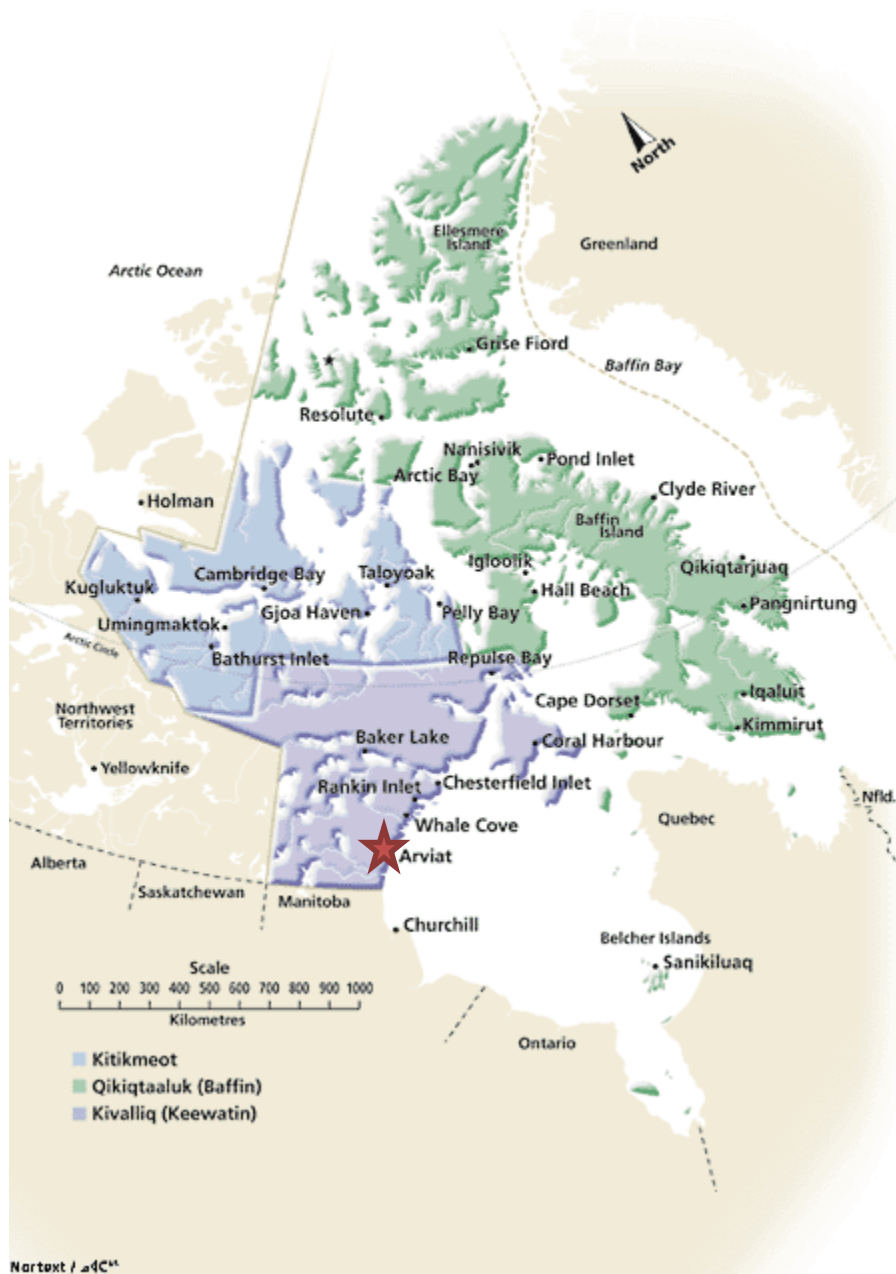


## COMMUNITY OF ARVIAT



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## 1.0 EFFECTIVE DATE OF EMERGENCY PLAN

This OIL POLLUTION EMERGENCY PLAN is effective from:

DD	MM	YY
01	09	15

This plan will remain IN EFFECT until advised otherwise by the DIRECTOR, PETROLEUM PRODUCTS DIVISION of COMMUNITY AND GOVERNMENT SERVICES.

This plan applies to the OIL HANDLING FACILITY (OHF) and the AIRPORT OIL HANDLING FACILITY if an airport facility is maintained by the PETROLEUM PRODUCTS DIVISION.

Additional copies of this plan may be obtained by writing to:

MANAGER  
REGIONAL OPERATIONS  
PETROLEUM PRODUCTS DIVISION  
P.O. BOX 590  
RANKIN INLET, NUNAVUT  
XOC OGO

This plan will be updated annually, to take into account changes in law, in environmental factors and in facility characteristics and policy: and after every oil pollution incident and exercise.

## 1.1 REVISIONS AND UPDATES

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (l)

On Receipt of Revisions or Updates, the plan holder will complete this section to ensure that the plan is always current.

<u>Revision Number</u>	<u>Date Inserted</u>	<u>Description/Purpose</u>	<u>Signature</u>
001	2014/May/22	First Draft	
002	2014/August/22	Second Draft	
003	2015/Sept/01	Material Revision	Kaitlin Heron
004	2016/Feb/02	Update to annual exercises, staff training, and spill response	Kaitlin Heron
005	2017/Feb/06	Revision of material	Kaitlin Heron
006	2017/Sept/15	Revision of Material	Maria Kasaluak

## PLAN USAGES

Please Read the Emergency Plan thoroughly and become familiar with it before it is needed. The levels of response and codes are vital to the safety and security to the staff of PPD.

Any suggestions for the improvement should be made to management so that revisions can be made, and the plan is kept up to date.

### 2.0 PURPOSE

The purpose of the PETROLEUM PRODUCTS DIVISION'S (PPD) OIL POLLUTION EMERGENCY PLAN is to provide operations procedures for all petroleum product spills which may occur on land at the oil handling facility or on the water during the off-loading season.

Fuels such as Diesel (P-50), Gasoline and Jet A-1 are transferred from the ships to the oil handling facilities through pipeline. Naphtha is shipped and stored in cases of 4, 1 litre metal containers.

The plan defines the responsibilities of key personnel and outlines the procedures for responding to a spill in a way that will do the following:

- ✓ Minimize the potential health and safety hazards.
- ✓ Minimize environmental damage.
- ✓ Minimize clean-up costs.

### 2.1 DECLARATION

Canada Shipping Act, 2001 SS 168 (1)(b)(i)

Pursuant to paragraph 168 (1)(b)(i) of the *Canada Shipping Act*, the Director of Petroleum Products, declares to comply with the regulations of the *Canada Shipping Act*, on the detection of an oil pollution incident that arises out of the loading or unloading of oil to or from a vessel, the facility will report any oil pollution incident in accordance with the procedures established in Section 5 of this Oil Pollution Emergency Plan.

The person or persons listed in the Oil Handling Facility Declaration are authorized to implement the Oil Pollution Emergency Plan (OPEP),

### Oil Handling Facility Declaration

Pursuant to paragraph 168(1)(b)(i) of the *Canada Shipping Act, I*,  
Petroleum Products Division, Government of Nunavut, declare that to comply with the;

The Response Organization and Oil Handling Facilities Regulations, respecting the  
Circumstances in which operators of oil handling facilities shall report discharges or anticipated  
discharges of pollutants, the manner of making the reports and the persons to whom the reports  
shall be made; all the information contained in the submission is true and complete to the best of  
my ability and accurately reflect our interpretation of the regulations.

The persons listed below are authorized to implement the oil pollution emergency plan:

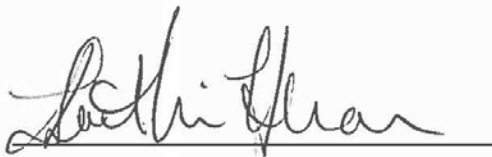
Bobby Makpah, PPD Headquarters, (867) 645-8443, BMakpah@gov.nu.ca

Sheena Akoomalik, Baffin Region, (867) 899-7308, SAkoomalik@gov.nu.ca

Tony Dias, Kivalliq Region, (867) 645-8430, TDias@gov.nu.ca

Tyler Vandenbrink, Kitikmeot Region, (867) 983-4137, TVandenbrink@gov.nu.ca

Kaitlin Heron, PPD Headquarters, (867) 645-8444, KHeron@gov.nu.ca



(Signed by the operator of the Oil Handling  
Facility or its representative)

September 22, 2017

(date)

## 2.2 AUTHORITY

### *a) The Nunavut Emergency Measures Act*

*The Nunavut Emergency Measures Act* is the legal authority for an emergency management program in Nunavut.

#### Power of Ministers

##### (1) The Minister may

- (a) Establish policies, criteria and other measures respecting
  - (i) The preparation and maintenance of emergency management programs
  - (ii) The testing and implementation of emergency management programs
- (b) Review emergency management programs prepared by government institutions, municipal councils and enterprises and where the Minister considers it necessary, require modifications in those programs;
- (c) Establish and conduct training and training exercises for the effective implementation of emergency management programs;
- (d) Require a person, who is creating a hazard that, may cause an emergency or whose property constitutes or contains a hazard that may cause an emergency, to remedy or reduce the hazard;
- (e) Conduct surveys and studies to identify and record actual or potential hazards that may cause an emergency;
- (f) Conduct surveys and studies of resources and facilities to maintain and provide the information necessary for effective preparation of emergency management programs;
- (g) Promote a common approach to emergency management. Including the adoption of standards and the best practices;
- (h) Provide assistance, other financial assistance, requested by a municipal council;
- (i) Enter into agreement with and make payments or grants to persons or organizations for the provision of services in the development or implementation of emergency management programs;
- (j) Make payments and grants, subject to any terms that the Minister may impose, to a municipal corporation for the purpose of assisting in hazard mitigation and emergency prevention, preparedness, response and recovery;
- (k) Enter into agreement with the Government of Canada, the government of a province or territory or an agency of one of those governments respecting emergency management;
- (l) Conduct public information programs relating to emergency preparedness and recommend measures to prevent emergencies;
- (m) Conduct research related to emergency management; and
- (n) Facilitate the authorized sharing of information in order to enhance emergency management.

#### Limit on delegation

##### (2) The minister shall personally exercise the following powers;

- (a) Declare the state emergency
- (b) Cancelling a declaration of a state of emergency
- (c) Cancelling a declaration of a state of local emergency.



## Emergency management program

- (1) Every government institution shall identify the risks that are within or related to its area of responsibilities and do the following in accordance with the policies, criteria and other measures established by the Minister:
  - (a) Prepare an emergency management program in respect of those risks;
  - (b) Maintain, test and implement the program;
  - (c) Conduct exercise and training in relation to the program.

## Content of emergency management program

- (2) A government institution shall include in an emergency management program
  - (a) Any program, arrangement or other measure to provide for the continuity of the operations of the government institution in the event of an emergency;
  - (b) Any program, arrangement or other measure it considers necessary to assist a municipal corporation in the event of an emergency; and
  - (c) Any other information required by the Minister.

## Report

- (3) Every government institution shall send to the Minister, within 120 days after the end of each year, a report on the status of its emergency management programs that contains the prescribed information.

The following Acts of Parliament provides the federal legislative mandate for this Plan:

- Response Organizations and Oil Handling Facility Regulation
- Vessel Pollution and Dangerous Chemicals Regulations
- Environmental Response Arrangement Regulations
- Oil Handling Facilities Standards (TP 12402)
- Release and Environmental Emergency Notification Regulations
- Response Organization Standards (TP 12401)
- Guidelines for Reporting Incidents Involving Dangerous Goods and Harmful Substances and/or Marine Pollutants (Point 3)

## 2.3 OTHER RESPONSE PLANS

Canada Shipping Act, 2001 SS 167-168 Section 12(3)

There are other response plans that are used for oil spill responses and this plan was created in such a way that it will not affect the response strategies of the other plans, such as **SOPEP, Environmental Emergency Response Plan PPD, National and Regional Contingency plans from Coast Guard.**



### 3.0 ROLES AND RESPONSIBILITIES OF STAFF

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (a)

The PPD Emergency Plan will operate on the pre-determined procedures for command, control and coordination set out within this plan.

Emergency Management Committee - exists to aid in the emergency response plan implementation and to ensure on-going emergency preparedness at PPD. These individuals have key roles to play in providing either emergency response or support. They have also been a primary source of information by which the plan was developed. Most committee members would likely comprise of the Emergency Management Team should the plan be activated.

Emergency Management Team - a group of people who are to respond to an emergent event following the procedures outlined in this Emergency plan for PPD. This team shall be responsible for providing support to the Emergency Response Team and the first responders during an emergency event.

Emergency Operations Centre - exists as resource to the Emergency Management Team who may choose to activate this resource. It serves as a means through which PPD and multi-department/ agency response efforts are coordinated. This would serve as the command centre from which decisions are made and implemented. Within it there will exist an immediate means of sharing information and advice between the Emergency Response Team, PPD and other response group leaders. This centre will also be shared with external emergency agency leaders as required.

### 3.1 HEALTH AND SAFETY

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (k)

#### COMMUNICATION

- Ship-to-shore communication radios are available for a continuous communication link between shore personnel and re-supply vessel personnel at all times.
- A dedicated frequency is to be set during resupply for communication between ship and shore.
- An hourly radio communication is made between ship and shore. It is agreed that if there is a failure in communication, the tanker must cease discharge until communication is re-established.
- A radio test is done regularly to alert and check the workability of the equipment and officials monitor resupply.

#### SITE CONTROL

In the event of an Oil Pollution Incident (OPI), an immediate assessment will be made to ensure that the site is secure. Oil Pollution Incidents (OPIs) can attract curious onlookers, and the site must be controlled in such a way as to ensure that they are kept well outside any hazardous-area zone. Only those directly involved in the containment, control or cleanup of the Oil Pollution Incident (OPI) should be allowed in the general vicinity of the spilled product. This rule is very important as there are many issues surrounding the possible injury of non-authorized and unqualified individuals. Insurance, liability, capability and general health and safety of the public are a few. If the Oil Pollution Incident (OPI) escalates to involve the services of the Canadian Coast Guard (CCG), the Canadian Coast Guard (CCG) will have an established Health and Safety protocol.

#### On Site Health and Safety Steps

- Be alert, consider your safety first.
- Assess the fore and safety hazards. Minimize health and safety hazards with the appropriate controls.

