SPILL CONTINGENCY
AND
FUEL MANAGEMENT PLAN

ARCADIA BAY PROPERTY
Coronation Gulf Area, NU

Prepared by:

Effective Date: June 1, 2017

Table of Contents

Page No.

1. INTRODUCTION 3
1.1 Contact Details 3
1.2 Purpose and Scope 3
1.3 Environmental Policy 3
1.4 Applicable Legislation and Guidelines 4
1.4.1 Federal 4
1.4.2 Territorial 5
1.5 Other Plans 5
1.6 Property and Camp Description 5
1.7 Hazardous Materials On-Site 6
1.7.1 Fuel 6
1.7.2 Other Hazardous Materials 7
1.7.2.1 Chemicals 7
1.7.2.2 Motor Oil 7
1.7.2.3 Drill Mud/Additives 7
1.7.2.4 Antifreeze 7
1.7.2.5 Lead Acid Batteries 7
1.8 Preventative Measures 8
1.8.1 Transportation of Fuel and Hazardous Materials to Site 8
1.8.2 Fuel and Hazardous Materials Storage 8
1.8.2.1 Steel Drums 9
1.8.2.2 Propane 9
1.8.2.3 Chemicals 9
1.8.2.4 Battery Acid 10
1.8.3 Transfer of Fuel and Hazardous Materials 10
1.8.4 Signs, Labels and Inspections 10
1.9 Distribution List and Additional Copies 11
1.10 Process for Staff Response to Media and Public Inquires 11
2 RESPONSE ORGANIZATION 11
2.1 Basic Response Organization and Responsibilities 12
2.2 Chain of Command 12
3 ACTION PLAN 13
3.1 Potential Spill Hazards 13
3.2 Potential Environmental Impacts 13
3.3 Initial Actions 14
3.4 Secondary Actions 14
3.5 Containment 14
3.6 Procedures for Containing and Controlling a Spill 15
3.6.1 Diesel, Jet Fuel, Gasoline, Hydraulic Oil and Lubricating Oil Spills 15
3.6.1.1 Containment of Spills on Rock 15
3.6.1.2 Containment of Spills on Land 15
3.6.1.2.1. Puncture or rupture 15
3.6.1.2.2. Leak from a fuel reservoir 16
3.6.1.2.3. Dykes 16
3.6.1.2.4. Trenches 16
3.6.1.3 Containment of Spills on Water 16

3.6.1.3.1. Booms 16
3.6.1.3.2. Weirs 16
3.6.1.3.3. Barriers 17
3.6.1.4 Containment of Spills on Ice 17
3.6.1.4.1. Sorbent Materials 17
3.6.1.4.2. Dykes 17
3.6.1.4.3. Trenches 17
3.6.1.5 Containment of Spills on Snow 17
3.6.1.5.1. Dykes 17
3.6.2 Propane 17
3.6.2.1 Containment of Spills on Land 18
3.6.2.2 Containment of Spills on Water 18
3.6.2.3 Containment of Spills on Ice 18
3.6.2.4 Containment of Spills on Snow 18
3.6.3 Chemical Spills 18
3.6.4 Battery Acid Spills 18
3.6.5 Loss of External Load 18
3.7 Storage, Transfer and Disposal of Spill Related Waste 19
3.8 Restoring Affected Areas 19
4 RESOURCE INVENTORY 19
4.1 Spill Kits 19
4.2 Other equipment on-site: 20
5 TRAINING PROGRAM 20
5.1 Outline of Training Program 20
5.2 Records 20

Tables

Table 1.1: Inventory of Fuels Anticipated to be Stored on Site 6
Table 2.1: Spill Reporting and Response Contact List 12

Appendices

Appendix 1: Figures 21
Appendix 2: MSDS 23
Appendix 3: Daily Fuel Inspection Record 126
Appendix 4: Immediately Reportable Spill Quantities 128
Appendix 5: NT-NU Spill Report Form 130

1. INTRODUCTION

The Arcadia Bay Spill Contingency and Fuel Management Plan (SCFMP) has been developed on behalf of Transition Metals Corp. and Nunavut Resources Corporation (the Companies) in accordance with applicable legislation, guidelines and best practices. This SCFMP provides a description and methodology for preventing, mitigating, and minimizing the impacts of spills at the Arcadia Bay Property (the Property), Nunavut. This SCFMP demonstrates that the Companies have appropriate response capabilities and measures in place to effectively address potential spills at the Arcadia Bay Property.

This SCFMP will come into effect June 1, 2017, pending approval. Copies and updates to this plan may be obtained via the Companies or APEX Geoscience Ltd. (APEX). The SCFMP will be replaced, upon approval, if there are any significant changes to the activities outlined in the existing permits which warrant changes to the SCFMP. Minor changes will be submitted as an addendum to the SCFMP and submitted to the distribution list as required.

1.1 Contact Details

Transition Metals Corp.	**Nunavut Resources Corp.**	**APEX Geoscience Ltd.**
#5 – 410 Falconbridge Road	Box 18	110-8429-24 Street NW
Sudbury, ON P3A 4S4	Cambridge Bay, NU X0B 0C0	Edmonton, AB T6P 1L3
Tel: (705) 669-1777	Tel: (867) 983-2458	Tel: (780) 467-3532
Fax: (705) 669-1100	Fax: (867) 983-2701	Fax: (780) 467-4025
www.transitionmetalscorp.com	www.nunavutrc.com	www.apexgeoscience.com

1.2 Purpose and Scope

The purpose of this SCFMP is to outline preventative measures and response actions relating to the storage and handling of fuels and other hazardous materials to minimize the potential for risk of environmental contamination and to ensure the health and safety of all personnel from the accidental release of deleterious materials. The SCFMP identifies:

- Procedures for the safe handling and use of all types of fuel and other hazardous materials to reduce the potential for spills
- Key response personnel
- Roles and responsibilities for all staff and contractors
- Federal and Territorial government acts, regulations and guidelines pertaining to transportation, storage, handling, disposal, environmental management and spill prevention and response of any type of fuel or other hazardous materials
- Site specific information about the facilities and contingencies in place
- List of hazardous materials on site
- Material Safety Data Sheets (MSDS)
- Spill response procedures, including cleanup and reporting
- Equipment and other resources available to respond to a spill.

1.3 Environmental Policy

Transition Metals Corp. (Transition) places high priority on its responsibility for the environment and for the health and safety of the communities in which it operates or proposes to operate. As a mineral exploration company active in searching for new resources Transition believes that it has an important role to play in the promotion of sound environmental management. Transition (along with its subsidiaries) affirms its commitment to the environment by ensuring

that environmental issues are reviewed as appropriate by its board of directors, and that all employees, consultants, and business partners are aware of their environmental responsibilities.

Transition believes in following best practices for responsible exploration. The company is a member of the Prospectors and Developers Association of Canada who has worked with industry, scientist and government agencies to develop a framework referred to as “E3”, to assist its member companies identify and advance best practices. The purpose of the E3 program is to integrate social, environmental and health and safety values into their decisions and operations in an accountable and transparent manner. Effectively applied, the guidance tools provided by E3 assist the company to:

- Assessing and reducing risks
- Minimizing negative impacts (social and environmental) and
- Optimizing the benefits to all involved – local communities, the host country, investors and the company.

Transition is committed to fully comply with all existing laws and regulations to help ensure the protection of the environment. Transition ensures that all employees, contractors and consultants are fully informed on all procedures established to help protect the environment. Transition cooperates with other groups committed to protecting the environment and ensures that employees, consultants, contractors, government, and the public is informed on the procedures followed to help protect the environment.

1.4 Applicable Legislation and Guidelines

Acts, regulations, and guidelines that apply to the storage, handling, transport, spill prevention and response of hazardous materials include, but are not limited to, the following:

1.4.1 Federal

- Canadian Environmental Protection Act
- Environment Canada's Environmental Emergency (E2) Regulations
- Implementation Guidelines for the Environmental Emergency Regulations
- Canadian Standards Association (CSA) Z1600-14 - Emergency and continuity management program
- National Oil Spill Preparedness and Response Regime
- National Energy Board requirements such as those in the Canada Oil and Gas Operations Act and Regulations and the Onshore Pipeline Regulations, 1999
- Environment Canada's Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations
- Environment Canada's Guidelines for the Preparation of Hazardous Material Spill Contingency Plans, 1990
- Fisheries Act
- Migratory Birds Convention Act
- Nunavut Waters and Nunavut Surface Rights Tribunal Act
- Transportation of Dangerous Goods Act
- Transportation of Dangerous Good Regulations
- National Fire Code of Canada
- Workplace Hazardous Materials Information System
- Canadian Centre for Occupational Health and Safety Act

- CCME Environmental Codes of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products
- Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations
- Guidelines for Spill Contingency Planning
- Northern Land Use Guidelines

1.4.2 Territorial

- Northwest Territories and Nunavut Spill Contingency Planning and Reporting Regulations
- Contingency Planning and Spill Reporting In Nunavut – A guide to the New Regulations
- Guideline for Industrial Waste Discharges in Nunavut
- Fire Prevention Act
- Environmental Protection Act
- Mine Health and Safety Act and Regulations
- Public Health Act
- Safety Act
- Nunavut Occupational Health and Safety Regulations
- Environmental Guideline for the General Management of Hazardous Waste

1.5 Other Plans

The SCFMP should be considered as a part of the property-wide management system. Other management plans in place at the Property include:

- Abandonment and Restoration Plan (ARP)
- Emergency Response Plan (ERP)
- Environmental Management Plan (EMP)
- Waste Management Plan (WMP)

1.6 Property and Camp Description

The Arcadia Bay Property is a gold mineral exploration property located within the Kitikmeot region of Nunavut, within the 1:50,000 National Topographic System (NTS) map sheet 076M11. The Property, composed of Inuit-Owned Land (IOL) Parcel CO-31, is located on the shore of Arcadia Bay, on the Coronation Gulf, approximately 160 kilometres (km) east of Kugluktuk, 200 km west of Hope Bay, and 305 km southwest of Cambridge Bay. The Property is centred at approximately 67°42'21.6"N and 111°32'13.2"W or, using the Universal Transverse Mercator (UTM) conformal projection, 483608 E/7510147 N, North American Datum (nad) 83 zone 12. The land parcel measures approximately 7.5 km north-south by 4.5 km east-west covering 2,696 hectares (Appendix 1).

Float or ski-equipped fixed wing aircraft access to the Property is via Salt Lake, located on the northern perimeter of the Property. Alternatively, an airstrip associated with the Ulu deposit is located approximately 95 km to the south or there is also an airstrip at the Tree River Lodge, located approximately 20 km to the west, which can also be utilized. A helicopter will remain onsite to move personnel and equipment around the project area. A barge landing site, located at the north end of the Property may also be utilized. Barge service is available on the Coronation Gulf for a short season in mid to late summer.

The proposed 2017 exploration activities on the project will include a 12 hole diamond drill program, totaling approximately 2,500 metres (m). A small (12-person) seasonal camp will be

required to support the exploration activities at the project. The camp will be located approximately 2 km south of the barge landing, at a historic site used by Orofino Resources Ltd. in the late 1980's. The approximate location of the camp is 67°43'12.9" N and 111°23'6.9" W or 483701E/7511726N UTM NAD 83 Zone 12. The camp structures are expected to include 1 office tent (12X16'), 3 sleeping tents (12X16' each), 1 first aid tent (12X16'), 1 dry (16X20'), 1 generator/storage shack or Weatherhaven tent (14X16'), and 1 core logging/sample storage shack (16X20'). The majority of the structures will be insulated Weatherhaven tents, or similar, with plywood floors.

A fuel cache will be established on stable ground near the camp, primarily to store diesel (to a maximum of 100-205 litre (L) drums) and jet fuel (to a maximum of 50-205 L drums). Small quantities of gasoline (to a maximum of 10-205 L drums) and propane (to a maximum of 50-100 pound (lb) cylinders) will also be stored. Small temporary fuel caches (totaling less than 4,000 L) may also be required to support the exploration activities, such as staking, prospecting, geological sampling and geophysics at the Property.

1.7 Hazardous Materials On-Site

The following section details the products which are anticipated to be the most commonly used hazardous materials at the Property. The list is subject to change based on product replacements, etc. Any changes will be reflected in future revisions of this plan. All MSDS for these products are included within this plan and can be found in Appendix 2.

1.7.1 Fuel

A main fuel cache will be established proximal to the camp, primarily to store diesel, jet fuel, gasoline and propane, but will also have designated sections for other hazardous materials and hazardous waste. Small fuel caches will also be established at drill sites while drilling is in progress. These temporary caches will store small amounts of fuel and chemicals required for drilling.

Diesel, jet fuel, and gasoline will be stored in 205 litre (L) steel drums. Propane will be stored in 100 lb cylinders equipped with pressure relief valves. Waste oil will be sealed in 205 L steel drums and removed from camp for proper disposal.

Table 2.1: Inventory of Fuels Anticipated to be Stored on Site

Hazardous Material	Proposed Use	Storage Container Type/Size	Maximum number of containers	Total Quantities	Storage Location
Jet A Aviation Fuel	Helicopter and Fixed-wing aircraft	205 L steel drum	50	10,250 L	Fuel cache adjacent to camp helipad, barge landing, drill sites, remote fuel caches
Diesel	Generator, tent heaters, drill, water pumps	205 L steel drum	100	20,500 L	Fuel cache adjacent to camp helipad, barge landing, drill sites
Gasoline, regular unleaded	Vehicles and equipment	205 L steel drum	10	2,050 L	Fuel cache adjacent to camp helipad, barge landing, drill sites
Propane	Kitchen equipment, heating hot water	100 lb steel cylinder	50	5,000 lbs	Fuel cache adjacent to camp helipad, barge landing, kitchen, drill sites

1.7.2 Other Hazardous Materials

Other hazardous materials which may be present at the Arcadia Bay Property include chemicals for cleaning, motor oil, drilling additives, antifreeze and batteries.

1.7.2.1 Chemicals

Chemicals to be used on site may include household-strength cleaning supplies such as Javex, ammonia-based window/countertop sprays, wash soaps, degreasers, etc. In addition, limited miscellaneous items such as insect repellent and aerosols will be available. All items will be stored in their original containers in their respective storage/use areas, and removed off-site with routine garbage backhauls. All hazardous materials will be transported to and from camp via either fixed-wing or helicopter, as needed, and backhauled to Kugluktuk, Cambridge Bay or, if required, Yellowknife. All containers storing hazardous materials will be inspected for dents, punctures, etc. prior to being slung. Extreme care will be taken in the process of transferring all chemicals/chemical solutions/fuels/etc. Funnels will be utilized to direct small amounts of liquid to reduce the potential of spillage. Spill mats will be in place when transferring/refuelling.

1.7.2.2 Motor Oil

When drilling commences, an average of approximately 100 L of motor oils and hydraulic oils will be maintained at the camp. The products will be supplied in 1L or 20 L plastic containers and stored in the generator enclosure. This inventory will be maintained during operations and resupplied as needed. These products will be used as crankcase oils in the diesel engines that power the electrical generator, diesel engines on the drill rigs, gasoline engines in small equipment such as portable electrical generators and turbine lubricants in helicopters and fixed wing aircraft. The containers will be stored either in the camp's buildings or placed outdoors on pallets, wrapped in polyethylene sheeting and tarped over or on spill containment pallets.

1.7.2.3 Drill Mud/Additives

All drill additives will be non-toxic and biodegradable, whenever possible. The diamond drilling may use modest amounts of additives depending on rock conditions. When drilling is under way, the contractor responsible will store the required drilling muds, additives, oils and lubricants in a temporary shed at drill site or camp; upon annual termination of the project, these materials will be removed via back haul to Kugluktuk, Cambridge Bay, or if required, Yellowknife, to be properly disposed of. The drill additives will be transferred according to the manufacturer's guidelines and the operating procedures of the drill contractor.

1.7.2.4 Antifreeze

As much as possible, any winter drilling programs will utilize non-toxic Beet Juice Antifreeze or other non-toxic alternatives.

