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# SPILL CONTINGENCY PLAN

## Road Repair and span free bridge construction Clyde River vs Cape Christian



*Prepared for:* Nunavut Impact Review Board  
Nunavut Water Board

*Prepared by:* Qikiqtaaluk Corporation  
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June 2008  
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## **EXECUTIVE SUMMARY**

The road repair and span free bridge construction activities between Clyde River and Cape Christian shall be conducted over a period of two years starting in June 2009.

This document describes requirements for fuel spill emergency planning to be implemented during the project. It includes:

- a- Duties and Responsibilities
- b- Fuel and Lube Requirements and Storage Capacity
- c- Training and Drills
- d- Material and Equipment
- e- Emergency Procedures
- f- Reporting Requirements

The objectives of this project is to repair the abandoned road between Clyde River and Cape Christian (an re-route part of it) in order to use said road for crew rotation and resupply to a construction camp that will be installed at Cape Christian in 2008 to support the clean up activities to be conducted in 2009 and 2010 summer seasons (a separate Land Use Permit and Water License was obtained by INAC for that project).

This project is funded by Qikiqtaaluk Corporation as part of their mandate to bring benefits to the communities of Baffin Island. Qikiqtaaluk Corporation is a company owned by the Qikiqtani Inuit Association (QIA), the Inuit birthright organization representing the Baffin region of Nunavut.

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## **PREAMBLE**

The Spill Contingency Plan shall be effective from March 2009 until October 2010, date to which the Project (70°29'22.67"N, 68°29'27.31"W) shall be completed.

The following formal distribution has been made of this Plan.

Harry Flaherty, Qikiqtaaluk Corporation, Iqaluit  
Elisha Sanguya, Land Use officer, Hamler of Clyde River  
James Qillaq, QIA representative of Clyde River  
Nunavut Water Board, Gjoe Haven

Additional copies and updates of this Plan may be obtained by writing to:

Philippe Simon, Ph.D., P.Eng.  
Qikiqtaaluk Environmental Inc.  
3333 Queen Mary road, suite 580  
Montreal, PQ, H3V 1A2  
psimon@qenv.ca

## 1-GENERAL

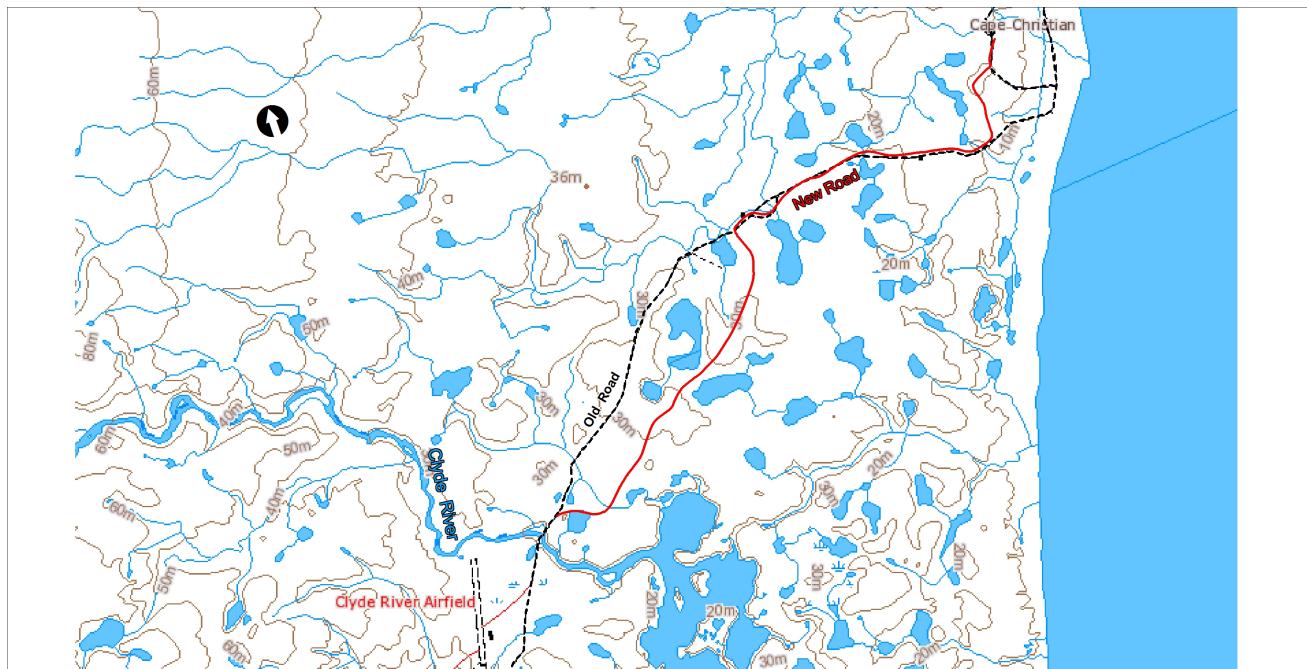
The spill emergency plan was developed to assist the Contractor in implementing measures to protect the environment and minimize impacts from spill events. It provides precise instructions to which all personnel shall be familiarized with during emergency situations. The Plan outlines procedures for responding to spills in a way to minimize potential health and safety hazards, environmental damage, and clean up costs.

The map presented on the following page shows the existing layout of the road between Clyde River and Cape Christian on Baffin Island, Nunavut. The road is approximately 10 km. A span free bridge was already constructed over the Clyde River in July 2009, a fish bearing habitat. Otherwise, culverts need to be installed at 7 river crossings.

The spill emergency plan insures that the Contractor will respect all applicable laws, regulations and requirements of federal and/or territorial authorities. Qikiqtaaluk Corporation is acquiring all required permits, approvals and authorizations required for the project. The Contractor will comply with those permits and approvals. The Contractor will work in close collaboration with all regulatory authorities to ensure full compliance according to applicable federal or territorial laws, regulations and/or guidelines. The following documents shall be used as guidelines for spill containment:

- The *Canadian Environmental Protection Act* controls hazardous substances from their production and/or import, their consumption, storage and/or disposal. Furthermore, this act also includes procedures to handle specified levels of PCB contaminated materials, and requirements for PCB storage facilities.
- The *Fisheries Act* protects fish and their habitat from pollution, disturbance, or fish movement disturbances. Fisheries and Oceans Canada is responsible to review permit applications or restoration plans submitted by other agencies.
- The *Transportation of Dangerous Goods Act* and *Regulations* describe safety measures in the transportation of dangerous goods. The act applies to all handling of dangerous goods by any means of transport whether or not the goods originate from or are destined for any place(s) in Canada.