- Remain at the spill site for safety precaution and to ensure there is no public thoroughfare. Wait for the arrival of a PPD officer and assistance. Be alert, consider your safety first.
  - PPE: Make sure everyone uses appropriate PPE (gloves, safety glasses, etc.)
  - Safety of the onsite personnel: In case of an accident make sure everybody on site is safe; if required, move them to a safer area. Designate a path to follow in case of emergencies.
  - Try to identify the product and source of the spill. If possible, stop the spill. Be alert, consider your safety first.
  - First Aid Kit: The OHF personnel should know the position of the first aid kit.
  - All PPD officials are trained to provide First Aid in case of an emergency.
  - Call the Local Health center for assistance, if needed.
  - Call the PPD oil spill response management team if you have not already done so.
- \*Additional information is listed under Section 4.0 Emergency Procedures.

## 1. Fires:

There will be two fully charged 20 lb. Class ABC fire extinguishers and a hand-held horn to alert personnel. This is an integral part of the response equipment.

## 2. Slippery rocks, decks or other wet surfaces:

All Persons working on an Oil Pollution Incident (OPI) must wear oil-resistant rubber steel-toed safety boots with textured bottoms while working on a cleanup site.

## 3. Work on or near water:

All persons working on docks, piers, jetties or in close proximity to the water must wear the appropriate Personal Flotation Devices (PFDs). Persons working on shore near water do not have to wear PFDs unless they are actually working over the water.

## 4. High noise exposure:

All personnel must wear hearing protection when operating equipment or machinery or when in areas where noise levels require personnel to raise their voices to be heard.

## 5. Buddy System:

A buddy system must be observed at all times when workers are in the work area. Persons must work within sight of their assigned partner (buddy) at all times.

## 6. Personal Protective Equipment (PPE) requirements:

- ✓ Selection of outer PPE will be based on the potential for whole body contact with the product. A potential for repeated contact will require rain gear (top/bottoms). Clothing will be kept fully zippered when handling those materials. Supervising personnel may authorize the removal of suit tops if there is not potential for upper body contact.
- ✓ Personnel with high body-contact potential will tape gloves and boots.
- ✓ Personnel with limited skin contact potential may wear disposable clean guard garments or equivalent.
- ✓ Personnel with no exposure potential (inspectors, monitors etc.) need not wear protective clothing.
- ✓ All personnel on shore cleaning operations will wear safety glasses (regular glasses will be satisfactory).
- ✓ Personnel handling contaminated materials will wear outer chemical resistant gloves. Sleeves will be taped whenever handling heavily contaminated wet materials. This will happen during removal of oil-soaked sorbents or shoveling oil-soaked snow and dirt.

#### 7. Hypothermia:

Hypothermia is a condition of having the body temperature fall below 36°C (96.8°F), at which point the individual will likely suffer reduced mental alertness, reduction in rational decision-making and loss of consciousness with the threat of fatal consequences.

#### 8. Protection of the Community

Any significant spillage of product such as diesel may cause a significant threat to the community if the vapour plume approaches a populated area. Based on the wind direction a determination of the potential area of impact will be made and the community notified of any potential hazard. If the spill approaches or enters a watercourse, lake or ocean the community will be notified of any potential hazard to drinking or recreational activities.

#### 9. Decontamination

Adjacent to, or near the Oil Pollution Incident (OPI) zone, decontamination stations will be established. The decontamination stations will be laid out so that personnel will pass through the station prior to leaving the contaminated area. The decontamination stations may be bermed and lined with plastic sheeting. Washing solutions may be placed near the “Oil Pollution Incident Zone”. All solutions in tubs will be clearly marked.

Note: Notwithstanding the preceding, all applicable health and safety rules, regulations, and legislation will be adhered to. The health and safety specialist will be consulted as well as any other staff that may possess expertise regarding the health and safety of all involved.

### 3.2 OIL HANDLING FACILITIES STANDARDS

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (b) (ii)

#### Levels of Facilities

Oil Handling Facilities are categorized according to their maximum oil transfer rate in cubic metres per hour, in respect of each single oil product loaded or unloaded to or from a ship, as follows:

Category of Oil Handling Facility	Maximum Oil Transfer Rate
Level 1	150m <sup>3</sup> /h
Level 2	750m <sup>3</sup> /h
Level 3	2,000m <sup>3</sup> /h
Level 4	More than 2,000m <sup>3</sup> /h

#### Spill Sizes

The following is the minimum size of an oil pollution incident in respect of each single oil product loaded or unloaded to or from a ship, for which a response needs to be described in the oil pollution emergency plan:

Category of Oil Handling Facility	Minimum Spill Size
Level 1	1m <sup>3</sup>
Level 2	5m <sup>3</sup>
Level 3	15m <sup>3</sup>
Level 4	50m <sup>3</sup>

Maximum oil transfer rate from vessel to fuel storage tanks in Arviat tank farm is **100 m<sup>3</sup> /hour**. This will rate the Arviat tank farm a “**Level One Facility**”.

## 3.3 LEVELS OF RESPONSE

### Level One Response

A level one response usually involves a response using only on-site resources with the expectation of escalation being limited or unlikely. An example of the level of response would be a minor spill. The Emergency management team shall be notified but not assembled for the purpose of a level one response. Any communication to the media or stakeholder shall be done only with the approval of PPD Director or designate.

### Level Two Response

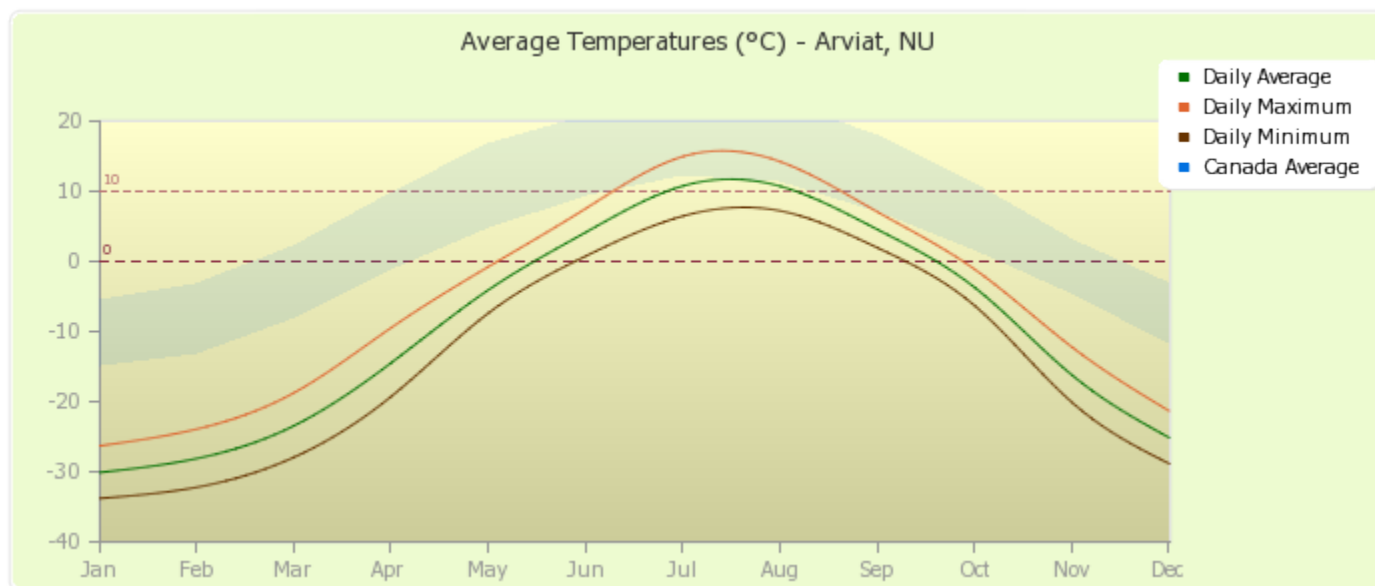
A level two response requires support from outside authorities. These types of incidents may result in the evacuation of PPD facilities. The Emergency Management Team shall be notified and shall respond to ensure the safety of ALL staff and contractors of PPD. The Emergency Management Team may be called upon to activate the Emergency Operations Centre or attend the Hamlet Emergency Operations Centre. Any Communications to the media shall be done only with the approval of PPD Director or designate.

### Level Three Response

A level three response is an unusual and serious event that requires extensive support from outside authorities or agencies. This type of response may result in the evacuation of PPD facilities. An example of this type of response would be a large fuel spill. (Reference for large spill see Canutec Guide 2008)

## 3.4 SUMMARY OF ARVIAT METEOROLOGICAL DATA

Temperature	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Daily Average (°C)	-30	-28	-23	-14	-4	4	11	11	5	-4	-16	-25
Daily Maximum (°C)	-26	-24	-19	-9	-1	8	15	14	7	-1	-12	-21
Daily Minimum (°C)	-34	-32	-28	-19	-7	1	7	7	2	-6	-20	-29
Canada Daily Average (°C)	-10	-8	-3	4	11	15	18	17	12	6	-1	-8



## **4.0 EMERGENCY PROCEDURES**

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (c)

### **EMERGENCY OPERATIONS PROCEDURES FOR THE FACILITY OPERATOR**

1. Be alert. Consider your safety first.
2. Identify the product that has been spilled
3. Assess the fire and safety hazards.
4. Investigate the source of the spilled product
5. Stop the source of the spill, ONLY under safe conditions.
6. Secure the spill area to ensure that there is no traffic of any sort and warn people to vacate the area if it is hazardous.
7. Ensure that all sources of ignition have been eliminated. The ignition sources may be electric lights, electric motors, electric heaters and vehicle engines. NO SMOKING!
8. Attend to any injured people.
9. If resources are easily available, stop the spilled product from spreading by forming a man-made barrier.
10. Remain at the spill site for safety precautions and to ensure that there is no public thoroughfare. Wait for the arrival of the PPD Officer and the Conservation Officer, both of whom will investigate the spill.
11. Assist with the clean-up of the spill if needed.

### **4.1 THE FOLLOWING LOCAL PERSONNEL MUST BE NOTIFIED IMMEDIATELY THAT A SPILL HAS OCCURRED:**

1. Your Supervisor,
2. The PPD Officer,
3. The local Conservation Officer,
4. The local RCMP,
5. The local Fire Department, for fire or fire hazard,
6. The local Nursing Station, for injuries, and
7. Local Hamlet Office

### **4.2 EMERGENCY OPERATIONS PROCEDURES FOR THE INCIDENT COMMANDER**

1. Activate the PPD OIL POLLUTION EMERGENCY PLAN.
2. Phone the spill line with an estimate of the quantity spilled.
3. Ensure that local authorities have been contacted regarding spill
4. Notify Canadian Coast Guard in Sarnia Ontario to be on standby in case their assistance is required.
5. Ensure that the spill is contained and safety measures have been taken to maintain public safety.
6. Initiate clean-up procedures with local resources personnel and equipment of Department of Environment, Community and Government Services, Hamlet and as needed; Local heavy equipment contractors.
7. Complete the SPILL REPORT and fax to the SPILL LINE.

#### 4.3 CLEAN-UP, DISPOSAL AND SPILL CLOSURE PROCEDURES FOR THE INCIDENT COMMANDER

##### 4.3.1 SPILL CONTAINMENT AND CLEAN-UP

1. Ensure that the spill is properly contained for public safety.
2. Assess the spill site with Department of Environment to establish a clean-up plan.
3. Activate the clean-up plan utilizing local equipment, local personnel and obtaining clean-up materials. These resources are available through Department of Environment, Community and Government Services, the local Fuel Delivery Contractor, local Heavy Equipment Contractors and the Municipal Office.

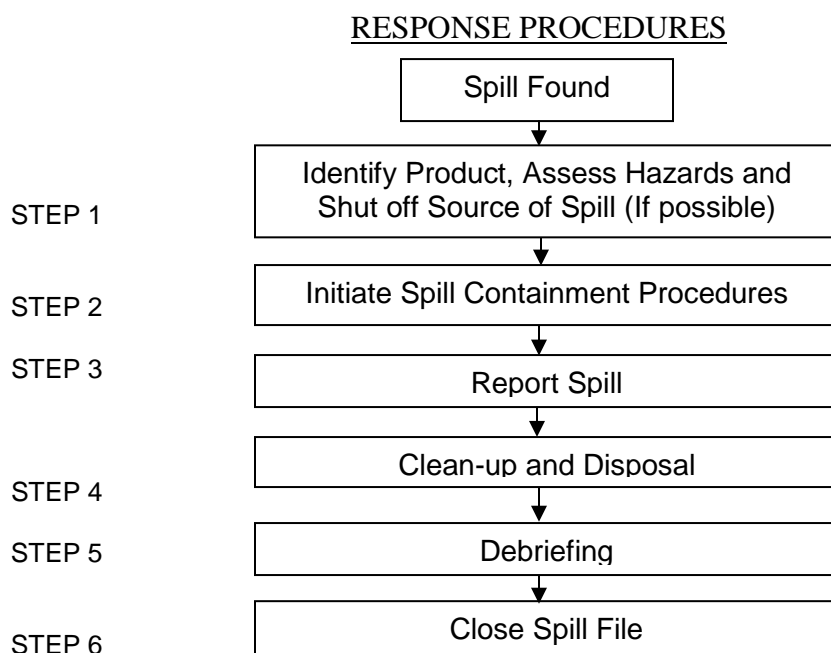
##### 4.3.2 DISPOSAL OF CONTAMINATED MATERIAL

1. Identify a site for the disposal of the contaminated material BEFORE it is removed from the spill area.
2. Ensure that the disposal site is APPROVED by Department of Environment and the Municipal Office.
3. If the contaminated material is to be burned, the local Fire Department is in Full Authority of the burning process.

