DE BEERS GROUP

Chidliak Exploration Project

Spill Contingency Plan

December 2022

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REVISION HISTORY

Revision	Date	Comments
0.0	May 8, 2018	Peregrine Diamonds SCP for the Chidliak Exploration Project
1.0	December 8, 2022	Peregrine version reformatted based upon original SCP

1 INTRODUCTION

Peregrine Diamonds Ltd. (Peregrine) is a wholly-owned subsidiary of De Beers Canada Inc.(De Beers). Peregrine first began diamond exploration activities at its Chidliak Exploration Project in 2008. The project is located on the Hall Peninsula of South Baffin Island between Cumberland Sound and Frobisher Bay. The two closest communities are Pangnirtung 200 kilometers to the north and Iqaluit 120 kilometers to the southwest.

The Chidliak Exploration Project commenced in 2008 and has been active ever since. All field based activities are seasonal. The project currently consists of 41 mining leases with an aggregate area of 42,578 hectares. Since 2013, almost all field activities have been confined within a priority work area centred on the kimberlites considered to have economic potential.

A map illustrating the location of the project is attached in Appendix "A". The Spill Contingency Plan (SCP) was developed to describe the standards and specific procedures that will be followed by De Beers and its contractors in the event of a spill related to the project. This document will serve as an operational guideline to ensure appropriate management oversight is implemented before, during, and after a spill. Spill situations and corresponding procedures are defined including roles, responsibilities, and communication with appropriate regulatory authorities.

1.1 Purpose

Prioritizing the planning of emergency response and spill contingency is a reflection of the way a corporation conducts its business. De Beers is a responsible corporation that conducts business to the highest of ethics and within the laws of Canada. Our priorities include:

- personnel safety (workers and public);
- minimal impact on the environment;
- minimal impact on property and assets;
- neighbouring communities;
- minimal emergency response time;
- optimal response effectiveness;
- coordination with regulatory agencies and industry;
- minimal loss of productivity;
- maintain production schedules; and
- the Owners' Corporate Reputation.

This document is intended to ensure that a fast and organized response is carried out safely, efficiently and effectively. These practices are not intended to be rigid. Deviations may be necessary, if the situation dictates, to allow flexibility to tailor the response for the situation at hand. The intent of De Beers Spill Contingency Plan is for the response to be managed safely and competently within its resources and capability.

More specifically the purpose is to:

- comply with federal and territorial regulations and guidelines pertaining to the preparation of contingency plans and notification requirements;
- comply with De Beers' Corporate Environmental Policy;
- identify the organization, responsibilities, and reporting procedures of the Response Team in the event of a spill;
- provide readily accessible spill information to the response team, management, and government agencies in the event of a spill;
- promote the safe and effective recovery of spilled materials;
- minimize the environmental impacts of spills to land or water; and
- provide site information on the facilities and contingencies in place if a spill or malfunction should occur.

1.2 Scope

This document is intended to ensure that the exploration camps are adequately prepared to respond to spills that may occur on site or enroute to site. Although the SCP applies to all of the exploration sites, , since 2013 most activities have focused at the following six locations:

Discovery Camp (est. 2008)

Located on high ground next to a natural cobble airstrip. The camp was constructed at this location in 2008. The site was selected due to the presence of the only natural landing area suitable for fixed wing wheel equipped aircraft in the vicinity of the kimberlite discoveries. This is the primary camp for field activities. The camp consists of exploration style tents, some wooden buildings and a large Quonset.

Projection: Latitude/Longitude

Datum: WGS 84

Latitude: 64°14'25.46"N

Longitude: 66°20'45.45"W

50K NTS: 26B01

Sunrise Camp (est. 2009)

The camp was established on the shore of a large lake in the winter of 2009. The camp is primarily used in the winter as the lake surface is used for an ice runway. At present, the camp consists of wooden cabins, walkways and tent platforms. The camp is not currently in use.

Projection: Latitude/Longitude

Datum: WGS 84

Latitude: 64°14'17.20"N

Longitude: 66° 7'45.32"W

50K NTS: 26B01

Aurora Camp (est. 2011)

The Aurora Camp was constructed in 2011 at the northern end of the Chidliak Exploration Project area to facilitate exploration and for safety reasons. The camp is situated on the shore of a lake. A seasonal ice airstrip was established on the lake in 2011. The camp was used for two field seasons (Winter/Summer 2011). The camp consists of wooden buildings and wooden platforms. The camp is not currently in use.

Projection: Latitude/Longitude

Datum: WGS 84

Latitude: 64°36'32.00"N

Longitude: 66°34'43.00"W

50K NTS: 26B10

Ch-6 Camp (est. 2013)

The CH-6 Camp was constructed in 2013 next to the prospective CH-6 kimberlite.. The camp was established for safety and logistical purposes. It enables the field crews to be housed close to the work area without significant distances to travel from other camp facilities. The

camp consists of exploration style tents and a couple of wooden buildings. **Projection:** Latitude/Longitude

Datum: WGS 84

Latitude: 64°19'24.62"N

Longitude: 66°31'30.37"W

50K NTS: 26B07

CH-6 Kimberlite

Much of Peregrine's evaluation work takes place at the CH-6 kimberlite. **Projection:** Latitude/Longitude

Datum: WGS 84

Latitude: 64°19'17.57"N

Longitude: 66°31'47.53"W

50K NTS: 26B07

CH-7 Kimberlite

Much of Peregrine's evaluation work takes place at the CH-7 kimberlite.

Projection: Latitude/Longitude

Datum: WGS 84

Latitude: 64°15'0.31"N

Longitude: 66°21'18.06"W

50K NTS: 26B01

1.3 Regulatory Setting

De Beers maintains the following primary authorizations for the Chidliak Exploration Project.

1) CIRNAC – Class "A" Land Use Permit N2012C002
    a. Issued: November 30, 2022

b. Expires: November 30, 2024

2) NWB – Class "B" – Water Use and Waste Water Disposal Permit #2BE-CHI1823

a. Issued: June 1, 2018

b. Expires: May 31, 2023

3) GN – Department of Environment - Waste Generator Number #NUG-100030

a. Issued: April 8, 2008

b. Expires: No expiry

2 CLASSIFICATION

2.1 What is an emergency?

An emergency is defined as an incident requiring an immediate response to prevent further damage to people or the environment.

2.2 What is a Spill?

A spill is special type of emergency whereby there is an accidental release of a contaminant with the potential to cause an adverse impact to the environment.

2.2.1 Minor Spills

A minor spill is a spill that has little or no actual or anticipated hazard or adverse impact on persons, property, or the environment. Minor spills are short in duration and are quickly contained and cleaned up by the party responsible for the spill. They involve contaminants of relatively low toxicity, and the extent (area) of the spill is limited.

2.2.2 Major Spills

A major spill is a spill that is anticipated to cause substantial adverse impact or hazard to persons, property, or the environment. These spills may range from a small quantity of a very toxic or hazardous material to a large quantity of a less toxic substance. Containment is often difficult, and there may be a potential for further spillage. This category of spill incident also includes those which have a severe local impact or which have the potential for serious public concerns.

3 ROLES AND RESPONSIBILITIES

Several staff members have defined responsibilities associated with response and spill contingencies. The positions and primary responsibilities are provided below. External Agencies contact list are provided in Table 2.

All employees, whether permanent or temporary contractors, are required to be trained in; procedures, field and wildlife safety, spill and fire procedures and environmental awareness prior to engaging in work at the Chidliak Exploration site. De Beers is keenly aware that planning for an emergency situation is not an option but an obligatory activity, equal in importance to the exploration programme itself. This Spill Contingency Plan will be posted in camp and at each worksite and will be distributed to supervisory personnel for dissemination to staff and contractors.

One or both of the following two positions will be present at the Chidliak Exploration site, in respect of management or control of contaminants.

1) Project Supervisor: To be determined at time of field operations

2) Camp Manager: To be determined at time of field operations

One or more of the following De Beers employees will be notified at first opportunity in the case of Minor Spills. All Major Spills will require immediate notification to one of the following employees when it is reasonable or safe to do so.

1) David Willis: Chidliak Coordinator, De Beers (604) 836-3284

2) Chad Corson: Permitting Coordinator, De Beers (249) 377-4445

3) Sarah McLean: Environment and Permitting Manager, De Beers (867) 688-9227

Table 3-1 Regulatory Contacts

External Contact	Description	Telephone
De Beers Environment & Permitting Manager	Compliance, Permitting, Environment (Sarah McLean)	1-867-688-9227
De Beers Chidliak Coordinator	Camp Operations (David Willis)	1-604-836-3284
De Beers Permitting Coordinator	Permitting, Reporting, Monitoring (Chad Corson)	1-249-377-4445
CIRNAC	Resource Management Officer (Joseph Monteith)	1-867-975-1787
Environment Canada	Operations Manager (Curtis Didham)	1-867-975-4644
Nunatta Environmental Services Waste Handler #: NUR-300002	Spill response (Jim Wilson, VP)	Office: 1-867-979-1488 Cel: (867) 222-4111
Environment Canada	24 Hour Spill Report Line	1-867-920-8130 (Iqaluit) Email: spills@gov.nt.ca.

3.1 Environment Canada

Environment Canada is the lead federal enforcement agency for any sort of spill or contamination into fish bearing waters or spills affecting migratory birds and their habitat. Their role is to regulate the clean-up of all hydrocarbon or other hazardous materials entering into a watercourse or fish bearing stream.

Environment Canada is responsible for administering and enforcing various federal laws such as the Canadian Environmental Protection Act, 1999, the Pollution Prevention Provisions of the Fisheries Act and the Migratory Birds Convention Act following an spill. In this capacity, an Enforcement Officer collects evidence, draws samples, and may investigate any pollution incident to determine whether an offence has occurred. Environment Canada Enforcement Officers may recommend to the Public Prosecution Service that charges should be laid against the pollutant under one or both of these acts. The Enforcement Officers may also recommend that charges be laid under applicable Territorial legislation.

3.2 Fisheries and Oceans Canada

Fisheries and Oceans Canada is the lead federal agency for fish and fish habitat. As such they would likely become involved in any major spill that has the potential to affect fish and/or fish habitat

3.3 Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)

The Chidliak Exploration Project currently holds Land Use Permits with CIRNAC. These permits have special requirements and notifications in event of a spill.

3.4 Training

All personnel will receive basic training in relevant aspects of this Plan through site induction and via toolbox meetings from time to time, as necessary. All personnel on site will be trained in spill response procedures. Training will be conducted at the camp induction and at least one drill will be conducted per season. Initial or refresher training (practice drills), as appropriate, provided once per field season

4 SPILL MANAGEMENT

De Beers has incorporated regulatory requirements and best practices into the design of the site to reduce the possibility of a spill, to contain it when it occurs, and to facilitate the rapid remediation of the site following the spill.

Key design features of our infrastructure include:

- lined berms in fuel storage areas;
- liquid storage with secondary containment or berms where spills will be trapped;
- drip mats or absorbent pads under fittings, valves, hose connections, drum spigots where spills and leaks occur;
- use of funnels and a drip mat or pan when transferring liquids from one container to another;
- use of tarps, ground cloths or drip trays when conducting maintenance over large areas;
- spill kits are located wherever fuel is used or stored;
- product substitution so that products contain the least toxic materials possible.

Pollution prevention is the best strategy for avoiding potential damage to human health and the environment. Once a spill occurs, the best approach for containing and controlling the spill is to respond quickly in a well-organized manner. Response time is reduced through pre-planning.

De Beers tracks, documents and catalogues all spills no matter how small.

Table 4-1 Important Placards

#	Fuel Name	UN Number	Placard
1.	Diesel Fuel & Stove Oil	1202	

2.	Jet A	1863	
3.	Gasoline	1203	
5.	Propane	UN1075	

4.1 Spill response action plans

Knowing what to do when spills happen is essential to maintaining employee safety and minimizing harm to the environment. Planning, training, and drills are vital to ensuring everyone knows what to do and when to do it when an emergency arises.

Common actions for all spills include:

- Protect yourself and others (e.g., be alert and take all necessary precautions). Prevent personnel from approaching the site and keep them at a distance sufficiently removed that they will not be injured by, or cause, a fire or explosion
- Assess the hazards in the immediate vicinity of the spill or leak. Assess the seriousness of the spill - assess potential dangers of the spill to human health and safety, the aquatic environment, wildlife, ground water, vegetation and other land resources
- Call for assistance immediately if anyone is injured.
- Attend to injured, if possible.
- Turn off ignition sources in the vicinity of the spill for flammable liquids, – no smoking.

- Identify spilled material. Identify the product and its source - check container design, warning labels, markings, Safety Data Sheets, etc., to enable prompt and appropriate response.
- Assess the severity of the spill. Assess if the spill, leak or system failure can be readily stopped or brought under control.
- Keep people away from the spill site.
- Clean up the spill. Follow procedures appropriate for the location, environment, material and time of year. Wear impervious clothing, goggles and gloves (appropriate for the material being dealt with). Approach spill from up-wind if it is safe to do so. Stop product flow if possible. Contain and recover spill as soon as possible.
- Report the spill. A spill report will be completed for all spills and all spills will be documented. Only spills at or above the reporting threshold will reported to the NU 24-hour Spill Report Line so as not to burden the officials with minor occurrences. Appendix "E" are images of the spill report to be completed by De Beers personnel or representative including location of spill, (company) name of polluter, type and amount of material spilled, date and time of the spill, any perceived threat to human health or the environment, and remedial actions taken and planned.
- Evaluate and learn. After the emergency has passed, evaluate the incident and the clean up procedure with the goal of continuous improvement in prevention and response; train or re-train personnel and ensure a practice incident-and-response drill is held at least once per field season.

4.2 Spill Response Equipment

Exploration activities are seasonal. When field activities take place spill response kits and additional bundles of absorbents will be located at:

- All fuel stations
- At the drill(s) during drill operations
- At any trenching operations
- Within the camp
- On heavy equipment sleds

Table 4-2 General Response Inventory during active operations

#	Item	Discovery	CH-6	Sunrise	Aurora	Drill Sites	Location
1.	Fire extinguishers (valid/recharged) in each structure:	X	X	X	X	X	Tents Drill Shack
2.	Water pump and spare; hoses and fittings	X	X	X	X	X	Quonset Drill Shack
3.	Hammers, assorted weights	X	X	X	X	X	Quonset Drill Shack
4.	Assorted 10L-20L plastic pails;	X	X	X	X	X	Quonset Drill Shack
6.	127L plastic garbage bags (boxes of 20)	X	X	X	X	X	Kitchen Latrine
7.	Plastic tarps – assorted sizes	X	X	X	X	X	Environmental Tent, Quonset
8.	Liner material (minimum 30mm),	X	X	X	X	X	Quonset
9.	Extra bundles of absorbents	X	X	X	X	X	Quonset
10.	Fuel-transfer pump	X	X	X	X	X	Camp Fuel Cache Drill Shack
11.	Empty drums for contained spilt substances	X	X	X	X	X	Camp

Note: Field operations are seasonal and not all camps operated at the same time. When camps are operational the general response inventory will be in place.

The majority of used fuel drums (205L) for Jet-A fuel, diesel and unleaded petrol are returned to Iqaluit and handled by Nunatta Environmental Services Inc. (“Nunatta”) or alternative hazardous waste management company. Nunatta cleans the drums of any residual fuel then crushes them. Some empty drums are retained at camp as excess containment vessels to be used in the event of a large spill.

4.3 Preventative Measures

The likelihood of a fuel spill depends on a number of factors, including human error, mechanical failure, road conditions, weather conditions, etc. Table 3 details risk assessment and mitigations for various potential scenarios that could lead to a spill.

Table 4-3 Risk Assessment & Preventative Measures

Potential Problem	Impact	Probability	Preventative Measures
Diesel or Oil Major leak from drums	High	Low	• Training/refresher training for site personnel who handle fuels. • Daily inspections and monitoring • Placement of drums in a suitable area (e.g. depression), with natural drainage pattern away from water, • Berming with peat bales or snow. • Secure drums in use on proper stands
A spill from a valve left open or a break in a transfer hose.	High	Moderate	• Daily inspections to ensure all valves are either closed (when not needed), or that a catch pail is installed beneath valves, e.g., at tents, drill shacks, Fuel transfer hoses will have a double locking mechanism and undergo daily inspection as part of the routine work cycle, to check for soundness and wear. • Markers around all fuel transfer lines.
Pump Failure	Low	Low	• Pumps are to be inspected weekly and -serviced monthly.
Broken Or Blocked Drill Sludge Lines	Low	Moderate	• Lines are inspected daily as part of the routine work cycle.