- The Territorial Land Use Regulations define regulatory measures to maintain appropriate environmental practices for any land use activities on territorial lands. These regulations require that land use permits be issued for such operations as the clean up work to be conducted at Clyde River and Cape Christian (use of heavy machinery, camp operation, use of explosives, construction of access roads, etc.).
- The Guidelines for Preparation of Hazardous Material Spill Contingency Plans describe parameters that should be considered in the development of hazardous material spill emergency plans. It also defines the information that should be incorporated into a comprehensive contingency plan.
- The Code of Practice for Used Oil Management defines appropriate environmental options for handling, storage, collection, recycling, transportation, reuse and/or disposal of used oils in Canada. It gives standard procedures to handle used oil generators. It also helps regulatory authorities to formulate provincial and/or regional strategies for used oil management.
- The Nunavut Environmental Protection Act governs the protection of the environment from contaminants. The act defines offenses and penalties as well as the powers of environmental inspectors.
- The Code of Practice for Used Oil Management defines appropriate environmental options for handling, storage, collection, recycling, transportation, reuse and/or disposal of used oils in Canada. It gives standard procedures to handle used oil generators. It also helps regulatory authorities to formulate provincial and/or regional strategies for used oil management.
- The Nunavut Spill reporting regulations defines the requirement for the preparation of a spill contingency plan and the obligation of the owner or person in charge in case of a spill.



**Figure-1: Location of the road between Clyde River and Cape Christian**

- The Field Guide for Oil Spill Response in Arctic Waters developed by the Emergency Prevention Preparedness and Response, a program of the Arctic Council, describes response methods and strategies for operations and provides technical support documentation.

## 2-FUEL AND LUBE REQUIREMENTS AND STORAGE CAPACITY

A variety of fuels and oils will be used during road repair activities at the site. The greatest volumes involved consist in diesel fuel. Other substances such as aviation fuel, lubricant oils, hydraulic fluid, antifreeze, fuel additives, gasoline, engine coolants, are used but their volumes are small compared with diesel fuels. All these products are to be considered as potential environmental and safety hazards.

The following table summarizes the estimated quantities mobilized on site.

**Table-1: Quantities of Petroleum Products stored on site**

Liquids to be used	Estimated Volumes (Litres)
diesel fuel	20,500
Gasoline	2500
Engine oil	40
Transmission oil	10
Differential oil	5
Hydraulic oil	10

The MSDS of all these products are found in appendix 1. Diesel and gasoline products will be delivered to the site (by marine shipment) in 205-Litre drums strapped on pallets. Once used, all these UN approved drums will be either sent back down south by marine shipping during site demobilization to the supplier to recover the deposit, or crushed and landfilled at the Cape Christian site, if damaged. One intermediate fuel tanks will also be used to:

- Supply the different heavy equipments on the field: One 683 litre tank (150 gal) and two 1140 litres (250 gal) installed in the back of Ford F250 pick up trucks. These fuel tanks will be filled from drums using a 12-Volt fuel pump (20gpm). A 12-Volt fuel pump will also be used to transfer the fuel from these tanks for equipment reservoirs.

For all petroleum products stored in drums, the following storage facility is to be used:

The drum storage will be installed at Cape Christian, at distance away from highwater mark and traffic to comply with all conditions of permits. Small berms will be constructed around the storage area (to contain spills from accidents), spill kits (see below) will be installed in the vicinity and restricted area/no smoking area placards will be posted. The area will be graded to have a smooth gravel pad prior to haul pallets from the beach (sealift unloading) to the storage area. To prevent spreading in the event of a spill, fuel stored in drums will be located, whenever practical, in a natural depression a minimum distance of 90 feet from all bodies of water, preferably in an area of low permeability. All fuel storage containers will be situated in a manner that allows easy access and removal of containers in the event of leaks or spills. Large fuel caches in excess of 20 drums will be inspected daily.

12 Volt fuel pumps (and hand pumps) are to be used for fuel transfer operations with drums of gasoline, oils and lubricants.

### **3-DUTIES AND RESPONSIBILITIES**

As part of the spill emergency response, the Contractor is responsible of implementing, through its site superintendent or its authorized representative, the following procedures:

- a- To communicate immediately the spill event to the GN official (immediately shall mean upon discovery).
- b- To authorize the use of personnel and applicable equipment to contain the spill using the most reliable method.
- c- To eliminate all fire hazards and potential ignition sources near the spill area.
- d- To implement all required safety and security procedures at the site of the spill.
- e- To eliminate the source of the spill or reduce the rate of discharge, if such procedures can be implemented with respect to health and safety requirements.
- f- To contain the spill using the most appropriate methods for the situation (dykes, ditches, sorbent materials, containment booms and other barriers).
- g- To evaluate the possibilities of recovering spilled chemicals.
- h- To mobilize all available personnel, equipment and tools, as required.
- i- To obtain assistance from GN (through its official), from the Hamlet and/or from Environment Canada, if required. To consult and, if required, request assistance from the Canadian Coast Guard and/or and Fisheries and Oceans Canada if the spill affects water.

- j- To obtain additional assistance by hiring northern residents from local communities and/or specialized spill response firms, if required.
- k- To comply with all applicable guidelines and regulations.
- l- To assess on a preliminary basis, environmental impacts on marine, freshwater and terrestrial wildlife and on the general ecosystem and then to communicate with relevant authorities.
- m- To provide documentation for all events and actions.
- n- To report the event to the GN Spill Report Line and to prepare and submit a written spill report using the appropriate form (see below for the list of information required for such submittals).

