ratio. If a leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak. Use water to flush spills away from sources of ignition. Do not flush down public sewers. Collect contaminated fire-fighting water separately. It must not enter the municipal sewage system. Dike area of fire to prevent runoff. Decontaminate emergency personnel and equipment with soap and water. Combustible liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flashback. Runoff to sewer may create fire or explosion hazard.
SPECIAL FIRE FIGHTING EQUIPMENT:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Cool tanks, containers and exposed structures with water.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Moderately combustible. When heated above the flash point, this material will release flammable vapors which if exposed to a source of ignition can burn or be explosive in confined spaces. Mists or sprays may be flammable at temperatures below the normal flash point. Keep away from heat and open flame.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Do not touch or walk through spilled material. Tanks, vessels or other confined spaces which have contained product should be freed of vapors before entering. The container should be checked to ensure a safe atmosphere before entry. Empty containers may contain toxic, flammable/combustible or explosive residues or vapors. Do not cut, grind, drill, weld or reuse empty containers that contained this product. Do not transfer this product to another container unless the container receiving the product is labeled with proper DOT shipping name, hazard class and other information that describes the product and its hazards.

ENVIRONMENTAL PRECAUTIONS:

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. If facility or operation has an "*oil or hazardous substance contingency plan*", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Review Fire Fighting Measures section before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) away from release. Contain spill in smallest possible area.

Recover as much product as possible (e.g., by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 800-424- 8802. For highway or railway spills, contact Chemtrec at 800-424-9300.

METHODS FOR CLEANING UP:

If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials) and use a nonsparking or explosion-proof means to transfer material to a sealable, appropriate container for disposal. For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Water spill: Eliminate sources of ignition and warn other ships in the area to stay clear. Notify the proper authorities. Confine with skimming equipment if available or set booms to recover the spill.

SECTION 7: HANDLING AND STORAGE

HANDLING

Do not ingest. Do not get in eyes, on skin or on clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. In case of fire, use water spray, foam, dry chemical or carbon dioxide as described in the Fire Fighting Measures section of the MSDS. Do not pressurize, cut, weld, braze, solder, drill on or near this container. "Empty" container contains residue (liquid and/or vapor) and may explode in heat of a fire. Use good personal hygiene practices. After handling this product, wash hands before eating, drinking or using toilet facilities. Keep out of reach of children. Failure to use caution may cause serious injury or illness. Do not use as a cleaning solvent or for other non-fuel uses. To prevent ingestion and exposure - Do not siphon by mouth to transfer product between containers.

STORAGE:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

For information regarding transferring material refer to OSHA Standard 29 CFR 1910.106, “Flammable and Combustible Liquids”, National Fire Protection Association (NFPA) 77, “Recommended Practice on Static Electricity”, and/or the American Petroleum Institute (API) Recommended Practice 2003, “Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents”.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Special ventilation may be required for handling conditions at elevated temperatures. Ensure that eyewash stations and safety showers are close to the workstation location.

PERSONAL PROTECTION

SKIN: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Flame retardant clothing is recommended. In case of skin contact, wash with mild soap and water or a waterless hand cleaner. Immediately remove soiled clothing and wash thoroughly before reuse. Discard oil-soaked leather goods.

RESPIRATORY: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

HANDS: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye: Eye protection (chemical-type goggles and/or face shield) should be worn whenever there is a likelihood of splashing or spraying liquid. Contact lenses should not be worn. Eye wash water should be provided.

Other: Use good personal hygiene practices.

PROTECTIVE CLOTHING OR EQUIPMENT: Gloves, Hardhat, Face Shield, Boots, Safety Glasses, Respirator, Fire Retardant Clothing

PERSONAL PROTECTIVE EQUIPMENT IN CASE OF A LARGE SPILL: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

Established Occupational Exposure Limits

SUBSTANCE	VALUE	TIME/TYPE	SOURCE
Stoddard Solvent	500 ppm 60 ppm	8 Hour PEL 8 Hour PEL	OSHA NIOSH
Cyclohexane	300 ppm	98 Hour PEL	OSHA
Benzene	1 ppm 5 ppm	8 Hour PEL STEL	OSHA OSHA
Toluene	50 ppm	8 Hour TWA	ACGIH
Xylene	100 ppm 150 ppm	8 Hour TWA STEL	OSHA OSHA
Napthalene	10 ppm 15 ppm	8 Hour TWA STEL	OSHA NIOSH

Consult local authorities for acceptable exposure limits.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
COLOR:	Water white to light amber
ODOR:	Faint Petroleum Odor
BOILING POINT:	160 to 300°C (320 to 572°F)
FREEZING POINT:	-50 to -40°C
SPECIFIC GRAVITY:	0.775 to 0.840 (Water = 1) (@ 60°F)
VISCOSITY:	1.3 – 2.2 cSt @ 100°F (D-445)
VAPOR PRESSURE:	2.2 kPa @37.8°C (100F)
VAPOR DENSITY:	>1 (Air = 1)
VOLATILITY:	Not Determined
EVAPORATION RATE:	Not Available
MATERIALS TO AVOID:	Reacts with strong oxidizing material and strong acids
HAZARDOUS DECOMPOSITION PRODUCTS:	Burning or excessive heating may produce carbon monoxide and other harmful gases and vapors including oxides and/or other compounds of sulfur and nitrogen.

SECTION 10: STABILITY AND REACTIVITY

STABILITY AND REACTIVITY:	The product is stable
INCOMPATIBILITY WITH VARIOUS SUBSTANCES:	Reactive with strong oxidizing agents and strong acids
HAZARDOUS DECOMPOSITION PRODUCTS:	None known
HAZARDOUS POLYMERIZATION:	Will not occur
CONDITIONS TO AVOID (STABILITY):	Heat, sparks and open flame. Strong oxidizers. Strong acids.

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICITY DATA

Jet Fuel/Straight-run Kerosene CAS 8008-20-6

CARCINOGENICITY: Application of petroleum hydrocarbons of similar composition and boiling range to mouse skin resulted in an increased incidence of skin tumors in some studies. Potential components which are listed by IARC as carcinogens or potential carcinogens are: benzene and ethylbenzene. Risk of cancer depends on duration and level of exposure.

TARGET ORGANS: Potential components which have demonstrated developmental and or target organ issues are: benzne, toluene, xylenes, naphthalene and ethylbenzene.

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: This product is potentially toxic to aquatic organisms and should be kept out of sewage and drainage systems and all bodies of water.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

This material, if discarded as produced, is not a RCRA "listed" hazardous waste. However, conditions of use which results in chemical, physical changes or contamination, may subject it to regulation as a hazardous waste. Transportation, treatment, storage and disposal of waste material must be conducted in accordance with federal, state and local regulations.

Consult your local or regional authorities.

SECTION 14: TRANSPORT INFORMATION

REGULATORY INFORMATION	UN NUMBER	EMERGENCY RESPONSE GUIDEBOOK	PROPER SHIPPING NAME	CLASS	PACKING GROUP
DOT Classification	UN1863	Guide 128	Fuel, Aviation, Turbine Engine	3	III

Note: This material may be re-classified as a combustible liquid for domestic land transportation under 49 CFR 173.150 (f)

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

EPA SARA Sections 302, 304 & 313 and CERCLA :

This material contains the following chemicals subject to the reporting requirements of SARA 302, SARA 304, SARA 313, CERCLA and 40 CFR 372:

Chemical Name	CAS Number	Material Concentration	CERCLA/SARA Section 302 TPQ (lbs.)	CERCLA/SARA Section 304 RQ (lbs.)
BENZENE	71-43-2	0 - 0.2%		10
1,2,4 TRIMETHYLBENZENE	95-63-6	0 - 2%		N/A
NAPHTHALENE	91-20-3	1 - 3%		100
XYLENES	1330-20-7	0 - 2%		100

Carcinogen Identification:

This mixture may contain chemicals that have been identified as a carcinogen by NTP, IARC, or OSHA.

Extremely Hazardous Substances for Emergency Response and Planning 40 CFR 355 & 40 CFR 370:

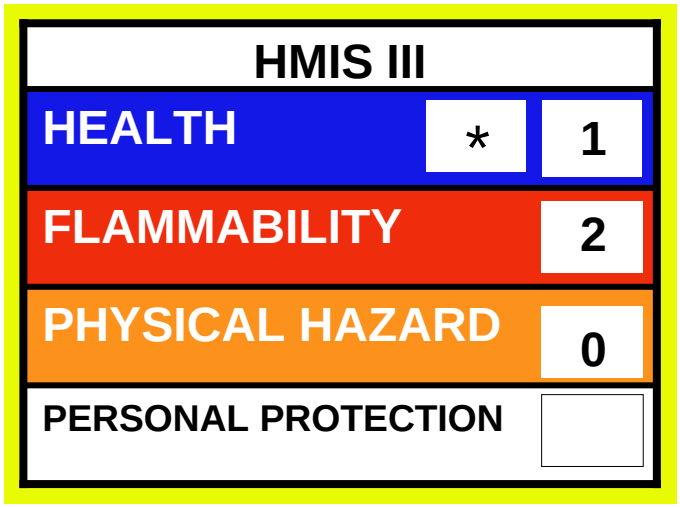
None.

EPA SARA 311/312 Title III Hazard Categories:

Acute Health Hazard:	**YES**
Chronic Health Hazard:	**YES**
Fire Hazard:	**YES**
Pressure Hazard:	**NO**
Reactive Hazard:	**NO**

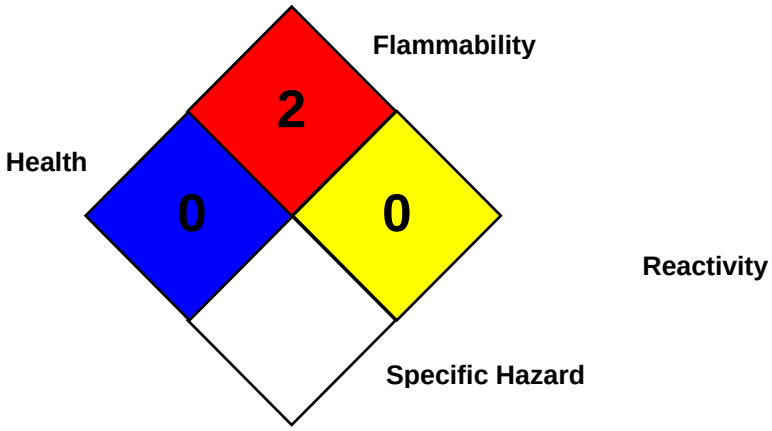
SECTION 16: OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (U.S.A.)



*** Chronic Health Hazard**

NATIONAL FIRE PROTECTION ASSOCIATION (U.S.A.)



DISCLAIMER

The information in this MSDS was obtained from sources which we believe are reliable. **HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS ACCURACY OR CORRECTNESS.**

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. **FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.**

Material Safety Data Sheet

Revision Issued: 6/22/2010 Supercedes: 7/21/2003 First Issued: 10/22/96

Section I - Chemical Product And Company Identification

Product Name: Desert Crete Polymer 550

CAS Number: N/A HBCC MSDS No. CD01550

HILL BROTHERS Chemical Co.
1675 NORTH MAIN STREET • ORANGE, CALIFORNIA 92867-3499
(714) 998-8800 • FAX: (714) 998-6310
http://hillbrothers.com

1675 No. Main Street, Orange, California 92867
Telephone No: 714-998-8800 | Chemtrec: 800-424-9300

Section II - OSHA Regulated Ingredients

		Exposure Limits (TWAs) in Air		
Chemical Name	CAS Number	ACGIH TLV	OSHA PEL	STEL
No OSHA Regulated Ingredients				

Section III - Hazard Identification

Routes of Exposure: Eyes, skin, inhalation
Summary of Acute Health Hazards
Ingestion: No hazard in normal industrial use. Low order of toxicity.
Inhalation: Vapors may be irritating to respiratory system and nasal passages.
Skin: Frequent or prolonged contact may irritate the skin.
Eyes: Slightly irritating but does not injure eye tissues.
Summary of Chronic Health Hazards: N/A
Medical Conditions Generally Aggravated by Exposure: N/A
Note to Physicians: N/A

Section IV - First Aid Measures

Ingestion: If swallowed induce vomiting only if victim is alert. Get prompt medical attention. Do Not attempt to give anything by mouth to a drowsy or unconscious person.
Inhalation: Remove to fresh air. Get medical attention if irritation persists.
Skin: Flush with large amounts of water; use soap, if available.
Eyes: Flush eyes with large amounts of water for at least 15 minutes. If irritation persists, get medical attention.

Section V - Fire Fighting Measures

Flash Point: : Non-Flammable **Autoignition Temperature:** N/A
Lower Explosive Limit: N/A **Upper Explosive Limit:** N/A
Unusual Fire and Explosion Hazards: Dry polymer film will burn. CO_2 and CO may be emitted.
Extinguishing Media: Water fog; Foam; CO2; Dry chemical

Special Firefighting Procedures: Fire fighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Section VI - Accidental Release Measures

Spills should be taken up with suitable absorbent and placed in containers. Spill area can be washed with water; collect wash water for approved disposal. Do not flush to storm sewer or waterway.

Section VII - Handling and Storage

Open drums in well ventilated area. Avoid breathing vapors.
Other Precautions: N/A

Section VIII - Exposure Controls/Personal Protection

Respiratory Protection: None required under normal handling conditions. Use NIOSH approved respirator if vapor or mist levels are irritating.
Ventilation: Local ventilation is adequate.
Protective Clothing: The use of chemically resistant gloves is recommended. Rubber boots and apron if exposure is severe. Soiled clothing should be laundered before re-use.
Other Protective Clothing or Equipment: Wear safety glasses with side shields.
Work/Hygienic Practices: Wash hands with plenty of soap and water before eating, smoking, and using toilet facilities. Do NOT place food, coffee or other drinks in the area where dusting or splashing of solutions is possible.

Section IX - Physical and Chemical Properties

Physical State: Liquid
pH: N/A
Melting Point/Range: N/A
Boiling Point/Range: 212°F
Appearance/Color/Odor: Milk white aqueous emulsion, sweet odor.
Solubility in Water: Miscible
Vapor Pressure (mmHg): 24 @ 25°C
Specific Gravity (Water=1): 1.02 - 1.04
Molecular Weight: N/A
Vapor Density (Air=1): 0.6
% Volatiles: 51.2 - 52.2 (by volume)
Evaporation Rate (Bu-Ac=1): 0.4
% VOC: zero

Section X - Stability and Reactivity

Stability: Stable
Hazardous Polymerization: Will not occur
Materials to Avoid: Substances which react with water.
Hazardous Decomposition Products/Conditions to Avoid: Stable under normal temperature and pressure.

Section XI - Toxicological Information

N/A

Section XII - Ecological Information

N/A

Section XIII - Disposal Considerations

Waste disposal should be in accordance with existing federal, state and local regulations. Empty containers may contain product residue; follow MSDS and label warnings even after they have been emptied. This product does not meet the definition of hazardous waste.

Section XIV - Transport Information

DOT Proper Shipping Name: N/A
DOT Hazard Class/ I.D. No.: N/A

Section XV - Regulatory Information

WARNING
This product contains Acetaldehyde, a chemical known to the State of California to cause cancer
Reportable Quantity: N/A
NFPA Rating: Health - 1; Flammability - 0; Instability - 0
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme
Carcinogenicity Lists: No **NTP:** No **IARC Monograph:** No **OSHA Regulated:** No

Section XVI - Other Information

Synonyms/Common Names: N/A
Chemical Family/Type: Styrene-Acrylic Copolymer
Sections changed since last revision: I, IX, XV

IMPORTANT! Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This MSDS has been prepared according to the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The MSDS information is based on sources believed to be reliable. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Also, additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks prior to use, and then to exercise appropriate precautions for protection of employees and others.

MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types)

MSDS No. 9909

EMERGENCY OVERVIEW
CAUTION!
OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT
EFFECTS CENTRAL NERVOUS SYSTEM
HARMFUL OR FATAL IF SWALLOWED

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer.
If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

NFPA 704 (Section 16)

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000
MSDS INTERNET WEBSITE: www.hess.com (See Environment, Health, Safety & Social Responsibility)

SYNONYMS: Ultra Low Sulfur Diesel (ULSD); Low Sulfur Diesel; Motor Vehicle Diesel Fuel; Diesel Fuel #2; Dyed Diesel Fuel; Non-Road, Locomotive and Marine Diesel Fuel; Tax-exempt Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel (68476-34-6)	100
Naphthalene (91-20-3)	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Diesel fuel may be dyed (red) for tax purposes. May contain a multifunctional additive.

3. HAZARDS IDENTIFICATION

EYES
Contact with liquid or vapor may cause mild irritation.

SKIN
May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	> 125 ^{o}F (> 52 ^{o}C) minimum PMCC
AUTOIGNITION POINT:	494 ^{o}F (257 ^{o}C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5

FIRE AND EXPLOSION HAZARDS
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Diesel fuel, and in particular low and ultra low sulfur diesel fuel, has the capability of accumulating a static electrical charge of sufficient energy to cause a fire/explosion in the presence of lower flashpoint products such as gasoline. The accumulation of such a static charge occurs as the diesel flows through pipelines, filters, nozzles and various work tasks such as tank/container filling, splash loading, tank cleaning; product sampling; tank gauging; cleaning, mixing, vacuum truck operations, switch loading, and product agitation. There is a greater potential for static charge accumulation in cold temperature, low humidity conditions.

Documents such as 29 CFR OSHA 1910.106 "Flammable and Combustible Liquids, NFPA 77 Recommended Practice on Static Electricity, API 2003 "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and ASTM D4865 "Standard Guide for Generation and Dissipation of Static

Electricity in Petroleum Fuel Systems" address special precautions and design requirements involving loading rates, grounding, bonding, filter installation, conductivity additives and especially the hazards associated with "switch loading." ["Switch Loading" is when a higher flash point product (such as diesel) is loaded into tanks previously containing a low flash point product (such as gasoline) and the electrical charge generated during loading of the diesel results in a static ignition of the vapor from the previous cargo (gasoline).]

Note: When conductivity additives are used or are necessary the product should achieve 25 picosiemens/meter or greater at the handling temperature.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Components (CAS No.)	Source	Exposure Limits TWA/STEL	Note
Diesel Fuel: (68476-34-6)	OSHA	5 mg/m, as mineral oil mist	
	ACGIH	100 mg/m^3 (as totally hydrocarbon vapor) TWA	A3, skin
Naphthalene (91-20-3)	OSHA	10 ppm TWA	
	ACGIH	10 ppm TWA / 15 ppm STEL	A4, Skin

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION
A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE
Clear, straw-yellow liquid. Dyed fuel oil will be red or reddish-colored.

ODOR
Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	320 to 690 oF (160 to 366 ^{o}C)
VAPOR PRESSURE:	0.009 psia @ 70 ^{o}F (21 ^{o}C)
VAPOR DENSITY (air = 1):	> 1.0
SPECIFIC GRAVITY (H_2O = 1):	0.83 to 0.88 @ 60 ^{o}F (16 ^{o}C)
PERCENT VOLATILES:	100 %
EVAPORATION RATE:	Slow; varies with conditions
SOLUBILITY (H_2O):	Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ®; Fluorel ®

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY
Acute dermal LD50 (rabbits): > 5 ml/kg
Acute oral LD50 (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits)
Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY
Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

MUTAGENICITY (genetic effects)
This material has been positive in a mutagenicity study.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:	Diesel Fuel	Placard (International Only):
HAZARD CLASS and PACKING GROUP:	3, PG III	
DOT IDENTIFICATION NUMBER:	NA 1993 (Domestic) UN 1202 (International)	
DOT SHIPPING LABEL:	None	

Use Combustible Placard if shipping in bulk domestically

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

CALIFORNIA PROPOSITON 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

INGREDIENT NAME (CAS NUMBER)	Date Listed
Diesel Engine Exhaust (no CAS Number listed)	10/01/1990

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)

16. OTHER INFORMATION

NFPA® HAZARD RATING HEALTH: 0
FIRE: 2
REACTIVITY: 0

Refer to NFPA 704 "Identification of the Fire Hazards of Materials" for further information

HMIS® HAZARD RATING HEALTH: 1 * * Chronic
FIRE: 2
PHYSICAL: 0

SUPERSEDES MSDS DATED: 02/28/2001

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212) 642-4900
API	American Petroleum Institute (202) 682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General info: (800) 467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Canadian Workplace Hazardous Materials Information System

MATERIAL SAFETY DATA SHEET

Product Name:
CARBOB Gasoline
(3393)

SECTION 1 – PRODUCT IDENTIFICATION AND USE

Product name CARBOB Gasoline ***Note: All Irving gasolines are unleaded.***
Chemical name Natural gasoline
Common names and synonyms Automotive gasoline, California Reformulated Blendstock for Oxygenated Blending
WHMIS classification Flammable liquid Class B Division 2; Very toxic material Class D Division 2 Subdivisions A and B

Hazard codes

	NFPA	HMIS
Health	1	1
Flammability	3	3
Reactivity	0	0

NFPA & HMIS Ratings: 0=Insignificant/No Hazard. 1=Slight Hazard. 2=Moderate Hazard. 3=High/Serious Hazard. 4=Extreme/Severe Hazard.

