Spill Contingency Plan

Inuvialuit Settlement Region, Well Abandonment Program for Langley K-30, Langley E-07, Kumak I-25

Date:
December 2025

Prepared for:
MGM Energy

Project/File:
123515667

Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

MGM Energy (MGM), a wholly owned subsidiary of Paramount Resources Ltd (Paramount), operates 11 wells in the outer Mackenzie Delta, Northwest Territories (NWT). MGM's wells within the region have not produced and are either in a suspended state or abandoned. These wells have been monitored since 2009, and MGM will be abandoning three of these wells: Langley K-30 (K-30), Langley E-07 (E-07), and Kumak I-25 (I-25) (the Program).

The objective of this Spill Contingency Plan (SCP) is to provide protocols for spill prevention training, reporting, and response to reduce potential effects of accidental spills that may occur during the abandonment activities of these wells. This plan is provided in support of MGM's Water License application to abandon of the three wells, K-30, E-07, and I-25, and to construct supporting infrastructure for the abandonment activities, including an ice road and barge landing, if required. Should a spill occur during the completion of MGM's Program, Spill Response Procedures (Section 3.1) will be initiated.

1.1 Contact Information

The MGM and Paramount emergency contact line is 1-866-362-1138.

Contact names and addresses for the Program are provided in Table 1.1.

Table 1.1 Contact Names and Addresses

Main Program Contact		**Alternate Program Contact**	
Name:	Terrence Hughes	Name:	Ian Keir
Address:	Suite 4700, 888 3rd Street SW Calgary Alberta T2P 5C5	Address:	Suite 4700, 888 3rd Street SW Calgary Alberta T2P 5C5
Phone: 403-206-3859 Email: terence.hughes@paramountres.com Website: www.paramountres.com		Contact information provided upon request Website: www.paramountres.com	

1.2 Company Background

Paramount is a leading, independent Canadian energy company that is focused on responsibly developing its world-class portfolio of diverse resource plays while consistently building value for shareholders. Paramount explores for, develops, produces and markets natural gas, oil and natural gas liquids in Alberta, British Columbia, Saskatchewan and the Northwest Territories.

Paramount/MGM conducts their business in a manner that complies with Paramount's Health, Safety and Environment Policy (Appendix A). The policy outlines the four main commitments of Paramount:

- Worker Health and Safety
- Environmental Protection

- Regulatory Compliance
- Continuous Improvement

1.3 Program Overview

Monitoring of K-30 has documented active shoreline erosion along the western shoreline averaging at a rate of 6 m/year (Kavik-Stantec 2017). Given the observed shoreline erosion rate, the well is at risk of exposure within the next 10 years. Consequently, MGM has decided to abandon this well and subsequently identified two additional wells (E-07 and I-25) for potential abandonment due to their proximity to K-30.

MGM anticipates carrying out abandonment of K-30 between 2026 and 2031, and the remaining two wells in that same timeframe or in subsequent years. The Program activities will include the wellsite abandonment, and construction ice roads and barge, if required. The following Program activities will be carried out each year of construction and abandonment activities for K-30 and subsequent years for E-07 and I-25:

- Barge Mobilization: July to October (if required).
- Ice road/ice pad construction and maintenance: November to April.
- Abandonment activities: December to April.
- Demobilization (ice roads): Up until ice roads remain open ,approximately late April.
- Demobilization (barges): when ice road conditions are no longer safe for travel after spring break-up(approximately early July(if required).
- Monitoring: July to August.

A Project Description has been submitted for screening to the Environmental Impact Screening Committee under the terms of the Inuvialuit Final Agreement, and is available upon request for further details on the Program.

1.4 Plan Goals and Objectives

The objective of the Spill Contingency Plan (SCP) is to provide protocols for spill prevention training, reporting, and response to reduce the potential effects of spills that may occur on site during the life of the Program. The SCP addresses planning and response procedures which will reduce the following effects from spills:

- Danger to persons
- Pollution of land and water
- Size of the affected area
- Degree of disturbance to plants, fish, and animals
- Degree of disturbance to infrastructure and assets
- Degree of disturbance during cleanup

The SCP:

- Identifies materials that may be handled on site and may result in a spill.
- Identifies the locations of hazardous materials and waste storage areas, hazardous materials of use, and spill kits.
- Provides procedures for spill cleanup, containment, disposal, and monitoring, including identification of project personnel who will have responsibilities in the event of a spill.
- Describes communication protocols to notify authorities, stakeholders, First Nations, and communities in the event of a spill.
- Outlines training that will be implemented so personnel understand the type and extent of spills and how to appropriately respond.
- Describes best management practices for spill prevention.

This plan has been updated based on the direction from the Inuvialuit Water Board guidance provided on September 28, 2023 and to be compliant with the Guidelines for Spill Contingency Planning (INAC 2007). Revisions to the Spill Contingency Plan may be made, as needed, to adapt and incorporate changes related to environmental factors, Project-specific changes during construction, experiences, and policy updates.

1.5 Effective Date

This SCP is effective upon commencement of Program construction.

1.6 Distribution List

This plan and the most recent revisions, as they become available, will be distributed to the following:

Table 1.2 Distribution List

Organization	Date Distributed
Inuvialuit Water Board (IWB)	Q1 2026
Inuvialuit Land Administration	Q1 2026
Government of Northwest Territories (GNWT) – Environment and Climate Change (ECC)	Q1 2026

A copy of this plan will be provided to emergency responders, and the contents will be communicated to the employees and contractors upon arrival to the site and during orientation. Copies of the SCP will be kept at the following locations:

- Project Office
- Safety Office
- Environmental Manager's Office
- First Aid locations

- Common areas
- Corporate Offices

Employees and contractors will be provided the SCP and made aware of its location on the Program site. If additional copies of this plan are needed, the individuals listed in Section 1.1 can be contacted to obtain the most recent version.

2 Project Location

The wellsites are located within the outer Mackenzie Delta of the Inuvialuit Settlement Region (ISR). The K-30 well is located on the northern tip of Langley Island, E-07 is located approximately 6 km south of K-30, and I-25 is located approximately 20 km southeast of E-07. Program activities will take place on Crown land with the exception of a barge landing, ice road and camp site(s), which are on Inuvialuit Private Lands designated as Class7(1)(a) lands. Within proximity to K-30 is Significant Discovery Licence (SDL) 134 and 135, which are held by MGM. I-25 is located within the Kendall Island Migratory Bird Sanctuary (part of the Mackenzie River Delta Important Bird Area). Detailed site and access maps along with an overview map can be found in Appendix B.

Distances from the locations to the nearest communities is outlined in Table 2.1 below.

Table 2.1 Approximate Distances of the Program Wells from Inuvik, Aklavik and Tuktoyaktuk

Well	Latitude	Longitude	Distance from Inuvik (km)	Distance from Aklavik (km)	Distance from Tuktoyaktuk (km)
Langley K-30	69.323530°	-135.610909°	131	126	102
Langley E-07	69.271768°	-135.534208°	125	120	100
Kumak I-25	69.243447°	-135.079542°	112	115	84

3 Spill Response

Section 3.1 identifies types of hazardous materials that will be on site and potential spill scenarios. General and specific spill response procedures and equipment are included in Section 3.2 and 3.3, respectively. Section 3.4 outlines containment and cleanup procedures and Section 3.5 outlines reporting and notification requirements.

3.1 Potential Spill Scenarios

A total of 377,000 L of diesel fuel is anticipated to be used for the Program, if the three wellsites are abandoned within one year. Additionally, 2,000 L of jet fuel, 1,000 L of propane, and 2,500 L of gasoline is anticipated to be required. The Program also anticipates storing fuel on the barge landing sites, if utilized, which will have the capacity to hold up to 377, 000 L of diesel and 500, 000 L of jet fuel. Table 3.1 provides a list of hazardous materials that will be stored on site. The Material Safety Data Sheets (MSDS) for the chemicals and fluids that could potentially be on site can be found in Appendix C.

Table 3.1 List of Hazardous Materials, Quantities, and Location on Site

Material	Storage Method	Total Fuel Volume (L)	Average Quantity on Site (L)	Maximum Quantity on Site (L)	Storage Location
Diesel fuel	15,000 L to 20,000 L double walled tank depending on location. 377,000 L barge for overall program use.	377,000	12,500	40,000	Barge landing, staging sites, wellsites, camp, and rig
Gasoline	10,000 L double walled tank or 45 gallon drums depending on location	2,500	2,500	10,000	Staging area, wellsites and camp
Hydraulic oil	20 L containers on individual service trucks	125	100	125	Service trucks
Propane*	3875 L propane tank	7,500	N/A	N/A	Staging area and camp
Jet Fuel	100, 000 L double walled Envirotanks	2,000	To be determined	To be determined	Staging area and wellsites
Methanol	Two tote tanks	N/A	2,000	2,000	Staging area and wellsites
Greywater/ Sewage	Two to five 400 barrel heated tanks	N/A	To be determined	To be determined	Sleigh camps, wellsites, barge

Note:

* Propane is anticipated to be only used at the camp and not at the wellsites

Spills can potentially occur during construction and abandonment activities and will usually involve snow covered conditions. The likely spill scenarios include:

- Fuel storage tank failure
- Sewage and greywater storage tank failure
- Vehicle fluid (i.e., hydraulic fluid, fuel, anti-freeze, radiator fluid, or other liquid) tank failure
- Cement slurry returns
- Camp related spills including sewage and grey water
- Spills related to transfer of hazardous material (i.e., fuel, sewage, greywater)
- Hydrogen sulphide or high vapour pressure gas releases

Hazardous materials such as diesel, propane, and sewage may be harmful to human health, wildlife, and aquatic life, if released. Fuels are not biodegradable, and can be volatile and flammable, and these substances can bioaccumulate in the environment. Sewage, if released, can cause harm to human life and wildlife by causing illness, however it is unlikely that it will affect aquatic life or bioaccumulate if released.

The worst-case scenario of a spill is determined by the maximum volume of material on site at a given moment and would likely be a puncture of the largest fuel storage container releasing the maximum amount of fuel stored. If utilized, the largest quantity of material stored for the Program that is likely to result in a spill is at the barge (377,000 L) or a 20, 000L fuel storage tank at various other Program locations (Table 3.1). This scenario could cause harm if released into waterways, resulting in illness or death to aquatic life, and could indirectly affect wildlife feeding from the land and water. Fuel storage containers will be located within berms and dikes to contain spills. Wellsites and pads will also be constructed with berms surrounding the area to contain spills that may occur. Section 4 provides additional information on spill prevention measures. Appendix B of this plan contains maps of the Program, including the access, wellsites and barging locations. Equipment will be staged and operated to, from, and at these locations. Back up equipment, if required, would be mobilized from the spill co-op locations in Inuvik and/or from the barge location. Potential accidental spills could occur at these locations as a result of the above listed scenarios. Updated locations of staging, location of spill response equipment, and waste containers will be provided in an updated version of the Spill Contingency Plan prior to construction.

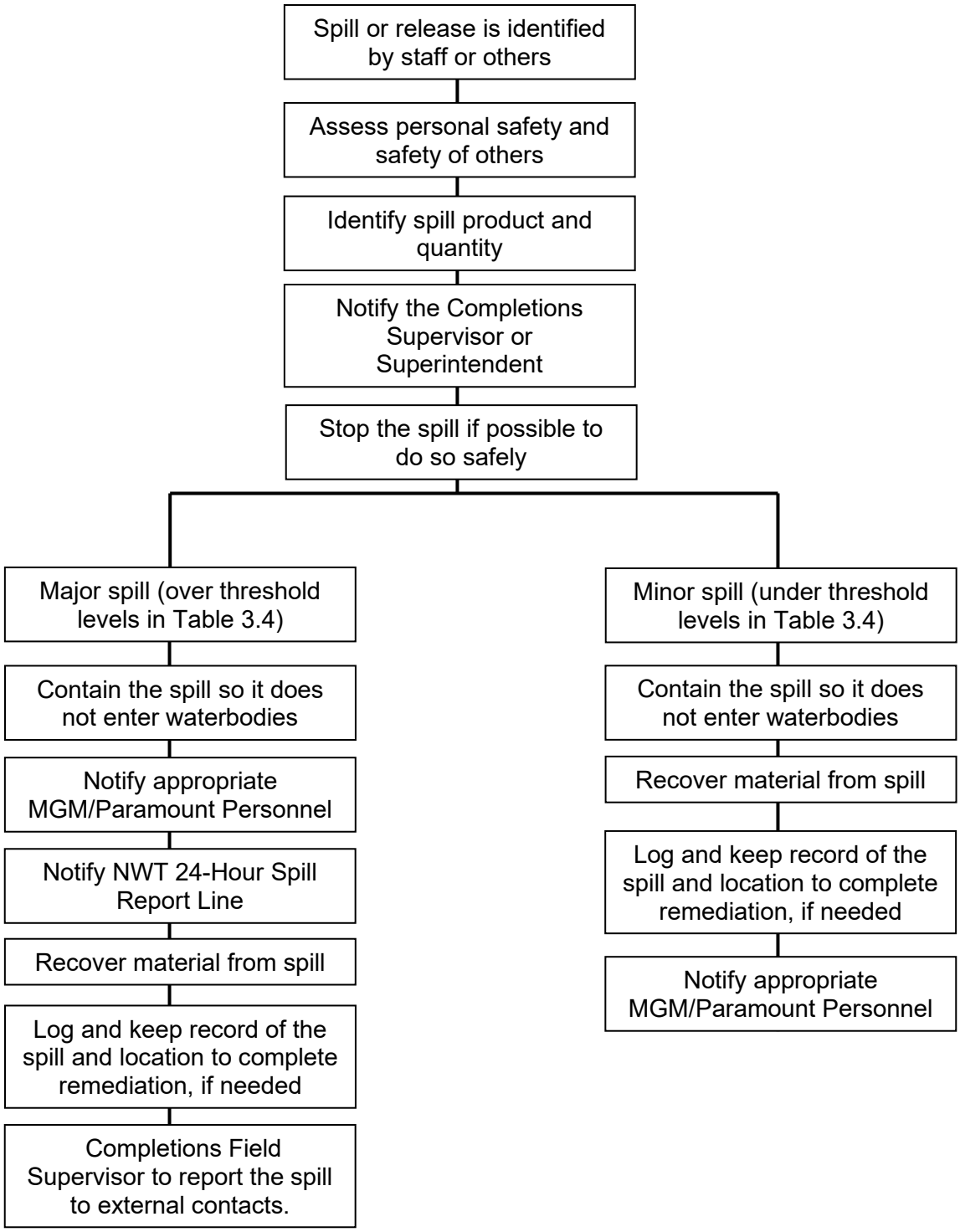
3.2 General Spill Response Procedures

Each spill situation will be different, depending on the nature, location, and cause of the incident. The immediate priority in the event of a spill is the safety of the personnel in the immediate vicinity and then reducing and addressing the potential effects of the environment from the spill. Spills triggering the spill response procedures are not limited to hazardous materials/waste but also include the accidental release of sewage waste (grey and black water), anti-freeze, and other non-hazardous chemicals. The potential size of spills is limited to the maximum fuel storage size and use. Spills related to the Program could occur on land, ice, or snow and the general spill response procedures can be followed. If a spill occurs in or nearby a waterbody, general procedures should be followed with specific consideration provided in Section 3.3.

The general procedures for spill response are listed below and illustrated in Figure 3.1:

1. Hazard Assessment
    - Resist rushing into the area of the spill.
    - Approach the spill cautiously from upwind, uphill, or upstream.
        - Stay clear of vapor, fumes, smoke, and spills
        - Keep the vehicle at a safe distance from the spill
        - Isolate the area and protect yourself and others
    - Identify hazards using container labels, shipping documents, identification chards, and MSDSs (Appendix C).
    - If the nature of the spill cannot be determined, assume it is dangerous.
    - If the substance is flammable, remove ignition sources using appropriate personal protective equipment (PPE).
    - Assess the situation for:
        - Other hazards (e.g., fire, spill, leak)
        - Weather conditions (e.g., wind)
        - Terrain (e.g., slope, water sources)
        - Potential risks (e.g., people, property, environment)
        - Actions needed (e.g., evacuation, shelter-in-place, dike
        - Resources needed (e.g., human and equipment)
2. Administer First Aid
    - If the spill has resulted in injuries, and it is safe to do so, first aid should be administered as per the MSDS (Appendix C). Call for emergency assistance if necessary.
3. Stop the source of the spill, if possible
    - If it is safe to do so, turn off values, pumps, or plug holes to stop or reduce the flow of the spill.
    - Assess speed and direction of the spill and cause of movement (e.g., water, wind, slope).
4. Notify Supervisor
    - Provide basic information on the spill, including Who, What, Where, When, and How.
5. Secure the Area
    - Take steps to limit access to the spill area and prevent unauthorized entry.
6. Contain the Release
    - Limit the extent of the spill, if possible, through spill response equipment located in the spill kits (e.g., pads, socks, granular material).
7. Clean up the Spill
    - Clean up and restore the affected area.
8. Report the Spill
    - Document the spill and response activities on the Spill Report Form (Appendix D) to understand the events that caused the spill and the appropriate corrective actions needed to prevent further spills from occurring. This may include modifying site procedures or additional personnel training.

Figure 3.1 Spill Response Flow Chart



3.3 Specific Spill Response Procedures

Table 3.2 describes the spill prevention and initial responses that will occur for the likely spill scenarios.