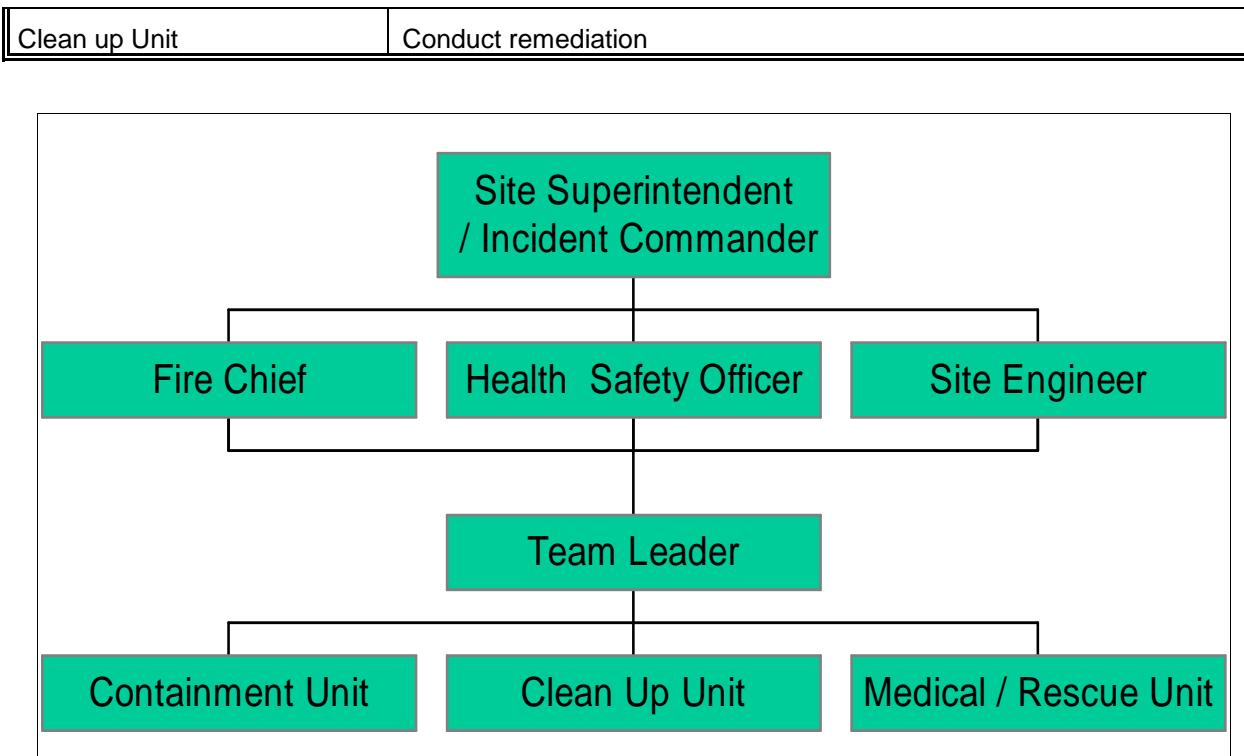
As part of the spill emergency response, the Site Superintendent is responsible for the implementation of the following procedures:

- a- To ensure that appropriate resources required to respond and clean up the spill are made available.
- b- To supervise containment, clean up and restoration operations.
- c- To provide documentation for all events and actions.
- d- To notify relevant government authorities.

The site superintendent (i.e. Harry Flaherty - tel.: 867-979-8406), acting as the incident commander, will have authority over the following department/unit, each having a specific role for the spill response operations:

**Table-2: Roles of Key personnel under the site superintendent for spill response**

Department/Unit	Responsibility
Fire Chief	Ensure existing conditions do not present a fire/explosion hazard
Health & Safety Officer	Ensure spill response workers are not exposed to health and safety risks
Contractor's Site Engineer	Coordinate spill response methods and procedures
Medical / Rescue Unit	Provide assistance to victims (if required)
Spill Response Team Leader	Implement the containment and clean up activities
Containment Unit	Perform spill response



**Figure-2: Emergency Response Team**

Once a spill event is reported, the site superintendent, fire chief, health & safety officer and site engineer shall meet to establish a specific strategy for containing and controlling the spill and to initiate the clean up activities. They shall delegate a person - the Spill Response Team Leader - to oversee the implementation of the strategy. Members of the Cape Christian Fire / Rescue Team, under the direction of the Spill Response Team Leader shall then coordinate the activities of the Containment and Clean up Units. Figure-2 shows a graphic representation of the emergency team and chain of command.

Otherwise, the Contractor will ensure that any selected shipment company have prepared the contingency plans (emergency response plans {ERP}) required to face spill events, and that they can comply with all applicable regulations. The shipment company will be responsible to register their ERP, if required, with the Director General of the Transport of Dangerous Goods Directorate if materials identified for transport are exceeding volumes listed on schedule XII of the TDG regulations. The ERP shall contain information on the nature of risks from dangerous goods and contact names and numbers for emergency assistance.

If during transport, a spill of hazardous materials exceeds the volumes listed in Part 9, Table I of the TDG regulations, the shipment company authorities will have to immediately notify the relevant authorities using the contact lists defined in Table II of the same regulations. The shipment authority will also have to inform his/her employer, the owner of the transport vehicle, and the dangerous goods owner. The shipment authority's employer will then be required to submit a written report to the TDG Director General within 30 days following the spill event.

The Contractor will ensure that the selected shipment company reports the spill events, if those occur, using the appropriate spill response line. Quantities of substances which represent "a spill" are listed in schedule B of the NWT Spill Contingency and Reporting Regulation.

If a spills occurs on water during shipment of material, the shipment company will be responsible to deploy containment booms and recover as much fuel as possible with required and available equipment.

#### **4-TRAINING AND DRILLS**

All personnel on site shall be informed that any spill of fuel and/or hazardous liquids or solids, whatever the extent, has to be reported immediately to the site superintendent or his authorized representative.

The site superintendent and the health and safety officer shall select a group of 4 to 6 on-site workers to be assigned to spill containment in case of emergency. These persons shall be aware of available spill containment equipment, protective clothing and containers and shall be responsible to implement procedures and coordinate other workers if required. These persons shall also be aware that defensive actions and techniques employed will depend on a variety of factors. These include, but are not limited to:

- a- type of pollutant;
- b- degree of loss;
- c- topography of the nearby area; and
- d- proximity to water.

Also, they should know that the most common pollution incident potentially occurring for this road repair project will probably be caused by fuel, oil or other hazardous fluid spills onto land or water resulting from:

- a- human error during transfer operations of fuel from storage drums to day tanks;
- b- rupture of lines, tanks or valves from accidental damage, deterioration or equipment failure; and
- c- leaks from fittings or valves.

Finally, the spill containment team shall be aware that, if a spill occurs, the protection of human health and safety shall be a priority. Even if emergency procedures are attempted to rapidly clean, contain and dispose released contaminants to minimize further environmental impact, human exposure during spill event is to be considered as a real concern and be prevented.