PIN #, UN # 1203
TDG, DOT class Class 3
Packing group II
Shipping name Gasoline
Product use Fuel

Supplier Irving Oil Limited, Refining Division
Box 1260, Saint John
New Brunswick Canada E2L 4H6

Phone (506) 202-2000
Emergency (Chemtrec) 1-800-424-9300
Refinery (506) 202-3000

SECTION 2 – HAZARDOUS INGREDIENTS

Ingredients	CAS#	Concentration (wt%)	ACGIH-TLVs (2005) (ppm) TWA	ACGIH-TLVs (2005) (ppm) STEL	OSHA PELs (ppm) (general industry) TWA	OSHA PELs (ppm) (general industry) STEL	OSHA PELs (ppm) (general industry) Peak	NIOSH RELs (ppm) TWA	NIOSH RELs (ppm) STEL	LD_{50} (rat, oral) (g/kg)	LC_{50} (rat, 4 hours)
Gasoline	8006-61-9	100	300	500	300* Not established†	500*	None*	Not established		13.6	Not available
Contains a variety of aromatic and aliphatic hydrocarbons including:											
Benzene	71-43-2	0.35-0.7	0.5	2.5	1* 10†	5* 25C†	None* 50†	0.1	1.0	0.9	13,200 ppm
n-Hexane	110-54-3	5-28	50	None	50* 500†	None* None†	None* None†	50	None	25	48,000 ppm
Toluene	108-88-3	Not available	50	None	100* 200†	150* 300†	None* 500†	100	150	0.6	49 g/m^3
Xylenes	1330-20-7	14-20	100	150	100* 100†	150* None†	None* None†	100	150	4.3	5,000 ppm

*Final Rule limits (currently non-enforceable). †Transitional limits (currently in effect). C means Ceiling limit.
Gasoline is a complex mixture of hydrocarbons. Its exact composition depends on the source of the crude oil from which it was produced and the refining methods used. Gasoline contains hundreds of individual organic chemicals. This section identifies only some of the well-known chemical constituents.

SECTION 3 – PHYSICAL DATA

Form Liquid
Colour Clear.
Odour Characteristic gasoline odour
Odour threshold About 0.1 ppm
pH Not applicable
Coefficient of oil/water distribution Not available. Expected to be >1.

Specific gravity 0.72 to 0.74 @ 15˚C (60˚F)
Vapour density 2.5 to 4 (air = 1)
Vapour pressure 130 to 150 mm Hg @ 20°C (68˚F)
Evaporation rate Rapid. ~4. (Butyl acetate = 1)
Boiling point 38 to 220˚C (100 to 428˚F)
Freezing point <-80˚C (-112˚F)

SECTION 4 – FIRE AND EXPLOSION HAZARDS

Flammability ☒ Yes ☐ No **Conditions** Easily ignited by heat, sparks or flames.
Flash point Typically about -43˚C (-45˚F) (cc) **Auto ignition temperature** Typically 257°C (495˚F)
Lower flammable limit Typically 1.4% **Upper flammable limit** Typically 7.6%
Explosion data: Sensitivity to: **Mechanical impact** Not expected to be sensitive **Static discharge** Vapour: yes
Means of extinction In general, do not extinguish fire unless flow can be stopped. Use carbon dioxide, dry chemical, or foam. Cool containers with flooding quantities of water until well after the fire is out.
Special precautions Vapour is heavier than air. It will spread along the ground & collect in low or confined areas (sewers, basements). Also travels to source of ignition and flash back. Containers may explode when heated.
Hazardous combustion products Carbon monoxide. Nitrogen oxides. PAHs, phenols, and other aromatic hydrocarbons.

SECTION 5 – REACTIVITY INFORMATION

Stability Stable
Conditions to avoid Sources of ignition. Static discharges. High temperatures.
Incompatible substances Oxidizers such as peroxides, nitric acid, and perchlorates.
Hazardous decomposition Carbon monoxide, nitrogen oxides, and numerous aromatic hydrocarbons.

SECTION 6 – HEALTH HAZARD INFORMATION

Route of Entry
- ☐ **Eye**
- ☒ **Skin absorption** (benzene, n-hexane, toluene)
- ☒ **Inhalation**
- ☒ **Ingestion**

Hazardous Contact
- ☒ **Eye**
- ☒ **Skin contact**

Acute exposure Headache, nausea, dizziness and other symptoms of central nervous system (CNS) depression. Aspiration into the lungs can cause severe pneumonitis (serious lung irritation), with coughing, gagging, shortness of breath, chest pain, and/or pulmonary edema (fluid accumulation).

Chronic exposure Peripheral & CNS damage, such as tremors, hallucinations, memory loss, & impaired mental capacity. Damage to liver, kidneys and blood-producing system. Prolonged skin contact may cause dermatitis.

Carcinogenicity EPA, IARC, and NIOSH consider gasoline to be a suspected (potential) carcinogen. ACGIH refers to gasoline as a confirmed animal carcinogen with unknown relevance to humans. NTP and OSHA have not classified gasoline for carcinogenicity. Benzene is a recognized carcinogen.

Teratogenicity	Yes (toluene)
Reproductive toxicitv	Not available
Mutagenicity	Not known to be mutagenic
Sensitizatio	No

Irritancy Skin eyes, and respiratory tract. Very serious irritant if trapped against skin.

Toxicologically synergistic products Other petroleum hydrocarbons and other chemicals that cause CNS depression or other neurological effects can be expected to produce additive or synergistic effects.

SECTION 7 – FIRST AID

Inhalation Move victim to fresh air. Give artificial respiration if breathing has stopped and if a qualified AR administrator is available. Apply CPR if both pulse and breathing have stopped. Obtain medical attention immediately.

Ingestion Never give anything by mouth if the person is unconscious, rapidly losing consciousness, or convulsing. If the person is conscious, have them drink 8 to 10 ounces of water or milk to dilute the material in the stomach. **Do not** induce vomiting. If vomiting occurs spontaneously, have the person lean forward to avoid aspiration. Obtain medical attention immediately.

Eye If irritation occurs, flush eye with lukewarm, gently flowing fresh water for at least 10 minutes.

Skin Quickly and gently blot away excess chemical. Remove contaminated clothing and shoes. Wash skin gently and thoroughly with water and non-abrasive soap. Obtain medical assistance.

SECTION 8 – PRECAUTIONARY MEASURES

Personal protective equipment

Gloves	Tychem®BR/LV or Tychem®TK preferred.
Eye	Chemical safety goggles or face shield, as a good general safety practice.
Respiratory	NIOSH-approved SCBA or air line respirator with escape cylinder for confined spaces. A qualified occupational health and safety professional should advise on respirator selection. If an air-purifying respirator is appropriate, use a “P series” filter & organic vapour cartridges.
Clothing & footwear	Coveralls to prevent skin contact with product. If clothing or footwear becomes contaminated with product, completely decontaminate it before re-use, or discard it.

Engineering controls Enclose processes. Use local exhaust ventilation to remove vapour at its site of generation. Handle laboratory samples in a fume hood. Use mechanical ventilation in confined spaces.

Handling procedures & equipment Eliminate all sources of ignition. Ensure that ventilation systems are explosion-proof, non-sparking, and grounded. Use intrinsically-safe electrical systems. Ground and bond transfer containers. Keep containers closed. Have safety shower and eyewash in the work area. Never siphon gasoline by mouth.

Leak & spill Procedure Keep unauthorized persons away. Eliminate all sources of ignition. Ventilate area. Stop leak if it can be done safely. Prevent entry into sewers, waterways, or confined spaces. Small spills: Contain with earth, sand, or non-flammable absorbent material. Shovel (non-sparking tools) into clean, dry, labelled containers and cover. Flush area with water. Large spills: Contact emergency services for advice.

Waste disposal Contact appropriate governmental agencies for approved disposal of material.

Storage Cool, dry, well-ventilated area, out of direct sunlight. No ignition sources or incompatible materials. Containers should be grounded, vented and equipped with a flame arrester. Consider leak detection and alarm equipment for storage area.

Shipping Load at normal temperature (up to 38^{o}C) and pressure. Bond and ground containers for transfer.

SECTION 9 – PREPARATION DATE OF MSDS

Prepared by	Irving Oil Limited, Refining Division	**Phone**	(506) 202-3000
Revision date	January 30, 2006	**To re-order MSDS, phone**	(506) 202-2000

Lubricants Report

Product Data Sheet from Shell Lubricants

PDS# 3.51.01

DIAMOND DRILL ROD GREASE

DRILL ROD LUBRICANT

PRODUCT LINE

Diamond Drill Rod Grease is a premium quality lubricant specifically designed for reducing rotating friction between drill rods and casings. Its excellent adhesion and water resistance properties ensure that it stays in place.

APPLICATIONS

Diamond Drill Rod Grease is applied by hand to the outside of the drilling rods, prior to insertion into the hole.

PERFORMANCE BENEFITS

- Reduces friction and thus horsepower requirements
- Increases drilling efficiency
- Contains a germicidal agent to help prevent infection of cuts which may occur during handling of the drill rods.

TYPICAL PROPERTIES

PRODUCT CODE	**504-971**	**ASTM METHOD**
NLGI GRADE	3	
Thickener Type	Barium-Sodium Complex	
Texture	Fibrous	
Colour	Amber	
Cone Penetration @ 77°F (0.1mm), - worked 60 strokes	234	D 217
Dropping Point (°F/°C)	385/196	D 2265
Base Oil Viscosity (cSt) @ 40°C @ 100°C	 117.6 10.8	D 445
Water Washout @ 79°C (% wt loss)	5.0	D 1264
4 Ball EP Properties, load wear (kg)	42	D 2596
Rust Prevention	Pass	D 1743
Leakage Tendency @ 105°C (grams)	1.38	D 1263

Visit your nearest Shell Associate or Reseller for more details.
Need more product information? Please the Shell Customer Service Centre at 1-800-661-1600
or e-mail us at questions@shell.com

MSDS requests? Please call 1-800-661-1600 or fax your request to (403) 691-3997

USED OIL

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **USED OIL**

SYNONYMS: Waste oil; Used lubricating oil; Oil and water mixture

PRODUCT PART NUMBER(S): Not applicable.

PRODUCT USE: Oil or water mixture for re-refining or reprocessing.
If this product is used in combination with other products, refer to the Material Safety Data Sheets for those products.

These numbers are for emergency use only. If you desire non-emergency product information, please call a phone number listed below.

24-HOUR EMERGENCY PHONE NUMBERS
MEDICAL AND TRANSPORTATION (SPILL):

1-800-468-1760

MANUFACTURER/ SUPPLIER: Safety-Kleen Systems, Inc.
5400 Legacy Drive
Cluster II, Building 3
Plano, Texas 75024
USA
1-800-669-5740
www.Safety-Kleen.com

TECHNICAL INFORMATION: 1-800-669-5740 Press 1 then 1 then Extension 7500

MSDS FORM NUMBER: 81451 **ISSUE:** September 20, 2007

ORIGINAL ISSUE: January 15, 1990 **SUPERSEDES:** June 11, 2007

PREPARED BY: Product MSDS Coordinator **APPROVED BY:** MSDS Task Force

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

				OSHA PEL		ACGIH TLV®			
WT%	NAME	SYNONYM	CAS NO.	TWA	STEL	TWA	STEL	LD[a]	LC[b]
80 to 100	Lubricating oils, used	Used oil	70514-12-4	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0 to 20*	Water/solids	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0 to 10*	Hydrocarbon solvents. May include gasoline, diesel fuel, jet fuel, mineral spirits, etc.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0 to 1.5*	Metals. May include lead, iron, zinc, copper, chromium, arsenic, nickel, and others: each below 1.0 WT%.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0 to 1.0*	Polynuclear aromatics. May include naphthalene, fluoranthene, phenanthrene, pyrene, and others: each below 0.3 WT%.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0 to 0.5*	Chlorinated solvents.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.

N.Av. = Not Available

*Even though the concentration range does not fall under the ranges prescribed by WHMIS, this is the actual range which varies with each batch of the product.

[a] Oral-Rat LD_{50} (mg/kg)

[b] Inhalation-Rat LC_{50}

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE

Liquid, black and viscous (thick), petroleum odor.

WARNING!

PHYSICAL HAZARDS

Combustible liquid.

HEALTH HAZARDS

May be harmful if inhaled.
May be harmful if absorbed through skin.
May be harmful or fatal if swallowed.
May irritate the respiratory tract (nose, throat, and lungs), eyes, and skin.
Suspect cancer hazard. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.
Contains material which can cause birth defects.
Contains material which can cause central nervous system damage.

ENVIRONMENTAL HAZARDS

Product may be toxic to fish, plants, wildlife, and/or domestic animals.

POTENTIAL HEALTH EFFECTS

Effects may vary depending on material composition. Typical effects may include:

INHALATION (BREATHING): High concentrations of vapor or mist may be harmful if inhaled. High concentrations of vapor or mist may irritate the respiratory tract (nose, throat, and lungs). High concentrations of vapor or mist may cause nausea, vomiting, headaches, dizziness, loss of coordination, numbness, and other central nervous system effects. Massive acute overexposure may cause rapid central nervous system depression, sudden collapse, coma, and/or death.

EYES: May cause irritation.

SKIN: May cause irritation. Product may be absorbed through the skin and cause harm as noted under **INHALATION (BREATHING)**.

INGESTION (SWALLOWING): May be harmful or fatal if swallowed. May cause throat irritation, nausea, vomiting, and central nervous system effects as noted under **INHALATION (BREATHING)**. Breathing product into the lungs during ingestion or vomiting may cause lung injury and possible death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing cardiovascular, liver, kidney, respiratory tract (nose, throat, and lungs), central nervous system, eye, and/or skin disorders may have increased susceptibility to the effects of exposure.

CHRONIC: Prolonged or repeated inhalation may cause oil pneumonia, lung tissue inflammation, fibrous tissue formation, and/or toxic effects as noted under **INHALATION (BREATHING)**. Prolonged or repeated eye contact may cause inflammation of the membrane lining the eyelids and covering the eyeball (conjunctivitis). Prolonged or repeated skin contact may cause drying, cracking, redness, itching, and/or swelling (dermatitis).

CANCER INFORMATION: This product contains mineral oils, untreated or mildly treated, which can cause cancer. This product may contain hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics which can cause cancer. Risk of cancer depends on duration and level of exposure. For more information, see **SECTION 11: CARCINOGENICITY**.

POTENTIAL ENVIRONMENTAL EFFECTS

Product may be toxic to fish, plants, wildlife, and/or domestic animals.
Also see **SECTION 12: ECOLOGICAL INFORMATION**.

SECTION 4: FIRST AID MEASURES

INHALATION: (BREATHING) Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Oxygen should only be administered by qualified personnel. Someone should stay with victim. Get medical attention if breathing difficulty persists.

EYES: If irritation or redness from exposure to vapor develops, move away from exposure into fresh air. Upon contact, immediately flush eyes with plenty of lukewarm water, holding eyelids apart, for 15 minutes. Get medical attention.

SKIN: Remove affected clothing and shoes. Wash skin thoroughly with soap and water. Get medical attention if irritation or pain develops or persists.

INGESTION: (SWALLOWING) Do NOT induce vomiting. Immediately get medical attention. Call 1-800-468-1760 for additional information.
If spontaneous vomiting occurs, keep head below hips to avoid breathing the product into the lungs. Never give anything to an unconscious person by mouth.

NOTE TO PHYSICIANS: Treat symptomatically and supportively. Treatment may vary with condition of victim and specifics of incident. Call 1-800-468-1760 for additional information.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: >200°F (93°C) (minimum) Pensky-Martens Closed Cup

FLAMMABLE LIMITS IN AIR: Not available.

AUTOIGNITION TEMPERATURE: Not available.

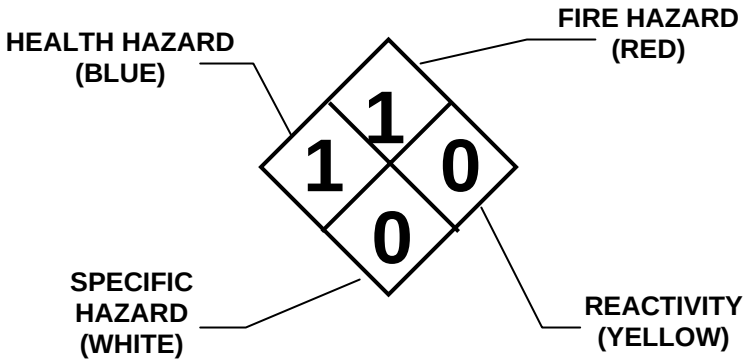
HAZARDOUS COMBUSTION PRODUCTS: Decomposition and combustion materials may be toxic. Burning may produce phosgene gas, nitrogen oxides, carbon monoxide, and unidentified organic compounds.

CONDITIONS OF FLAMMABILITY: Heat, sparks, or flame. Product may burn but does not ignite readily.

EXTINGUISHING MEDIA: Use carbon dioxide, regular foam, dry chemical, water spray, or water fog.

NFPA 704 HAZARD IDENTIFICATION:

This information is intended solely for the use by individuals trained in this system.



FIRE FIGHTING INSTRUCTIONS:

Keep storage containers cool with water spray. A positive-pressure, self-contained breathing apparatus (SCBA) and full-body protective equipment are required for fire emergencies.

FIRE AND EXPLOSION HAZARDS:

Heated containers may rupture. "Empty" containers may retain residue and can be dangerous. Product is not sensitive to mechanical impact. Product may be sensitive to static discharge, which could result in fire or explosion.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Remove all ignition sources. Do not touch or walk through spilled product. Stop leak if you can do it without risk. Wear protective equipment and provide engineering controls as specified in **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area and avoid breathing vapor or mist. A vapor suppressing foam may be used to reduce vapors. Contain spill away from surface waters and sewers. Contain spill as a liquid for possible recovery, or sorb with compatible sorbent material and shovel with a clean, sparkproof tool into a sealable container for disposal.

Additionally, for large spills: Water spray may reduce vapor, but may not prevent ignition in closed spaces. Dike far ahead of liquid spill for collection and later disposal.

There may be specific federal regulatory reporting requirements associated with spills, leaks, or releases of this product. Also see **SECTION 15: REGULATORY INFORMATION.**

SECTION 7: HANDLING AND STORAGE

HANDLING: Keep away from heat, sparks, or flame. Where flammable mixtures may be present, equipment safe for such locations should be used. Use clean, sparkproof tools and explosion-proof equipment. When transferring product, storage tanks, tanker trucks, and rail tank cars should be grounded and bonded. Do not breathe vapor or mist. Use in a well ventilated area. Avoid contact with eyes, skin, clothing, and shoes. Do not smoke while using this product.

SHIPPING AND STORING: Keep container tightly closed when not in use and during transport. Do not pressurize, cut, weld, braze, solder, drill, or grind containers. Keep containers away from heat, flame, sparks, static electricity, or other sources of ignition. Empty product containers may retain product residue and can be dangerous. See **SECTION 14: TRANSPORT INFORMATION** for Packing Group information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use general ventilation, process enclosures, local exhaust ventilation, or other engineering controls to control air-borne levels. Where explosive mixtures may be present, equipment safe for such locations should be used.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: A respiratory protection program which meets USA's OSHA General Industry Standard 29 CFR 1910.134 or Canada's CSA Standard Z94.4-M1982 requirements must be followed whenever workplace conditions warrant a respirator's use. Consult a qualified Industrial Hygienist or Safety Professional for respirator selection guidance.