Table 3.2 Spill Prevention and Response

Potential Spill Scenario	Primary Preventative Measures	Secondary Preventative Measures	Primary Response	Secondary Responses and Follow Up
Vehicle fluid spill (e.g., transmission fluid, gasoline, diesel fuel, sewage)	Proper maintenance and repair of identified and known equipment or vehicle concerns. Proper procedures for refueling vehicles.	Drip tray and spill response equipment located in vehicles and nearby work areas.	Spill response equipment located in vehicles and nearby work areas.	Hydrovac trucks and heavy equipment (e.g., excavators) to remove contaminated material (e.g., snow, soil).
Tank failure (e.g., gasoline, diesel fuel)	Tanks are equipped with double walls to limit risk of tank failure. Proper maintenance and repair of fuel tanks, if issues are identified. High level shutdowns of equipment, when required.	Use of berms and dykes to contain foreseeable spills.	Spill response equipment located in vehicles and nearby work areas.	Hydrovac trucks and heavy equipment (e.g., excavators) to remove contaminated material (e.g., snow, soil).
Camp related spills (e.g., grey and black water)	Proper maintenance and repair of identified or known issues. Proper procedures for handling hazardous materials will be followed.	Use of berms and dykes to contain foreseeable spills.	Spill response equipment located in vehicles and nearby work areas.	Hydrovac trucks and heavy equipment (e.g., excavators) to remove contaminated material (e.g., snow, soil).
Spills located on or nearby waterbodies	Proper maintenance and repair of identified or known issues. Proper procedures for handling hazardous materials will be followed.	Use of berms and dykes to contain foreseeable spills.	Take into consideration the characteristics of the waterway, including shoreline sensitivity, width, depth, and velocity. Contain the spill to the release point, as possible.	Use a containment boom around the spill, if possible. Use sorbent pads in calm waters, if possible.

In the event of a high vapour pressure leak, refer to Table 3.2 for response procedures.

3.4 Containment and Cleanup of Spills

MGM is an active member of the Mackenzie Delta Spill corporation and has access to the six shipping containers stored and maintained in Inuvik. The equipment in these containers would be used to respond to potential spills that would occur. A detailed list of the equipment included in the spill kits, locations of spill kits, and other spill response equipment available on site will be provided prior to construction start. Summary of the equipment in the Mackenzie Delta Spill containers are include below, and a detailed list is provided in Appendix E:

- Electrical equipment and generators (extension cords, gasoline generators, lights)
- Fuel, gasoline, and additives (e.g., anti-freeze solution)
- Ice equipment (e.g., ice auger, chain saw, ice block lifter T-bar, saw sleigh)
- Sorbents (e.g., pads, socks, pillows)
- Safety equipment (e.g., air horn, emergency kit, fire extinguisher)
- Miscellaneous spill equipment (e.g., shovel, bags, scrapers)

The safety of personnel on site after a spill has been identified is the priority, and spill measures will only be implemented once it is safe to do so. The spill response procedures and equipment for general spills, in addition to the steps discussed in Sections 3.2 and 3.3, are:

- Place a drip tray under the spill source to prevent fluids from hitting the ground or water.
- Use absorbent pads, socks, or soil as a barrier to prevent the spill from migrating to other areas, and use a soil berm to limit spill run off into waterbodies.
- Use shovel and pads to absorb the fluid and the impacted soils. Waste materials, including impacted soils, should be disposed in the bags and barrel.

Containment and clean-up will be similar when on ice surfaces, but snow would be available to use to create berms to control runoff and can be used as an absorbent material. The impacted snow/ice should be collected and disposed of in the spill-kit bag and appropriate barrel. Diesel-fired evaporators will be used to reduce the volume of contaminated snow and ice, prior to disposal.

The contaminated materials, including the contaminated soil, snow, or ice, used pads and gloves, will be packed in the spill kit bags/barrels and stored into a certified overpack container used for the transportation of dangerous goods, until the materials can be disposed of at the appropriate facility. Further details on the disposal of hazardous materials from spills are described in the Waste Management Plan, submitted with the Water License Application for the Program.

The key external emergency contacts to support spill response are listed below in Table 3.3. These contacts will be updated periodically as needed.

Table 3.3 External Emergency Contact List

Resource	Contact	Phone Number
Paramount Emergency Contact	N/A	1-866-362-1138
NWT 24-Hour Spill Line	N/A	1-867-920-8130
Inuvik Regional Hospital	Non-Emergency Line	1-867-678-8000
Inuvik Public Health	Non-Emergency Line	1-867-777-7246
Inuvik RCMP Detachment	Non-Emergency Line	1-867-669-1111
Environment and Climate Change Canada	Prairies and Northern Region	1-800-222-6514
Fisheries and Oceans Canada (Inuvik)	Manager	1-867-777-7520
GNWT Environment and Climate Change	ECC Renewable Resources Officer	1-866-762-2437
Canadian Coast Guard 24-Hour Spill Reporting Line for Aquatic Waters	N/A	1-800-565-1633
NWT Environmental Health Officer	Manager	1-867-767-9066
NWT Tele-Care Health Line	N/A	1-888-255-1010
NWT Forest Fire Operations	N/A	1-833-NWT-FIRE (698-3473)

3.5 Spill Response Reporting

If there is an immediately reportable spill that is a human health or environmental hazard, or exceeds volumes outlined in Table 3.4, the spill is reported to the NWT 24-Hour Spill Report Line at 1-867-920-8130 and to the Inuvialuit Land Administration. Detailed reporting thresholds and procedures are included in Appendix D. Minor spills that are not considered to be immediately reportable will be tracked and documented.

Table 3.4 outlines the threshold volumes for spills to be considered immediately reportable for hazardous materials that will be on site. The MSDSs for these materials are in Appendix C.

Table 3.4 Immediately Reportable Spill Thresholds for Hazardous Materials

Material	TDGA Class	TDG Reporting Threshold	OROGO/ECC Reporting Threshold
Diesel fuel	3 – Flammable Liquids	> 30 L or 30 kg of Packing Group III	> 100 L
Hydraulic oil	Spilled Liquid Substances	No Reporting Requirements	Reporting required when spill releases on a frozen water body that is being used as a working surface.
Propane	2 – Gases	Any quantity	Any amount of gas from containers with a capacity greater than 100 L
Methanol	3 – Flammable Liquids	Any quantity of Packing Group I or II > 30 L or 30 kg of Packing Group III	> 100 L

The MGM personnel that will be available on site to identify, report, and respond to spills include the following:

- Paramount's Construction or Completions (abandonment and suspension operations) Supervisor
- Construction crews consist of equipment operators
- Rig Crews Medical Attendant
- Camp Staff and attendants
- Ancillary service personnel on standby (including truck drivers)
- Water Truck Driver
- Vacuum Truck Operator
- Wildlife and Environmental Monitors

The Completions Field Supervisor and other Project personnel will be equipped with a satellite phone or radio communications to report spills and contact emergency response personnel in the event of a spill.

The MGM/Paramount resources provided in Table 3.5 can also be contacted for response and support during spill procedures. Contact information for MGM/Paramount personnel will be provided to IWB.

Table 3.5 Internal Resources

Title	Name	Contact[1]	Responsibilities
Completions Field Supervisor	Dusty Schneider		Implementation of the SCP
Completions Superintendent	Corey Thomson		Implementation of the SCP
Road and Bridge Maintenance Supervisor	Dale Simmons		Implementation of the SCP
Construction Supervisor	Boyd Stewart		Implementation of the SCP
Director, HSE	Paul Torraville		Oversee the HSE Personnel and confirm the SCP is implemented as required
Manager, Health and Safety	Shawn Bymoen		Oversees compliance with Health and Safety policies and regulations
Director, Asset Management	John Hawkins		Oversees the performance and lifecycle of the wellsite(s) and associated infrastructure
Environmental Coordinator	Ian Keir		Maintenance of the SCP
Vice President, Drilling and Completions	Andre Poitras		Implementation of the SCP
Vice President	John Williams		Oversee the Environmental Coordinator and Managers of Departments to confirm that the SCP is being implemented as required, and addressing issues if not.
Regulatory and Community Affairs Advisor	Terence Hughes		Oversees the compliance of the Program with regulatory and permitting requirements
Senior Safety Representative	George Ferguson		Oversee the Emergency Management Response and confirm the SCP is implemented as required
Onsite HSE Advisor	TBD		On-site implementation of the SCP

Note:
[1] Project contact information is redacted and can be provided upon request

3.5.1 Notification

Spills that occur, regardless of the size, will be immediately reported to the Completions Field Supervisor upon discovery of the spill. If the spill meets the reportable spill quantities (Table 3.4), the Completions Field Supervisor will report the spill to NWT 24-Hour Spill Report Line. The following information should be provided to the NWT 24-Hour Spill Report Line:

- Name
- Phone Number
- Product spilled
- Quantity spilled
- Quality of product (e.g., thin, veiled, viscous)
- Location of spill
- Distance to water
- Distance to drinking water wells
- What happened
- Responsible party
- Actions to contain the spill

The Spill Report form provided in Appendix D will also be filled out and provided to the Completions Field Supervisor.

The Completions Field Supervisor will provide notification to the external contacts provided in Table 3.6, if applicable, based on the extent of the spill. A summary of reportable spills and type of reporting required is included in Table 3.6, and a detailed list is provided in Appendix D.

Table 3.6 External Reporting Contact List

Resource[1]	Reportable Spills	Contact
NWT 24-Hour Spill Report Line	Spills that meet the reportable spill volumes outlined in Table 3.4 must be reported to the NWT 24-Hour Spill Report Line.	1-867-920-8130
Office of the Regulator of Oil and Gas Operations	Incidents and near misses must be called in. An investigation report must be submitted within 21 days of the incident/near miss, if it involves a death, injury that required time off work, fire or explosion, leak, immediate threat to safety, or significant pollution event.	1-867-445-8551
NWT Department of Environment and Climate Change	Releases need to be reported of any size if they are near or in an open body of water, near or in a sensitive environment or habitat, pose an imminent threat to human health or safety, or pose an imminent threat to a listed species at risk or its critical habitat. Substances regulated by the ECC if the release meets or exceeds the reporting threshold (Table 3.4).	Fill out the Spill Form in Appendix D and send it to: Fax: 867-873-6924 Email: spills@gov.nt.ca

Resource[1]	Reportable Spills	Contact
Transportation of Dangerous Goods (TDS)	Releases reported to TDS if a release is anticipated, meets or exceeds the reporting threshold in the TDG Reporting Requirements (Table 3.4).	403-873-7406 (Yellowknife) OR 911
Canadian Transport Emergency Centre (CANTEC)	Report loss and theft for all dangerous goods materials to CANUTEC. Loss or theft of Class 1 explosive materials to be reported to Natural Resources Canada (NRCan) Inspector. Loss or theft of Class 7 radioactive materials to be reported to Canadian Nuclear Safety Commission.	CANUTEC: 1-888-26-8832 OR 1-613-996-6666 NRCan Inspector: 1-613-995-5555 Canadian Nuclear Safety Commission: 1-613-995-0479
Department of Fisheries and Oceans (DFO)	A release of substances deleterious to fish into a fish bearing waterbody.	1-867-777-7500 (Inuvik) 1-867-669-4900 (Yellowknife)
Canada Energy Regulator	Immediately report spills that may harm people or the environment, are a rupture, or a toxic plume, per CER Event Reporting Guidelines (2024).	NEB Online Event Reporting System Canada Energy Regulator - Event Reporting - Welcome
Aklavik Community Corporation	Spills that meet reportable spill volumes outlined in Table 3.4 will be reported.	867-978-2414
Aklavik Hunters and Trappers Committee	Spills that meet reportable spill volumes outlined in Table 3.4 will be reported.	867-978-2723
Inuvik Community Corporation	Spills that meet reportable spill volumes outlined in Table 3.4 will be reported.	867-777-2603
Inuvik Hunters and Trappers Committee	Spills that meet reportable spill volumes outlined in Table 3.4 will be reported.	867-777-3671
Tuktoyaktuk Community Corporation	Spills that meet reportable spill volumes outlined in Table 3.4 will be reported.	867-977-2390
Tuktoyaktuk Hunters and Trappers Committee	Spills that meet reportable spill volumes outlined in Table 3.4 will be reported.	867-340-0057

Note:

[1] See Appendix D for further information on reportable spills and authorities.

4 Spill Prevention

Spills will be prevented through design, identification, and timely response. Personnel will be appropriately trained to respond to accidental spills that occur and will be provided with the appropriate resources needed to respond to spills.

4.1 Spill Prevention

Preventative measures will be taken to limit the chance of an accidental spill will include:

- Secondary containment for fuel storage vessels will be used, such as double-walled tanks, containment trays.
- Storage fuel tanks will be bermed to contain spilled fluid leak in the event of a spill.
- Drip pans and drip trays will be installed under equipment when not in use for more than 2 hours.
- Re-fueling will be conducted by designated personnel, specifically trained in proper re-fueling and spill response procedures.
- Equipment used for operations will be in good working order and free of leaks. Equipment (e.g., fuel storage tanks) will be inspected daily to check for cracked hoses, leaky fittings and other potential areas where hydraulic fluids, antifreeze, oil, fuel, or other fluids may be discharged.
- Solid waste will be contained and sealed in watertight containers.
- An emergency spill kit will be kept on each site and in vehicles used for refuelling in case of fluid leaks or spills from machinery.
- Vehicles will be equipped with fire extinguishers.
- Hazardous wastes (e.g., fuel and lubricants) will be hauled to Inuvik for appropriate treatment and disposal.

4.2 Training and Exercises

Paramount routinely trains its staff on various types of emergency situations. Spill response is incorporated into these scenarios, and the training schedule currently includes mock emergency situations for its Alberta and British Columbia based operations, and will include exercises to reflect NWT procedures prior to Program construction. Training for the Program include MGM/Paramount personnel, as well as required training and orientation for contractors.

This training schedule includes tabletop/logistics exercises, including full mock scenarios for critical areas (e.g., sour and environmentally sensitive areas) which are completed once per year. Training will also include Workplace Hazardous Material Information Systems, Transportation of Dangerous Goods, and basic firefighting. Personnel that are handling fuel will be trained accordingly. MGM also supports regional training initiatives through its membership with the Mackenzie Delta Spill Response Corporation.

Training information for employees is tracked, including when it was taken and when their training expires, and this information is regularly updated and monitored. Personnel will be required to get a recertification of their training and orientation before their current certification expires. The Emergency Response Plan and Spill Contingency Plan will also be updated on an annual basis to include Program procedure updates.

5 References

Kavik-Stantec. 2017. MGM Energy – 2017 Environmental Site Monitoring Report: Langley K-30 Wellsite and Sump. Prepared for: MGM Energy Corporation, Calgary, Alberta. Prepared by Kavik-Stantec Inc., Inuvik, NWT. December 2017.

CER (Canada Energy Regulatory). 2024. Event Reporting Guidelines. Revised December 2024. Available from https://www.cer-rec.gc.ca/en/about/acts-regulations/cer-act-regulations-guidance-notes-related-documents/canada-energy-regulator-event-reporting-guidelines/2024-revised-event-reporting-guidelines.pdf. Accessed October 2025.

INAC (Indian and Northern Affairs Canada). 2007. Guidelines for Spill Contingency Planning. Prepared by Water Resources Division Indian and Northern Affairs Canada. Yellowknife, NT. April 2007. Available from https://www.gov.nt.ca/ecc/sites/ecc/files/guidelines_for_spill_contingency_planning_2007.pdf Accessed October 2025.

Appendix A Paramount Health, Safety and Environment Policy

Health, Safety and Environment Policy

Paramount Resources Ltd ("Paramount") is committed to a culture where prevention of incidents that may cause harm to people, property loss or an adverse impact on the environment is of the highest importance.

We believe that promoting operational discipline and consistency is of critical importance in fulfilling our commitments in the areas of health, safety and environmental protection. Our commitments include:

Worker Health and Safety: We will endeavor to ensure that all work performed for Paramount is done so in a safe manner by competent workers using appropriate equipment. It is a requirement that work should only proceed once hazards have been identified and appropriate controls put in place to prevent/minimize any potential incidents or loss.

All employees and contractors conducting work for Paramount have the right to stop or refuse work that they consider to be unsafe or environmentally irresponsible without fear of repercussion.

Environmental Protection: We are committed to achieving a high standard of environmental stewardship. We ensure that environmental protection is an integral component of our decision making by identifying the potential environmental impacts associated with our activities and taking prudent actions to prevent/minimize these impacts and reduce our environmental footprint.