1.7.2.5 Lead Acid Batteries

Lead acid batteries will be present on the drill rigs and on the diesel engines for the electrical generators. In addition a small number of batteries may be needed for other portable items. Spares will be maintained on site. For the purpose of this project description, we have assumed that two spare lead acid batteries will be kept in the generator enclosure. Secondary containment measures are not contemplated given the small number of batteries in storage. At no time will any batteries be put in the garbage; nor will they be incinerated.

1.8 Preventative Measures

The first step in spill management is to take actions to prevent the spill from occurring. Regular worksite inspections will be conducted to identify potential areas of concern and implement measures to minimize the risk of spills. All personnel who handle fuel and/or chemicals as part of their work duties will be trained on safe handling and proper procedures. The Companies support the following general principles and practices in an effort to reduce the potential for spills:

- Regularly inspect all fuel and chemical storage areas;
- Maintain records of inspections on site. Records will be made available to the Inspector upon request;
- Provide training to all personnel who handle fuel, chemicals and hazardous materials;
- Have appropriate signage in place;
- Keep storage areas secure from unauthorized access;
- Store fuel, chemicals and hazardous materials and wastes in secondary containment;
- Keep drums and containers sealed or closed when not in use;
- Segregate incompatible products;
- Provide up to date, current MSDS for all hazardous materials on site;
- Include discussion of spill response procedures during all orientations;
- Emphasize a culture of prevention;
- Ensure chemical storage areas are protected from weather and physical damage;
- Provide sufficient spill kits at all locations where fuel, chemicals, and hazardous materials and wastes are stored or used.

1.8.1 Transportation of Fuel and Hazardous Materials to Site

Transport companies will have their own spill response procedures. The Companies will review all contractors' procedures and work with contractors to ensure all procedures align.

The Companies will require that all fuel mobilized to the camp by fixed wing aircraft, and then slung to caches by helicopter are to be inspected. Firstly all fuel drums will be inspected to identify any defects (i.e. torn, missing, or twisted gaskets, etc.). A second inspection will be performed upon arrival at camp. Regulations outlined in the Transportation of Dangerous Goods Act, and other relevant legislation, will be observed at all times during transport.

Fuel drums will be slung by helicopter on an as needed basis to the drill sites. Proper slinging equipment will be required and all personnel are to be trained in correct slinging procedures. An inspection of each drum will be performed prior to and after helicopter transport, including inspection for leaks and defects. Empty drums will be removed from site for proper disposal.

1.8.2 Fuel and Hazardous Materials Storage

All fuel and other hazardous material storage and transfer areas will be located a minimum distance of 31 metres from the normal high water mark of any water body. All fuels and other hazardous materials will be stored within "Arctic Insta-Berms", or similar products, for secondary containment. These types of berms utilize chemical and fire resistant fabric (generally polyurethane coated nylon or vinyl coated polyester material) designed for extreme arctic temperatures and puncture resistance. "RainDrain" or similar hydrocarbon filtration

systems will be used to safely remove any water collected inside the berms, and as a safeguard against any potential overflows of contaminated water.

Stability of all reservoir and distribution assemblies is of utmost importance to ensure that the risk of damage is minimized. All stands for reservoirs will be constructed to strength standards beyond those required. Distribution lines from reservoirs to appliances will be fitted with an appropriate shut-off valve immediately downstream from the reservoir. The line will be installed in such a way to avoid wind chafing, the potential for damage by animals and with safety in mind with regard to tripping hazards. This will be done by securing it to rigid structures, encasing it in armor or any other effective manner. These measures apply broadly to heating oil, gasoline and propane set-ups.

Spill kits and firefighting equipment will be strategically located near where any hazardous materials are stored or transferred, at all drill sites, in the helicopter(s), and at numerous locations throughout the camp.

1.8.2.1 Steel Drums

Steel drums will be stored in such a manner that they will not be susceptible to tipping over, rolling or otherwise being unstable. Care will be exercised so that nothing can cause damage to steel fuel drums by falling or rolling onto or into them by placing posts at each corner of the fuel storage area.

Steel drums will be inspected on a regular basis for any signs of damage, leaks or spills. Steel drums will be stored on their sides in organized rows with the bungs in the three o'clock and nine o'clock positions. Drums will be stood upright 1 to 2 days prior to use in order to allow any contaminants to settle. Daily inspections will be conducted to identify any damaged or leaking containers. In the event that a leak is discovered, the substance will either be used immediately or transferred to an undamaged container.

1.8.2.2 Propane

Propane will be stored in appropriate, certified containers. Propane containers will be inspected and monitored on a regular basis for any signs of deterioration or corrosion. Containers will be secured and fastened in an upright position to ensure there is no risk of damage to the regulator in the event of a fall.

Propane cylinders will be equipped with a pressure release valve that opens and closes to prevent a buildup of excessive internal pressure. Labels, showing data such as date of manufacture and re-testing dates, will be applied to the collar of the cylinders. Propane is non-toxic and will not contaminate soil, however secondary containment berms will be used for storage as a precaution. All propane cylinders will be secured for safety and stored away from any sources of ignition.

1.8.2.3 Chemicals

Small packages of chemicals will be placed in the storage sheds at the camp. Larger packages will either be stored in the camp's buildings or placed outdoors on pallets, wrapped in polyethylene sheeting and tarped over. Immediately prior to use, bags or containers of chemicals will be transported to their place of use by carrying by hand for movement to the camp site. For the drilling materials, the containers will be slung with a helicopter and deployed at the drill site. Appropriate spill kits, including empty containers for contaminated soil, will be kept on hand to clean up any product spilled.

1.8.2.4 Battery Acid

All batteries will be protected from damage by fastening them into the space designed for them when used with various power equipment and stored safely within appropriate secondary containment when not in use.

1.8.3 Transfer of Fuel and Hazardous Materials

Electric or hand wobble pumps equipped with filtration devices will be used for the transfer of diesel, jet fuel, and gasoline from their storage containers directly to their end-use fuel tanks. Portable drip trays or mini-berms will be used to mitigate the risk of any spillage, and fully stocked spill kits will be available at all refueling stations. Proper grounding procedures will always be used during fuel transfer while using an electric pump. Cigarette smoking, sparks, open flames, and any potential ignition sources are prohibited within 100 metres of any fuel storage site and at all times during fuel transfer.

When transferring fuel, the drum will be stood upright and blocked with the high side at 12 o'clock, the bung at 3 o'clock, and the vent at 9 o'clock to prevent water or dirty fuel from reaching the openings. The standpipe will be placed in a manner so that it will not be able to reach the lowest point in the drum, thus ensuring any contaminants will remain in the drum.

Any personnel who are required to handle or store fuel will receive appropriate training, including instruction in the operation and maintenance of fuel transfer and storage equipment. All on-site personnel will receive training as outlined in this document.

Chemicals will generally be transferred directly to the end use machinery from the containers that the products were provided in. Considering the nature of the operations, generally less than 20 L of product will be transferred at a time. Spill kits will be kept on hand to clean up any product spilled in the transfer process. For any solid products, the bags will be opened directly over the intended use tanks into which the product will be placed. Used chemical products will be returned to empty containers and stored for shipment off-site. Used motor oil will be accumulated in sealed, labeled 20 L pails for shipment off-site.

1.8.4 Signs, Labels and Inspections

All hazardous materials will be clearly labeled in accordance with the Workplace Hazardous Materials Information System (WHMIS) and other applicable legislation. Labels will include, but not limited to, the type of material, safe handling procedures, reference to MSDS, company name, and the date of delivery to site. Signs with the same information, along with MSDS for each material type will be posted at each storage or transfer site. Additionally, "No Smoking" signs will be posted at all locations where hazardous materials are stored or transferred.

All fuel drums will be inspected upon arrival at camp, and before and after helicopter transport. Monitoring of drums, fuel transfer equipment, and fuel caches will be ongoing during the exploration program. Daily inspections will be conducted to identify any damaged or leaking containers, and the findings reported in the "Daily Fuel Inspection Record". Any damage discovered during or as a result of transport will also be recorded. Any leaks or spills will be reported and contained as outlined in this document. A copy of the Daily Fuel Inspection Record is attached in Appendix 3.

The Project Supervisor is responsible for supervising the monitoring and inspection program, and keeping a detailed inventory of all fuel and other hazardous materials on site.

1.9 Distribution List and Additional Copies

The appropriate procedures in this SCFMP are to be followed for handling fuel, chemicals and other hazardous materials and for product spills and/or emergencies. The responsible supervisor will determine what additional action is required in each instance.

All employees and contractors will be introduced to this SCFMP and made aware of where it is kept during their onsite orientation. Employees and contractors issued this SCFMP must become familiar with its contents relevant to their responsibilities.

This SCFMP has been distributed directly to:

Internal:

- Head Offices – Transition Metals Corporation and Nunavut Resources Corporation

External:

- Nunavut Impact Review Board (NIRB) and their public review distribution list
- Nunavut Water Board (NWB) and their public review distribution list
- Kitikmeot Inuit Association (KIA)

On-Site Locations:

- Field Office
- Kitchen
- Fuel Caches
- Active drill shacks
- Other locations as required

1.10 Process for Staff Response to Media and Public Inquires

Transition has established procedures for dealing with media and public inquiries. All inquiries are to be directed to the Vice President, Exploration at the Sudbury office. If the Vice President, Exploration is not available, there will be another staff member available to act in his position. If a reporter or member of the public arrives at the site unexpectedly, the official in charge of responding to their questions will be the Project Manager. Prior to responding to their questions, the Project Manager should make every effort possible to contact the Vice President, Exploration to discuss the situation.

The Project Manager should always keep the Vice President, Exploration informed of any news or updates of potential interest to the media or general public, such that the company is prepared to deal with inquiries at any time.

2 RESPONSE ORGANIZATION

In the case of a spill or environmental emergency, an immediate, safe and environmentally responsible reaction is required. An immediately reportable spill is defined as a release of a substance that is likely to be an imminent environmental or human health hazard or meets or exceeds the threshold volumes outlined in Appendix 4 - Immediately Reportable Spill Quantities. It must be reported to the Nunavut 24-Hour Spill Report Line at 1-867-920-8130.

Any spills less than the quantities defined in Appendix 4 do not need to be reported immediately to the spill reporting line, however all spills at the Arcadia Bay Property are to be reported.

These minor spills will be cleaned using the same procedures as for reportable spills and will also be tracked and documented by the Companies.

Emergency satellite phones are located in the camp office, in the helicopter, at the drill and with field personnel. In the event of a spill or environmental emergency, these phones will be used to contact emergency response personnel.

Following reporting of the spill to the on-site Project Manager, the on-site Project Manager will report spills to the Nunavut 24-Hour Spill Line as necessary. The on-site Project Manager will also inform Companies' management to ensure all spills are tracked in a company database and to notify the head office as required.

2.1 Basic Response Organization and Responsibilities

The basic steps of the response plan are as follows:

1. *Ensure* the safety of all persons at all times.
2. *Identify* and find the spilled substance and its source, and if possible, stop the process or shut off the source.
3. *Inform* the on-site coordinator or his/her designate at once, so that immediate actions may be taken including notification of the 24 Hour Spill Report Line, the Kitikmeot Inuit Association and the INAC Water Resources Officer.
4. *Contain* the spill or environmental hazard.
5. *Implement* any necessary cleanup/remedial action.

2.2 Chain of Command

1. Immediately notify the on-site Project Manager
2. The on-site Project Manager will contact the 24 Hour Spill Report Line at 867-920-8130 (Fax: 867-873-6924).
3. Before or after contacting the 24 Hour Spill Report Line, a Spill Report Form (Appendix 5) is to be filled out.
4. Notify the KIA at 867-982-3310
5. Notify the INAC Water Resources Officer at 867-975-4295

Table 2.1: Spill Reporting and Response Contact List

Contact	Telephone Number
24 Hour Spill Report Line	867-920-8130
Thomas Hart (Transition Metals Corp.)	778-389-7274 (mobile)
Kitikmeot Inuit Association	867-982-3310 (phone) 867-982-3311 (fax)
INAC Resource Management Officers (Kitikmeot Region)	867-982-4306 (Kugluktuk)
INAC Water Resource Officers (Kitikmeot Region)	867-982-4306 (Kugluktuk)
INAC Field Operations Manager	867-975-4295 (Iqaluit)
Government of Nunavut Department of Environment	867-975-7700 (Iqaluit)
DFO (Central and Arctic Branch)	519-383-1813
Nunavut Water Board	867-360-6338
RCMP (Kugluktuk)	867-982-1111 (emergency) 867-982-0123 (general)

Contact	Telephone Number
RCMP (Cambridge Bay)	867-983-1111 (emergency) 867-983-0123 (general)
RCMP (Yellowknife)	867-765-3900 (general)
Stanton Territorial Hospital (Yellowknife)	867-669-4111 (switchboard)
	867-669-4115 (medical travel)
Kugluktuk Health Centre	867-982-4531
Cambridge Bay Health Centre	867-793-2816
Adlair Aviation (Cambridge Bay)	867-983-2569
Adlair Aviation (Yellowknife)	867-873-5161
Camp Satellite Phone	TBA
Helicopter Satellite Phone	TBA
Drill Site Satellite Phone	TBA
Field Crew Satellite Phone(s)	TBA

The Phone numbers for the satellite phones change annually. Once the numbers have been assigned, the SCFMP will be updated.

3 ACTION PLAN

3.1 Potential Spill Hazards

Even with appropriate preventative measures in place, the potential for spills remains when dealing with fuel and other hazardous materials. The following is a list of potential spill hazards:

- 205 L drums holding diesel, jet fuel, gasoline, waste fuels, and waste oils have the potential to leak or rupture due to mishandling. Older or refilled drums are more prone to leaking around the bungs if the seals are not properly maintained.
- Propane cylinders may leak from the valves or rupture as a result of mishandling.
- Vehicles and other motorized equipment may experience fuel or oil leaks as a result of malfunctions, impacts, lack of maintenance, improper storage, or faulty operation.
- Leaks or spills may occur during fuel transfer due to over-fueling, improper fueling procedure, or faulty equipment.
- The risk of rupturing a fuel container increases during transport due to the increased amount of handling involved.

Regular inspection and maintenance of fuel caches, motorized equipment, and fuel transfer equipment will help to mitigate the risks outlined above. Training for proper maintenance of motorized equipment, fuel transfer and handling procedures, and spill response training will be provided to applicable personnel.

3.2 Potential Environmental Impacts

All hazardous materials pose a threat to the environment if spilled. The following list outlines potential environmental impacts of hazardous materials stored on site:

- Gasoline may be harmful to wildlife and aquatic life. It is not readily biodegradable and has the potential for bioaccumulation in the environment. Gasoline volatizes quickly and can be explosive and a fire hazard in the event of a spill. Runoff into water bodies must be avoided

- Diesel may be harmful to wildlife and aquatic life. It is not readily biodegradable and has the potential for bioaccumulation in the environment. Diesel volatizes comparatively slowly, but represents a fire hazard in the event of a spill. Runoff into water bodies must be avoided
- Jet fuel may be harmful to wildlife and aquatic life. It is not readily biodegradable and has the potential for bioaccumulation in the environment. Jet fuel volatizes relatively quickly and represents a fire hazard in the event of a spill. Runoff into water bodies must be avoided
- Propane may be harmful to wildlife and the surrounding environment. It has the potential to accumulate in the environment. Propane is extremely volatile and is the most flammable material stored on site, thus immediate impacts to the surrounding environment are a concern
- Oils and greases may be harmful to wildlife and aquatic life. They are not readily biodegradable, their volatility is low and they have the potential for bioaccumulation in the environment. Runoff into water bodies must be avoided

3.3 Initial Actions

The first priority when a spill occurs is safety — the safety of the immediate responder and others working in the area. Once it is safe to do so, the responder should make every effort to stop and/or control and contain the spill. Petroleum spills within contained areas can be cleaned up as personnel are available. In other areas, advice from the Project Manager may be required depending on the scale of the spill and environmental sensitivity of the incident area.