EYE PROTECTION: Wearing chemical goggles is recommended.
Contact lens may be worn with eye protection.

SKIN PROTECTION: Where prolonged or repeated skin contact is likely, wear neoprene, nitrile (4 mil minimum), PVC (polyvinyl chloride), or equivalent protective gloves; wearing natural rubber or equivalent gloves is not recommended.

When product is heated and skin contact is likely, wear heat-insulating gloves, boots, and other protective clothing.

To avoid prolonged or repeated contact with product where spills and splashes are likely, wear appropriate chemical-resistant faceshield, boots, apron, whole body suits, or other protective clothing.

PERSONAL HYGIENE:	Wash thoroughly with soap and water after handling product and before eating, drinking, or using tobacco products. Clean affected clothing, shoes, and protective equipment before reuse. Discard affected clothing, shoes, and/or protective equipment if they cannot be thoroughly cleaned. Discard leather articles, such as shoes, saturated with the product.
OTHER PROTECTIVE EQUIPMENT:	Where spills and splashes are likely, facilities storing or using this product should be equipped with an emergency eyewash and shower, both equipped with clean water, in the immediate work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE, APPEARANCE, AND ODOR:	Liquid, black and viscous (thick), petroleum odor.
ODOR THRESHOLD:	Not available.
MOLECULAR WEIGHT:	Not applicable.
SPECIFIC GRAVITY:	0.8 to 1.0 at 60°F (15.6°C) (water = 1)
DENSITY:	6.7 to 8.3 LB/US gal (800 to 1000 g/l) (approximately)
VAPOR DENSITY:	greater than 1 (air = 1) (based on kerosene)
VAPOR PRESSURE:	Not available.
BOILING POINT:	Not available.
FREEZING/MELTING POINT:	Not available.
pH:	Not applicable.
EVAPORATION RATE:	less than 1 (butyl acetate = 1)
SOLUBILITY IN WATER:	Slight.
FLASH POINT:	>200°F (93°C) (minimum) Pensky-Martens Closed Cup
FLAMMABLE LIMITS IN AIR:	Not available.
AUTOIGNITION TEMPERATURE:	Not available.

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal temperatures and pressures. Avoid heat, sparks, or flame.

INCOMPATIBILITY: Avoid acids, alkalies, oxidizing agents, reducing agents, reactive halogens, or reactive metals.

REACTIVITY: Polymerization is not known to occur under normal temperatures and pressures. Not reactive with water.

HAZARDOUS DECOMPOSITION PRODUCTS: None under normal temperatures and pressures. Also see **SECTION 5: HAZARDOUS COMBUSTION PRODUCTS**.

SECTION 11: TOXICOLOGICAL INFORMATION

SENSITIZATION: Based on best current information, there may be known human sensitization associated with this product.

MUTAGENICITY: Based on best current information, there may be mutagenicity associated with this product.

CARCINOGENICITY: Mineral oils, untreated or mildly treated are listed by IARC as a known carcinogen. Mineral oils, untreated or mildly treated are classified by NTP as having limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals.

There may be hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics present in this product which are listed by OSHA as known carcinogens. There may be hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics present in this product which are listed by IARC as known, probable, or possible carcinogens. There may be hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics present in this product which are classified by NTP as known carcinogens or as having limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals. There may be hydrocarbon and chlorinated solvents; metals, and polynuclear aromatics present in this product which are recognized by ACGIH as confirmed or suspected human carcinogens.

Also see **SECTION 3: CANCER INFORMATION**.

REPRODUCTIVE TOXICITY: Based on best current information, there may be reproductive toxicity associated with this product.

TERATOGENICITY: Based on best current information, there may be teratogenicity associated with this product.

TOXICOLOGICALLY SYNERGISTIC PRODUCT(S): Based on best current information, there may be toxicologically synergistic products associated with this product.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY: Not available.

OCTANOL/WATER PARTITION COEFFICIENT: Not available.

VOLATILE ORGANIC COMPOUNDS: Not available.
As per 40 CFR Part 51.100(s).

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose in accordance with federal, state, provincial, and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact Safety-Kleen regarding proper recycling or disposal.

SECTION 14: TRANSPORT INFORMATION

DOT: Not regulated.

TDG: Not regulated.

EMERGENCY RESPONSE GUIDE NUMBER: Not applicable.
Reference *North American Emergency Response Guidebook*

SECTION 15: REGULATORY INFORMATION

USA REGULATIONS SARA SECTIONS 302 AND 304: Based on the ingredient(s) listed in **SECTION 2**, this product does not contain any "extremely hazardous substances" listed pursuant to Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) Section 302 or Section 304 as identified in 40 CFR Part 355, Appendix A and B.

SARA SECTIONS 311 AND 312: This product poses the following physical and health hazards as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA):

Immediate (Acute) Health Hazard
Delayed (Chronic) Health Hazard

SARA SECTION 313: This product may contain "toxic" chemicals subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

CERCLA: This product may contain “hazardous substances” listed pursuant to Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) in 40 CFR Part 302, Table 302.4.

TSCA: Not available.

CALIFORNIA: This product is not for sale or use in the State of California.

CANADIAN REGULATIONS
WHMIS: Not regulated

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): Not available.

SECTION 16: OTHER INFORMATION

REVISION INFORMATION: Change from MSIS to MSDS.

LABEL/OTHER INFORMATION: Not available.

Material Safety Data Sheet

1. Product and company identification

Product name Stihl Two Stroke Engine Oil

MSDS # 460317

Code 460317-CA01

Product use Engine oils.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Manufacturer Castrol Canada Inc.
3660 Lakeshore Blvd.
Toronto, Ontario M8W 1P2
Telephone: (416) 252-5511
Telecopier: (416) 252-1774

EMERGENCY HEALTH INFORMATION: 1 (800) 447-8735

Outside the US: +1 703-527-3887 (CHEMTREC)

EMERGENCY SPILL INFORMATION: 1 (800) 424-9300
CHEMTREC (USA)

OTHER PRODUCT INFORMATION 1 (866) 4 BP - MSDS
(866-427-6737 Toll Free - North America)
email: bpcares@bp.com

2. Hazards identification

Physical state Liquid.

Color Not available.

Emergency overview WARNING !

COMBUSTIBLE LIQUID AND VAPOR.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

Combustible liquid. Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Use only with adequate ventilation Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry Dermal contact. Eye contact. Inhalation. Ingestion.

Potential health effects

Eyes May cause eye irritation.

Skin May cause skin irritation. May cause allergic skin reaction. Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

Inhalation May cause respiratory tract irritation.

Ingestion Ingestion may cause gastrointestinal irritation and diarrhea.

See toxicological Information (section 11).

3. Composition/information on ingredients

Ingredient name	CAS #	%
Base oil - highly refined	Mixture	65 - 75
Petroleum naphtha	64742-47-8	20 - 25

4. First aid measures

Eye contact
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

Skin contact
Immediately wash exposed skin with soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. In the event of any complaints or symptoms, avoid further exposure. Get medical attention if symptoms occur.

Inhalation
If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Ingestion
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Get medical attention if symptoms occur.

5. Fire-fighting measures

Flammability of the product
Combustible liquid.

Flash point
Closed cup: 60.6°C (141.1°F)

Fire/explosion hazards
In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Extinguishing media

Suitable
Use DRY chemicals, CO_2, water spray or foam.

Not suitable
Do not use water jet.

Fire-fighting procedures
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containing vessels from fire area if without risk. Use water spray to keep fire-exposed containers cool.

Hazardous combustion products
Decomposition products may include the following materials:
carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)

Protective clothing (fire)
Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

6. Accidental release measures

Personal precautions
No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and clean-up

Large spill
Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth, and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact

information and section 13 for waste disposal.

Small spill Stop leak if without risk. Move containers from spill area. Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Handling Put on appropriate personal protective equipment (see Section 8). Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this preparation is used. Do not get in eyes, on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame, or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Storage Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that are opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Occupational exposure limits
Base oil - highly refined	**ACGIH (United States).** STEL: 10 mg/m^3 15 minute(s). Form: Oil mist, mineral TWA: 5 mg/m^3 8 hour(s). Form: Oil mist, mineral
Petroleum naphtha	**ACGIH TLV (United States, 1/2007). Skin** TWA: 200 mg/m^3 8 hour(s).

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Control Measures Use only with adequate ventilation Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. The engineering controls also need to keep gas, vapor or dust concentrations below any explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

Personal protection

Eyes Avoid contact with eyes. Safety glasses with side shields or chemical goggles.

Skin and body Avoid contact with skin and clothing. Wear suitable protective clothing.

Respiratory Use adequate ventilation. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable.

Hands The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or S.O.P. for special handling directions

9. Physical and chemical properties

Physical state	Liquid.
Color	Not available.
Odor	Not available.
Odor threshold	Not available.
Flash point	Closed cup: 60.6°C (141.1°F)
Specific gravity	Not available.
Density	866 kg/m^3 (0.866 g/cm^3) at 15°C
pH	Not available.
Viscosity	Kinematic: 26.74 mm^2/s (26.74 cSt) at 40°C Kinematic: 5.45 mm^2/s (5.45 cSt) at 100°C
Boiling point / Range	Not available.
Melting point / Range	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Evaporation rate	Not available.
Solubility	Insoluble in water.
LogK$_{ow}$	Not available.

10. Stability and reactivity

Stability and reactivity	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Keep away from heat, sparks and flame.
Incompatibility with various substances	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	Will not occur.

11. Toxicological information

Other information

Potential chronic health effects

Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Reproductive effects	No known significant effects or critical hazards.
Medical conditions aggravated by over-exposure	Pre-existing skin disorders may be aggravated by over-exposure to this product.

12. Ecological information

No testing has been performed by the manufacturer.

13. Disposal considerations

Waste information

The generation of waste should be avoided or minimised wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

NOTE: The generator of waste has the responsibility for proper waste identification (based on characteristic(s) or listing), transportation and disposal

14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Class	Packing group	Additional information
DOT Classification	NA1993	Combustible liquid, n.o.s. (Straight run kerosene)	Combustible liquid.	III	-
TDG Classification	Not regulated.	-	-	-	-
IMDG Classification	Not regulated.	-	-	-	-
IATA/ICAO Classification	Not regulated.	-	-	-	-

15. Regulatory information

U.S. Federal regulations

United States inventory (TSCA 8b): All components are listed or exempted.

WHMIS (Canada)

Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-2B: Material causing other toxic effects (TOXIC).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Inventories

Canada inventory: All components are listed or exempted.

Europe inventory: All components are listed or exempted.

Australia inventory (AICS): All components are listed or exempted.

China inventory (IECSC): Not determined.

Japan inventory (ENCS): Not determined.

Korea inventory (KECI): Not determined.

Philippines inventory (PICCS): All components are listed or exempted.

16. Other information

Label requirements

WARNING !

COMBUSTIBLE LIQUID AND VAPOR.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

History

Date of issue 10/18/2011.

Date of previous issue No Previous Validation.

Prepared by Product Stewardship

Notice to reader

NOTICE : This Material Safety Data Sheet is based upon data considered to be accurate at the time of its preparation. Despite our efforts, it may not be up to date or applicable to the circumstances of any particular case. We are not responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices or from hazards inherent in the nature of the product.

MATERIAL SAFETY DATA SHEET

SECTION I – PRODUCT INFORMATION

Product Name: Propane
Trade Name: LPG (Liquefied Petroleum Gas)
Chemical Formula: C3H8
WHMIS Classification: Class A – Compressed Gas
Class B, Division I – Flammable Gas

Supplier:

Business:

Non-Medical Emergency:

Uses and Occurrence: Propane is commonly used as fuel for heating, cooking, automobiles, forklift trucks, crop drying and welding and cutting operations. Propane is used in industry as a refrigerant, solvent and as a chemical feedstock.

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

SECTION II – HAZARDOUS INGREDIENTS

Components	CAS Registry No.	Proportion of Product	LC50	LD50
Propane	74-98-6	95% - 98%	N/A	N/A
Ethane	74-84-0	3% - 5%	N/A	N/A
Butane	106-97-8	1% - 3%	N/A	N/A
Iso-Butane	75-28-5	0.1% - 0.3%	N/A	N/A
Methane	74-82-8	0.1% - 0.2%	N/A	N/A

Note: Composition given is typical for Grade 1 Propane; exact composition will vary from shipment to shipment.

SECTION III – CHEMICAL AND PHYSICAL DATA

Form: While stored under pressure – liquid and/or vapour

Boiling Point: -42 ^{o}C atm

Freezing Point: -188 ^{o}C

Evapouration Rate: Rapid (Gas at Normal Ambient Conditions)

Vapour Pressure: 1,013 (kPa) @ 26.0 ^{o}C

Vapour Density: 1.52 (Air = 1)

Coefficient of Water/Oil Distribution: Not available

PH: Not available

Soluble in Water: 6.1% by Volume @ 17.8 ^{o}C and 753 mmHg

Specific Gravity: 0.51 (Water = 1)

Appearance: Colourless liquid and vapour while stored under pressure.

Colourless and odourless gas in natural state at any concentration.

Commercial propane has an odourant added which is commonly ethyl mercaptan which has an odour similar to boiling cabbage or rotten eggs.

Odour Threshold: 4800 PPM

See Note 1 - Odourants

SECTION IV – FIRE OR EXPLOSION HAZARD DATA

Flash Point: -103.4 °C **Method**: Closed Cup

Flammable Limits: Lower 2.4%, Upper 9.5%

Auto Ignition Temperature: 432 °C

Products Evolved Due to Heat or Combustion: Carbon monoxide can be produced when primary and secondary airs are deficient while combustion is taking place.

Fire and Explosive Hazards: Explosive air-vapour mixtures may form if allowed to leak to atmosphere.

Sensitivity to Impact: No

Sensitivity to Static Discharge: Yes

Fire Extinguishing Precautions: Use water spray to cool exposed cylinders or tanks. Do not extinguish fire unless the source of the escaping gas that is fuelling the fire can be turned off. Fire can be extinguished with carbon dioxide and/or dry chemical (BC). Container metal shells require cooling with water to prevent flame impingement and the weakening of metal. If weakening occurs, the area must be evacuated. If gas has not ignited, liquid and vapour may be dispersed by water spray or flooding.

Special Fire Fighting Equipment: Protective clothing, hose monitors, fog nozzles, self contained breathing apparatus.

SECTION V – REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Keep separate from oxidizing agents. Gas explodes spontaneously when mixed with chlorine dioxide.

Incompatibility: Remove sources of ignition and observe distance requirements for storage tanks from combustible material, drains, and openings to buildings.

Hazardous Decomposition Products: Deficient primary and secondary air can produce carbon monoxide.

Hazardous Polymerization: Will not occur.

SECTION VI – TOXICOLOGICAL PROPERTIES OF MATERIAL

ACUTE EXPOSURE:

Eyes: As a gas, none, Liquid causes “cold burns’.

Respiratory System: Little physiological effect at concentrations below 10.000 PPM. Higher concentrations may cause dizziness and unconsciousness due to asphyxiation.
SEE NOTE 2 – ASPHYXIANT.

Chronic Exposure: There are no reported effects from long-term low-level exposure.

Other: Liquid can cause burns and frostbite if in direct contact with skin.

Sensitization Properties: Skin – unknown, **Respiratory** – unknown.

Carcinogenicity: Not determined.
SEE NOTE 3 (NORM).

MEDIAN LETHAL DOSE:

Oral: Not applicable for gas.

Inhalation: Not determined.

Dermal: Not applicable for gas.

Other: Not determined.

IRRITATION INDEX:

Skin: No appreciable effect (gas).

Eyes: No appreciable effect (gas).

Symptoms of Exposure: Above 10,000 PPM – dizziness, stupor, unconsciousness. ***SEE NOTE 2 attached.*** American Conference of Governmental Industrial Hygienists (ACGIH) classifies propane as an asphyxiate; there is no recommended “Threshold Limit Value” (TLV).

Teratogenicity: Not determined.

Mutagenicity: Not determined.

SECTION VII – OCCUPATION CONTROL PROCEDURES

Eyes: Safety glasses, goggles, or face shield required when transferring product.

Skin: Insulated gloves if contact with liquid or liquid cooled equipment is expected. Wear gloves and long sleeves when transferring product.

Inhalation: In atmosphere, where the concentration of propane would reduce oxygen level below 18% in inhaled air, self contained breathing apparatus required.

SEE NOTE 3 – (NORM).

Ventilation: Explosion proof ventilation equipment required in confined spaces.

SECTION VIII – EMERGENCY AND FIRST AID PROCEDURES

FIRST AID:

Eyes: Should eye contact with liquid occur, flush eyes with lukewarm water for 15 minutes. Obtain immediate medical care.

Skin: In case of "Cold Burn" from contact with liquid, immediately place affected area in lukewarm water and keep at this temperature until circulation returns. If fingers or hands are frostbitten, have the victim hold his hand next to his body such as under the armpit. Obtain immediate medical care.

SPILL OR LEAK:

Eliminate leak if possible.

Eliminate source of ignition.

Ensure cylinder is upright.

Disperse vapours with hose streams using fog nozzles, watch for low area, as propane is heavier than air and can settle in low areas. Remain upwind of leak, keep people away.

Prevent vapour and/or liquid from entering into sewers, basements or confined areas.

SECTION 1X – TRANSPORTATION, HANDLING AND STORAGE

- Transport and store cylinders and tanks secured in an upright position in a ventilated space, away from ignition sources (so relief valve is in contact with vapour space of cylinder or tank).
- Cylinders that are not in use must have the valves in the closed position and be equipped with a protective cap or guard.
- Do not store with oxidizing agents, oxygen or chlorine cylinders.
- Transport, handle and store according to applicable federal and provincial regulations (CGA B149.2).
- ***SEE NOTE 4 – MAGNETIC RESIDUES.***

TDG Classification: 2.1 (gas)

TDG Shipping Name: Liquid Petroleum Gas (Propane)

TDG Special Provisions: 56, 90, and 102

PIN UN: 1075

SECTION X – PREPARATION INFORMATION

Prepared by: Canadian Propane Association
(613) 683-2270

Date prepared: July 2012

The information contained herein is believed to be accurate. It is provided independently of any sale of the product. It is not intended to constitute performance information concerning the product. No express warranty or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product information contained herein.

This information is in addition to the information supplied on the MSDS and forms a part of the MSDS by reference to note numbers indicated:

NOTE 1 - ODOURANTS:

Odourants are not completely effective warning agents in all cases.

Certain odourants are polar and/or chemically reactive and may be depleted by reaction or absorption.

Sensitivity to odourants differs from person to person and may decrease with age or impaired physical conditions such as colds or respiratory allergies.

Prolonged exposure to odourants can create desensitization to the odour.

NOTE 2 - ASPHYXIANT AND NARCOTIC EFFECTS OF PROPANE:

LPG's can displace air and can act as an asphyxiant. Lack of oxygen may cause dizziness, headaches, diminished awareness, faulty judgment, increase in fatigue and impaired muscular co-ordination. If these symptoms are identified while working in close proximity to propane that is released, go immediately into a fresh air environment.

LPG's are anaesthetic gases within the upper explosive limits and higher concentrations. A person working around propane in an enclosed space or in close proximity to a propane source such as filling cylinders, purging lines, investigating leaks, etc. who feels light-headed, dizzy, drunken, sleepy, or intoxicated should go immediately into fresh air. This narcotic effect may impair a person's judgment temporarily but will rapidly disappear in fresh air.

NOTE 3 - NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM):

Sludges and tank scale from propane storage tanks, bulk delivery truck tanks, railway tank cars, and fuel filters and strainers screens may contain Naturally Occurring Radioactive Material (NORM) in the form of lead 210.

Equipment used for the transfer of propane such as propane piping and hoses, pumps and compressors may have detectable levels of radioactive lead 210 on inner surfaces.

Workers involved in cleaning, repair or maintenance on inner surfaces of such equipment should avoid breathing dust generated from such activities. Suitable codes of practice should be developed for the activities, detailing appropriate occupational hygiene and disposal practices.