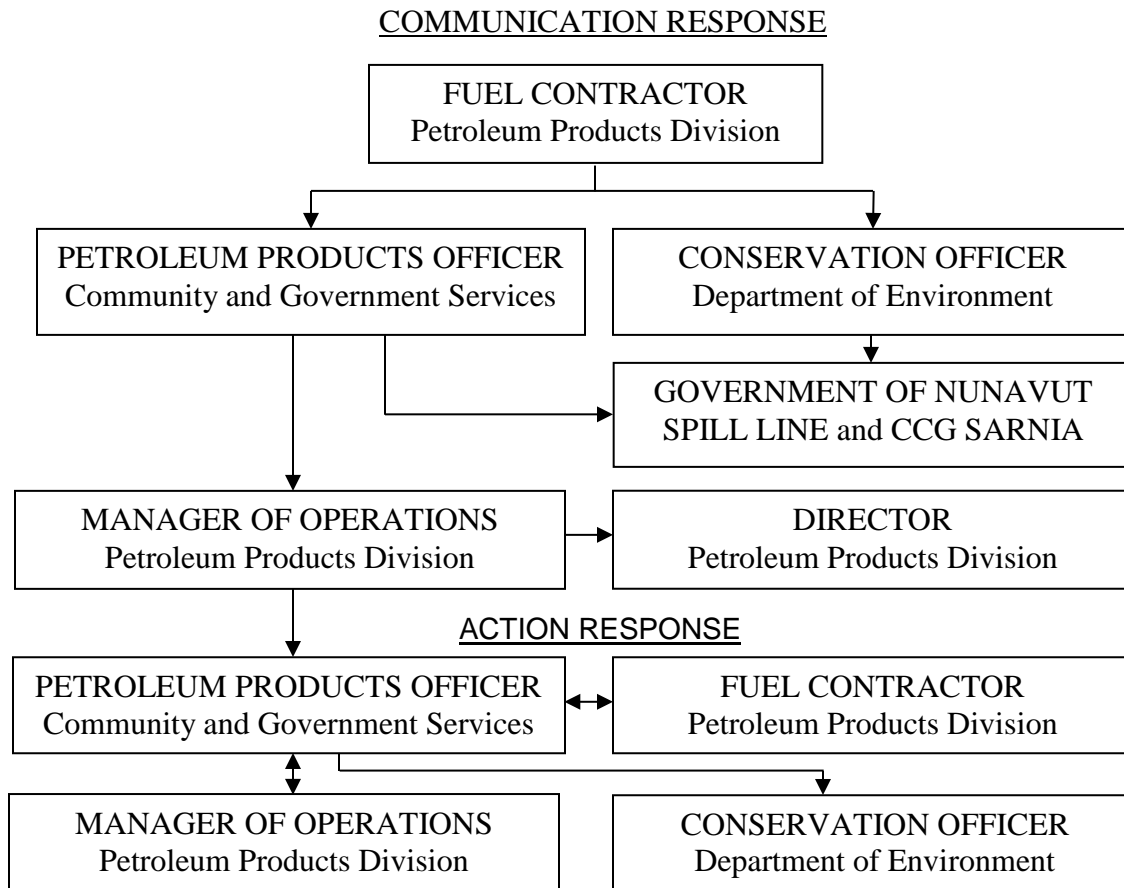
##### 4.3.3 SPILL CLOSURE

1. Ask for a WRITTEN STATEMENT from the Department of Environment Office that the clean-up is completed to their department's satisfaction.
2. Complete a FINAL SPILL REPORT and distributes copies to Manager Operations PPD Headquarters and Local Conservation Officer.

#### 4.4 EMERGENCY PROCEDURES FLOWCHART



## 4.5 ORGANIZATIONAL COMMUNICATION FLOWCHART



## 4.6 EMERGENCY PROCEDURES SUMMARY

### STEP 1 Identify Product and Assess Hazards then Shut off Sources of the Spill

- A. Identify the product that has been spilled.
- B. Alert all persons in the immediate area of the spill.
- C. Eliminate all the sources of ignition in case of a fire.
- D. Warn those persons not directly involved with containment procedures, to stay away from the spill site, upwind from the spill.
- E. Ensure that all of the personnel involved in the containment procedures are made aware of the hazards and are issued personal protective equipment for their safety.
- F. Locate the sources of the spill and, if safe to do so, shut off the sources of the spill.
- G. If the product is being pumped, shut off the pump.
- H. If the source of the spill is from the wall of the tank and cannot be stopped, transfer the product from the tank to another storage tank in order to reduce the amount spilled.
- I. The loading and unloading operation is to be shut down immediately and is not to be restarted in a manner that would interfere with the immediate, effective and sustained response to the oil pollution incident.

### STEP 2 Initiate Spill Containment Procedures

- A. Determine what can be seriously harmed by the spilled product.
- B. Determine what actions can be done to reduce the damage caused by the spill.



- C. Determine the speed and the direction of the spill and determine which elements, such as wind, water or gravity, are causing the spill to move.
- D. Determine where the spill can be contained, with the available staff and equipment. Take all precautions to ensure that the spill doesn't contaminate any potable water sources or waterways.
- E. Contain the spill.
- F. Be prepared to evacuate the vicinity of the spill site, if the spill is unable to be contained immediately.

## STEP 3 Report Spill

- A. Ensure Spill is reported to all Applicable Authorities

## STEP 4 Clean-up and Disposal Please refer to Section 5.3 for clean-up procedures.

- A. Prior to initiating the clean-up, please consult with the offices of Department of Environment, Manager of Operations for PPD and the Canadian Coast Guard (CCG).

## STEP 5 Debriefing

- A. Ensure all personnel involved with procedures are in attendance
- B. Review cause, effects and emergency plan procedures with PPD staff.

## STEP 6 Close Spill File

- A. Ask for a written statement confirming clean-up is completed to all standards from all applicable authorities.
- B. Ensure Final Spill report is completed and sent to Manager of Operations for Petroleum Products Division Headquarters and Local Conservation Officer.

## 5.0 EMERGENCY CONTACT INFORMATION

Operator of Facility

BUSINESS NAME: Padlei Co-operative Association Ltd.

Telephone Number:

(867) 857-2933

Fax Number:

(867) 857-2887

PETROLEUM PRODUCTS OFFICER

Business Telephone Number:

(867) 645-8430

Business Fax Number:

(867) 645-2431

LOCAL CONSERVATION OFFICER

Business Telephone Number:

(867) 857-2828

LOCAL RCMP DETACHMENT

Emergency Telephone Number:

(867) 857-1111

LOCAL FIRE DEPARTMENT

Emergency Telephone Number:

(867) 857-2525

LOCAL HEALTH CENTRE –in the event of injuries

Emergency Telephone Number:

(867) 857-3100

LOCAL HAMLET OFFICE

Business Number:

(867) 857-2841

## 6.0 OPERATIONS AND TRAINING

This section of the plan is for the FIRST 24 HOURS OF OPERATIONS ONLY and it will be initiated for LAND OR MARINE SPILLS. Some points to consider when a REAL spill should occur in Arviat:

1. Two-way radio communication must be available at all times.
2. A good-sized boat should be used to deploy boom for safety reasons. An 18-foot craft should be the SMALLEST size.
3. On-board crew on the workboat should include the boat operator whose sole purpose is to operate the boat and nothing else. There will be two others in the boat to help with manual chores.
4. During night operations, sufficient lighting must be on to see the hose and pipelines.
5. At least one PPD officer and at least one OHF contract worker will be on site during the fuel transfer.

### 6.1 COMMUNITY DOCK

1. Remove boats from the vicinity of the shore valves to reduce the risk of oil contamination. Advise the Hamlet Office to have the boat-owners move their boats that are close to the shore valves. Have the Hamlet announce this message on local radio.
2. The radio message will include this statement; “If boats are not removed, they will be contaminated with oil and will have to be cleaned. The estimate to clean each boat is one thousand dollars. This task involves moving the boat onto land, surrounding it with a berm, and removing the oil with water”.
3. Pre-stage sorbent material at the shore manifold, ready for deployment.
4. Pre-stage a type ABC 10 lb. Fire Extinguisher; inspected and ready for use.

### 6.2 PPD PERSONNEL QUALIFIED FOR OIL SPILL RESPONSE

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (f)

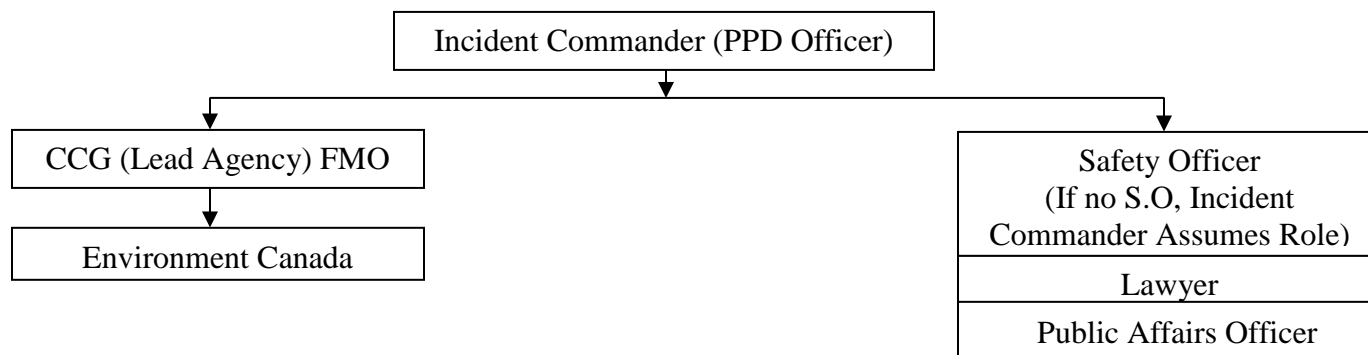
1. PPD Officer – Kivalliq CGS Office
2. Assistant PPD Officer – Kivalliq CGS Office
3. Maintenance Coordinator – PPD Headquarters, Rankin Inlet
4. Inventory/Quality Control Officer – PPD Headquarters, Rankin Inlet

All of these people have taken the Supervisor of Oil Transfer Operations (SOTO) course. The Maintenance Coordinator has completed the CCG Arctic Oil Spill Response Course. Shoreline workers for cleanup of the beaches are often, and would likely be, volunteers from the community of Arviat – they would require information and training for their responsibilities. PPD is prepared to train these workers during a two hour Safety Meeting prior to cleanup. The PPD Maintenance Coordinator is the PPD person who would be responsible for hiring and training these volunteers, particularly in safety training.

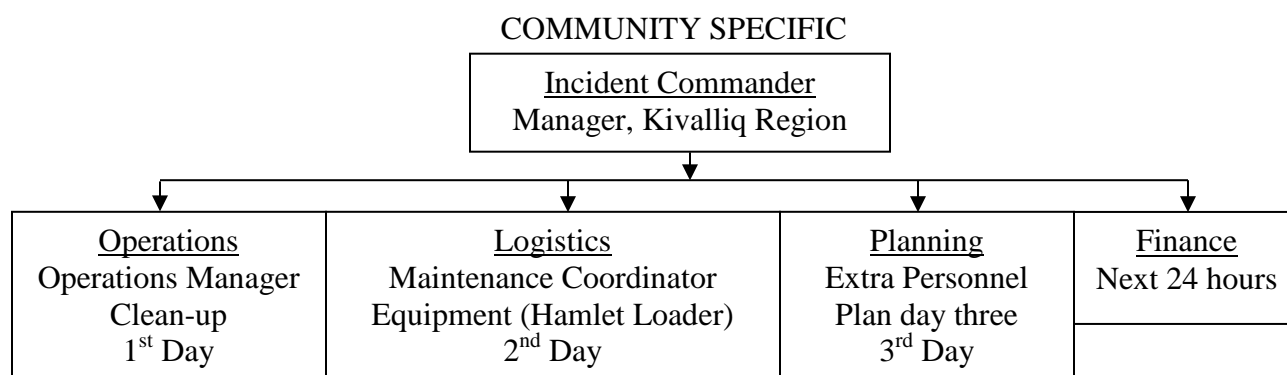
#### 6.2.1 THE CRITERIA FOR SELECTION OF THE WORKERS:

1. Good physical condition,
2. Issued required Safety Equipment,
3. Knows and practices safe work habits,
4. Has basic First Aid Training.

## 6.3 INCIDENT COMMAND FLOWCHART



## 6.4 ORGANIZATIONAL FLOW CHART



**NOTE:** Planning and Finance responsibilities will be discussed by the Incident Commander and PPD Senior staff to ensure that reliable personnel are selected for these important duties.

### FOR EACH DAY OF OPERATIONS:

- ✓ Have a quick Safety Meeting at the start of the day to discuss plans and any changes.
- ✓ 8:00 PM Meeting at the end of the day. How well did things go today? What is to be accomplished tomorrow

## 6.5 PPD OBJECTIVES AND PRIORITIES FOR THE FIRST 24 HOURS OF OPERATIONS

- ✓ SAFETY – boots, lifejackets, etc.
- ✓ SOURCE CONTROL – stopped spill or managed to control spill.
- ✓ CONTAINMENT – How many booms? Located where?
- ✓ SENSITIVITY PROTECTION – Economic (small boats). No boats inside community dock.
- ✓ MEDIA – Statement made by Environment Canada or Public Affairs to media outlet at the earliest opportunity.

## 6.6 PPD OBJECTIVES AND PRIORITIES FOR THE NEXT 24 TO 48 HOURS OF OPERATIONS

- Supply Officer

- ✓ SAFETY
- ✓ SHORELINE ASSESSMENT
- ✓ RECOVERY OF PRODUCT on water and on shore.

#### **6.6.1 SHORELINE ASSESSMENT INSPECTORS**

- ✓ Department of Environment (Sensitivity Areas)
- ✓ PPD
- ✓ RCMP
- ✓ Environment Canada will advise on procedures to clean beach area.

#### **6.7 PPD OBJECTIVES AND PRIORITIES FOR THE NEXT 48 TO 72 HOURS OF OPERATIONS**

-Project Phase

- ✓ SAFETY
- ✓ CLEAN-UP
- ✓ DECON (Disconnection of boom)

#### **6.8 ATTACHMENT:**

- ✓ Photocopy of map.
- ✓ Photocopy of shore manifold
- ✓ Marine and land maps.

#### **6.9 THE FIRST 24 HOURS OF OPERATIONS**

##### **6.9.1 SOURCE CONTROL**

- ✓ Visible inspection of all equipment.
- ✓ Damaged equipment replaced immediately.
- ✓ Transfer of fuel operations will not resume until an alternate manifold is identified.

##### **6.9.2 CONTAINMENT**

- ✓ Place boom around the spill area.
- ✓ Place sorbent material in the water to retain oil.
- ✓ Place sorbent material at shore to retain oil, if required.

##### **6.9.3 SENSITIVITY AND WILDLIFE PROTECTION**

Based on the PRIORITIES of Environment Canada and all other available resources.  
To ensure the safety of wildlife in the area, spills will be responded to quickly and efficiently.