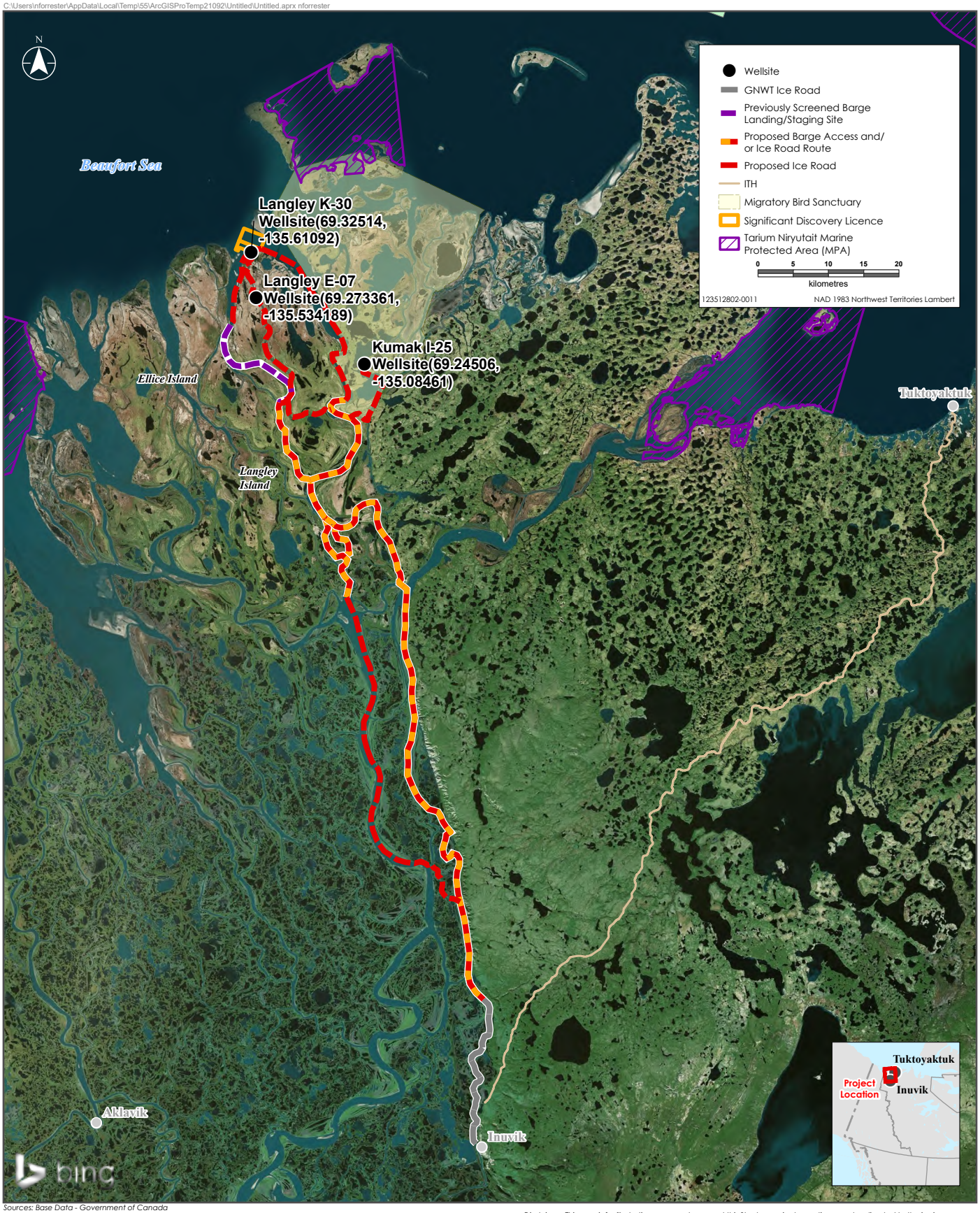
Regulatory Compliance: We are committed to complying with all applicable Federal and Provincial laws and regulations and recognized industry standards and practices. Individuals who violate applicable laws and regulations will be held responsible for their actions.

Continuous Improvement: Incidents and potential incidents are reported and analyzed to determine causes and identify corrective actions and shared learnings in order to reduce the risk of recurrence. We review the adequacy and effectiveness of all our policies, processes, programs and procedures on a regular basis to ensure they remain appropriate and up to date.

Paramount believes that its interests and those of its stakeholders, including the communities in which we operate, are best served by diligently applying these principles and commitments in all of our operations, and we will take steps to ensure that everyone working for Paramount supports and conducts themselves in accordance with them.

Appendix B Program Maps

C:\Users\nforrester\AppData\Local\Temp\55\ArcGISProTemp21092\Untitled\Untitled.aprx nforrester



Sources: Base Data - Government of Canada
Service Layer Credits: Bing Maps Aerial: © 2025 Microsoft Corporation Earthstar Geographics SIO

Disclaimer: This map is for illustrative purposes to support this Stantec project; questions can be directed to the issuing agency.

Project Overview

ookpik
Stantec

MGM ENERGY

Appendix C Material Safety Data Sheets

SAFETY DATA SHEET

DIESEL FUEL

SDS Number: 000003000395

Version: 8.1 Revision Date: 2025/03/13 Print Date: 2025/03/14

SECTION 1. IDENTIFICATION

Product name	:	DIESEL FUEL
Product code	:	12163, 12162, 12161, 12160, 10582, 11803, 11802, 11798, 12016, 11958, 11796, 11771, 11770, 11769, 11768, 11767, 11766, 11612, 11560, 11558, 11555, 11437, 11302, 10979, 10978, 10977, 10976, 10975, 10974, 10973, 10972, 10971, 10970, 10969, 10968, 10966, 10965, 10964, 10786, 10785, 10784, 10783, 10690, 10689, 10687, 10636, 10635, 10626, 10621, 10616, 10610, 10601, 10600, 10598, 10595, 10427, 10041
Other means of identification	:	Seasonal Diesel, #2 Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, OSX, D50, Arctic Diesel, Farm Diesel, Marine Diesel, Low Sulphur Diesel, LSD, Ultra Low Sulphur Diesel, ULSD, Mining Diesel, Naval Distillate, Dyed Diesel, Marked Diesel, Coloured Diesel, Furnace special, Biodiesel blend (BX where X is representative of volume %), Renewable Diesel blend (RX where X is represent ative of volume %), Diesel Low Cloud (LC), Marine Gas Oil, Marine Gas Oil Dyed,Type A Diesel, Type B Diesel.

Manufacturer or supplier's details

Company name of supplier	:	Petro-Canada
Address	:	P.O. Box 2844, 150 - 6th Avenue South-West Calgary, Alberta T2P 3E3 Canada, Telephone: 1-866-786-2671
Emergency telephone	:	CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000

Recommended use of the chemical and restrictions on use

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

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Flammable liquids	:	Category 3
Acute toxicity (Inhalation)	:	Category 4

Skin irritation	:	Category 2
Eye irritation	:	Category 2B
Carcinogenicity	:	Category 2
Specific target organ toxicity - repeated exposure	:	Category 2 (Liver, thymus, Bone)
Aspiration hazard	:	Category 1

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements :

H226 Flammable liquid and vapor.
H304 May be fatal if swallowed and enters airways.
H315 + H320 Causes skin and eye irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H373 May cause damage to organs (Liver, thymus, Bone) through prolonged or repeated exposure.

Precautionary Statements :

Prevention:

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 and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air

and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
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 or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
Fuels, diesel; Gasoil — unspecified	Fuels, diesel; Gasoil — unspecified	68334-30-5	25 - 100
Alkanes, C10-20-branched and linear	Alkanes, C10-20-branched and linear	928771-01-1	<= 75
Fatty acids, C14-18 and C14-18-unsatd., Me esters	Fatty acids, C14-18 and C14-18-unsatd., Me esters	129756-24-7	<= 20
Fuel oil No. 2	Fuel oil No. 2	68476-30-2	<= 0.2

SECTION 4. FIRST AID MEASURES

If inhaled : Move to fresh air.
Artificial respiration and/or oxygen may be necessary.
Seek medical advice.

In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Seek medical advice.
In case of eye contact	:	Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	:	Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.
Most important symptoms and effects, both acute and delayed	:	Harmful if inhaled. Respiratory, skin and eye irritation; nausea; cancer.
An indication of immediate medical attention and special treatment needed, if necessary	:	Treat symptomatically. For specialist advice physicians should contact the Poisons Information Service.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Water fog. Foam
Unsuitable extinguishing media	:	Do NOT use water jet.
Specific hazards during fire fighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion products	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), smoke and irritating vapours as products of incomplete combustion.
Further information	:	Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	For personal protection see section 8. Ensure adequate ventilation. Evacuate personnel to safe areas.

Material can create slippery conditions.
Mark the contaminated area with signs and prevent access to unauthorized personnel.
Only qualified personnel equipped with suitable protective equipment may intervene.

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Prevent further leakage or spillage if safe to do so.
Remove all sources of ignition.
Soak up with inert absorbent material.
Non-sparking tools should be used.
Ensure adequate ventilation.
Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Use only with adequate ventilation.
In case of insufficient ventilation, wear suitable respiratory equipment.
Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity.
Avoid contact with skin, eyes and clothing.
Do not ingest.
Keep away from heat and sources of ignition.
Keep container closed when not in use.

Conditions for safe storage : Store in original container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in a dry, cool and well-ventilated place.
Keep in properly labeled containers.
To maintain product quality, do not store in heat or direct sunlight.
Ensure the storage containers are grounded/bonded.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Fuels, diesel; Gasoil — unspecified	68334-30-5	TWA	100 mg/m³ (total hydrocarbons)	CA AB OEL
		TWA (inhal-	100 mg/m³	CA BC OEL

		able fraction and vapour)	(total hydrocarbons)	
		TWAEV (inhalable fraction and vapour)	100 mg/m³ (total hydrocarbons)	CA QC OEL
		TWA (Inhalable fraction and vapor)	100 mg/m³ (total hydrocarbons)	ACGIH
Fuel oil No. 2	68476-30-2	TWA (Inhalable fraction and vapor)	100 mg/m³ (total hydrocarbons)	CA AB OEL
		TWA (Inhalable fraction and vapor)	100 mg/m³ (total hydrocarbons)	CA BC OEL
		TWAEV (Inhalable fraction and vapor)	100 mg/m³ (total hydrocarbons)	CA QC OEL
		TWA (Inhalable fraction and vapor)	100 mg/m³ (total hydrocarbons)	CA ON OEL
		TWA (Inhalable fraction and vapor)	100 mg/m³ (total hydrocarbons)	ACGIH

Engineering measures : Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.
Use only in well-ventilated areas.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Personal protective equipment

Respiratory protection : Concentration in air determines protection needed.
Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. 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.

Filter type : organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection

Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R). Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of

		their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.
Remarks	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eye protection	:	Wear safety glasses with side shields or goggles. Wear face-shield if splashing hazard is likely. Chemical splash goggles and a full-face shield should be worn when handling this material.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Protective measures	:	Wash contaminated clothing before re-use.
Hygiene measures	:	Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	Bright oily liquid.
Color	:	Clear to yellow (This product may be dyed red for taxation purposes)
Odor	:	Mild petroleum oil like.
pH	:	No data available
Melting point and freezing point	:	No data available
Boiling point, or initial boiling point and boiling range	:	150 - 371 °C
Flash point	:	> 40 °C Method: closed cup Marine Gas Oil/Naval Distillate: 60°C min Mining Diesel: 52°C min All other Diesel fuels: 40°C min
Flammability	:	Flammable liquid
Upper explosion limit / Upper flammability limit	:	6 %(V)

Lower explosion limit / Lower flammability limit	:	0.7 %(V)
Vapor pressure	:	7.5 mmHg (20 °C)
Relative vapor density	:	4.5
Relative density	:	0.8 - 0.88
Density	:	No data available
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	204 °C
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	1.3 - 4.1 cSt (40 °C)
Particle characteristics		
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable at normal ambient temperature and pressure.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerization does not occur.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Reactive with oxidising agents and acids.
Hazardous decomposition products	:	May release COx, NOx, SOx, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Ingestion
Inhalation
Skin contact

Acute toxicity

Harmful if inhaled.

Product:

Acute oral toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	:	Acute toxicity estimate: 11 mg/L Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
Acute dermal toxicity	:	Remarks: Based on available data, the classification criteria are not met.

Components:

Fuels, diesel; Gasoil — unspecified:

Acute oral toxicity	:	LD50 (Rat): 7,500 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 4.1 mg/l Exposure time: 4 h Test atmosphere: vapor
Acute dermal toxicity	:	LD50 (Mouse): 24,500 mg/kg

Fuel oil No. 2:

Acute oral toxicity	:	LD50 (Rat): 12,000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes eye irritation.

Respiratory or skin sensitization

Skin sensitization

Based on available data, the classification criteria are not met.

Respiratory sensitization

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

May cause damage to organs (Liver, thymus, Bone) through prolonged or repeated exposure.

Aspiration toxicity
May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae/aquatic plants	:	Remarks: No data available
Toxicity to microorganisms	:	Remarks: No data available

Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Offer surplus and non-recyclable solutions to a licensed disposal company. Waste must be classified and labeled prior to recycling or disposal. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.
Contaminated packaging	:	Contact local or business unit authorities for guidance on disposal of product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 1202
Proper shipping name	:	Diesel fuel
Class	:	3
Packing group	:	III
Labels	:	Flammable Liquids
Packing instruction (cargo aircraft)	:	366

IMDG-Code

UN number	:	UN 1202
Proper shipping name	:	DIESEL FUEL
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

TDG

UN number	:	UN 1202
Proper shipping name	:	DIESEL FUEL
Class	:	3
Packing group	:	III
Labels	:	3
ERG Code	:	128
Marine pollutant	:	yes

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

NPRI Components : Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified
naphthalene
1,2,4-trimethylbenzene
toluene
propan-2-ol
methanol

The ingredients of this product are reported in the following inventories:

DSL : All components of this product are on the Canadian DSL

Canadian lists

No substances are subject to a Significant New Activity Notification.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
CA ON OEL	:	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
CA QC OEL	:	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
ACGIH / TWA	:	8-hour time weighted average
CA AB OEL / TWA	:	8-hour time weighted average
CA BC OEL / TWA	:	8-hour time weighted average
CA ON OEL / TWA	:	8-hour time weighted average
CA QC OEL / TWAEV	:	Time-weighted average exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recom-

mendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Revision Date : 2025/03/13

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CA / EN

Safety Data Sheet
ETHYLENE GLYCOL

Version 1.8 Revision Date: 11/17/2022

SECTION 1. IDENTIFICATION

Product name : ETHYLENE GLYCOL

Synonyms : No data available

Recommended use of the chemical and restrictions on use

Recommended use : Industrial chemical

Restricted Uses : No data available

Manufacturer or supplier's details

Company : Univar Solutions Canada Ltd.
Address 64 Arrow Road
North York, ON, M9M 2L9
Canada

Emergency telephone number:
Local Emergency Contact : During Office hours Monday-Friday, 8.00 am - 4.30 pm (Pacific Standard Time) : 1-866-686-4827

Additional Information: : Responsible Party: Product Compliance Department
E-mail: SDSNA@univarsolutions.com
SDS Requests: 1-855-429-2661
Website: www.univarsolutions.com

SECTION 2. HAZARD IDENTIFICATION

Hazardous Classification of the substance or mixture

Acute toxicity (Oral) : Category 4

Specific target organ toxicity - repeated exposure : Category 2 (Kidney)

Label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements : **Prevention:**
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P314 Get medical advice/ attention if you feel unwell.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

CAS-No.	Chemical name	% by Weight	Synonyms
107-21-1	Ethylene glycol	80 - 100	ethane-1,2-diol
111-46-6	Diethylene glycol	5 - 10	Diethylene glycol

The exact ranges of this mixture are being withheld due to a Trade Secret.

SECTION 4. FIRST-AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Wash off with soap and water.
Wash clothing before reuse.
If skin irritation persists, call a physician.

In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Do not induce vomiting without medical advice.
Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Foam
Dry chemical
Carbon dioxide (CO2)

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire- : Do not allow run-off from fire fighting to enter drains or water

fighting		courses.
Hazardous combustion products	:	Carbon oxides toxic fumes
Further information	:	Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapours/dust. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
107-21-1	Ethylene glycol	(c)	100 mg/m3	CA AB OEL
		TLV-C	50 ppm	CA BC OEL
		TLV-C	100 mg/m3	CA BC OEL
		C	50 ppm 127 mg/m3	CA QC OEL
		TWA	10 mg/m3	CA BC OEL
		STEL	20 mg/m3	CA BC OEL

		TWA (particulate)	10 mg/m3	CA BC OEL
		STEL (particulate)	20 mg/m3	CA BC OEL
		C (aerosol)	100 mg/m3	CA BC OEL
		C (Vapour)	50 ppm	CA BC OEL
		C (Vapour and mist)	50 ppm 127 mg/m3	CA QC OEL

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Organic vapour type

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	Clear, colorless
Odour	:	sweet, slight
Odour Threshold	:	No data available
pH	:	No data available
Freezing Point (Melting point/freezing point)	:	-13 - -11.2 °C (9 - 11.8 °F)
Boiling Point (Boiling point/boiling range)	:	197.4 °C (387.3 °F)
Flash point	:	111 - 116 °C (232 - 241 °F) Method: closed cup
Evaporation rate	:	0.01 (Butyl Acetate = 1)
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	22 %(V)
Lower explosion limit	:	1.8 %(V)
Vapour pressure	:	< 1 hPa @ 20 - 25 °C (68 - 77 °F)
Relative vapour density	:	< 2.14 @ 20 - 25 °C (68 - 77 °F)

		(Air = 1.0)
Relative density	:	1.115 @ 20 °C (68 °F) Reference substance: (water = 1)
Density	:	1.11 g/cm3 @ 20 °C (68 °F)
Solubility(ies)		
Water solubility	:	soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: -1.36
Auto-ignition temperature	:	398 °C
Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	19.83 - 21 mPa.s @ 20 - 25 °C (68 - 77 °F)
Viscosity, kinematic	:	145 mm2/s @ 25 °C (77 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	Keep away from heat, flame, sparks and other ignition sources.
Incompatible materials	:	Strong bases Strong oxidizing agents Strong acids Aldehydes Aluminium Plastics Reducing agents Peroxides
Hazardous decomposition products	:	Aldehydes Ketones Organic acids Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate: 493.91 mg/kg

Components:

107-21-1:

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

111-46-6:

Acute oral toxicity : LD50 (Human): Calculated 1,120 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

STOT - repeated exposure

Components:

107-21-1:

Target Organs: Kidney
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Further information

Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

TDG (Transportation of Dangerous Goods): Not regulated as a dangerous good

IATA (International Air Transport Association): Not regulated as a dangerous good

IMDG-Code: Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR.