NOTE 4 - MAGNETIC RESIDUES IN PROPANE:

Magnetic residues generated in automotive fuel tanks from "mill scale" or corrosion processes may impair the operation of magnetic gauges and electronic solenoid valves.

Collection of gross amounts of solid residues can affect the proper operation of lock offs, mixers, pressure release valves, etc.

Solid residues could contain NORM (see note 3).

Appendix 4 Spill Report Form

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS

F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION	
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION	
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS		

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC

SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN

FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

Appendix 5 Completing the Spill Report Form

Instructions for Completing the NT-NU Spill Report Form

This form can be filled out electronically and e-mailed as an attachment to spills@gov.nt.ca. Until further notice, please verify receipt of e-mail transmissions with a follow-up telephone call to the spill line. Forms can also be printed and faxed to the spill line at 867-873-6924. Spills can still be phoned in by calling collect at 867-920-8130.

A. Report Date/Time	The actual date and time that the spill was reported to the spill line. If the spill is phoned in, the Spill Line will fill this out. **Please do not fill in the Report Number**: the spill line will assign a number after the spill is reported.
B. Occurrence Date/Time	Indicate, to the best of your knowledge, the exact date and time that the spill occurred. Not to be confused with the report date and time (see above).
C. Land Use Permit Number /Water Licence Number	This only needs to be filled in if the activity has been licenced by the Nunavut Water Board and/or if a Land Use Permit has been issued. Applies primarily to mines and mineral exploration sites.
D. Geographic Place Name	In most cases, this will be the name of the city or town in which the spill occurred. For remote locations – outside of human habitations – identify the most prominent geographic feature, such as a lake or mountain and/or the distance and direction from the nearest population center. **You must include the geographic coordinates** (Refer to Section E).
E. Geographic Coordinates	This only needs to be filled out if the spill occurred outside of an established community such as a mine site. Please note that the location should be stated in degrees, minutes and seconds of Latitude and Longitude.
F. Responsible Party Or Vessel Name	This is the person who was in management/control/ownership of the substance at the time that it was spilled. In the case of a spill from a ship/vessel, include the name of the ship/vessel. Please include full address, telephone number and e-mail. Use box K if there is insufficient space. **Please note that, the owner of the spilled substance is ultimately responsible for any spills of that substance, regardless of who may have actually caused the spill.**
G. Contractor involved?	Were there any other parties/contractors involved? An example would be a construction company who is undertaking work on behalf of the owner of the spilled substance and who may have contributed to, or directly caused the spill and/or is responding to the spill.
H. Product Spilled	Identify the product spilled; most commonly, it is gasoline, diesel fuel or sewage. For other substances, avoid trade names. Wherever possible, use the chemical name of the substance and further, identify the product using the four digit UN number (eg: UN1203 for gasoline; UN1202 for diesel fuel; UN1863 for Jet A & B)
I. Spill Source	Identify the source of the spill: truck, ship, home heating fuel tank and, if known, the cause (eg: fuel tank overfill, leaking tank; ship ran aground; traffic accident, vandalism, storm, etc.). Provide an estimate of the extent of the contaminated/impacted area (eg: 10 m^2)
J. Factors Affecting Spill	Any factors which might make it difficult to clean up the spill: rough terrain, bad weather, remote location, lack of equipment. Do you require advice and/or assistance with the cleanup operation? Identify any hazards to persons, property or environment: for example, a gasoline spill beside a daycare centre would pose a safety hazard to children. Use box K if there is insufficient space.
K. Additional Information	Provide any additional, pertinent details about the spill, such as any peculiar/unique hazards associated with the spilled material. State what action is being taken towards cleaning up the spill; disposal of spilled material; notification of affected parties. If necessary, append additional sheets to the spill report. Number the pages in the same format found in the lower right hand corner of the spill form: eg. "Page 1 of 2", "Page 2 of 2" etc. **Please number the pages to ensure that recipients can be certain that they received all pertinent documents.** If only the spill report form was filled out, number the form as "Page 1 of 1".
L. Reported to Spill Line by	Include your full name, employer, contact number and the location from which you are reporting the spill. Use box K if there is insufficient space.
M. Alternate Contact	Identify any alternate contacts. This information assists regulatory agencies to obtain additional information if they cannot reach the individual who reported the spill.
N. Report Line Use Only	**Leave Blank**. This box is for the **Spill Line's use only**.

Appendix 6 Emergency Response Plan

EMERGENCY RESPONSE PLAN
ITCHEN LAKE PROPERTY
NUNAVUT, CANADA

MARCH 2013

APEX Geoscience Ltd.
200-9797 45th Ave, Edmonton, AB T6E 5V8 • Tel: 780-439-5380 • Fax: 780-433-1336
E-Mail: mdufresne@apexgeoscience.com • Web: www.apexgeoscience.com

INDEX

PREAMBLE **1**

1.0 INTRODUCTION **1**

1.1 PURPOSE AND SCOPE OF THE EMERGENCY RESPONSE PLAN **1**
1.2 APEX GEOSCIENCE LTD. EMERGENCY RESPONSE PLANNING POLICY **1**
1.3 LEGISLATION **1**
1.3.1 Site Safety *2*
1.3.2 Spill/Emergency Response *2*
1.4 METHODS FOR INTERNAL EVALUATION OF THE ERP **2**
2.1 HAZARD IDENTIFICATION **3**
2.1.1 Toxicological and Physicochemical Properties of Chemicals Handled *3*
2.1.2 Fire *3*
2.1.3 Uncontrolled Explosion *3*
2.1.4 Medical Emergency *4*
2.1.5 Extreme Weather *4*
2.2 SPILL REPORTING QUANTITIES **5**
3.1 EMERGENCY RESPONSE ORGANIZATION **5**
3.2 EMERGENCY ASSESSMENT **5**
3.3 LEVELS OF EMERGENCY **6**
3.4 ASSESSMENT MATRIX FOR INCIDENT CLASSIFICATION **7**

4.0 EMERGENCY RECOGNITION, PREVENTION AND RESPONSE **8**

4.1 EMERGENCY RECOGNITION AND PREVENTION **8**
4.2 EMERGENCY RESPONSE **8**
4.3 COMMUNICATIONS **10**
4.3.1 Internal *10*
4.3.2 External *10*
4.4 PERSONAL PROTECTION EQUIPMENT **10**
4.5 DECONTAMINATION PROCEDURES **10**
4.6 ACCOUNTING FOR EMPLOYEES **11**
4.7 REMOVAL OF INJURED EMPLOYEES **11**
4.8 ASSESSMENT OF EMERGENCY **11**
4.9 INITIAL CALLS TO OUTSIDE RESOURCES AND AGENCIES **11**
4.10 SHUT DOWN OF CERTAIN SERVICES AND UTILITIES **11**
4.11 CLOSING MEETING **11**
4.12 PLAN ACTIVATION AND RESPONSE MOBILIZATION **12**
4.13 ROUTINE INSPECTIONS AND PREPAREDNESS **12**

5.0 SAFE DISTANCES AND PLACES OF REFUGE **13**

5.1 SAFE DISTANCES **13**

6.0 SITE SECURITY AND CONTROL **14**

7.0 EVACUATION ROUTES AND PROCEDURES **15**

8.0 DECONTAMINATION/CLEAN-UP PROCEDURES **16**

10.0 RESOURCE INVENTORY **18**

10.1 EMERGENCY EQUIPMENT LOCATIONS **18**
10.2 AID AGREEMENTS **18**

APPENDIX A **19**

APPENDIX B **22**

Itchen Lake Property HTX Minerals Corp. *24*
EMERGENCY RESPONSE PLAN *24*

APPENDIX C **33**
APPENDIX D **35**

PREAMBLE

The Emergency Response Plan is effective from start-up of exploration and applies to the Itchen Lake Property (operated by APEX Geoscience Ltd. in Nunavut), all ancillary facilities, and all activities associated with operation of the project.

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE OF THE EMERGENCY RESPONSE PLAN

The purpose of the Itchen Lake Property emergency response plan (ERP) is to set out procedures and processes to be followed in the event of an emergency at the site. It encompasses the activities of all APEX Geoscience Ltd. ("APEX") and contractor employees as well as visitors to the site.

The main goals of the plan are:

- to provide education and training for staff at the Itchen Lake Property in emergency preparedness;
- to enable staff to respond to an emergency in a coordinated manner minimizing injury and loss of property; and
- to allow the Itchen Lake Property to maintain operations at a level as close as possible to normal and restore normal operations quickly and efficiently.

As the plan is a requirement under legislation as discussed in Section 1.3, a draft version will be circulated to government responsible authorities for comment prior to finalization.

1.2 APEX GEOSCIENCE LTD. EMERGENCY RESPONSE PLANNING POLICY

APEX Geoscience Ltd. is committed to operating at the highest standards to protect the health and safety of our workers, the public, and the environment. Therefore, as part of an emergency preparedness program, the employees of APEX Geoscience Ltd. will maintain an emergency plan in compliance with applicable laws and industry standards to ensure a timely and appropriate response to emergencies.

1.3 LEGISLATION

Regulatory requirements are outlined in this section. Regulations pertinent to emergency response are those governing Mine Health and Safety and spill response.

1.3.1 Site Safety

APEX Geoscience Ltd. will develop an emergency response plan (ERP) prior to site occupation, which will conform to requirements as set out in PEI Act, specifically Section 12(e) of the *Occupational Health and Safety Act 2004,* and will include at least the following:

- a list of the hazards;
- possible major consequences of each;
- required countermeasures;
- inventory of resources needed to carry out the planned actions; and
- make provision for establishment of the necessary emergency organization and procedures.

A Spill Prevention and Response Plan has been developed and will be refined during occupation.

APEX Geoscience Ltd. will comply with provisions of the Act and Regulations in a proactive manner. Management and employees through the Health and Safety Committee will evaluate previous accidents and the potential for serious accidents and injuries in assigning inspection frequencies beyond those mandated in the Act.

1.3.2 Spill/Emergency Response

Storage of hazardous substances, as defined by the *Transportation of Dangerous Goods Act*, requires preparation and filing of a Spill Prevention and Response Plan that meets the requirements of local *Regulation*. Requirements of the *Regulation* are similar to those of the *Environmental Protection and Enhancement Act*.

1.4 METHODS FOR INTERNAL EVALUATION OF THE ERP

The site Health and Safety Committee will be responsible for evaluation of the ERP with direction from the project manager and the camp manager. The continual improvement approach to evaluation will be followed. Suggestions will be solicited and welcomed from all employees. Emergency preparedness will be formally evaluated by the Health and Safety Committee who will provide verbal and written reports on the schedule detailed in Section 1.5.

All emergency incidents will be reviewed by site management and the Health and Safety Committee immediately following the incident. Emergency response will be reviewed for adequacy. Any deficiencies will be addressed as a priority and the emergency response plan

modified as appropriate.

1.5 UPDATE SCHEDULE

The ERP will be formally evaluated annually by the Health and Safety Committee and site management. Updates will be issued to all registered holders of the plan. More frequent amendments may be required, depending on deficiencies noted, and these will be generated and issued as required.

2.0 PRE-EMERGENCY PLANNING

2.1 HAZARD IDENTIFICATION

2.1.1 Toxicological and Physicochemical Properties of Chemicals Handled

Toxicological properties of chemicals used at the Itchen Lake Property are listed in Attachment 2.1 and will be provided as pull-out sheets in the final Emergency Response Plan. Information is a subset of Material Safety Data Sheets (MSDS) to be provided in binders at all safety stations at the site.

2.1.2 Fire

Fire could occur at the Itchen Lake Property at a number of locations listed in Table 2.1.

All precautions possible will be taken to prevent fires at the site, because of the difficulty in effectively fighting fires at this remote location, especially during winter. Fire drills will be held on a periodic basis to check personnel preparedness. Locations of fire alarms and evacuation routes (if not obvious, e.g. only one door) will be posted in all work areas; fire extinguishers will be clearly marked in an approved manner.

2.1.3 Uncontrolled Explosion

Controlled explosions (blasting) are part of the mining process and will be undertaken by qualified personnel only. Uncontrolled explosions from misuse of explosives, although extremely unlikely, are possible. As well, any flammable liquids or gases (diesel, gasoline, propane) at concentrations between the lower and upper explosives limits could potentially explode. From these considerations, there are a limited number of areas where uncontrolled

explosions have any risk of occurrence. These include:

- fuel cache;
- generator housing;
- helicopter refueling; and
- exploration camp.

Risk of occurrence is assessed to be very low based on the frequency of occurrence of such accidents at other industrial locations. The consequences would be very high with possible loss of life and probable disruption of operations for an indeterminate length of time.

2.1.4 Medical Emergency

Medical emergencies can occur at any time and would be due to accidents or ill health.

Medical evacuations will be accomplished by means of fixed or rotary wing medevac to Kugluktuk. First Aid Attendants will be on staff full time at the site and will be able to provide first aid and to treat more minor injuries. A satellite phone system is installed at the Itchen Lake Property and will provide reliable telephone communications in the event of a medical emergency requiring consultation with outside medical help and/or requesting a plane for medevac.

Table 2.2 provides a list of emergency contacts for outside resources available for assistance with medical emergencies.

2.1.5 Extreme Weather

Weather extremes include blizzards in winter from snow storms and flooding in summer from rain storms. Extreme cold is a normal part of northern winters and the Itchen Lake Property is designed to operate in this environment; thus cold extremes are considered to have a very low risk of resulting in an emergency situation and will not be considered further.

Supervisory personnel will be experienced field hands and will be able to judge when conditions deteriorate to the extent that work should cease and crews return to the camp. Radio contact will be available throughout the site and thus senior supervisory personnel can be advised at any time of deteriorating weather situations and the status of crews working outside.

2.2 SPILL REPORTING QUANTITIES

Quantities that must be reported under the Spill Reporting Regulation are listed in Table 2.3.

The NWT/Nunavut Spill Report Line number is: 1—867-920-8130

3.0 RESPONSE ORGANIZATION

3.1 EMERGENCY RESPONSE ORGANIZATION

The Itchen Lake Property response organization is shown in Figure 3-1. The figure will be completed prior to site occupation. The figure provides the chain of command in the upper three boxes and agencies that may require contacting in case of an emergency in the lower boxes.

3.2 EMERGENCY ASSESSMENT

An attempt to confirm the answers to the following questions will be made by personnel attending the emergency:

1. What type of incident is it?
   Accident
   Spill
   Fire
   Explosion
   Weather Emergency

2. What type of container, if any?
   Bulk Container
   Bags
   Drums
   Other

3. What types of chemicals are involved?
   Are they toxic
   Are they flammable
   Are other chemicals involved
   Are they liquid, solid, solutions or gases
   Class of chemical, i.e. TDG or WHMIS

4. Location of Incident?

   Inside a building (what building)
   Outside a building (what location)

Entered water or has the potential to
Location
Accessibility

5. Personnel Injuries?

   Physical
   Contamination with product

6. Who is in charge?

   Operator
   Supervisor
   Other

7. What is the physical situation?

   Physical description
   Weather (if spill is outside)
   Approximate temperature (if outside)

8. Is wildlife involved?

3.3 LEVELS OF EMERGENCY

The level of emergency is defined by using the Assessment Matrix for Incident Classification in Section 4.3.

Alert – Very Low Emergency – An incident that can be handled on-site by APEX personnel through normal operating procedures and is deemed to be a very low risk to members of the public.

Level 1 – Low Emergency – There is no danger outside the licensee's property, there is no threat to the public, and there is minimal environmental impact. The situation can be handled entirely by APEX personnel. There will be immediate control of the hazard. There is little or no media interest.

Level 2 – Medium Emergency – There is no immediate danger outside of the licensee's property or the right-of-way, but there is the potential for the emergency to extend beyond the property. Outside agencies must be notified. Imminent control of the hazard is probable, but there is a moderate threat to the public and/or the environment. There may be local and regional media interest in the event.

Level 3 – High Level Emergency – The safety of the public is in jeopardy from a major uncontrolled hazard. There are likely significant and ongoing environment impacts. Immediate multi-agency municipal and provincial/territorial/state government involvement is required.

3.4 ASSESSMENT MATRIX FOR INCIDENT CLASSIFICATION

Table 1: Consequence of Incident

Rank	Category	Example of Consequence
1	Minor	No worker injuries Nil or low media interest Liquid release contained on lease Gas release impact on lease only
2	Moderate	First aid treatment required for on-lease worker(s) Local and possible regional media interest Liquid release not contained on lease. Gas release impact could potentially extend beyond lease.
3	Major	Worker(s) requires hospitalization Regional and national media interest Liquid release extends beyond lease-not contained Gas release impact extends beyond lease-public health/safety could be jeopardized
4	Catastrophic	Fatality National and international media interest Liquid release off lease not contained -potential for, or is, impacting water or sensitive terrain Gas release impact extends beyond lease-public health/safety jeopardized

Table 2: Likelihood of Incident Escalating

Rank	Descriptor	Description
1	Unlikely	The incident is contained or controlled, and it is unlikely it will escalate. There is no chance of additional hazards. Ongoing monitoring required.
2	Moderate	Control of the incident may have deteriorated, but imminent control of the hazard by the licensee is probable. It is unlikely that the incident will further escalate.
3	Likely	Imminent /intermittent control of the incident is possible. The licensee has the capability of using internal/external resources to manage and bring the hazard under control in the near term.
4	Almost certain or currently occurring	The incident is uncontrolled. There is little chance the hazard will be brought under control in the near term. Assistance from outside parties is required to remedy the situation.

Sum the Rank from both Table 1 & 2 to obtain the Risk Level and the Incident Classification

Table 3: Incident Classification

Risk Level	Assessment Results
Very Low - 2-3	Alert
Low - 4-5	Level 1 Emergency
Medium - 6	Level 2 Emergency
High - 7-8	Level 3 Emergency

4.0 EMERGENCY RECOGNITION, PREVENTION AND RESPONSE

4.1 EMERGENCY RECOGNITION AND PREVENTION

Being aware of potential situations is the first step in emergency recognition and prevention. All employees will be made aware of potential emergencies at the Itchen Lake Property in their initial orientation training. Periodic emergency preparedness update training will also be provided to all employees at the site and plant.

Most emergencies at industrial sites are due to worker injury caused by accidents. An effective safety and accident prevention program therefore is a key component of emergency prevention and will be established at the Itchen Lake Property through the Occupational Health and Safety Plan. An effective safety program is also a necessary component of an emergency preparedness plan. Standard operating procedures will be established for all work conducted at the Itchen Lake Property and will incorporate safety as the number one consideration.

4.2 EMERGENCY RESPONSE

Emergency response contact telephone numbers are listed in Table 2.1 and Figure 3-1. Schedule 1 provides a list (as of the date shown on the list) of Itchen Lake Property personnel trained in emergency response. The numbers will be posted at telephones at the site. When an emergency is recognized the first step is to alert all potentially affected personnel by use of the air horn system, telephone and/or two-way radios as appropriate. The second step is to notify the project geologist or contact the camp manager who will assume charge of the emergency. It is the responsibility of all personnel to follow the instructions of the Project Manager.

All employees will record any information they receive as soon as they have an indication that an emergency may exist.

The following will be recorded:

1. Who is reporting, how can they be contacted
    a. Date, time
    b. Person calling, title
    c. Telephone number (if applicable)

This information will always be taken before the details on the nature and extent of emergency, in case of interruption of call or the need to clarify the situation.

2. Nature of emergency
    a. Location
    b. Type of emergency
        i. Spill of hazardous substance
        ii. Fire
        iii. Uncontrolled explosion
        iv. Accident/medical emergency
        v. Weather emergency
        vi. Other
    c. Injury or death
        i. If yes, number, names
    d. If hazardous substance spill
        i. Type of container (if applicable)
        ii. Materials involved (if known)
        iii. Leaking (if applicable)?
        iv. How quickly (if applicable)?
        v. Contamination of soil?
        vi. Contamination of surface water body?
        vii. Contamination of air?
    e. Time of incident
    f. Other materials involved (if applicable)?
    g. Wildlife involved (if applicable)?

Many emergencies are often initially overstated or understated; one of the most difficult tasks is to get a true appraisal of the situation. To this end all available resources must be used to get knowledgeable persons to the scene as quickly as possible.