The Contractor site superintendent shall organize a drill with each rotating spill containment team near the beginning of each season. These drills shall mainly be used to determine the time required to mobilize equipment at the drum storage area.

## **5-MATERIAL AND EQUIPMENT**

In order to prevent spills and provide an appropriate response in case of spill events, the Contractor maintains on-site appropriate equipment and material required. These equipment and materials are present on site. A list of spill prevention and spill containment equipment including protective clothing is presented below. Spill kits have a capacity of 630 litres (see [www.quatrex.ca](http://www.quatrex.ca) - item Spill kit Q Ultra 75)

### **5.1 Spill Prevention**

The materials and equipment used for spill prevention are essentially related to waste oil incineration, temporary fuel tank inspection, and temporary containment basin construction:

<u>Qtt</u>	<u>Description</u>
1	roll of HDPE geomembrane
2	Westland waste oil burner (will be at Cape Christian)

### **5.2 Spill Containment**

The material and equipment to be used for spill containment and emergency response including protective clothing are:

<u>Qtt</u>	<u>Description</u>
5	Containerized spill kits having 10 sorbent booms, 2 safety glasses. 2 Nitrile gloves, 100 sorbent sheets
10	Rolls of (38" x 144') sorbent sheets
5	100 metre long/8 inch diameter oil sorbent booms
1	Vacuum suction hose/tank installed on a trailer
2	1 ½" and 2" x 25 ft oil hose c/w kamlock fittings
10	Emergency eye wash station c/w saline solution
10	First aid kit
2	Case of disposable coveralls (50 per case)
2	Cat bulldozer (D6)
2	Cat excavators (320L and 322BL)
2	Cat integrated tool carriers (950 and IT38) c/w snow/gravel bucket, 4 ft forks, material handling arm
1	Cat dump trucks (D250)
2	Dump trucks (Mack and GMC)
1	Bobcat 763 skid loader
25	Fire extinguishers
4	Fire extinguishers, class ABC, 20 lbs dry chemical
1	high pressure air compressor c/w moisture separator, low pressure regulator, adaptor to recharge fire extinguishers and Scott paks
4	Scott air pak (Draeger)
8	spade nose shovels
1	Electric fuel pump - stationary 115 V, approx. 15 USGAL/min , explosion proof switch, water sediment filter
200	Leather work gloves
100	Rubber gloves
20	Nitrile gloves
15	Cartridge half mask respirator
1	Cartridge full face respirator
40	Organic vapour cartridges
120	Pre-filters and filter clips
500	Disposable dust masks
40	Rubber boots steel toe and shank
40	Safety goggles

100 Saranek & Tyvek suits

## 6-SPILL RESPONSE PROCEDURES

Following a spill event, specific procedures shall be implemented by the person who first noticed the emergency situation. These procedures are as follows:

- a- Immediately warn other personnel working near the spill area.
- b- Evacuate the area if health and safety are judged to be threatened.
- c- If not, take appropriate measures to stop, contain and identify the nature of the spill.
- d- Report to the Contractor's site superintendent all relevant information concerning the spill event such as the type and volume of contaminant, the location and approximate size of the spill, the actions already taken to stop and contain the spill and all other observations including the presence of wildlife and meteorological conditions. Notify INAC Water Resources Inspector at (867) 975-4289.

The spill clean up approaches shall be discussed with the GN. GN will communicate with Environment Canada. The selected methods shall be based on criteria where the impacts on human health and safety, wildlife, land, water and other environmental parameters are minimized.

To manage a spill incident, some emergency clean up guidelines shall be followed by the Contractor when applicable. These incorporate some of the material previously described and include:

- e- Sorbent materials will be used to contain the spill and/or to minimize its movement.
- f- Appropriate protective clothing and other safety devices will be used to handle spilled materials.
- g- When the spill occurs on land, dykes may be constructed to limit the spill movement providing granular material is sufficiently available. Snow dikes covered with an impermeable liner may also be used if snow still remains. Otherwise, containment booms will be installed in front of the plume and secured to make sure these sorbent barriers do not get saturated.
- h- Any free product settled in ditches, trenches or any other ground cavities will be removed using equipment such as pumps, buckets or skimmers. Recovered fluids will be temporarily stored in appropriate containers.

- i- Any spill areas will be cleaned up to an extent where land, water and other disturbed environmental systems are restored and the site is left as close as possible to its original state.

## 7-POTENTIAL SPILL ANALYSIS

As part of the analysis of potential spills, their fates and effects, two potential sources of spills have been identified for the road repair project. The first is the drum storage area located at the Cape Christian site. The second consists in the fuel delivery using fuel tanks on pick-up trucks. Each of these two sources are analysed in detail in the following pages.

### 7.1- Scenario #1: Drum Storage Area

The drum storage area will consist of a levelled pad where pallets will be staged/stockpiled. All pallets of drums will be somewhat independent and, therefore the spillage of one drum should not affect the others.

Two potential situations could occur that would cause a spill:

- 1) the accidental spillage of fuel during transfer into temporary tanks;
- 2) the rupture of drums, possibly from a violent impact caused by the collision of a vehicle or piece of heavy equipment.

In the first case, the spilled volume would be, at worst, 45 gallons, which represents the entire volume of one drum. In the other case, we can assume that the impact would occur at mid-height on two stacked pallets and, at worst, sixteen drums would be affected. Therefore the spilled volume should not exceed a total volume of 720 gallons.

In either case the spillage flowrate would be moderate to high and we can assume that the entire volume would be spilled within 15 to 20 minutes.

The general direction of migration would be along the natural drainage pathway. The high water mark is to be located minimum 100 metres down-gradient from the drum storage area. It is unlikely that the spilled fuel would reach the lake because the porous sandy soil

along the way would soak up part of fuel, and also because the low slope will not allow for rapid flow of fuel, thereby providing enough time for the spill response procedures to take effect.

The spill would be communicated by the witness of the scene to the site superintendent, or in his absence, the assistant site superintendent. The latter would then go down the chain of command and advise the appropriate persons of the immediate actions to be taken. Radio communication is to be used at all times on the site and key team members will carry a radio with them at all times.

The personnel responsibilities are outlined in previous sections of this document. The witness of the spill would be advised to try to stop the source of the spill, while waiting for backup help to arrive; his actions would be immediate. The Contractor site engineer would coordinate the spill response activities carried out by the containment unit. Members of this unit would be mobilized to the spill site. The drum storage area can be reached from any other area of the site within a maximum of 25 minutes.