NPRI Components : 107-21-1
123-91-1
75-07-0

The components of this product are reported in the following inventories:

TSCA	:	On TSCA Inventory
DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PHIL	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions EHS Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

Revision Date : 11/17/2022

Legacy SDS: : R0000003

Material number:
16202965, 16193145, 16189599, 16186827, 16186690, 16184842, 16184845, 16177859, 16176884, 16174621, 16180818, 16170817, 16168889, 16168166, 16171113, 16172870, 16172917, 16163452, 16158593, 16151256, 16151226, 16145702, 16144747, 16144744, 16165888, 16138739, 16147189, 16137492, 16157140, 16146750, 16157069, 16146636, 16143997, 16136544, 16144139, 16145585, 16145582, 16144545, 16159015, 16158961, 16140174, 16140598, 16142534, 16142076, 16142365, 16134560, 16134526, 16141537, 16142192, 16132249, 16131855, 16129552, 16126165, 16114211, 16112352, 16105892, 16103638, 16086745, 16074387, 16072954, 16062967, 16062968, 16062969, 16062427, 16056075, 16056074, 16055096, 16051591, 16045661, 16041542, 16037771, 16037563, 16034406, 16033659, 16033181, 102641, 16030354, 16013884, 16013560, 16012467, 16012189, 16004457, 775747, 768004, 736726, 736570, 729076, 721550, 714457, 714015, 714153, 666370, 611623, 598441, 594558, 86147, 87305, 559851, 554069, 554044

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthori-

			zation Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50		Lethal Concentration 50%	

Safety Data Sheet

SECTION 1 IDENTIFICATION

Chevron Hydraulic Oil 5606A

Recommended Use: Hydraulic Oil
Restrictions on Use: Consult supplier when used other than those specified.
Product Number(s): 219393, 247707
Other means of identification: Not applicable
Company Identification
Chevron Canada Limited
500 - 5th Ave. SW
Calgary, ALBERTA T2P 0L7
Canada
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: (800) LUBE TEK

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION:
- Flammable liquid: Category 4.
- Aspiration toxicant: Category 1.
- Acute aquatic toxicant: Category 3.
- Chronic aquatic toxicant: Category 3.

Signal Word: Danger
Physical Hazards:
- Combustible liquid (H227).

Health Hazards:

- May be fatal if swallowed and enters airways (H304).

Environmental Hazards:
- Harmful to aquatic life with long lasting effects (H412).

PRECAUTIONARY STATEMENTS:
Prevention:
- Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking (P210).
- Avoid release to the environment (P273).
- Wear protective gloves, protective clothing, eye protection, and face protection (P280).

Response:
- IF SWALLOWED: Immediately call a POISON CENTER, doctor, or physician (P301+P310).
- Do NOT induce vomiting (P331).
- In case of fire: Use media specified in the SDS to extinguish (P370+P378).

Storage:
- Store in a well-ventilated place (P403).
- Store locked up (P405).

Disposal:
- Dispose of contents and container in accordance with applicable local, regional, national, and international regulations (P501).

OTHER HAZARDS: Not applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Distillates, hydrotreated light	64742-47-8	60 - 80 %wt/wt
Highly refined mineral oil (C15 - C50)	Mixture	10 - 30 %wt/wt
2,6-di-tert-butylphenol	128-39-2	0.1 - 1 %wt/wt
Triphenyl phosphate	115-86-6	0.1 - 1 %wt/wt

Note that the actual concentration or concentration range of some or all of the above ingredients is considered confidential business information and is being withheld as permitted by WHMIS 2015.

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Highly toxic; may be fatal if swallowed. Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR CHRONIC HEALTH EFFECTS: Not expected to cause delayed or chronic effects from short-term or long-term exposure

Indication of any immediate medical attention and special treatment needed
Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis. In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
UNSUITABLE EXTINGUISHING MEDIA: No data available

Unusual Fire Hazards: Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs). See Section 7 for proper handling and storage.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Observe all relevant local

and international regulations. Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator. Keep out unnecessary and unprotected personnel. Persons entering the contaminated area to correct the problem or to determine whether it is safe to resume normal activities must comply with all instructions and wear appropriate personal protective equipment as indicated in Section 8.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches.
DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Wash thoroughly after handling. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Avoid release to the environment. Wear protective gloves, protective clothing, eye protection, and face protection.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities,

and other substances in the workplace when designing engineering controls and selecting personal protective equipment (PPE). If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, refer to PPE information below.

Factors that affect PPE include, but are not limited to: properties of the chemical, other chemicals which may contact the same PPE, physical requirements (fit & sizing, cut/puncture protection, dexterity, thermal protection, etc.), and potential allergic reactions to the PPE material. It is the responsibility of the user to read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.
Skin Protection: Wear chemical personal protective equipment (PPE) to prevent skin contact. Selection of chemical protective clothing should be performed by an Occupational Hygienist or Safety Professional and be based upon applicable standards (ASTM F739 or EN 374). Using chemical PPE depends upon operations conducted and may include chemical gloves, boots, chemical apron, chemical suit, and complete facial protection. **Refer to PPE manufacturers to obtain breakthrough time information to determine how long PPE can be used before it needs to be replaced.** Unless specific glove manufacturer data indicates otherwise, the below table is based upon available industry data to assist in the glove selection process and is intended to be used as reference only.

Chemical Glove Material	Thickness (mm)	Typical Breakthrough Time (minutes)
Butyl	0.35	5
Neoprene	0.9	30
Nitrile	0.8	240
Nitrile	0.2	15
Polyvinyl Chloride (PVC)	1.5	30
Viton Butyl	0.3	240

Respiratory Protection: A site-specific risk assessment should be conducted by an Occupational Hygienist or a Safety Professional to determine the type and use of respiratory protective equipment. When a site-specific risk assessment determines that respiratory protection is required, use an approved respirator such as:

Air purifying respirator -
If airborne concentration limits exceed the applicable occupational exposure limit, but are below the maximum use concentration.
Vapors only: organic vapor cartridge (filter type A3 per EN 529:2005).
Vapors and particulates (including generated mists): both an organic vapor cartridge & particulate filter (AP3 filter per EN 529:2005).
Refer to respirator manufacturers to obtain service life of cartridge / filter.

Positive pressure air-supplying respirator -

If airborne concentration limits exceed the maximum use concentration offered from an air purifying respirator.

Refer to EN 529:2005, USA OSHA 1910.134, and/or other applicable local/regional/national/international standards for regulatory requirements.

Occupational Exposure Limits:

Component	Country/ Agency	Form	TWA	STEL	Ceiling	Notation
Distillates, hydrotreated light	ACGIH	--	200 mg/m3	--	--	Skin A3
Highly refined mineral oil (C15 - C50)	ACGIH	--	5 mg/m3	10 mg/m3	--	--
Triphenyl phosphate	ACGIH	--	3 mg/m3	--	--	--

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard Z94.4-2011 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: Not available
Relative Vapor Density: Not available
Initial Boiling Point / Boiling Range: Not available
Solubility: Soluble in hydrocarbons; insoluble in water
Melting Point / Freezing Point: Not available
Relative Density: No data available
Particle Characteristics: Not applicable
Density: 0.8773 kg/l @ 15°C (59°F) (Typical)
Kinematic Viscosity: 13.2 mm2/s @ 40°C (104°F) (Minimum)
Coefficient of Therm. Expansion / °F: Not Applicable
Decomposition temperature: Not available
Partition coefficient n-octanol/water (logarithmic value): Not available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): Not Applicable

Flashpoint: (Cleveland Open Cup) 80 °C (176 °F) (Minimum)
Auto-ignition temperature: Not available
Flammability (Explosive) Limits (% by volume in air): Lower: Not available Upper: Not available

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates,

peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Possibility of Hazardous Reactions: Hazardous polymerization will not occur. May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure: Exposure may occur via ingestion, inhalation, or skin and eye contact.

Information on toxicological effects
Serious Eye Damage/Irritation: The material is not considered an eye irritant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Skin Corrosion/Irritation: The material is not considered a skin irritant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Skin Sensitization: The material is not considered a skin sensitizer. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Acute Dermal Toxicity: The material is not considered a dermal toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The material is not considered an oral toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The material is not considered an inhalation toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components. For additional information on the acute toxicity of the components, call the technical information center.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The material is not considered a mutagen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Carcinogenicity: The material is not considered a carcinogen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Reproductive Toxicity: The material is not considered a reproductive toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Specific Target Organ Toxicity - Single Exposure:
The material is not considered a target organ toxicant (single exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.
Specific Target Organ Toxicity - Repeated Exposure: The material is not considered a target organ toxicant (repeated exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

Aspiration Hazard: This material is considered an aspiration hazard based on the kinematic viscosity of the material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).
These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.
Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Highly toxic; may be fatal if swallowed. Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR CHRONIC HEALTH EFFECTS: Not expected to cause delayed or chronic effects from short-term or long-term exposure

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Partition coefficient n-octanol/water (logarithmic value): No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. GY/92 Waste Management Act; R.R.O. 1990, Reg. 347 General-Waste Management; C.C.SM.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation.)

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER TRANSPORT CANADA

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

DOT Shipping Description: UN1268, PETROLEUM PRODUCTS, N.O.S., COMBUSTIBLE LIQUID, III. ADDITIONAL INFORMATION: NON-BULK PACKAGES NEED NOT BE REGULATED IN THE U.S.A. UNLESS SHIPPED BY AIRCRAFT OR VESSEL PER 49CFR 173.150(f).

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:
01-1=IARC Group 1
01-2A=IARC Group 2A
01-2B=IARC Group 2B

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AIIC (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: NZIoC (New Zealand).

SECTION 16 OTHER INFORMATION

REVISION STATEMENT:
SECTION 01 - Health Emergency information was modified.
SECTION 01 - Product Use information was added.
SECTION 02 - Other Hazards information was added.
SECTION 02 - Precautionary Statements information was modified.
SECTION 03 - Composition information was modified.
SECTION 06 - Personal Precautions, Protective Equipment and Emergency Procedures information was modified.
SECTION 07 - Precautionary Measures information was added.
SECTION 08 - Personal Protective Equipment information was modified.
SECTION 08 - Respiratory Protection information was added.
SECTION 08 - Respiratory Protection information was modified.
SECTION 11 - Toxicological Information information was added.
SECTION 15 - Regulatory Information information was deleted.

Revision Date: October 23, 2025

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
WHMIS - Workplace Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the WHMIS 2015 by Chevron.

SAFETY DATA SHEET

Methanol

Section 1. Identification

Product identifier : Methanol

Product code : Q01347

Relevant identified uses of the substance or mixture

Identified uses
Industrial applications

Supplier's details : QUADRA CHEMICALS LTD.
3901 F.X Tessier
Vaudreuil-Dorion, QC
CANADA J7V 5V5
1-800-665-6553

Emergency telephone number (with hours of operation) : **TRANSPORTATION EMERGENCY - 24HRS/DAY - 7 DAYS/WEEK IN CANADA - CALL 1-800-567-7455**

Section 2. Hazard identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
ACUTE TOXICITY (oral) - Category 3
ACUTE TOXICITY (dermal) - Category 3
ACUTE TOXICITY (inhalation) - Category 3
EYE IRRITATION - Category 2A
TOXIC TO REPRODUCTION (Unborn child) - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS), optic nerve) - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
Toxic if swallowed, in contact with skin or if inhaled.
Causes serious eye irritation.
May damage the unborn child.
Causes damage to organs. (central nervous system (CNS), optic nerve)

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Section 2. Hazard identification

Response : IF exposed or concerned: Call a POISON CENTER or physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF ON SKIN: Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Ingredient name	% (w/w)	CAS number
methanol	99.85 - 100	67-56-1

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

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a

Section 4. First-aid measures

collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Toxic if inhaled.

Skin contact : Toxic in contact with skin.

Ingestion : Toxic if swallowed.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

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

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

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

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

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

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Section 5. Fire-fighting measures

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

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

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

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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

Methods and materials for containment and cleaning up

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

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

Section 7. Handling and storage

Precautions for safe handling

Section 7. Handling and storage

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
methanol	**ACGIH TLV (United States, 3/2017). Absorbed through skin.** TWA: 200 ppm 8 hours. TWA: 262 mg/m³ 8 hours. STEL: 250 ppm 15 minutes. STEL: 328 mg/m³ 15 minutes.

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

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

Individual protection measures

Section 8. Exposure controls/personal protection

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

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Physical state : Liquid. [Clear.]

Color : Colourless.

Odor : Alcohol-like.

Odor threshold : Not available.

pH : Not available.

Melting point : -97.8°C (-144°F)

Boiling point : 64.7°C (148.5°F)

Flash point : Closed cup: 11°C (51.8°F)

Evaporation rate : 4.1 (n-butyl acetate = 1)

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Lower: 5.5%
Upper: 36.5%

Vapor pressure : 12.8 kPa (96 mm Hg) [room temperature]

Vapor density : 1.1 [Air = 1]

Relative density : 0.791 to 0.793 [@ 20°C]

Density : 0.792 g/cm³

Solubility : Soluble in the following materials: cold water.

Dispersibility properties : Not available.

Section 9. Physical and chemical properties

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : 464°C (867.2°F)

Decomposition temperature : Not available.

Viscosity : Dynamic (room temperature): 0.8 mPa·s (0.8 cP)

Volatility : 100% (v/v)

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Incompatible materials : oxidizing materials
metals
acids
alkalis

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
methanol	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat Rabbit Rat	189950 mg/m³ 15800 mg/kg 5600 mg/kg	1 hours - -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
methanol	Eyes - Moderate irritant Eyes - Moderate irritant Skin - Moderate irritant	Rabbit Rabbit Rabbit	- - -	24 hours 100 milligrams 40 milligrams 24 hours 20 milligrams	- - -

Sensitization

Not available.

Mutagenicity

Not available.

Section 11. Toxicological information

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
methanol	Category 1	Not determined	central nervous system (CNS) and optic nerve

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Toxic if inhaled.

Skin contact : Toxic in contact with skin.

Ingestion : Toxic if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Section 11. Toxicological information

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral Dermal Inhalation (vapors)	100 mg/kg 300 mg/kg 3 mg/l

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
methanol	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 3289 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 290 mg/l Fresh water	Fish - Danio rerio - Egg	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
Methanol	EC50 >10000 mg/l	Daphnia	48 days
	IC50 22000 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours
	LC50 15400 to 29400 mg/l	Fish	96 hours

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Methanol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
methanol	-0.77	<10	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG Classification
UN number	1230
UN proper shipping name	METHANOL
Transport hazard class(es)	3 (6.1) 
Packing group	II
Additional information	Not available.

Section 15. Regulatory information

Canada inventory : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 8 February 2018

Prepared by : Regulatory Affairs

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations
HPR = Hazardous Products Regulations

Procedure used to derive the classification

Section 16. Other information

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
ACUTE TOXICITY (oral) - Category 3	Calculation method
ACUTE TOXICITY (dermal) - Category 3	Calculation method
ACUTE TOXICITY (inhalation) - Category 3	Calculation method
EYE IRRITATION - Category 2A	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 1	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS), optic nerve) - Category 1	Calculation method

Notice to reader

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

Potassium Chloride

SECTION 1. IDENTIFICATION

Product Identifier	Potassium Chloride
Other Means of Identification	None
Other Identification	KCl
Product Family	Salt
Recommended Use	Drilling Fluid Additive.
Restrictions on Use	None known.
Supplier Identifier	Secure Energy Services Suite 3600, 205 - 5 Avenue SW, Calgary, Alberta, T2P 2V7, www.secure-energy.com
Emergency Phone No.	CANUTEC, (613) 996-6666, 24/7
Date of Preparation	April 12, 2017

SECTION 2. HAZARD IDENTIFICATION

Classification

Not classified under any hazard class.

Label Elements

Not applicable

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Potassium chloride	7447-40-7	100	None	KCl

Notes

Concentrations are expressed in % weight/weight.

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

If symptoms are experienced, remove source of contamination or move victim to fresh air. Obtain medical advice.

Skin Contact

No health effects expected. Flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, repeat flushing. Obtain medical advice.

Eye Contact

If irritation occurs, flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.

Ingestion

If irritation or discomfort occur, obtain medical advice.

First-aid Comments

Get medical advice or attention if you feel unwell or are concerned.

Most Important Symptoms and Effects, Acute and Delayed

Mild irritation to skin, eyes, respiratory tract (dust).

Immediate Medical Attention and Special Treatment

Target Organs

Eyes, skin.

Special Instructions

Not applicable.

Medical Conditions Aggravated by Exposure

Eye conditions, skin conditions.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Does not burn or support combustion. Use extinguishing media suitable for surrounding fire.

Unsuitable Extinguishing Media

Not applicable.

Specific Hazards Arising from the Product

Closed containers may rupture violently when heated releasing contents.
During a fire, corrosive and toxic hydrogen chloride and/or chlorine gases, dipotassium oxide and other toxic and irritating fumes and gases may be formed by thermal decomposition.

Special Protective Equipment and Precautions for Fire-fighters

Evacuate area and fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products.
Closed containers may rupture violently when exposed to the heat of the fire. If possible, isolate materials not yet involved in the fire, and move containers from the fire area if this can be done without risk, and protect personnel. Otherwise, apply water in flooding quantities to keep fire-exposed containers, tanks or car/trailer loads cool and absorb heat to help prevent rupture. Water spray may also be used to knock down corrosive fumes which may be produced in a fire. Apply water from the side and from a safe distance until well after the fire is out. Dike fire control water for appropriate disposal.
Tanks or drums should not be approached directly after they have been involved in a fire, until they have been completely cooled down.
Potassium has very low toxicity although hazardous decomposition products are possible in a fire. Firefighters may enter the area if positive pressure self-contained breathing apparatus (NIOSH approved or equivalent) and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Ensure clean-up is conducted by trained personnel. Wear adequate personal protective equipment. Ventilate area. Use the personal protective equipment recommended in Section 8 of this safety data sheet.