3. Who has been notified?
    a. Refer to Itchen Lake Property Emergency Response Organization Chart (Figure 3-1).

4. Who is in charge of spill?
    a. Name and phone number, if available (this will normally be the Project Manager).

Emergency-specific procedures for potential emergencies that could arise at the Itchen Lake Property are attached in Attachment 4.2. Summary procedure flow charts are included as well and these charts will be posted at appropriate work stations throughout the site.

4.3 COMMUNICATIONS

For emergency situations it is imperative that people who are responsible for responding, or will direct emergency operations, are notified as rapidly as possible. In addition there may be a requirement to notify people or organizations off the site.

4.3.1 Internal

For most emergency communications the site phone and two-way radio systems will be used. Immediate evacuation alarms will be incident-specific and are discussed briefly below.

24-hour emergency phone and/or radio contacts are posted throughout the site. All employees must familiarize themselves with the locations of these notices in their work areas.

4.3.2 External

External communications regarding Itchen Lake Property emergencies will be principally of two types:

- those requesting aid or assistance; and
- those providing the outside world with information.

Requests for aid may be made by any employee, as appropriate, but should normally be channeled through the most senior on-Project Manager. Unless otherwise authorized by the manager or first aid attendant, external communications providing information on Itchen Lake Property emergencies will be handled by the manager or first aid attendant exclusively.

4.4 PERSONAL PROTECTION EQUIPMENT

A list of personal protection equipment available at the Itchen Lake Property and location of equipment will be included in the Spill Prevention and Response Plan update prepared prior to site occupation. Conceptually, the equipment could include that listed in Table 4.1

4.5 DECONTAMINATION PROCEDURES

A decision as to whether the spill warrants decontamination procedures will be based on the following. If the answer is yes to one, or all of the following, decontamination procedures must be followed.

A 'DON'T KNOW' ANSWER MUST BE TREATED AS A YES.

Is the product at IDLH (Immediately Dangerous to Life and Health) concentration?

Does the product constitute a Hazardous Waste? Potentially any substance covered under the *Transportation of Dangerous Goods Regulation* (e.g. diesel or gasoline), if spilled, could be considered a hazardous waste.

Would spread of even a small amount of the product lead to health or environmental risks?

Decontamination procedures are discussed further in Section 8 of this plan and in detail in the Itchen Lake Property Spill Prevention and Response Plan.

4.6 ACCOUNTING FOR EMPLOYEES

It is the Project Manager's responsibility to account for all personnel at the assembly points. If any are missing, the Project Manager must be notified immediately of the name and last known location. The Manager will then arrange with the emergency response team to locate the missing personnel consistent with their own personal safety. Employees must be told not to try to re-enter the area until the all-clear signal is given by the Project Manager.

4.7 REMOVAL OF INJURED EMPLOYEES

If injured employees are found, they should be carefully moved out of the area of concern only by the emergency response team who must be wearing proper PPE. Depending on the injury it may be necessary to wait until an ambulance arrives.

4.8 ASSESSMENT OF EMERGENCY

The Project Manager will determine whether assistance is required to make an assessment of the emergency situation.

4.9 INITIAL CALLS TO OUTSIDE RESOURCES AND AGENCIES

If immediate assistance is needed, reference should be made to the Emergency Response Organization Chart (Figure 3-1). Communication is discussed in Section 4.3.

4.10 SHUT DOWN OF CERTAIN SERVICES AND UTILITIES

During an emergency it may be necessary to shut down services. The Project Manager will make this decision with input from others, such as the catering department. Care must be taken to not shut down too much, as this may hamper resolution of the emergency.

4.11 CLOSING MEETING

The emergency Project Manager or shift supervisor, management representatives, environmental/ health/safety representatives, and agencies involved will hold a meeting

after the incident is over to discuss problems, assess responsiveness to the emergency, and suggest corrective measures to minimize future occurrence. Certain results of the meeting will be related to the affected employees to help relieve anxiety.

4.12 PLAN ACTIVATION AND RESPONSE MOBILIZATION

As part of initial preparedness for emergency response, a spill response team will be designated. The Project Manager will be responsible for activation of the emergency response plan. These persons will be familiar with the resources available to mobilize in the case of a specific incident, as well as the appropriate response.

The emergency plan activation and response mobilization will depend on the nature of the emergency and its location.

4.13 ROUTINE INSPECTIONS AND PREPAREDNESS

A key part of preparedness for emergencies is to ensure that all preparations and emergency equipment are in place and functioning as intended. There are two aspects to this:

- routine site inspections; and
- training updates (discussed in Section 9.0).

A conceptual building inspection form for monthly (or more frequent) inspections is provided in Schedule 2. Inspection forms for all aspects of the Itchen Lake Property will be developed and will form an integral part of the Emergency Response Plan.

5.0 SAFE DISTANCES AND PLACES OF REFUGE

5.1 SAFE DISTANCES

Safe distances are entirely situation dependent. Safe distances for a site emergency will be determined by the Project Manager, or designate. If in doubt, ask your supervisor. The Project Manager will set up exclusion zones for the emergency or spill. All personnel, without exception, not directly involved in the emergency response are to remain outside the exclusion zone, unless authorized to enter by the Project Manager or his designate.

The Project Manager will decide when it is safe to enter the exclusion zone, i.e., when it may be removed. All employees on site will be notified when the emergency exclusion zone is once again safe to enter.

As a rough guide in the absence of instruction the distances in Table 5.1 provide minimum safe distances.

6.0 SITE SECURITY AND CONTROL

During an emergency, proper security measures will be established to limit the movement of unauthorized personnel not involved in the response into the incident site. The Project Manager will be primarily responsible for establishing a security zone. The Project Manager is authorized to employ whatever resources are necessary to establish and police the zone. The nature of the zone and methods of exclusion will depend on the emergency and will be at the discretion of the Project Manager. All employees will be informed of the situation through their supervisors in order to facilitate understanding and compliance with the emergency security measures.

It is the sole discretion of the Project Manager as to when security may be relaxed or removed. The primary consideration will be safety of personnel, limiting to the greatest extent possible any negative environmental impacts, and effective control and elimination of the emergency conditions as quickly as possible.

In the case of a police investigation, these decisions will be made by the investigating police officer in charge. All personnel will be expected to extend full co-operation to police in their investigation.

Exclusion zones will normally be established at the safe distance line from the emergency (see Section 5.0). Where appropriate, and always in the case of spills of hazardous substances, the emergency site will be divided into three areas:

- exclusion zone;
- contamination reduction zone; and
- support zone.

Only necessary rescue and response personnel will be allowed into the exclusion zone. A check point or check points will be established through which all personnel entering or exiting the emergency site must pass. Check point information will include:

- name (position at the Itchen Lake Property or affiliation);
- time of entry/exit;
- zone(s) or areas to be entered;
- tasks to be performed; and
- protective equipment worn

7.0 EVACUATION ROUTES AND PROCEDURES

There are a several levels of evacuation that may be required at the Itchen Lake Property, depending on the emergency:

- building evacuation;
- area evacuation;
- site evacuation;

Building evacuation may be required in the case of fire or spill of a hazardous substance. Emergency exit doors will be clearly marked with an "Exit" sign on all buildings. Employees working in buildings will be made aware of building exits as part of job training; as well, periodic evacuation drills will be conducted to test emergency preparedness. Response will be recorded and the Health and Safety Committee will evaluate with respect to adequacy of drills and improvement required.

If outside areas of the site become unsafe due to ground instability, flooding, or other natural cause, or if a hazardous substance spill occurs, evacuation from the affected area may be required. This determination will be made by the Project Manager, but if any employee feels a work area is unsafe they may refuse to work in the area without penalty and report the unsafe condition to the Health and Safety Committee and/or the Project Manager. Evacuation from outside areas will normally be by existing access routes (see Site Map). In the event evacuation by that route is cut off, personnel may be required to walk to an alternate exit route or await rescue.

If the immediate area of the site become unsafe, it may be necessary to evacuate personnel to refuge sites, e.g., the survival huts, until normal conditions can be restored. Should this condition occur, all personnel will be notified as quickly as possible and transported to Yellowknife. Site contractor and APEX Geoscience Ltd. head offices must be notified.

Under exceptional circumstances it may be necessary to evacuate the entire Itchen Lake Property area of all personnel. This evacuation would be coordinated by the Project Manager, or their designate, and would require aircraft support from Kugluktuk where air charter companies are headquartered. Site contractor and APEX Geoscience Ltd. head offices would be notified.

8.0 DECONTAMINATION/CLEAN-UP PROCEDURES

Decontamination pertains to spills of hazardous substances. This topic is covered in detail in the Spill Prevention and Response Plan.

9.0 PREPAREDNESS AND TRAINING

Two levels of training will be given to Itchen Lake Property employees, depending on their role in emergency response:

- emergency responder training; and
- emergency awareness and preparedness training for all employees.

Emergency responder training will be provided for all first-aid personnel and for the site rescue team. The training for the site rescue team will be the responsibility of the site contractor, although APEX Geoscience Ltd. will retain the ultimate responsibility to ensure effective training is provided. All other training will be the responsibility of APEX Geoscience Ltd..

Training for all employees will include:

- evacuation procedures and routes;
- alarm systems;
- when to attempt immediate response to an emergency and when to call for help;
- reporting procedures for personnel;
- shutdown procedures for equipment and electrical systems;
- types of potential emergencies;
- procedures for handling flammable liquids;
- importance of good housekeeping;
- importance of safe work habits;
- procedures for control and cleanup of leaks and spills; and
- procedures for disposal of waste materials.

Training programs will be provided on the following schedule:

- for all new employees;
- annually as a refresher;
- when new equipment, materials or processes are introduced;
- when procedures have been updated or revised; and
- when analysis of drill responses by the Health and Safety Committee results in a recommendation for refresher training in any or all areas.

Emergency responder training will be specific to their area of responsibility: core splitting, geophysical surveys, etc. Industrial first aid certification will be a requisite. Emergency responders will obtain hands on training in use of fire suppression equipment (fire extinguishers, etc.), correct procedures for safe handling and cleanup of hazardous chemicals used in their work area, and familiarity with MSDS. Site safety rescue teams will meet the requirements of the Mine Health and Safety Regulations as a minimum. Emergency responder training will be conducted as required by legislation or, at a minimum, annually. Drills for emergency response teams will also be conducted as required by legislation or, at a minimum, semi-annually.

Training will be provided by a combination of trained, qualified APEX staff and outside training service organizations, as appropriate. Training manuals will be developed as appropriate.

10.0 RESOURCE INVENTORY

10.1 EMERGENCY EQUIPMENT LOCATIONS

APEX's emergency response resource inventory is listed in Table 10.1 based on the proposed site configuration. The table will be updated prior to site occupation to provide a complete picture of site resources. Fire extinguishers will be located in clearly marked locations in accommodations, fuelling stations, helicopter pad, and other areas where flammable substances are stored and/or handled. Spill kits will be located at the fuel cache, fuelling stations, airstrip, helicopter pad, and other locations where spills of fuel or gasoline could occur.

10.2 AID AGREEMENTS

No aid agreements are in place at present. Any such agreements that are put in place would be developed as appropriate.

Appendix A

Schedules

SCHEDULE 1: TRAINED EMERGENCY PERSONNEL

The table below lists the names, departments and qualifications of trained emergency personnel at the Itchen Lake Property. Date of last update is provided.

Date of Last Update: _____

Name	Department	Training Completed

SCHEDULE 2: BUILDING INSPECTION CHECKLIST

Assigned Area:
Assigned Supervisor:
Inspection Date:

X	Item	Comments/Deficiencies
	Are all worksites clean and orderly?	
	Are all exits kept free of obstructions?	
	Are all exits marked with an exit sign and illuminated by a reliable light source?	
	Are aisles kept clear to allow unhindered passage?	
	Are combustible scrap, debris, and waste materials stored in covered metal receptacles and removed from the worksite promptly?	
	Are all flammable liquids kept in closed containers when not in use?	
	Are all extinguishers free from obstructions or blockage?	
	Are all extinguishers charged? **Note date and time tested and initial on extinguisher tag.**	
	Are “No Smoking” rules followed in areas involving storage and use of flammable materials?	
	Are all spilled materials or liquids cleaned up immediately?	
	Are all work areas adequately illuminated?	
	Are emergency telephone numbers posted where they can be readily found in case of emergency?	
	Are all fire doors in good condition?	
	Is there anything to hinder the door from completely closing?	
	Is the fire alarm system in good working order? **Note date and time tested & initial .**	

Appendix B

Tables

TABLE 2.1 POSSIBLE FIRE LOCATIONS AT THE ITCHEN LAKE PROJECT	
Location	**Precautions**
Camp Tents	Fire extinguishers
Generator House	Chemical fire extinguishers
Fuel Cache	Fire extinguishers

Table 2.2 Medevac Response Plan

Itchen Lake Property HTX Minerals Corp.

EMERGENCY RESPONSE PLAN

In The Event of an Emergency and/or When Instructed by the Project Supervisor or First Aid Attendant to …

Call the Nursing Station…

Primary

Health Center – Kuglugtuk **1-867-982-4531**

Or

1st Alternate

Stanton Hospital – Yellowknife **1-867 669-4111**

Or

2nd Alternate

Health Center – Wek Weeti **1-867-713-2904**

Be Prepared to Provide to the Nurse/ Doctor …

1. **Your Name and Location:** **Itchen Lake Camp**

   65°38’59” N **Latitude**
   112°10’53”W **Longitude**

   ***Advise the nurse/doctor that you are located directly between Kugluktuk and Yellowknife**

2. **Patient Location:** **(if not in camp)**

3. **Number of Injured Persons:**

4. **Patient Information (for each injured person):**

   a) **Condition:** Conscious / Unconscious

   Nature of Injury

   b) **Age of Patient:**

   c) **History:** What happened?

   When did it happen?

Obtain instruction from Nurse OR First Aid Attendant as to the need for a Medevac

***If Medevac is required, and it is not to be carried out by the helicopter on site, the health centre may make arrangements. If not, contact the following company to arrange medevac transport:**

Medevac Flights - Air Tindi **(867) 669-8292 or 8293**

REPORT back to First Aid Attendant

EMEGENCY CONTACT NUMBERS

Nursing Stations

Primary

Health Center – Kiglugtuk	**1-867-982-4531**

Or

1st Alternate

Stanton Hospital – Yellowknife	**1-867 669-4111**

Or

2nd Alternate

Health Center – Wek Weeti	**1-867-713-2904**

24 Hour Medi-vac Service

Air Tindi	**1-867-669-8292 or 8293**

RCMP

RCMP – Kugluktuk	**1-867-982-0123**
RCMP – Wek Weeti	**1-867-713-1111**

WSCC

WSCC 24hour Hotline	**1-867-873-7468**
WSCC Main Line (Yellowknife)	**1-867-920-3888**
WSCC Main Line (Iqaluit)	**1-877-404-4407**
24 Hour Hotline For Serious Accidents	**1-800-661-0792**

PROJECT NUMBERS

Project Manager, Andrew Turner Office	**1-780-439-5380**
Cell	**1-780-231-4117**

Field Numbers

Camp – Logistics Line	**(to be determined)**
Camp – Office Line	**(to be determined)**
Camp – Public Line	**(to be determined)**
Camp – Fax Line	**(to be determined)**
Itchen Lake (Drill) SatRad Number	**(to be determined)**
Heli Iridium Numbers	**(to be determined)**
Fixed Wing Iridium Numbers	**(to be determined)**

Other Important Telephone Numbers

HTX Minerals Corp

Head Office	**Office**	**1-705-669-1777**
APEX Geoscience (on behalf of)	**Office**	**1-780-439-5380**
Emergency Spill Report		**1-867-920-8130**
Public Health Office – YK		**1-867-920-8646**
Poison Control Center		**1-800-332-1414**

Camp Information

Camp	Status	Latitude	Longitude	Telephone	Level II Supervisor
Base	**Open July 1 until October 2013**	**65°38’59” N**	**112°10’53”W**	**To be determined**	**To be determined**

SPILL REPORTING QUANTITIES TABLE 2.3		
Substance	**TDGA Class**	**Reportable Amount**
Explosives	1	Any amount
Compressed gas (flammable)	2.1	Any amount of gas from containers with a capacity greater than 100 L
Compressed gas (non-corrosive, non flammable)	2.2	Any amount of gas from containers with a capacity greater than 100 L
Compressed gas (toxic)	2.3	Any amount
Compressed gas (corrosive)	2.4	Any amount
Flammable liquid	3.1, 3.2, 3.3	100 L
Flammable solid	4.1	25 kg
Spontaneously combustible solids	4.2	25 kg
Water reactant solids	4.3	25 kg
Oxidizing substances	5.1	50 L or 50 kg
Organic Peroxides	5.2	1 L or 1 kg
Poisonous substances	6.1	5 L or 5 kg
Infectious substances	6.2	Any amount
Radioactive	7	Any amount
Corrosive substances	8	5 L or 5 kg
Miscellaneous products or substances excluding PCB mixtures	9.1 (part)	50 L or 50 kg
Environmentally hazardous	9.2	1 L or 1 kg
Dangerous wastes	9.3	5 L or 5 kg
PCB mixtures of 5 or more parts per million	9.1 (part)	0.5 L or 0.5 kg
Other contaminants	None	100 L or 100 kg

TABLE 4.1 ITCHEN LAKE PROPERTY PERSONAL PROTECTIVE EQUIPMENT INVENTORY			
Equipment	**Core Shack**	**Drills**	**Kitchen**
slickers/coveralls		X	
goggles	X	X	
gloves	X	X	X
respirators		X	
first aid kit	X	X	X
fire extinguisher	X	X	X

TABLE 5.1

MINIMUM DISTANCE GUIDE FOR NON-EMERGENCY RESPONSE PERSONNEL

Emergency	Nature	Airborne Contaminants	Minimum Distance
Hazardous substance spill	Liquid Spill, no danger of fire	None	Outside the spill area
	Liquid spill, no danger of fire	Visible or probable (see MSDS)	Outside of the confined space or upwind if outside
	Liquid spill, flammable	None	Outside the spill area if no immediate danger of combustion; combustion greater than 25 m; explosion greater than 500 m.
Fire	Flammable substance, no danger of explosion	Visible or probable	Outside of confined space or upwind at least 50 m if outside
	Flammable substance, danger of explosion		Evacuate a minimum area of 500 m
	Building		Evacuate the building and maintain a minimum distance of the building height plus 10 m.
Explosion	No danger of further explosion or collapse of structures		Beyond the impact area
	No danger of further explosion but structures could collapse		Beyond the periphery of where collapse could impact
	Danger of further explosion		Evacuate a minimum distance of 500 m
Medical Emergency			Not applicable
Weather Emergency			Not applicable
Dam Break			Evacuate any area downslope of the affected dam

TABLE 10.1 ITCHEN LAKE PROPERTY EMERGENCY RESPONSE RESOURCE INVENTORY	
24 HOUR RESPONSE EQUIPMENT	**Number**
ATV	2
Snowmobile	1
SPILL EQUIPMENT	**Availability**
Sorbent booms	X
Sorbent pillows	X
Sorbent material	X
Portable pumps and hoses	X
Shop vac	X
Ice auger	X
Tiger torch	X
Chain saw	X
Hand tools (shovels, rakes)	X
FIRE FIGHTING EQUIPMENT	Availability
Fire Extinguishers in every building strategically located	X