These procedures are for the first person arriving at the scene of a spill:

- Ensure safety of all personnel.
- Assess spill hazards and risks.
- Remove all sources of ignition.
- Stop the spill if it is possible to do so safely.
- Notify the supervisor and request assistance if needed.
- Contain the spill.

3.4 Secondary Actions

- Determine the status of the spill event.
- If necessary, pump fuel from a damaged or leaking drum into a refuge container.
- Notify the 24 Hour Spill Report Line.
- Complete and fax a copy of the Spill Report Form (Appendix 5).
- Notify permitting authorities and any other agencies as required.
- If possible, resume cleanup and containment.

3.5 Containment

- Ensure it is safe to initiate containment procedures.
- Always use applicable safety equipment (gloves, goggles/safety glasses, masks/respirators, etc.) before attempting to contain a spill.
- Initiate spill containment by first determining what will be affected by the spill.
- Assess speed and direction of the spill and the cause of movement (water, wind, slope).

- Determine the best location for containing the spill, avoiding water bodies.
- Have a contingency plan ready in case spill worsens beyond control or if other factors impede containment efforts.

3.6 Procedures for Containing and Controlling a Spill

In most cases, spill cleanups are initiated at the far end of the spill and contained moving toward the centre of the spill. Sorbent socks and pads are generally used for small spill clean-up. A pump with attached fuel transfer hose can suction spills from leaking containers or large accumulations on land or ice, and direct these larger quantities into empty drums. Hand tools such as cans, shovels, and rakes are also very effective for small spills or hard to reach areas. Heavy equipment can be used if deemed necessary, and given space and time constraints.

3.6.1 Diesel, Jet Fuel, Gasoline, Hydraulic Oil and Lubricating Oil Spills

3.6.1.1 Containment of Spills on Rock

For petroleum spills on rock outcrops, boulder fields, etc:

- First responder or designate obtains plastic tarp(s) and absorbent sheeting on-site.
- A berm of peat, native soil or snow is constructed down slope of the seepage or spill.
- The tarp is placed in such a way that the fuel can pool for collection and removal (e.g. at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare empty drums for sealing and disposal.
- Absorbent sheeting is placed on the rock to soal up spilled oil, fuel, etc.
- Multi Sorb (crushed lava rock) can be used to scrub the rock surface.
- Saturated material is disposed of in an empty drum, which is then labeled and sealed. Alternatively, the pads may be wrung out into the empty drum(s), the drums marked and then secured for eventual disposal.

3.6.1.2 Containment of Spills on Land

Spills on land include spills on rock, gravel, soil and/or vegetation. It is important to note that soil is a natural sorbent, thus spills on soil are generally less serious than spills on water as contaminated soil can be more easily recovered. Generally spills on land occur during the late spring, summer or fall when snow cover is at a minimum. It is important that all measures be undertaken to avoid spills reaching open water bodies.

3.6.1.2.1. Puncture or rupture

Puncture or rupture of 205-litre steel drums containing liquid fuels will initially be assessed for risk of ignition. Sources of ignition will be extinguished or isolated from the spill if safe to do so. Efforts will be made to plug punctures with appropriate material from the spill kit (expandable neoprene plugs or wedges and shims). Ruptures will be high-centred to stop further spill of fuel. Absorbent material will be placed on spilled fuel and into appropriate containers (plastic or metal cans or pails in good condition) as it becomes saturated with fuel. A containment berm will be built from soil and/or tarps to contain a large spill. Fuel skimmed or wicked off of the surface to be disposed of, most probably by incineration. High-centered ruptures will be used as a point of entry for manually-operated fuel transfer pump suction tubes, and remaining fuel will be removed to a sound drum. Contaminated soil, vegetation or gravel will be removed into buckets with lids for proper disposal.

3.6.1.2.2. Leak from a fuel reservoir

A detected leak from a fuel reservoir and distribution line assembly will initially be assessed for risk of ignition. Sources of ignition will be extinguished or isolated from the leak if safe to do so. Shut-off valve immediately downstream from reservoir will be turned off. Absorbent material will be placed on the spilled fuel; if spilled onto snow or ice this will be scooped up with a shovel and stored in an appropriate container. Spilled fuel collected will be disposed of by incineration. The site of the leak will be searched for and repaired if and when found, if the site of the leak is not found the entire assembly may be replaced paying special attention to quality of materials, equipment and techniques of installation employed.

3.6.1.2.3. Dykes

Dykes can be created using soil surrounding a spill on land. These dykes are constructed around the perimeter or down slope of the spilled fuel. A dyke needs to be built up to a size that will ensure containment of the maximum quantity of fuel that may reach it. A plastic tarp can be placed on and at the base of the dyke such that fuel can pool up and subsequently be removed with sorbent materials or by pump into barrels or bags. If the spill is migrating very slowly a dyke may not be necessary and sorbents can be used to soak up fuels before they migrate away from the source of the spill.

3.6.1.2.4. Trenches

Trenches can be dug out to contain spills as long as the top layer of soil is thawed. Shovels pick axes or a loader can be used depending on the size of trench required. It is recommended that the trench be dug to the bedrock or permafrost, which will then provide containment layer for the spilled fuel. Fuel can then be recovered using a pump or sorbent materials.

3.6.1.3 Containment of Spills on Water

Spills on water such as rivers, streams or lakes are the most serious types of spills as they can negatively impact water quality and aquatic life. All measures need to be undertaken to contain spills on open water.

3.6.1.3.1. Booms

Booms are commonly used to recover fuel floating on the surface of lakes or slow moving streams. They are released from the shore of a water body to create a circle around the spill. If the spill is away from the shoreline a boat will need to be used to reach the spill, then the boom can be set out. More than one boom may be used at once. Booms may also be used in streams and should be set out at an angle to the current. Booms are designed to float and have sorbent materials built into them to absorb fuels at the edge of the boom. Fuel contained within the circle of the boom will need to be recovered using sorbent materials or pumps and placed into barrels or bags for disposal.

3.6.1.3.2. Weirs

Weirs can be used to contain spills in streams and to prevent further migration downstream. Plywood or other materials found on site can be placed into and across the width of the stream, such that water may still flow under the weir. Spilled fuel will float on the water surface and be contained at the foot of the weir. It can then be removed using sorbents, booms or pumps and placed into barrels or plastic bags.

3.6.1.3.3. Barriers

In some situations barriers made of netting or fence material can be installed across a stream, and sorbent materials placed at the base to absorb spilled fuel. Sorbents will need to be replaced as soon as they are saturated. Water will be allowed to flow through. This is very similar to the weir option discussed above.

3.6.1.4 Containment of Spills on Ice

Spills on ice are generally the easiest spills to contain due to the predominantly impermeable nature of the ice.

3.6.1.4.1. Sorbent Materials

For small spills, sorbent materials are used to soak up spilled fuel. Remaining contaminated ice/ slush can be scraped and shoveled into a plastic bag or barrel. However, all possible attempts should be made to prevent spills from entering ice covered waters as no easy method exists for containment and recovery of spills if they seep under ice.

3.6.1.4.2. Dykes

Dykes can be used to contain fuel spills on ice. By collecting surrounding snow, compacting it and mounding it to form a dyke down slope of the spill, a barrier is created thus helping to contain the spill. If the quantity of spill is fairly large, a plastic tarp can be placed over the dyke such that the spill pools at the base of the dyke. The collected fuel can then be pumped into barrels or collected with sorbent materials.

3.6.1.4.3. Trenches

For significant spills on ice, trenches can be cut into the ice surrounding and/or down slope of the spill such that fuel is allowed to pool in the trench. It can then be removed via pump into barrels, collected with sorbent materials, or mixed with snow and shoveled into barrels or bags.

3.6.1.5 Containment of Spills on Snow

Snow is a natural sorbent, thus as with spills on soil, spilled fuel can be more easily recovered. Generally, small spills on snow can be easily cleaned up by raking and shoveling the contaminated snow into plastic bags or empty barrels, and storing these at an approved location.

3.6.1.5.1. Dykes

Dykes can be used to contain fuel spills on snow. By compacting snow down slope from the spill, and mounding it to form a dyke, a barrier or berm is created thus helping to contain the spill. If the quantity of spill is fairly large, a plastic tarp can be placed over the dyke such that the spill pools at the base of the dyke. The collected fuel/snow mixture can then be shoveled into barrels or bags, or collected with sorbent materials for proper disposal upon instruction of the regulatory agency.

3.6.2 Propane

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

3.6.2.1 Containment of Spills on Land
Do not attempt to contain propane release.

3.6.2.2 Containment of Spills on Water
Do not attempt to contain propane release.

3.6.2.3 Containment of Spills on Ice
Do not attempt to contain propane release.

3.6.2.4 Containment of Spills on Snow
Do not attempt to contain propane release.

3.6.3 Chemical Spills

- Assess hazard of spilled material; **REFER TO MSDS**. Members of the emergency response team who are vulnerable to certain contaminants should be replaced with alternatives (e.g. Asthmatics where fumes or airborne particles are evident).
- Assemble applicable safety equipment (gloves, goggles/safety glasses, masks/respirators, etc.) before responding to a spill.
- Apply absorbents to soak up liquids.
- Solid chemicals such as dusts or powders should be covered with plastic sheeting to prevent disbursement by wind or animal.
- Neutralize acids or caustics. Place spilled material and contaminated clean-up supplies in empty refuge drums and seal for disposal.
- Contact the 24 Hour Spill Report Line.
- Proceed with clean-up in correspondence with the MSDS.

3.6.4 Battery Acid Spills

- In case of a spill of battery acid the first concern will be for the safety of any person(s) at risk of harm.
- Sources of ignition to the potentially explosive gas will be extinguished or isolated if safe to do so.
- Personal protective equipment, eye and hand wear at a minimum, will be donned
- a neutralizer (sodium bicarbonate) will be bermed around the spill site
- If safe to do so the entire battery may be placed into a non-corrodible container.
- The neutralizer may then be worked into the entire area of the spill until no more obvious reaction is noticed.
- Used neutralizer will be placed in suitable containers for appropriate disposal upon instruction of the regulatory agency.

3.6.5 Loss of External Load
The loss of external loads of fuel, oil or chemicals from aircraft almost certainly results in complete and catastrophic failure of the containers that once held the product. Immediate response is imperative.

- Mark the loss target with GPS coordinates and relay to camp or base ASAP. Include quantity and type of load loss.
- Base or camp will contact 24-Hour Spill Line, and receive direction and instruction.
- Administer the appropriate procedure for Spills on Land, Water, Snow, or Ice.

3.7 Storage, Transfer and Disposal of Spill Related Waste

All contaminated soil, water, ice and snow will be stored in sealed, labeled containers and removed from site for proper disposal at an approved facility. Subject to authorization from the appropriate regulatory authorities, contaminated soils may be remediated on site by bioremediation or soil farming techniques.

Used sorbent materials will be immediately placed in plastic bags, and later in sealed containers for future disposal at an approved facility. Damaged containers will also be sent to an approved facility for disposal.

Following clean up, any tools or equipment used will be properly washed and decontaminated, or replaced if this is not possible.

The movement of all hazardous wastes will be monitored by the Nunavut Department of Environment and tracked with a Waste Manifest during all movements and transfers.

3.8 Restoring Affected Areas

Once a spill has been contained, consultation will be held with NU Environment to determine the level of cleanup required. A site-specific examination may be required to ensure the appropriate cleanup levels are met. Criteria that may be considered include natural biodegradation or replacement of soil and vegetation.

4 RESOURCE INVENTORY

Spill kits and firefighting equipment will be strategically located near where any hazardous materials are stored or transferred, such as: the camp fuel cache, generator shack, incinerator, helicopter pad/airstrip, drill sites, and any other locations as required.

4.1 Spill Kits

Spill kits will be in bright yellow 231 L rigid plastic containers and will contain:

100	oil sorbent pads
6	small pillows
2	large pillows
2	3”x4’ socks
5	3”x8’ socks
2	4’ socks
1	25 lb bag granular
2	pair splash goggles
2	poly coated Tyvek suits
2	disposable respirators
10	large bags with ties for temporary use
2	large tarps
1	collapsible shovel
1	roll duct tape

1 utility knife
2 spill kit labels
1 laminated copy of the Dewar Lakes Camp Spill Prevention and Response Plan
1 231 L overpack drum
1 checklist of required items

4.2 Other equipment on-site:

2 38”x144’ rolls absorbent matting
200 16”x20” enviro matting
10 booms
5 large tarps
5 shovels (minimum)
3 pick axes (minimum)
3 rakes (minimum)
10 empty 205 L drums (minimum)

5 TRAINING PROGRAM

5.1 Outline of Training Program

All on-site personnel need to be prepared to react, control, report and follow-up on injuries and spills. Effective training of personnel in spill response and use of spill kits can save money in cleanup costs and reduce environmental damage. The difference between a minor incident and a major environmental disaster can hinge on the proper use of the spill kit materials and the speed of the response.

It is important that all on-site personnel are aware of the risks and how to avoid them. When employees and contractors know what materials are being used, how to use them safely, and what to do if an emergency occurs, the workplace can be kept much safer.

All on-site personnel, including staff, contractors and guests, will undergo an orientation and training program on initial spill response procedures and be familiar with spill reporting requirements. Fuel handling personnel will receive additional training in safe operation of fuel transfer equipment, spill prevention techniques and spill response.

Training will include, but not be limited, to the following:

- Review of the SCFMP and personnel responsibilities.
- Location of fuel and chemical storage sites.
- Causes and possible effects of spills.
- Use of on and off-site spill response resources.
- Exercises in spill response and spill kit use.
- Distribution of up-to-date copies of the SCFMP and emergency contact lists.

All on-site personnel are required to have basic training in first aid, Workplace Hazardous Materials Information System (“WHMIS”), and Transportation of Dangerous Goods (“TDG”). Supervisors are required to have advanced first aid training, as well as a valid Occupational Health and Safety (“OHS”) Supervisor’s Certificate.