Chemical Spills	Low – High	Low	• Training in the handling of chemicals will take place to ensure safe handling. • Chemicals will be stored in their original labelled drums, bottles, canisters or packages. • Chemicals will be stored in such a way as to protect from the weather or spillage, and be in non-reactive trays, underlain with liner material or absorbents to prevent chemicals coming into contact with soil or tent floors. • Regular inspections will take place of stored chemicals. • Inventory controls in place
Gases (oxygen, acetylene, propane, argon, carbon dioxide)	Low-High	Low	• Training/refresher training for site personnel who handle gases. • Stored in designated areas until required, secured upright. • Daily checks of cylinders in use, including gas-detector monitoring, as necessary.

4.3.1 Spill Response Actions

The greatest potential risk for spills within the project area comes from fuels (Flammable Immiscible Liquids). These substances are all hydrocarbon-based and will ignite under certain conditions. Petrol (gasoline) and aviation fuels pose the greatest fire and safety hazard and are not recoverable when spilled on water.

Action Plan Steps:

Confirm that a spill has occurred. It may not be obvious if a spill has occurred look for:

- pooled liquid.
- damage to equipment/tanks.
- smell of fuel or chemicals and
- leaks from hatches, valves or other fixtures

Assess the Situation:

Before initiating response actions, take the time to determine the nature of a spill and to collect some or all of following facts:

- potential risk of fire, explosion and environmental damage.
- extent of injuries to co-workers or the public.
- source and approximate size of the spill.
- possible methods to stop the flow of product; and
- proximity to water.

Take Action:

- Eliminate ignition source(s) if safe to do so.
- Shut off spill source if safe to do so.
- Call out emergency on radio to alert camp (so that spill response team can mobilize)
- Attend to any injured persons.
- Restrict personnel to the spill site using barriers or marker tape.
- Warn others in the area of the spill.
- Use an explosion meter to monitor atmospheric gas concentrations.
- Transport Spill Kit to the spill site.
- Control spreading and minimise impacts.
- Report spill to DeBeers/Peregrine management.

Spill Containment and Recovery:

Special care should be taken to ensure that spilled material does not reach waterbodies where recovery is more difficult. Ice augers (under appropriate conditions) can be effective in terms of locating and exposing oil for burning or pumping off.

Response Organization:

On rare occasions, additional company and outside resources may need to be brought in to support the spill clean-up. For a major incident, the Project Supervisor would mobilise DeBeers/Peregrine, contractor and outside expertise for the response.

4.3.2 General Responsibilities

The following provides a general guide to the Spill Response Organisation responsibilities. In some cases, certain personnel may fill dual roles, depending upon the circumstances of the incident.

In most incidents, the Camp Manger, working with the site Spill Response Team, will handle the initial response, containment and clean-up. In larger incidents, DeBeers management will play a more active role. In all cases, DeBeers management will be notified immediately of a spill and will be responsible for notifying the 24-hour Spill Line or assigning this task to a designate.

i) Individual Discovering Incident

- Assess the initial severity of the spill and safety concerns.
- Identify the source of the spill
- Report all spills to Supervisor.
- Determine the size of the spill and stop or contain it, if possible.

ii) Spill Response Team

- Conduct the cleanup of spills under the direction of the Supervisor.
- Deploy booms, absorbent and other equipment and materials as required.
- Take appropriate response measures.
- Continue the cleanup as directed by the Supervisor or until relieved.

iii) Supervisor

- Assist in initial and ongoing response efforts.
- Supervise the Spill Response Team.
- With work crew, take initial action to seal off the source and contain spill.
- Decide with DeBeers management if mobilization of additional equipment is required.
- Assess whether burning is a viable clean-up measure. Consult regulatory agency (Environment Canada on Spill Line can provide initial guidance).
- Ensure co-ordination of equipment and manpower as needed (DeBeers and contractors)
- Ensure expeditious response and clean-up of spill site and impacted area.

IV) Additional Resources – Support Team to the Spill-Response Team

- Provide assistance to Supervisor as required.
- Responsible for mobilizing additional DeBeers support staff, security and other contractors as required.

V) De Beers Management

- Records the time of the report, source of information and details on location, size, type of spill and any other information available on the Spill Report Form.
- Ensures that the spill is reported to the NU 24-Hour Spill Report Line.
- Oversees or directs the clean-up operation until it is satisfactorily completed.
- Together with the Supervisor, decides if additional equipment is required to contain and clean-up spills.
- Maintains contact with Supervisor to ensure final inspection and sign-off on the spill.
- Notifies internal company departments.
- Initiates Mutual Aid Agreements if so required.
- Oversees completion and distribution of the Spill Report.
- Ensures investigation identifies measures to prevent similar spills.
- Provides clean-up advice to the Supervisor.
- Assists with preparation of press releases.
- Provides advice on storage and disposal options.
- Ensures that there are follow-up reports prepared on the spill event, clean-up and environmental impacts.
- Ensures that post-spill reports are completed and takes action, as necessary, to prevent a recurrence.
- Liaises with government agencies (as required)

4.3.3 Response Resources

A wide variety of spill control/recovery equipment and material exists for dealing with spills of petroleum products and chemical reagents.

4.3.3.1 Response Equipment Deployment

Equipment is stored in such a manner as to be readily available on short notice. The Supervisor would immediately respond to a reported spill site by notifying site personnel to move into place the materials necessary to provide control and clean-up

(e.g., shovels, refuge drums, tarps, liner material). Emergency spill containment and recovery materials and supplies are available on site for immediate mobilisation at any time.

4.3.3.2 Spill Response Actions By Product

At the Chidliak Exploration Project, “safety first” is the abiding principle which guides response: Spills and products are to be handled as/if safety permits.

After adequate safety precautions, effort will be concentrated on stopping or eliminating the source of ignition.

4.3.3.3 Spill Planning and Logistics

The feasibility of containing and recovering a spill will be generally determined by its location and the rate of release, spreading, transport and evaporation. These rates should be compared with the total time needed to deploy response equipment in order to evaluate whether or not containment, and/or absorbent and skimming operations, can be effectively implemented. The pre-assembly of spill clean-up kits will expedite response and reduce the total deployment time needed, including:

- Equipment and support material mobilisation time.
- Personnel mobilisation time, including transit and assembly.
- Actual equipment setup and deployment time.
- Determine whether or not a spill has entered a waterway and whether or not access by land or water to control points is possible so that booms, absorbents and skimmers can be deployed. Check maps and consult with personnel familiar with the spill area.
- Establish priorities to optimise use of personnel and gear needed for all clean-up phases (containment, removal, storage, transfer and disposal) at selected sites.
- Allow additional time for adverse weather and flying.

4.3.4 Monitoring and Controlling Spills

De Beers will monitor spills throughout the response to ensure safety and to direct clean-up efforts:

- Spill movement and behaviour, in order to properly direct response efforts.
- All threats to the safety of people, property and the environment.

4.3.4.1 Spills on Land

Spills on land should be contained as close to the source as possible, if safety allows. DeBeers will make every effort to ensure that a spill does not reach water, where its containment and recovery (after breakup) are more difficult and the potential environmental impacts are greater. Containment can be achieved using:

- A berm or dyke around the spill source.
- A trench or ditch downslope of the spill source.

Earthen Berm/Trench

If possible, locate the berm/trench sufficiently downslope of the release point to complete its construction before the spill arrives. Dig the trench along a natural drainage contour.

It should be approximately 0.5 m deep with a relatively flat bottom. The excavated material can then be combined with other available material to build the berm. Figure 4.1 illustrates how an earthen or snow berm can be constructed to contain a spill on land.

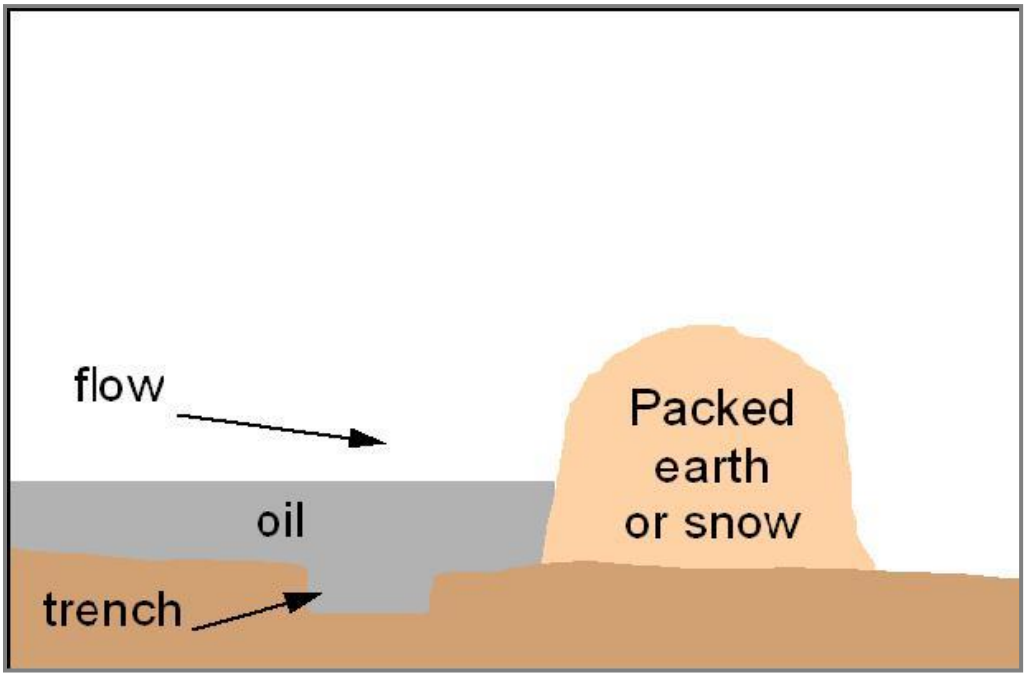


Figure 4.1 Construction of an earthen berm to contain a spill on land

Sand Bag Berm/Trench

Sand bags can be used where available and if the earth is too hard or frozen and cannot be excavated or compacted. A plastic liner can be used to seal the trench and bags should be anchored with gravel or rocks and be woven between layers of bags.

4.3.4.2 Spills on Muskeg

Muskeg is generally poorly drained, wet and spongy. Internal drainage is usually slow and the depth of peat over mineral soil varies greatly. Muskeg is also highly acidic and low in nutrients, making biodegradation very slow, even during the summer months.

It is recommended that small oil spills in muskeg be mixed with peat moss and allowed to degrade during the summer months, since more damage can be done by attempting clean-up using mechanical removal methods.

In the event of a small spill, it is important to weigh the advantages of clean-up versus the potential negative impacts on the terrain. Both personnel and equipment on wet or sensitive areas can cause considerable damage. In many cases, the best solution may be to add nutrients to the contaminated area and monitor the site to ensure that the spill does not migrate to an adjacent sensitive area. In all cases, appropriate environmental advisors and regulatory authorities should be consulted.

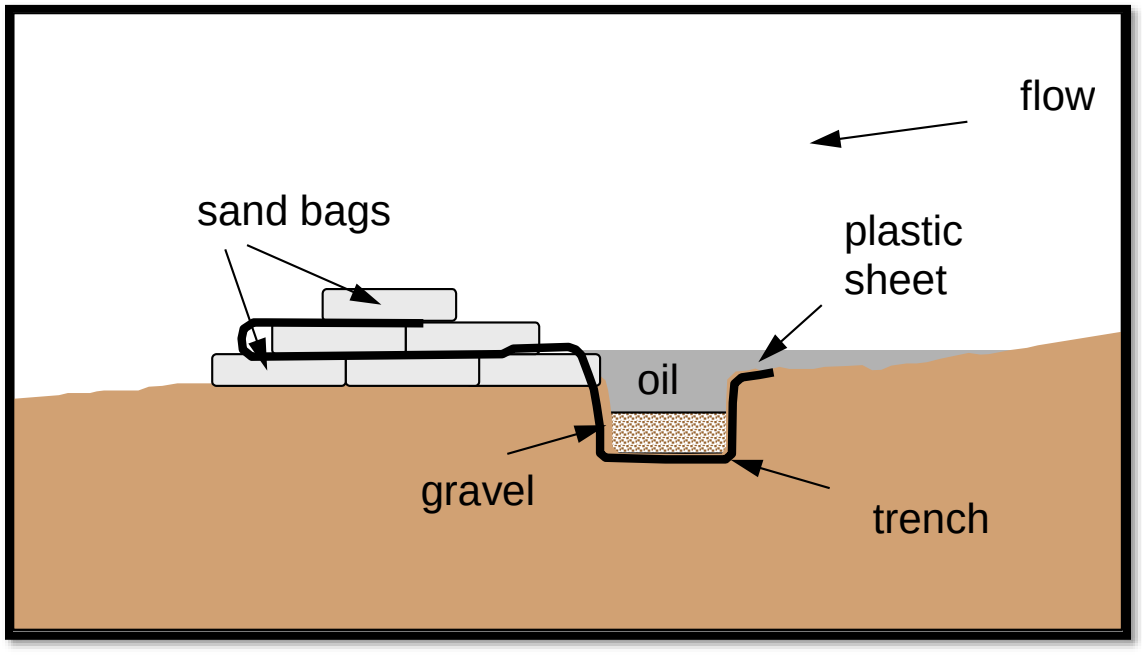


Figure 4.2 Construction of a berm with sandbags and plastic to contain a spill in a trench

4.3.4.3 Spills on Water

Containing spills in water is often difficult because oil quickly spreads. In turbulent water, oil and chemicals are likely to mix into the water column, making recovery impractical. For these reasons, it is important that if the spill reaches water, that containment be attempted as close to the source as possible, and that the spill be prevented from reaching a flowing stream.

Spills in lakes should be contained, if possible, before reaching outlets where containment and recovery can be difficult and dangerous.

Efforts to contain spills in large streams should be limited to land-based operations where the oil might pool in accessible back eddies. The recovery of water-soluble chemicals is not possible.

In flowing streams, oil travels at the same speed as the surface current. On larger rivers or in open lake areas, slicks are also transported at 3.5% of the wind speed. Although a comparatively small effect, it can be an important factor if the wind is at right angles to the water flow and if the water surface is extensive. The wind can force the spill to the sides of the river where flows are slower or the shore of a lake. Long reaches of the river may become contaminated, although containment and recovery might also be possible.

In smaller streams, the wind will have less impact and the slick speed can be easily estimated. Placing a small stick in the middle of the stream and determining the length of time required to travel a given distance, typically 10 m. This information can be quickly converted to speed (36/time (sec) = km/h) to determine the estimated travel time to a confluence or other sensitive area.

Containment Strategies for Spills on Water

Determining the best strategy for containment will depend on a number of factors:

- Speed of oil-slick travel
- Location of possible containment sites
- Availability of personnel and equipment
- Location of sensitive areas
- Safety of operations

Spills on water can be contained by using floating booms (absorbent or non-absorbent) or by constructing a temporary berm or inverted weir. The objective is to build a barrier against which the (normally floating) oil will pool whilst allowing the underflow of water.

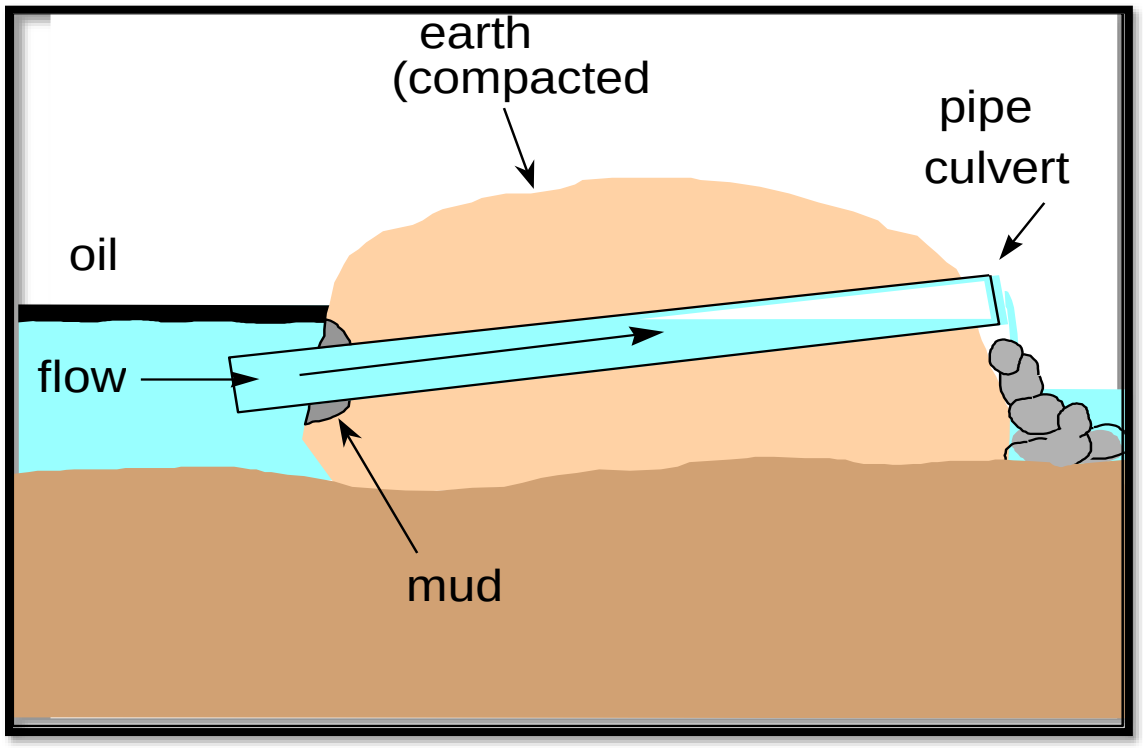


Figure 4.3 Construction of an earthen berm with flow-through piping to contain a spill in a stream

Booms

Booming with either absorbent or non-absorbent booms can also be an effective means of containing spills on slow-moving waters and in lakes. Effective containment using conventional booming techniques will be difficult in streams or rivers where currents exceed 0.7 knots (0.4m/s). At these speeds, oil will become entrained in the water flowing under the boom, resulting in significant Losses. Some improvements can be achieved in waters flowing at 1-2 knots (0.5-1 m/s) if the boom is deployed at an angle of less than 90 degrees to the direction of the flow.