Appendix C

Figures

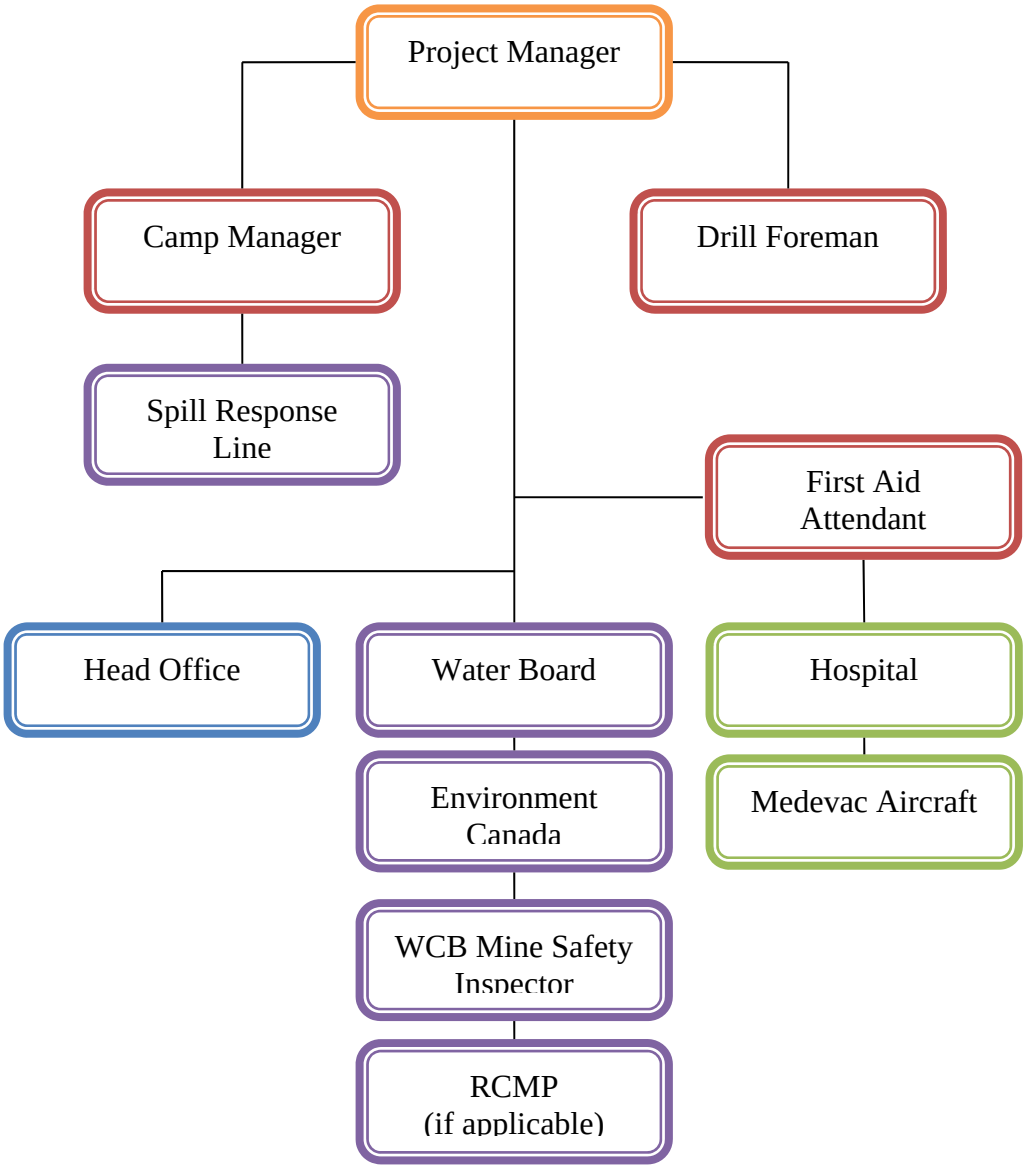


Figure 3-1 Emergency Response Organization

Appendix D

Attachments

ATTACHMENT 2.1
TOXICOLOGICAL PROPERTIES OF CHEMICALS USED/POTENTIALLY USED AT THE ITCHEN LAKE PROPERTY

MAJOR CHEMICALS

Diesel (Fuel Oil)

Physicochemical Properties

Appearance And Odor:
Clear to yellow, typical hydrocarbon odor.
Boiling Point:
360-572F
Melting Point: NA
Vapor Pressure (MM Hg/70 F):

0.1
Vapor Density (Air=1): NA
Specific Gravity:

0.81-0.86
Decomposition Temperature: NA
Evaporation Rate And Ref: NA
Solubility In Water:

Trace
Percent Volatiles By Volume:
100
pH: NA
Corrosion Rate (IPY): NA
Flash Point:

100F,38C
Flash Point Method:
PMCC
Lower Explosive Limit:
1 %
Upper Explosive Limit:
5 %
Stability:
Yes
Cond To Avoid (Stability):
Under normal conditions, the material is stable.
Materials To Avoid:
Strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite or calcium hypochlorite.
Hazardous Decomp Products:
Fumes, smoke, carbon monoxide, aldehydes and other decomposition products.
Hazardous Poly Occur:
No
Conditions To Avoid (Poly):
Material is not known to polymerize.

Toxicological Properties

LD50-LC50 Mixture:

Oral LD50 (rat) is = 5-15 g/kg
Route Of Entry - Inhalation: Yes
Route Of Entry - Skin: Yes
Route Of Entry - Ingestion: Yes
Health Haz Acute And Chronic:
Acute:

Central nervous system depression with extreme exposure; effects may include anaesthesia, coma, respiratory arrest, and irregular heart rate. Oxygen deprivation is possible if working in a confined area.
Chronic:
No known major cumulative or latent effects have been reported. **Carcinogenicity - NTP:** No **Carcinogenicity -IARC:** No **Carcinogenicity - OSHA:** No **Explanation Carcinogenicity:** Not carcinogenic.
Signs/Symptoms Of Overexp:
Inhalation-irritation of the upper respiratory tract, depression, dizziness, headache, uncoordination, anaesthesia, coma & respiratory arrest. Skin -defatting, irritation & burning sensation & swelling of lids. Eye-severe burning sensation. Ingestion- irritation of throat, esophagus & stomach, vomiting.
Med Cond Aggravated By Exp:
None specified by manufacturer.

Jet Fuel

Physicochemical Properties

Appearance And Odor:
Colorless liquid, fuel oil odor
Boiling Point:
250-549f
Melting Point:
Not given
Vapor Pressure (MM Hg/70 F):
2-3 PSI
Vapor Density (Air=1):
Not given
Specific Gravity:
0.75 -0.8
Decomposition Temperature:
Unknown
Evaporation Rate And Ref:
Not given
Solubility In Water:
Negligible
Corrosion Rate (IPY):
Unknown
Autoignition Temperature:
468F
Flash Point:
-10F,-23C
Flash Point Method:
CC
Lower Explosive Limit:
1.3 %
Upper Explosive Limit:
8 %
Extinguishing Media:
Agents approved for class B hazards (dry chemical, carbon dioxide, halogenated agents, foam, steam) and water fog.
Special Fire Fighting Proc:
Fire fighters should use NIOSH approved SCBA & full protective equipment when fighting chemical fire. Use water spray to cool nearby containers exposed to fire.
Unusual Fire And Expl Hazrds:
Do not use direct stream of water on fire. Toxic gases are released during combustion. Vapor may explode if ignited in enclosed area.
Stability:
Yes
Cond To Avoid (Stability):
Heat, open flame, sparks
Materials To Avoid:
Strong oxidizing agents
Hazardous Decomp Products:
Carbon monoxide, carbon dioxide, unidentified organic compounds.
Hazardous Poly Occur:
No
Conditions To Avoid (Poly):
None. Will not occur.

Toxicological Properties

LD50-LC50 Mixture:

Not given for product as a whole

Route Of Entry - Inhalation:

Yes

Route Of Entry - Skin:

Yes

Route Of Entry - Ingestion:

No

Health Haz Acute And Chronic:

May be mildly irritating to the eyes. Prolonged or repeated contact may cause dermatitis. Vapors may irritate the nose, throat and upper respiratory tract and cause central nervous system depression. Aspiration hazard.

Carcinogenicity - NTP:

Yes

Carcinogenicity - IARC:

Yes

Carcinogenicity - OSHA:

Yes

Explanation Carcinogenicity:

Contains Benzene [71-43-2] which is listed by NTP and IARC and regulated by OSHA as a carcinogen.

Signs/Symptoms Of Overexp:

Eye irritation, skin irritation, dermatitis, upper respiratory tract irritation, nausea, vomiting, diarrhea, headaches, dizziness, drowsiness.

Med Cond Aggravated By Exp:

Pre-existing skin and/or respiratory disorders may be aggravated by exposure to this product.

Gasoline

Physicochemical Properties

Appearance And Odor:
Clear liquid with gasoline odor.
Boiling Point:
>70F,>21C
Melting Point:
-36F,-38C
Vapor Pressure (MM Hg/70 F):
400
Vapor Density (Air=1):
5
Specific Gravity:

0.74
Decomposition Temperature:
Unknown
Evaporation Rate And Ref:
10.5(N-Butyl Acetate=1)
Solubility In Water:
Negligible
Percent Volatiles By Volume:
100
Viscosity:
Unknown
pH:
7
Corrosion Rate (IPY):
Unknown
Flash Point:
-36F,-38C
Flash Point Method:
TCC
Lower Explosive Limit:
1.4 %
Upper Explosive Limit:
7.6 %
Extinguishing Media:
Use water fog, carbon dioxide, foam, or dry chemical.
Special Fire Fighting Proc:
Water may be ineffective on flames, but should be used to keep fire-exposed containers cool. Large fires, such as tank fires, should be fought with caution.
Unusual Fire And Expl Hazrds:
Highly volatile material. Flowing gasoline can be ignited by self-generated static electricity. Vapors may travel along the ground to a remote ignition source.
Stability:
Yes
Cond To Avoid (Stability):
High heat, open flames and other sources of ignition
Materials To Avoid:
Strong oxidizing agents
Hazardous Decomp Products:
Burning or excessive heating may produce carbon monoxide and other harmful gases/vapors.
Hazardous Poly Occur:
No
Conditions To Avoid (Poly):

Not applicable

Toxicological Properties

LD50-LC50 Mixture:
Oral LD50 (Rat) is >5G/KG
Route Of Entry - Inhalation:
Yes
Route Of Entry - Skin:
Yes
Route Of Entry - Ingestion:
No
Health Haz Acute And Chronic:
Inhalation: moderate risk of vapor de-fatting with drying and cracking can lead to dermatitis and secondary infection. Eye: irritant. Ingestion: burning of mouth and upper gi tract, vomiting and diarrhea. Prolonged or repeated contact: dermatitis.
Carcinogenicity - NTP:
Yes
Carcinogenicity - IARC:
Yes
Carcinogenicity - OSHA:
Yes
Explanation Carcinogenicity:
Contains Benzene [71-43-2] which is listed by NTP and IARC and regulated by OSHA as a carcinogen.
Signs/Symptoms Of Overexp:
Inhalation may cause euphoria, lung irritation and edema, headache, dizziness, drowsiness, convulsions, coma, cyanosis, generalized depression. Ingestion may cause general depression, sedation, respiratory depression, coma.
Med Cond Aggravated By Exp:
May aggravate pre-existing dermatitis, respiratory illness, or other conditions which have the same symptoms or effects as stated above.

TOXICOLOGICAL AND PHYSICOCHEMICAL PROPERTIES OF MINOR CHEMICALS HANDLED

Varsol

Physicochemical Properties

Appearance And Odor:
Clear, colorless liquid - hydrocarbon odor
Boiling Point:
315F - 397F
Melting Point:
-4F,-20C
Vapor Pressure (MM Hg/70 F):
6 @ 68F
Vapor Density (Air=1):
3.90
Specific Gravity:
0.79
Decomposition Temperature:
Unknown
Evaporation Rate And Ref:
<0.1 (n-butyl acetate=1)
Solubility In Water:
<0.01% @ 77F
Viscosity:
Unknown
Radioactivity:
Not relevant
Corrosion Rate (IPY):
Unknown
Autoignition Temperature:
490F
Flash Point:
104F,40C
Flash Point Method:
TCC
Lower Explosive Limit:
2.3
Upper Explosive Limit:
14.4
Stability:
Yes
Cond To Avoid (Stability):
Heat, open flames
Materials To Avoid:
Strong oxidizing agents, molten sulphur, halogens
Hazardous Decomp Products:
Carbon monoxide, carbon dioxide may be formed.
Hazardous Poly Occur:
No
Conditions To Avoid (Poly):
Not relevant

Toxicological Properties

LD50-LC50 Mixture:

TLV 100 PPM for stoddard solvent

Route Of Entry - Inhalation:
Yes
Route Of Entry - Skin:

No

Route Of Entry - Ingestion:

No

Health Haz Acute And Chronic:

Target organs: eye, skin, cns, respiratory & gi tracts. Acute-eye: may cause mild irritation. Skin: repeated/prolonged contact may cause drying. Inhale: irritation, cns effects. Oral: minimal toxicity, but aspiration hazard during ingestion or vomiting. Chronic- unknown

Carcinogenicity - NTP:

No

Carcinogenicity - IARC:

No

Carcinogenicity - OSHA:

No

Explanation Carcinogenicity:

None

Signs/Symptoms Of Overexp:

Irritation, tearing, redness, drying and cracking of skin, nausea, vomiting, coughing, headache, dizziness, drowsiness, weakness, fatigue, unconsciousness

Med Cond Aggravated By Exp:

Persons with pre-existing skin disorders, eye problems, or impaired cns or respiratory function may be more susceptible to the effects of this product.

Hydraulic/Motor Oil

Physicochemical Properties

Appearance And Odor:
Dark oily with siteral oil odor
Specific Gravity:
0.890
Decomposition Temperature:
Unknown
Solubility In Water:
Negligible,<0.1%
Corrosion Rate (IPY):
Unknown
Flash Point: >90F,>32C
Flash Point Method: COC
Stability:

Yes
Cond To Avoid (Stability):
Open flames
Materials To Avoid:
Strong oxidizers such as hydrogen peroxide, brosite, and chromic acid.
Hazardous Decomp Products:
Carbon monoxide, carbon dioxide, oxides of phosphorous, sulphur, and possibly hydrogen sulphide.
Hazardous Poly Occur:
No
Conditions To Avoid (Poly):
Not applicable.

Toxicological Properties

LD50-LC50 Mixture:
Unknown **Route Of Entry - Inhalation:** No **Route Of Entry - Skin:** Yes **Route Of Entry - Ingestion:** No **Health Haz Acute And Chronic: Acute** Inhalation of mist may cause irritation. Ingestion no ill effects expected. Minute amounts aspirated into lungs may cause pulmonary injury. Eye: irritation. Skin: not normally expected to cause ill effects.

Chronic-

Prolonged/repeated skin contact may cause irritation. **Carcinogenicity - NTP:** No **Carcinogenicity - IARC:** No **Carcinogenicity - OSHA:** No **Explanation Carcinogenicity:** none of the compounds in this product is listed by IARC, NTP, or OSHA as a carcinogen.
Signs/Symptoms Of Overexp:
Skin and eye irritation.
Med Cond Aggravated By Exp:
None specified by manufacturer.

Sulphuric Acid

Physicochemical Properties

Appearance And Odor:
Colorless, odorless liquid.
Boiling Point:
230F,110C
Specific Gravity:
1.24 @80F
Solubility In Water:
100%
Lower Explosive Limit:
None
Upper Explosive Limit:
None
Extinguishing Media:
Water, carbon dioxide, dry chemical. Sulphuric acid not combustible.
Special Fire Fighting Proc:
Sulphuric acid not combustible. Use water, carbon dioxide, or dry chemical on fires.
Unusual Fire And Expl Hazrds:
None specified by manufacturer.
Stability:
Yes
Cond To Avoid (Stability):
Avoid shorting. Use only approved charging methods. Do not puncture battery case.
Materials To Avoid:
None specified by manufacturer.
Hazardous Decomp Products:
None specified by manufacturer.
Conditions To Avoid (Poly):
Not applicable

Toxicological Properties

LD50-LC50 Mixture:
Unknown
Route Of Entry - Inhalation:
No
Route Of Entry - Skin:
No
Route Of Entry - Ingestion:
No
Health Haz Acute And Chronic:
Not applicable for finished product used in normal conditions. When battery case broken/leaking electrolyte severe burns to all tissue may occur.
Carcinogenicity - NTP:
No
Carcinogenicity - IARC:
No
Carcinogenicity - OSHA:
No
Signs/Symptoms Of Overexp:
Severe burns to all tissues from sulphuric acid.
Med Cond Aggravated By Exp:
None specified by manufacturer.

Ethylene Glycol

Physicochemical Properties

Appearance:
Clear oily liquid.
Odor:
Odorless.
Solubility:
Miscible in water.
Specific Gravity:
1.1
pH @20C/4C**:**
No information found.

% Volatiles by volume @ 21C (70F):
100
Boiling Point:
197.6C (388F)
Melting Point:
-13C (9F)
Vapor Density (Air=1):
2.14
Vapor Pressure (mm Hg):
0.06 @ 20C (68F)
Evaporation Rate (BuAc=1):
No information found.
Stability:
Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition. May produce acrid smoke and irritating fumes when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Strong oxidizing agents. Reacts violently with chlorosulfonic acid, oleum, sulfuric acid, perchloric acid. Causes ignition at room temperature with chromium trioxide, potassium permanganate and sodium peroxide; causes ignition at 212F(100C) with ammonium dichromate, silver chlorate, sodium chloride and uranyl nitrate.
Conditions to Avoid:
Heat, flames, ignition sources, water (absorbs readily) and incompatibles.

Toxicological Properties

Oral rat LD50: 4700 mg/kg; skin rabbit LD50: 9530 mg/kg.
Irritation - skin rabbit: 555mg(open), mild; eye rabbit: 500mg/24H, mild.
Investigated as a tumorigen, mutagen, reproductive effector.

Reproductive Toxicity:
Has shown teratogenic effects in laboratory animals.

Ingredient	NTP Carcinogen		
	Known	Anticipated	IARC Category
Ethylene Glycol (107-21-1)	No	No	None

Hydrofluoric Acid

Physicochemical Properties

Appearance:
Colorless, fuming liquid.
Odor:
Acrid odor. Do not breathe fumes.
Solubility:
Infinitely soluble.
Specific Gravity:
1.15 -1.18
pH:
1.0 (0.1M solution)
% Volatiles by volume @ 21C (70F):
100 (as water and acid)
Boiling Point:
108C (226F)
Melting Point:
< -36C (< -33F)
Vapor Density (Air=1):
1.97
Vapor Pressure (mm Hg):
25 @ 20C (68F)
Evaporation Rate (BuAc=1):
No information found.
Stability:
Stable at room temperature (68F) when stored and used under proper conditions.
Hazardous Decomposition Products:
On contact with metals, liberates hydrogen gas. On heating to decomposition, could yield toxic fumes of fluorides. Attacks glass and other silicon containing compounds. Reacts with silica to produce silicon tetrafluoride, a hazardous colorless gas.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Hydrofluoric acid is incompatible with arsenic trioxide, phosphorus pentoxide, ammonia, calcium oxide, sodium hydroxide, sulphuric acid, vinyl acetate, ethylenediasite, acetic anhydride, alkalis, organic materials, most common metals, rubber, leather, water, strong bases, carbonates, sulphides, cyanides, oxides of silicon, especially glass, concrete, silica, fluorine. Will also react with steam or water to produce toxic fumes.
Conditions to Avoid:
Moisture and incompatibles.

Toxicological Properties

Hydrofluoric acid: Inhalation rat LC50: 1276 ppm/1H; Investigated as a mutagen, reproductive effector.

Ingredient	NTP Carcinogen		
	Known	Anticipated	IARC Category
Hydrogen fluoride (7664-39-3)	No	No	None
Water (7732-18-5)	No	No	None

Hydrochloric Acid

Physicochemical Properties

Appearance:
Colorless, fuming liquid.
Odor:
Pungent odor of hydrogen chloride.
Solubility:
Infinite in water with slight evolution of heat.
Density:
1.18
pH:
For HCL solutions: 0.1 (1.0 N), 1.1 (0.1 N), 2.02 (0.01 N)
% Volatiles by volume @ 21C (70F):
100
Boiling Point:
53C (127F) Azeotrope (20.2%) boils at 109C (228F)
Melting Point:
-74C (-101F)
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
190 @ 25C (77F)
Evaporation Rate (BuAc=1):
No information found.
Stability:
Stable under ordinary conditions of use and storage. Containers may burst when heated.
Hazardous Decomposition Products:
When heated to decomposition, emits toxic hydrogen chloride fumes and will react with water or steam to produce heat and toxic and corrosive fumes. Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
A strong siteral acid, concentrated hydrochloric acid is incompatible with many substances and highly reactive with strong bases, metals, metal oxides, hydroxides, asites, carbonates and other alkaline materials. Incompatible with materials such as cyanides, sulphides, sulphites, and formaldehyde.
Conditions to Avoid:
Heat, direct sunlight.