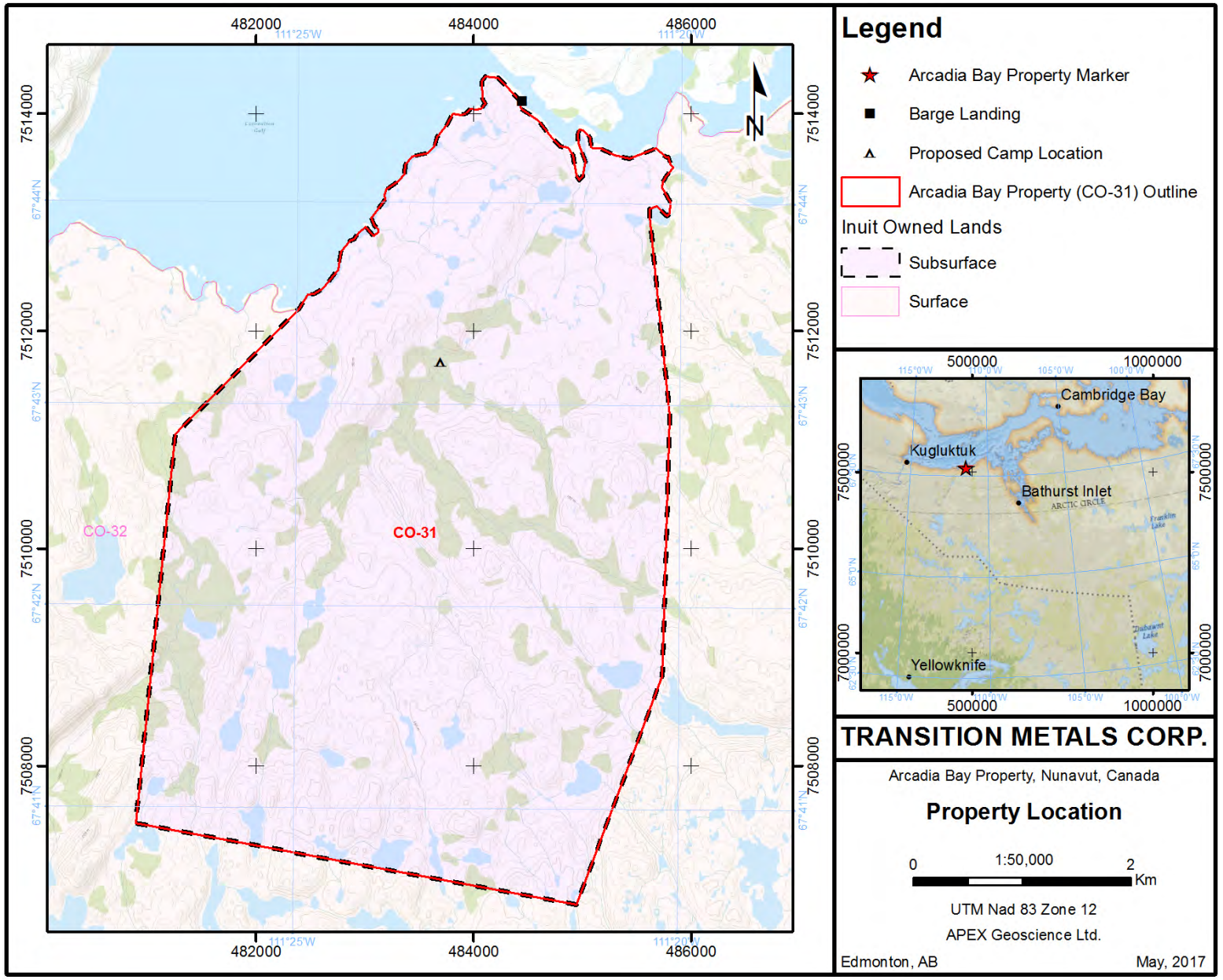
5.2 Records

The on-site project manager will keep detailed records of orientation and training

Appendix 1

Arcadia Bay Property

Figures


482000
484000
486000
111°25'W
111°20'W
7514000
7512000
7510000
7508000
67°44'N
67°43'N
67°42'N
67°41'N
CO-32
CO-31
N
Legend
Arcadia Bay Property Marker
Barge Landing
Proposed Camp Location
Arcadia Bay Property (CO-31) Outline
Inuit Owned Lands
Subsurface
Surface
500000
1000000
7500000
7000000
Cambridge Bay
Kugluktuk
Bathurst Inlet
ARCTIC CIRCLE
Yellowknife
TRANSITION METALS CORP.
Arcadia Bay Property, Nunavut, Canada
Property Location
0
1:50,000
2
Km
UTM Nad 83 Zone 12
APEX Geoscience Ltd.
Edmonton, AB
May, 2017

Appendix 2

Arcadia Bay Property

MSDS

Material Safety Data Sheet

TWO CYCLE MOTOR OIL

PETRO-CANADA

1 . Product and company identification

Product name	:	TWO CYCLE MOTOR OIL
Code	:	TWOCYC
Material uses	:	A low ash 2-cycle engine oil designed to lubricate conventional pre-mixed fuel/oil as well as oil injection lubricated engines powering air-cooled two-stroke cycle engines.
Manufacturer	:	Petro-Canada Lubricants Inc. 2310 Lakeshore Road West Mississauga, Ontario Canada L5J 1K2
In case of emergency	:	Suncor Energy: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state	:	Viscous liquid.
Odour	:	Mild petroleum oil like.
WHMIS (Canada)	:	Not controlled under WHMIS (Canada).
OSHA/HCS status	:	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.
Emergency overview	:	No specific hazard.
Routes of entry	:	Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects		
Inhalation	:	No known significant effects or critical hazards.
Ingestion	:	No known significant effects or critical hazards.
Skin	:	Slightly irritating to the skin.
Eyes	:	Slightly irritating to the eyes.
Potential chronic health effects		
Chronic effects	:	No known significant effects or critical hazards.
Carcinogenicity	:	Not listed as carcinogenic by OSHA, NTP or IARC.
Mutagenicity	:	No known significant effects or critical hazards.
Teratogenicity	:	No known significant effects or critical hazards.
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 or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Mixture of severely hydrotreated and hydrocracked and/or solvent-refined base oil (petroleum).	Mixture	-

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.

3 . Composition/information on ingredients

The base oil may be a mixture of the following CAS#s: 8042-47-5, 64741-95-3, 64742-01-4, 64742-46-7, 64742-47-8, 64742-53-6, 64742-54-7, 64742-55-8, 64742-62-7, 72623-83-7, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1, 178603-64-0, 178603-65-1, 178603-66-2, 445411-73-4

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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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 : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

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.

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

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 : Low fire hazard. This material must be heated before ignition will occur.

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. 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

6 . Accidental release measures

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. 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). 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. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. 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. 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.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Mixture of severely hydrotreated and hydrocracked and/or solvent-refined base oil (petroleum)	**ACGIH TLV (United States). Notes: (Mineral oil)** TWA: 5 mg/m³, (Inhalable fraction) 8 hour(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 : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

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: organic vapour filter

8 . Exposure controls/personal 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: neoprene, nitrile, polyvinyl alcohol (PVA), Viton®.
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	:	Viscous liquid.
Flash point	:	Open cup: 152°C (305.6°F) [Cleveland.]
Auto-ignition temperature	:	Not available.
Flammable limits	:	Not available.
Colour	:	Blue-green.
Odour	:	Mild petroleum oil like.
Odour threshold	:	Not available.
pH	:	Not available.
Boiling/condensation point	:	Not available.
Melting/freezing point	:	Not available.
Relative density	:	0.88 kg/L @ 15°C (59°F)
Vapour pressure	:	Not available.
Vapour density	:	Not available.
Volatility	:	Not available.
Evaporation rate	:	Not available.
Viscosity	:	20.9 cSt @ 40°C (104°F), 4.5 cSt @ 100°C (212°F), VI=132
Pour point	:	-57°C (-71°F)
Solubility	:	Insoluble in water.

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, reducing agents, alkalis and acids.
Hazardous decomposition products	:	May release COx, NOx, SOx, aldehydes, methacrylate monomers, asphyxiants, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure

11 . Toxicological information

Mixture of severely hydrotreated and hydrocracked and/or solvent-refined base oil (petroleum).	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5.2 mg/l	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Mixture of severely hydrotreated and hydrocracked and/or solvent-refined base oil (petroleum).	A4	-	-	-	-	-

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.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. 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	Not regulated.	-	-	-		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

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.

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.

16 . Other information

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

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

References : Available upon request.
™ Trademark of Suncor Energy Inc. Used under licence.

Date of printing : **2/2/2014.**

Date of issue : 19 January 2012

Date of previous issue : 10/6/2010.

Responsible name : **Product Safety - RS**

Indicates information that has changed from previously issued version.

16 . Other information

For Copy of (M)SDS : The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:

Internet: lubricants.petro-canada.ca/msds

Lubricants:
Western Canada, telephone: 1-800-661-1199; fax: 1-800-378-4518
Ontario & Central Canada, telephone: 1-800-268-5850; fax: 1-800-201-6285
Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 1-800-201-6285

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.

Material Safety Data Sheet

DIESEL FUEL

PETRO-CANADA

1 . Product and company identification

Product name : DIESEL FUEL

Synonym : Seasonal Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, D50, D60, P40, P50, Arctic Diesel, Farm Diesel, Marine Diesel, Low Sulphur Diesel, LSD, Ultra Low Sulphur Diesel, ULSD, Mining Diesel, Naval Distillate, Dyed Diesel, Marked Diesel, Coloured Diesel, Furnace special, Biodiesel blend, B1, B2, B5, Diesel Low Cloud (LC), Marine Gas Oil.

Code : W104, W293

Material uses : Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining diesels, marine diesels, MDO and naval distillates may have a higher flash point requirement.

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 : Bright oily liquid.

Odour : Mild petroleum oil like.

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-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 : WARNING!

COMBUSTIBLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION.

Combustible liquid. Severely irritating to the skin. Irritating to eyes. Keep away from heat, sparks and flame. Do not get in eyes. Avoid breathing vapour or mist. Avoid contact with skin and clothing. Use only with adequate ventilation. 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 : Severely irritating to the skin.

Eyes : Irritating to eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

2. Hazards identification

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Avoid prolonged or repeated skin contact to diesel fuels which can lead to dermal irritation and may be associated with an increased risk of skin cancer.

See toxicological information (Section 11)

3. Composition/information on ingredients

Name	CAS number	%
Hydrotreated Renewable Diesel/ Fuels, diesel/ Fuel Oil No. 1/ Fuel Oil No. 2	64742-81-0/ 68334-30-5/ 8008-20-6/ 68476-30-2	95 - 100
Alkanes, C10 – 20 Branched and Linear (R100)	928771-01-1	10 - 20
Fatty acids methyl esters	61788-61-2 / 67784-80-9 / 73891-99-3	0 - 5

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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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 : Combustible liquid

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), sulphur compounds (H2S), smoke and irritating vapours as products of incomplete combustion

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.

5 . Fire-fighting measures

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.

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

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. Alternatively, or if water-insoluble, 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. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. 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
Fuels, diesel	**ACGIH TLV (United States). Absorbed through skin.** TWA: 100 mg/m³, (Inhalable fraction and vapour) 8 hour(s).
Fuel oil No. 2	**ACGIH TLV (United States). Absorbed through skin.** TWA: 100 mg/m³, (Inhalable fraction and vapour) 8 hour(s).
Hydrotreated Renewable Diesel	**ACGIH TLV (United States). Absorbed through skin.** TWA: 200 mg/m³ 8 hour(s).
Fuel oil No. 1	**ACGIH TLV (United States). Absorbed through skin.** TWA: 200 mg/m³ 8 hour(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: 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: nitrile, neoprene, 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	: Bright oily liquid.
Flash point	: Diesel fuel and other distillate fuels: Closed cup: ≥40°C (≥104°F) Marine Diesel/MDO/Naval Distillate: Closed Cup: ≥60°C (≥140°F) Mining Diesel: Closed Cup: ≥52°C (≥126°F)
Auto-ignition temperature	: 225°C (437°F)
Flammable limits	: Lower: 0.7% Upper: 6%
Colour	: Clear to yellow (This product may be dyed red for taxation purposes).
Odour	: Mild petroleum oil like.
Odour threshold	: Not available.
pH	: Not available.
Boiling/condensation point	: 150 to 371°C (302 to 699.8°F)
Melting/freezing point	: Not available.
Relative density	: 0.80 to 0.88 kg/L @ 15°C (59°F)
Vapour pressure	: 1 kPa (7.5 mm Hg) @ 20°C (68°F).
Vapour density	: 4.5 [Air = 1]
Volatility	: Not available.
Evaporation rate	: Not available.
Viscosity	: Diesel fuel: 1.3 - 4.1 cSt @ 40°C (104°F) Marine Diesel Fuel: 1.3 - 4.4 cSt @ 40°C (104°F)
Pour point	: Not available.
Solubility	: Insoluble in cold water, soluble in non-polar hydrocarbon 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 and acids.
Hazardous decomposition products	: May release COx, NOx, SOx, H_2S, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Fuels, diesel	LD50 Dermal	Mouse	24500 mg/kg	-
	LD50 Oral	Rat	7500 mg/kg	-
Fuel oil No. 2	LD50 Oral	Rat	12000 mg/kg	-
Fuel oil No. 1	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapour	Rat	>5000 mg/m³	4 hours
Hydrotreated Renewable Diesel	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapour	Rat	>5200 mg/m³	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

11 . Toxicological information

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Fuels, diesel	A3	3	-	-	-	-
Fuel oil No. 1	A3	3	-	-	-	-
Fuel oil No. 2	A3	3	-	-	-	-
Hydrotreated Renewable Diesel	A3	3	-	-	-	-

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. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. 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	UN1202	DIESEL FUEL	3	III		-
DOT Classification	Not available.	Not available.	Not available.	-		-

14 . Transport information

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Combustible liquid
Irritating material

Canada

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-2A: Material causing other toxic effects (Very toxic).
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.

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 : COMBUSTIBLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION.

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

Health	2
Flammability	2
Physical hazards	0
Personal protection	H

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

References : Available upon request.
™ Trademark of Suncor Energy Inc. Used under licence.

Date of printing : **4/14/2014.**

Date of issue : 28 June 2013

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

16 . Other information

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.

Material Safety Data Sheet

GASOLINE, UNLEADED

PETRO-CANADA

1 . Product and company identification

Product name : GASOLINE, UNLEADED

Synonym : Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, SummerGas, Supreme, SuperClean WinterGas, RegularClean, PlusClean, Premium, marked or dyed gasoline, TQRUL, transitional quality regular unleaded, BOB, Blendstock for Oxygenate Blending, Conventional Gasoline.

Code : W102E, SAP: 102 to 117

Material uses : Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat engines, small engines such as chain saws and lawn mowers, and recreational vehicles.

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

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 : WARNING!

FLAMMABLE LIQUID AND VAPOUR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS.

Flammable liquid. Irritating to eyes, respiratory system and 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 heritable genetic effects. 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. 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. Ingestion of this product may cause 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.

2. Hazards identification

Skin : Irritating to skin.

Eyes : Irritating to eyes.

Potential chronic health effects

Chronic effects : This product contains an ingredient or ingredients, which have been shown to cause chronic toxic effects. Repeated or prolonged exposure to the substance can produce blood disorders.

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

Mutagenicity : Contains material which may cause heritable genetic effects.

Teratogenicity : No known significant effects or critical hazards.

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 or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3. Composition/information on ingredients

Name	CAS number	%
Gasoline	86290-81-5	85-100
Toluene	108-88-3	15-40*
Benzene	71-43-2	0.5-1.5
Ethanol	64-17-5	0.1-0.3

**Montreal: may vary from 3-40%*
**Edmonton: may vary from 1-5%*

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), polynuclear aromatic hydrocarbons, phenols, aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.

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 : Extremely flammable in presence of open flames, sparks, shocks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition. 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. Containers may explode in heat of fire. Vapours may form explosive mixtures with air.

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. Alternatively, or if water-insoluble, 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. Remove contaminated clothing and protective equipment before entering eating areas. Avoid exposure - obtain special instructions before use. 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

7 . Handling and storage

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
Gasoline	**ACGIH TLV (United States).** TWA: 300 ppm 8 hour(s). STEL: 500 ppm 15 minute(s).
Toluene	**ACGIH TLV (United States).** TWA: 20 ppm 8 hour(s).
Benzene	**ACGIH TLV (United States). Absorbed through skin.** TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s).
Ethanol	**ACGIH TLV (United States).** STEL: 1000 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.

8 . Exposure controls/personal 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: -50 to -38°C (-58 to -36.4°F) [Tagliabue.]
Auto-ignition temperature	:	257°C (494.6°F) (NFPA)
Flammable limits	:	Lower: 1.3% (NFPA) Upper: 7.6% (NFPA)
Colour	:	Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.
Odour	:	Gasoline
Odour threshold	:	Not available.
pH	:	Not available.
Boiling/condensation point	:	25 to 220°C (77 to 428°F) (ASTM D86)
Melting/freezing point	:	Not available.
Relative density	:	0.685 to 0.8 kg/L @ 15°C (59°F)
Vapour pressure	:	<107 kPa (<802.5 mm Hg) @ 37.8°C (100°F)
Vapour density	:	3 to 4 [Air = 1] (NFPA)
Volatility	:	Not available.
Evaporation rate	:	Not available.
Viscosity	:	Not available.
Pour point	:	Not available.
Solubility	:	Hydrocarbon components virtually insoluble in water. Soluble in alcohol, ether, chloroform and benzene. Dissolves fats, oils and natural resins.