Mobilization of containment equipment to the spill site can be carried out rapidly. A bulldozer and bucket loader will be present in close proximity and can reach the site of the spill within a matter of minutes. A sand and gravel pit is also located in the vicinity, if required for berm construction. Spill response kits containing sorbent material will be kept next to the drum storage location. Containment would be carried out by the construction of soil berms and the installation of sorbent booms. After containment, clean up equipment can be mobilized to the site. A list of equipment is presented in previous sections of this document.

Safety hazards associated with the spill event includes the risk of fire. This can be minimized by preventing personnel from smoking near the spill scene. Risks to personnel (from inhalation and dermal contact) can be prevented by the proper use of personnel protective equipment.

Measures and procedures to prevent such events from occurring include regular inspection of the drum storage area and containment system, and safety rules concerning the use of vehicles and heavy equipment on site, especially in close proximity of this area (e.g., speed

limits, training of heavy equipment operators, restricted area posting, safety orientation of workers, etc.).

## **7.2- Scenario #2: Fuel Delivery**

The fuel delivery operations (small tanks - 250-350 gal - installed on pick-up trucks) to supply fuel to heavy equipment and to carry fuel from the drum storage area to the upper site operations are carrying some risks of spillage.

Any accident involving the fuel delivery pick-up trucks could result in the loss of its entire volume of fuel. Such an accident could occur almost anywhere on site, any place the pick-up trucks have access to.

Heavy equipment works at least 30 metres away from any body of water. Therefore the fuel delivery should not ever get closer than 30 metres from bodies of water. Any fuel spill at that distance would not rapidly reach the receptor.

Any spills would be communicated by the witness of the scene to the site superintendent, or in his absence, the assistant site superintendent. The latter would then go down the chain of command and advise the appropriate persons of the immediate actions to be taken. Radio communication will be used at all times on the site and key team members will carry a radio with them at all times.

The personnel responsibilities are outlined in previous sections of this document. The witness of the spill would be advised to try to stop the source of the spill, while waiting for backup help to arrive; his actions would be immediate. The Contractor site engineer would coordinate the spill response activities carried out by the containment unit. Members of this unit would be mobilized to the spill area. All areas at between Clyde River and Cape Christian can be reached from any other area of the site within a maximum of 25-45 minutes (once roads will all be repaired/maintained).

Mobilization of containment equipment to the spill site can be carried out rapidly. Sorbent booms may be required to contain the oil slick and prevent further spreading or migration to any discharge stream; those are present at the middle site and the lower site. If the construction of an oil-water separator in the discharge stream is necessary, the following equipment and materials would be

required: heavy equipment (loader or excavator), sand and gravel, piping, and tarp/geomembrane. All these equipment and materials could be mobilized within 20 to 30 minutes. If the fuel reaches the discharge stream, spill response measures may have to be implemented further down stream. After containment, clean up equipment will be mobilized to the area. A list of equipment is presented in previous sections of this document. However, due to the size of temporary fuel tanks used for delivery/supply, potential impact from spill are likely to be rapidly contained.

Safety hazards associated with the spill event includes the risk of fire. This can be minimized by preventing personnel from smoking near the spill scene. Risks to personnel (from inhalation and dermal contact) can be prevented by the proper use of personnel protective equipment.

Measures and procedures to prevent such events from occurring include regular safety rules concerning the use of vehicles site, especially in close proximity to sensitive areas (e.g., speed limits, training of truck drivers, etc.).

## **8-REPORTING REQUIREMENTS**

Spills will be immediately reported using the **24 Hour Spill Report Line (867) 920-8130 (NWT/NU) and the Inspector at 867-975-4295**. Immediately shall mean upon discovery. Failure to report can lead to fines. A written spill report will then be prepared by the Contractor with the assistance of the Engineer and submitted to the GN and the Spill Report Line supervisor (see Appendix 2). This report will include:

- a- date and time of the incident;
- b- location or map coordinates and direction of spill movement if not at steady-state;
- c- party responsible for the spill;
- d- type and estimated quantities of spilled contaminant(s);
- e- specific cause of the incident;
- f- status of the spill indicating if spilled materials are still moving or now at steady-state;
- g- approximate surface of contaminated area;
- i- factors affecting spill or recovery such as temperature, wind, etc.;
- j- status on containment actions indicating whether a) naturally, b) booms, dykes or other, c) no containment has been implemented;
- k- corrective action taken or proposed to clean, contain or dispose spilled material;
- l- whether assistance is required and in what form;

- m- whether the spill poses a hazard to persons or property (i.e., fire, drinking water);
- n- comments and recommendations;
- o- name, position and employer of the person reporting the spill; and
- p- name, position department of the person to whom the spill is reported.

Apart from reporting requirements, the Contractor, through its site superintendent, may require special assistance. These could be implemented for the following reasons:

- .1 If assistance and coordination are required for spill response, Environment Canada (Nunavut Office) and the Environmental Protection Service of the Government of Nunavut can be contacted at:

<b>Environment Canada</b>	<b>(867) 975-4644</b>
<b>Environment Canada (24-hour emergencies)</b>	<b>(867) 766-3737</b>
<b>Fax:</b>	<b>(867) 873-8185</b>
<b>INAC Water Resources Inspector</b>	<b>(867) 975-4289</b>
<b>GN Environmental Protection Service</b>	<b>(867) 975-7700</b>
<b>GN Manager of Pollution Control</b>	<b>(867) 975-7748</b>
<b>Fisheries and Ocean Canada</b>	<b>(867) 979-8007</b>

- .2 If medical assistance and coordination are required when injuries occurred during spill incident/spill response and/or critical incident stress is observed after an event, the Baffin Regional Hospital (general enquiries) shall be contacted at:

<b>Baffin Regional Hospital</b>	<b>(867) 979-7300</b>
<b>Clyde River Health Center</b>	<b>(867) 924-6377</b>

- .3 Qikqitaaluk Corporation site superintendent and/or project managers can be reached at:

Harry Flaherty (project manager)	867-979-8400
Philippe Simon (project manager)	514-940-3332
	514-779-3332 (24-hr)

## **APPENDIX -1-**

MSDS of petroleum products stored on site



## Shell Canada Limited Material Safety Data Sheet

Effective Date: 2005-11-07

Supersedes: 2002-11-06



Class B3 Combustible Class D2B Other Toxic  
Liquid Effects - Skin Irritant

### 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: LOW SULPHUR DIESEL CP-43

SYNONYMS: Diesel

Automotive Gas Oil

PRODUCT USE: Fuel Solvent

MSDS Number: 320-043

## MANUFACTURER

Shell Canada Limited

P.O. Box 100, Station M

400-4th Ave. S.W.