Absorbent booms or socks can also be used to provide a barrier to floating oil. These types of booms should be checked regularly to ensure that they do not become saturated with either water or oil, since they will tend to float very low in the water or even sink and release oil downstream.

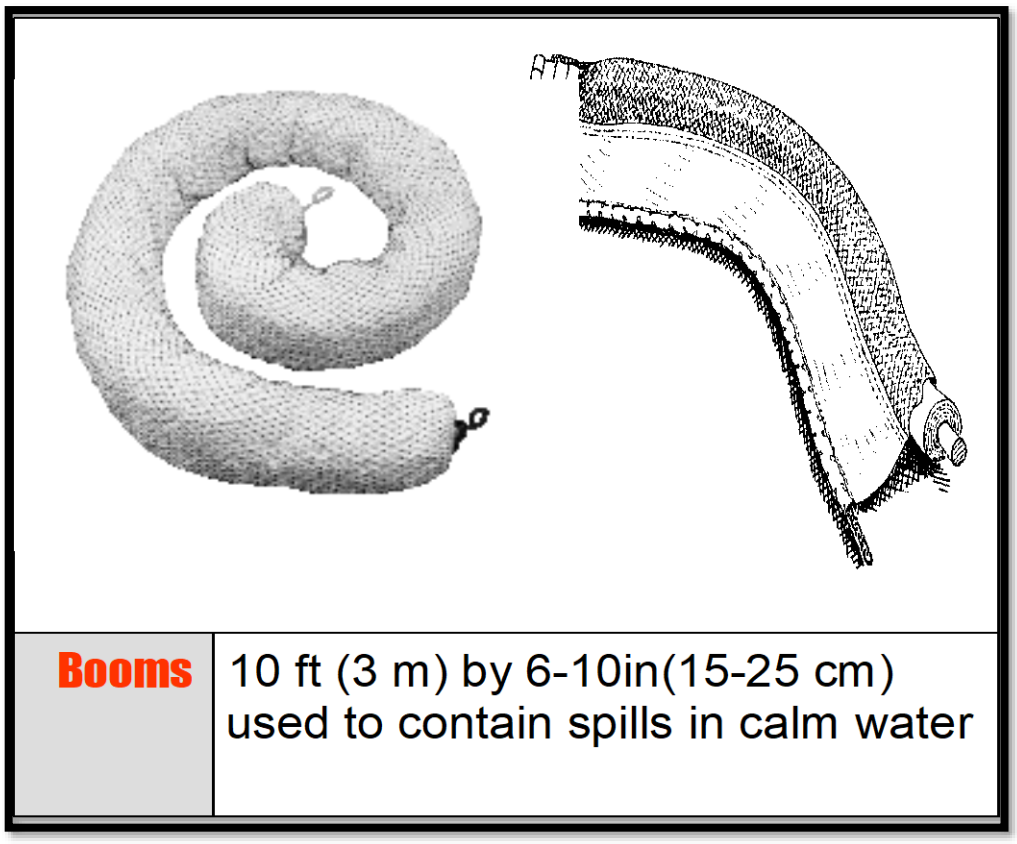


Figure 4.4 Booms may be used to contain spills on still water

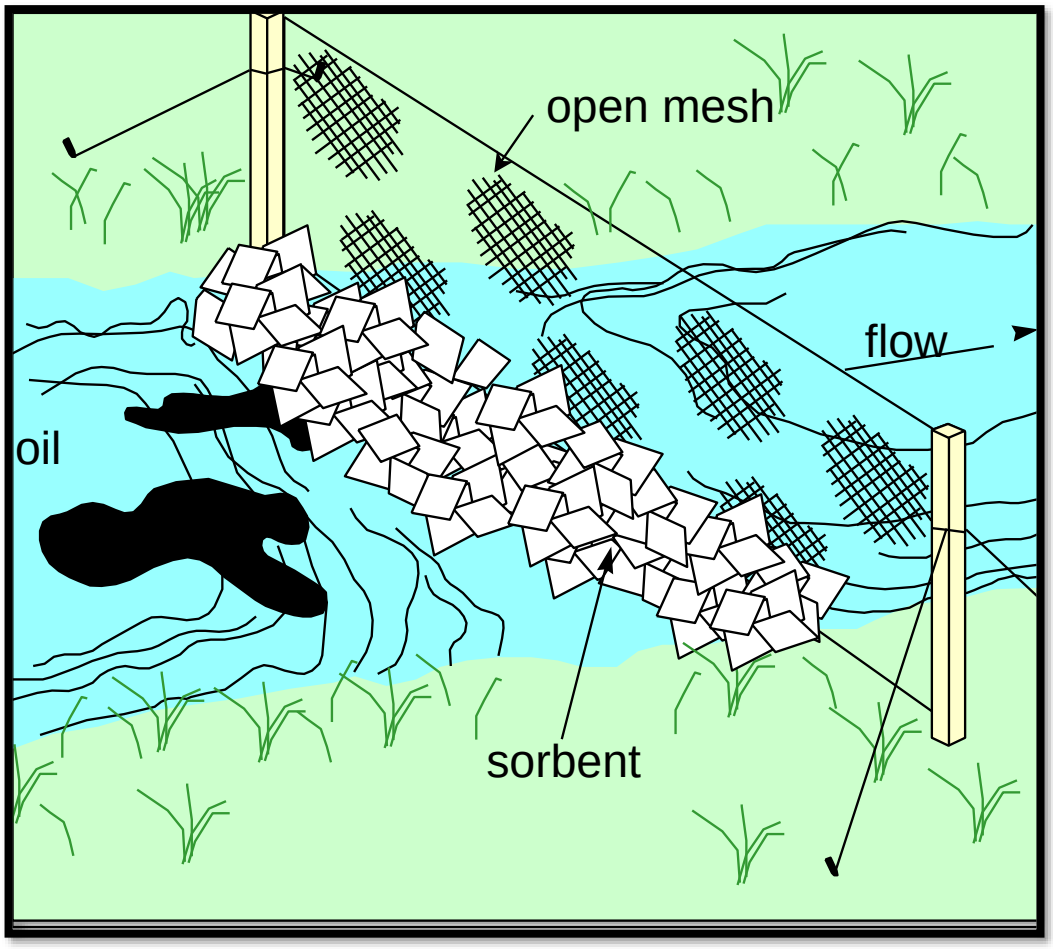


Figure 4.5 Sorbent or filter fences can be used to contain spills in streams

4.3.4.4 Spills on Ice & Snow

Oil can remain relatively fresh, (i.e, in an unweathered state) under snow and ice for several months or more after a spill. Evaporation rates will still be high when oil is ultimately exposed to the atmosphere, except in very low temperatures. Oil can also move up and down small hills (several metres high) due to the capillary action of the snow.

Containment

Snow and ice can be used to create berms to keep spills from spreading. In frozen rivers, angled slots about 1 m wide or holes can be cut in the ice, where safety permits, to allow possible spill recovery. The oil will rise up into the openings where it will concentrate and be available for recovery using skimmers or pumps.

Disposal

Oil spills in snow and ice can sometimes be burned if the spill can be isolated from the source. Although there is generally a reduced fire hazard, due attention to safety of operations is still required. If burning is not effective, recovered contaminated material will be collected and transported to a designated disposal/treatment facility.

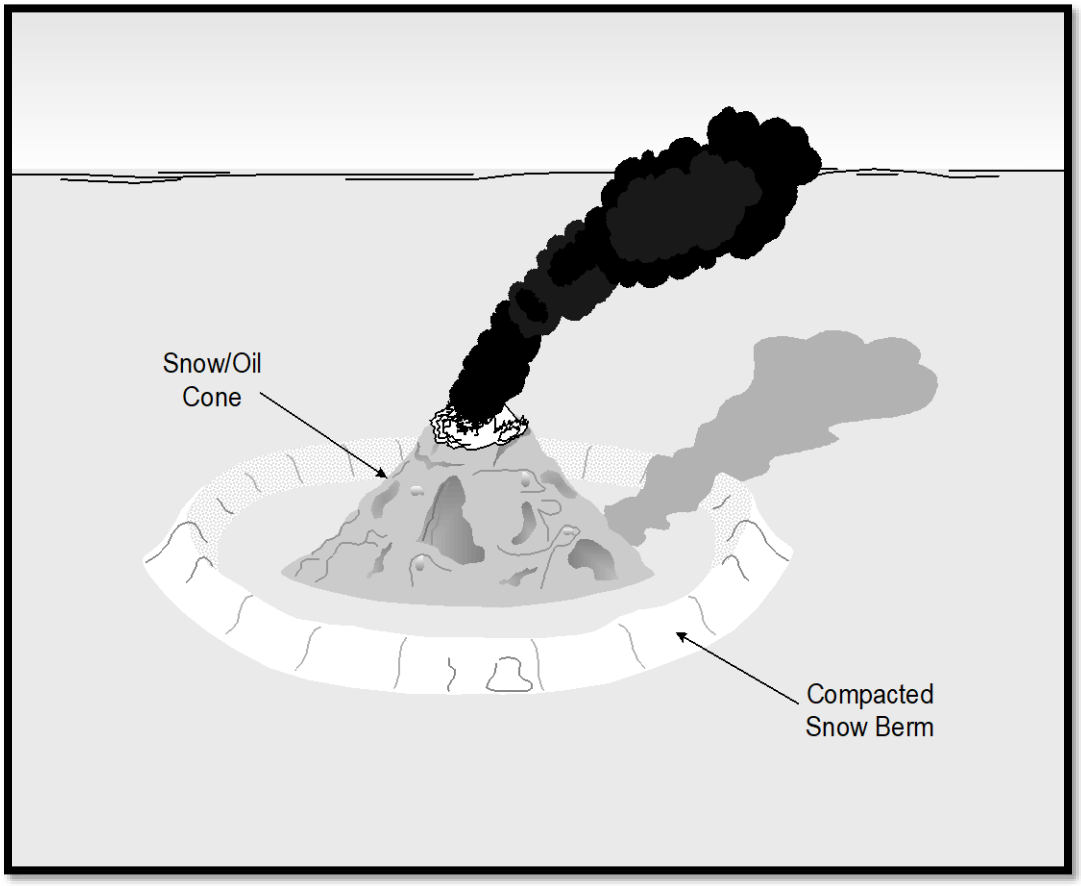


Figure 4.6 Burning Snow Cone to manage a spill on snow

Recovery

When large volumes of oil have been contained either through natural or mechanical containment, it will be necessary to remove or recover the accumulated oil. This will generally occur in excavated trenches or adjacent to berms or natural barriers and occasionally in slow running streams or quiet ponds.

Vacuum trucks are not feasible at fly-in sites, but would be suitable for sites served by a seasonal or winter road and where a large volume of oil has pooled that is generally free of water. The truck must be positioned at a safe distance so that there is no possibility of fire or explosion.

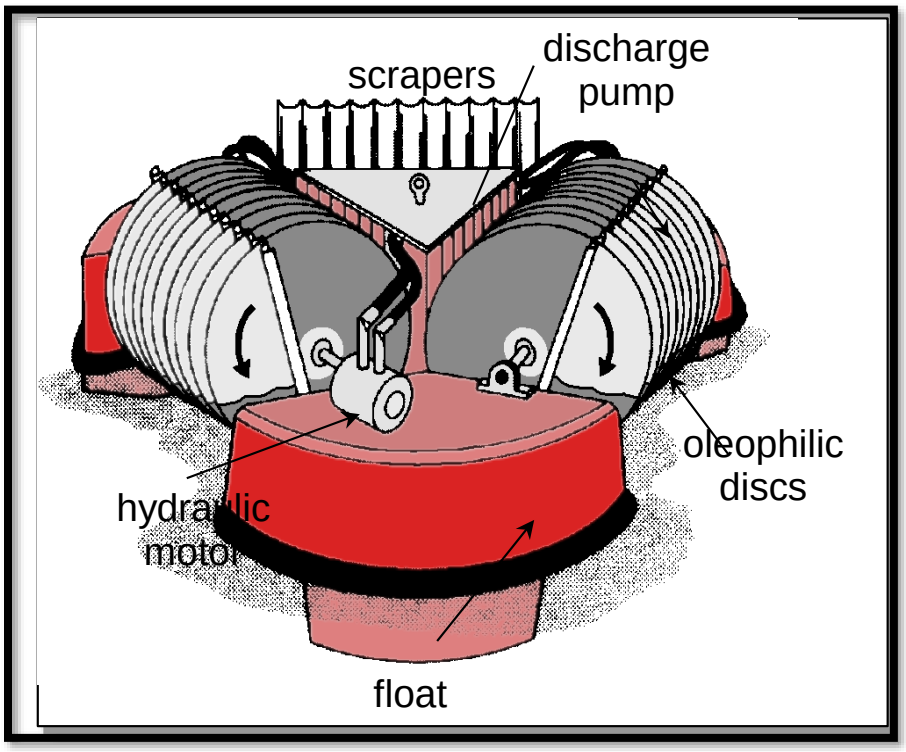


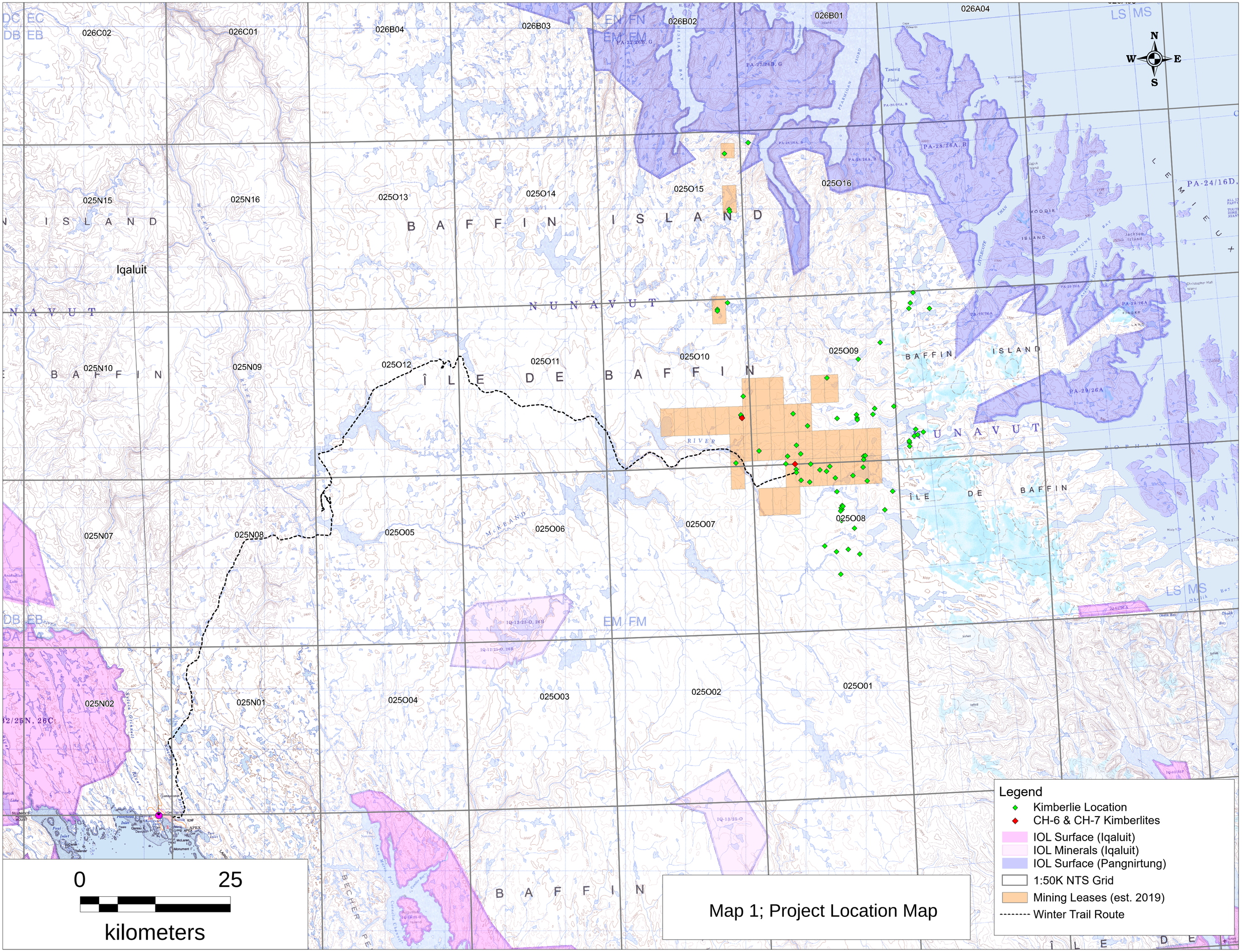
Figure 4.7 Oleophilic devices can be used to recover oil in water.