Environmental Precautions

It is good practice to prevent releases into the environment.

Methods and Materials for Containment and Cleaning Up

Use vacuum equipped with HEPA filter(s). Alternatively, dampen spilled material with water. Shovel into clean, dry, labelled containers. Cover containers. Flush area with water.

Other Information

Report spills to local health, safety and environmental authorities, as required.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

This material is essentially non-hazardous. Avoid generating dusts. Avoid the release of dusts into the workplace air. Keep containers closed when not in used. Good housekeeping is important to prevent accumulations of dust. Do not use with incompatible materials.

Conditions for Safe Storage

Store in suitable, labelled containers. Protect from damage. It is good practice to keep storage containers closed when not in use. Store away from incompatible materials. Comply with all applicable health and safety regulations, fire and building codes.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

	ACGIH TLV®		OSHA PEL		AIHA WEEL	
Chemical Name	**TWA**	**STEL**	**TWA**	**Ceiling**	**8-hr TWA**	**TWA**
Potassium chloride	Not established	Not established	Not established	Not established	Not established	Not established

Appropriate Engineering Controls

The hazard potential of this material is relatively low. General (dilution) ventilation is usually sufficient. When there is large-scale use of this material (eg. bagging operation), engineering methods to control hazardous conditions may be necessary. Use local exhaust ventilation and process enclosure to control airborne dust. A dust collecting system attached to the ventilation system may also be necessary.
Supply sufficient replacement air to make up for air removed by exhaust systems. Provide eyewash and safety shower if contact or splash hazard exists.

Individual Protection Measures

Eye/Face Protection

No specific requirement, but it is good practice to wear chemical safety goggles.

Skin Protection

No specific requirement, but it is good practice to prevent skin contact.

Respiratory Protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Colourless - white crystalline powder. Particle Size: Not available
Odour	Odourless
Odour Threshold	Not applicable
pH	~ 7 (saturated solution)
Melting Point/Freezing Point	771 ºC (1420 ºF) (melting); 771 ºC (1420 ºF) (freezing)
Initial Boiling Point/Range	1407 ºC (2565 ºF)
Flash Point	Not applicable
Evaporation Rate	Not applicable
Flammability (solid, gas)	Will not burn.

Upper/Lower Flammability or Explosive Limit	Not applicable (upper); Not applicable (lower)
Vapour Pressure	Very low.
Vapour Density (air = 1)	Not applicable
Relative Density (water = 1)	1.98 - 1.99
Solubility	34.2 g/100 mL (Very soluble) in water; Mildly soluble in alcohols (e.g. ethanol).
Partition Coefficient, n-Octanol/Water (Log Kow)	Not applicable
Auto-ignition Temperature	Not applicable
Decomposition Temperature	Not available
Viscosity	Not applicable (kinematic); Not applicable (dynamic)

Other Information

Physical State	Solid
Molecular Formula	K-Cl
Molecular Weight	74.55
Bulk Density	Not available
Surface Tension	Not applicable
Critical Temperature	Not applicable
Electrical Conductivity	Not available
Vapour Pressure at 50 deg C	Not available
Saturated Vapour Concentration	Not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None expected under normal conditions of storage and use.

Conditions to Avoid

Generation of dust. Incompatible materials.

Incompatible Materials

PEROXYACETIC ACID and ACETIC ACID - addition of potassium chloride to aqueous solutions containing 40% peroxyacetic acid and 1% acetic acid lead to a violently exothermic decomposition reaction, with the evolution of chlorine gas.
POTASSIUM PERMANGANATE and SULFURIC ACID - mixture may explode.
BROMINE TRIFLUORIDE - rapidly attacks potassium chloride.

Hazardous Decomposition Products

Corrosive and toxic hydrogen chloride and/or chlorine gases and dipotassium oxide may be formed by thermal decomposition or in a fire.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Skin contact; eye contact; inhalation.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Potassium chloride	Not available	2430 mg/kg (rat)	Not available

Skin Corrosion/Irritation

Potassium chloride is probably a non-irritant to mild irritant. This conclusion is based on limited human information for potassium chloride and comparison to sodium chloride.

Serious Eye Damage/Irritation

Potassium chloride is probably a non-irritant to very mild irritant based on comparison to sodium chloride. Unconfirmed animal information for potassium chloride shows mild irritation. No human information was located.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

Potassium chloride does not form a vapour. Exposure to dust or mists from solutions may be slightly irritating to the nose and throat, but is not expected to cause significant harmful effects. No human or animal information was located.

Skin Absorption

Potassium chloride is not expected to be absorbed through the skin.

Ingestion

Potassium chloride is not toxic if ingested based on animal toxicity values. Harmful effects in humans are rare because a large single dose results in nausea and vomiting and because potassium chloride is readily excreted in the urine. An estimated oral lethal dose in humans is 500-5000 mg/kg. Ingestion is not a typical route of occupational exposure.

Aspiration Hazard

Not known to be an aspiration hazard.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Potassium chloride generally has very low toxicity and is not expected to cause long-term health effects following occupational exposure.

Respiratory and/or Skin Sensitization

Not a skin sensitizer. Not a respiratory sensitizer.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Potassium chloride	Not Listed	Not designated	Not Listed	Not Listed

Reproductive Toxicity

Development of Offspring

Potassium chloride is not known to cause developmental toxicity. No human information was located.

Sexual Function and Fertility

Potassium chloride is not known to cause reproductive toxicity. No human or animal information was located.

Effects on or via Lactation

No information was located.
No information was located.

Germ Cell Mutagenicity

Potassium chloride is not known to be mutagenic. No studies in humans or live animals were located. The positive results obtained in short-term tests are believed to result from an osmotic effect rather than from mutagenicity.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No information was located.

Acute Aquatic Toxicity

Chemical Name	LC50 Fish	EC50 Crustacea	ErC50 Aquatic Plants	ErC50 Algae
Potassium chloride	880 mg/L (Pimephales promelas (fathead minnow); 96-hour; fresh water; static)	29 mg/L (Daphnia magna (water flea); 96-hour; fresh water; static)	Not available	Not available

Persistence and Degradability

No information was located.

Bioaccumulative Potential

No information was located.

Mobility in Soil

No information was located.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction. The required hazard evaluation of the waste and compliance with the applicable hazardous waste laws are the responsibility of the user. Store product for disposal as described under Storage in Section 7 of this safety data sheet. Dispose of or recycle empty containers through an approved waste management facility.

SECTION 14. TRANSPORT INFORMATION

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

Environmental Hazards Not applicable

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

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

All ingredients are listed on the DSL/NDSL.

USA

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

All ingredients are listed on the TSCA Inventory.

Additional USA Regulatory Lists

SARA Title III - Section 302: Not listed. SARA Title III - Section 311/312: Not listed. SARA Title III - Section 313: Not listed. Massachusetts Right To Know: Not listed. Pennsylvania Right To Know: Listed. New Jersey Right To Know: Listed. California Proposition 65: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16. OTHER INFORMATION

SDS Prepared By	Safety Committee
Phone No.	403-264-1588
Date of Preparation	April 12, 2017
Date of Last Revision	April 12, 2017
Revision Indicators	Not applicable.
Key to Abbreviations	ACGIH® = American Conference of Governmental Industrial Hygienists AIHA® = AIHA® Guideline Foundation DSL = Domestic Substances List HSDB® = Hazardous Substances Data Bank IARC = International Agency for Research on Cancer IDLH = Immediately Dangerous to Life and Health NDSL = Non-Domestic Substances List NFPA = National Fire Protection Association NIOSH = National Institute for Occupational Safety and Health NTP = National Toxicology Program OSHA = US Occupational Safety and Health Administration PEL = Permissible Exposure Limit REL = Recommended Exposure Limit RTECS® = Registry of Toxic Effects of Chemical Substances STEL = Short Term Exposure Limit TSCA = Toxic Substances Control Act TWA = Time Weighted Average
References	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS). Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA (“BIOVIA”). Available from Canadian Centre for Occupational Health and Safety (CCOHS).
Disclaimer	To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Secure Energy Services expressly disclaims all expressed or implied warranties of merchantability and fitness for a particular purpose with respect to the product provided.

SAFETY DATA SHEET

SECTION 1 IDENTIFICATION

PRODUCT

Product Name: COMMERCIAL PROPANE (ODORIZED)
Product Description: Liquefied Hydrocarbon Gas, Gas or Liquefied Gas
SDS Number: 8515

Intended Use: Fuel gas

COMPANY IDENTIFICATION

Supplier: **Imperial Oil Downstream**
P.O. Box 2480, Station M
Calgary, ALBERTA T2P 3M9 Canada

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

SECTION 2 HAZARD IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines.

This product has been classified in accordance with hazard criteria of the Hazardous Products Regulations (HPR) SOR/2015-17 and the SDS contains all the information required by the HPR SOR/2015-17.

CLASSIFICATION:

Flammable Gases — Category 1
Gases Under Pressure — Liquefied Gas
Simple Asphyxiants — Category 1

LABEL:
Pictogram:

Signal Word: Danger

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

May displace oxygen and cause rapid suffocation.

Precautionary Statements:
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P273: Avoid release to the environment.P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381: In case of leakage, eliminate all ignition sources.P410 + P403: Protect from sunlight. Store in a well-ventilated place.P501: Dispose of contents and container in accordance with local regulations.

Other hazard information:

Health Hazards Not Otherwise Classified: None as defined under HPR SOR/2015-17.

Physical Hazards Not Otherwise Classified: None as defined under HPR SOR/2015-17.

PHYSICAL / CHEMICAL HAZARDS

Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Frostbite hazard - rapidly expanding gas or liquid may cause frostbite. Material can accumulate static charges which may cause an ignition. Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Continued exposure to odorised gas may reduce or eliminate ability to smell the odorant. People with impaired ability to detect odour due to colds, allergies, injuries etc must be especially cautious. Odour must not be used exclusively as a safety measure. Proper respiratory protection and fire/explosion precautions should be utilised when odour is first detected. Exposure to concentrations above 10% of the LEL may cause a general central nervous system (CNS) depression typical of anesthetic gases or intoxicants. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

NFPA Hazard ID:	Health:	1	Flammability:	4	Reactivity: 0
HMIS Hazard ID:	Health:	1	Flammability:	4	Reactivity: 0

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

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) in Hazardous product

Name	CAS#	Concentration*	GHS Hazard Codes

ALKANES, C4	68513-65-5	0 - 2.5%	H220
ETHANE	74-84-0	0 - 5%	H220, H280, H402
ETHYL MERCAPTAN	75-08-1	0.5%	H225, H332, H400(M factor 1), H410(M factor 1)
ISOBUTANE	75-28-5	0 - 2.5%	H220, H280
PROPANE	74-98-6	90 - 99%	H220, H280
PROPYLENE	115-07-1	1 - 10%	H220, H280, H402

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

SECTION 4 FIRST-AID MEASURES

INHALATION
Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT
If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. If frostbite occurs, immerse involved area in water at body temperature. Keep immersed for 20 to 40 minutes. Seek medical assistance.

EYE CONTACT
Flush thoroughly with water for at least 15 minutes. Get medical assistance.

INGESTION
Not Applicable

NOTE TO PHYSICIAN
This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.

SECTION 5 FIRE-FIGHTING MEASURES

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

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING
Fire Fighting Instructions: Allow the fire to burn under controlled conditions. Stop leak if you can do so without risk. Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Flammable Gas. Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources, causing a flashback fire danger. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: -103°C (-153°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 2.4 UEL: 9.5
Autoignition Temperature: 432°C (810°F)

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

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

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of the spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that provide chemical resistance and, when necessary, heat-resistance and/or thermal insulation are recommended. Note: gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Small spills: normal work clothes are usually adequate. Large spills: full body suit of chemical and thermal resistant material is recommended. Chemical goggles and face shield are recommended if contact with liquefied gas is possible.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning. Allow liquid to evaporate from the surface. All equipment used when handling the product must be grounded. Do not direct water at spill or source of leak. Do not touch or walk through spilled material. If possible, turn leaking containers so that gas escapes rather than liquid. Isolate area until gas has dispersed. Prevent spreading of vapour through sewers, ventilation systems and confined areas. Use water spray to reduce vapour or divert vapour cloud drift. Avoid allowing water run-off to contact spilled material.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Allow liquid to evaporate from the surface. See Land Spill section of the SDS for advice on gases.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction

and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

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

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Ethyl mercaptan is added to gas as an odorant to aid in the detection of the gas in case of leak or accidental discharge. Since ethyl mercaptan is reactive, a reduction in its effectiveness may occur during transport and storage of the odorised gas. Therefore, odour must not be used exclusively as a safety measure. Handle gas with strict adherence to established safety procedures. Use proper bonding and/or earthing procedures.However, bonding and earthing may not eliminate the hazard from static accumulation. Material can accumulate static charges which may cause an electrical spark (ignition source).

Static Accumulator: This material is a static accumulator.

STORAGE

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. The type of container used to store the material may affect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Storage containers should be earthed and bonded.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Substance Name	Form	Limit/Standard			Note	Source
ETHYL MERCAPTAN		TWA	0.5 ppm			ACGIH
ISOBUTANE		STEL	1000 ppm			ACGIH
PROPYLENE		TWA	500 ppm			ACGIH

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

ENGINEERING CONTROLS

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

Use explosion-proof ventilation equipment to stay below exposure limits.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use

with this material, as provided below, is based upon intended, normal usage.

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

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

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

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

Thermally protective, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet-style gloves.

Eye Protection: Face shield is recommended.

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

Thermally protective and chemical resistant apron and long sleeves are recommended when volume of material is significant.

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

ENVIRONMENTAL CONTROLS

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

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

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

GENERAL INFORMATION

Physical State: Gas
Form: Liquefied
Colour: Colourless
Odour: Mercaptan
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.51
Flammability (Solid, Gas): Flammable - Category 1
Flash Point [Method]: -103°C (-153°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 2.4 UEL: 9.5
Autoignition Temperature: 432°C (810°F)
Boiling Point / Range: -42°C (-44°F)
Decomposition Temperature: N/D
Vapour Density (Air = 1): 1.5 at 101 kPa
Vapour Pressure: 850 kPa (6375 mm Hg) at 20ºC
Evaporation Rate (n-butyl acetate = 1): > 1
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/A
Solubility in Water: Negligible
Viscosity: [N/D at 40°C] | 0.5 cSt (0.5 mm2/sec) at 15°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: >-187°C (-305°F)

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

MATERIALS TO AVOID: Strong oxidizers

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

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: (Rat) 15 minute(s) LC50 1443 mg/l	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Not applicable.
Skin	
Acute Toxicity: No end point data for material.	Not applicable.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures.

Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes.
Sensitisation	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer.
Aspiration: No end point data for material.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: Data available.	Not expected to be a germ cell mutagen. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471 473 474
Carcinogenicity: No end point data for material.	Not expected to cause cancer.
Reproductive Toxicity: Data available.	Not expected to be a reproductive toxicant. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 422
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: Data available.	Not expected to cause organ damage from prolonged or repeated exposure. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 412 413 422

TOXICITY FOR SUBSTANCES

NAME	ACUTE TOXICITY
ETHYL MERCAPTAN	Dermal Lethality: LD50 > 2000 mg/kg (Rat); Inhalation Lethality: 4 hour(s) LC50 > 2.52 mg/l (Vapour) (Rat); Oral Lethality: LD 50 682 mg/kg (Rat)

OTHER INFORMATION

For the product itself:

May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage. Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite (cold burn). Exposure to this material, or one of its components, in situations where there is the potential for high levels, such as in confined spaces or with abuse, may result in abnormal heart rhythm (arrhythmia). High-level exposure to hydrocarbons (above occupational exposure limits) may initiate arrhythmia in a worker that is undergoing stress or is taking a heart-stimulating substance such as epinephrine, a nasal decongestant, or an asthma or cardiovascular drug. Simple asphyxiant: Acts by displacing oxygen in the lungs thereby diminishing the supply of oxygen available to the blood and tissues. Symptoms include shortness of breath, rapid heart rate, incoordination, lethargy, headaches, nausea, vomiting, and disorientation. Continued lack of oxygen may result in convulsions, loss of consciousness and death. Since exercise increases the tissue need for oxygen, symptoms will occur more quickly during exertion in an oxygen-deficient environment. Oxygen in enclosed spaces should be maintained at 21 percent by volume.

CMR Status: None.

Chemical Name	CAS Number	List Citations
ISOBUTANE	75-28-5	4
PROPYLENE	115-07-1	4

--REGULATORY LISTS SEARCHED--

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

SECTION 12 ECOLOGICAL INFORMATION

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

ECOTOXICITY

Material -- Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

Material -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be inherently biodegradable

Atmospheric Oxidation:

Material -- Expected to degrade at a moderate rate in air

BIOACCUMULATION POTENTIAL

Material -- Potential to bioaccumulate is low.