Calgary, AB Canada

T2P 2H5

## TELEPHONE NUMBERS

Shell Emergency Number

1-800-661-7378

CANUTEC 24 HOUR EMERGENCY NUMBER

613-996-6666

For general information:

1-800-661-1600

For MSDS information:

403-691-3982

(From 7:30 to 4:30 Mountain Time)

403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

\*An asterisk in the product name designates a trade mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Fuels, Diesel, No. 2	66476-34-6	100	Yes

See Section 8 for Occupational Exposure Guidelines.

### 3. HAZARDS IDENTIFICATION

Physical Description: Liquid Clear To Yellow Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.

Hazards:

Vapour concentrations above the recommended exposure level are irritating to the eyes and respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.

Combustible Liquid.

Irritating to skin.

Vapours are moderately irritating to the eyes.

Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonitis.

Vapours are moderately irritating to the respiratory passages.

**Handling:** Eliminate all ignition sources.

Avoid prolonged exposure to vapours.

Wear suitable gloves and eye protection.

Bond and ground transfer containers and equipment to avoid static accumulation.

Empty containers are hazardous, may contain flammable / explosive dents, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11

#### 4. FIRST AID

**Eyes:** Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

**Skin:** Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.

**Ingestion:** DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs. Do not give anything by mouth to an unconscious person.

**Inhalation:** Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

**Notes to Physician:** The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

#### 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** Dry Chemical  
Carbon Dioxide  
Foam  
Water Fog

**Firefighting Instructions:** Caution - Combustible. Do not use a direct stream of water as it may spread fire. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Avoid inhalation of smoke. Product will float and can be reignited on surface of water. Delayed lung damage can be experienced after exposure to combustion products, sometimes hours after the exposure.

**Hazardous Combustion Products:** A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

## 6. ACCIDENTAL RELEASE MEASURES

Issue warning "Combustible". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

## 7. HANDLING AND STORAGE

**Handling:** Combustible. Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.

**Storage:** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep container tightly closed.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

### OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

Diesel fuel, as total hydrocarbons: 100 mg/m<sup>3</sup>

Skin Notation: Absorption through skin, eyes and mucous membranes may contribute significantly to the total exposure.

**Mechanical Ventilation:** Concentrations in air should be maintained below the recommended threshold limit value if unprotected personnel are involved. Use explosion-proof ventilation as required to control vapour concentrations. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere. Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit.

#### PERSONAL PROTECTIVE EQUIPMENT:

**Eye Protection:** Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.

**Skin Protection:** Impervious gloves (viton, nitrile) should be worn at all times when handling this material. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.

**Respiratory Protection:** If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

#### 9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Clear To Yellow
Odour:	Hydrocarbon Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Cloud Point-43 °C
Boiling Point:	150 - 330 °C
Density:	< 850 kg/m <sup>3</sup> @ 15 °C
Vapour Density (Air = 1):	Not available
Vapour Pressure (absolute):	Not available
pH:	Not available
Flash Point:	Pensky-Martens CC > 40 °C
Lower Explosion Limit:	1 % (vol.)
Upper Explosion Limit:	6 % (vol.)
Autoignition Temperature:	250 °C
Viscosity:	1.3 - 2.1 cSt @ 40 °C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (log K <sub>ow</sub> ):	Not available
Water Solubility:	Insoluble
Other Solvents:	Hydrocarbon Solvents

#### 10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes

**Hazardous Decomposition Products:**  
**Incompatible Materials:**  
**Conditions of Reactivity:**

Thermal decomposition products are highly dependent on combustion conditions.  
 Avoid strong oxidizing agents  
 Avoid excessive heat, open flames and all ignition sources.

## 11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Fuels, Diesel, No. 2	LD50 Dermal Rabbit > 5000 mg/kg LD50 Oral Rat = 9000 mg/kg
<b>Routes of Exposure:</b>	Exposure will most likely occur through skin contact or inhalation.
<b>Irritancy:</b>	This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.
<b>Acute Toxicity:</b>	Vapour concentrations above the recommended exposure level are irritating to the eyes and respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.
<b>Chronic Effects:</b>	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression.
<b>Pre-existing Conditions:</b>	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.
<b>Carcinogenicity and Mutagenicity:</b>	The International Agency for Research on Cancer (IARC) considers that this product is not classifiable as to its carcinogenicity to humans. Middle distillates have caused skin cancers in laboratory animals when applied repeatedly and left in place between applications. This effect is believed to be caused by the continuous irritation of the skin. Good personal hygiene should be maintained to avoid this risk. The American Conference of Governmental Industrial Hygienists (ACGIH) has classified this product as A3 - confirmed animal carcinogen with unknown relevance to humans.

## 12. ECOLOGICAL INFORMATION

Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May cause physical fouling of aquatic organisms.

**Biodegradability:** Not readily biodegradable.  
**Bioaccumulation:** Potential for bioaccumulation.  
**Partition Coefficient (log K<sub>ow</sub>):** Not available

### Aquatic Toxicity

May be harmful to aquatic life.

**Ingredient:** Toxicological Data  
**Fuels, Diesel, No. 2** EL50 - growth rate Algae (72hr) 10 - 100 mg/L  
 EL50 Daphnia Magna (48hr) 10 - 100 mg/L  
 LL50 (WAF method) Rainbow Trout (96hr) 10 - 100 mg/L

**Definition(s):** LL and EL are the lethal loading concentration and effective loading concentration respectively. The concentration represents the amount of substance added to the system to obtain a toxic concentration. They replace the traditional LC and EC for low solubility substances.  
WAF is the water accommodated fraction. A slightly soluble hydrocarbon is stirred into water and the insoluble portions are removed. The remaining solution is the water accommodated fraction.

### 13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

### 14. TRANSPORTATION INFORMATION

#### Canadian Road and Rail Shipping Classification:

UN Number	UN1202
Proper Shipping Name	DIESEL FUEL
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG III
Additional Information	Not Regulated in Containers Less Than or Equal to 450 Litres.
Shipping Description	DIESEL FUEL Class 3 UN1202 PG III Not Regulated in Containers Less Than or Equal to 450 Litres.