Toxicological Properties

Inhalation rat LC50: 3124 ppm/1H; oral rabbit LD50: 900 mg/kg (Hydrochloric acid concentrated); investigated as a tumorigen, mutagen, reproductive effector.

Ingredient	NTP Carcinogen		
	Known	Anticipated	IARC Category
Hydrogen chloride (7647-01-0)	No	No	3
Water (7732-18-5)	No	No	None

Acetone

Physicochemical Properties

Appearance:
Clear, colorless, volatile liquid.
Odor:
Fragrant, mint-like
Solubility:
Miscible in all proportions in water.
Specific Gravity:
0.79 @ 20C/4C
pH:
No information found.
% Volatiles by volume @ 21C (70F):
100
Boiling Point:
56.5C (133F) @ 760 mm Hg
Melting Point:
-95C (-139F)
Vapor Density (Air=1):
2.0
Vapor Pressure (mm Hg):
400 @ 39.5C (104F)
Evaporation Rate (BuAc=1):
ca. 7.7
Stability:
Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Concentrated nitric and sulphuric acid mixtures, oxidizing materials, chloroform, alkalis, chlorine compounds, acids, potassium t-butoxide.
Conditions to Avoid:
Heat, flames, ignition sources and incompatibles.

Toxicological Properties

Oral rat LD50: 5800 mg/kg; Inhalation rat LC50: 50,100mg/m^3; Irritation eye rabbit, Standard Draize, 20 mg severe; investigated as a tumorigen, mutagen, reproductive effector.

Ingredient	NTP Carcinogen		
	Known	Anticipated	IARC Category
Acetone (67-64-1)	No	No	None

ATTACHMENT 4.2
EMERGENCY-SPECIFIC PROCEDURES

1.0 PERSONAL PROTECTION INFORMATION

Ventilation System	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred.
Personal Respirators (NIOSH-Approved)	For emergencies or instances where the exposure levels are not known, use a full-face piece positive -pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection	Use chemical safety goggles and/or a full face shield where splashing is possible.

2.0 HEALTH HAZARD DATA

Airborne Exposure Limits	OSHA PEL 1000 ppm (TWA); ACGIH TLV 500 ppm (TWA), 750 ppm (STEL)
Acute Effects of Overexposure	Eye: Vapours are irritating to the eyes. Splashes may cause severe irritation, with stinging, tearing, redness and pain.
	Skin: Irritating due to de-fatting action on skin. Causes redness, pain, drying and cracking of the skin.
	Inhalation: Inhalation of vapours irritates the respiratory tract. May cause coughing, dizziness, dullness, and headache. Higher concentrations can produce central nervous system depression, narcosis, and unconsciousness.
	Ingestion: Swallowing small amounts is not likely to produce harmful effects. Ingestion of larger amounts may produce abdominal pain, nausea and vomiting. Aspiration into lungs can produce severe lung damage and is a medical emergency.

3.0 FIRST AID AND EMERGENCY PROCEDURES

Inhalation	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion	Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately.
Skin Contact	Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact	Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention.

4.0 FIRE AND EXPLOSION DATA

Flash Point (Method Used)	-4F, -20C (CC)
Flammable Limits	LEL: 2.5%; UEL: 12.8%. Extremely flammable liquid and vapour. Vapour may cause flash fire.
Explosion	Above flash point, vapour -air mixtures are explosive within flammable limits noted above. Vapours can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. This material may produce a floating fire hazard. Sensitive to static discharge.
Fire Extinguishing Media	Dry chemical, alcohol foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapours.
Special Information	In the event of a fire, wear full protective clothing and NIOSH-approved SCBA with full-face piece operated in the pressure demand or other positive pressure mode.

5.0 SPILL, LEAK AND DISPOSAL PROCEDURES

See Itchen Lake Property Emergency Response Plan, Section 8.0 or Itchen Lake Property Spill Prevention and Response Plan, Section 6.0 for general procedures.

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials such as saw dust. Do not flush to sewer. If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

1.0 PERSONAL PROTECTION INFORMATION

Ventilation System	Not applicable for finished product.
Personal Respirators (NIOSH-Approved)	Not applicable for finished product.
Skin Protection	Wear acid-resistant gloves
Eye Protection	Wear Safety glasses

HEALTH HAZARD DATA

Airborne Exposure Limit	Not available.
Acute Effects of Overexposure	Eyes: Corrosive. May cause permanent eye damage.
	Skin: Corrosive. May cause severe burns.
	Inhalation: Corrosive. May cause irritation of respiratory tract.
	Ingestion: Corrosive. May cause burns to gastrointestinal tract.

FIRST AID AND EMERGENCY PROCEDURES

Inhalation	Remove to fresh air. Get medical attention for any breathing difficulty
Ingestion	If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medial attention immediately.
Skin Contact	Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.
Eye Contact	Wash thoroughly with running water. Get medical advice if irritation develops.

4.0 FIRE AND EXPLOSION DATA

Flash Point (Method Used)	Not give.
Flammable Limits	None.
Explosion	Not explosive.
Fire Extinguishing Media	Product is not combustible. Use water, carbon dioxide, or dry chemical on fires.
Special Fire Fighting Procedures	None specified by manufacturer.

5.0 SPILL, LEAK AND DISPOSAL PROCEDURES

See Itchen Lake Property Emergency Response Plan, Section 8.0 or Itchen Lake Property Spill Prevention and Response Plan, Section 6.0 for general procedures.

Wear safety glasses, acid-resistant gloves and full coverage acid resistant clothing. Use soda ash to neutralize. Flush with large amounts of water.

Place in acid resistant containers. Dispose of in accordance with federal and territorial regulations. Do not incinerate.

1.0 PERSONAL PROTECTION INFORMATION

Ventilation	Use adequate ventilation
Respiratory Protection	Not generally required unless needed to prevent respiratory irritation. In case of spill or leak resulting in unknown concentration, use NIOSH/MSHA approved supplied air respirator.
Eye Protection	For splash protection, use chemical goggles and face shield.
Skin Protection	Use gloves resistant to the material being used, i.e., neoprene or Nitrile rubber. Use protective garments to prevent excessive skin contact.

HEALTH HAZARD DATA

Recommended Exposure Limits	Not established
Acute Effects of Overexposure	Eye: May cause mild irritation, with stinging and redness of eyes
	Skin: May cause severe irritation. Repeated or prolonged contact may cause de-fatting of the skin, resulting in dermatitis. Dermal LD50 for diesel fuel is >5 ml/kg (rabbit)
	Inhalation: May cause irrigation to nose, throat or lungs. Headache, nausea, dizziness, unconsciousness may occur
	Ingestion: May cause irritation to intestines. May cause headache, nausea, unconsciousness. If swallowed, may be aspirated resulting in inflammation and possible fluid accumulation in the lungs. Oral LD50 for diesel fuel is 9 ml/kg (rat)

FIRST AID AND EMERGENCY PROCEDURES

Eye	Flush eyes with running water for at least 15 minutes. If irritation or adverse symptoms develop, seek medical attention
Skin	Immediately wash skin with soap and water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention
Inhalation	Remove from exposure. If breathing is difficult, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. Seek immediate medical attention.
Ingestion	Do not induce vomiting. Seek immediate medical attention.

4.0 FIRE AND EXPLOSION DATA

Flash Point (Method Used)	>130F (>54C) (Estimated)
Flammable Limits (% by Volume in Air)	LEL: Not Established UEL: Not Established
Fire Extinguishing Media	Dry chemical, foam or carbon dioxide
Special Fire Fighting Procedures	Evacuate area of all unnecessary personnel. Shut off source, if possible. Use NIOSH/MSHA approved self-contained breathing apparatus and other protective equipment and/or garments described in Section 1.0 if conditions warrant. Water fog or spray may be used to cool exposed containers and equipment. Do not spray water directly on fire – product will float and could be reignited on surface of water.
Fire and Explosion Hazards	Carbon and sulphur oxides and various hydrocarbons formed when burned.

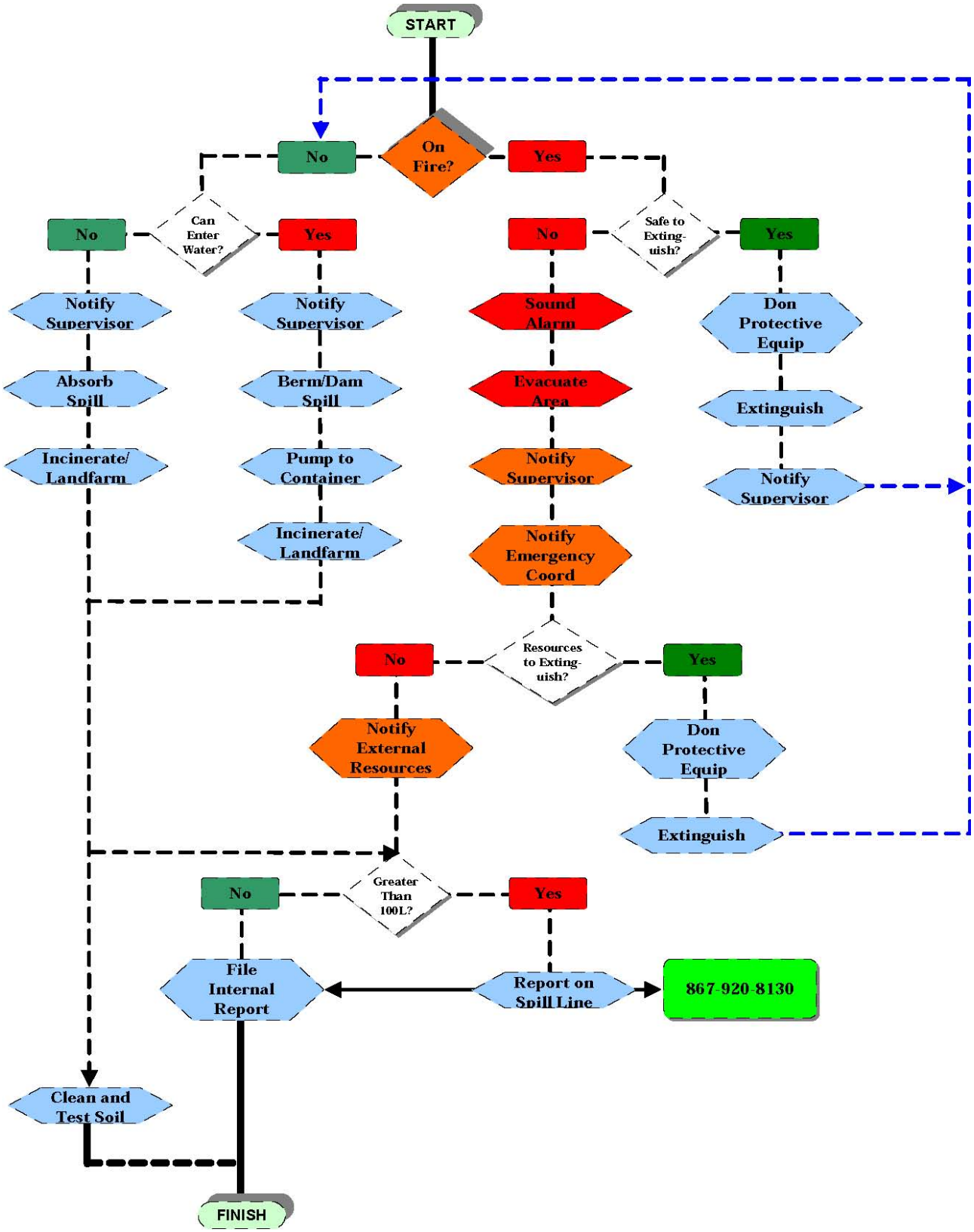
5.0 SPILL, LEAK AND DISPOSAL PROCEDURES

See Itchen Lake Property Emergency Response Plan, Section 8.0 or Itchen Lake Property Spill Prevention and Response Plan, Section 6.0 for general procedures.

Evacuate the area of all unnecessary personnel. Wear protective equipment and/or garments described in Section 1.0 if exposure conditions warrant. Shut off source, if possible and contain the spill. Protect from ignition. Keep out of water sources and sewers. Absorb in dry, inert material (sand, clay, etc.) Transfer to disposal drums using non-sparking equipment.

Waste disposal: Incinerate or place in land farm for soil remediation. Check with your supervisor.

DIESEL FUEL SPILL RESPONSE



TITLE: GASOLINE SPILL RESPONSE
Emergency Procedures

PROCEDURE NO.: 006

Page 1 of 1

APEX Geoscience Ltd.

Date: MARCH 2013

Rev. 0

SEE JET FUEL SPILL RESPONSE, PROCEDURE NUMBER 005

TITLE: HYDRAULIC OIL Emergency Procedures **PROCEDURE NO.: 007** **Page 1 of 2**

APEX Geoscience Ltd. **Date: MARCH 2013** ***Rev. 0***

1.0 PERSONAL PROTECTION INFORMATION

Ventilation	None
Respiratory Protection	None required under normal use. If mist is being generated or vapours are being produced at high temperatures, use NIOSH approved organic vapour mask.
Skin Protection	None
Eye Protection	Safety goggles with optional face shield

2.0 HEALTH HAZARD DATA

Symptoms of Overexposure	Skin and eye irritation

3.0 FIRST AID AND EMERGENCY PROCEDURES

Inhalation	Inhalation of mist may cause irrigation.
Ingestion	No ill effects expected. Minute amounts aspirated into lungs may cause pulmonary injury.
Skin Contact	Not normally expected to cause ill effects. Chronic-prolonged/repeated skin contact may cause irritation.
Eye Contact	Irritation.

4.0 FIRE AND EXPLOSION DATA

Flash Point (Method Used)	>90F, >32C (COC)
Flammable Limits	Not given
Explosion	Not given
Fire Extinguishing Media	Use water fog, carbon dioxide, foam, dry chemical, earth or sand.
Special Fire Fighting Procedures	Wear fire fighting protective equipment and full faced self contained breathing apparatus. Cool fire exposed containers with water spray. Contain runoff.
Unusual Fire Hazards	Dense smoke.

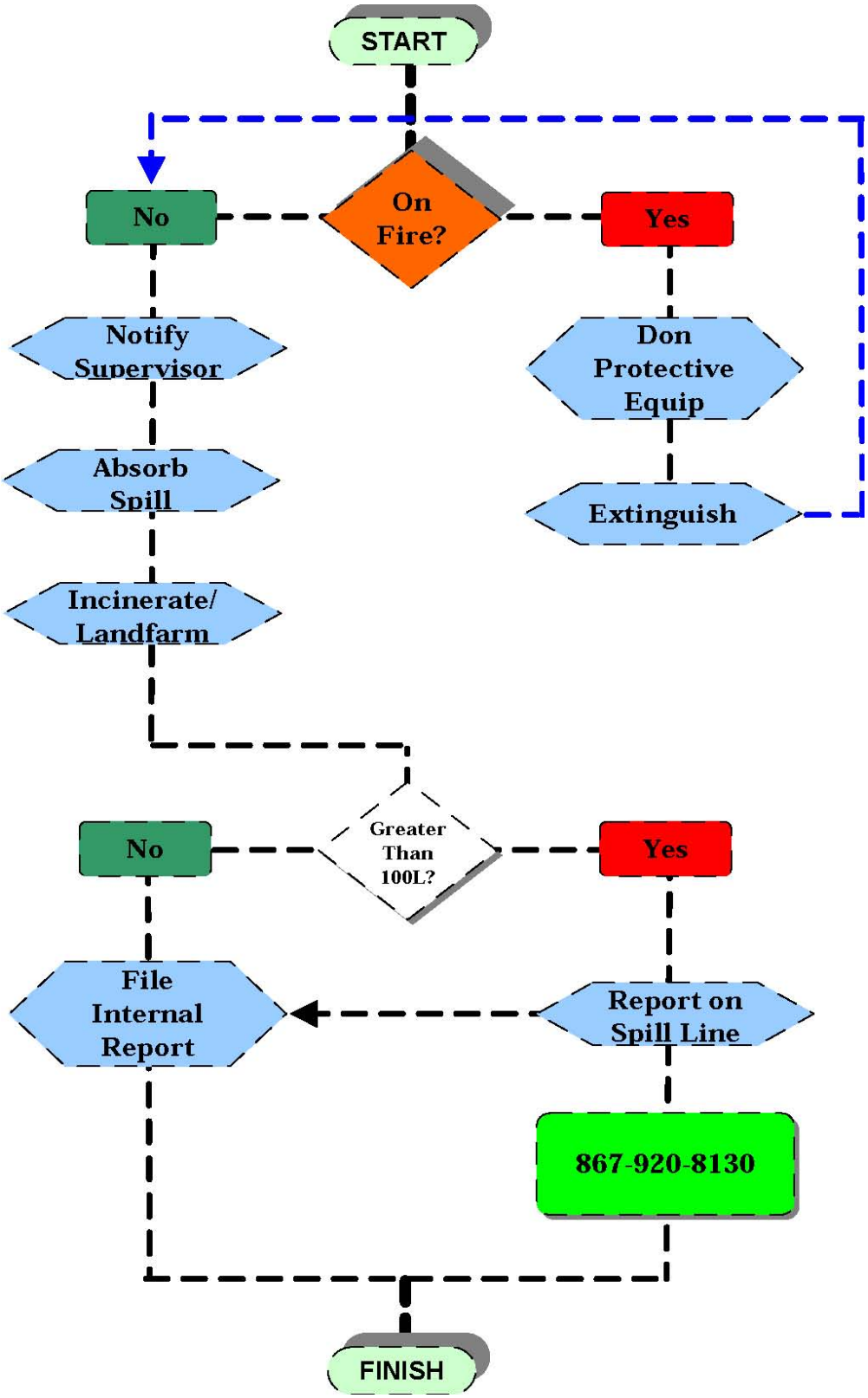
5.0 SPILL, LEAK AND DISPOSAL PROCEDURES

See Itchen Lake Property Emergency Response Plan, Section 8.0 or Itchen Lake Property Spill Prevention and Response Plan, Section 6.0 for general procedures.

Recover bulk of mixture into another container. Absorb residue with an inert material such as earth, sand, or vermiculite. Sweep up and dispose as solid waste.

Disposal should be made in accordance with all applicable federal and territorial laws and regulations.

HYDRAULIC OIL SPILL RESPONSE



1.0 PERSONAL PROTECTION INFORMATION

Ventilation System	Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Respirators (NIOSH-approved)	For emergencies or instances where the exposure levels are not known, use a full-face piece positive -pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection	Wear protective clothing, including boots or safety shoes with polyvinyl chloride (PVC) or neoprene. Use chemical goggles and/or a full face shield. Wear coveralls with long sleeves, gauntlets and gloves of PVC or neoprene.
Eye Protection	Use chemical safety goggles and/or full-face shield where splashing is possible.

2.0 HEALTH HAZARD DATA

Airborne Exposure Limits	IDLH: 30 ppm; OSHA PEL 3 ppm (TWA); ACGIH TLV 3 ppm Ceiling as F.
Acute Effects of Overexposure	Eye: Corrosive to the eyes. Symptoms of redness, pain, blurred vision, and permanent eye damage may occur.
	Skin: Corrosive to skin. Skin contact causes serious skin burns which may not be immediately apparent or painful. Symptoms may be delayed 8 hours or longer. The fluoride ion readily penetrates the skin causing destruction of deep tissue layers and even bone.
	Inhalation: Severely corrosive to respiratory tract. May cause sore throat, coughing, laboured breathing and lung congestion/ inflammation.
	Ingestion: Corrosive. May cause sore throat, abdominal pain, diarrhea, vomiting, severe burns of the digestive tract, and kidney dysfunction.