SECTION 13 DISPOSAL CONSIDERATIONS

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

DISPOSAL RECOMMENDATIONS

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

REGULATORY DISPOSAL INFORMATION

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

SECTION 14 TRANSPORT INFORMATION

LAND (TDG)

Proper Shipping Name: LIQUEFIED PETROLEUM GASES
Hazard Class & Division: 2.1
UN Number: 1075
Packing Group: (N/A)

LAND (DOT)

Proper Shipping Name: PETROLEUM GASES, LIQUEFIED
Hazard Class & Division: 2.1
ID Number: 1075
Packing Group: (N/A)
ERG Number: 115
Label(s): 2.1
Transport Document Name: UN1075, PETROLEUM GASES, LIQUEFIED, 2.1

SEA (IMDG)

Proper Shipping Name: PETROLEUM GASES, LIQUEFIED
Hazard Class & Division: 2.1
EMS Number: F-D, S-U
UN Number: 1075
Packing Group: (N/A)
Marine Pollutant: No
Label(s): 2.1
Transport Document Name: UN1075, PETROLEUM GASES, LIQUEFIED, 2.1 (-103°C c.c.)

AIR (IATA)

Proper Shipping Name: PETROLEUM GASES, LIQUEFIED
Hazard Class & Division: 2.1
UN Number: 1075
Packing Group: (N/A)
Label(s) / Mark(s): 2.1
Transportation Limitations: CARGO AIRCRAFT ONLY
Transport Document Name: UN1075, PETROLEUM GASES, LIQUEFIED, 2.1

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Class A: Compressed Gas Class B, Division 1: Flammable Gases

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

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

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
ISOBUTANE	75-28-5	6
PROPANE	74-98-6	6
PROPYLENE	115-07-1	6

--REGULATORY LISTS SEARCHED--

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

SECTION 16 OTHER INFORMATION

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

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H220: Extremely flammable gas; Flammable Gas, Cat 1
H225: Highly flammable liquid and vapor; Flammable Liquid, Cat 2
H280: Contains gas under pressure; may explode if heated; Pressurized Gas
H332: Harmful if inhaled; Acute Tox Inh, Cat 4
H400: Very toxic to aquatic life; Acute Env Tox, Cat 1
H402: Harmful to aquatic life; Acute Env Tox, Cat 3
H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Updates made in accordance with implementation of GHS requirements.

DGN: 5007473 (1010550)

SAFETY DATA SHEET
According to the Hazardous Products Regulations

Quaker State Automatic Transmission Fluid

Version	Revision Date:	SDS Number:	Print Date: 2016-04-28
1.4	2016-04-06	800001003748	Date of last issue: 08.03.2013
			Date of first issue: 08.03.2013

SECTION 1. IDENTIFICATION

Product name : Quaker State Automatic Transmission Fluid

Product code : 001B0927

Manufacturer or supplier's details

Manufacturer/Supplier : **Shell Canada Products**
400 - 4th Avenue S.W
Calgary AB T2P 0J4
Canada

Telephone : (+1) 8006611600
Telefax : (+1) 4033848345

Emergency telephone number : CHEMTREC (24 hr): 1 (703) 527-3887 or 1 (800) 424-9300 (US)
CANUTEC (24 hr): (+1) 613-996-6666; Toll Free: 1-888-CAN-UTEC (226-8832)

Recommended use of the chemical and restrictions on use

Recommended use : Transmission oil.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

Hazard pictograms : No Hazard Symbol required

Signal word : No signal word

Hazard statements : PHYSICAL HAZARDS:
Not classified as a physical hazard under GHS criteria.
HEALTH HAZARDS:
Not classified as a health hazard under GHS criteria.
ENVIRONMENTAL HAZARDS:
Not classified as an environmental hazard under GHS criteria.

Precautionary statements : **Prevention:**
No precautionary phrases.
Response:
No precautionary phrases.

Storage:
No precautionary phrases.
Disposal:
No precautionary phrases.

Other hazards which do not result in classification
Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Used oil may contain harmful impurities.
Not classified as flammable but will burn.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name : Quaker State Automatic Transmission Fluid

Chemical nature : Highly refined mineral oils and additives.
The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Alkyl methacrylates copolymer	Not Assigned	1 - 3
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	Not Assigned	0 - 90

SECTION 4. FIRST-AID MEASURES

General advice : Not expected to be a health hazard when used under normal conditions.

If inhaled : No treatment necessary under normal conditions of use.
If symptoms persist, obtain medical advice.

In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention.

In case of eye contact : Flush eye with copious quantities of water.
If persistent irritation occurs, obtain medical attention.

If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

Most important symptoms and effects, both acute and delayed : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas.
Ingestion may result in nausea, vomiting and/or diarrhoea.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the

incident, injury and surroundings.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : Do not use water in a jet.

Specific hazards during fire-fighting : Hazardous combustion products may include:
A complex mixture of airborne solid and liquid particulates and gases (smoke).
Carbon monoxide may be evolved if incomplete combustion occurs.
Unidentified organic and inorganic compounds.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid contact with skin and eyes.

Environmental precautions : Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Slippery when spilt. Avoid accidents, clean up immediately.
Prevent from spreading by making a barrier with sand, earth or other containment material.
Reclaim liquid directly or in an absorbent.
Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.

Additional advice	:	For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet.

SECTION 7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Advice on safe handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
Avoidance of contact	:	Strong oxidising agents.
Product Transfer	:	This material has the potential to be a static accumulator. Proper grounding and bonding procedures should be used during all bulk transfer operations.

Storage

Other data	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labeled and closable containers. Store at ambient temperature.
Packaging material	:	Suitable material: For containers or container linings, use mild steel or high density polyethylene. Unsuitable material: PVC.
Container Advice	:	Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of	Control parameters / Permissible	Basis

		exposure)	concentration	
Oil mist, mineral	Not Assigned	TWA ((inhalable fraction))	5 mg/m3	US. ACGIH Threshold Limit Values

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp
L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Engineering measures : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:
Adequate ventilation to control airborne concentrations.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information:
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and

protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Personal protective equipment

Respiratory protection : No respiratory protection is ordinarily required under normal conditions of use.
In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material.
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
Select a filter suitable for the combination of organic gases and vapours [Type A/Type P boiling point >65°C (149°F)].

Hand protection
Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced.
Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material.
Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.

Eye protection : If material is handled such that it could be splashed into eyes, protective eyewear is recommended.

Skin and body protection : Skin protection is not ordinarily required beyond standard work clothes.
It is good practice to wear chemical resistant gloves.

Thermal hazards	:	Not applicable
Protective measures	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Environmental exposure controls

General advice	:	Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water. Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid at room temperature.
Colour	:	red
Odour	:	Slight hydrocarbon
Odour Threshold	:	Data not available
pH	:	Not applicable
pour point	:	-48 °C / -54 °F Method: ISO 3016
Initial boiling point and boiling range	:	> 280 °C / 536 °F estimated value(s)
Flash point	:	180 °C / 356 °F Method: ISO 2592
Evaporation rate	:	Data not available
Flammability (solid, gas)	:	Data not available
Upper explosion limit	:	Typical 10 %(V)
Lower explosion limit	:	Typical 1 %(V)

Vapour pressure	:	< 0.5 Pa (20 °C / 68 °F) estimated value(s)
Relative vapour density	:	> 1 estimated value(s)
Relative density	:	0.864 (15 °C / 59 °F)
Density	:	864 kg/m3 (15.0 °C / 59.0 °F)Method: ISO 12185
Solubility(ies)		
Water solubility	:	negligible
Solubility in other solvents	:	Data not available
Partition coefficient: n-octanol/water	:	Pow: > 6 (based on information on similar products)
Auto-ignition temperature	:	> 320 °C / 608 °F
Viscosity		
Viscosity, dynamic	:	Data not available
Viscosity, kinematic	:	7.3 mm2/s (100 °C / 212 °F) Method: ISO 3104 33.8 mm2/s (40.0 °C / 104.0 °F) Method: ISO 3104
Explosive properties	:	Not classified
Oxidizing properties	:	Data not available
Conductivity	:	This material is not expected to be a static accumulator.
Decomposition temperature	:	Data not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.
Chemical stability	:	Stable.
Possibility of hazardous reactions	:	Reacts with strong oxidising agents.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Strong oxidising agents.

Hazardous decomposition products	:	Hazardous decomposition products are not expected to form during normal storage.

SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment	:	Information given is based on data on the components and the toxicology of similar products.Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Information on likely routes of exposure
Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.

Acute toxicity

Product:

Acute oral toxicity	:	LD50 (rat): > 5,000 mg/kg Remarks: Expected to be of low toxicity:
Acute inhalation toxicity	:	Remarks: Not considered to be an inhalation hazard under normal conditions of use.
Acute dermal toxicity	:	LD50 (Rabbit): > 5,000 mg/kg Remarks: Expected to be of low toxicity:

Skin corrosion/irritation

Product:

Remarks: Expected to be slightly irritating.
Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Serious eye damage/eye irritation

Product:

Remarks: Expected to be slightly irritating.

Respiratory or skin sensitisation

Product:

Remarks: Not expected to be a skin sensitiser.

Germ cell mutagenicity

Product:

Genotoxicity in vivo	:	Remarks: Not considered a mutagenic hazard.

Carcinogenicity

Product:

Remarks: Not expected to be carcinogenic.

Remarks: Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies.
Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

Reproductive toxicity

Product:

Effects on fertility : Remarks: Not expected to impair fertility.
Not expected to be a developmental toxicant.

STOT - single exposure

Product:

Remarks: Not expected to be a hazard.

STOT - repeated exposure

Product:

Remarks: Not expected to be a hazard.

Aspiration toxicity

Product:

Not considered an aspiration hazard.

Further information

Product:

Remarks: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal.
ALL used oil should be handled with caution and skin contact avoided as far as possible.

Remarks: Slightly irritating to respiratory system.

SECTION 12. ECOLOGICAL INFORMATION

Basis for assessment : Ecotoxicological data have not been determined specifically for this product.
Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).(LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity)	:	Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to crustacean (Acute toxicity)	:	Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to algae/aquatic plants (Acute toxicity)	:	Remarks: Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to fish (Chronic toxicity)	:	Remarks: Data not available
Toxicity to crustacean (Chronic toxicity)	:	Remarks: Data not available
Toxicity to microorganisms (Acute toxicity)	:	Remarks: Data not available

Persistence and degradability

Product:

Biodegradability	:	Remarks: Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but contains components that may persist in the environment.

Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: Contains components with the potential to bioaccumulate.
Partition coefficient: n-octanol/water	:	Pow: > 6 Remarks: (based on information on similar products)

Mobility in soil

Product:

Mobility	:	Remarks: Liquid under most environmental conditions. If it enters soil, it will adsorb to soil particles and will not be mobile.

Remarks: Floats on water.

Other adverse effects

Product:

Additional ecological information : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

Poorly soluble mixture.
May cause physical fouling of aquatic organisms.

Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

Contaminated packaging : Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.
Disposal should be in accordance with applicable regional, national, and local laws and regulations.

SECTION 14. TRANSPORT INFORMATION

National Regulations

TDG
Not regulated as a dangerous good

International Regulation

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution category	:	Not applicable
Ship type	:	Not applicable
Product name	:	Not applicable
Special precautions	:	Not applicable

Special precautions for user

Remarks	:	Special Precautions: Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.
Additional Information	**:**	MARPOL Annex 1 rules apply for bulk shipments by sea.

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

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

The components of this product are reported in the following inventories:

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC -

No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

A vertical bar (|) in the left margin indicates an amendment from the previous version.
Revision Date : 2016-04-06

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CA / EN

Appendix D Detailed Reporting Requirements

INCIDENT NOTIFICATION PROTOCOL [1]

	Negligible (1)	Minor (2)	Serious (3)	Major (4)	Critical (5)
Health & Safety	• No illness or adverse effect. • Medical treatment is not necessary. • Injury requiring First Aid treatment	• Minor illness or adverse effect with limited or no impacts on ability to function • Multiple First Aid Injuries • Medical Aid Injury	• Serious illness or adverse effects with mild to moderate functional impairment • Injury requiring modified work • Multiple Modified Work Injuries • Multiple Medical Aid Injuries	• Major illness or chronic exposure resulting in long term effects. • Medical treatment for exposure to toxic substance (i.e. H_2S) • Lost Time Injury • Injury resulting in long term disability or disfigurement • Potential Serious Injury or Fatality (SIF)	• Critical illness or chronic exposure resulting in fatality or significant life shortening effects. • Fatality or fatalities • Multiple Lost Time Injuries • Life Threatening physical assault or threat
	** Potential Serious Injury or Fatality (SIF) = MAJOR (4)				
Assets	• Negligible asset loss or damage to facility resulting in costs <$50K	• Minor asset loss or damage to facility resulting in costs >$50K but <$250K	• Serious asset loss, damage to facility resulting in costs >$250K but <$500K	• Major asset loss or damage to facility resulting in costs >$500K but <$2M • Declaration of a Level 1 emergency as defined by the regulator	• Critical asset loss or damage to facility resulting in costs >$2M • Declaration of a Level 2 or 3 emergency as defined by the regulator
Environment[2]	• Tier 4[2] • Liquid release contained on lease (<2m^3) • Liquid release extends beyond lease (<0.1m3) • Gas release on lease (<30,000 m^3) • Negligible environmental impact	• Tier 3[2] • Liquid release contained on lease (≥ 2m^3 but < 10 m^3) • Liquid release extends beyond lease (≥0.1m3 but < 2m3) • Gas release on lease (≥ 30,000 m^3 but < 100,000 m^3) • Gas release off lease (< 30,000 m^3) • Public, wildlife or worker health/safety are not in jeopardy • Response requiring on-site resources • Minimal environmental impact	• Tier 2[2] • Liquid release contained on lease (≥10m^3 but < 100m^3) • Liquid release extends beyond lease (≥2m3 but < 10m3) • Gas release off-lease (≥ 30,000 m^3 but < 100,000 m^3) • Public, wildlife or worker health/safety could be jeopardized • Response requiring local resources	• Tier 1[2] • Liquid release contained on lease (≥ 100 m^3) • Liquid release extends beyond lease (≥ 10m^3) • Gas release on or off lease (≥100,000m^3) • Response requiring regional resources • Single wildlife impact	• Tier 1[2] with Fire / Explosion • Liquid release into Waterbody or sensitive habitat • Release extends beyond lease – public health/safety are jeopardized. • Release impacting a sensitive species • Release requiring long term response and remediation effort • Multiple wildlife impacted
Reputation	• Regulatory enforcement action not likely • Non-conformance to internal procedures or requirements • Individual concern • No Media attention	• Regulatory enforcement action (fines < $100K) • Short term community concern	• Regulatory enforcement action (fines > $100k but < $1M) and or criminal charges laid	• Regulatory enforcement action (fines > $1M but <5M) and or criminal charges laid • Close regulatory scrutiny of Asset level operations / future proposals • Local Media coverage or social media coverage • Major interest group concern • Short term regional concern	• Regulatory enforcement action (fines > $5M) and or criminal charges laid • Negative national publicity • Negative impact on market share or investor valuation • Major venture / asset operations severely restricted

[1] This document is to be used as a quick reference guide only and is not a controlled document. The contents are excerpted from Paramount Incident Management Governance Document. Any revisions must be made within the Governance document before being reflected here. The intent is to be used for internal incident notification purposes only; emergency response plan is to be used when responding to emergencies. **First determine if this is an Emergency or Incident response – IS THE SITUATION UNDER CONTROL? If not, initiate Emergency Response Plan.**

[2] For Tier categorization or Regulatory Reportable Thresholds, consult with local Safety or Environmental Advisor and Corporate HSE team

Notification Timing based on Actual[1] Incident Severity

Operations		Drilling/Completions		Engineering Facilities Construction		HSE		Actual Incident Severity				
Notification By:	Notification To:	Notification By:	Notification To:	Notification By:	Notification To:	Notification By:	Notification To:	Negligible	Minor	Serious	Major	Critical
Worker	Supervisor/ Foreman	Worker	Site Supervisor	Worker	Site Supervisor			Immediate [2]	Immediate [2]	Immediate [2]	Immediate [2]	Immediate [2]
Foreman	Ops Manager **&** Safety or Environment Advisor	Site Supervisor	Superintendent & Safety or Environment Advisor	Site Supervisor (Inspector)	PM. & Safety or Environment Advisor			Within 24 hrs	Immediate	Immediate	Immediate	Immediate
Ops Manager	Ops Director	Superintendent	D&C Director	PM	Facilities Manager			WDS	Within 24 Hrs	Within 8 Hrs	Immediate	Immediate
						Safety or Environment Advisor	Health & Safety Manager OR Environment Team Leader	NBD	Within 24 Hrs	Immediate	Immediate	Immediate
						Health & Safety Manager OR Environment Team Leader	HSE Director	WDS	Within 24 Hrs	Within 8 Hrs	Immediate	Immediate
Ops Director	Ops VP			Facilities Manager	Eng. VP	HSE Director	EVP Ops	WDS	NBD	Within 8 Hrs	Immediate	Immediate
Ops VP	EVP Ops **&** CEO	D&C Director	EVP Ops & CEO	Eng. VP	EVP Ops & CEO			WDS		Within 24 Hrs	Within 8 Hrs	Immediate

Notes:
1 – Notification requirements based on actual severity (or potential SIF)
2 – "Immediate" incident notification occurs after physical response steps to bring the event to a safe state
WDS – Weekly Data Summary
NBD – Next Business Day (Mon-Fri)

Initial Internal Notification Requirements

Include the following information when providing initial notifications:

Reporting / Responsible Region:			
Date:		**Time:**	
Event Type:		**Actual Severity:**	
Potential SIF:	☐ Yes ☐ No	**Location:**	
Reason for SIF Classification:		**Nearest Municipality:**	
		Person Involved:	Name
		Position	Position
☐ Employee ☐ Contractor		Company Name	

Description of incident (What, where, when, how):
Action Taken:
Actual and Potential Impacts:
People:
Environment:
Assets / Operational Impact:
Reputation:
Regulatory:
Reported to Government Agency?