### 15. REGULATORY INFORMATION

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

WHMIS Class:	Class B3 - Combustible Liquid Class D2B - Other Toxic Effects - Skin Irritant
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act.
Other Regulatory Status:	No Canadian federal standards.

### 16. ADDITIONAL INFORMATION

**LABEL STATEMENTS**

**Hazard Statement :** Combustible Liquid.  
Irritating to skin.

**Handling Statement:** Eliminate all ignition sources.  
Avoid prolonged exposure to vapours.  
Wear suitable gloves and eye protection.  
Bond and ground transfer containers and equipment to avoid static accumulation.  
Empty containers are hazardous, may contain flammable / explosive dents,  
liquid residue or vapours. Keep away from sparks and open flames.

**First Aid Statement :** Wash contaminated skin with soap and water.  
Flush eyes with water.  
If overcome by vapours remove to fresh air.  
Do not induce vomiting.  
Obtain medical attention.

**Revisions:**

This MSDS has been reviewed and updated.

Changes have been made to:

- Section 1
- Section 3
- Section 5
- Section 8
- Section 9
- Section 12



## Shell Canada Limited Material Safety Data Sheet

Effective Date: 2005-07-26

Supersedes: 2002-08-14

Class B2 Flammable  
LiquidClass D2A Other Toxic  
Effects - CarcinogenClass D2B Other Toxic  
Effects - Eye Irritant

### 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: REGULAR UNLEADED GASOLINE

SYNONYMS: Automotive Fuel  
PetrolPRODUCT USE: Fuel  
MSDS Number: 211-001

## MANUFACTURER

Shell Canada Limited  
P.O. Box 100, Station M  
400-4th Ave. S.W.  
Calgary, AB Canada  
T2P 2H5

## TELEPHONE NUMBERS

Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	613-896-6666
For general information:	1-800-661-1600
For MSDS information:	403-691-3982
(From 7:30 to 4:30 Mountain Time)	403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

\*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Gasoline	86290-81-5	> 90	Yes
Ethyl Alcohol	64-17-5	0 - 10	Yes
Benzene	71-43-2	< 1.5	Yes

See Section 8 for Occupational Exposure Guidelines.

### 3. HAZARDS IDENTIFICATION

Physical Description: Liquid Clear Typical Gasoline Odour

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.

**Hazards:**

Vapour concentrations above the recommended exposure level are irritating to the eyes and respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.

Flammable Liquid.

Irritating to eyes.

May cause cancer.

Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonitis.

May be absorbed by skin contact. Prolonged immersion in liquid may lead to chemical burns.

**Handling:**

Eliminate all ignition sources.

Wear suitable gloves and eye protection.

Bond and ground transfer containers and equipment to avoid static accumulation.

Avoid prolonged exposure to vapours.

Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

**4. FIRST AID**

**Eyes:** Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

**Skin:** Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.

**Ingestion:** DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs.

**Inhalation:** Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

**Notes to Physician:** The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

**5. FIRE FIGHTING MEASURES**

**Extinguishing Media:** Dry Chemical  
Carbon Dioxide  
Foam  
Water Fog

**Firefighting Instructions:** Extremely flammable. Do not use water except as a fog. Product will float and can be reignited on surface of water. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Avoid breathing vapours. Avoid inhalation of smoke. Vapours may travel along ground and flashback along vapour trail may occur. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

**Hazardous Combustion Products:** Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

## 6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand. Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

## 7. HANDLING AND STORAGE

**Handling:** Extremely flammable. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Avoid breathing vapours and prolonged or repeated contact with skin. Vapours may accumulate and travel to distant ignition sources and flashback. Do not use as a cleaning solvent. Never siphon by mouth. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers. Provide adequate ventilation. Launder contaminated clothing prior to reuse. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities.

**Storage:** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect against physical damage to containers.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

### OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

Gasoline: 300 ppm (STEL: 500 ppm)

Ethanol: 1000 ppm

Benzene (skin): 0.5 ppm (STEL: 2.5 ppm)

**Skin Notation:** Absorption through skin, eyes and mucous membranes may contribute significantly to the total exposure.

**Mechanical Ventilation:** Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. Use explosion-proof ventilation as required to control vapour concentrations. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

### PERSONAL PROTECTIVE EQUIPMENT:

**Eye Protection:** Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.

**Skin Protection:** Avoid contact with skin. Use protective clothing and gloves manufactured from nitrile.

**Respiratory Protection:** Avoid breathing vapour or mists. If exposure has the potential to exceed occupational exposure limits, use an appropriate NIOSH-approved respirator. For limited time exposures (< 1 hour) exceeding the OEL, use an organic vapour cartridge. For longer exposures or high concentrations, use a NIOSH-approved supplied-air respirator.

## 9. PHYSICAL DATA

<b>Physical State:</b>	Liquid
<b>Appearance:</b>	Clear
<b>Odour:</b>	Typical Gasoline Odour
<b>Odour Threshold:</b>	< 0.25 ppm
<b>Freezing/Pour Point:</b>	Not available
<b>Boiling Point:</b>	35 - 220 °C
<b>Density:</b>	720 - 760 kg/m <sup>3</sup> @ 15 °C
<b>Vapour Density (Air = 1):</b>	3.5
<b>Vapour Pressure (absolute):</b>	< 107 kPa @ 38 °C
<b>Specific Gravity (Water = 1):</b>	0.74
<b>pH:</b>	Not applicable
<b>Flash Point:</b>	Tag Closed Cup -30 °C
<b>Lower Explosion Limit:</b>	1.4 % (vol.)
<b>Upper Explosion Limit:</b>	7.6 % (vol.)
<b>Autolignition Temperature:</b>	280 °C
<b>Viscosity:</b>	< 1 cSt @ 38 °C
<b>Evaporation Rate (n-BuAc = 1):</b>	Not available
<b>Partition Coefficient (log K<sub>ow</sub>):</b>	2.3
<b>Water Solubility:</b>	Insoluble
<b>Other Solvents:</b>	Hydrocarbon Solvents
<b>Formula:</b>	C <sub>4</sub> - C <sub>11</sub>

## 10. STABILITY AND REACTIVITY

<b>Chemically Stable:</b>	Yes
<b>Hazardous Polymerization:</b>	No
<b>Sensitive to Mechanical Impact:</b>	No
<b>Sensitive to Static Discharge:</b>	Yes
<b>Incompatible Materials:</b>	Avoid contact with strong oxidizing agents and acids.
<b>Conditions of Reactivity:</b>	Avoid excessive heat, open flames and all ignition sources.