##### **6.9.4 MEDIA**

Statement made by Environment Canada or by Public Affairs to media outlet at the earliest opportunity.

#### **6.10 TRAINING**

The following files will be kept at PPD Headquarters in Rankin Inlet:

- ✓ A Training Record of all PPD Personnel qualified in the safe handling of fuel products.
- ✓ A list of Incident Commanders in Nunavut.
- ✓ A list of Regional and Territorial Managers.
- ✓ A copy of the Incident Command System.

## 6.11 OPERATIONS NARRATIVE

### 6.11.1 COMMUNICATIONS

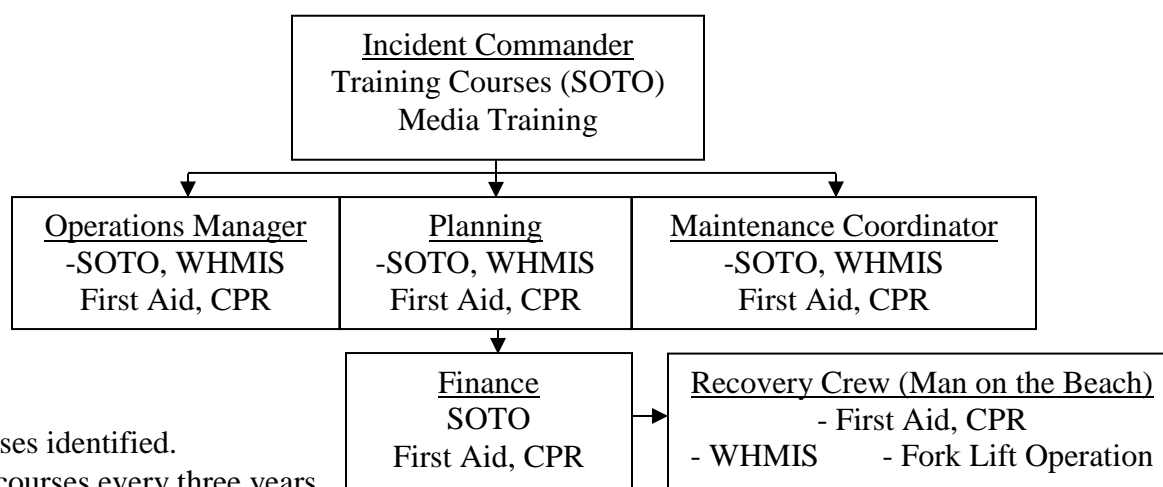
Communications equipment will be discussed as part of the Safety Meeting before the start of Resupply Operations.

### 6.11.2 ADDITIONAL ASSISTANCE

The RCMP and the local Fire Chief will be notified if their assistance is required.

## 6.12 TRAINING - BASIC STANDARD ORGANIZATIONAL CHART

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (h)(i)



#### NOTES:

- 3 to 4 courses identified.
- Refresher courses every three years
- SOTO- Supervisor of Oil Transfer Operations course
- WHMIS- Workplace Hazardous Materials Information System
- CPR- Cardiopulmonary Resuscitation

## 6.13 PPD, OHF PERSONNEL TRAINING RECORD

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (g)

<u>Name &amp; Position</u>	<u>Course &amp; Training</u>	<u>Expires</u> DD/MM/YY	<u>Community</u>	<u>Comments</u>
Tony Dias	SOTO, CPR, First Aid, Confined Space, Fall Arrest		Rankin Inlet	
Bobby Makpah	SOTO, CPR, Confined Space, Fall Arrest		Rankin Inlet	
Derek Zawadski	Spill Containment, CPR, Confined Space, Fall Arrest		Rankin Inlet	
Kaitlin Heron	CCG Marine Spill Response, CPR, First Aid, Confined Space, Fall Arrest		Rankin Inlet	

#### 6.14 BULK OIL TRANSFER PROCEDURES SHIP TO SHORE

When the hose is being brought to shore from the ship, the personnel from the ship is in charge of making sure the hose is connected properly and is pressure tested before any transfer of product is started, PPD officers will be on shore ready to assist if the need arises. The ship personnel and shore line crew are always keeping an eye on the hose during transfer. This is to ensure the hose has enough slack and to make sure there isn't anything caught up with the hose.

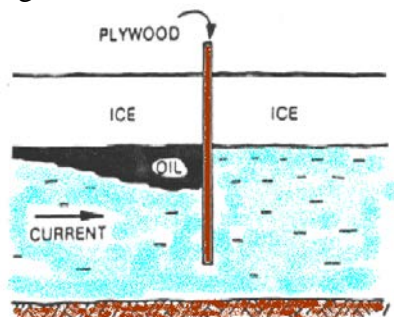
**The ship must also be able to provide a certificate that proves the hose has passed an Annual testing requirement before transfer if it is asked for.**

#### 6.15 TANKER/BARGE SPILL RESPONSE EQUIPMENT AND SUPPLIES

All ships or barges must have spill response equipment available on site in the event a spill occurs. On shore crews will ensure all equipment is available in the Sea Can (Owned by PPD) and can ask the ships what they have available before a transfer of product begins to ensure spills will be handled and responded to in a timely manner. Please refer to chapter 10 for the list of equipment in Sea Cans.

#### 6.16 CONTAINMENT UNDER ICE

Vertical barriers in ice such as plywood may be used to deflect oil under ice in slow moving deep waters. The ice must be strong enough to support the necessary personnel and equipment. Vertical barriers are put in place by cutting trenches in ice at an angle to current flow, inserting the plywood barriers and allowing them to freeze in place. The location of the oil slick may be monitored by drilling observation holes with an ice auger.

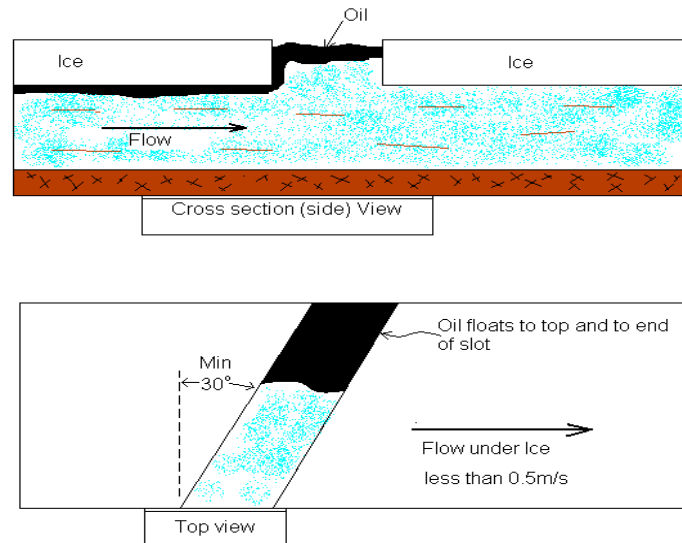


Ice slotting may be used in rivers or streams when current speeds are slow, less than 0.5 m/second. A trench is cut into the ice using a chain saw or “ditchwitcher” machine at an angle to the current, to deflect and concentrate oil that passes through the area. Because of the thick ice encountered during the winter, cutting and removal of ice blocks is often difficult.

Loaders or backhoes may be needed to lift blocks out of the slot, or backhoes may be used to push blocks down under the ice. Oil, which accumulates in the ice slot, may be pumped out, absorbed or burned in place.



## 6.16.1 ANGLED ICE SLOT:



Sometimes it is best to do little, in three situations:

1. When oil is spilled in a sensitive environment, it is sometimes best to leave the clean-up to nature, as the activity itself may cause more damage.
2. Sometimes natural removal processes are faster or more effective than human efforts. For example, some storms can make shoreline conditions unsafe, but may also remove the oil quite effectively.
3. Areas such as the fiords and rocky coasts along the Canadian Arctic Archipelago are also best left, because the action of high-energy waves will break up the oil.

## **7.0 OIL HANDLING FACILITY EXERCISE PROGRAM**

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (j)

### **7.1 DESCRIPTION OF THE PROPOSED EXERCISE PLAN COMPONENT**

The Arviat Oil Handling Facility is a small sized operation that employs three full-time staff. These employees assist the Regional PPD Officer and the Marine Fuel Delivery Contractor in the safe transfer of petroleum products into the storage tanks. Two shipments of petroleum products are brought in by ship in July and October.

#### **7.1.1 THE FULL SCALE FUNCTIONAL EXERCISE HELD IN RANKIN INLET**

The PPD Maintenance Coordinator, the PPD Officer, and a representative from the Fuel Delivery Contractor will attend this exercise. Representatives from CCG, Nunavut Power Corporation, the seven Kivalliq OHF's, Community and Government Services and Department of Environment will be invited to attend this full-scale exercise. Various booming methods and the operation of pollution collecting equipment will be performed. This exercise will be done once, over a three-year cycle.

#### **7.1.2 THE INTERNAL NOTIFICATION EXERCISE**

This exercise will be done every two years, with the participation of the PPD Maintenance Coordinator, the PPD Officer, the Manager of PPD Operations and the Operator of the Arviat OHF.

#### **7.1.3 THE EXTERNAL NOTIFICATION EXERCISE**

This exercise will be done every two years, with the participation of the NU Spill Line in Iqaluit, CCG in Sarnia and Nunavut Environmental Services in Iqaluit.

#### **7.1.4 THE OPERATIONAL DRILL AND THE OPERATIONAL EXERCISE**

These exercises will be done once every three years with the participation of the Fuel Delivery Contractor and the operator of the Arviat OHF.

#### **7.1.5 THE MANAGEMENT TABLE TOP EXERCISE**

This exercise will be done once every three years. Participants will include the PPD Maintenance Coordinator, the Manager of PPD Operations, and the PPD Officer. A representative from the Marine Fuel Delivery Contractor, the Manager of the Rankin Inlet OHF and a Canadian Coast Guard representative will be invited.

#### **7.1.6 EMERGENCY SHUT DOWN DURING FUEL TRANSFER FROM SHIP TO SHORE**

This exercise will be performed every year to ensure all parties involved in fuel transfers will know what is to be completed. The crew on the ship, PPD officer and OHF personnel will all take part in this exercise.

#### **7.1.7 SHIP EXERCISES**

Exercises with the ship are an integral part of this plan.

### 7.1.8 AFTER EXERCISE REPORT

All exercises will be evaluated and reported on an “After Exercise Report”. Discrepancies will be noted and assigned as action items. The Arviat OPEP will be updated with amendments reflecting changes noted during exercises. Exercise reports will be filed and on-hand for audit.

### 7.1.9 ACTUAL SPILLS

Actual responses to spills of petroleum products will be evaluated and reported. The completed reports will be considered a part of the Arviat exercise program.

There are no documented spills for the 2015 year.

### 7.2 OIL HANDLING FACILITY EXERCISE PROGRAM MATRIX

<u>ACTIVITY DESCRIPTION</u>	<u>YEAR 1</u>	<u>YEAR 2</u>	<u>YEAR 3</u>
<u>Emergency Shut Down During Fuel Transfer</u>	★	★	★
<u>Internal Notification Exercise</u>	★		★
<u>External Notification Exercise</u>	★		★
<u>Operational Drills</u> With Ships: i.e. Communication/ Emergency Shut-down With Contractors: ATR Contracting	★		
<u>Operational Deployment</u> With Ships: i.e. Communication/ Emergency Shut-down With Contractors: ATR Contracting	★		
<u>Management Tabletop Exercise</u> Discussion of Response Issues/SOP Review	★		
<u>Full Scale Functional Exercise</u>	★		

## 8.0 BULK FUEL STORAGE FACILITY TANK INVENTORY

Product	EC Identification #	Tank #	Tank Type	Tank Capacity (Litres)
Diesel	EC00022255	9	Vertical	631,253
		11	Vertical	1,345,363
		12	Vertical	2,551,313
		<b>Total Diesel</b>		<b>4,527,929</b>
Gasoline	EC00022271	10	Vertical	1,345,363
		<b>Total Gasoline</b>		<b>1,345,363</b>
Reserve	EC00022273	1*	Horizontal	92,117
		2*	Horizontal	91,786
		3*	Horizontal	91,786
		4*	Horizontal	92,117
		5*	Horizontal	91,882
		6*	Horizontal	91,786
		<b>Total Reserve</b>		<b>551,474</b>

\*Not connected to a Pipeline

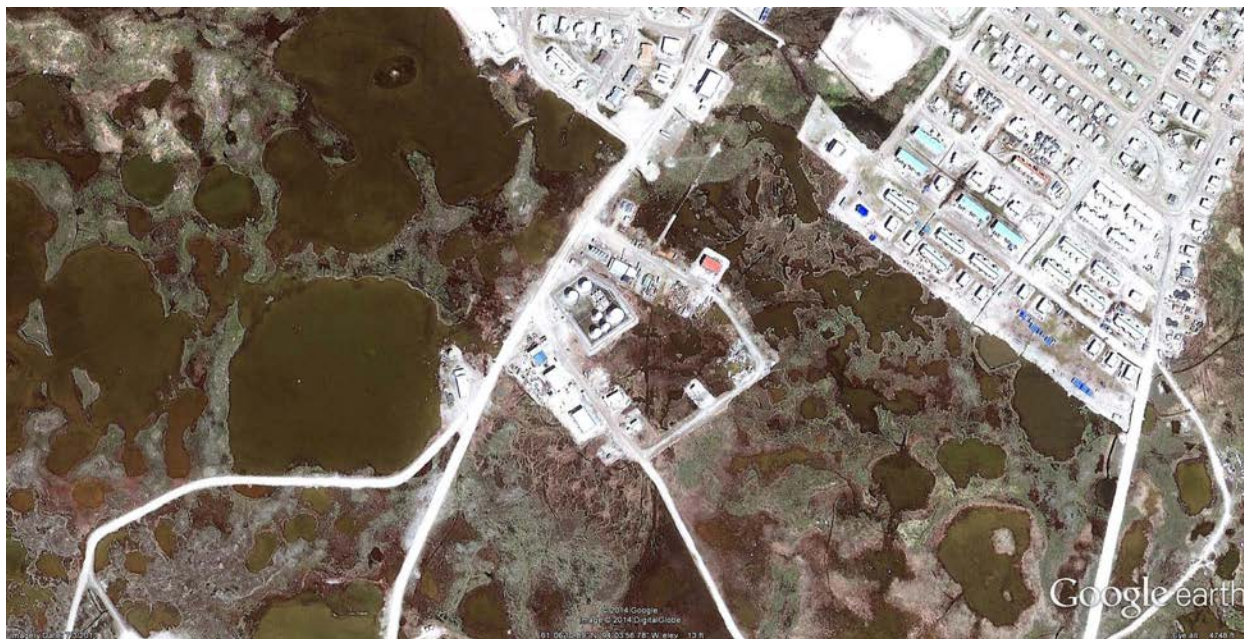
### Pipeline Information

Product	Diameter (inches)	Length (meters)	Volume (litres)
Diesel	6	920	16,782
Gasoline	4	920	7,360



8.1 ARVIAT BULK FUEL STORAGE FACILITY SITE MAPS

Site Map 1



Site Map 2; 61°06'11.68"N, 94°04'00.17"W



## 9.0 CONTINGENCY PLAN FOR LARGE SPILLS

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (m)

If the spill is too large to be handled by PPD alone, then other companies with heavy equipment and cleaning material will be contacted and asked to assist. The other companies that could be contacted are:

- Hamlet of Arviat (867) 857-2841  
Hamlet Garage (867) 857-2503
- Canadian Coast Guard (NU) 1-800-889-8852

The following regulatory agencies should be contacted in the event of a spill;

- Transport Canada 1-800-265-0237
- Environment Canada 1-867-920-8130 (24hr NWT/NU Spill Line)

## 10.0 DEDICATED FACILITY SPILL RESPONSE EQUIPMENT

This equipment is available at the OHF during all times of fuel transfers. The equipment will be kept in a secured Sea Can located at the shoreline manifold. The equipment will be replenished whenever they are used. The operators of the Oil Handling Facility will also ensure that all the equipment is in good operational condition before any fuel transfers have been initiated.