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, acids and interhalogens.
Hazardous decomposition products	:	May release COx, NOx, phenols, polycyclic aromatic hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Gasoline	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	13600 mg/kg	-
Toluene	LD50 Dermal	Rabbit	12125 mg/kg	-
	LD50 Oral	Rat	636 mg/kg	-
	LC50 Inhalation Vapour	Rat	7585 ppm	4 hours
Benzene	LD50 Dermal	Rabbit	>8240 mg/kg	-
	LD50 Oral	Rat	930 mg/kg	-
	LC50 Inhalation Vapour	Rat	13700 ppm	4 hours
Ethanol	LD50 Oral	Rat	7060 mg/kg	-
	LC50 Inhalation Vapour	Rat	>32380 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

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Gasoline	A3	2B	-	-	-	-
Toluene	A4	3	D	-	-	-
Benzene	A1	1	A	+	Proven	+
Ethanol	A3	-	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : There is a wealth of information about the teratogenic hazards of Toluene in the literature; however, based upon professional judgement regarding the body of evidence, WHMIS classification as a teratogen is not warranted.

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. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. 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	UN1203	GASOLINE	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).

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 : FLAMMABLE LIQUID AND VAPOUR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS.

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.
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Date of printing : **10/10/2012.**

Date of issue : 10 October 2012

Date of previous issue : 4/9/2010.

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.

Material Safety Data Sheet

JET A/A-1 AVIATION TURBINE FUEL

PETRO-CANADA

1 . Product and company identification

Product name : JET A/A-1 AVIATION TURBINE FUEL

Synonym : Jet A-1; Jet A-1-DI; Aviation Turbine Kerosene (ATK); JP-8; NATO F-34; Jet F-34; Turbine Fuel, Aviation, Kerosene Type (CAN/CGSB-3.32)

Code : W213, SAP: 149

Material uses : Used as aviation turbine fuel. May contain a fuel system icing inhibitor. In the arctic, Jet A-1 may also be used as diesel fuel (if it contains a lubricity additive) and heating oil.

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 : Kerosene-like.

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-2A: Material causing other toxic effects (Very toxic).

The WHMIS classification of Jet A/A-1 is B3.
The WHMIS classification of Jet A/A-1-DI, JP-8, Jet F-34 and NATO F-34, which all contain FSII (Diethylene Glycol Monomethyl Ether), is B3, D2A.

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

Emergency overview : CAUTION!

COMBUSTIBLE LIQUID AND VAPOUR. MAY CAUSE EYE AND SKIN IRRITATION. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.

Combustible liquid. Slightly irritating to the eyes and 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 may cause birth defects, based on animal data. Avoid exposure during pregnancy. Use only with adequate ventilation. 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 : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

2. Hazards identification

Carcinogenicity : No known significant effects or critical hazards.

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 (C9-C16)*(Kerosene)	8008-20-6	99.9
Fuel System Icing Inhibitor (FSII) (if added**): (Diethylene Glycol Monomethyl Ether)	111-77-3	0.1 - 0.15
Anti-static, antioxidant and metal deactivator additives	Not applicable	<0.1

*Aromatic content is 25% maximum (benzene: nil).
**Please note that Jet A-1-DI, JP-8, Jet F-34 and NATO F-34 all contain Fuel System Icing 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 : Class II - combustible 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.

5 . Fire-fighting measures

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

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. Containers may explode in heat of fire.

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. Alternatively, or if water-insoluble, 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. Remove contaminated clothing and protective equipment before entering eating areas. 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.

7 . Handling and storage

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
Kerosene	**ACGIH TLV (United States). Absorbed through skin.** TWA: 200 mg/m³ 8 hour(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.

8 . Exposure controls/personal protection

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: ≥38°C (≥100.4°F) [Tag. Closed Cup]

Auto-ignition temperature : 210°C (410°F)

Flammable limits : Lower: 0.7%
Upper: 5%

Colour : Clear and colourless.

Odour : Kerosene-like.

Odour threshold : Not available.

pH : Not available.

Boiling/condensation point : 140 to 300°C (284 to 572°F)

Melting/freezing point : Not available.

Relative density : 0.775 to 0.84 (Water=1)

Vapour pressure : 0.7 kPa (5.25 mm Hg) @ 20°C (68°F).

Vapour density : 4.5 [Air = 1]

Volatility : Volatile.

Evaporation rate : Not available.

Viscosity : 1.0 - 1.9 cSt @ 40°C (104°F)

Pour point : <-51°C (<-60°F)

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, acids and alkalis.

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

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Kerosene	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapour	Rat	>5000 mg/m³	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
Kerosene	A3	3	-	-	-	-

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. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. 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	III		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Combustible liquid

Canada

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-2A: Material causing other toxic effects (Very toxic).

The WHMIS classification of Jet A/A-1 is B3.
The WHMIS classification of Jet A/A-1-DI, JP-8, Jet F-34 and NATO F-34, which all contain FSII (Diethylene Glycol Monomethyl Ether), is B3, D2A.

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 : COMBUSTIBLE LIQUID AND VAPOUR. MAY CAUSE EYE AND SKIN IRRITATION. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.

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

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

References : Available upon request.
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Responsible name : **Product Safety - DSR**

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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

16 . Other information

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.

Material Safety Data Sheet

PROPANE

PETRO-CANADA

1 . Product and company identification

Product name	:	PROPANE
Synonym	:	Propane HD-5, Propane commercial, Liquified Petroleum Gas (LPG), C3H8, CGSB Propane Grade 1, CGSB Propane Grade 2, odourized propane, stenched propane, automotive propane.
Code	:	W222
Material uses	:	Propane is used as a fuel gas, refrigerant and as a raw material for organic synthesis. It is also used as a laboratory gas. The grade determines the propane content. It is supplied as pressurized liquid in tanks.
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	:	Gas at room temperature; liquid when stored under pressure.
Odour	:	Propane is an odourless gas. Odourized propane will contain up to 28 g Ethyl Mercaptan per 1000 L of propane.
WHMIS (Canada)	:	 Class A: Compressed gas. Class B-1: Flammable gas.
OSHA/HCS status	:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	:	CAUTION! EXTREMELY FLAMMABLE GAS. MAY CAUSE FLASH FIRE. HIGH PRESSURE GAS. Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst or explode. Keep away from heat, sparks and flame. Do not puncture or incinerate container. Avoid breathing gas. Avoid contact with skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. At high concentrations, this product can displace oxygen and cause asphyxiation therefore a minimum requirement of 19.5 % oxygen at sea level is recommended.
Routes of entry	:	Dermal contact. Eye contact. Inhalation.

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	:	As this product is a gas, refer to the inhalation section.
Skin	:	Contact with rapidly expanding gas may cause burns or frostbite.
Eyes	:	Contact with rapidly expanding gas may cause burns or frostbite.

Potential chronic health effects

Chronic effects	:	No known significant effects or critical hazards.
Carcinogenicity	:	Not listed as carcinogenic by OSHA, NTP or IARC.
Mutagenicity	:	No known significant effects or critical hazards.
Teratogenicity	:	No known significant effects or critical hazards.

2 . Hazards identification

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Overexposure may lead to cardiac sensitization.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Propane	74-98-6	90 - 100
Propene	115-07-1	1 - 5
Butane	106-97-8	1 - 5
Ethane	74-84-0	1 - 2.5

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. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. 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 : As this product is a gas, refer to the inhalation section.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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 : Class I - flammable gas (NFPA).

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

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. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance.

Products of combustion : Carbon oxides (CO, CO2), smoke and irritating vapours as products of incomplete combustion.

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.

5 . Fire-fighting measures

Special remarks on fire hazards : Extremely 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. Rapid escape of vapour may generate static charge causing ignition. 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. Containers may explode in heat of fire. Vapour explosion hazard indoors, outdoors or in sewers. Propane may form explosive mixtures with air.

6 . Accidental release measures

Personal precautions : Accidental releases pose a serious fire or explosion hazard. Immediately contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. 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. Remove contaminated clothing and protective equipment before entering eating areas. Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. 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. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Ensure all equipment is grounded/bonded.

SPECIAL PRECAUTIONS: Sludges and tank scale from petroleum storage tanks, trucks, rail cars, and filters/screens may contain naturally occurring radioactive material ("NORM") in the form of radon 226 and it's progeny including lead 210. Similarly, equipment used for the transfer of petroleum product such as pipelines, pumps and compressors, may have detectable levels of radioactive lead on inner surfaces. Workers involved in cleaning, descaling, repair or other maintenance on inner surfaces of such equipment should avoid breathing and ingesting of dust generated from such activities. Similarly, gas freeing of pipelines, pumps, vessels and compressors may put workers are risk of inhalation of radon gas. Suitable codes of practice should be developed for these activities, detailing appropriate occupational hygiene, personal protective equipment and disposal practices.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Ensure the storage containers are grounded/bonded.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Propane	**ACGIH TLV (United States).** TWA: 1000 ppm 8 hour(s).
Propene	**ACGIH TLV (United States).** TWA: 500 ppm 8 hour(s).
Butane	**ACGIH TLV (United States).** TWA: 1000 ppm 8 hour(s).
Ethane	**ACGIH TLV (United States).** TWA: 1000 ppm 8 hour(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: NIOSH-approved self-contained breathing apparatus.

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: Wear insulated gloves to prevent frostbite.

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 : Gas at room temperature; liquid when stored under pressure.

Flash point : Closed cup: -104°C (-155.2°F)

Auto-ignition temperature : 450°C (842°F) (NFPA)

Flammable limits : Lower: 2.1% (NFPA)
Upper: 9.5% (NFPA)

Colour : Colourless.

Odour : Propane is an odourless gas. Odourized propane will contain up to 28 g Ethyl Mercaptan per 1000 L of propane.

Odour threshold : Not available.

9 . Physical and chemical properties

pH	:	Not available.
Boiling/condensation point	:	-42°C (-43.6°F)
Melting/freezing point	:	Not available.
Relative density	:	Not available.
Vapour pressure	:	1434.9 kPa (10763 mm Hg) @ 38°C (100°F)
Vapour density	:	1.56 [Air = 1]
Volatility	:	Volatile.
Evaporation rate	:	Not available.
Viscosity	:	Not available.
Pour point	:	Not available.
Solubility	:	Not available.

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 and halogenated compounds.
Hazardous decomposition products	:	May release COx, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Butane	LC50 Inhalation Gas.	Rat	658000 mg/m³	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Propene	A4	3	-	-	-	-

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. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. 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. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

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	UN1978	PROPANE	2.1	-		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Compressed gas
Flammable gas

Canada

WHMIS (Canada) : Class A: Compressed gas.
Class B-1: Flammable gas.

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 GAS. MAY CAUSE FLASH FIRE. HIGH PRESSURE GAS.

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

Health	2
Flammability	4
Physical hazards	2
Personal protection	K

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

References : Available upon request.
™ Trademark of Suncor Energy Inc. Used under licence.

Date of printing : **10/24/2013.**

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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.

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: MOBILUX EP 2
Product Description: Base Oil and Additives
MSDS Number: 6482
Product Code: 2015A0208050
Intended Use: Grease

COMPANY IDENTIFICATION

Supplier: **Imperial Oil Downstream**
240 4th Avenue
Calgary, ALBERTA. T2P 3M9 Canada

24 Hour Environmental / Health Emergency Telephone	1-866-232-9563
Transportation Emergency Phone Number	1-866-232-9563
Product Technical Information	1-800-268-3183
Supplier General Contact	1-800-567-3776

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH EFFECTS

Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Oxides of carbon, Smoke, Fume, Sulphur oxides, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >204°C (400°F) [EST. FOR OIL, ASTM D-92 (COC)]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Allow spilled material to solidify and shovel it up into a suitable container for recycle or disposal. Scrape up spilled material with shovels into a suitable container for recycle or disposal.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is not a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications,

handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Solid
Form: Semi-fluid
Colour: Brown
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.92
Flash Point [Method]: >204°C (400°F) [EST. FOR OIL, ASTM D-92 (COC)]

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Vapour Density (Air = 1): N/D
Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): >3.5
Solubility in Water: Negligible
Viscosity: 150 cSt (150 mm2/sec) at 40°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/D
DMSO Extract (mineral oil only), IP-346: < 3 %wt
Decomposition Temperature: N/D

NOTE: Most physical properties above are for the oil component in the material.

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

CHRONIC/OTHER EFFECTS

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test animals.

CMR Status:

Chemical Name	CAS Number	List Citations
SOLVENT DEWAXED RESIDUAL OIL (PETROLEUM)	64742-62-7	1, 6

--REGULATORY LISTS SEARCHED--

1 = IARC 1
2 = IARC 2A
3 = IARC 2B
4 = ACGIH ALL
5 = ACGIH A1
6 = ACGIH A2

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG): Not Regulated for Land Transport

LAND (DOT): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Not controlled

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

CEPA: All components of this material are either on the Canadian Domestic Substances List (DSL), exempt, or have been notified under CEPA.

Listed or exempt from listing/notification on the following chemical inventories: DSL, IECSC, KECI, PICCS, TSCA

Special Cases:

Inventory	Status
AICS	Restrictions Apply

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
ZINC DITHIOPHOSPHATE	68649-42-3	6

--REGULATORY LISTS SEARCHED--

1 = TSCA 4	3 = TSCA 5e	5 = TSCA 12b
2 = TSCA 5a2	4 = TSCA 6	6 = NPRI

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:
Section 06: Protective Measures information was modified.
Section 11: Tox Table - Header information was modified.
Section 06: Accidental Release - Protective Measures - Header information was added.
Section 11: Chemical Name - Header information was added.
Section 11: CAS Number - Header information was added.
Section 11: List Citation - Header information was added.
Section 11: Tox List Cited Table information was added.

WHMIS Classification: Not controlled

The information and recommendations contained herein are, to the best of Imperial Oil's knowledge and belief, accurate and reliable as of the date issued. Imperial Oil assumes no responsibility for accuracy of information unless the document is the most current available from an official Imperial Oil distribution system. The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, republication or retransmission of this document, in whole or in part, is not permitted.

DGN: 5006468 (1012446)

Prepared by: Imperial Oil Limited, IH and Product Safety

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: Z-50 PIPE DOPE
Product Description: Base Oil and Additives
MSDS Number: 8503
Product Code: 2015A020X010
Intended Use: Sealant

COMPANY IDENTIFICATION

Supplier: **Imperial Oil Products Division**
240 4th Avenue
Calgary, ALBERTA. T2P 3M9 Canada

24 Hour Environmental / Health Emergency Telephone	1-866-232-9563
Transportation Emergency Phone Number	1-866-232-9563
Product Technical Information	1-800-268-3183
Supplier General Contact	1-800-567-3776

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:	Health:	1	Flammability:	1	Reactivity:	1
HMIS Hazard ID:	Health:	1	Flammability:	1	Reactivity:	1

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO_2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Sulphur oxides, Incomplete combustion products, Oxides of carbon, Metal Oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >221°C (430°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: >260°C (500°F)

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Scrape up spilled material with shovels into a suitable container for recycle or disposal.

Water Spill: Stop leak if you can do so without risk. Warn other shipping. Material will sink. Consult an expert. No immediate action required.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is not a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Substance Name	Form	Limit/Standard			Note	Source
MICA	Respirable fraction.	TWA	3 mg/m3			ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Solid
Form: Semi-fluid
Colour: Grey
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 1.59
Flash Point [Method]: >221°C (430°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: >260°C (500°F)
Boiling Point / Range: < 316°C (601°F) [Estimated]
Vapour Density (Air = 1): N/D
Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C [Estimated]
Evaporation Rate (n-butyl acetate = 1): < 0.01
pH: N/D

Log Pow (n-Octanol/Water Partition Coefficient): N/A
Solubility in Water: Negligible
Viscosity: [N/D at 40°C]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: 196°C (385°F)
Decomposition Temperature: N/D

NOTE: Most physical properties above are for the oil component in the material.

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

CHRONIC/OTHER EFFECTS

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects, lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test

animals.

Additional information is available by request.

CMR Status: None.

Chemical Name	CAS Number	List Citations
MICA	12001-26-2	4.