Oleophillic devices, such as disc or drum skimmers, can selectively recover oil in water, and are better suited to applications where the oil has formed a distinct layer on top of quiet water. Accumulations adjacent to an inverted weir are an example. A vacuum truck would be largely ineffective in this instance, since it would recover large amounts of water, particularly in a thin layer of oil with water flowing through the pipe or culvert.

When using disc or drum skimmers, ensure that small items of debris are periodically removed from the scrapers to ensure their efficient operation.

Appendix "A"

Project Location Map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Iqaluit
BAFFIN ISLAND
NUNAVUT
ÎLE DE BAFFIN
0
25
kilometers
Legend
Kimberlie Location
CH-6 & CH-7 Kimberlites
IOL Surface (Iqaluit)
IOL Minerals (Iqaluit)
IOL Surface (Pangnirtung)
1:50K NTS Grid
Mining Leases (est. 2019)
Winter Trail Route
Map 1; Project Location Map

Appendix "B"

Catalogue of Substances at Project Area

Catalogue of Substances at Project Area - October 2022

#	Name	Manufacturer	Form	Category	Use	Contractor	Volume	Discovery Camp	Sunrise Camp	CH-6 Camp	Aurora Camp
1	Diesel	Petro-Canada/Harnois (Valero)	Liquid	Fuel	Fuel	Peregrine/De Beers	205 litre drums	132.00	0.00	8.00	0.00
2	Stove Oil - (Diesel is now used)	Petro-Canada/Harnois (Valero)	Liquid	Fuel	Fuel	Peregrine/De Beers	205 litre drums	0.00	0.00	0.00	0.00
3	Jet-A	Petro-Canada (Suncor)/Harnois (Valero)	Liquid	Fuel	Fuel	Peregrine/De Beers	205 litre drums	120.00	0.00	0.00	0.00
4	Gasoline	Petro-Canada/Harnois (Valero)	Liquid	Fuel	Fuel	Peregrine/De Beers	205 litre drums	2.00	0.00	0.00	0.00
5	Propane	Petro-Canada/Harnois (Valero)	Gas	Fuel	Fuel	Peregrine/De Beers	100 lb tank	79.00	0.00	2.00	0.00
6	Acetetylene	Air Liquide	Gas	Fuel	Welding	Peregrine/De Beers	100 lb tank	6.00	0.00	0.00	0.00
7	Oxygen	Air Liquide	Gas	Fuel	Welding & First Aid	Peregrine/De Beers	100 lb tank	13.00	0.00	0.00	0.00
8	Nitrogen	Air Liquide	Gas	Equipment Maintenance	Heavy Equipment – Track Tensioner	Nuna Logistics	100 lb tank	2.00	0.00	0.00	0.00
9	Methyl Hydrate (Methanol)	Brentag Canada	Liquid	Fuel	Fuel additive	Peregrine/De Beers	5 gallon pail	2.25	0.00	0.00	0.00
10	Hydrex Extreme	Petro-Canada	Liquid	Mechanical	Hydraulic fluid	Nuna Logistics	unknown	X	0.00	0.00	0.00
11	Produro TO-4	Petro-Canada	Liquid	Mechanical	Transmission oil	Nuna Logistics	unknown	X	0.00	0.00	0.00
12	Duron 5W-40	Petro-Canada	Liquid	Mechanical	Engine Oil	Nuna Logistics	unknown	X	0.00	0.00	0.00
13	Portland Cement	Lafarge	Solid	Drilling	Drill Casing	Landtech & Cooper	30lb bag	400.00	0.00	0.00	0.00
14	Snowmobile Oil	Petro-Canada	Liquid	Mechanical	Engine Oil	Peregrine/De Beers	unknown	X	0.00	0.00	0.00
15	Compressor Oil	Petro-Canada	Liquid	Mechanical	Compressor	Peregrine/De Beers	unknown	X	0.00	0.00	0.00
16	Battery Fluid	AC/Delco	Liquid	Core Drilling	Electrical – Battery Fluid	Lantech	8 Batteries	X	0.00	0.00	0.00
17	ABC Dry Chemical Fire Extinguishant	Buck Eye Fire Equip.	Powder	Core Drilling	Fire Suppression	Lantech	4 x 20lbs	X	0.00	0.00	0.00
18	Calcium Chloride	Brentag	Crystals	Core Drilling	Drilling – Ice freezing suppression	Lantech	4800 lbs	X	0.00	0.00	0.00
19	DD 1200	Fordia	Liquid	Core Drilling	Drilling – Additive for hole Stability-Flushing Cuttings	Lantech	20 litre pail	12.00	0.00	0.00	0.00
20	DD 2000	Fordia	Liquid	Core Drilling	Drilling-Additive for hole Stability-Flushing Cuttings	Lantech	20 litre pail	0.00	0.00	0.00	0.00
21	G-Stop	Diversity Technology	Pellet Form	Core Drilling	Drilling- Additive for down hole water return-aids in sealing	Lantech	9 x 20 litre pail	9.00	0.00	0.00	0.00
22	Sandrill	Fordia	Powder	Core Drilling	Drilling- drilling additive used for hole stability in sandy/gravel conditions	Lantech	12 x 20 litre pail	12.00	0.00	0.00	0.00
23	ES Thread Compound	Forida	Paste	Core Drilling	Drilling-use for lubricating drill rod threads	Lantech	2 x 25 lb bag	2.00	0.00	0.00	0.00
24	Rod Grease	Fordia	Grease	Core Drilling	Lubricant for rods and mechanical parts	Lantech	4 x 20 litre pail	4.00	0.00	0.00	0.00
25	Quick Start	Quick Start Products	Liquid	Core Drilling	Engine starting spray, sprayed into engine intake piping on diesel engines in freezing cold conditions.	Lantech	6 x 210 grams	6.00	0.00	0.00	0.00
26	2 Cycle Motor Oil	Petro Canada	Liquid	Core Drilling	Fuel additive	Lantech	2 litres	X	0.00	0.00	0.00
27	1L Dex-Cool Antifreeze	AC/Delco	Liquid	Core Drilling	Heavy duty engine antifreeze	Lantech	80 litres	80.00	0.00	0.00	0.00
28	Hydraulic AW 32	Petro-Canada	Liquid	Core Drilling	Hydraulic Oil	Lantech	420 litres	X	0.00	0.00	0.00
29	Lubricity Formula	Stanadyne	Liquid	Core Drilling	Diesel Fuel Additive	Lantech	560 ounces	X	0.00	0.00	0.00
30	Motor Oil 5W30	Petro-Canada	Liquid	Core Drilling	Lubricating Motor Oil	Lantech	24 litres	X	0.00	0.00	0.00
31	Motor Oil 15W40	Petro-Canada	Liquid	Core Drilling	Lubricating Motor Oil	Lantech	128 litres	X	0.00	0.00	0.00
32	Precicion EP2 Grease	Petro-Canada	Grease	Core Driling	Lubricant for rods and mechanical parts	Lantech	40 tubes	X	0.00	0.00	0.00
33	Stalude Chain Oil	Irving	Liquid	Core Dilling	Chain saw bar oil - timbers	Lantech	8 litres	X	0.00	0.00	0.00
34	Enviroguard	Jet Lube	Grease	Core Drilling	Drilling - Lubricant and Sealant	Lantech	unknown	X	0.00	0.00	0.00
35	Traxon Gear Oil 80W90	Petro-Canada	Liquid	Core Drilling	Hypoid gear lubricant in motors	Lantech	120 litres	X	0.00	0.00	0.00
36	Royco 586M / MIL-PRF-6086	Anderol	Liquid	Aviation	Helicopter maintenance – mineral oil	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
37	Royco 756/MIL-PRF-5606	Anderol	Liquid	Aviation	Helicopter maintenance – hydraulic fluid - mineral	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
38	Royco 782/MIL-PRF-83282	Anderol	Liquid	Aviation	Helicopter maintenance – hydraulic fluid - synthetic	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
39	Mobil Jet II/MIL-PRF-23699	Exxon Mobil	Liquid	Aviation	Helicopter maintenance – Engine oil - synthetic	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
40	BP2389/MIL-PRF-7808;	BP	Liquid	Aviation	Helicopter maintenance - Oil, mineral	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
41	Aeroshell Grease 7	Aeroshell	Grease	Aviation	Helicopter maintenance - grease	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
42	Aeroshell Grease 14	Aeroshell	Grease	Aviation	Helicopter maintenance - grease	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
43	Aeroshell 22/MIL-PRF-81322G	Aeroshell	Grease	Aviation	Helicopter maintenance – grease	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
44	Mobil Grease 28	Imperial Oil	Grease	Aviation	Helicopter maintenance - grease	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
45	Lubriplate 630AA/MIL-G-7187	Lubriplate	Grease	Aviation	Helicopter maintenance -grease	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
46	Mastinox/MIL-PRF-8116	PPG industries	Grease	Aviation	Helicopter maintenance -grease	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
47	Flamemaster CS-3204	Flamemaster	Paste	Aviation	Helicopter maintenance - sealant	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
48	PPG PR1422 B1/2	PPG Industries	Paste	Aviation	Helicopter Maintenance - sealant	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
49	Optimax 1555 Cleaner	Optimax Biodegradable	Liquid	Aviation	Helicopter maintenance - cleaner	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
50	Methyl-Ethyl-ketone	PPG industries	Liquid	Aviation	Helicopter maintenance - cleaner	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
51	Aeroshell 750 turbine oil	Aeroshell	Liquid	Aviation	Helicopter maintenance – turbine oil	HTS	Helicopter Engineer's Toolkit	0.00	0.00	0.00	0.00
52	Bentonite	Mi Swaco	Solid - Powder	Large Diameter RC Drilling	LD - RC Drilling	Cooper Drilling	Unknown	X	0.00	0.00	0.00
53	DUO-VIS	Mi Swaco	Solid - Powder	Large Diameter RC Drilling	LD - RC Drilling	Cooper Drilling	Unknown	X	0.00	0.00	0.00
54	Max Gel	Mi Swaco	Solid - Powder	Large Diameter RC Drilling	LD - RC Drilling	Cooper Drilling	Unknown	X	0.00	0.00	0.00
55	Matex RDO 302 ES	Matex	Liquid	Drilling	Rock Drill Oil (Vegetable Oil)	Cooper Drilling	Unknown	12.00	0.00	0.00	0.00
56	Matex DD2000	Matex	Liquid	Drilling	Rock Drill Oil (Vegetable Oil)	Cooper Drilling	96 x 20 litre pail	96.00	0.00	0.00	0.00

Appendix “C”

SDS Sheets for Liquid Fuels

- Diesel
- Gasoline
- Jet A
- Propane
- Drill Additives

DIESEL

Section 1. Identification

Common name: DIESEL
Product Code: 0210
Synonym: Ultra low sulfur Diesel (ULSD) A, Ultra low sulfur Diesel (ULSD) B, Colonial 62/67
Material uses: Fuel, Heating Oil

Supplier / Manufacturer:
Énergie Valero Inc.
1801 McGill College, 13e étage
Montréal
Québec, Canada, H3A 2N4
Phone: 800-295-0391

In case of emergency:
CANUTEC: (613) 996-6666
Quebec Poison Control Center: 800-463-5060
Ontario Regional Poison Information Center (Toronto): 416-813-5900
Ontario Regional Poison Information Center (toll-free): 800-268-9017
Newfoundland Poison Information Center: 709-722-1110
Nova Scotia / PEI Poison Control Center: 800-565-8161
Or call your local Emergency Health Services Center.

Section 2. Hazards identifications

Classification:

Flammable liquid, Category 3
Skin irritation, Category 2
Eye irritation, Category 2A
Carcinogenicity, Category 2
Reproductive toxicity, Category 2
Specific target organ toxicity - Single exposure, Category 1
Specific target organ toxicity - Repeated exposure, Category 2
Aspiration hazard, Category 1

Signal word: Danger

Hazard statements:
H226: Flammable liquid and vapor.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H351: Suspected of causing cancer.
H361: Suspected of damaging fertility or the unborn child.
H370: Causes damage to organs.
H373: May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260: Do not breathe dust/fumes/gas/mist/vapors/spray.
P264: Wash exposed and/or contaminated area thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or a doctor.
P302+P352: IF ON SKIN: Wash with plenty of water and soap.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P308+P313: If exposed: Call a POISON CENTER or doctor/physician.
P314: Get medical advice/attention if you feel unwell.
P321: Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.
P331: Do NOT induce vomiting.
P337+P313: If eye irritation persists get medical advice/attention.
P370+P378: In case of fire: See section 5 for extinguishing media.
P403+P235: Store in a well ventilated place. Keep cool.
P405: Store locked up.
P501: Dispose of contents / container by a local waste disposal company according to regional regulations.

Section 3. Composition and information on ingredients

Name	CAS	Concentration %
Fuels, diesel	68334-30-5	0 - 100
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 30
Nonane	111-84-2	0 - 3
Octane	111-65-9	0 - 2
Toluene	108-88-3	0 - 1
Xylene	1330-20-7	0 - 1
Ethylbenzene	100-41-4	0 - 1

Note:

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4. First aid measures

Description of first aid if required:

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Eye contact:

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention if irritation develops and persists.

Skin contact:

Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Seek medical advice/attention. Wash contaminated clothing before reuse.

Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell.

Ingestion:
Call a physician or poison control centre immediately. Rinse mouth. DO NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Indication of immediate medical attention and special treatment needed, if necessary:
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

Most important acute symptoms and effects:
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness, pain and jaundice. Prolonged exposure may cause chronic effects.

Most important delayed symptoms and effects:
Aspiration may cause pulmonary oedema and pneumonitis.

Section 5. Firefighting measures

Flammability of the product:
Flammable liquid and vapor.

Flash point:
40°C / 104°F

Auto-ignition temperature:
> 220 °C / > 428 °F

Products of combustion:
Data not available

Special protective actions for firefighters:
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Move away immediately if the whistling sound from the safety devices increases or the discoloration of the tanks caused by a fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Vapors may form explosive air mixtures even at room temperature. Prevent buildup of vapors or gasses to explosive concentrations. Some of these materials, if spilled, may evaporate leaving a flammable residue. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed. In the event of fire and/or explosion do not breathe fumes.

Suitable extinguishing media:
Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Do not use a solid water stream as it may scatter and spread fire.

Specific hazard arising from the chemical:
Vapor may cause flash fire. Vapors can flow along surfaces to distant ignition source and cause flashback. Sensitive to static discharge.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
For non emergency personnel: Evacuate the area.
For emergency personnel: Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 for personal protective equipment. Local authorities should be advised according to applicable regulatory requirements.

Environmental precautions:
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Methods and material for containment and cleaning up:
Eliminate all sources of ignition (no cigarettes, torches, sparks or flames in the immediate area). Keep combustible materials (wood, paper, oil, etc.) away from the spilled product. Take precautionary measures against electrostatic discharge. Use tools that do not produce sparks. Prevent entry into waterways, sewers, basements or confined areas.