## 11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Gasoline	LD <sub>50</sub> Dermal Rabbit > 5 mL/kg LD <sub>50</sub> Oral Rat > 18 mL/kg

## Ethyl Alcohol

LD50 Dermal Rabbit = 20000 mg/kg  
 LD50 Oral Mouse = 3450 mg/kg  
 LC50 Inhalation Rat = 20000 ppm for 10 hours  
 LD50 Oral Rat = 7060 mg/kg  
 LC50 Inhalation Rat = 13700 ppm for 4 hours  
 LD50 Oral Rat = 930 - 5600 mg/kg

## Benzene

Routes of Exposure:  
Irritancy:

Exposure will most likely occur through skin contact or inhalation.  
 Based on the ingredients, this product would be expected to be irritating to the eyes.

## Acute Toxicity:

Vapour concentrations above the recommended exposure level are irritating to the eyes and respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.

## Chronic Effects:

Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression. Prolonged and repeated exposure may cause serious injury to blood forming organs, resulting in anemia and similar conditions.

Carcinogenicity and  
Mutagenicity:

According to the International Agency for Research on Cancer (IARC) this product is considered to be possibly carcinogenic to humans. Epidemiological studies indicate that long term inhalation of benzene vapour can cause leukaemia in man. Benzene has also produced chromosomal aberrations in peripheral blood lymphocytes.

**12. ECOLOGICAL INFORMATION**

Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities.

## Biodegradability:

Not readily biodegradable.

Rapid volatilization.

## Bioaccumulation:

Potential for bioaccumulation.

Partition Coefficient (log K<sub>ow</sub>): 2.3Aquatic Toxicity

May be harmful to aquatic life.

## Ingredient:

## Toxicological Data

## Gasoline

EL60 - growth rate (WAF method) Algae (72hr) 1 - 10 mg/L  
 EL50 (WAF method) Daphnia Magna (48hr) 1 - 10 mg/L  
 LL50 (WAF method) Rainbow Trout (96hr) 1 - 10 mg/L

## Ethyl Alcohol

EL50 - growth rate Algae (72hr) 10 - 100 mg/L

## Benzene

EL50 Daphnia Magna (48hr) 10 - 100 mg/L

LL50 Rainbow Trout (96hr) 1 - 10 mg/L

**13. DISPOSAL CONSIDERATIONS**

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

#### 14. TRANSPORTATION INFORMATION

##### Canadian Road and Rail Shipping Classification:

UN Number	UN1203
Proper Shipping Name	GASOLINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG II
Additional Information	Marine Pollutant
Shipping Description	GASOLINE Class 3 UN1203 PG II
	Marine Pollutant

#### 15. REGULATORY INFORMATION

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

WHMIS Class:	Class B2 Flammable Liquid Class D2A Other Toxic Effects - Carcinogen Class D2B Other Toxic Effects - Eye Irritant
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
Other Regulatory Status:	No Canadian federal standards.

#### 16. ADDITIONAL INFORMATION

##### LABEL STATEMENTS

Hazard Statement :	Flammable Liquid. Irritating to eyes. May cause cancer.
Handling Statement:	Eliminate all ignition sources. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Avoid prolonged exposure to vapours. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

**First Aid Statement :** Wash contaminated skin with soap and water.  
Flush eyes with water.  
If overcome by vapours remove to fresh air.  
Do not induce vomiting.  
Obtain medical attention.

**Revisions:** This MSDS has been reviewed and updated.  
A WHMIS class has been added to this MSDS.  
The ingredients have changed. Other information may also be affected by that change.

## **APPENDIX -2-**

Spill Contingency report

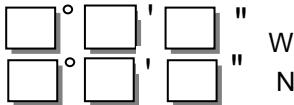
# Spill Contingency Report

## Information of Incident

### Section A

Date of Incident

Time



Location

Coordinates:

Check the Direction of Spill Movement:

N  NW  W  SW  S  SE  E  NE

(State the bearing if possible)

Bearing: \_\_\_\_\_ Rate of Movement: \_\_\_\_\_

Party Responsible for Spill

Type of Substance that Spilled

Estimated Quantity of Substance

## Specific Cause of Incident

### Section B

Please state the causes of the incident above in the following space provided

## Status of Incident

### Section C

Approximate surface area of contamination

List any factors affecting the spill such as:  
wind, temperature, etc.

Containment Actions Taken:

- Occurred Naturally
- Booms used
- Dyke used
- No containment implemented
- Other (specify)  
\_\_\_\_\_

## Action Proposed to Clean, Contain or Dispose of Spilled Substance

*Section D*


*Hazards of Spill*

*Section E*

<input type="checkbox"/> Flammable
<input type="checkbox"/> Combustible
<input type="checkbox"/> Health hazard (specify) _____
_____
_____
<input type="checkbox"/> Corrosive
<input type="checkbox"/> Explosive
<input type="checkbox"/> Radioactive
<input type="checkbox"/> Other (specify) _____
_____

*Information if Assistance is Required*

*Section F*

Organization	
Contact Person	
Contact Number	Alternate Number
Hours of Operation:	

*Comments and Recommendations*

*Section G*


*Information on Person Making Report*

*Section H*

Full Name	(   ) -	Contact Number	Position & Department
Employer			
Submitted to		Reporter's Signature	Date



Canada

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

## REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> 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 <input type="checkbox"/> NWT <input type="checkbox"/> NUNAVUT <input type="checkbox"/> 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	
I	SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
J	SPILL SOURCE		SPILL CAUSE		AREA OF CONTAMINATION IN SQUARE METRES	
K	FACTORS AFFECTING SPILL OR RECOVERY					
L	DESCRIBE ANY ASSISTANCE REQUIRED		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT			
M	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS					
N	REPORTED TO SPILL LINE BY POSITION STATION OPERATOR		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 <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC				SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED	
AGENCY		CONTACT NAME		CONTACT TIME		REMARKS	
LEAD AGENCY							
FIRST SUPPORT AGENCY							
SECOND SUPPORT AGENCY							
THIRD SUPPORT AGENCY							