The Sea can which contains all the equipment will be unlocked and easily accessible before the initial hook up of the fuel transfer hose coming from the ship. This will remain unlocked until after the transfer of fuel is completed and the hose is completed loaded back on to the ship.

CATEGORY	PURPOSE	TYPICAL EQUIPMENT
Containment	Contain/control in 1 hour	150ft. of Floating Boom, 200ft. of Rope, 2 bales of absorbent pads(40 ft.), shovels
Recovery	Initiate recovery in 6 hours	Gas-powered pump
Storage	Storage/disposal	At least 4 Empty 205 liter drums
Support	Support Operations	Pumps, lighting, shovels, rakes and/or consumables (sorbent).
Safety	Support Operations	Communication equipment, Personal Protective Equipment, First Aid kits.

PPD does not own a boat so a boat will be rented from a local if it is needed during the fuel transfer operations. The boat will only be used if there is a spill. Work boat of ship will monitor fuel transfer.

## 10.1 HEAVY EQUIPMENT VEHICLES FOR EMERGENCY OPERATIONS

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (d) (e)

The following is a list of LOCAL Heavy Equipment Vehicles that is available for use in response to the containment and clean-up of a spill:

<u>Description</u>	<u>Quantity</u>	<u>Owner</u>	<u>Contact Person</u>
Dozer	1	Hamlet of Arviat	Daniel Kablutsiak
Loader	1	Hamlet of Arviat	Daniel Kablutsiak
Dump Truck	1	Hamlet of Arviat	Daniel Kablutsiak
Grader	1	Hamlet of Arviat	Daniel Kablutsiak
Sewage Truck	1	Hamlet of Arviat	Daniel Kablutsiak
Water Truck	1	Hamlet of Arviat	Daniel Kablutsiak

Please list Heavy Equipment Vehicles owned by the Fuel Contractor, local Heavy Equipment Contractors and the Hamlet.



## **11.0 INSURANCE**

Where the Vessel is owned or operated by a third party, if the vessel is involved in and deemed responsible for an Oil Pollution Incident, prompt notice must be given to the third party advising them that PPD will be holding them responsible for the clean-up costs and damages resulting from the Oil Pollution Incident.

The facility employees must recognize that vessel/companies involved in delivering products to the facility are required to carry insurance to cover their operations. Claims will therefore be made against the vessel's insurance coverage. The facility's role is to ensure in the first place that the clean-up is done effectively and efficiently. However, when the expenses incurred are to be recovered from the third party, records for the costs, which have been incurred, are essential. In the case of a major Oil Pollution Incident, specialized representatives from the various insurers will assist on this. For Oil Pollution Incidents of a minor nature resulting in damage to a third party's property, the facility's adjuster can provide assistance.

## **11.1 LEGAL**

In the case of a major Oil Pollution Incident involving potentially large expenditures for clean-up costs and contentious claims from third parties, specialized legal counsel must be consulted.

## 12.0 SPILL SCENARIOS

Canada Shipping Act, 2001 SS 167-168 Section 12(2) (b)

1. Spill Scenario for Petroleum Products with a Flashpoint Greater Than 38 Degrees Celsius. (Diesel)
2. Spill Scenario for Gasoline.
3. Spill Scenario for Jet A-1

### 12.1 DIESEL SPILL SCENARIO – ARVIAT, NUNAVUT

Nature of Diesel Product----See Material Safety Data Sheet (MSDS).

#### Types of Vessels Unloaded at the Arviat OHF

- Oil Tanker – 19.2 Million Liters Cargo Capacity.
- Fuel Off-loads in July to October.
- Coordinates of Vessel Anchor Location –62°48’56.68”N 92°03’03”W
- Distance - Vessel to Shore Manifold –850m.
- Floater Hose – 850in length, 4 in. diameter, 6,894 liters volume.
- Hose pumping rate – 92,000 liters/hr.

#### Tides and Currents

- Tides are 2.9 to 4.7 meters.
- Currents move southward.

#### Environmental Sensitivities

- Fall (August-September) migration route for beluga whales.

#### Maximum Most Probable Case Scenario

- Potential amount of Pollutant released – 54,000 liters.
- On-scene weather July – Wind N @ 5 Km/hr. Temp. +20C.
- On-scene weather August – Wind NW @ 15 Km/hr. Temp. +5 C.

#### Staff for Monitoring

- There are 2 shore patrol officers and 4 ship operators on duty.
- There are 2 boat patrol officers checking the hose-line.

#### Notifications of Incident Commander

- The 24 Hour Spill Line is notified at 1-867-920-8130.
- CCG Sarnia is notified at 1-800-265-0237.
- PPD Headquarters is notified at 1-867-645-8443.

#### Initial Response Actions of Shore and Ship Operations

- A shore patrol officer smelt diesel and notified the ship to cease pumping.
- The ship stopped pumping for source control, within two minutes.
- Evacuate Personnel, if required within five minutes.
- Acknowledge notification process as completed within ten minutes.
- Control measures initiated within one half hour.
- Local Government, Hamlet and Private Contractors are dispatched to the scene within one hour.
- Response to this incident likely to terminate from 1 to 3 days.
- Clean-up may extend to one month depending on effectiveness of initial response.

## Containment Strategies of Shore and Ship Operations

- Deploy containment equipment from the ship and the Sea Cans on shore (Owned by PPD) to the spill site within one half hour. Please refer to Chapter 10 for list of equipment in Sea Cans.
- The containment equipment will prevent product from reaching the open waters of Hudson Bay by containment booming around the problem area. Boom failure would likely be due to changing tides.
- Expect tidal flat clean-up.
- Shoreline protection is recommended.

## Resource Personnel

- PPD Headquarters will hire local workers with qualifications required to assist in containment and clean-up.
- Local Contractors will be hired to assist in the clean-up within 6 hours of the initial response.

## Resource Availability & Resource Procurement

- Equipment – absorbent material will be required for this size of spill.
- PPD Headquarters will procure Monetary Resources and Resource Personnel until the completion of the clean-up.

## **12.2 GASOLINE SPILL SCENARIO – ARVIAT, NUNAVUT**

Nature of Gasoline Product---See Material Safety Data Sheet (MSDS).

## Types of Vessels Unloaded at the Arviat OHF

- Oil Tanker – 19.2 Million Liters Cargo Capacity.
- Fuel Off-loads in July and August.
- Coordinates of Vessel Anchor Location 62°48'56.68"N 92°03'03"W.
- Distance Vessel to Shore Manifold –850m.
- Floater Hose – 850m. in length, 4 in. diameter, 6,894 liters volume.
- Hose pumping rate – 88,000 liters/hr.

## Tides and Currents

- Tides are 2.8 to 4.7 meters.
- Currents move southward.

## Environmental Sensitivities

- Fall (August-September) migration route for beluga whales.

## Maximum Most Probable Case Scenario

- Potential amount of Pollutant released – 8,000 liters.
- On-scene weather July – Wind N @ 5 Km/hr. Temp. +20C.
- On-scene weather August – Wind NW @ 15 Km/Hr. Temp. +15 C.

## Staff for Monitoring

- There are 2 shore patrol officers and 4 ship operators on duty.
- There are 2 boat patrol officers checking the hose-line.

## Notifications of Incident Commander

- The 24 Hour Spill Line is notified at 1-867-920-8130.
- CCG Sarnia is notified at 1-800-265-0237.
- PPD Headquarters is notified at 1-867-645-8443.

## Initial Response Actions of Shore and Ship Operations

- A shore patrol officer saw a plume in the water and notified the ship to cease pumping.
- The ship stopped pumping for source control, within two minutes.
- Evacuate Personnel, if required within five minutes.
- Acknowledge notification process as completed within ten minutes.
- Control measures initiated within a half hour.
- Local Government, Hamlet and Private Contractors are dispatched to the scene within 1 hour.
- Response to this incident likely to terminate from 1 to 3 days.
- Clean-up may extend to one month depending on effectiveness of initial response.

## Containment Strategies of Shore and Ship Operations

- Containment equipment is not recommended due to the fire/explosion hazard.
- Any boom deployment should only be done after the risk of fire/hazard is minimized.
- The ship's crew is on stand-by with fire-retardant foam and a water-jet to disperse water-borne gasoline.
- Any remaining product will be recovered with absorbent material into 45 gallon drums and brought to shore for disposal by the local Fire Department.

## Resource Personnel

- PPD Headquarters will hire local workers with qualifications required to assist in containment and clean-up.
- Local Contractors will be hired to assist in the clean-up within 6 hours of the initial response.

## Resource Availability & Resource Procurement

- Equipment – absorbent material will be required for this size of spill.
- PPD Headquarters will procure Monetary Resources and Resource Personnel until the completion of the clean-up.

## **12.3 JET A-1 SPILL SCENARIO – ARVIAT, NUNAVUT**

Nature of Diesel Product----See Material Safety Data Sheet (MSDS).

## Types of Vessels Unloaded at the Arviat OHF

- Oil Tanker – 19.2 Million Liters Cargo Capacity.
- Fuel Off-loads in July to October.
- Coordinates of Vessel Anchor Location –62°48'56.68"N 92°03'03"W
- Distance - Vessel to Shore Manifold –850m.
- Floater Hose – 850m in length, 4 in. diameter, 6,894 liters volume.
- Hose pumping rate – 91,000 liters/hr.

## Tides and Currents

- Tides are 2.9 to 4.7 meters.
- Currents move southward.

## Environmental Sensitivities

- Fall (August-September) migration route for beluga whales.

## Maximum Most Probable Case Scenario

- Potential amount of Pollutant released – 54,000 liters.
- On-scene weather July – Wind N @ 5 Km/hr. Temp. +20C.
- On-scene weather August – Wind NW @ 15 Km/hr. Temp. +5 C.

## Staff for Monitoring

- There are 2 shore patrol officers and 4 ship operators on duty.
- There are 2 boat patrol officers checking the hose-line.

## Notifications of Incident Commander

- The 24 Hour Spill Line is notified at 1-867-920-8130.
- CCG Sarnia is notified at 1-800-265-0237.
- PPD Headquarters is notified at 1-867-645-8443.

## Initial Response Actions of Shore and Ship Operations

- A shore patrol officer smelt diesel and notified the ship to cease pumping.
- The ship stopped pumping for source control, within two minutes.
- Evacuate Personnel, if required within five minutes.
- Acknowledge notification process as completed within ten minutes.
- Control measures initiated within one half hour.
- Local Government, Hamlet and Private Contractors are dispatched to the scene within one hour.
- Response to this incident likely to terminate from 1 to 3 days.
- Clean-up may extend to one month depending on effectiveness of initial response.

## Containment Strategies of Shore and Ship Operations

- Deploy containment equipment from the ship and the Sea Cans on shore to the spill site within one half hour.
- The containment equipment will prevent product from reaching the open waters of Hudson Bay by containment booming around the problem area. Boom failure is likely due to changing tides.
- Expect tidal flat clean-up.
- Shoreline protection is recommended.

## Resource Personnel

- PPD Headquarters will hire local workers with qualifications required to assist in containment and clean-up and to assist in the clean-up within 6 hours of the initial response.

## Resource Availability & Resource Procurement

- Equipment – absorbent material will be required for this size of spill.
- PPD Headquarters will procure Monetary Resources and Resource Personnel until the completion of the clean-up.