--REGULATORY LISTS SEARCHED--

1 = IARC 1
2 = IARC 2A
3 = IARC 2B
4 = ACGIH ALL
5 = ACGIH A1
6 = ACGIH A2

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain

residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG): Not Regulated for Land Transport

LAND (DOT): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Not controlled

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

CEPA: All components of this material are either on the Canadian Domestic Substances List (DSL), exempt, or have been notified under CEPA.

Complies with the following national/regional chemical inventory requirements: AICS, DSL, IECSC, KECI, PICCS

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
ZINC	7440-66-6	6

--REGULATORY LISTS SEARCHED--

1 = TSCA 4
2 = TSCA 5a2
3 = TSCA 5e
4 = TSCA 6
5 = TSCA 12b
6 = NPRI

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:
Section 06: Notification Procedures - Header was modified.
Section 10: Materials To Avoid - Header was modified.
Section 11: Acute Toxicity Table Header was modified.
Section 09: Phys/Chem Properties Note was modified.
Section 09: Colour was modified.
Section 11: Ingestion Acute Lethality - Header was modified.
Section 11: Inhalation - Header was modified.
Section 09: Boiling Point C(F) was modified.
Section 09: Evaporation Rate - Header was modified.
Section 08: Personal Protection - Header was modified.
Section 08: Comply with applicable regulations phrase was modified.
Section 09: Vapour Pressure - Header was modified.
Section 09: Vapour Pressure was modified.
Section 11: Inhalation Lethality Test Data was modified.
Section 11: Inhalation Irritation Test Data was modified.
Section 05: Hazardous Combustion Products was modified.
Section 06: Accidental Release- Spill Management- Water was modified.
Section 09: Relative Density - Header was modified.
Section 09: Flash Point C(F) was modified.
Section 14: Sea (IMDG) - Header was modified.
Section 14: Air (IATA) - Header was modified.
Section 14: LAND (TDG) - Header was modified.
Section 14: LAND (DOT) - Header was modified.
Section 14: LAND (DOT) - Default was modified.
Section 14: LAND (TDG) Default was modified.
Section 14: Sea (IMDG) - Default was modified.
Section 14: Air (IATA) - Default was modified.
Section 15: National Chemical Inventory Listing - Header was modified.
Section 15: National Chemical Inventory Listing was modified.
Hazard Identification: Hazards Note was modified.
Section 16: CA Prepared by - Header was modified.
Section 09: Section 9 Footnotes was modified.
Section 09: Oxidizing Properties was modified.
Section 15: Canadian List Citations Table was modified
Section 01: Company Contact Methods Sorted by Priority was modified.
Section 06: Protective Measures was added.
Section 06: Accidental Release - Protective Measures - Header was added.
Section 09: Form - Header was added.
Section 09: Physical State was added.
Section 09: Decomposition Temperature was added.
Section 09: Decomposition Temp - Header was added.
Section 09: Vapour Pressure was added.
Section 01: Product Code was added.
Section 01: Product Code - Header was added.
Section 09: Form - Header was deleted.
Section 09: Physical State was deleted.

WHMIS Classification: Not controlled

The information and recommendations contained herein are, to the best of Imperial Oil's knowledge and belief, accurate and reliable as of the date issued. Imperial Oil assumes no responsibility for accuracy of information unless the document is the most current available from an official Imperial Oil distribution system. The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, republication or retransmission of this document, in whole or in part, is not permitted.

DGN: 5007465 (1015931)

Prepared by: Imperial Oil Limited, IH and Product Safety

GDT
GENERAL DRILLING TOOL & SUPPLY Ltd.
(403)735-6165 CALGARY, ALBERTA

WESTWAY FEED PRODUCTS, INC.
3315 2nd AVE. N
LETHBRIDGE, AB
(800)563-6371

MATERIAL SAFETY DATA SHEET

REVISED JUNE 28, 2007

SECTION I: PRODUCT IDENTIFICATION

DESCRIPTION:	CSB (CONCENTRATED SEPAROTOR BY-PRODUCT)
USE:	ANIMAL FEED
MANUFACTURER:	WESTWAY FEED PRODUCTS, INC. 3315 2nd AVE. N. LETHBRIDGE, AB, CANADA T1H 0C7
EMERGENCY CONTACT:	WESTWAY FEED PRODUCTS, INC. TECHNICAL SERVICES DON MANN (403)660-4416

SECTION II: HAZARDOUS MATERIAL IDENTIFICATION

HAZARD DESCRIPTION:
1. STICKY SYRUP
2. CAN REACT EXOTHERMALLY IF STORED AT HIGH TEMPERATURES.

	COMPONENT 1	COMPONENT 2	COMPONENT 3
CHEMICAL NAME:	SUCROSE	PLANT NON-SUCROSES	WATER
CHEMICAL FORMULA:	C H O	N.A.	H O
PERCENT OF PRODUCT:	12%	68%	20%

SECTION III: PHYSICAL AND CHEMICAL DATA

DESCRIPTION:	DARK BROWN SYRUP
DECOMPOSITION:	SLOW DECOMPOSITION ABOVE 186 C
VOLATILITY:	NIL
SPECIFIC GRAVITY:	1.41
SOLUBILITY:	SOLUBLE IN WARM WATER IN ALL PROPORTIONS
pH:	8-9 IN WATER SOLUTION
REACTIVITY:	NIL AT NORMAL TEMPERATURE AND USE. CAN REACT EXOTHERMALLY UNDER PROPER CONDITIONS OF INVERT, AMINO ACIDS, AND TEMPERATURES.

PAGE 1 OF 2

SPECIAL PROTECTION INFORMATION:

PROTECTIVE GLOVES:	N/A
EYE PROTECTION:	N/A
RESPIRATORY PROTECTION:	BREATHING APPARATUS MUST BE USED WHEN ENTERING STORAGE TANKS UNLESS THOROUGHLY VENTILLATED.
LOCAL EXHAUST:	STORAGE TANKS SHOULD BE VENTILATED BEFORE ENTRY.
OTHER EQUIPMENT:	LIFE LINE SHOULD BE WORN WHEN ENTERING TANKS.

REACTIVITY DATA:

INCOMPATIBLE MATERIALS:	N/A
STABILITY:	STABLE WHEN STORED AT LESS THAN 140 F
HAZARDOUS POLYMERIZATION:	N/A
HAZARDOUS DECOMPOSTION:	N/A

SPILL OR LEAK PROCEDURES:

WASH WITH WATER OR PICK UP WITH ABSORBENT MATERIALS. PREVENT ENTRY TO WATER WAYS WHERE BOD IS A CONCERN.

SPECIAL INFORMATION: NONE

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED ON DATA BELIEVED TO BE CORRECT. NO WARRANTY IS EXPRESSED OR IMPLIED.

DI-CORP MINERAL EXPLORATION

PRODUCT DATA SHEET

550RD 550X POLYMER

550RD 550X POLYMER

DESCRIPTION

550RD/550X is a highly dispersible, slightly anionic, dry synthetic polymer that minimizes fisheyes when mixing allowing for more consistent yields and less waste in minimal shear environments. Requires minimal shearing to yield very consistently and quickly compared to semi synthetic or natural polymers.

PRIMARY FUNCTIONS

- High viscosity for cuttings transport with minimal product usage
- Nontoxic for use in environmentally sensitive applications

SECONDARY FUNCTIONS

These functions serve as supplemental benefits of this products use when mixed accordingly.

- Reduced torque and tubular wear compared to straight water applications
- Increased rate of penetration in directional and horizontal wells
- Reduction in storage on site, volume of supplies and transport costs over liquid product
- Shale and clay encapsulation that reduces swelling and increases well bore stability

MIXING

550RD 550X can be mixed readily in fresh water. Sprinkle slowly onto agitated, turbulent water. Hydration is almost immediate. 1-1.5 kg/m^3 is generally sufficient for normal vertical drilling applications. In unconsolidated or broken formations that are prone to sloughing or in water reactive clay or shale the concentration should be increased to 1.5-2.5kg/m^3. This product is sensitive to high salinity, if mixing in salt water contact Di-Corp rep for specialized instruction.

ENVIRONMENT

Dangerous components: None
Potentially dangerous impurities: None
Physical properties: White solid at 20 Degrees C
Measures to be taken after leakage or accidental spilling: Wash abundantly with water and bleach
Inflammability or danger of explosion: None
Poisonous properties: Non-toxic, slightly basic
First Aid measures: Wash with water

PACKAGING

20 kg. High impact plastic pail with handle.

Surrey • Saskatoon • North Bay • Whitehorse • Smithers
Tel: 1.800.665.6645 Web: www.di-corp.com

DI-CORP DOWN TO EARTH BUSINESS

DICORP
DOWN TO EARTH BUSINESS

MATERIAL SAFETY DATA SHEET

BIG BEAR ROD GREASE

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.** **8750 – 53rd Ave.** **Edmonton, AB T6E 5G2**	DATE: PHONE: FAX:	**Nov. 22, 2011** **780-440-4923** **780-469-1899**

PRODUCT NAME: **BIG BEAR ROD GREASE**

PRODUCT USE: Anti-seize compound
CHEMICAL FAMILY: Mixture CAS #: Mixture

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: Not WHMIS regulated.
WORKPLACE HAZARD: Not hazardous under normal conditions of use.

TRANSPORTATION OF DANGEROUS GOODS (TDG)

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

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	% (w/w)	CAS NUMBER	LD_{50} Oral-Rat	LC_{50} Inhal-Rat	ACGIH-TLV
Mineral oil	70-80	64742-52-5	Not available	Not available	Not available
Barium soap	20-30	68201-19-4	Not available	Not available	Not available

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY:	[XX] EYE CONTACT [XX] SKIN [ ] INHALATION [XX] INGESTION
EYE CONTACT:	May cause slight transient irritation.
SKIN CONTACT:	May cause slight transient irritation.
INGESTION:	No effects known.
INHALATION:	Not a likely source of contact during normal use.
CARCINOGENICTY:	None of the ingredients in the compound are listed by NTP, IARC or OSHA as being carcinogenic.
TERATOGENICITY:	No information available.
REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICTY:	No ingredients listed as mutagenic.
SYNERGISTIC PRODUCTS:	No information available.

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+ MATERIAL SAFETY DATA SHEET +

BIG BEAR ROD GREASE

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Remove by wiping, or with a waterless hand cleaner. Wash with soap and water. Remove and launder contaminated clothing before re-use.
EYE CONTACT:	Immediately flush with gently flowing warm water until all residual material is removed. Remove contact lenses if present. Hold eyelids open to ensure thorough flushing. If irritation persists, obtain medical attention.
INGESTION:	Do not induce vomiting. Rinse mouth. Obtain immediate medical attention. Never give anything by mouth to an unconscious or convulsing victim.
INHALATION:	Move to fresh air. Apply oxygen or artificial respiration as required. If breathing difficulties or distress continues, obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Brown paste; bland odour	
SPECIFIC GRAVITY:	0.90 @ 16°C	
BOILING POINT (°C):	371	
MELTING POINT (°C):	204	
SOLUBILITY IN WATER:	Insoluble	pH: Not available
PERCENT VOLATILE BY VOLUME:	Not available	
EVAPORATION RATE:	Not available	
VAPOUR PRESSURE :	Not available	
VAPOUR DENSITY (air = 1):	Not available	
BULK DENSITY:	Not applicable	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	188°C (D-92)
FLAMMABLE LIMITS:	Not available
EXTINGUISHING MEDIA:	Dry chemical, CO_2, foam or water spray.
SPECIAL FIRE FIGHTING PRODCEDURES:	Self-contained breathing apparatus required for fire-fighting personnel. Remove containers from fire area, or cool with water spray, if possible.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	This product may burn under fire conditions.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX] UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizers. Avoid heat, sparks and open flames.
CONDITIONS OF REACTIVITY:	Contact with incompatibles or ignition sources.

HAZARDOUS DECOMPOSITION PRODUCTS:	May release CO_x, smoke and irritating vapours when heated to decomposition.
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX] MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Not required under normal conditions of use.
VENTILATION:	Not required under normal conditions of use.
PROTECTIVE GLOVES:	Suggest neoprene or viton.
EYE PROTECTION:	Safety glasses with side-shields if required.
OTHER PROTECTIVE EQUIPMENT (Specify):	Protective clothing as required to prevent contact. Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid contact with skin and eyes. Avoid ingestion. Wash thoroughly before eating, drinking or smoking. Store in cool, dry area away from incompatibles and sources of ignition. Use caution when opening unvented containers. Use in well-ventilated area. Store unused material in original container.

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

Use appropriate safety equipment. Eliminate ignition sources. Scoop up excess, then wipe down the affected area and pick up residual with diatomateous earth to prevent slipping hazard. Place contaminated material and clean up materials in approved containers for disposal.

WASTE DISPOSAL METHOD

Dispose/incinerate in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Dispose of, or recycle, empty containers in accordance with local regulations.

SECTION IX: PREPARATION

The information contains herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED:	Nov. 22, 2011
SUPERSEDES:	Dec. 9, 2008
BY:	Regulatory Affairs
PHONE:	780-440-4923

DICORP
DOWN TO EARTH BUSINESS

MATERIAL SAFETY DATA SHEET

LINSEED SOAP

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.** **8750 – 53rd Ave.** **Edmonton, AB T6E 5G2**	DATE: PHONE: FAX:	**November 22, 2011** **780-440-4923** **780-469-1899**

PRODUCT NAME: **LINSEED SOAP**

PRODUCT USE: **Lubricant.**
CHEMICAL FAMILY: Fatty acids. 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.

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+ MATERIAL SAFETY DATA SHEET +

LINSEED SOAP

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 contains herein is given in good faith, but no warranty, expressed or implied, is made.

DATE ISSUED:	Nov. 22, 2011
SUPERSEDES:	Dec. 9, 2008
BY:	780-440-4923
PHONE:	Regulatory Affairs

MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY:	**Diversity Technologies Corp.**	DATE:	Jan. 3, 2006
	8750 – 53rd Ave.	PHONE:	604-940-6050
	Edmonton, AB T6E 5G2	FAX:	604-940-6080
PRODUCT NAME:	**G-STOP**		
PRODUCT USE:	Drilling mud additive.		
CHEMICAL FAMILY:	Polyacrylamide	CAS#:	Not available

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION:	Not a controlled product under WHMIS
WORKPLACE HAZARD:	Treat as a nuisance dust.

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-Rat	ACGIH-TLV

Contains no WHMIS controlled ingredients.

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY:	[ ]EYE CONTACT [ ]SKIN [ ]INHALATION [ ]INGESTION
EYE CONTACT:	May cause slight irritation and/or redness.
SKIN CONTACT:	May cause slight irritation some cases.
INGESTION:	Low acute oral toxicity. May cause nausea and vomiting.
INHALATION:	May cause irritation of the respiratory tract, including sneezing and coughing.
CARCINOGENICITY:	No information available.
TERATOGENICITY:	No information available.
REPRODUCTIVE TOXICITY:	No information available.

Diversity Technologies Corp. is the parent company of
Canamara-United Supply, Hollimex Products, The Drilling Depot and
Westcoast Drilling Supplies

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

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Wash thoroughly with soap and water. If irritation develops or persists, obtain medical attention. Wash contaminated clothing prior to re-use.
EYE CONTACT:	Flush with gently flowing warm water until irritation subsides. If irritation persists, obtain medical attention.
INGESTION:	Do not induce vomiting. Give 2-3 glasses of water. If symptoms occur, 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 as required. If breathing difficulties or distress continues obtain medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	White granular powder; no odour	
SPECIFIC GRAVITY:	0.8	
BOILING POINT (°C):	Not available	
MELTING POINT (°C):	Not available	
SOLUBILITY IN WATER:	Insoluble	pH: Not applicable
PERCENT VOLATILE BY VOLUME:	Not available	
EVAPORATION RATE:	Not available	
VAPOUR PRESSURE (mmHg):	Not available	
VAPOUR DENSITY (air = 1):	Not available	
BULK DENSITY:	Not available	

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Carbon dioxide, dry chemical, foam, in preference to a water spray.
SPECIAL FIRE FIGHTING PROCEDURES:	Self contained breathing apparatus required for fire fighting personnel. Move containers from fire area if possible.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	As with most organic powders, flammable dust clouds may be formed in air. Avoid creating dust. Avoid sources of ignition.