Who:		Contact Number:		Time:	

What information was provided:

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

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

REPORT LINE USE ONLY

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

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

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

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

REPORT LINE USE ONLY

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

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

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

Northwest Territories Petroleum Industry Release Reporting Requirements

All spills exceeding the spill/release quotas listed in the table on the following page MUST be reported immediately to the appropriate regulatory agency.

Agency	Reportable Spills	Report Type	Report To
Office of the Regulator of Oil and Gas Operations (OROGO)	Operators must report **all incidents and near-misses** to the Regulator as soon as the circumstances permit by calling 1-867-445-8551.	Verbal	(OROGO) 1-867-445-8551
		Written	Operators must submit an investigation report, within 21 days of the day an incident or near-miss occurs, if the incident or near-miss involves: ~ A death ~ An injury that required time off work ~ A fire or explosion ~ A leak ~ An immediate threat to safety or ~ A significant pollution event
The Department of Environment and Natural Resources (ENR)	Reported releases or potential releases of any size that: 1) Are near or in an open water body 2) Are near or in a designated sensitive environment or habitat 3) Pose an imminent threat to human health or safety; or 4) Pose an imminent threat to a listed species at risk or its critical habitat Substances regulated by Environment and Natural Resources if: 1) Release meets or exceeds the reporting threshold in the NWT spill Reporting Requirements column in the **Reportable Threshold table** on the following page.	Verbal	NWT/Nunavut 24 Hr. Spill Reporting Line 867-920-8130
		Written	Fill out the Spill Report Form found at: https://www.enr.gov.nt.ca/sites/enr/files/128-spill_report_form_e_fillable_1.pdf Submit the completed form via: Fax: 867-873-6924 OR Email: spills@gov.nt.ca
Transportation of Dangerous Goods (TDG)	Substances regulated by Transportation of Dangerous Goods if: 1) A release is anticipated, or the release meets or exceeds the reporting threshold in the TDG Reporting Requirements column in the **Release Reporting Thresholds** table on the following page.	Verbal	911 Local Authority 403-873-7406 (Yellowknife)
		Written	Within 30 days
Canadian Transport Emergency Centre (CANUTEC)	Loss and theft reporting: 1) CANUTEC - all loss or theft of dangerous goods materials 2) Natural Resources Canada Inspector - Class 1 explosive materials only 3) Canadian Nuclear Safety Commission - Class 7 radioactive materials only	Verbal	1) 888-226-8832 or 613-996-6666 2) 613-995-5555 3) 613-995-0479
		Written	Within 30 days
Department of Fisheries and Oceans (DFO)	A release of any substance deleterious to fish into a fish bearing water body.	Verbal	Inuvik 867-777-7500 Yellowknife 867-669-4900
National Energy Board (NEB)	Immediately reportable events as defined in the NEB Event Reporting Guidelines December 2017: 1) An incident that harms people or the environment, 2) A rupture, or 3) A toxic plume Note: Immediately reportable incidents must be reported within 3 hours to both the TSB Reporting Hotline and NEB's OERS. If applicable, refer to the Federal Roles & Responsibilities chart in SECTION 5: EXTERNAL AGENCIES and the NEB site section behind the AREA SPECIFIC INFORMATION tab for further regulations, definitions and reporting guidelines.	Verbal	Via Transportation Safety Board (TSB) Reporting Hotline 819-997-7887
		Written	NEB Online Event Reporting System (OERS) https://apps.neb-one.gc.ca/ers/home/index
Indian Oil & Gas (IOGC)	Immediately reportable events on First Nation reserve lands only: 1) Any health or environment-threatening emergency or off-lease spills. 2) On-lease spills greater than $1m^3$.	Verbal	IOGC Tsuu T'ina Office 403-292-5625

Note: The Departments of Environment and Natural Resources and Lands, and the Office of the Regulator of Oil and Gas Operations (OROGO) are responsible for coordinating Government of the Northwest Territories regulatory oversight and investigation of hazardous material spills in NWT under their respective jurisdictions.

Note: Spills must be reported promptly to avoid possible prosecution.

Lead Agency Contact Numbers	
Northwest Territories	
The Office of the Oil and Gas Regulator (OROGO)	1-867-445-8551
NWT/Nunavut 24 Hr. Spill Reporting Line	1-867-920-8130
Canada	
CANUTEC	
All Provinces	888-CAN-UTEC (888-226-8832) 613-996-6666
National Energy Board / Transportation Safety Board of Canada	
Incident Reporting Line	819-997-7887

See following page for spill / release quotas.

Northwest Territories Petroleum Industry Release Reporting Requirements

All spills exceeding the spill/release quotas listed in the table on the following page MUST be reported immediately to the appropriate regulatory agency.

Chemical Class	Substance / Example	T.D.G. Reporting Requirements		OROGO / ENR Reporting Requirements
		Road, Rail or Marine	Loss or Theft	
Spilled Liquid Substances	Hydraulic Oil	No TDG Reporting Requirements		When released on a frozen water body that is being used as a working surface
	Methanol	See Class 3 & 6.1		
	Natural Gas	See Class 2.1		Uncontrolled release or sustained flow of 10 minutes or more
	Crude Oil / Emulsion (Unrefined)	See Class 3		>100 L or 100 kg
	Produced / Salt Water (Unrefined)	No TDG Reporting Requirements		
	Drilling Fluid or Invert Mud			
	Condensate (Unrefined)	See Class 3		
	Glycol	No TDG Reporting Requirements		No Reporting Requirement
	Fresh Water			
	Any fluid with toxic substances			>5L or 5 kg
Class 1 Explosives	Ammunition Nitro-glycerine	Any quantity of Packing Group II	Any quantity in Class 1.1, 1.2, and 1.3 Total quantity of 450 kg or more in Class 1.4 (except 1.4S), 1.5, or 1.6	Any amount
Class 2.1 Flammable Gases	H_2S	Any quantity	Total quantity of 450 kg or more	Any amount of gas from containers with a capacity greater than 100L
	Methane Propane Butane Natural Gas			
Class 2.2 Non-Flammable Gases	Compressed Air O_2 N_2 CO_2		No TDG Reporting Requirements	Any amount of gas from containers with a capacity greater than 100L
Class 2.3 Toxic Gases (poisonous or corrosive)	H_2S SO_2 Hydrogen Cyanide Nitric Acid Anhydrous Ammonia		Any quantity	Any amount
Class 3 Flammable Liquids	Gasoline Diesel Methanol Demulsifiers Scale Inhibitors Lube Oil	Any quantity of Packing Group I or II More than 30 L or 30 kg of Packing Group III	Total quantity of 450 kg or more of desensitized explosives Any quantity of UN1261, Nitromethane	>100L
Class 4.1 Flammable Solids	Calcium Resinate Naphthalene Crude		Total quantity of 450 kg or more of desensitized explosives Any quantity of UN1357, Urea Nitrate, with not less than 20% water, by mass; UN3370, Urea Nitrate, Wetted, with not less than 10% water by mass	>25 kg
Class 4.2 Spontaneously Combustible	Activated Carbon Potassium Sulphide Phosphorus		Total quantity of 450 kg or more in Packing Groups I or II	
Class 4.3 Water reactant substances	Molten Sulphur Calcium Carbide Sodium Activated Carbon		Total quantity of 450 kg or more in Packing Groups I or II	
Class 5.1 Oxidizing Substances	Calcium Nitrate Ammonium Nitrate Bleaches		Total quantity of 450 kg or more in Packing Groups I or II Any quantity of UN1485, Potassium Chlorate; UN1486, Potassium Nitrate; UN 1487, Potassium Nitrate and Sodium Nitrate Mixture; UN1489, Potassium Perchlorate; UN1495, Sodium Chlorate; UN1498, Sodium Nitrate; UN1499 Sodium Nitrate and Potassium Nitrate Mixture; UN1511, Urea Hydrogen Peroxide; UN1942 Ammonia Nitrate, with not more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substances; UN2014 Hydrogen Peroxide, Aqueous Solution with not less than 20% but not less than 60% hydrogen peroxide (stabilized as necessary); UN2015, Hydrogen Peroxide, Stabilized; UN2031, Nitric Acid, other than red fuming; UN3149, Hydrogen Peroxide and Peroxyacetic Acid Mixture with acid (s), water and not more than 5% peroxyacetic acid, stabilized	50 kg or 50 L
Class 5.2 Organic Peroxides	Methyl Ethyl Ketone Peroxide Succinic Acid Peroxide		Any quantity in Class 5.2, Type B, liquid or solid, temperature controlled	>1L or 1 kg
Class 6.1 Poisonous Toxic Substances	Arsenic Lead Acetate Mercuric Oxide Methanol Toxic Pesticides		Any quantity of Packing Group I	>5L or 5 kg
Class 6.2 Infectious Substances	Infectious Substances affecting Humans / Animals Sewage and wastewater	Any quantity of Category A or B	Any quantity	Any amount
Class 7 Radioactive Substances	Uranium Plutonium Naturally Occurring Radioactive Materials (N.O.R.M.)	For packages being transported under exclusive use: (i) 10 mSv/h on the external surface (ii) 2 mSv/h on the surface of the conveyance, and (iii) 0.1 mSv/h at a distance of 2 m from the surface For packages not being transported under exclusive use: (i) 2 mSv/h on the external surface (ii) 0.1 mSv/h at a distance of 1m from the package, (iii) 2 mSv/h on the surface of the conveyance, and (iv) 0.1 mSv/h at a distance of 2m from the surface of the conveyance.	Any quantity	Any amount
Class 8 Corrosives	Acids Bases Batteries Caustic Amine	Any quantity of Packing Group I or II 30 L or 30 kg of Packing Group III	Total quantity of 450 kg or more in Packing Group I or II Any quantity of UN1796, Nitrating Acid Mixture with more than 50% nitric acid; UN1826, Nitrating Acid Mixture, Spent, with more than 50% nitric acid; UN2032, Nitric Acid, Red Fuming	5 kg or 5 L
Class 9 Miscellaneous Products, Substances & Organisms, Environmentally Hazardous Substances	P.C.B. Asbestos Polystyrene Beads Gas Plant Filters Benzoic Acid Chromic Acetate Cupric Sulphate	30 L or 30 kg of Packing Group II or III, or without Packing Group	No TDG Reporting Requirements	>5L or 0.5 kg
Class 9.1 Miscellaneous (except and with PCB mixtures 5 or more ppm)				0.5 L or 100 kg
Class 9.2 Aquatic Toxic				No Reporting Requirement
Class 9.3 Wastes (chronic toxic)				Any amount

Other items in the ENR Spill Reporting Regulation that are applicable but do not fit in the above table format.

Item	Substance Spilled	Specified Amount
	Waste or spent chemicals, used or waste oil, vehicle fluids, wastewater	>100L or 100 kg

For all other reportable substances/quantities, please refer to company SDS sheets for more information.

List of Environment & Climate Change Canada's E2 Regulated Substances: https://ec.gc.ca/ee-ue/default.asp?lang=En&n=06FCD512-1

H_2S / HVP IGNITION PROCEDURE

PRE-IGNITION CONSIDERATIONS – On-Site Group Supervisor

When making the decision to ignite, the licensee must take the following into consideration:

Hydrogen Sulphide (H_2S)

- ❑ Proximity to residences, public facilities, towns or urban centres.
- ❑ Risk of exposure / injury to the public or response workers.
- ❑ Status of evacuation.
- ❑ Wind conditions and general topography.
- ❑ Fire hazard after ignition in relation to adjacent forested or cropland area.
- ❑ Safety of the Ignition Team (hazard area identification, protective gear).

High Vapour Pressure (HVP)

- ❑ The increased risk(s) of delayed ignition.
- ❑ Whether the perimeter of the hazard area has been established.
- ❑ Whether the public has been evacuated from the area.
- ❑ Whether ignition will worsen the situation by endangering the public or the environment or damaging the equipment used to control the product.
- ❑ Whether wind direction has been established and is being continually monitored.
- ❑ Whether the possibility of an explosion has been assessed (i.e., obstructions or regions of congestion within the perimeter of the dispersion vapour cloud).

IGNITION MUST TAKE PLACE WHEN ONE OF THE FOLLOWING CONDITIONS HAS BEEN MET:

- ❑ Although required, evacuation of the response zones has not taken place.
- ❑ H_2S concentrations in excess of 15 ppm for 15 minutes in unevacuated parts of the EPZ.
  If monitoring levels are declining, then the situation needs to be continuously assessed for ignition.
- ❑ H_2S concentrations exceed 1 ppm per one hour average in urban density developments.
- ❑ Monitoring is not taking place due to weather or other unforeseen circumstances
- ❑ The release cannot be brought under control in the short term (ignition decision will be made by Incident Commander. Notify Regulatory Agency intention to ignite.

AND

- ❑ Personnel working at the site can be cleared to a safe distance.

ONCE ANY OF THE ABOVE CONDITIONS HAS BEEN MET, IGNITION MUST OCCUR WITHIN 15 MINUTES OF THE DECISION TO IGNITE.

Yes

IS THERE TIME TO DISCUSS THE IGNITION DECISION WITH THE OPERATIONS SECTION CHIEF, THE INCIDENT COMMANDER, AND THE REGULATORY AGENCY?

No

Review with the Operations Section Chief, the Incident Commander, and Regulatory Agency:

- ❑ Employee and public safety.
- ❑ Site conditions.
- ❑ Site control procedures.
- ❑ Monitoring of Emergency Hazard Area.

IS IGNITION THE MOST FAVOURABLE CONTROL OPTION TO MINIMIZE THE HAZARD?

No

- ❑ Continue with release control procedures onsite.
- ❑ Review possible control procedures.

Yes

- ❑ Determine post ignition emergency service requirements.
- ❑ Assemble and brief ignition team.
- ❑ Go to Ignition Procedures Flowchart.

IGNITION PROCEDURE – On-Site Group Supervisor

PREPLANNING

Prior to ignition the Operations Section Chief will:

- ❑ Ensure all nonessential personnel are evacuated.
- ❑ Isolate the hazard area using manned roadblocks.
- ❑ Assemble the Ignition Team (2 people).
- ❑ Ensure the Ignition Team is protected with personal protective equipment, clothing and breathing apparatus (cover exposed skin).
- ❑ Erect windsock and streamers (if time permits).
- ❑ Monitor the area for combustible gas.
- ❑ Fully discuss ignition procedures.
- ❑ Check radio communications.

APPROACH

Select a position to attempt safe ignition which will:

- ❑ Allow for safe retreat.
- ❑ Be upwind of the gas leak (300m minimum from edge of identified vapor plume, approach no closer than 100m on repeated ignition attempts).
- ❑ Be in an area where no combustible gas is detected.
- ❑ If possible, get behind a hill, building, tree or other protective barrier to shield yourself.

EXAMPLE IGNITION KIT

2	Flare Pistol
36	Flares
2	Safety harness with front D-ring
2	30m (100ft) flame resistant rope
2	Flame resistant coveralls
2	Sets of ear protection
2	Hard hats with face shield
2	Flame resistant hard hat liners (balaclava or regular style)
1	LEL Gas detector
1	H_2S Gas detector
4	Self contained breathing apparatus (positive pressure) with 30 minute air supply, includes 2 spare bottles
1	Radio equipped vehicle

ATTEMPT IGNITION

- ❑ Fire flare gun to hit vapour cloud at the perimeter where air to fuel mixtures are correct for ignition (near outer edge and ground level).
- ❑ Turn away from target.

PLUME IGNITED?

No

REPEAT IGNITION

- ❑ Continue approach and repeat until successful (100m minimum from edge of identified vapour plume).
- ❑ DO NOT proceed if Ignition Team is no longer in a safe area.

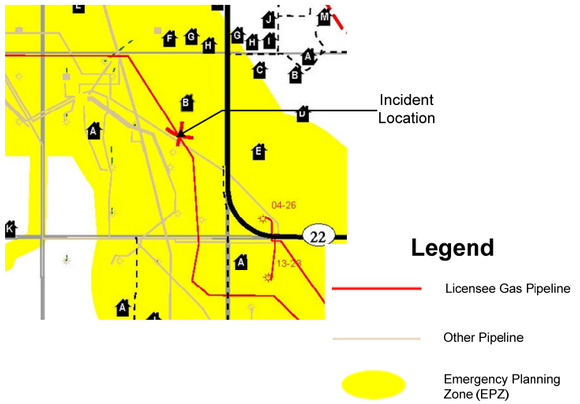
Yes

POST IGNITION

- ❑ Advise Incident Commander.
- ❑ Continue to monitor downwind for gas accumulations.
- ❑ Maintain security around immediate area.
- ❑ Assist emergency service crews with any fire control measures needed.

Determining Emergency Response Zones

1. Identify the location of the incident on the map:



2. Determine the hazard area:

a) Locate the Emergency Planning Zone (EPZ) calculation tables for the field in the ERP. EPZ calculation tables are located in the Area Specific Information section of the ERP.

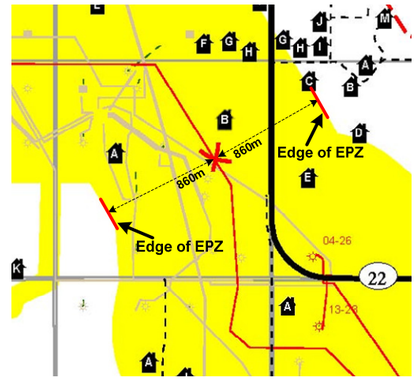
b) Use the EPZ calculation tables to identify the Emergency Planning Zone (EPZ) for the well or pipeline involved in the incident.