# Petroleum Products Division Oil Pollution Emergency Plan

Arviat

## 13.0 EXAMPLE OF GOVERNMENT OF NUNAVUT SPILL REPORT



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 _____
	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	
	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 <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						

## 14.0 OTHER CONTACTS AND PHONE NUMBERS

### Community and Government Services – Rankin Inlet

#### DIRECTOR, COMMUNITY AND GOVERNMENT SERVICES

Business Telephone Number: (867) 645-8101

Business Fax Number: (867) 645-8197

#### FACILITIES MANAGER

Business Telephone Number: (867) 645-8153

Business Fax Number: (867) 645-8197

### Petroleum Products Division Emergency Operations

#### MANAGER, REGIONAL OPERATIONS

Business Telephone Number: (867) 645-8443

Business Fax Number: (867) 645-3554

#### MAINTENANCE CO-ORDINATOR

Business Telephone Number: (867) 645-8442

Business Fax Number: (867) 645-3554

#### DIRECTOR, PETROLEUM PRODUCTS DIVISION

Business Telephone Number: (867) 645-8403

Business Fax Number: (867) 645-3554

#### PETROLEUM PRODUCTS OFFICER

Business Telephone Number: (867) 645-8155

Business Fax Number: (867) 645-8198

#### ASSISTANT PETROLEUM PRODUCTS OFFICER

Business Telephone Number: (867) 645-8157

Business Fax Number: (867) 645-8198

### Community and Government Services Headquarters – Iqaluit

#### MANAGER, CONTRACTS AND PROCUREMENT

Business Telephone Number: (867) 975-5436

Business Fax Number: (867) 975-5450

#### ASSISTANT DEPUTY MINISTER, OPERATIONS

Business Telephone Number: (867) 975-5403

Business Fax Number: (867) 975-5452

### Department of Sustainable Development Environmental Protection Division

#### Government of Nunavut – Iqaluit

#### MANAGER, POLLUTION CONTROL

Business Telephone Number: (867) 975-5907

Business Fax Number: (867) 975-5980



## CANADIAN COAST GUARD (CCG)

Operations Centre (Spills)

105 South Christina

Sarnia, Ontario

Spills Reporting

1-800-265-0237

## NORDREG

### TRANSPORT CANADA

Chief, CANUTEC, Regulatory Affairs

Transport Dangerous Goods

Ottawa, Ontario

K1A 0N5

Information

(613) 992-4624

Emergencies

(613) 996-6666

## ENVIRONMENT CANADA

24 – HOUR SPILL REPORT LINE:

Telephone Number:

(867) 920-8130

Fax Number:

(867) 975-4594

## TRANSPORT CANADA

### MARINE SAFETY AND SECURITY

Telephone Number:

(780) 495-3810

Fax Number:

(780) 495-7449

## **15.0 DISTRIBUTION OF OIL POLLUTION EMERGENCY PLAN**

### MANAGER, PETROLEUM PRODUCTS DIVISION

Region: Kivalliq  
Community: Rankin Inlet

### ENVIRONMENTAL PROTECTION SERVICES REGIONAL OFFICE

Region: Kivalliq  
Community: Arviat

### DIRECTOR, COMMUNITY AND GOVERNMENT SERVICES

Region: Kivalliq  
Community of: Rankin Inlet

### FACILITIES MANAGER, COMMUNITY AND GOVERNMENT SERVICES

Region: Kivalliq  
Community of: Rankin Inlet

### FIRE CHIEF and RCMP DETACHMENT

Community of: Arviat

### LOCAL COSERVATION OFFICER

Community of: Arviat

### PETROLUEM PRODUCTS DIVISION FUEL CONTRACTOR

Community of: Arviat

### CANADIAN COAST GUARD

City of: Sarnia, Ontario

### TRANSPORT CANADA MARINE SAFETY AND SECURITY

Region: Prairie and Northern  
City of: Edmonton, Alberta

## 16.0 MATERIAL SAFETY DATA SHEETS INFORMATION

MATERIAL SAFETY DATA SHEETS (MSDS) are provided for each petroleum product. These MSDS documents are included as information packages in this plan.

PLEASE BE PREPARED TO USE THE MSDS FOR THE PRODUCT SPILLED.

### 16.1 MSDS FOR DIESEL (P-50), (INFORMATION FROM PETRO-CANADA.CA)



#### Material Safety Data Sheet

DIESEL FUEL

#### 1. Product and company identification

<b>Product Name:</b>	DIESEL FUEL
<b>Synonym:</b>	Seasonal Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, D50, D60, P40, P50, Arctic Diesel, Farm Diesel, Marine Diesel, Low Sulphur Diesel, LSD, Ultra Low Sulphur Diesel ULSD, Mining Diesel, Naval Distillate, Dyed Diesel, Marked Diesel, Coloured Diesel, Furnace special, Biodiesel blend, B1, B2, B5, Diesel Low Cloud (LC).
<b>Code:</b>	W104, W293
<b>Material Uses:</b>	Diesel fuels are distillate fuels suitable for use in high and medium speed internal Combustion engines of the compression ignition type. Mining diesels, marine diesels, MDO and naval distillates may have a higher flash point requirement.
<b>Manufacturer:</b>	PETRO-CANADA P.O. Box 2844 150 –6th Avenue South-West Calgary, Alberta T2P 3E3
<b><u>In case of emergency:</u></b>	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).

#### 2. Hazards identification

<b>Physical State:</b>	Bright oily liquid
<b>Odour:</b>	Mild petroleum oil like.
<b>WHMIS (Canada):</b>	  Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F) Class D-2A: Material causing other toxic effects (Very toxic) Class D-2B: Material causing other toxic effects (Toxic)
<b>OSHA/HCS status:</b>	This material is considered hazardous by the OSHA Hazard Communication Standard.
<b>Emergency overview:</b>	WARNING! COMBUSTIBLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION. Combustible liquid. Severely irritating to the skin. Irritating to eyes. Keep away from heat, sparks and flame. Do not get in eyes. Avoid breathing vapour or mist. Avoid contact with skin and clothing. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Routes of entry:</b>	Dermal contact. Eye contact. Inhalation. Ingestion.

### Potential acute health effects

<b>Inhalation:</b>	Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in case of severe overexposure; coma and death.
<b>Ingestion:</b>	Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract.
<b>Skin/Eyes:</b>	Severely irritating to the skin. Irritating to eyes.

### Potential chronic health effects

<b>Chronic effects:</b>	No known significant effects or critical hazards.
<b>Carcinogenicity:</b>	Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).
<b>Mutagenicity:</b>	No known significant effects or critical hazards.
<b>Teratogenicity:</b>	No known significant effects or critical hazards.
<b>Developmental effects:</b>	No known significant effects or critical hazards.
<b>Fertility effects:</b>	No known significant effects or critical hazards.
<b>Medical conditions aggravated by overexposure:</b>	Avoid prolonged or repeated skin contact to diesel fuels which can lead to dermal irritation and may be associated with an increased risk of skin cancer. <b>See toxicological information (Section 11)</b>

## 3. Composition/information or ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Hydro-treated Renewable Diesel/ fuels, diesel/Fuel Oil No.1/ Fuel Oil No. 2	64742-81-0/ 68334-30-5/ 8008-20-6/ 68476-30-2	95-100
Alkanes, C10-20 Branched and linear (R100)	958771-01-1	10-20
Fatty acids methyl esters	61788-61-2/ 67784-80-9 73891-99-3	0-5

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

## 4. First-aid measures

<b>Eye contact:</b>	Check for and remove and contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
<b>Skin contact:</b>	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. Clean shoes thoroughly before reuse. Get medical attention immediately.
<b>Inhalation:</b>	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Ingestion:</b>	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Protection of first aiders:</b>	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth to mouth resuscitation.
<b>Notes to physician:</b>	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

**Flammability of the product:** Combustible liquid

**Extinguishing media**

**Suitable:** Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

**Unsuitable:** Do not use water jet.

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

**Products of combustion:** Carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), sulfur compounds (H<sub>2</sub>S), smoke and irritating vapours as products of incomplete combustion.

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

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

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

## 6. Accidental release measures

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

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

**Methods for cleaning up:**

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

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

## 7. Handling and storage

**Handling:** Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical

(ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Storage:**

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready to 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 containment. Ensure the storage containers are grounded/ bonded.

8. Exposure controls/personal protection	
Ingredient	Exposure limits
Fuels, diesel	<b>ACGIH TLV (United States).</b> Absorbed through skin, TWA: 100mg/m3, (inhalable fraction and vapour) 8 hour(s)
Fuel oil No. 2	<b>ACGIH TLV (United States).</b> Absorbed through skin. TWA: 100mg/m3, (inhalable fraction and vapour) 8 hour(s)
Hydro-treated Renewable Diesel	<b>ACGIH TLV (United States).</b> Absorbed through skin. TWA: 200mg/m3, (inhalable fraction and vapour) 8
Fuel oil No. 1	<b>ACGIH TLV (United States).</b> Absorbed through skin. TWA: 200mg/m3, (inhalable fraction and vapour) 8

**Consult local authorities for acceptable exposure limits.**

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

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

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

**Personal protection**

**Respiratory:**

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

**Hands:**

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

Recommended: nitrile, neoprene, polyvinyl alcohol (PVA), Viton®. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any materials 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.
<b>Eyes:</b>	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
<b>Skin:</b>	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.
<b>Environmental exposure controls:</b>	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 process equipment will be necessary to reduce emissions to acceptable levels.

## 9. Physical and chemical properties

<b>Physical state:</b>	Bright oily liquid
<b>Flash point:</b>	Diesel fuel and other distillate fuels: Closed cup: $\geq 40^{\circ}\text{C}$ ( $\geq 104^{\circ}\text{F}$ ) Marine Diesel/MDO/Naval Distillate: Closed cup: $\geq 60^{\circ}\text{C}$ ( $\geq 140^{\circ}\text{F}$ ) Mining Diesel: Closed cup: $\geq 52^{\circ}\text{C}$ ( $\geq 126^{\circ}\text{F}$ )
<b>Auto-ignition temperature:</b>	$225^{\circ}\text{C}$ ( $437^{\circ}\text{F}$ )
<b>Flammable limits:</b>	Lower: 0.7% Upper: 6%
<b>Colour:</b>	Clear to yellow (This product may be dyed red for taxation purposes)
<b>Odour:</b>	Mild petroleum oil like.
<b>Odour threshold:</b>	Not available
<b>pH:</b>	Not available
<b>Boiling/condensation point:</b>	$150$ to $371^{\circ}\text{C}$ ( $302$ to $699.8^{\circ}\text{F}$ )
<b>Melting/freezing point:</b>	Not available
<b>Relative density:</b>	$0.80$ to $0.88$ kg/L @ $15^{\circ}\text{C}$ ( $59^{\circ}\text{F}$ )
<b>Vapour pressure:</b>	$1\text{kPa}$ ( $7.5$ mm Hg) @ $20^{\circ}\text{C}$ ( $68^{\circ}\text{F}$ )
<b>Vapour density:</b>	$4.5$ [Air=1]
<b>Volatility:</b>	Not available
<b>Evaporation rate:</b>	Not available
<b>Viscosity:</b>	Diesel fuel: $1.3$ - $4.1$ cSt @ $40^{\circ}\text{C}$ ( $104^{\circ}\text{F}$ ) Marine Diesel Fuel: $1.3$ - $4.4$ cSt @ $40^{\circ}\text{C}$ ( $104^{\circ}\text{F}$ )
<b>Pour point:</b>	Not available
<b>Solubility:</b>	Insoluble in cold water, soluble in non-polar hydrocarbon solvents.

## 10. Stability and reactivity

<b>Chemical stability:</b>	The product is stable.
<b>Hazardous polymerization:</b>	Under normal conditions of storage and use, hazardous polymerization will not occur.
<b>Materials to avoid:</b>	Reactive with oxidizing agents and acids.
<b>Hazardous decomposition products:</b>	May release COx, NOx, H2S, smoke and irritating vapours when heated to decomposition.

## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Fuels, diesel	LD50 Dermal	Mouse	$24500\text{mg/kg}$	----
	LD50 Oral	Rat	$7500\text{mg/kg}$	----
Fuel oil No. 2	LD50 Oral	Rat	$12000\text{mg/kg}$	----
Fuel oil No. 1	LD50 Dermal	Rabbit	$>2000\text{mg/kg}$	----
	LD50 Oral	Rat	$>5000\text{mg/kg}$	----
	LC50 Inhalation Vapour	Rat	$>5000\text{mg/m}^3$	4 hours
Hydrotreated Renewable Diesel	LD50 Dermal	Rabbit	$>2000\text{mg/kg}$	----
	LD50 Oral	Rat	$>5000\text{mg/kg}$	----



	LC50 Inhalation Vapour	Rat			>5200mg/m3	4 hours
<b>Conclusion/Summary:</b>	Not available					
<b><u>Chronic toxicity:</u></b>						
<b>Conclusion/Summary:</b>	Not available					
<b><u>Irritation/Corrosion</u></b>						
<b>Conclusion/Summary:</b>	Not available					
<b><u>Sensitizer</u></b>						
<b>Conclusion/Summary:</b>	Not available					
<b><u>Carcinogenicity</u></b>						
<b>Conclusion/Summary:</b>	Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).					
<b><u>Classification</u></b>						
<b>Product/ingredient name</b>	<b>ACGIH</b>	<b>IARC</b>	<b>EPA</b>	<b>NIOSH</b>	<b>NTP</b>	<b>OSHA</b>
Fuels, diesel	A3	3	---	---	---	---
Fuel oil No. 1	A3	3	---	---	---	---
Fuel oil No. 2	A3	3	---	---	---	---
Hydrotreated Renewable Diesel	A3	3	---	---	---	---
<b><u>Mutagenicity</u></b>						
<b>Conclusion/Summary</b>	Not available					
<b><u>Teratogenicity</u></b>						
<b>Conclusion/Summary</b>	Not available					
<b><u>Reproductive toxicity</u></b>						
<b>Conclusion/Summary</b>	Not available					


## 12. Ecological information

<b>Environmental effects:</b>	No known significant effects or critical hazards.
<b><u>Aquatic ecotoxicity</u></b>	
<b>Conclusion/Summary:</b>	Not available
<b><u>Biodegradability</u></b>	
<b>Conclusion/Summary:</b>	Not available

## 13. Disposal considerations

<b>Waste Disposal:</b>	<p>The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create highly flammable or explosive atmosphere inside the container. Do not cut, weld, grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of split material and runoff and contact with soil, waterways, drains and sewers.</p> <p>Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Controls/Personal Protection for additional handling information and protection of employees</p>
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## 14. Transport information

Regulatory Information	UN Number	Proper shipping Name	Class	Packing Group	Label	Additional Information
TDG Classification	UN1202	DIESEL FUEL	3	III		----
DOT Classification	Not Available	Not Available	Not Available	----	----	----

## 15. Regulatory Information

### United States

#### HCS Classification:

Combustible liquid  
Irritating material

#### Canada:

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

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

### International regulations

#### Canada inventory:

All components are listed or exempted.

#### United States inventory(TSCA 8b):

All components are listed or exempted.

#### Europe inventory:

All components are listed or exempted.

## 16. Other information

### Label requirements: Hazardous Material

COMBUSTIBLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION.

### Information System:

Health	2
Flammability	2
Physical hazards	0
Personal protection	H

### National Fire Protection



### Association (USA):

### References:

Available upon request.

<sup>TM</sup>Trademark of Suncor Energy. Used under license.

### Date of Printing:

6/28/2013.