SECTION VII: REACTIVITY DATA

STABILITY:	STABLE [XX] UNSTABLE [ ]
INCOMPATIBILITY (CONDITIONS TO AVOID):	Avoid contact with strong oxidizers. Avoid wet, damp or humid conditions, extremes of temperature, and ignition sources.
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon and nitrogen, various hydrocarbons, and/or hydrogen cyanide upon combustion
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR [XX] MAY OCCUR [ ]

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Use approved dust mask in absence of adequate ventilation. Use approved respirators with dust cartridges if TLV is exceeded.
VENTILATION:	Use in well-ventilated area, or use local exhaust ventilation, process enclosure or other engineering controls to maintain dust level below TLV.
PROTECTIVE GLOVES:	Use gloves, if needed, to avoid prolonged or repeated skin contact.
EYE PROTECTION:	Use safety glasses or goggles.
OTHER PROTECTIVE EQUIPMENT (Specify):	As necessary to prevent contact. Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid prolonged or repeated breathing of dust and contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Cleanse skin thoroughly after contact, before breaks and meals and at end of work period. Product is readily removed from skin by washing thoroughly with soap and water. Store in a cool, dry location away from incompatibles. Store in original container.

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

Use appropriate safety equipment. Avoid creating dust clouds. Remove ignition sources. Sweep up or vacuum dry material and flush spill area with water. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal. This product or its solutions should not be allowed to enter waterways without treatment.

WASTE DISPOSAL METHOD

Dispose in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. It may be possible to dispose of spills of non-hazardous materials in a landfill; check with local operator.

SECTION IX: PREPARATION

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

DATE ISSUED:	January 3, 2006	BY:	Product safety committee
SUPERSEDES:	March 31, 2003	PHONE:	780-440-4923

Diversity Technologies Corp. is the parent company of Canamara-United Supply, Hollimex Products, The Drilling Depot and Westcoast Drilling Supplies

Gulf Harmony AW Hydraulic 22

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification

Product Name: Gulf Harmony AW Hydraulic 22
Product Number: 334225
Synonyms: Antiwear Hydraulic Fluid, Petroleum Based Lubricant
Chemical Name: Hydrotreated heavy paraffinic distillate
Chemical Family: Petroleum Distillate
CAS Number: Blend

Company Identification

Gulf Oil LP/Nu-Tier Brands, Inc.
Tulsa, OK
TECHNICAL CONTACT NUMBER: 918-550-8026, Ext. 507
CHEMTREC: EMERGENCY CONTACT 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

Chemical Name	Amount	CAS Number
HYDROTREATED PARAFFINIC DISTILLATE, DEWAXED	> 98.0 %	64742-65-0
ADDITIVES	< 2.0 %	Blend

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

This product contains no known hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains no known hazardous materials.

3. HAZARDS IDENTIFICATION

```
**********   EMERGENCY OVERVIEW   **********
*                                           *
*  Not expected to cause a severe emergency hazard.  *
*                                           *
*********************************************
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Gulf Harmony AW Hydraulic 22

Material Safety Data Sheet

HMIS Rating - Health: 1
Flammability: 1
Reactivity: 0

NFPA Rating - Health: 1
Flammability: 1
Reactivity: 0
Special Hazard: N/A

POTENTIAL HEALTH EFFECTS

EYE:
Contact may cause eye irritation and redness.

SKIN:
Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INHALATION:
Inhalation of vapors or mist may be mildly irritating to the nose, throat, and respiratory tract.

INGESTION:
Small amounts swallowed during normal handling operations are not likely to cause injury.

CHRONIC EFFECTS:
No adverse effects have been documented in humans as a result of chronic exposure.

CARCINOGENICITY INFORMATION:
Based on OSHA 1910.1200 and IARC study requirements, this product does not require labeling.

4. FIRST AID MEASURES

EYE CONTACT FIRST AID:
Flush eye with water for 15 minutes.

Get medical attention if irritation develops or persists.

SKIN CONTACT FIRST AID:
Wash skin with soap and water.

Thoroughly wash (or discard) clothing and shoes before reuse.

Gulf Harmony AW Hydraulic 22

Material Safety Data Sheet

INHALATION FIRST AID:
Remove to fresh air.

If not breathing, give artificial respiration.

INGESTION FIRST AID:
If vomiting should occur spontaneously, keep airway clear.

NOTES TO PHYSICIAN:
Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
COC Flash Point: 210° C (410.0° F)
Autoignition Temperature: > 315.6° C (> 600.1° F)

FLAMMABLE LIMITS IN AIR
LEL: N/A
UEL: N/A

EXTINGUISHING MEDIA:
Carbon dioxide, foam, or dry powder. Water may be used to cool below flash point.

FIRE FIGHTING INSTRUCTIONS:
As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH (approved or equivalent) and full protective gear.

COMBUSTION PRODUCTS:
Fumes, smoke and carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL):
Wear appropriate personal protective equipment.

INITIAL CONTAINMENT:
Absorb spills with inert material.

LARGE SPILLS PROCEDURE:
Contain spilled material.

Large spillage should be dammed-off and pumped into containers.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Gulf Harmony AW Hydraulic 22

Material Safety Data Sheet

SMALL SPILLS PROCEDURE:
Clean up area by absorbent material.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

7. HANDLING AND STORAGE

HANDLING (PERSONNEL):
DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Wash hands thoroughly after handling.

HANDLING (PHYSICAL ASPECTS):
Store in a cool dry area.

Keep container closed to avoid contamination.

STORAGE PRECAUTIONS:
Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:
Not required under normal conditions of use. However, if unusual operating conditions exist, then provide sufficient mechanical ventilation to maintain exposure below PEL/TLV (s).

EYE / FACE PROTECTION REQUIREMENTS:
Where contact with this material is likely, eye protection is recommended.

SKIN PROTECTION REQUIREMENTS:
When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material.

RESPIRATORY PROTECTION REQUIREMENTS:
When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

EXPOSURE GUIDELINES:
No Information Available.

Gulf Harmony AW Hydraulic 22

Material Safety Data Sheet

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM	Liquid
COLOR	Amber
ODOR	Characteristic
BOILING POINT	>425° F
VAPOR PRESSURE	Nil mm Hg
VAPOR DENSITY	>1 (Air = 1)
SOLUBILITY IN WATER	Nil
SPECIFIC GRAVITY	Not Determined (Water = 1)
MELTING/FREEZING POINT ...	N/A °F
% VOLATILES	Nil %
VISCOSITY	22 cSt at 40 Deg C

10. STABILITY AND REACTIVITY

STABILITY:
Stable.

POLYMERIZATION:
Hazardous polymerization will not occur.

INCOMPATIBILITY WITH OTHER MATERIALS:
Avoid contact with strong oxidizing agents.

DECOMPOSITION:
In the case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
Minimal irritation on contact.

SKIN EFFECTS:
Practically non-toxic if absorbed. May cause mild irritation with prolonged and repeated exposure.

ACUTE ORAL EFFECTS:
Tests on similar materials indicate low order of acute oral toxicity.

ACUTE INHALATION EFFECTS:
Low acute toxicity expected on inhalation.

MISCELLANEOUS:
Please contact supplier for additional toxicological information.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS:
Ecotoxicological Information: No specific aquatic data available for this product.

Gulf Harmony AW Hydraulic 22

Material Safety Data Sheet

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Do not flush to surface water or sanitary sewer system.

CONTAINER DISPOSAL:
Empty drums should be completely drained, properly bunged and promptly shipped to the supplier or a drum reconditioner.

All other containers should be disposed of in an environmentally safe manner.

14. TRANSPORTATION INFORMATION

PRODUCT LABEL .....: Gulf Harmony AW Hydraulic 22
D.O.T. SHIPPING NAME ...: Not regulated by DOT

15. REGULATORY INFORMATION

MISCELLANEOUS INFORMATION:
This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

16. OTHER INFORMATION

REASON FOR ISSUE ...: NEW
APPROVAL DATE .....: May 9, 2011
SUPERCEDES DATE ....:
RTN NUMBER .....:

ADDITIONAL INFORMATION:
The data in this Material Safety Data Sheet relates only to the specific material designated herein.

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This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Gulf Oil LP. The data on this sheet are related only to the specific material designated herein. Gulf Oil LP assumes no legal responsibility for use or reliance upon these data.

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END OF MSDS

****

Gulf Harmony AW Hydraulic 32

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification

Product Name: Gulf Harmony AW Hydraulic 32
Product Number: 334227
Synonyms: Antiwear Hydraulic Fluid, Petroleum Based Lubricant
Chemical Name: Hydrotreated heavy paraffinic distillate
Chemical Family: Petroleum Distillate
CAS Number: Blend

Company Identification

Gulf Oil LP/Nu-Tier Brands, Inc.
Tulsa, OK
TECHNICAL CONTACT NUMBER: 918-550-8026, Ext. 507
CHEMTREC: EMERGENCY CONTACT 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

Chemical Name	Amount	CAS Number
HYDROTREATED PARAFFINIC DISTILLATE, DEWAXED	> 98.0 %	64742-65-0
ADDITIVES	< 2.0 %	Blend

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

This product contains no known hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains no known hazardous materials.

3. HAZARDS IDENTIFICATION

```
**********   EMERGENCY OVERVIEW   **********
*                                           *
*  Not expected to cause a severe emergency hazard.  *
*                                           *
*********************************************
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Gulf Harmony AW Hydraulic 32

Material Safety Data Sheet

HMIS Rating - Health: 1
Flammability: 1
Reactivity: 0

NFPA Rating - Health: 1
Flammability: 1
Reactivity: 0
Special Hazard: N/A

POTENTIAL HEALTH EFFECTS

EYE:
Contact may cause eye irritation and redness.

SKIN:
Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INHALATION:
Inhalation of vapors or mist may be mildly irritating to the nose, throat, and respiratory tract.

INGESTION:
Small amounts swallowed during normal handling operations are not likely to cause injury.

CHRONIC EFFECTS:
No adverse effects have been documented in humans as a result of chronic exposure.

CARCINOGENICITY INFORMATION:
Based on OSHA 1910.1200 and IARC study requirements, this product does not require labeling.

4. FIRST AID MEASURES

EYE CONTACT FIRST AID:
Flush eye with water for 15 minutes.

Get medical attention if irritation develops or persists.

SKIN CONTACT FIRST AID:
Wash skin with soap and water.

Thoroughly wash (or discard) clothing and shoes before reuse.

Gulf Harmony AW Hydraulic 32

Material Safety Data Sheet

INHALATION FIRST AID:
Remove to fresh air.

If not breathing, give artificial respiration.

INGESTION FIRST AID:
If vomiting should occur spontaneously, keep airway clear.

NOTES TO PHYSICIAN:
Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
COC Flash Point: 215.8° C (420.5° F)
Autoignition Temperature: > 315.6° C (> 600.1° F)

FLAMMABLE LIMITS IN AIR
LEL: N/A
UEL: N/A

EXTINGUISHING MEDIA:
Carbon dioxide, foam, or dry powder. Water may be used to cool below flash point.

FIRE FIGHTING INSTRUCTIONS:
As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH (approved or equivalent) and full protective gear.

COMBUSTION PRODUCTS:
Fumes, smoke and carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL):
Wear appropriate personal protective equipment.

INITIAL CONTAINMENT:
Absorb spills with inert material.

LARGE SPILLS PROCEDURE:
Contain spilled material.

Large spillage should be dammed-off and pumped into containers.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Gulf Harmony AW Hydraulic 32

Material Safety Data Sheet

SMALL SPILLS PROCEDURE:
Clean up area by absorbent material.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

7. HANDLING AND STORAGE

HANDLING (PERSONNEL):
DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Wash hands thoroughly after handling.

HANDLING (PHYSICAL ASPECTS):
Store in a cool dry area.

Keep container closed to avoid contamination.

STORAGE PRECAUTIONS:
Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:
Not required under normal conditions of use. However, if unusual operating conditions exist, then provide sufficient mechanical ventilation to maintain exposure below PEL/TLV (s).

EYE / FACE PROTECTION REQUIREMENTS:
Where contact with this material is likely, eye protection is recommended.

SKIN PROTECTION REQUIREMENTS:
When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material.

RESPIRATORY PROTECTION REQUIREMENTS:
When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

EXPOSURE GUIDELINES:
No Information Available.

Gulf Harmony AW Hydraulic 32

Material Safety Data Sheet

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM	Liquid
COLOR	Amber
ODOR	Characteristic
BOILING POINT	>425 F
VAPOR PRESSURE	Nil mm Hg
VAPOR DENSITY	>1 (Air = 1)
SOLUBILITY IN WATER	Nil
SPECIFIC GRAVITY	0.861 at 60 deg F (Water = 1)
BULK DENSITY	7.17 Pounds per Gallon at 60 Deg F
MELTING/FREEZING POINT	N/A F
% VOLATILES	Nil %
VISCOSITY	32 cSt at 40 Deg C

10. STABILITY AND REACTIVITY

STABILITY:
Stable.

POLYMERIZATION:
Hazardous polymerization will not occur.

INCOMPATIBILITY WITH OTHER MATERIALS:
Avoid contact with strong oxidizing agents.

DECOMPOSITION:
In the case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
Minimal irritation on contact.

SKIN EFFECTS:
Practically non-toxic if absorbed. May cause mild irritation with prolonged and repeated exposure.

ACUTE ORAL EFFECTS:
Tests on similar materials indicate low order of acute oral toxicity.

ACUTE INHALATION EFFECTS:
Low acute toxicity expected on inhalation.

MISCELLANEOUS:
Please contact supplier for additional toxicological information.

Gulf Harmony AW Hydraulic 32

Material Safety Data Sheet

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS:
Ecotoxicological Information: No specific aquatic data available for this product.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Do not flush to surface water or sanitary sewer system.

CONTAINER DISPOSAL:
Empty drums should be completely drained, properly bunged and promptly shipped to the supplier or a drum reconditioner.

All other containers should be disposed of in an environmentally safe manner.

14. TRANSPORTATION INFORMATION

PRODUCT LABEL .....: Gulf Harmony AW Hydraulic 32
D.O.T. SHIPPING NAME ...: Not regulated by DOT

15. REGULATORY INFORMATION

MISCELLANEOUS INFORMATION:
This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

16. OTHER INFORMATION

REASON FOR ISSUE ...: NEW
APPROVAL DATE .....: May 9, 2011
SUPERCEDES DATE ....:
RTN NUMBER .....:
ADDITIONAL INFORMATION:
The data in this Material Safety Data Sheet relates only to the specific material designated herein.

****

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Gulf Oil LP. The data on this sheet are related only to the specific material designated herein. Gulf Oil LP assumes no legal responsibility for use or reliance upon these data.

****

END OF MSDS

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Gulf Harmony AW Hydraulic 46

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification

Product Name: Gulf Harmony AW Hydraulic 46
Product Number: 334229
Synonyms: Antiwear Hydraulic Fluid, Petroleum Based Lubricant
Chemical Name: Hydrotreated heavy paraffinic distillate
Chemical Family: Petroleum Distillate
CAS Number: Blend

Company Identification

Gulf Oil LP/Nu-Tier Brands, Inc.
Tulsa, OK
TECHNICAL CONTACT NUMBER: 918-550-8026, Ext. 507
CHEMTREC: EMERGENCY CONTACT 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

Chemical Name	Amount	CAS Number
HYDROTREATED PARAFFINIC DISTILLATE, DEWAXED	> 98.0 %	64742-65-0
ADDITIVES	< 2.0 %	Blend

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

This product contains no known hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains no known hazardous materials.

3. HAZARDS IDENTIFICATION

```
**********   EMERGENCY OVERVIEW   **********
*                                           *
*  Not expected to cause a severe emergency hazard.  *
*                                           *
*********************************************************
```

Gulf Harmony AW Hydraulic 46

Material Safety Data Sheet

HMIS Rating - Health: 1
Flammability: 1
Reactivity: 0

NFPA Rating - Health: 1
Flammability: 1
Reactivity: 0
Special Hazard: N/A

POTENTIAL HEALTH EFFECTS

EYE:
Contact may cause eye irritation and redness.