From		To		License Number	Line	EPZ (m)	Status
14-06-020-02W5	CS	09-14-020-03W5	PL	12640	223	860	O
09-14-020-03W5	CS	10-27-020-03W5	PL	12640	223	860	O
10-27-020-03W5	CS	16-32-020-03W5	PL	12640	223	860	O
16-32-020-03W5	CS	09-01-021-04W5	PL	12640	223	860	O
09-01-021-04W5	CS	16-34-020-04W5	PL	12640	223	860	O
16-34-020-04W5	PL	15-34-020-04W5	PL	12640	254	860	O
15-34-020-04W5	PL	02-04-021-04W5	GP	12640	255	860	O

Note: There are many instances when the EPZ for the incident may not be the full size of the yellow EPZ on the map such as when two pipelines are running parallel to each other or when a well EPZ is contained within a larger pipeline EPZ.

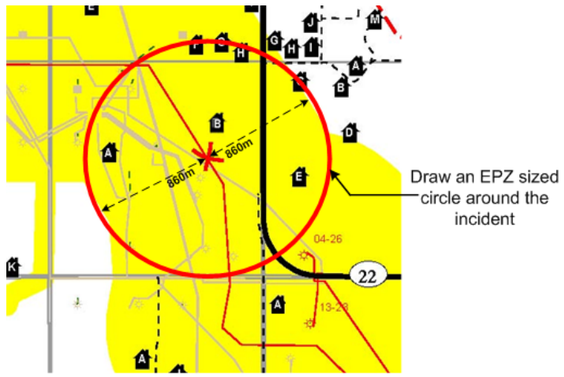
3. Draw the Emergency Planning Zone:

a) Once you have determined your EPZ, use the map to mark the edges of the EPZ on either side of the incident location.



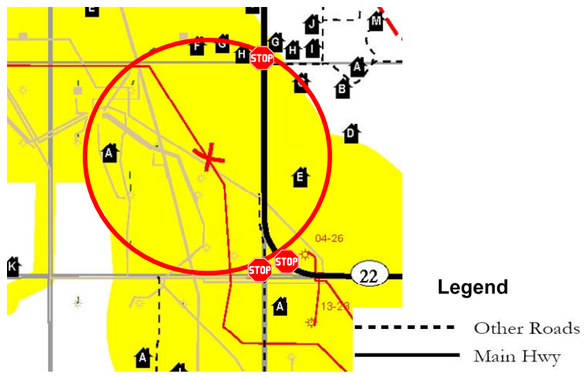
3. *Continued*

b) Using the distance from the incident location to the edge of the EPZ, draw a complete circle around the incident site.

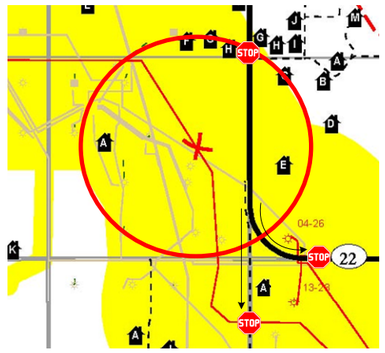


4. Isolate the hazard area:

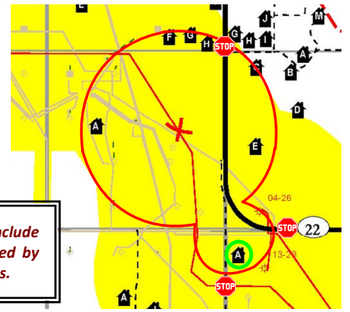
a) As a guideline, establish roadblock locations where any road or highway enters / leaves the EPZ (refer to the stop signs in the picture below for examples).



b) Roadblock locations should be highly visible to traffic providing them with enough opportunity to safely stop. Roadblocks should be established at locations where traffic can easily turn around or detour. Adjust your initial roadblock locations as necessary to ensure these criteria are met.



c) If roadblock locations are moved further away from the hazard, additional surface developments may be included in the isolation area. This includes those who would have to egress through the hazard area to leave the area. Any new surface developments added by moving the roadblock locations will need to be included when the public is notified / evacuated / sheltered.



Note: Expand the EPZ to include any residences you have added by moving the roadblock locations.

4. *Continued*

The public protection measures begin at the centre and expand outward downwind of the release so that members of the public are not exposed to the hazard. Priority is directed towards those who are the most at risk. Residents should be evacuated / sheltered in the following order:

1) Closest to incident
2) Residents downwind
3) Sensitive residents in the EPZ (those who have health problems or may require transportation assistance)
4) The rest of the EPZ

The company should receive authorization from local authorities or the RCMP before establishing roadblocks on public roads. The company must contact the RCMP and the transportation authority to have one-, two– or three-digit highways closed. However, if the safety of the public is in jeopardy, the company must be prepared to quickly restrict access to the area before contacting these agencies.

If warranted, the regulatory agency can issue a Closure Order that provides legal authority to close the area. The local authority may, if warranted, declare a Local State of Emergency. This grants the local authority special powers to do such things as road closures or declare mandatory evacuation.

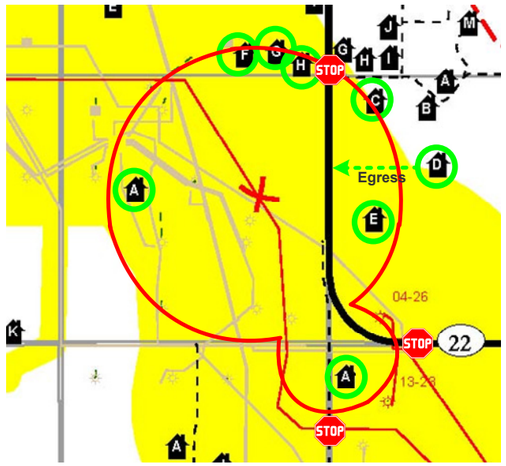
The public must also be prevented from flying into the airspace above a gas release. It may be necessary for NAV CANADA to issue a Notice to Airmen (NOTAM) to advise the pilots of restrictions in the airspace above the EPZ or to close the airspace for a certain radius from the release (a no-fly zone). NOTAMs or closure of airspace may be requested by the regulatory agency at a level 2 or level 3 emergency.

5. Dispatch Rovers to patrol the EPZ in search of any transient activity.

Determining Emergency Response Zones

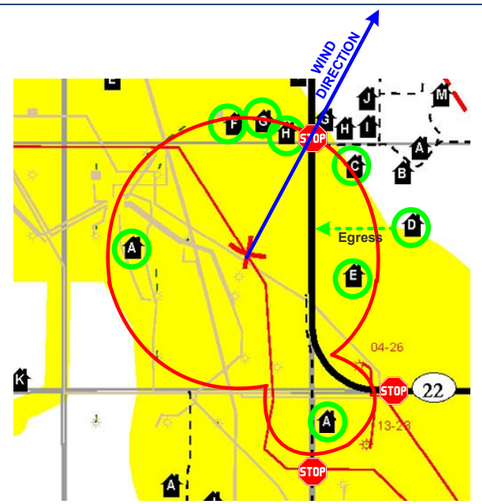
6. Analyze the potential impact to the public. Are there any of the following within the EPZ:

a) Determine if you have any of the following in the IIZ: Residences / businesses, public facilities, recreation areas, urban centres (immediately contact the local authority to coordinate response)



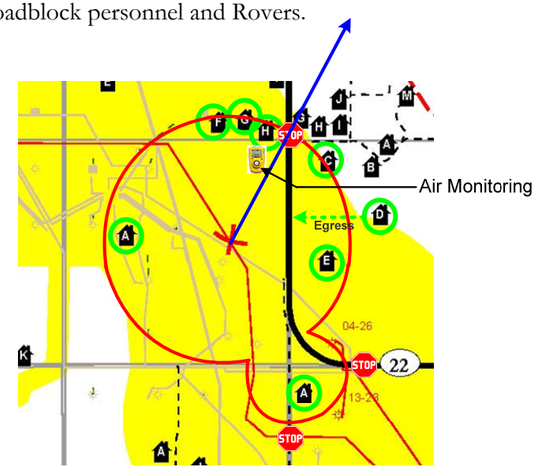
7. Determine wind direction:

a) Determine the wind direction. To indicate the wind direction on the map, draw a straight line starting at the incident location and ending outside of the EPZ.



8. Dispatch Air Monitors to take readings downwind of the incident with priority given to the nearest unevacuated residence or place where people may gather:

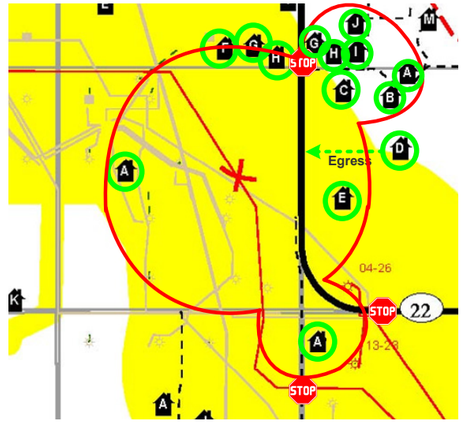
a) Air monitoring readings should also be coming in from Roadblock personnel and Rovers.



9. Expand the hazard area if the air monitoring readings reported by the Rovers, Roadblock, and Air Monitoring personnel indicate dangerous levels for the Roadblock personnel and the public near the edge of the hazard area.

a) If you expand the hazard area you must evacuate / shelter any newly impacted residences including those who would have to egress through the hazard area to leave the area.

Note: If you do not have contact information for the residences outside of the EPZ or you do not have the resources to coordinate the response outside of the EPZ contact the Local Authority to assist with response efforts.



10. Assign a Telephoner Team to contact people in the area and provide them with emergency instructions (i.e., Shelter-In-Place, Early Notification / Voluntary Evacuation, Evacuation).

a) Priority should be given to those closest to the hazard, those downwind of the hazard, and those considered sensitive (i.e., health issues, requires transportation assistance, etc.). **See the Public Protection Measures tab for more information on determining appropriate Public Protection Measures.**

b) Send a **Rover** to assist with evacuation if requested.

11. If any residents are evacuated, assign a Reception Centre Representative to establish and manage a Reception Centre.

Appendix E Mackenzie Delta Spill Response Corporation Container Contents

CONTAINER 8

Location: Inuvik
Date inventoried: June 2015

Attached is a copy of the inventory for this container.

If anything needs repairs please contact info@mackenziespillresponse.ca.

If you remove or replace anything please update the inventory sheet and scan a copy to info@mackenziespillresponse.ca.

Item		Quantity	Remarks
BOOMS, BRIDLES, CONNECTOR PINS & BOOMVANE			
BOOMS, FENCE	10" x 50' sections (Yellow) c/w Shotgun Connectors & 5' folds	2	
ELECTRICAL EQUIPMENT & GENERATORS			
EXTENSION CORDS	50'	4	
	100'	1	6 K ea
GENERATORS (Gasoline)	Kodiak Gas Model SGB5500HX	1	C.8 Ser. C008175 90K PM OK Sep. 10
LIGHT STAND	Portable, c/w light	4	
LIGHTS, HAND	Portable, 500W Halogen	2	
	Spare 500W Halogen bulbs	4	
PLUG	Twist Lock 20A/125/250V		
FUEL, GAS, OIL, LUBES & ADDITIVES			
ANTI - FREEZE	Gas Line 150 mL	2	
OIL	2 cycle, 1L	10	1 partially used
	Chain, 4L	1	
	Engine, 4L Synthetic 0W-30	1	
ICE EQUIPMENT			
AUGER - ICE	Gasoline Powered, Stihl 31cc Mod. BT120 c/w 10" bit and 2' extension	1	PM OK Sep.08
AUGER BIT - ICE	6" Bit	1	
AUGER/CHAIN SAW TOOL KIT	Includes chain file etc.	1	
CHAIN SAW	Gasoline Powered Stihl 92cc Model 066 c/w 36" bar & chain. C/W manual. Mounted on Sleigh.	1	PM OK Sep. 08
CHAIN SAW AIR FILTER		2	
CHAIN SAW	Gasoline Powered Stihl 92cc Model 066 c/w 52" bar & chain. Mounted on Sleigh.	1	Marked 8815. 106 K with sleigh #2 PM OK Sep. 08
CHAIN SAW BAR	48" Spare	1	
CHAIN SAW CHAIN	48" Spare	5	Marked 8816. 136 K with sleigh #1
ICE BLOCK LIFTER T BAR	c/w 1 "T" Bar c/w chain	2	

Item		Quantity	Remarks
LADLES		2	
SAW SLEIGH		2	
MISCELLANEOUS			
AXES	Fire, Long Handled	2	See also "Pulaskis" this section
BATTERIES, C CELL	For Megaphones	8	Batteries Sep. 05
BRUSH	Floor, Long Handled	1	
CHAIN SAW CHAPS		1	
CHALKLINE		2	
CHALKLINE REFILLS		6	
CONES, TRAFFIC		12	
DECON	Brushes	2	
	Trays	3	
DELINEATION KIT TUB		1	
FENCE	Snow, Orange	4	
FIELD DESK	RubberMaid, c/w log book, pencils & document supply	1	
FILES		2	
FUNNELS	Small	1	8 K
GARBAGE BAGS	Box	1	
HACKSAW	c/w spare blades	1	
HAMMER	Ball Peen	1	
	Claw	1	
	Sledge 8 lb.	1	
	Sledge 14 lb	1	
HEATER	"Reddy", Electric powered, Diesel fuel	1	C.8 Ser. 5986876 Fueled May 07 PM OK Sep.08
KIT, GROUNDING & BONDING	Rubbermaid Tub c/w Lid	1	Added Sep.08
	15' Yellow Coated Cable c/w BLACK clamp each end	2	
	25' Yellow Coated Cable c/w RED clamp on each end	1	
KNIFE	Utility, c/w spare blades	1	
LANTERNS	Hand	8	
MEGAPHONE	c/w Siren	1	C cell Batteries included.New Sep 05. OK Sep. 08
PADLOCKS	Installed on units. Combination type, Programmable, Master Locks on doors.	1	Locks maintained in June 2015. Combos on main doors are 6565. All but C2 main door still 5656.
PAINT	Aerosol - Orange	3	
PLIERS	Regular	1	
	Needlenose	1	
PLYWOOD	3/4 x 4' x 8'	2	
RAKES	Long Handled	2	
SCRAPER	Ice	2	
SCREWDRIVER	Flat Blade, Large	2	
	Multi tip	1	
SHOVELS	Scoop, Aluminum, "D" grip	4	
	Snow	2	

Item		Quantity	Remarks
SIGNS	Caution	1	
	Restricted Area	2	
SPARK PLUG		2	
SQUEEGEE	Long Handled	2	
TAPE	CAUTION	1	in Delineation kit
	DANGER	1	in Delineation kit
	Duct	3	
	Electrical (Rolls)	1	
TAPE MEASURE	25'	1	
	100'	1	
TARPAULINS		1	
TIN SNIPS		3	
TOOL BOX	Portable	1	
TIGER TORCH	c/w regulator and hoses - Propane	1	Propane bottles in #16
WIRE FLAGS	Bundles	2	
WRENCH	Pipe - 18"	1	
	Pipe - 24"	1	
	Pipe - 36"	1	
SAFETY EQUIPMENT GENERAL			
AIR HORN		1	
EMERGENCY KIT	Roadside	2	
FIRE EXTINGUISHER	20lb ABC, N2 Refillable	2	
N2 FIRE EXTINGUISHER BRACKET	N2 Type	2	
NITROGEN CARTRIDGES	Fire Extinguishers Spares	4	
POWDER, FIRE EXTINGUISHER	Purple K - 50lb Pails	1	
WINDSOCK	Sock	1	
	Extension Pole, c/w drill bit	1	
SAFETY EQUIPMENT PERSONAL			
BLANKETS		4	
BOOTS	Rubber, c/w steel toe & shank Size 11	1	
GLOVES	Monkey Grip	12	
	Neoprene	12	
LIFEVESTS	Extra Large PFDs	6	See also "Boat" that are not included here
VESTS	Road, c/w reflective tape	5	
SORBENTS			
PADS	100 Bale. Oil Only (White)	6	
SOCKS	Bags	2	
TOTES 11-27 c/w Lids & Drain Assemblies			
Tote Tank Drain Assemblies	c/w 1.5" drain plug adapter, "O" Ring, 2" DC Kamlock, 2" ball valve, 2" x 1.5" reducer nipple		
#18		1	

Photos

Photo 1: Exterior of C8, taken on June 12, 2015

Photo 2: Entrance to C8 with two fire extinguishers, taken on June 12, 2015

Photo 3: Interior of C8, taken on June 12, 2015

Photo 4: T18 contents, taken on June 12, 2015

Photo 5: T18 contents continued, taken on June 12, 2015

Photo 6: C8 tool rack, taken on June 12, 2015

Photo 7: C8 saw sleighs, taken on June 12, 2015

Photo 8: Purple K and restricted area sign in C8, taken on June 12, 2015

Photo 9: Miscellaneous tools and supplies, taken on June 12, 2015

Photo 10: C8 emergency road kits and toolbox, taken on June 12, 2015

Photo 11: Lubricants for chainsaws and the chainsaw tool box, taken on June 12, 2015

Photo 12: Ice auger, monkey grip gloves, and hand lanterns in C8, taken on June 12, 2015

Photo 13: C8 chainsaw and extension cords, taken on June 12, 2015

Photo 14: Tarpaulin and emergency blankets in C8, taken on June 12, 2015

Photo 15: C8 equipment, taken on June 12, 2015

Photo 16: Road vests and decon. kit in C8, taken on June 12, 2015

Photo 17: Delineation Kit and assorted equipment in C8, taken on June 12, 2015