### Date of issue:


28 June 2013

### Date of previous issue:

6/28/2013

### Responsible name:

Sécurité de produit – KKB

 - Indicates information that has changed from the previous version.


16.2 MSDS FOR AUTOMOTIVE GASOLINE, (INFORMATION FROM PETRO-CANADA.CA)

**Material Safety Data Sheet**  
GASOLINE, UNLEADED

**1. Product and company identification**

<b>Product Name:</b>	GASOLINE, UNLEADED
<b>Synonym:</b>	Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, SummerGas, Supreme, SuperClean WinterGas, RegularClean, PlusClean, Premium, marked or dyed gasoline, TQRUL, transitional quality regular unleaded, BOB, Blendstock for Oxygenate Blending, Conventional Gasoline
<b>Code:</b>	W102E, SAP: 102 to 117
<b>Material Uses:</b>	Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat motors, small engines such as chain saws and lawn mowers, and recreational vehicles.
<b>Manufacturer:</b>	PETRO-CANADA P.O. Box 2844 150 –6th Avenue South-West Calgary, Alberta T2P 3E3
<b><u>In case of emergency:</u></b>	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).

**2. Hazards identification**

<b>Physical State:</b>	Clear liquid
<b>Odour:</b>	Gasoline.
<b>WHMIS (Canada):</b>	 Class B-2: Flammable liquid Class D-2A: Material causing other toxic effects (Very toxic) Class D-2B: Material causing other toxic effects (Toxic)
<b>OSHA/HCS status:</b>	This material is considered hazardous by the OSHA Hazard Communication Standard. (29 CFR 1910. 1200)
<b>Emergency overview:</b>	<b>WARNING!</b> FLAMMABLE LIQUID AND VAPOUR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CANCER HAZARD – CONTAINS MATERIAL WHICH CAN CAUSE CANCER. CONTAINS MATERIAL WHICH CAN CAUSE HERITABLE GENETIC EFFECTS. Flammable liquid. Irritating to eyes, respiratory system and skin. Keep away from heat, sparks and flame. Avoid exposure – obtain special instructions before use. Do not breathe vapour or mist. Avoid contact with eyes, skin and clothing. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure. Contains material which can cause heritable genetic effects. Use only with adequate ventilation. Keep container tightly closed and sealed until ready to use. Wash thoroughly after handling.
<b>Routes of entry:</b>	Dermal contact. Eye contact. Inhalation. Ingestion.

## Potential acute health effects

<b>Inhalation:</b>	Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in case of severe overexposure; coma and death.
<b>Ingestion:</b>	Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract. Ingestion of this product may cause respiratory tract irritation and Central Nervous System (CNS) depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in case of severe overexposure; coma and death.
<b>Skin/Eyes:</b>	Irritating to the skin. Irritating to eyes.

## Potential chronic health effects

<b>Chronic effects:</b>	This product contains an ingredient or ingredients, which have been shown to cause chronic toxic effects. Repeated or prolonged exposure to the substance can produce blood disorders.
<b>Carcinogenicity:</b>	Contains material which can cause cancer. Risk of cancer depends on duration and level on exposure.
<b>Mutagenicity:</b>	Contains material which can cause heritable genetic effects.
<b>Teratogenicity:</b>	No known significant effects or critical hazards.
<b>Developmental effects:</b>	No known significant effects or critical hazards.
<b>Fertility effects:</b>	No known significant effects or critical hazards.
<b>Medical conditions aggravated by overexposure:</b>	Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (section 11)

## 3. Composition/information or ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Gasoline	86290-81-5	85-100
Ethanol	64-17-5	0.1-1
Benzene	71-43-2	0.5-1.5
Toluene *Montreal: may vary from 3-40% *Edmonton: may vary from 1-5%	108-88-3	15-40*

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

## 4. First-aid measures

<b>Eye contact:</b>	Check for and remove and contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
<b>Skin contact:</b>	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. Clean shoes thoroughly before reuse. Get medical attention immediately.
<b>Inhalation:</b>	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Ingestion:</b>	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Protection of first aiders:</b>	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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

## 5. Fire-fighting measures

**Flammability of the product:** Flammable liquid (NFPA).

### Extinguishing media

**Suitable:** Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

**Unsuitable:** Do not use water jet.

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

**Products of combustion:** Carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), polynuclear aromatic hydrocarbons, phenols, aldehydes, ketones, smoke and irritating vapours as product of incomplete combustion.

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

**Special remarks on fire hazards:** Extremely flammable in presence of open flame, spark, shocks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition. May accumulate in confined spaces.

**Special remarks on explosion hazard:** Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Containers may explode in heat of fire. Vapours may form explosive mixtures with air.

## 6. Accidental release measures

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

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

### Methods for cleaning up:

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

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

## 7. Handling and storage

**Handling:** Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and

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

**Storage:**

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready to 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 containment. Ensure the storage containers are grounded/ bonded.

8. Exposure controls/personal protection	
Ingredient	Exposure limits
Gasoline	<b>ACGIH TLV (United States).</b> TWA: 300 ppm 8 hour(s). STEL: 500 ppm 15 minutes(s)
Ethanol	<b>ACGIH TLV (United States).</b> STEL: 1000 ppm 15 minute(s)
Benzene	<b>ACGIH TLV (United States). Absorbed through skin.</b> TWA: 0.5 ppm 8 hour(s) STEL: 2.5 ppm 15 minute(s)
Toluene	<b>ACGIH TLV (United States).</b> TWA: 20 ppm 8 hour(s)

**Consult local authorities for acceptable exposure limits.**

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

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

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

**Personal protection**

**Respiratory:**

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



<b>Hands:</b>	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: polyvinyl alcohol (PVA), Viton. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any materials 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.
<b>Eyes:</b>	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
<b>Skin:</b>	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.
<b>Environmental exposure controls:</b>	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 process equipment will be necessary to reduce emissions to acceptable levels.

### 9. Physical and chemical properties

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

### 10. Stability and reactivity

<b>Chemical stability:</b>	The product is stable.
<b>Hazardous polymerization:</b>	Under normal conditions of storage and use, hazardous polymerization will not occur.
<b>Materials to avoid:</b>	Reactive with oxidizing agents, acids and interhalogens.
<b>Hazardous decomposition products:</b>	May release COx, NOx, phenols, polycyclic aromatic hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

### 11. Toxicological information

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Gasoline	LD50 Dermal	Rabbit	>5000mg/kg	----
	LD50 Oral	Rat	13600mg/kg	----
Ethanol	LD50 Dermal	Rabbit	>15800mg/kg	----
	LD50 Oral	Mouse	3450 mg/kg	----



Benzene	LC50 Inhalation Vapour	Rat	8850 mg/m3	4hours
	LD50 Dermal	Rabbit	>8240mg/kg	----
	LD50 Oral	Rat	930mg/kg	----
Toluene	LC50 Inhalation Vapour	Rat	13700 ppm	4hours
	LD50 Dermal	Rabbit	12125mg/kg	----
	LD50 Oral	Rat	636mg/kg	----
	LC50 Inhalation Vapour	Rat	7585mg/m3	4hours

**Conclusion/Summary:**

**Chronic toxicity:**

**Conclusion/Summary:**

**Irritation/Corrosion**

**Conclusion/Summary:**

**Sensitizer**

**Conclusion/Summary:**

**Carcinogenicity**

**Conclusion/Summary:**

**Classification**

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

**Mutagenicity**

**Conclusion/Summary**

**Teratogenicity**

**Conclusion/Summary**

Not available

There is wealth of information about the teratogenic hazards of toluene in the literature; however, based upon professional judgment regarding the body of evidence, WHMIS classification as a teratogen is not warranted.

**Reproductive toxicity**

**Conclusion/Summary**

Not available

## 12. Ecological information

**Environmental effects:**

No known significant effects or critical hazards.

**Aquatic ecotoxicity**

**Conclusion/Summary:**

Not available

**Biodegradability**

**Conclusion/Summary:**

Not available

## 13. Disposal considerations


**Waste Disposal:**

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

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

**Refer to Section 7: Handling and Storage and Section 8: Exposure Controls/Personal Protection for additional handling information and protection of employees**

## 14. Transport information

Regulatory Information	UN Number	Proper shipping Name	Class	Packing Group	Label	Additional Information
TDG Classification	UN1203	Gasoline	3	II		----
DOT Classification	Not Available	Not Available	Not Available	----	----	----

## 15. Regulatory Information

### United States

#### HCS Classification:

Flammable liquid  
Irritating material  
Carcinogen

### Canada:

#### WHMIS (Canada)

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

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

### International regulations

#### Canada inventory:

All components are listed or exempted.

#### United States inventory (TSCA 8b):

All components are listed or exempted.

#### Europe inventory:

All components are listed or exempted.

## 16. Other information

### Label requirements:

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

### Hazardous Material Information System:

Health	2
Flammability	3
Physical hazards	0
Personal protection	H

### National Fire Protection Association (USA):



### References:

Available upon request.

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### Date of Printing:

**10/10/2012**

### Date of issue:


10 October 2012

### Date of previous issue:

4/9/2010

### Responsible name:

**Product Safety - RS**

 - Indicates information that has changed from the previous version.

### 16.3 MSDS FOR JET A-1, (INFORMATION FROM PETRO-CANADA.CA)



## Material Safety Data Sheet

JET A/A-1 AVIATION TURBINE FUEL

#### 1. Product and company identification

<b>Product Name:</b>	JET A/A-1 AVIATION TURBINE FUEL
<b>Synonym:</b>	Jet A-1; Jet A-1-DI; Aviation Turbine Kerosene (ATK); JP-8; NATOF-34; Jet-34; Turbine fuel, Aviation, Kerosene Type (CAN/CGSB-3.32)
<b>Code:</b>	W213, SAP: 149
<b>Material Uses:</b>	Used as aviation turbine fuel. May contain a fuel system icing inhibitor. In the arctic, jet A-1 may also be used as diesel fuel (if it contains a lubricity additive) and heating oil.
<b>Manufacturer:</b>	PETRO-CANADA P.O. Box 2844 150 –6th Avenue South-West Calgary, Alberta T2P 3E3
<b><u>In case of emergency:</u></b>	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).

#### 2. Hazards identification

<b>Physical State:</b>	Clear liquid
<b>Odour:</b>	Kerosene-like.
<b>WHMIS (Canada):</b>	  Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F) Class D-2A: Material causing other toxic effects (Very toxic)
<b>The WHMIS classification of Jet A/A1 is B3. The WHMIS classification of Jet A/A1-DI, JP-8, Jet 34 and NATO F-34, which all contain FSII (Diethylene Glycol Monomethyl Ether), is B3, D2A.</b>	
<b>OSHA/HCS status:</b>	This material is considered hazardous by the OSHA Hazard Communication Standard. (29 CFR 1910. 1200)
<b>Emergency overview:</b>	CAUTION! COMBUSTIBLE LIQUID AND VAPOUR. MAY CAUSE EYE AND SKIN IRRITATION. POSSIBLE BIRTH DEFECTS HAZARD- CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.  Combustible liquid. Slightly irritating to eyes and skin. Keep away from heat, sparks and flame. Avoid exposure- obtain special instructions before use. Do not breathe vapour or mist. Avoid contact with eyes, skin and clothing. Contains material which may cause birth defects, based on animal data. Avoid exposure during pregnancy. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Routes of entry:</b>	Dermal contact. Eye contact. Inhalation. Ingestion.
<b><u>Potential acute health effects</u></b>	
<b><u>Inhalation:</u></b>	Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) depression, symptoms of which may include; weakness, dizziness, slurred

	speech, drowsiness, unconsciousness and in case of severe overexposure; coma and death.
<b>Ingestion:</b>	Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract.
<b>Skin/Eyes:</b>	Slightly irritating to the skin. Slightly irritating to eyes.

### Potential chronic health effects

<b>Chronic effects:</b>	No known significant effects or critical hazards.
<b>Carcinogenicity:</b>	No known significant effects or critical hazards.
<b>Mutagenicity:</b>	No known significant effects or critical hazards.
<b>Teratogenicity:</b>	Contains material which may cause birth defects, based on animal data.
<b>Developmental effects:</b>	No known significant effects or critical hazards.
<b>Fertility effects:</b>	No known significant effects or critical hazards.
<b>Medical conditions aggravated by overexposure:</b>	Repeated skin exposure can produce local skin destruction or dermatitis. <b>See toxicological information (Section 11)</b>

## 3. Composition/information or ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Complex mixture of petroleum hydrocarbons (C9-C16)*(Kerosene)	8008-20-6	99.9
Fuel System Icing Inhibitor (FSII) (If added**) :( Diethylene Glycol Monomethyl Ether)	111-77-3	0.1-0.15
Anti-static, antioxidant and metal deactivator additives	Not applicable	<0.1

\*Aromatic content is 25% Maximum (benzene: nil)

\*\*Please note that Jet A-1-DI, JP-8, Jet-34 and NATO F-34 all contain Fuel System Icing Inhibitor.

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

## 4. First-aid measures

<b>Eye contact:</b>	Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
<b>Skin contact:</b>	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. Clean shoes thoroughly before reuse. Get medical attention immediately.
<b>Inhalation:</b>	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Ingestion:</b>	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Protection of first aiders:</b>	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.
<b>Notes to physician:</b>	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

**Flammability of the product:** Class II- combustible liquid (NFPA).

### Extinguishing media

**Suitable:** Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

<b>Unsuitable:</b>	Do not use water jet.
<b>Special exposure hazards:</b>	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No actions 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.
<b>Products of combustion:</b>	Carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), smoke and irritating vapours as product of incomplete combustion.
<b>Special protective equipment for fire-fighters:</b>	Fire-fighters wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode.
<b>Special remarks on fire hazards:</b>	Flammable in presence of open flame, spark, shocks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite. May accumulate in confined spaces.
<b>Special remarks on explosion hazard:</b>	Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Containers may explode in heat of fire.

## 6. Accidental release measures

<b>Personal precautions:</b>	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 spill material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate Respirator when ventilation is inadequate. Put on personal protective equipment (see Section 8).
<b>Environmental precautions:</b>	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
<b>Methods for cleaning up:</b>	
<b>Small spills:</b>	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof and explosive-proof equipment. Dispose of via a licensed waste disposal contractor.
<b>Large spills:</b>	Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with noncombustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## 7. Handling and storage

<b>Handling:</b>	Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
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**Storage:** Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready to use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental containment. Ensure the storage containers are grounded/ bonded.