SKIN:
Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INHALATION:
Inhalation of vapors or mist may be mildly irritating to the nose, throat, and respiratory tract.

INGESTION:
Small amounts swallowed during normal handling operations are not likely to cause injury.

CHRONIC EFFECTS:
No adverse effects have been documented in humans as a result of chronic exposure.

CARCINOGENICITY INFORMATION:
Based on OSHA 1910.1200 and IARC study requirements, this product does not require labeling.

4. FIRST AID MEASURES

EYE CONTACT FIRST AID:
Flush eye with water for 15 minutes.

Get medical attention if irritation develops or persists.

SKIN CONTACT FIRST AID:
Wash skin with soap and water.

Thoroughly wash (or discard) clothing and shoes before reuse.

Gulf Harmony AW Hydraulic 46

Material Safety Data Sheet

INHALATION FIRST AID:
Remove to fresh air.

If not breathing, give artificial respiration.

INGESTION FIRST AID:
If vomiting should occur spontaneously, keep airway clear.

NOTES TO PHYSICIAN:
Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
COC Flash Point: 221° C (430° F)
Autoignition Temperature: > 315.6° C (> 600.1° F)

FLAMMABLE LIMITS IN AIR
LEL: N/A
UEL: N/A

EXTINGUISHING MEDIA:
Carbon dioxide, foam, or dry powder. Water may be used to cool below flash point.

FIRE FIGHTING INSTRUCTIONS:
As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH (approved or equivalent) and full protective gear.

COMBUSTION PRODUCTS:
Fumes, smoke and carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL):
Wear appropriate personal protective equipment.

INITIAL CONTAINMENT:
Absorb spills with inert material.

LARGE SPILLS PROCEDURE:
Contain spilled material.

Large spillage should be dammed-off and pumped into containers.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Gulf Harmony AW Hydraulic 46

Material Safety Data Sheet

SMALL SPILLS PROCEDURE:
Clean up area by absorbent material.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

7. HANDLING AND STORAGE

HANDLING (PERSONNEL):
DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Wash hands thoroughly after handling.

HANDLING (PHYSICAL ASPECTS):
Store in a cool dry area.

Keep container closed to avoid contamination.

STORAGE PRECAUTIONS:
Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:
Not required under normal conditions of use. However, if unusual operating conditions exist, then provide sufficient mechanical ventilation to maintain exposure below PEL/TLV (s).

EYE / FACE PROTECTION REQUIREMENTS:
Where contact with this material is likely, eye protection is recommended.

SKIN PROTECTION REQUIREMENTS:
When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material.

RESPIRATORY PROTECTION REQUIREMENTS:
When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

EXPOSURE GUIDELINES:
No Information Available.

Gulf Harmony AW Hydraulic 46

Material Safety Data Sheet

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM .....:	Liquid
COLOR .....:	Amber
ODOR .....:	Characteristic
BOILING POINT .....:	>425° F
VAPOR PRESSURE .....:	Nil mm Hg
VAPOR DENSITY .....:	>1 (Air = 1)
SOLUBILITY IN WATER .....:	Nil
SPECIFIC GRAVITY .....:	Not Determined (Water = 1)
MELTING/FREEZING POINT ...:	N/A °F
% VOLATILES .....:	Nil %
VISCOSITY .....:	46 cSt at 40 Deg C

10. STABILITY AND REACTIVITY

STABILITY:
Stable.

POLYMERIZATION:
Hazardous polymerization will not occur.

INCOMPATIBILITY WITH OTHER MATERIALS:
Avoid contact with strong oxidizing agents.

DECOMPOSITION:
In the case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
Minimal irritation on contact.

SKIN EFFECTS:
Practically non-toxic if absorbed. May cause mild irritation with prolonged and repeated exposure.

ACUTE ORAL EFFECTS:
Tests on similar materials indicate low order of acute oral toxicity.

ACUTE INHALATION EFFECTS:
Low acute toxicity expected on inhalation.

MISCELLANEOUS:
Please contact supplier for additional toxicological information.

Gulf Harmony AW Hydraulic 46

Material Safety Data Sheet

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS:
Ecotoxicological Information: No specific aquatic data available for this product.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Do not flush to surface water or sanitary sewer system.

CONTAINER DISPOSAL:
Empty drums should be completely drained, properly bunged and promptly shipped to the supplier or a drum reconditioner.

All other containers should be disposed of in an environmentally safe manner.

14. TRANSPORTATION INFORMATION

PRODUCT LABEL .....: Gulf Harmony AW Hydraulic 46
D.O.T. SHIPPING NAME ...: Not regulated by DOT

15. REGULATORY INFORMATION

MISCELLANEOUS INFORMATION:
This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

16. OTHER INFORMATION

REASON FOR ISSUE ...: NEW
APPROVAL DATE .....: May 9, 2011
SUPERCEDES DATE ....:
RTN NUMBER .....:

ADDITIONAL INFORMATION:
The data in this Material Safety Data Sheet relates only to the specific material designated herein.

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This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Gulf Oil LP. The data on this sheet are related only to the specific material designated herein. Gulf Oil LP assumes no legal responsibility for use or reliance upon these data.

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END OF MSDS

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Gulf Harmony AW Hydraulic 68

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification

Product Name: Gulf Harmony AW Hydraulic 68
Product Number: 334231
Synonyms: Antiwear Hydraulic Fluid, Petroleum Based Lubricant
Chemical Name: Hydrotreated heavy paraffinic distillate
Chemical Family: Petroleum Distillate
CAS Number: Blend

Company Identification

Gulf Oil LP/Nu-Tier Brands, Inc.
Tulsa, OK
TECHNICAL CONTACT NUMBER: 918-550-8026, Ext. 507
CHEMTREC: EMERGENCY CONTACT 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

Chemical Name	Amount	CAS Number
HYDROTREATED PARAFFINIC DISTILLATE, DEWAXED	> 98.0 %	64742-65-0
ADDITIVES	< 2.0 %	Blend

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

This product contains no known hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains no known hazardous materials.

3. HAZARDS IDENTIFICATION

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**********   EMERGENCY OVERVIEW   **********
*                                           *
*  Not expected to cause a severe emergency hazard.  *
*                                           *
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Gulf Harmony AW Hydraulic 68

Material Safety Data Sheet

HMIS Rating - Health: 1
Flammability: 1
Reactivity: 0

NFPA Rating - Health: 1
Flammability: 1
Reactivity: 0
Special Hazard: N/A

POTENTIAL HEALTH EFFECTS

EYE:
Contact may cause eye irritation and redness.

SKIN:
Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INHALATION:
Inhalation of vapors or mist may be mildly irritating to the nose, throat, and respiratory tract.

INGESTION:
Small amounts swallowed during normal handling operations are not likely to cause injury.

CHRONIC EFFECTS:
No adverse effects have been documented in humans as a result of chronic exposure.

CARCINOGENICITY INFORMATION:
Based on OSHA 1910.1200 and IARC study requirements, this product does not require labeling.

4. FIRST AID MEASURES

EYE CONTACT FIRST AID:
Flush eye with water for 15 minutes.

Get medical attention if irritation develops or persists.

SKIN CONTACT FIRST AID:
Wash skin with soap and water.

Thoroughly wash (or discard) clothing and shoes before reuse.

Gulf Harmony AW Hydraulic 68

Material Safety Data Sheet

INHALATION FIRST AID:
Remove to fresh air.

If not breathing, give artificial respiration.

INGESTION FIRST AID:
If vomiting should occur spontaneously, keep airway clear.

NOTES TO PHYSICIAN:
Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
COC Flash Point: 232° C (450° F)
Autoignition Temperature: > 315.6° C (> 600.1° F)

FLAMMABLE LIMITS IN AIR
LEL: N/A
UEL: N/A

EXTINGUISHING MEDIA:
Carbon dioxide, foam, or dry powder. Water may be used to cool below flash point.

FIRE FIGHTING INSTRUCTIONS:
As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH (approved or equivalent) and full protective gear.

COMBUSTION PRODUCTS:
Fumes, smoke and carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL):
Wear appropriate personal protective equipment.

INITIAL CONTAINMENT:
Absorb spills with inert material.

LARGE SPILLS PROCEDURE:
Contain spilled material.

Large spillage should be dammed-off and pumped into containers.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Gulf Harmony AW Hydraulic 68

Material Safety Data Sheet

SMALL SPILLS PROCEDURE:
Clean up area by absorbent material.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

7. HANDLING AND STORAGE

HANDLING (PERSONNEL):
DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Wash hands thoroughly after handling.

HANDLING (PHYSICAL ASPECTS):
Store in a cool dry area.

Keep container closed to avoid contamination.

STORAGE PRECAUTIONS:
Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:
Not required under normal conditions of use. However, if unusual operating conditions exist, then provide sufficient mechanical ventilation to maintain exposure below PEL/TLV (s).

EYE / FACE PROTECTION REQUIREMENTS:
Where contact with this material is likely, eye protection is recommended.

SKIN PROTECTION REQUIREMENTS:
When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material.

RESPIRATORY PROTECTION REQUIREMENTS:
When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

EXPOSURE GUIDELINES:
No Information Available.

Gulf Harmony AW Hydraulic 68

Material Safety Data Sheet

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM .....:	Liquid
COLOR .....:	Amber
ODOR .....:	Characteristic
BOILING POINT .....:	>425° F
VAPOR PRESSURE .....:	Nil mm Hg
VAPOR DENSITY .....:	>1 (Air = 1)
SOLUBILITY IN WATER .....:	Nil
SPECIFIC GRAVITY .....:	Not Determined (Water = 1)
MELTING/FREEZING POINT ...:	N/A °F
% VOLATILES .....:	Nil %
VISCOSITY .....:	68 cSt at 40 Deg C

10. STABILITY AND REACTIVITY

STABILITY:
Stable.

POLYMERIZATION:
Hazardous polymerization will not occur.

INCOMPATIBILITY WITH OTHER MATERIALS:
Avoid contact with strong oxidizing agents.

DECOMPOSITION:
In the case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
Minimal irritation on contact.

SKIN EFFECTS:
Practically non-toxic if absorbed. May cause mild irritation with prolonged and repeated exposure.

ACUTE ORAL EFFECTS:
Tests on similar materials indicate low order of acute oral toxicity.

ACUTE INHALATION EFFECTS:
Low acute toxicity expected on inhalation.

MISCELLANEOUS:
Please contact supplier for additional toxicological information.

Gulf Harmony AW Hydraulic 68

Material Safety Data Sheet

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS:
Ecotoxicological Information: No specific aquatic data available for this product.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Do not flush to surface water or sanitary sewer system.

CONTAINER DISPOSAL:
Empty drums should be completely drained, properly bunged and promptly shipped to the supplier or a drum reconditioner.

All other containers should be disposed of in an environmentally safe manner.

14. TRANSPORTATION INFORMATION

PRODUCT LABEL .....: Gulf Harmony AW Hydraulic 68
D.O.T. SHIPPING NAME ...: Not regulated by DOT

15. REGULATORY INFORMATION

MISCELLANEOUS INFORMATION:
This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

16. OTHER INFORMATION

REASON FOR ISSUE ...: NEW
APPROVAL DATE .....: May 9, 2011
SUPERCEDES DATE ....:
RTN NUMBER .....:

ADDITIONAL INFORMATION:
The data in this Material Safety Data Sheet relates only to the specific material designated herein.

****

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Gulf Oil LP. The data on this sheet are related only to the specific material designated herein. Gulf Oil LP assumes no legal responsibility for use or reliance upon these data.

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END OF MSDS

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USED OIL

MATERIAL SAFETY DATA SHEET

safety-kleen.

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

USED OIL
MATERIAL SAFETY DATA SHEET

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

WT%	NAME	SYNONYM	CAS NO.	OSHA PEL TWA	OSHA PEL STEL	ACGIH TLV® TWA	ACGIH TLV® 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.

USED OIL
MATERIAL SAFETY DATA SHEET

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**.

USED OIL
MATERIAL SAFETY DATA SHEET

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.

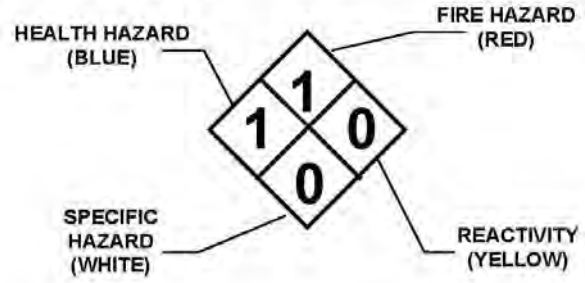
SECTION 5: FIRE FIGHTING MEASURES

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.

USED OIL
MATERIAL SAFETY DATA SHEET

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.**

USED OIL
MATERIAL SAFETY DATA SHEET

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.

USED OIL
MATERIAL SAFETY DATA SHEET

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.

USED OIL
MATERIAL SAFETY DATA SHEET

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**.

USED OIL
MATERIAL SAFETY DATA SHEET

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.

USED OIL
MATERIAL SAFETY DATA SHEET

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.

Appendix 3

Arcadia Bay Property

Daily Fuel Inspection Record

Daily Fuel Inspection Record

Date	Main Cache	Refueling Station	Shack	Generator	Tent Drums	Drill Site	Remote Fuel Cache	Other	Insta-Berm	Bungs & Rims	Corrosion	Hoses/Valves/Fittings	Spill Kit/Fire Extinguisher	Signs	Comments
15-Jun-17	x								no tears, damage, or leaks; rain drain functioning properly	all bungs and rims sealed properly; no leaks detected	minor corrosion on diesel drums of batch B - should be used before batch C	all fuel transfer equipment functioning properly; no leakage detected	spill kit is fully stocked; fire extinguisher inspection up to date	all signs are posted and undamaged	Example

Appendix 4

Arcadia Bay Property

Immediately Reportable Spill Quantities

Item No.	TDGA Class	Description of Contaminant	Amount Spilled
1	1	Explosives	Any amount
2	2.1	Compressed gas (flammable)	Any amount of gas from containers with a capacity > 100 L
3	2.2	Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity > 100 L
4	2.3	Compressed gas (toxic)	Any amount
5	2.4	Compressed gas (corrosive)	Any amount
6	3.1, 3.2, 3.3	Flammable liquid	> 100 L
7	4.1	Flammable solid	> 25 kg
8	4.2	Spontaneously combustible solids	> 25 kg
9	4.3	Water reactant solids	> 25 kg
10	5.1	Oxidizing substances	> 50 L or 50 kg
11	5.1	Organic Peroxides	> 1 L or 1 kg
12	6.1	Poisonous substances	> 5 L or 5 kg
13	6.2	Infectious substances	Any amount
14	7	Radioactive	Any amount
15	8	Corrosive substances	> 5 L or 5 kg
16	9.1 (in part)	Miscellaneous products or substances, excluding PCB mixtures	> 50 L or 50 kg
17	9.2	Environmentally hazardous	> 1 L or 1 kg
18	9.3	Dangerous wastes	> 5 L or 5 kg
19	9.1 (in part)	PCB mixtures of 5 or more parts per million	> 0.5 L or 0.5 kg
20	None	Other contaminants (e.g. crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, waste water, etc.)	> 100 L or 100 kg
21	None	Sour natural gas (i.e. contains H2S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more
22	None	Unknown substance	Any amount

In addition, all releases of harmful substances, regardless of quantity, are to be reported to the NT-NU spill line if the release is near or into a water body, is near or into a designated sensitive environment or sensitive wildlife habitat, poses imminent threat to human health or safety, poses imminent threat to a listed species at risk or its critical habitat, or is uncontrollable.

Appendix 5

Arcadia Bay Property

NT-NU 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**.

Northwest Territories | Nunavut | Canada

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

PAGE 1 OF _____