For large spills: Stop flow of substance if it can be done without risk. Dike spilled material, where possible. Use a non-combustible material such as vermiculite, sand or earth to absorb the product and place it in a container for later disposal. After collecting the product, rinse the area with water.

For small spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (eg, cloth, woolen). Clean the surface thoroughly to remove residual contamination.

Never put the spilled product back into its original container for reuse. Place the material in suitable, covered and labeled containers. For waste disposal, see section 13 of the safety data sheet.

Section 7. Handling and storage

Precautions in Handling:

Obtain instructions before use. Do not handle until you have read and understood all the safety precautions. Do not handle, store or open near an open flame, source of heat or other sources of ignition. Protect the product from direct sunlight. Do not smoke during use. Use local and general explosion-proof exhaust ventilation. Take precautionary measures against electrostatic discharge. All equipment used in handling this product must be earthed. Use non-sparking tools and explosion-proof equipment. Do not breathe mists or vapors. Avoid contact with eyes, skin and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Use only outdoors or in a well ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release into the environment. Observe good industrial hygiene practices.

Precautions in Storage:
Storage of flammable liquids. Do not handle or store near an open flame, heat source or other sources of ignition. This product can accumulate static charges which can cause sparks and become a source of ignition. Pressure in sealed containers may increase under the influence of heat. Keep the container in a cool, well-ventilated place. Keep away from food, drink and animal feed. Keep out of the reach of children.

Section 8. Exposure Controls, Personal Protections

Control parameters:

Component	CAS	Value	Control parameters	Basis
Toluene	108-88-3	TWA	20 ppm	USA - ACGIH
		TWA	50 ppm	Canada - Alberta
		TWA	188 mg/m^3	Canada - Alberta
		TWA	20 ppm	Canada - British Columbia
		TWA	20 ppm	Canada - Manitoba
		TWA	20 ppm	Canada - Ontario
		TWA	188 mg/m^3	Canada - Québec
		TWA	50 ppm	Canada - Québec
		TWA	375 mg/m^3	USA - NIOSH
		TWA	100 ppm	USA - NIOSH

Control parameters (continued) :

Component	CAS	Value	Control parameters	Basis
Xylene	1330-20-7	STEL	150 ppm	USA - ACGIH
		TWA	100 ppm	USA - ACGIH
		STEL	651 mg/m^3	Canada - Alberta
		STEL	150 ppm	Canada - Alberta
		TWA	434 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		STEL	150 ppm	Canada - British Columbia
		TWA	100 ppm	Canada - British Columbia
		STEL	150 ppm	Canada - Manitoba
		TWA	100 ppm	Canada - Manitoba
		STEL	150 ppm	Canada - Ontario
		TWA	100 ppm	Canada - Ontario
		STEL	651 mg/m^3	Canada - Québec
		STEL	150 ppm	Canada - Québec
		TWA	434 mg/m^3	Canada - Québec
		TWA	100 ppm	Canada - Québec
Octane	111-65-9	TWA	300 ppm	USA - ACGIH
		TWA	1400 mg/m^3	Canada - Alberta
		TWA	300 ppm	Canada - Alberta
		TWA	300 ppm	Canada - British Columbia
		TWA	300 ppm	Canada - Manitoba
		TWA	300 ppm	Canada - Ontario
		STEL	1750 mg/m^3	Canada - Québec
		STEL	375 ppm	Canada - Québec
		TWA	1400 mg/m^3	Canada - Québec
		TWA	300 ppm	Canada - Québec
Ethylbenzene	100-41-4	STEL	543 mg/m^3	Canada - Alberta
		STEL	125 ppm	Canada - Alberta
		TWA	434 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		TWA	20 ppm	Canada - British Columbia
		TWA	20 ppm	Canada - Manitoba
		TWA	20 ppm	Canada - Ontario
		STEL	543 mg/m^3	Canada - Québec
		STEL	125 ppm	Canada - Québec
		TWA	434 mg/m^3	Canada - Québec
		TWA	100 ppm	Canada - Québec
		TWA	20 ppm	USA - ACGIH

Control parameters (continued) :

Component	CAS	Value	Control parameters	Basis
Nonane	111-84-2	TWA	200 ppm	Canada - Québec
		TWA	1050 mg/m^3	Canada - Québec
		TWA	200 ppm	Canada - Alberta
		TWA	1050 mg/m^3	Canada - Alberta
		TWA	200 ppm	Canada - British Columbia
		TWA	200 ppm	Canada - Manitoba
		TWA	200 ppm	Canada - Ontario
		TWA	200 ppm	USA - ACGIH
Fuels, diesel	68334-30-5	TWA	100 mg/m^3 (inhalable fraction)	USA - ACGIH
		TWA	100 mg/m^3	Canada - Alberta
		TWA	100 mg/m^3	Canada - British Columbia
		TWA	100 mg/m^3	Canada - Manitoba
		TWA	100 mg/m^3	Canada - Ontario

Engineering controls:
Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Personal protective equipment:

Eyes: Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin/body: Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended. Wear appropriate thermal protective clothing, when necessary.

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. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Hands: Avoid exposure - obtain special instructions before use. Wear protective gloves.

Other: Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

Section 9. Physical and chemical properties

Physical state: Liquid

Color: Clear, yellow

Odour: Not available

Melting point/Freezing point: Data not available

Boiling point: From 145°C / 293°F to 375°C / 707°F

Appearance: Liquid

Lower explosion limit: 0.7 %

Upper explosion limit: 5 %

Flash point: 40°C / 104°F
Auto-ignition temperature: 220°C / 428°F
pH: Data not available
Kinematic viscosity: 1.3 - 4.1 cSt (40 °C)
Solubility: Data not available
Vapor pressure: 0.27 kPa (15 °C)
Density: Data not available
Relative vapor density: 0.78 - 0.88 g/ml
Evaporation rate: 0.2 BuAc

Section 10. Stability and reactivity

Chemical reactivity: The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability: Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions: Hazardous polymerisation does not occur.
Conditions to avoid: Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials: Strong oxidising agents.
Hazardous decomposition products: No hazardous decomposition products are known.

Section 11. Toxicological information

Acute toxicity:

Component	CAS	Value
Nonane	111-84-2	CL_{50} Inhalation: Rat = 3200 ppm - 4h
Toluene	108-88-3	DL_{50} Oral: Rat = 636 mg/kg DL_{50} Cutaneous: Rat = 12200 mg/kg CL_{50} Inhalation: Rat = 28.1 mg/L - 4h
Xylene	1330-20-7	DL_{50} Oral: Rat = 3523 mg/kg DL_{50} Cutaneous: Rabbit = 5000 mg/kg CL_{50} Inhalation: Rat = 27.6 mg/L - 4h
Ethylbenzene	100-41-4	DL_{50} Oral: Rat = 3500 mg/kg DL_{50} Cutaneous: Rabbit > 15400 mg/kg CL_{50} Inhalation: Rat = 17.4 mg/L - 4h

Skin corrosion/irritation:
Fuels, diesel, C9-18-alkane branched and linear: Causes skin irritation.
Nonane: Causes skin irritation.
Octane: Causes skin irritation.
Toluene: Causes skin irritation.
Xylene: Causes skin irritation.
Ethylbenzene: Causes skin irritation

Serious eye damage/irritation:
Fuels, diesel, C9-18-alkane branched and linear: Causes serious eye irritation.

Respiratory or skin sensitisation:
Not applicable

Germ cell mutagenicity:
Not applicable

Carcinogenicity:
Fuels, diesel, C9-18-alkane branched and linear: Suspected of causing cancer.
Ethylbenzene: Suspected of causing cancer.

Reproductive toxicity:
Toluene: Suspected of damaging fertility or the unborn child.
Xylene: Suspected of damaging fertility or the unborn child.

STOT- Single exposure:
Fuels, diesel, C9-18-alkane branched and linear: Causes damage to organs.
Octane: May cause drowsiness or dizziness.
Toluene: May cause drowsiness or dizziness.
Xylene: May cause irritation to respiratory tract and may cause drowsiness or dizziness.

STOT- repeated exposure:
Toluene: May cause damage to organs through prolonged or repeated exposure cause the hazard.
Xylene: May cause damage to organs through prolonged or repeated exposure cause the hazard.

Aspiration hazard:
Fuels, diesel, C9-18-alkane branched and linear: May be fatal if swallowed and enters airways.
Nonane: May be fatal if swallowed and enters airways.
Octane: May be fatal if swallowed and enters airways.
Toluene: May be fatal if swallowed and enters airways.
Xylene: May be fatal if swallowed and enters airways.
Ethylbenzene: May be fatal if swallowed and enters airways.

Information on likely route of exposure:
Not applicable

Section 12. Ecological information

Ecological data for aquatic environments:

Component	CAS	Value
Octane	111-65-9	CL_{50} - Fish 0.42 mg/L - 96h CE_{50} - Daphnia magna 0.38 mg/L - 48h
Toluene	108-88-3	CL_{50} - Oncorhynchus kisutch 5.5 mg/L - 96h CE_{50} - Daphnia magna 11.5 mg/L - 48h
Ethylbenzene	100-41-4	CE_{50} - Menidia menidia (atlantic silverside) 5.1 mg/L - 96h CL_{50} - Daphnia magna 1.8 mg/L - 48h CE_{50} - Skeletonema costatum 4.9 mg/L - 72h

Persistence and degradability:
Ethylbenzene: Easily biodegradable.

Bioaccumulative potential:
Data not available

Mobility in soil:
Data not available

Other adverse effects:
Data not available

Section 13. Disposal considerations

Waste disposal:
Dispose of this material and its container to hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations. Waste codes should be assigned by the user based on the application for which the product was used. Dispose of in accordance with local regulations. Offer rinsed packaging material to local recycling facilities.

Section 14. Transportation information

TDG		
UN #: UN1202	**Proper shipping name:** DIESEL FUEL	
Class: 3	**Packing group:** III	

DOT		
UN #: UN1202	**Proper shipping name:** DIESEL FUEL	
Class: 3	**Packing group:** III	

IMDG			
UN #: UN1202	**Proper shipping name:** DIESEL FUEL		
Class: 3	**Packing group:** III	**EMS-No:**	

IATA		
UN #: UN1202	**Proper shipping name:** DIESEL FUEL	
Class: 3	**Packing group:** III	

Section 15. Regulatory information

NFPA Classification:

Health ◆: 1
Flammable ◆: 2
Stability ◆: 0
Special hazards ◇: 0

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

General product information:
Canada: This product has been classified in accordance with the hazard criteria of the hazard product regulations and the safety data sheet contains all the information required by the hazard product regulations.

Section 16. Additional information

Date of issue:
2021-09-15

Version:
1.00

Elaborated by:
Toxyscan Inc.

Notice to reader:
To the best of our knowledge, the information contained in this document is accurate. However, neither Toxyscan Inc., nor the supplier, nor any of their affiliates can assume any responsibility for the accuracy or completeness of the information contained herein. All materials may present unknown hazards and should be used with caution. Although some hazards are described herein, we cannot guarantee that there are no other hazards. Valero Energy Inc. can not anticipate all conditions of use of this information and its product, or products of other manufacturers associated with its product. It is the responsibility of the user to ensure safe handling, storage and disposal of the product. The user is liable for any loss, injury, damage or expense caused by improper use.

UNLEADED GASOLINE

Section 1. Identification

Common name: UNLEADED GASOLINE

Product Code: 0100

Synonym: Unleaded Regular (No-lead) Gasoline - all octanes, vapor pressures, and ethanol blends. Unleaded Plus (Mid-grade) Gasoline - all octanes, vapor pressures, and ethanol blends. Unleaded Supreme (Super) Gasoline - all octanes, vapor pressures, and ethanol blends.

Material uses: Fuel.

Supplier / Manufacturer:

Énergie Valero Inc.
1801 McGill College, 13e étage
Montréal
Québec, Canada, H3A 2N4
Phone: 800-295-0391

In case of emergency:

CANUTEC: (613) 996-6666
Quebec Poison Control Center: 800-463-5060
Ontario Regional Poison Information Center (Toronto): 416-813-5900
Ontario Regional Poison Information Center (toll-free): 800-268-9017
Newfoundland Poison Information Center: 709-722-1110
Nova Scotia / PEI Poison Control Center: 800-565-8161
Or call your local Emergency Health Services Center.

Section 2. Hazards identifications

Classification:

Flammable liquid, Category 1
Acute toxicity (oral), Category 4
Skin irritation, Category 2
Eye irritation, Category 2A
Germ cell mutagenicity, Category 1B
Carcinogenicity, Category 1B
Reproductive toxicity, Category 2
Specific target organ toxicity - Single exposure (Respiratory tract irritation), Category 3
Specific target organ toxicity - Repeated exposure, Category 1
Aspiration hazard, Category 1

Signal word: Danger

Hazard statements:
H224: Extremely flammable liquid and vapor.
H302: Harmful if swallowed.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H340: May cause genetic defects.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.
H372: Causes damage to organs through prolonged or repeated exposure.

Precautionary statements:
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/light/…/equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P260: Do not breathe dust/fumes/gas/mist/vapors/spray.
P264: Wash exposed and/or contaminated area thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or a doctor.
P302+P352: IF ON SKIN: Wash with plenty of water and soap.
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P308+P313: If exposed: Call a POISON CENTER or doctor/physician.
P312: Call a POISON CENTER or doctor if you feel unwell.
P314: Get medical advice/attention if you feel unwell.
P321: Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.
P330: Rinse mouth.
P331: Do NOT induce vomiting.
P337+P313: If eye irritation persists get medical advice/attention.
P370+P378: In case of fire: Use Water spray, water fog, foam, dry chemical powder, carbon dioxide (CO_2) to extinguish.
P403+P233+P235: Store in a well ventilated place. Keep container tightly closed. Keep cool.

Section 3. Composition and information on ingredients

Name	CAS	Concentration %
Gasoline	86290-81-5	0 - 100
Toluene	108-88-3	0 - 25
Xylene	1330-20-7	0 - 20
n-Butane	106-97-8	0 - 20
Octane	111-65-9	0 - 18
Isopentane	78-78-4	0 - 15
Ethanol	64-17-5	0 - 10
Heptane	142-82-5	0 - 5
n-Hexane	110-54-3	0 - 5
1,2,4-Trimethylbenzene	95-63-6	0 - 5
Ethylbenzene	100-41-4	0 - 4
Cyclohexane	110-82-7	0 - 3
Benzene	71-43-2	0 - 1.5

Note:
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4. First aid measures

Description of first aid if required:

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Eye contact:
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention if irritation develops and persists.

Skin contact:
Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Seek medical advice/attention. Wash contaminated clothing before reuse.

Inhalation:
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell.

Ingestion:
Call a physician or poison control centre immediately. Rinse mouth. DO NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Indication of immediate medical attention and special treatment needed, if necessary:
Treat according to symptoms. For thermal burns: flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

Most important acute symptoms and effects:
May cause drowsiness, dizziness, headache, nausea and vomiting. Direct contact with eyes may cause temporary irritation. Skin irritation. May cause redness and pain.

Most important delayed symptoms and effects:
Aspiration may cause pulmonary oedema and pneumonitis.

Section 5. Firefighting measures

Flammability of the product:
Extremely flammable liquid and vapor.

Flash point:
-40°C / -40°F

Auto-ignition temperature:
260°C / 500°F

Products of combustion:
Data not available

Special protective actions for firefighters:
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Move away immediately if the whistling sound from the safety devices increases or the discoloration of the tanks caused by a fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Vapors may form explosive air mixtures even at room temperature. Prevent buildup of vapors or gasses to explosive concentrations. Some of these materials, if spilled, may evaporate leaving a flammable residue. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed. In the event of fire and/or explosion do not breathe fumes.

Suitable extinguishing media:
Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Do not use a solid water stream as it may scatter and spread fire.

Specific hazard arising from the chemical:
Vapor may cause flash fire. Vapors can flow along surfaces to distant ignition source and cause flashback. Sensitive to static discharge.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
For non emergency personnel: Evacuate the area.
For emergency personnel: Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 for personal protective equipment. Local authorities should be advised according to applicable regulatory requirements.