8. Exposure controls/personal protection	
Ingredient	Exposure limits
Kerosene	<b>ACGIH TLV (United States).</b> TWA: 200 mg/m <sup>3</sup> 8 hour(s).

**Consult local authorities for acceptable exposure limits.**

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

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

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

### Personal protection

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

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

Recommended: polyvinyl alcohol (PVA), Viton®. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any materials regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

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

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

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



## 9. Physical and chemical properties

<b>Physical state:</b>	Clear liquid
<b>Flash point:</b>	Closed cup: $\geq 38^{\circ}\text{C}$ $\geq 100.4^{\circ}\text{F}$ [tag. Closed cup]
<b>Auto-ignition temperature:</b>	$210^{\circ}\text{C}$ ( $410^{\circ}\text{F}$ ) (NFPA)
<b>Flammable limits:</b>	Lower: 0.7% Upper: 5%
<b>Colour:</b>	Clear and colourless
<b>Odour:</b>	Kerosene-like
<b>Odour threshold:</b>	Not available
<b>pH:</b>	Not available
<b>Boiling/condensation point:</b>	$140$ to $300^{\circ}\text{C}$ ( $284$ to $572^{\circ}\text{F}$ )
<b>Melting/freezing point:</b>	Not available
<b>Relative density:</b>	0.775 to 0.84 (Water=1)
<b>Vapour pressure:</b>	0.7 kPa (5.25 mm Hg) @ $20^{\circ}\text{C}$ ( $68^{\circ}\text{F}$ )
<b>Vapour density:</b>	4.5 [Air=1]
<b>Volatility:</b>	Volatile
<b>Evaporation rate:</b>	Not available
<b>Viscosity:</b>	1.0 – 1.9 cSt @ $40^{\circ}\text{C}$ ( $104^{\circ}\text{F}$ )
<b>Pour point:</b>	$< -51^{\circ}\text{C}$ ( $< -60^{\circ}\text{F}$ )
<b>Solubility:</b>	Insoluble in water. Partially miscible in some alcohols. Miscible with other petroleum solvents.

## 10. Stability and reactivity

<b>Chemical stability:</b>	The product is stable.
<b>Hazardous polymerization:</b>	Under normal conditions of storage and use, hazardous polymerization will not occur.
<b>Materials to avoid:</b>	Reactive with oxidizing agents, acids and alkalis.
<b>Hazardous decomposition products:</b>	May release COx, NOx, SOx, aldehydes, acids, ketones, smoke and irritating vapours when heated to decomposition.

## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Kerosene	LD50 Dermal	Rabbit	$> 2000\text{mg/kg}$	----
	LD50 Oral	Rat	$5000\text{mg/kg}$	----
	LC50 Inhalation Vapour	Rat	$> 5000\text{ mg/m}^3$	4 hours

### **Conclusion/Summary:**

Not available

### Chronic toxicity:

### **Conclusion/Summary:**

Not available

### Irritation/Corrosion

### **Conclusion/Summary:**

Not available

### Sensitizer

### **Conclusion/Summary:**

Not available

### Carcinogenicity

### **Conclusion/Summary:**

Not available

### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Kerosene	A3	3	---	---	---	---

### Mutagenicity

### **Conclusion/Summary**

Not available

### Teratogenicity

### **Conclusion/Summary**

Not Available

### Reproductive toxicity

### **Conclusion/Summary**

Not available



## 12. Ecological information


**Environmental effects:** No known significant effects or critical hazards.  
**Aquatic ecotoxicity**  
**Conclusion/Summary:** Not available  
**Biodegradability**  
**Conclusion/Summary:** Not available

## 13. Disposal considerations

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

**Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Controls/Personal Protection for additional handling information and protection of employees**

## 14. Transport information

Regulatory Information	UN Number	Proper shipping Name	Class	Packing group	Label	Additional Information
TDG Classification	UN1863	FUEL, AVIATION, TURBINE ENGINE	3	III		----
DOT Classification	Not Available	Not Available	Not Available	----	----	----

## 15. Regulatory Information

### United States

**HCS Classification:** Combustible liquid

### Canada:

**WHMIS (Canada)** Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F)  
 Class D-2A: Material causing other toxic effects (Very toxic).  
**The WHMIS classification of Jet A/A1 is B3.**  
**The WHMIS classification of Jet A/A1-DI, JP-8, Jet 34 and NATO F-34, which all contain FSII (Diethylene Glycol Monomethyl Ether), is B3, D2A.**

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

### International regulations

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

## 16. Other information

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

**Hazardous Material Information System:**

Health	2
Flammability	2
Physical hazards	0
Personal protection	H

**National Fire Protection Association (USA):**




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

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## 16.4 MSDS FOR NAPHTHA, (INFORMATION FROM PETRO-CANADA.CA)



### Material Safety Data Sheet

NAPHTHA (SWEET)

#### 1. Product and company identification

<b>Product Name:</b>	NAPHTHA (SWEET)
<b>Synonym:</b>	Light Naphtha, Heavy Naphtha, Reformer feed, Platformer feed, Hydrodesulfurized Naphtha, Hydrotreated Naphtha.
<b>Code:</b>	W344
<b>Material Uses:</b>	Light and heavy naphthas are intermediate refinery products used as feedstocks to platformer units for the production of high octane motor gasoline blending components.
<b>Manufacturer:</b>	PETRO-CANADA P.O. Box 2844 150 –6th Avenue South-West Calgary, Alberta T2P 3E3
<b><u>In case of emergency:</u></b>	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).

#### 2. Hazards identification

<b>Physical State:</b>	Liquid
<b>Odour:</b>	Gasoline like.
<b>WHMIS (Canada):</b>	  Class B-2: Flammable liquid Class D-2A: Material causing other toxic effects (Very toxic) Class D-2B: Material causing other toxic effects (Toxic)
<b>OSHA/HCS status:</b>	This material is considered hazardous by the OSHA Hazard Communication Standard. (29 CFR 1910. 1200)
<b>Emergency overview:</b>	<b>WARNING!</b> FLAMMABLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION. CANCER HAZARD – CONTAINS MATERIAL WHICH CAN CAUSE CANCER. POSSIBLE BIRTH DEFECT HAZARD- CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED IN ANIMAL DATA. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS.  Flammable liquid. Irritating to eyes and skin. Keep away from heat, sparks and flame. Avoid exposure – obtain special instructions before use. Do not breathe vapour or mist. Avoid contact with eyes, skin and clothing. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure. Contains material which can cause heritable genetic effects. Contains material which may cause birth defects, based on animal data. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready to use. Wash thoroughly after handling.
<b>Routes of entry:</b>	Dermal contact. Eye contact. Inhalation. Ingestion.
<b><u>Potential acute health effects</u></b>	

<b>Inhalation:</b>	Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in case of severe overexposure; coma and death.
<b>Ingestion:</b>	Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract.
<b>Skin/Eyes:</b>	Irritating to the skin. Irritating to eyes.

### Potential chronic health effects

<b>Chronic effects:</b>	This product contains an ingredient or ingredients, which have been shown to cause chronic toxic effects. Repeated or prolonged exposure to the substance can produce blood disorders.
<b>Carcinogenicity:</b>	Contains material which can cause cancer. Risk of cancer depends on duration and level on exposure.
<b>Mutagenicity:</b>	Contains material which may cause heritable genetic effects.
<b>Teratogenicity:</b>	Contains material which may cause birth defects, based on animal data..
<b>Developmental effects:</b>	No known significant effects or critical hazards.
<b>Fertility effects:</b>	No known significant effects or critical hazards.
<b>Medical conditions aggravated by overexposure:</b>	Repeated skin exposure can produce local skin destruction or dermatitis. <b>See toxicological information (section 11)</b>

### 3. Composition/information or ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Complex mixture of aliphatic and aromatic hydrocarbons (C4-C12)	64741-69-1 64741-42-0 64741-41-9 64741-46-4 64741-78-2	85-100
Toluene	108-88-3	3 - 7
Xylene	1330-20-7	3 - 6
Benzene	71-43-2	1 - 2

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

### 4. First-aid measures

<b>Eye contact:</b>	Check for and remove and contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
<b>Skin contact:</b>	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. Clean shoes thoroughly before reuse. Get medical attention immediately.
<b>Inhalation:</b>	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Ingestion:</b>	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Protection of first aiders:</b>	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.
<b>Notes to physician:</b>	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

**Flammability of the product:** Flammable

### Extinguishing media

**Suitable:** Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

**Unsuitable:** Do not use water jet.

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

**Products of combustion:** Carbon oxides (CO, CO<sub>2</sub>), reactive hydrocarbons, aldehydes, ketones, smoke and irritating vapours as product of incomplete combustion.

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

**Special remarks on fire hazards:** Flammable in presence of open flame, spark, shocks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. May accumulate in confined spaces. Rapid escape of vapour may generate static charge causing ignition.

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

## 6. Accidental release measures

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

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

### Methods for cleaning up:

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

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

## 7. Handling and storage

**Handling:** Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid exposure- obtain special instructions before use. Avoid exposure during pregnancy. Do not get in eyes, or on skin and clothing. Do not ingest. Avoid breathing

vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Storage:**

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready to 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 containment. Ensure the storage containers are grounded/ bonded.

8. Exposure controls/personal protection	
Ingredient	Exposure limits
Toluene	<b>ACGIH TLV (United States).</b> TWA: 20 ppm 8 hour(s). <b>ACGIH TLV (United States).</b> TWA: 100 ppm 8 hour(s) STEL: 150 ppm 8 hours(s) <b>ACGIH TLV (United States). Absorbed through skin</b> TWA: 0.5 ppm 8 hour(s) STEL: 2.5 ppm 15 minute(s)
Xylene	
Benzene	

**Consult local authorities for acceptable exposure limits.**

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

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

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

**Personal protection**

**Respiratory:**

Use a properly fitted, air purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited.

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

Recommended: polyvinyl alcohol (PVA), Viton®.

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



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

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

### 9. Physical and chemical properties

<b>Physical state:</b>	Liquid
<b>Flash point:</b>	Closed cup: <-18°C (<-0.4°F)
<b>Auto-ignition temperature:</b>	288°C (550.4°F)
<b>Flammable limits:</b>	Lower: 1% Upper: 7.5%
<b>Colour:</b>	Yellowish to clear
<b>Odour:</b>	Gasoline like
<b>Odour threshold:</b>	Not available
<b>pH:</b>	Not available
<b>Boiling/condensation point:</b>	Montreal: IBP >60°C (140°F) Edmonton: IBP >65°C (149°F) IBP (for LN)=102°C (215°F)
<b>Melting/freezing point:</b>	Not available
<b>Relative density:</b>	0.7 to 0.75
<b>Vapour pressure:</b>	14 - 20kPa 105-150 mm Hg) @ 37.8°C (100.4°F)
<b>Vapour density:</b>	Not available
<b>Volatility:</b>	Not available
<b>Evaporation rate:</b>	Not available
<b>Viscosity:</b>	Not available
<b>Pour point:</b>	Not available
<b>Solubility:</b>	Hydrocarbon components virtually insoluble in water. Soluble in alcohol, ether, chloroform and benzene.

### 10. Stability and reactivity

<b>Chemical stability:</b>	The product is stable.
<b>Hazardous polymerization:</b>	Under normal conditions of storage and use, hazardous polymerization will not occur.
<b>Materials to avoid:</b>	Reactive with oxidizing agents, acids and interhalogens.
<b>Hazardous decomposition products:</b>	May release COx, reactive hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

### 11. Toxicological information

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Toluene	LD50 Dermal	Rabbit	12125mg/kg	----
	LD50 Oral	Rat	636mg/kg	----
	LC50 Inhalation Vapour	Rat	7585 ppm	4 hours
Xylene	LD50 Dermal	Rabbit	>1700mg/kg	----
	LD50 Oral	Rat	4300 mg/kg	----
	LC50 Inhalation Vapour	Rat	5000 ppm	4 hours
Benzene	LD50 Dermal	Rabbit	>9400mg/kg	----
	LD50 Oral	Rat	930mg/kg	----
	LC50 Inhalation Vapour	Rat	13200 ppm	4 hours

**Conclusion/Summary:**

Not available

#### Chronic toxicity:

**Conclusion/Summary:**

Not available

#### Irritation/Corrosion

**Conclusion/Summary:**

Not available

#### Sensitizer

**Conclusion/Summary:**

Not available



## Carcinogenicity

**Conclusion/Summary:** Not available

## Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Toluene	A4	3	D	---	---	---
Xylene	A4	3	D	---	---	---
Benzene	A1	1	A	+	Proven	+

**Conclusion/Summary** Not available

## Teratogenicity

**Conclusion/Summary** Not available

## Reproductive toxicity

**Conclusion/Summary** Not available

## 12. Ecological information

**Environmental effects:** No known significant effects or critical hazards.

## Aquatic ecotoxicity

**Conclusion/Summary:** Not available

## Biodegradability

**Conclusion/Summary:** Not available

## 13. Disposal considerations


### **Waste Disposal:**

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose the surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Avoid dispersal of split material and runoff and contact with soil, waterways, drains and sewers.

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

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

## 14. Transport information

Regulatory Information	UN Number	Proper shipping Name	Class	Packing Group	Label	Additional Information
TDG Classification	UN1268	PETROLEUM DISTILLATES, N.O.S.	3	II		----
DOT Classification	Not Available	Not Available	Not Available	----	----	----

## 15. Regulatory Information

### United States

**HCS Classification:** Flammable liquid Irritating material Carcinogen

**Canada:** Class B-2: Flammable liquid

**WHMIS (Canada)** Class D-2A: Material causing other toxic effects (Very toxic).

Class D-2B: Material causing other toxic effects (Toxic).

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

## International regulations

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

## 16. Other information

**Label requirements:** FLAMMABLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION. CANCER HAZARD- CONTAINS MATERIAL WHICH CAN CAUSE CANCER. POSSIBLE BIRTH DEFECTS HAZARDS- CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA. CONTAINS MATERIAL WHICH CAN CAUSE HERITABLE GENETIC EFFECTS.

### Hazardous Material Information System:


Health	2
Flammability	4
Physical hazards	0
Personal protection	H

### National Fire Protection Association (USA):



**References:** Available upon request.  
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End of Petroleum Products Division Oil Pollution Emergency Plan