3.0 FIRST AID AND EMERGENCY PROCEDURES

Inhalation	Get medical help immediately. If patient is unconscious, give artificial respiration or use inhalator. Keep patient warm and resting, and send to hospital after first aid is complete.
Ingestion	If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact	Remove the victim from the contaminated area and immediately place him under a safety shower or wash him with a water hose, whichever is available. Remove all contaminated clothing. Keep washing with large amounts of water for a minimum of 15 to 20 minutes. Have someone make arrangements for medical attention while you continue flushing the affected area with water. SEE MSDS FOR FURTHER FIRST AID INFORMATION.
Eye Contact	Irrigate eyes for at least 30 minutes with copious quantities of water, keeping the eyelids apart and away from eyeballs during irrigation. Get competent medical attention immediately, preferably an eye specialist. If a physician is not immediately available, apply one or two drops of 0.5% Pontocaine Hydrochloride solution. Do not use oily drops or ointment. Place ice pack on eyes until reaching emergency room

4.0 FIRE AND EXPLOSION DATA

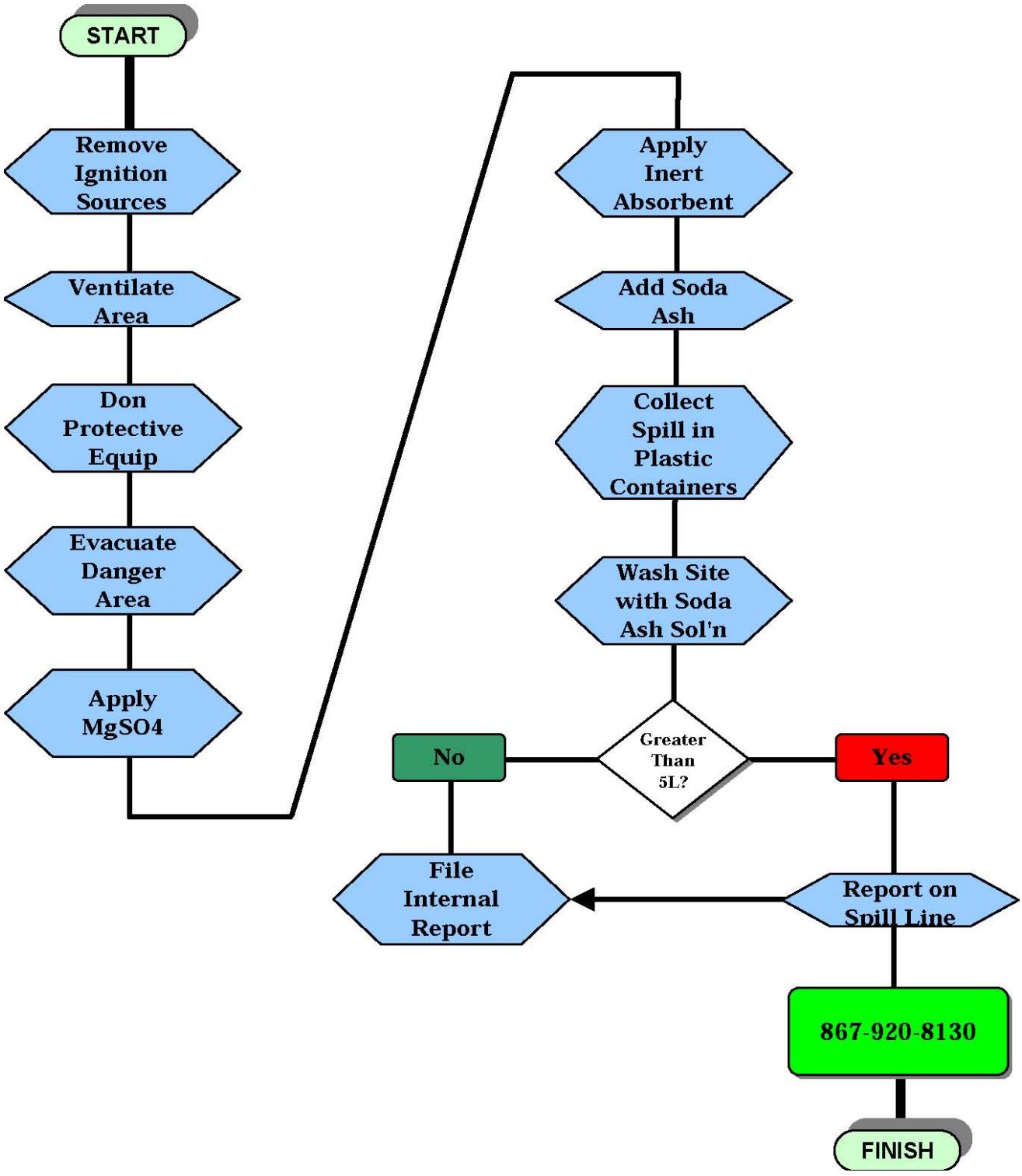
Flash Point (Method Used)	Not applicable
Flammable Limits	Not flammable
Explosion	Violent exothermic reaction occurs with water. Sufficient heat may be produced to ignite combustible materials. Reacts with metals forming flammable hydrogen gas.
Fire Extinguishing Media	Keep upwind of fire. Use water or carbon dioxide on fires in which hydrofluoric acid is involved. Halon or foam may also be used. In case of fire, the sealed containers can be kept cool by spraying with water.
Special Fire Fighting Procedures	In the event of a fire, wear full protective clothing and a NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Avoid getting water in tanks or drums; water can cause generation of heat and spattering. In contact with air, the acid gives off corrosive fumes which are heavier than air.

5.0 SPILL, LEAK AND DISPOSAL PROCEDURES

See Itchen Lake Property Emergency Response Plan, Section 8.0 or Itchen Lake Property Spill Prevention and Response Plan, Section 6.0 for general procedures.

Provide adequate ventilation and remove ignition sources since hydrogen may be generated by reactions with metals. Wear appropriate personal protective equipment. Evacuate the danger area. Apply magnesium sulphate (dry) to the spill area. Follow up with inert absorbent and add soda ash or magnesium oxide and lime. Collect in appropriate plastic containers and save for disposal. Wash spill site with soda ash solution. NOTE: Porous materials (concrete, wood, plastic, etc.) will absorb HF and become a hazard for an indefinite time. Such spills should be cleaned and neutralized immediately.

HYDROFLUORIC ACID SPILL RESPONSE



1.0 PERSONAL PROTECTION INFORMATION

Ventilation	Local exhaust and mechanical (general) ventilation to maintain exposure levels.
Respiratory Protection	Avoid breathing vapour and/or mist. Use with adequate ventilation. If ventilation is inadequate, use NIOSH/MSHA certified respirator which will protect against organic vapour/mist.
Skin Protection	Impervious protective gloves
Eye Protection	Safety glasses or goggles
Other Protective Equipment	Protective clothing as required to avoid skin contact. An emergency eye wash station and shower should be available.
Work Hygienic Practices	Wash with soap and water after handling product and before eating, drinking or smoking

2.0 HEALTH HAZARD DATA

Acute Effects of Overexposure	May be mildly irritating to eyes. Prolonged or repeated contact may cause dermatitis. Vapors may irritate the nose, throat and upper respiratory tract and cause central nervous system depression. Aspiration Hazard.
Signs / Symptoms Of Overexposure	Eye Irritation, skin irritation, dermatitis, upper respiratory tract irritation, nausea, vomiting, diarrhea, headaches, dizziness, drowsiness.

3.0 FIRST AID AND EMERGENCY PROCEDURES

Inhalation	Remove to fresh air. Restore breathing. Get medical attention.
Ingestion	Do not induce vomiting. Get medical attention.
Skin Contact	Remove contaminated clothing. Wash with soap and water. If irritation persists, get medical attention.
Eye Contact	Flush with water for 15 minutes while holding eyelids open. Get medical attention.

4.0 FIRE AND EXPLOSION DATA

Flash Point (Method)	-10F, -23C (CC)
Explosion	LEL: 1.3% UEL: 8%
Fire Extinguishing Media	Agents approved for Class B hazards (dry chemical, carbon dioxide, halogenated agents, foam, steam) and water fog.
Special Fire Fighting Procedures	Fire fighters should use NIOSH approved SCBA and full protective equipment when fighting chemical fire. Use water spray to cool nearby containers exposed to fire.
Unusual Fire and Explosion Hazards	Do not use direct stream of water on fire. Toxic gases are released during combustion. Vapour may explode if ignited in enclosed area.

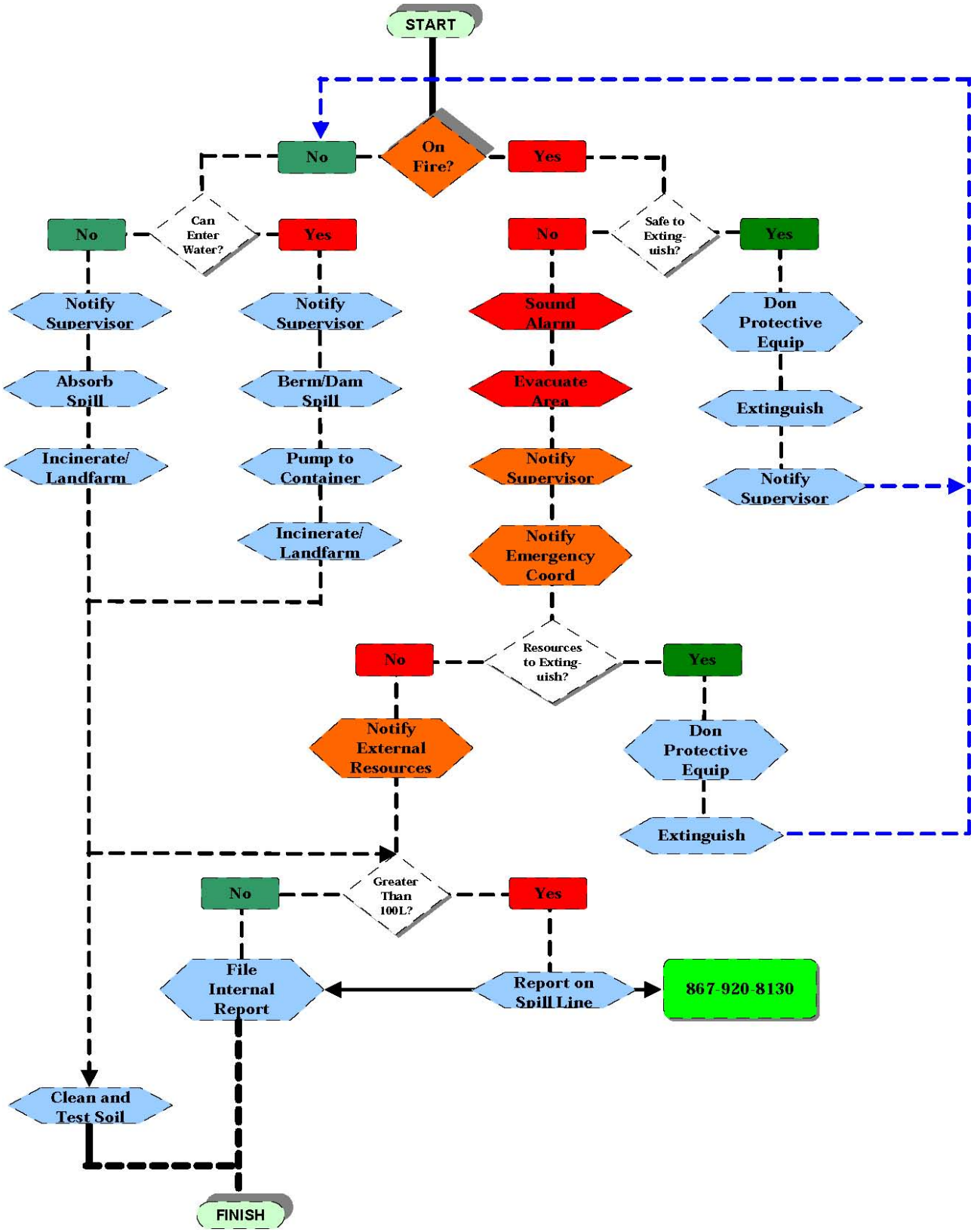
5.0 SPILL, LEAK AND DISPOSAL PROCEDURES

See Itchen Lake Property Emergency Response Plan, Section 8.0 or Itchen Lake Property Spill Prevention and Response Plan, Section 6.0 for general procedures.

If material released/spilled, eliminate sources of ignition. Evacuate area. Wear proper personal protective equipment. Contain spill. Stop leak. If can be done without risk, absorb liquid with suitable absorbent material. Collect for disposal.

Discard any product, residue, disposal container or liner in accordance with all federal and territorial regulations.

JET FUEL SPILL RESPONSE



TITLE: MOTOR OIL SPILL RESPONSE PROCEDURE NO.: 008 **Page 1 of 2**
Emergency Procedures

APEX Geoscience Ltd. **Date: MARCH 2013** ***Rev. 0***

1.0 PERSONAL PROTECTION INFORMATION

Ventilation	None
Respiratory Protection	None required; however use of adequate ventilation is good industrial practice.
Skin Protection	Impervious gloves
Eye Protection	Chemical workers goggles (FP D)
Other Protective Equipment	Protective clothing

2.0 HEALTH HAZARD DATA

Eyes/Inhalation/ Ingestion	No significant health hazards identified.
Skin	None expected for single short-term exposures. Prolonged/repeated contact may produce some irritation.

3.0 FIRST AID AND EMERGENCY PROCEDURES

Inhalation	If adverse effects occur, remove to uncontaminated area.
Ingestion	If large amount swallowed, induce vomiting; get medical attention.
Skin Contact	None required for unused motor oil. Contact with used motor oil, wash area thoroughly with soap and water or use waterless hand cleaners. Do not use gasoline, thinners or solvents.
Eye Contact	Flush with plenty of water for at least 15 minutes.

4.0 FIRE AND EXPLOSION DATA

Flash Point (Method Used)	401F, 205C (COC)
Flammable Limits	Not given
Explosion	Not given
Fire Extinguishing Media	Agents approved for Class B hazards (e.g. dry chemical, carbon dioxide, halogenated agents, foam, steam) or water fog.
Special Fire Fighting Procedures	Wear NIOSH/MSHA approved SCBA and full protective equipment.

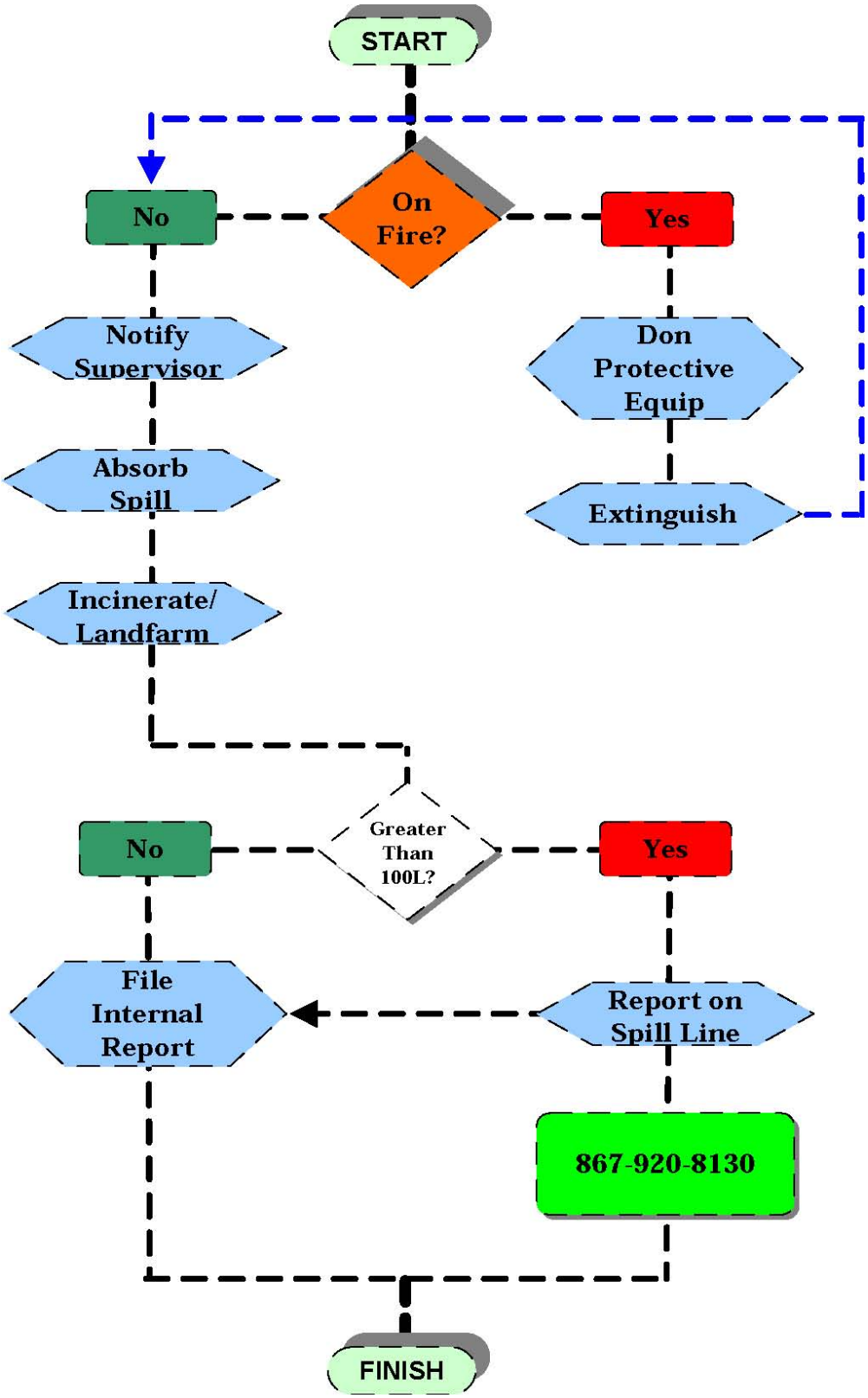
5.0 SPILL, LEAK AND DISPOSAL PROCEDURES

See Itchen Lake Property Emergency Response Plan, Section 8.0 or Itchen Lake Property Spill Prevention and Response Plan, Section 6.0 for general procedures.

Contain on absorbent material (e.g. sand, sawdust, dirt, clay). Keep out of sewers and waterways.

Disposal must be in accordance with applicable federal and territorial regulations. Enclosed-controlled incineration is recommended unless prohibited by law.

MOTOR OIL SPILL RESPONSE



1.0 PERSONAL PROTECTION INFORMATION

Ventilation System	Mechanical (general and/or local exhaust, explosion-proof)
Respiratory Protection	If engineering controls are inadequate, a NIOSH -approved air-supplied respirator should be worn
Skin Protection	Rubber gloves
Eye Protection	Safety glasses with side shield/goggles

2.0 HEALTH HAZARD DATA

Acute Effects of Overexposure	Eyes: Irritation, tearing, redness.
	Skin: Drying and cracking of skin.
	Ingestion: Nausea, vomiting, coughing, headache, dizziness, drowsiness, weakness, fatigue, unconsciousness.

3.0 FIRST AID AND EMERGENCY PROCEDURES

Inhalation	Move to fresh air, provide CPR if needed.
Ingestion	Do not induce vomiting. If person is drowsy/unconscious, place on left side with head down. Get medical attention. If possible, do not leave individual unattended.
Skin Contact	Wash with soap and water.
Eye Contact	Flush with water for 15 minutes. Hold eyelids open.

4.0 FIRE AND EXPLOSION DATA

Flash Point (Method Used)	104F, 40C (TCC)
Flammable Limits	LEL: 2.3%; UEL: 14.4%
Explosion	.Not given.
Fire Extinguishing Media	Use CO_2, sand, water spray, foam/dry chemical. Water spray may be used to keep fire exposed containers cool.
Special Fire Fighting Procedures	Wear protective clothing and NIOSH -approved self-contained breathing apparatus with full facepiece operated in positive pressure mode.
Unusual Fire and Explosion Hazards	Vapour is heavier than air and can travel considerable distance to a source of ignition and flash back. Containers may rupture due to vapour pressure buildup.

5.0 SPILL, LEAK AND DISPOSAL PROCEDURES

See Itchen Lake Property Emergency Response Plan, Section 8.0 or Itchen Lake Property Spill Prevention and Response Plan, Section 6.0 for general procedures.

Remove ignition sources. Ventilate area. Absorb spill with non-flammable material such as vermiculite or sand. Place in a container for chemical waste. Clean surface thoroughly to remove residual contamination.

Do not flush to sewers or waterways. Discharge, treatment or disposal is subject to federal and territorial regulations. Reusing or incineration is recommended.

VARSOL/SOLVENT SPILL