Environmental precautions:
Gasoline may contain oxygenated blend products (Ethanol, etc.) that are soluble in water and therefore precautions should be taken to protect surface and groundwater sources from contamination. If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Extremely flammable. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate local agencies. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

Methods and material for containment and cleaning up:
Eliminate all sources of ignition (no cigarettes, torches, sparks or flames in the immediate vicinity). Extinguish all nearby flames. Keep combustible materials (wood, paper, oil, etc.) away from the spilled product. Stop the flow of the substance, if it can be done without risk. Dike spilled material, where possible. Use a non-combustible material such as vermiculite, sand or earth to absorb the product and place it in a container for later disposal. Cover with plastic sheet to prevent dispersion. Collect the spilled product. After collecting the product, rinse the area with water. Clean the surface thoroughly to remove residual contamination. Wipe up with absorbent material (eg, cloth, woolen). Never put the spilled product back into its original container for reuse. This substance pollutes the water. It must be prevented from contaminating the soil or entering sewers, drains and water bodies. Must not be released into the environment.

Section 7. Handling and storage

Precautions in Handling:
Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is extremely flammable, and explosive vapor/air mixtures may be formed even at normal room temperatures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Precautions in Storage:
Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feeding stuffs. Keep out of the reach of children.

Section 8. Exposure Controls, Personal Protections

Control parameters:

Component	CAS	Value	Control parameters	Basis
Gasoline	86290-81-5	STEL	500 ppm	Canada - Ontario
		TWA	300 ppm	Canada - Ontario
		STEL	500 ppm	USA - ACGIH
		TWA	300 ppm	USA - ACGIH
		STEL	500 ppm	Canada - Alberta
		TWA	300 ppm	Canada - Alberta
		STEL	500 ppm	Canada - British Columbia
		TWA	300 ppm	Canada - British Columbia
		STEL	500 ppm	Canada - Manitoba
		TWA	300 ppm	Canada - Manitoba

Control parameters (continued):

Component	CAS	Value	Control parameters	Basis
Toluene	108-88-3	TWA	20 ppm	USA - ACGIH
		TWA	50 ppm	Canada - Alberta
		TWA	188 mg/m^3	Canada - Alberta
		TWA	20 ppm	Canada - British Columbia
		TWA	20 ppm	Canada - Manitoba
		TWA	20 ppm	Canada - Ontario
		TWA	188 mg/m^3	Canada - Québec
		TWA	50 ppm	Canada - Québec
Xylene	1330-20-7	STEL	150 ppm	USA - ACGIH
		TWA	100 ppm	USA - ACGIH
		STEL	651 mg/m^3	Canada - Alberta
		STEL	150 ppm	Canada - Alberta
		TWA	434 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		STEL	150 ppm	Canada - British Columbia
		TWA	100 ppm	Canada - British Columbia
		STEL	150 ppm	Canada - Manitoba
		TWA	100 ppm	Canada - Manitoba
		STEL	150 ppm	Canada - Ontario
		TWA	100 ppm	Canada - Ontario
		STEL	651 mg/m^3	Canada - Québec
		STEL	150 ppm	Canada - Québec
		TWA	434 mg/m^3	Canada - Québec
		TWA	100 ppm	Canada - Québec
n-Butane	106-97-8	STEL	1000 ppm	USA - ACGIH
		TWA	1000 ppm	Canada - Alberta
		STEL	750 ppm	Canada - British Columbia
		TWA	600 ppm	Canada - British Columbia
		STEL	1000 ppm	Canada - Manitoba
		TWA	800 ppm	Canada - Ontario
		TWA	1900 mg/m^3	Canada - Québec
		TWA	800 ppm	Canada - Québec

Control parameters (continued):

Component	CAS	Value	Control parameters	Basis
Octane	111-65-9	TWA	300 ppm	USA - ACGIH
		TWA	1400 mg/m^3	Canada - Alberta
		TWA	300 ppm	Canada - Alberta
		TWA	300 ppm	Canada - British Columbia
		TWA	300 ppm	Canada - Manitoba
		TWA	300 ppm	Canada - Ontario
		STEL	1750 mg/m^3	Canada - Québec
		STEL	375 ppm	Canada - Québec
		TWA	1400 mg/m^3	Canada - Québec
		TWA	300 ppm	Canada - Québec
Isopentane	78-78-4	TWA	1000 ppm	USA - ACGIH
		TWA	1770 mg/m^3	Canada - Alberta
		TWA	600 ppm	Canada - Alberta
		TWA	600 ppm	Canada - British Columbia
		TWA	1000 ppm	Canada - Manitoba
		TWA	600 ppm	Canada - Ontario
Ethanol	64-17-5	TWA	1000 ppm	USA - ACGIH
		TWA	1880 mg/m^3	Canada - Alberta
		TWA	1000 ppm	Canada - Alberta
		STEL	1000 ppm	Canada - British Columbia
		STEL	1000 ppm	Canada - Manitoba
		STEL	1000 ppm	Canada - Ontario
		TWA	1880 mg/m^3	Canada - Québec
		TWA	1000 ppm	Canada - Québec
Heptane	142-82-5	STEL	2050 mg/m^3	Canada - Alberta
		STEL	500 ppm	Canada - Alberta
		TWA	1640 mg/m^3	Canada - Alberta
		TWA	400 ppm	Canada - Alberta
		STEL	500 ppm	Canada - British Columbia
		TWA	400 ppm	Canada - British Columbia
		STEL	500 ppm	Canada - Manitoba
		TWA	400 ppm	Canada - Manitoba
		STEL	500 ppm	Canada - Ontario
		TWA	400 ppm	Canada - Ontario
		STEL	2050 mg/m^3	Canada - Québec
		STEL	500 ppm	Canada - Québec
		TWA	1640 mg/m^3	Canada - Québec
		TWA	400 ppm	Canada - Québec

Control parameters (continued):

Component	CAS	Value	Control parameters	Basis
n-Hexane	110-54-3	TWA	176 mg/m^3	Canada - Alberta
		TWA	50 ppm	Canada - Alberta
		TWA	20 ppm	Canada - British Columbia
		TWA	50 ppm	Canada - Manitoba
		TWA	50 ppm	Canada - Ontario
		TWA	176 mg/m^3	Canada - Québec
		TWA	50 ppm	Canada - Québec
		TWA	50 ppm	USA - ACGIH
1,2,4-Trimethylbenzene	95-63-6	TWA	25 ppm	Canada - Québec
		TWA	123 mg/m^3	Canada - Alberta
		TWA	25 ppm	Canada - Alberta
		TWA	25 ppm	Canada - British Columbia
		TWA	25 ppm	Canada - Manitoba
		TWA	25 ppm	Canada - Ontario
		TWA	25 ppm	USA - ACGIH
Ethylbenzene	100-41-4	STEL	543 mg/m^3	Canada - Alberta
		STEL	125 ppm	Canada - Alberta
		TWA	434 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		TWA	20 ppm	Canada - British Columbia
		TWA	20 ppm	Canada - Manitoba
		TWA	20 ppm	Canada - Ontario
		STEL	543 mg/m^3	Canada - Québec
		STEL	125 ppm	Canada - Québec
		TWA	434 mg/m^3	Canada - Québec
		TWA	100 ppm	Canada - Québec
		TWA	20 ppm	USA - ACGIH
Cyclohexane	110-82-7	TWA	344 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		TWA	100 ppm	Canada - British Columbia
		TWA	100 ppm	Canada - Manitoba
		TWA	100 ppm	Canada - Ontario
		TWA	1030 mg/m^3	Canada - Québec
		TWA	300 ppm	Canada - Québec
		TWA	100 ppm	USA - ACGIH

Control parameters (continued):

Component	CAS	Value	Control parameters	Basis
Benzene	71-43-2	STEL	8 mg/m^3	Canada - Alberta
		STEL	2.5 ppm	Canada - Alberta
		TWA	1.6 mg/m^3	Canada - Alberta
		TWA	0.5 ppm	Canada - Alberta
		STEL	2.5 ppm	Canada - British Columbia
		TWA	0.5 ppm	Canada - British Columbia
		STEL	2.5 ppm	Canada - Manitoba
		TWA	0.5 ppm	Canada - Manitoba
		STEL	2.5 ppm	Canada - Ontario
		TWA	0.5 ppm	Canada - Ontario
		STEL	15.5 mg/m^3	Canada - Québec
		STEL	5 ppm	Canada - Québec
		TWA	3 mg/m^3	Canada - Québec
		TWA	1 ppm	Canada - Québec
		TWA	10 ppm	USA - OSHA

Engineering controls:
Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Personal protective equipment:

Eyes: Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin/body: Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended. Wear appropriate thermal protective clothing, when necessary.

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. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Hands: Avoid exposure - obtain special instructions before use. Wear protective gloves.

Other: Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

Section 9. Physical and chemical properties

Physical state: Liquid

Color: Clear, yellow, green or amber

Odor: Characteristic, gasoline

Melting point/Freezing point: Data not available

Boiling point: From 20°C / 68°F to 225°C / 437°F

Appearance: Clear, yellow, green or amber tinted liquid

Lower explosion limit: 1.3%
Upper explosion limit: 7.6%
Flash point: -40°C / -40°F
Auto-ignition temperature: 260°C / 500°F
pH: Data not available
Kinematic viscosity: 0.4 - 0.9 cSt (40 °C (104 °F))
Solubility: Negligible
Vapor pressure: 262 - 825 mm Hg (100 °F (37.8 °C))
Density: 0.68 - 0.79 g/cm^3 (16°C)
Relative vapor density: 3 - 4
Evaporation rate: > 1
Volatility: 100 %

Section 10. Stability and reactivity

Chemical reactivity: The product is non-reactive under normal conditions of use, storage and transport.

Chemical stability: Stable under normal temperature conditions and recommended use.

Possibility of hazardous reactions: Hazardous polymerisation does not occur.

Conditions to avoid: Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.

Incompatible materials: Strong oxidising agents.

Hazardous decomposition products: No hazardous decomposition products are known.

Section 11. Toxicological information

Acute toxicity:

Component	CAS	Value
Gasoline	86290-81-5	DL_{50} Oral: Rat = 13600 mg/kg
Toluene	108-88-3	DL_{50} Oral: Rat = 636 mg/kg DL_{50} Cutaneous: Rat = 12200 mg/kg CL_{50} Inhalation: Rat = 28.1 mg/L - 4h
Xylene	1330-20-7	DL_{50} Oral: Rat = 3523 mg/kg DL_{50} Cutaneous: Rabbit = 5000 mg/kg CL_{50} Inhalation: Rat = 27.6 mg/L - 4h
n-Butane	106-97-8	CL_{50} Inhalation: Mouse = 202000 ppm - 4h
Isopentane	78-78-4	CL_{50} Inhalation: Mouse - = 450 mg/L 2h
Ethanol	64-17-5	DL_{50} Oral: Rat = 7060 mg/kg CL_{50} Inhalation: Rat = 39000 mg/m^3 - 4h

Acute toxicity (continued):

Heptane	142-82-5	DL_{50} Oral: Rat = 15000 mg/kg CL_{50} Inhalation: Rat = 29.3 mg/L - 4h
n-Hexane	110-54-3	DL_{50} Oral: Rat = 25000 mg/kg DL_{50} Cutaneous: Rabbit = 3000 mg/kg CL_{50} Inhalation: Rat = 48000 ppm - 4h
1,2,4-Trimethylbenzene	95-63-6	DL_{50} Oral: Rat = 2720 mg/kg DL_{50} Cutaneous: Rabbit > 3160 mg/kg CL_{50} Inhalation: Rat = 18000 ppm - 4h
Ethylbenzene	100-41-4	DL_{50} Oral: Rat = 3500 mg/kg DL_{50} Cutaneous: Rabbit > 15400 mg/kg CL_{50} Inhalation: Rat = 17.4 mg/L - 4h
Cyclohexane	110-82-7	DL_{50} Oral: Rat = 12705 mg/kg DL_{50} Cutaneous: Rabbit > 2000 mg/kg CL_{50} Inhalation: Rat = 19.07 mg/L - 4h
Benzene	71-43-2	DL_{50} Oral: Rat = 930 mg/kg DL_{50} Cutaneous: Rabbit = 8300 mg/kg CL_{50} Inhalation: Rat = 42.3 mg/L - 4h

Skin corrosion/irritation:
Gasoline: Causes skin irritation.
Toluene: Causes skin irritation.
Xylene: Causes skin irritation.
Octane: Causes skin irritation.
Heptane: Causes skin irritation.
n-Hexane: Causes skin irritation.
Ethylbenzene: Causes skin irritation.
Cyclohexane: Causes skin irritation.
Benzene: Causes skin irritation.

Serious eye damage/irritation:
Ethanol: May cause eye irritation.
Benzene: Causes serious eye irritation.

Respiratory or skin sensitisation:
Not applicable

Germ cell mutagenicity:
Gasoline: May cause genetic defects.
Benzene: May cause genetic defects.

Carcinogenicity:
Ethylbenzene: Suspected of causing cancer.
Benzene: May cause cancer.

Reproductive toxicity:
Gasoline: Suspected of damaging fertility or the unborn child.
Toluene: Suspected of damaging fertility or the unborn child.
Xylene: Suspected of damaging fertility or the unborn child.
n-Hexane: Suspected of damaging fertility or the unborn child.

STOT- Single exposure:
Gasoline: May cause drowsiness or dizziness.
Toluene: May cause drowsiness or dizziness.
Xylene: May cause irritation to respiratory tract and may cause drowsiness or dizziness.
Octane: May cause drowsiness or dizziness.
Isopentane: May cause drowsiness or dizziness.
Ethanol: Causes damage to organs.
Heptane: May cause drowsiness or dizziness.
n-Hexane: May cause drowsiness or dizziness.

STOT- repeated exposure:
Toluene: May cause damage to organs through prolonged or repeated exposure cause the hazard.
Xylene: May cause damage to organs through prolonged or repeated exposure cause the hazard.
n-Hexane: Causes damage to organs through prolonged or repeated exposure cause the hazard.
Benzene: Causes damage to organs through prolonged or repeated exposure cause the hazard

Aspiration hazard:
Gasoline: May be fatal if swallowed and enters airways.
Toluene: May be fatal if swallowed and enters airways.
Xylene: May be fatal if swallowed and enters airways.
Octane: May be fatal if swallowed and enters airways.
Isopentane: May be fatal if swallowed and enters airways.
Heptane: May be fatal if swallowed and enters airways.
n-Hexane: May be fatal if swallowed and enters airways.
1,2,4-Trimethylbenzene: May be fatal if swallowed and enters airways.
Ethylbenzene: May be fatal if swallowed and enters airways.
Cyclohexane: May be fatal if swallowed and enters airways.
Benzene: May be fatal if swallowed and enters airways.

Information on likely route of exposure:
Skin, eyes, inhalation and ingestion.

Section 12. Ecological information

Ecological data for aquatic environments:

Component	CAS	Value
Toluene	108-88-3	CL_{50} - Oncorhynchus kisutch 5.5 mg/L - 96h CE_{50} - Daphnia magna 11.5 mg/L - 48h
Octane	111-65-9	CL_{50} - Fish 0.42 mg/L - 96h CE_{50} - Daphnia magna 0.38 mg/L - 48h
Isopentane	78-78-4	CL_{50} - Pimephales promelas (fathead minnow) 12.8 mg/L - 96h CE_{50} - Daphnia magna 2.3 mg/L - 48h

Ecological data for aquatic environments (continued):

Component	CAS	Value
Ethanol	64-17-5	CL_{50} - Pimephales promelas (fathead minnow) 14200 mg/m^3 - 96h CL_{50} - Ceriodaphnia dubia (water flea) 5012 mg/m^3 - 48h
Heptane	142-82-5	CL_{50} - Carassius auratus (red fish) 4 mg/L - 24h CE_{50} - Daphnia magna 1.50 mg/L - 48h
n-Hexane	110-54-3	CL_{50} - Pimephales promelas (fathead minnow) 2.5 mg/L - 96h CE_{50} - Daphnia magna 3878 mg/L - 48h
1,2,4-Trimethylbenzene	95-63-6	CL_{50} - Pimephales promelas (fathead minnow) 7.72 mg/L - 96h CE_{50} - Daphnia magna 3.6 mg/L - 48h
Ethylbenzene	100-41-4	CE_{50} - Menidia menidia (atlantic silverside) 5.1 mg/L - 96h CL_{50} - Daphnia magna 1.8 mg/L - 48h CE_{50} - Skeletonema costatum 4.9 mg/L - 72h
Cyclohexane	110-82-7	CL_{50} - Pimephales promelas (fathead minnow) 4.53 mg/L - 96h CE_{50} - Daphnia magna 0.9 mg/L - 48h
Benzene	71-43-2	CL_{50} - Pimephales promelas (fathead minnow) 15 mg/L - 96h CE_{50} - Water flea 17.2 mg/L - 48h

Persistence and degradability:
Ethylbenzene: Easily biodegradable.

Bioaccumulative potential:
No data available.

Mobility in soil:
No data available.

Other adverse effects:
Isopentane: Very toxic to aquatic life.
Heptane: Acute and chronic aquatic toxicity.
n-Hexane: Acute and chronic aquatic toxicity.
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Section 13. Disposal considerations

Waste disposal:
Dispose of this material and its container to hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations. Waste codes should be assigned by the user based on the application for which the product was used. Dispose of in accordance with local regulations. Offer rinsed packaging material to local recycling facilities.

Section 14. Transportation information

TDG		
UN #: UN1203	**Proper shipping name:** GASOLINE	
Class: 3	**Packing group:** II	

DOT		
UN #: UN1203	**Proper shipping name:** GASOLINE	
Class: 3	**Packing group:** II	

IMDG			
UN #: UN1203	**Proper shipping name:** GASOLINE		
Class: 3	**Packing group:** II	**EMS-No:**	

IATA		
UN #: UN1203	**Proper shipping name:** GASOLINE	
Class: 3	**Packing group:** II	

Section 15. Regulatory information

NFPA Classification:

Health ◆: 2
Flammable ◆: 3
Stability ◆: 0
Special hazards ◇: 0

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

General product information:
Canada: This product has been classified in accordance with the hazard criteria of the hazard product regulations and the safety data sheet contains all the information required by the hazard product regulations.

Section 16. Additional information

Date of issue:
2021-09-15

Version:
1.00

Elaborated by:
Toxyscan Inc.

Notice to reader:
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TYPE AVIATION TURBINE FUEL

Section 1. Identification

Common name: TYPE AVIATION TURBINE FUEL
Product Code: 8521
Synonym: Jet A1 Fuel, Jet A, Jet Fuel, Kerosine
Material uses: Fuel.

Supplier / Manufacturer:
Énergie Valero Inc.
1801 McGill College, 13e étage
Montréal
Québec, Canada, H3A 2N4
Phone: 800-295-0391

In case of emergency:
CANUTEC: (613) 996-6666
Quebec Poison Control Center: 800-463-5060
Ontario Regional Poison Information Center (Toronto): 416-813-5900
Ontario Regional Poison Information Center (toll-free): 800-268-9017
Newfoundland Poison Information Center: 709-722-1110
Nova Scotia / PEI Poison Control Center: 800-565-8161
Or call your local Emergency Health Services Center.

Section 2. Hazards identifications

Classification:

Flammable liquid, Category 3
Acute toxicity (inhalation), Category 4
Skin irritation, Category 2
Carcinogenicity, Category 2
Reproductive toxicity, Category 2
Specific target organ toxicity - Repeated exposure, Category 2
Aspiration hazard, Category 1

Signal word: Danger

Hazard statements:
H226: Flammable liquid and vapor.
H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation.
H332: Harmful if inhaled.
H351: Suspected of causing cancer.
H361: Suspected of damaging fertility or the unborn child.
H373: May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260: Do not breathe dust/fumes/gas/mist/vapors/spray.
P264: Wash exposed and/or contaminated area thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or a doctor.
P302+P352: IF ON SKIN: Wash with plenty of water and soap.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313: If exposed: Call a POISON CENTER or doctor/physician.
P312: Call a POISON CENTER or doctor if you feel unwell. P314: Get medical advice/attention if you feel unwell.
P321: Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.
P331: Do NOT induce vomiting.
P370+P378: In case of fire: See section 5 for extinguish media.
P403+P235: Store in a well ventilated place. Keep cool.
P405: Store locked up.
P501: Dispose of contents / container by a local waste disposal company according to regional regulations.

Section 3. Composition and information on ingredients

Name	CAS	Concentration %
Kerosine (petroleum)	8008-20-6	0 - 100
Kerosine (petroleum), hydrodesulfurized	64742-81-0	0 - 100
Xylene	1330-20-7	0 - 1
Naphtalene	91-20-3	0 - 0.3
Toluene	108-88-3	0 - 0.2
Ethylbenzene	100-41-4	0 - 0.1

Note:

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4. First aid measures

Description of first aid if required:

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Eye contact:

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention if irritation develops and persists.

Skin contact:

Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Seek medical advice/attention. Wash contaminated clothing before reuse.

Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell.

Ingestion:
Call a physician or poison control centre immediately. Rinse mouth. DO NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Indication of immediate medical attention and special treatment needed, if necessary:
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.

Most important acute symptoms and effects:
May cause drowsiness and dizziness. Headache. Nausea, vomiting. Diarrhoea. Direct contact with eyes may cause temporary irritation. Skin irritation. May cause redness and pain.

Most important delayed symptoms and effects:
Aspiration may cause pulmonary oedema and pneumonitis.

Section 5. Firefighting measures

Flammability of the product:
Flammable liquid and vapor.

Flash point:
38°C / 100.4°F

Auto-ignition temperature:
240°C / 464°F

Products of combustion:
Data not available

Special protective actions for firefighters:
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. In case of fire and/or explosion do not breathe fumes. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discolouration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. Move containers from fire area if you can do so without risk. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed. In the event of fire and/or explosion do not breathe fumes.

Suitable extinguishing media:
Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazard arising from the chemical:
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: For non emergency personnel: Evacuate the area.
For emergency personnel: Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 for personal protective equipment. Local authorities should be advised according to applicable regulatory requirements.

Environmental precautions:
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Methods and material for containment and cleaning up:
Eliminate all sources of ignition (no cigarettes, torches, sparks or flames in the immediate area). Keep combustible materials (wood, paper, oil, etc.) away from the spilled product. Take precautionary measures against electrostatic discharge. Use tools that do not produce sparks. Prevent entry into waterways, sewers, basements or confined areas.

For large spills: Stop flow of substance if it can be done without risk. Dike spilled material, where possible. Use a non-combustible material such as vermiculite, sand or earth to absorb the product and place it in a container for later disposal. After collecting the product, rinse the area with water.

For small spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (eg, cloth, woolen). Clean the surface thoroughly to remove residual contamination.

Never put the spilled product back into its original container for reuse. Place the material in suitable, covered and labeled containers. For waste disposal, see section 13 of the safety data sheet.

Section 7. Handling and storage

Precautions in Handling:

Obtain instructions before use. Do not handle until you have read and understood all the safety precautions. Do not handle, store or open near an open flame, source of heat or other sources of ignition. Protect the product from direct sunlight. Do not smoke during use. Use local and general explosion-proof exhaust ventilation. Take precautionary measures against electrostatic discharge. All equipment used in handling this product must be earthed. Use non-sparking tools and explosion-proof equipment. Do not breathe mists or vapors. Avoid contact with eyes, skin and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Use only outdoors or in a well ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release into the environment. Observe good industrial hygiene practices.

Precautions in Storage:
Storage of flammable liquids. Do not handle or store near an open flame, heat source or other sources of ignition. This product can accumulate static charges which can cause sparks and become a source of ignition. Pressure in sealed containers may increase under the influence of heat. Keep the container in a cool, well-ventilated place. Keep away from food, drink and animal feed. Keep out of the reach of children.

Section 8. Exposure Controls, Personal Protections

Control parameters:

Component	CAS	Value	Control parameters	Basis
Toluene	108-88-3	TWA	20 ppm	USA - ACGIH
		TWA	50 ppm	Alberta
		TWA	188 mg/m^3	Alberta
		TWA	20 ppm	British Columbia
		TWA	20 ppm	Manitoba
		TWA	20 ppm	Ontario
		TWA	188 mg/m^3	Québec
		TWA	50 ppm	Québec

Control parameters (continued):

Component	CAS	Value	Control parameters	Basis
Xylene	1330-20-7	STEL	150 ppm	USA - ACGIH
		TWA	100 ppm	USA - ACGIH
		STEL	651 mg/m^3	Canada - Alberta
		STEL	150 ppm	Canada - Alberta
		TWA	434 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		STEL	150 ppm	Canada - British Columbia
		TWA	100 ppm	Canada - British Columbia
		STEL	150 ppm	Canada - Manitoba
		TWA	100 ppm	Canada - Manitoba
		STEL	150 ppm	Canada - Ontario
		TWA	100 ppm	Canada - Ontario
		STEL	651 mg/m^3	Canada - Québec
		STEL	150 ppm	Canada - Québec
		TWA	434 mg/m^3	Canada - Québec
		TWA	100 ppm	Canada - Québec
Ethylbenzene	100-41-4	STEL	543 mg/m^3	Canada - Alberta
		STEL	125 ppm	Canada - Alberta
		TWA	434 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		TWA	20 ppm	Canada - British Columbia
		TWA	20 ppm	Canada - Manitoba
		TWA	20 ppm	Canada - Ontario
		STEL	543 mg/m^3	Canada - Québec
		STEL	125 ppm	Canada - Québec
		TWA	434 mg/m^3	Canada - Québec
		TWA	100 ppm	Canada - Québec

Control parameters (continued) :

Component	CAS	Value	Control parameters	Basis
Naphtalene	91-20-3	TWA	10 ppm	USA - ACGIH
		STEL	79 mg/m^3	Canada - Alberta
		STEL	15 ppm	Canada - Alberta
		TWA	52 mg/m^3	Canada - Alberta
		TWA	10 ppm	Canada - Alberta
		STEL	15 ppm	Canada - British Columbia
		TWA	10 ppm	Canada - British Columbia
		TWA	10 ppm	Canada - Manitoba
		STEL	15 ppm	Canada - Ontario
		TWA	10 ppm	Canada - Ontario
		STEL	79 mg/m^3	Canada - Québec
		STEL	15 ppm	Canada - Québec
		TWA	52 mg/m^3	Canada - Québec
		TWA	10 ppm	Canada - Québec
Kerosine (petroleum)	8008-20-6	TWA	200 mg/m^3	USA - ACGIH
		TWA	200 mg/m^3	Canada - Alberta
		TWA	200 mg/m^3	Canada - British Columbia
		TWA	200 mg/m^3	Canada - Manitoba
		TWA	200 mg/m^3	Canada - Ontario
		TWA	200 mg/m^3	Canada - Québec
Kerosine (petroleum), hydrodesulfurized	64742-81-0	TWA	200 mg/m^3	USA - ACGIH
		TWA	200 mg/m^3	Canada - Alberta
		TWA	200 mg/m^3	Canada - British Columbia
		TWA	200 mg/m^3	Canada - Manitoba
		TWA	200 mg/m^3	Canada - Ontario

Engineering controls:
Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Personal protective equipment:

Eyes: Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin/body: Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended. Wear appropriate thermal protective clothing, when necessary.

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. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Hands: Avoid exposure - obtain special instructions before use. Wear protective gloves.

Other: Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

Section 9. Physical and chemical properties

Physical state: Liquid

Color: Clear, straw

Odor: Characteristic

Melting point/Freezing point: -47°C / -52.6°F

Boiling point: Data not available

Appearance: Liquid

Lower explosion limit: 0.8 %

Upper explosion limit: 7 %

Flash point: 38°C / 100.4°F (Closed cup)

Auto-ignition temperature: 240°C / 464°F

pH: Data not available

Kinematic viscosity: 1 - 2.4 cSt (40 °C (104 °F)) / ≤ 8 cSt (-20 °C (-4 °F))

Solubility: Insoluble

Vapor pressure: < 8 mm Hg (38°C)

Density: 0.775 - 0.84 (15 °C (59 °F))

Relative vapor density: 4.5

Section 10. Stability and reactivity

Chemical reactivity: The product is non-reactive under normal conditions of use, storage and transport.

Chemical stability: Stable under normal temperature conditions and recommended use.

Possibility of hazardous reactions: Hazardous polymerisation does not occur.

Conditions to avoid: Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Avoid contact with incompatible materials.

Incompatible materials: Strong oxidising agents.

Hazardous decomposition products: No hazardous decomposition products are known.

Section 11. Toxicological information

Acute toxicity:

Component	CAS	Value
Kerosine (petroleum)	8008-20-6	DL_{50} Oral: Rabbit = 2835 mg/kg
Kerosine (petroleum), hydrodesulfurized	64742-81-0	DL_{50} Oral: Rat = 5000 mg/kg DL_{50} Cutaneous: Rabbit = 2000 mg/kg CL_{50} Inhalation: Rat = 5280 mg/m^3 - 4h

Acute toxicity (continued):

Component	CAS	Value
Xylene	1330-20-7	DL_{50} Oral: Rat = 3523 mg/kg DL_{50} Cutaneous: Rabbit = 5000 mg/kg CL_{50} Inhalation: Rat = 27.6 mg/L - 4h
Naphtalene	91-20-3	DL_{50} Oral: Rat = 490 mg/kg DL_{50} Cutaneous: Rabbit = 2000 mg/kg
Toluene	108-88-3	DL_{50} Oral: Rat = 636 mg/kg DL_{50} Cutaneous: Rat = 12200 mg/kg CL_{50} Inhalation: Rat = 28.1 mg/L - 4h
Ethylbenzene	100-41-4	DL_{50} Oral: Rat = 3500 mg/kg DL_{50} Cutaneous: Rabbit > 15400 mg/kg CL_{50} Inhalation: Rat = 17.4 mg/L - 4h

Skin corrosion/irritation:
Kerosine (petroleum): Causes skin irritation.
Xylene: Causes skin irritation.
Toluene: Causes skin irritation.
Ethylbenzene: Causes skin irritation.

Serious eye damage/irritation:
Not applicable

Respiratory or skin sensitisation:
Not applicable

Germ cell mutagenicity:
Not applicable

Carcinogenicity:
Kerosine (petroleum), hydrodesulfurized: Suspected of causing cancer.
Naphtalene: Suspected of causing cancer.
Ethylbenzene: Suspected of causing cancer.

Reproductive toxicity:
Xylene: Suspected of damaging fertility or the unborn child.
Toluene: Suspected of damaging fertility or the unborn child.

STOT- Single exposure:
Xylene: May cause irritation to respiratory tract and may cause drowsiness or dizziness.
Toluene: May cause drowsiness or dizziness.

STOT- repeated exposure:
Xylene: May cause damage to organs through prolonged or repeated exposure cause the hazard.
Naphtalene: May cause damage to organs through prolonged or repeated exposure cause the hazard.
Toluene: May cause damage to organs through prolonged or repeated exposure cause the hazard.

Aspiration hazard:
Kerosine (petroleum): May be fatal if swallowed and enters airways.
Kerosine (petroleum), hydrodesulfurized: May be fatal if swallowed and enters airways.
Xylene: May be fatal if swallowed and enters airways.
Toluene: May be fatal if swallowed and enters airways.
Ethylbenzene: May be fatal if swallowed and enters airways

Information on likely route of exposure:
Skin, eyes, inhalation and ingestion.

Section 12. Ecological information

Ecological data for aquatic environments:

Component	CAS	Value
Naphtalene	91-20-3	CE_{50} - Crustacea (water flea) 1.09 mg/L - 48h CL_{50} - Fish (pink salmon) 0.95 mg/L - 96h
Toluene	108-88-3	CL_{50} - Oncorhynchus kisutch 5.5 mg/L - 96h CE_{50} - Daphnia magna 11.5 mg/L - 48h
Ethylbenzene	100-41-4	CE_{50} - Menidia menidia (atlantic silverside) 5.1 mg/L - 96h CL_{50} - Daphnia magna 1.8 mg/L - 48h CE_{50} - Skeletonema costatum 4.9 mg/L - 72h

Persistence and degradability:
Ethylbenzene: Easily biodegradable
No data available.

Bioaccumulative potential:
Data not available

Mobility in soil:
Data not available

Other adverse effects:
Data not available

Section 13. Disposal considerations

Waste disposal:
Dispose of this material and its container to hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations. Waste codes should be assigned by the user based on the application for which the product was used. Dispose of in accordance with local regulations. Offer rinsed packaging material to local recycling facilities.

Section 14. Transportation information

TDG		
UN #: UN1863	**Proper shipping name:** FUEL, AVIATION, TURBINE ENGINE	
Class: 3	**Packing group:** III	

DOT		
UN #: UN1203	**Proper shipping name:** FUEL, AVIATION, TURBINE ENGINE	
Class: 3	**Packing group:** III	

IMDG			
UN #: UN1203	**Proper shipping name:** FUEL, AVIATION, TURBINE ENGINE		
Class: 3	**Packing group:** III	**EMS-No:** F-E, S-E	
Marine pollutant: Yes		**Poison Inhalation Hazard:**	

IATA		
UN #: UN1203	**Proper shipping name:** FUEL, AVIATION, TURBINE ENGINE	
Class: 3	**Packing group:** III	

Section 15. Regulatory information

NFPA Classification:

Health ◆: 3
Flammable ◆: 3
Stability ◆: 0
Special hazards ◇: 0

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

General product information:
Canada: This product has been classified in accordance with the hazard criteria of the hazard product regulations and the safety data sheet contains all the information required by the hazard product regulations.

Section 16. Additional information

Date of issue:
2021-09-15

Version:
1.00

Elaborated by:
Toxyscan Inc.

Notice to reader:
To the best of our knowledge, the information contained in this document is accurate. However, neither Toxyscan Inc., nor the supplier, nor any of their affiliates can assume any responsibility for the accuracy or completeness of the information contained herein. All materials may present unknown hazards and should be used with caution. Although some hazards are described herein, we cannot guarantee that there are no other hazards. Valero Energy Inc. can not anticipate all conditions of use of this information and its product, or products of other manufacturers associated with its product. It is the responsibility of the user to ensure safe handling, storage and disposal of the product. The user is liable for any loss, injury, damage or expense caused by improper use.

PROPANE

Section 1. Identification

Common name: PROPANE

Product Code: 0105

Synonym: Liquefied petroleum gas (LPG), automotive propane

Material uses: This product is intended for use as a fuel in combustion devices designed for propane use and in some industrial processes as well. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.

Supplier / Manufacturer:
Énergie Valero Inc.
1801 McGill College, 13e étage
Montréal
Québec, Canada, H3A 2N4
Phone: 800-295-0391

In case of emergency:
CANUTEC: (613) 996-6666
Quebec Poison Control Center: 800-463-5060
Ontario Regional Poison Information Center (Toronto): 416-813-5900
Ontario Regional Poison Information Center (toll-free): 800-268-9017
Newfoundland Poison Information Center: 709-722-1110
Nova Scotia / PEI Poison Control Center: 800-565-8161
Or call your local Emergency Health Services Center.

Section 2. Hazards identifications

Classification:

Flammable gas, Category 1
Liquefied gas

Signal word: Danger

Hazard statements:
H220: Extremely flammable gas.
H280: Contains gas under pressure; may explode if heated.

Precautionary statements:
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P377: Leaking gas fire – do not extinguish unless leak can be stopped safely.
P381: Eliminate all ignition sources if safe to do so.
P403: Store in a well ventilated place.
P410+P403: Protect from sunlight. Store in a well-ventilated place.

Section 3. Composition and information on ingredients

Name	CAS	Concentration %
Propane	74-98-6	90 - 100
Propylene	115-07-1	0 - 5
Isobutane	75-28-5	0 - 2
n-Butane	106-97-8	0 - 2
Ethane	74-84-0	0 - 1

Note:

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4. First aid measures

Description of first aid if required:

Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Eye contact:

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention immediately.

Skin contact:

Wash frost-bitten areas with plenty of water. Do not remove clothing. Seek medical attention immediately.

Inhalation:

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control centre immediately.

Ingestion:

Not likely, due to the form of the product. Ingestion is not a typical route of exposure for gases or liquefied gases.

Indication of immediate medical attention and special treatment needed, if necessary:

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

Most important acute symptoms and effects:

Dizziness.

Most important delayed symptoms and effects:

No known chronic effects or symptoms.

Section 5. Firefighting measures

Flammability of the product:

Extremely flammable gas.

Flash point:

-104°C / -155.2°F (Closed cup)

Auto-ignition temperature:

287°C / 548.6°F

Products of combustion:

Data not available

Special protective actions for firefighters:
Self-contained breathing apparatus and full protective clothing must be worn in case of fire. In case of fire and/or explosion do not breathe fumes. DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED. In case of fire: Stop leak if safe to do so. Do not move cargo or vehicle if cargo has been exposed to heat. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (0.5 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk. Do not direct water at source of leak or safety devices as icing may occur. Use water spray to cool unopened containers. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

Suitable extinguishing media:
Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

in presence of various substances:
Vapors may form explosive mixtures with air. Vapours may travel considerable distance to a source of ignition and cause flashback. During fire, gases hazardous to health may be formed.

Specific hazard arising from the chemical:
Extremely flammable gas. Contents under pressure. Pressurised container may explode when exposed to heat or flame.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
For non emergency personnel: Evacuate the area.
For emergency personnel: Evacuate the area promptly. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the safety data sheet. No action shall be taken involving any personal risk or without suitable training. In case of inadequate ventilation, use respiratory protection.

Environmental precautions:
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Prevent from entering into soil, ditches, sanitary sewers, waterways and/or groundwater.

Methods and material for containment and cleaning up:
Refer to attached safety data sheets and/or instructions for use. Stop leak if you can do so without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapours or divert vapour cloud drift. Isolate area until gas has dispersed. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc.) away from spilled material. The product is immiscible with water and will spread on the water surface. Prevent product from entering drains. For waste disposal, see section 13 of the safety data sheet. Ventilate well, stop flow of gas or liquid if possible. Immediately contact emergency personnel.

Section 7. Handling and storage

Precautions in Handling:

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. All equipment used when handling the product must be grounded. Use only with adequate ventilation. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Purge air from system before introducing gas. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Do not breathe gas. Do not get in eyes, on skin, on clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices. Eliminate sources of ignition. Avoid spark promoters. These alone may be insufficient to remove static electricity. Wear appropriate personal protective equipment (See Section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Oxygen concentration should not fall below 19.5% at sea level (pO_2 = 135 mmHg).

Precautions in Storage:

Keep away from heat, sparks and open flame. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a cool, dry and ventilated place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Stored containers should be periodically checked for general condition and leakage. Store away from incompatible materials (see section 10 of the safety data sheet). Store in accordance with local, regional, national, and international regulations. Keep container tightly closed and sealed until ready for use. Protect cylinders from damage.

Section 8. Exposure Controls, Personal Protections

Control parameters:

Component	CAS	Value	Control parameters	Basis
Propane	74-98-6	TWA	1000 ppm	Canada - Alberta
		TWA	1000 ppm	Canada - British Columbia
		TWA	1000 ppm	Canada - Ontario
		TWA	1000 ppm	Canada - Québec
		TWA	1800 mg/m^3	Canada - Québec
		PEL	1000 ppm	USA - OSHA
		PEL	1800 mg/m^3	USA - OSHA
Propylene	115-07-1	TWA	500 ppm	USA - ACGIH
Isobutane	75-28-5	STEL	1000 ppm	USA - ACGIH
n-Butane	106-97-8	STEL	1000 ppm	USA - ACGIH
		TWA	1000 ppm	Canada - Alberta
		STEL	750 ppm	Canada - British Columbia
		TWA	600 ppm	Canada - British Columbia
		STEL	1000 ppm	Canada - Manitoba
		TWA	800 ppm	Canada - Ontario
		TWA	1900 mg/m^3	Canada - Québec
		TWA	800 ppm	Canada - Québec

Engineering controls:
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. The engineering controls also need to keep gas, vapor, or dust concentrations below any lower explosive limits. Oxygen concentration should not fall below 19.5% at sea level (pO_2 = 135mmHg).

Personal protective equipment:

Eyes: Wear safety glasses with side shields (or goggles).

Skin/body: Wear protective clothing appropriate for the risk of exposure. Wear appropriate thermal protective clothing, when necessary.

Respiratory: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Hands: Wear appropriate chemical resistant gloves.

Other: 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. Do not eat, drink or smoke when using the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

Section 9. Physical and chemical properties

Physical state: Gas

Color: Colourless

Odor: Faint. May have gas odorant added (ethylmercaptan).

Melting point/Freezing point: From -187.6°C / -305.68°F to -190°C / -310°F

Boiling point: -42°C / -43.6°F

Appearance: Liquefied gas

Lower explosion limit: 2.1 %

Upper explosion limit: 9.5 %

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

Auto-ignition temperature: 287°C / 548.6°F

Decomposition temperature: 650°C / 1202°F

pH: Data not available

Solubility: Insoluble

Partition in coefficient n-octanol/water: 1.09

Vapor pressure: 200 - 215 psi

Density: 0.5 - 0.51 (15.56 °C (60 °F))

Relative vapor density: 1.6 (37.8 °C (100.04 °F))

Section 10. Stability and reactivity

Chemical reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Stable under normal temperature conditions and recommended use.

Possibility of hazardous reactions: Hazardous polymerisation does not occur.

Conditions to avoid: Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the decomposition temperature. Avoid temperatures exceeding the flash point. Avoid contact with incompatible materials. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Incompatible materials: Acids. Strong oxidising agents. Oxidizing agents. Reducing Agents. Nitrates. Fluorine. Chlorine. Alkalis.

Hazardous decomposition products: No hazardous decomposition products are known.

Section 11. Toxicological information

Acute toxicity:

Component	CAS	Value
n-Butane	106-97-8	CL_{50} Inhalation: Mouse = 202000 ppm - 4h

Skin corrosion/irritation:
Not applicable

Serious eye damage/irritation:
Not applicable

Respiratory or skin sensitisation:
Not applicable

Germ cell mutagenicity:
Not applicable

Carcinogenicity:
Not applicable

Reproductive toxicity:
Not applicable

STOT- Single exposure:
Not applicable

STOT- repeated exposure:
Not applicable

Aspiration hazard:
Not applicable

Information on likely route of exposure:
Skin, eyes, inhalation and ingestion.

Section 12. Ecological information

Ecological data for aquatic environments:
None

Persistence and degradability:
Data not available

Bioaccumulative potential:
Data not available

Mobility in soil:
Data not available

Other adverse effects:
The product contains volatile organic compounds which have a photochemical ozone creation potential.

Section 13. Disposal considerations

Waste disposal:
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. Empty containers may contain product residues. Do not puncture or incinerate even when empty. This material and/or its container must be disposed of as hazardous waste. Return the empty cylinder to the supplier. Dispose in accordance with all applicable regulations. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14. Transportation information

TDG		
UN #: UN1075	**Proper shipping name:** LIQUEFIED PETROLEUM GASES	
Class: 2.1	**Packing group:** N/A	

DOT		
UN #: UN1075	**Proper shipping name:** LIQUEFIED PETROLEUM GASES	
Class: 2.1	**Packing group:** N/A	

IMDG			
UN #: UN1075	**Proper shipping name:** LIQUEFIED PETROLEUM GASES		
Class: 2.1	**Packing group:** N/A	**EMS-No:** F-D, S-U	
Marine pollutant: No		**Poison Inhalation Hazard: No**	

IATA		
UN #: UN1075	**Proper shipping name:** LIQUEFIED PETROLEUM GASES	
Class: 2.1	**Packing group:** N/A	

Section 15. Regulatory information

NFPA Classification:

Health ◆: 2
Flammable ◆: 4
Stability ◆: 0
Special hazards ◇: 0

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

General product information:
Canada: This product has been classified in accordance with the hazard criteria of the hazard product regulations and the safety data sheet contains all the information required by the hazard product regulations.

Section 16. Additional information

Date of issue:
2021-09-15

Version:
1.00

Elaborated by:
Toxyscan Inc.

Notice to reader:
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MATEX CONTROL CHEMICAL

Safety Data Sheet

DD2000

SECTION 1. IDENTIFICATION

Product Identifier	DD2000
Recommended Use	DRILLING ADDITIVE - FORAGE ADDITIF - PERFORACIÓN ADITIVO.
Manufacturer	Control Chemical (1989) Corporation, 7016 30 Street S.E., Calgary, AB, T2C 1N9, 403-720-7044, www.matexdrillingfluids.ca
Emergency Phone No.	Control Chemical (1989) Corporation, 403-720-7044, 24 Hours
SDS No.	0016
Date of Preparation	December 03, 2020

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Contains no hazardous ingredients.

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Move to fresh air. Keep at rest in a position comfortable for breathing. Get medical advice or attention if you feel unwell or are concerned.

Skin Contact

Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes. Get medical advice or attention if you feel unwell or are concerned.

Eye Contact

Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical advice or attention.

Ingestion

Rinse mouth with water. Do not induce vomiting. Get medical advice or attention if you feel unwell or are concerned. Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing.

Most Important Symptoms and Effects, Acute and Delayed

If in eyes: may cause slight irritation as a "foreign object". Tearing, blinking and mild temporary pain may occur as particles are rinsed from the eye by tears.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Not combustible. Use extinguishing agent suitable for surrounding fire.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

Does not burn. Forms slippery compound when mixed with water.

Special Protective Equipment and Precautions for Fire-fighters

The use of self-contained breathing apparatus is recommended for fire fighters.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Ensure area is well ventilated. If ventilation is inadequte, wear NIOSH-appproved respiratory protection. Wear rubber gloves and boots when cleaning up material.

Environmental Precautions

Do not allow product to enter sewers, drains, waterways, or confined spaces.

Methods and Materials for Containment and Cleaning Up

Avoid creating or breathing dust. Use appropriate tools to put the spilled solid in a convenient waste disposal container. After cleaning, flush away traces with water, wet product may create a slipping hazard. Collect washing for disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

It is good practice to: avoid breathing product; avoid skin and eye contact and wash hands after handling. Wear personal protective equipment to avoid direct contact with product. Caution: water contact with product will cause slippery conditions.

Conditions for Safe Storage

Store in a tightly sealed container. Keep containers tightly closed when not in use or when empty. Store in a cool, dry, well ventilated area. Keep separate from incompatible materials (see section 10).

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Not available.

Appropriate Engineering Controls

General ventilation is usually adequate.

Individual Protection Measures

Eye/Face Protection

Not required but it is good practice to wear safety glasses or chemical safety goggles.

Skin Protection

Wear chemical resistant gloves. Wear clothing as required to protect against contact.

Respiratory Protection

If vapour or dusts are present, use a NIOSH-approved air-purifying respirator as needed.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Odour	Odourless
Odour Threshold	Not available
pH	3 - 5 (0.5% solution)
Melting Point/Freezing Point	Not available (melting); Not available (freezing)
Boiling Range	Not available

Flash Point	> 93.3 ºC (199.9 ºF)
Evaporation Rate	Not available
Flammability (solid, gas)	Will not burn.
Upper/Lower Flammability or Explosive Limit	Not available (upper); Not available (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	Not available
Relative Density (water = 1)	~ 0.75
Solubility	Soluble in water
Partition Coefficient, n-Octanol/Water (Log Kow)	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Viscosity	Not available (kinematic)

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None known.

Conditions to Avoid

Generation of dust.

Incompatible Materials

Strong oxidizing agents (e.g. perchloric acid).

Hazardous Decomposition Products

Oxides of Carbon oxides of Nitrogen.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity

LC50 (Inhalation)

No information was located.

LD50 (Oral)

No information was located.

LD50 (Dermal)

No information was located.

Skin Corrosion/Irritation

Not a skin irritant. May cause mechanical irritation.

Serious Eye Damage/Irritation

Not an eye irritant. May cause slight irritation as a "foreign object". Tearing, blinking and mild temporary pain may occur as particles are rinsed from the eye by tears.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

Not harmful Can be slightly irritating to the respiratory system.

Ingestion

Not harmful.

Respiratory and/or Skin Sensitization

Not a respiratory sensitizer. Not a skin sensitizer.

Carcinogenicity

Not specifically evaluated.

Reproductive Toxicity

Development of Offspring

No information was located.

Sexual Function and Fertility

No information was located.

Germ Cell Mutagenicity

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

Environmental information was not located.

Ecotoxicity

No long term effects.

Persistence and Degradability

No information was located.

Bioaccumulative Potential

No information was located.

Mobility in Soil

Studies are not available.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of in accordance with all applicable Federal/Provincial and Local regulations.

SECTION 14. TRANSPORT INFORMATION

Not regulated under Canadian TDG regulations. Not regulated under US DOT Regulations. Not regulated under IATA Regulations.

Special Precautions Not applicable

Transport in Bulk according to International Maritime Organization Instruments

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

All intentional components of this product are either on the DSL, the confidential DSL or notifications / import restrictions are in place.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

SDS Prepared By	Control Chemical (1989) Corporation
Phone No.	403-720-7044
Date of Preparation	December 03, 2020
Revision Indicators	SECTION 14. TRANSPORT INFORMATION; Shipping Information.
Disclaimer	To the best of our knowledge the information contained herein is accurate. However neither the above named supplier, nor any of it's subsiduaries assumes any liability whatsoever for the accuracy or completeness of the information containerd herein

Appendix “D”

Storage Data Stick Marked SDS

Appendix “E”

Nunavut Spill Response Report Form

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 ☐ LA ☐ 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 _____

PEREGRINE DIAMONDS LTD. SPILL REPORT
SUPPLEMENTAL QUESTIONNAIRE
DATE:

PART I: What events lead up to the incident?

PART II: What Mitigation Measures were taken?

PART III: What are the planned preventative measures to avoid future similar incidents?

PART IV: What is the planned disposal method and chain of custody?
(**Include:** 1)*Who handled it, 2) Where it was stored, 3) How it was shipped and 4) All bills of lading*)

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**.