EMERGENCY PLAN

FOR PETROLEUM AND ALLIED PETROLEUM PRODUCTS

— Eureka High Arctic Weather Station —

Prepared by: Property Management Division
Assets, Contracting and Environmental Management Directorate (ACEMD)
Environment Canada

February 2013

CONTROL PAGE

On receipt of revisions and/or amendments, District 3, Property Management Division shall complete this control page to ensure that the Emergency Plan for Storage Tank Systems of Petroleum and Allied Petroleum Products at Eureka High Arctic Weather Station (HAWS) is always current and consistently reflects the operations and activities taking place on site.

Version	Description / Purpose	Date in Force	Revision Date	Revised By:	Approved By:
1	Original Plan	April 1, 2010			Natalie Boulanger
2	Original Plan updated : 1-as per EC, Environmental Enforcement Branch, Iqaluit 2-as per changes in the applicable regulatory regimes & identification of inadequacies		September 2012	Marie-Michelle Modéry & Carl Carroll	Rebekah Olson
3	Updated AANDC contact phone number pg. 49		February 18, 2013	Carl Carroll	Rebekah Olson

Rebekah Olson Signature Date (Month/Day/Year)
Project Lead

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ACRONYMS

ACEMD	Assets, Contracting and Environmental Management Directorate
BMP	Best management practices
C	Celsius
CCG	Canadian Coast Guard
CEPA	Canadian Environmental Protection Act
CPR	Cardiopulmonary Resuscitation
CSA	Canadian Standards Association
DSD	Nunavut Department of Sustainable Development
EC	Environment Canada
FIRSTS	Federal Identification Registry for Storage Tank Systems
FSTS	Fuel Storage Tank System
HAWS	High Arctic Weather Station
AANDC	Aboriginal Affairs and Northern Development Canada
L	Liters
Licence	Nunavut Water Board Licence No. 3BC-EUR1116
M	Meters
MSDS	Material Safety Data Sheets
NFCC	National Fire Code of Canada
OSC	On-Scene Commander
PEARL	Polar Environmental Atmospheric Research Lab
PPE	Personal Protective Equipment
PSI	Pounds per square inch
SPM	Station Program Manager
SOP	Standard Operation Procedure
WHMIS	Workplace Hazardous Materials Information System

1. INTRODUCTION

Figure 1: Eureka High Arctic Weather Station, Eureka, NU

1.1 Context

Spills of petroleum and allied petroleum products cannot be entirely prevented; however, the impacts of spills can be minimized by training and establishing a predetermined line of response and action plan. The remoteness of Eureka High Arctic Weather Station (HAWS) coupled with the environmental sensitivity of the region underline the necessity for good spill contingency planning.

This Eureka Environmental Emergency Response Plan (EERP) for petroleum and allied petroleum products applies to the Eureka High Arctic Weather Station (HAWS) located in Eureka, Nunavut. The HAWS is located on the north side of Slidre Fjord, at the north-western tip of Fosheim Peninsula on Ellesmere Island. HAWS is owned and operated by the Meteorological Service of Canada. Although remote, the Eureka HAWS is a hub of activity for Environment Canada, the Department of National Defence, the Polar Continental Shelf Program, and the Polar Environment Atmospheric Research Lab (PEARL).

The site is accessed primarily by air with an all season air strip located about 1.5 km northeast of the site. An annual sea lift is conducted to provide Eureka HAWS with petroleum products to generate electricity, heat and operate motorized vehicles, pumps, snowmobiles, etc. Many stakeholders occupy the Station during the short summer season and the population can range from an average of 20-30 people up to as many as 40-60 people at any given time. During the winter months which last around 10 months of the 12, there are approximately 8-10 people on site, primarily consisting of MSC staff and researchers.

1.2 Purpose and Objectives of the Plan

The aim of this Environmental Emergency Response Plan (EERP) is to provide clear, timely, safe and effective coordinated response procedures by Environment Canada personnel in relation to environmental emergencies at Eureka and compliance with relevant regulations, in order to protect the environment and human health in the event of accidental release of petroleum products. The EERP provides EC and related personnel, who are involved in incident responses, with the necessary information to manage fuel storage tank systems (FSTS) through the adoption of preventative measures, plans for preparedness, as well as response and recovery procedures in the event of accidental release.

The principle objectives of the Plan are to:

1) Comply with all relevant federal government regulations, including the following;
   -Nunavut Water Board license 3BC-EUR0611 pursuant to the *Nunavut Waters and Subsurface Tribunal Act*
   -*Storage tank systems for petroleum and allied petroleum products regulations* pursuant to *the Canadian Environmental Protection Act*, 1999;
2) Protect Environment Canada (EC) employees, other persons working at or visiting Eureka HAWS and the environment by meeting or surpassing all applicable environmental and health and safety legislation, licenses, policies, codes of practice and plans (See Appendix A for the major requirements of the preceding);
3) Provide detailed information and guidance on actions important for the prevention of spills and procedures to detect and respond to them when they occur;
4) Identify potential emergency situations;
5) Minimize the impact of emergencies; and finally
6) Continually improve response procedures.

2. ADMINISTRATION

2.1 Effective Date of Emergency Plan

April 1, 2010

2.2 Plan Distribution List

This Plan and all subsequent updates shall be issued to (see Appendix B):

1) Environment Canada – Station Program Manager Nunavut;
2) Environment Canada – Head Aerological & Surface Operational Programs Winnipeg, Manitoba;
3) Environment Canada – Manager, District 3 Property Management, Ottawa, Ontario;
4) Environment Canada – Environmental Compliance Officer, Gatineau, Quebec;
5) Department of Environment, Government of Nunavut; and
6) Nunavut Water Board, Gjoa Haven, Nunavut.

2.3 Plan Review and Maintenance

Manager, District 3 Property Management is responsible for the maintenance and update of the Plan.

The Plan shall be reviewed and updated:

1) **Annually**, taking into account changes in the applicable regulatory regimes, environmental factors and any petroleum and allied petroleum-related infrastructural changes at Eureka HAWS; and/or
2) **Following** a spill greater than 100 L; and/or
3) **Following** a spill of any amount that reaches water (Fisheries Act); and/or
4) The identification of any inadequacies in the Plan or in its implementation.

Changes in phone numbers and names of individuals etc. that do not affect the intent of the Plan are to be made on an annual basis. Plan updates shall be made in accordance with the above requirements. With each modification to the Plan, the Control Page shall be update and re-issued as per the Distribution List.

2.4 Response to Media and Public Inquiries

Media inquiries of Eureka or other EC staff concerning petroleum spills at Eureka should be directed to Environment Canada - Media Relations (see Appendix B). The Prairie and Northern Region's Communications Unit will coordinate a response to the inquiries.

3. EUREKA PETROLEUM AND ALLIED PETROLEUM PRODUCTS INVENTORY

This section provides a description of the:

1) Types of petroleum and allied petroleum products and their systems at Eureka;
2) Hazards associated with petroleum products;
3) Location and maximum expected quantities of the petroleum products or allied petroleum products stored at Eureka at any time during any calendar year; and
4) Characteristics of Eureka and the surrounding area that may increase the risk of harm to the environment or of danger to human life or health.

3.1 Types of Petroleum and Allied Petroleum Products at Eureka

1) Diesel fuel which is used to generate electricity and heat as well as fuel diesel motorized equipment;
2) Gasoline to fuel automobiles, pumps and snowmobiles;
3) Hydraulic fluids, greases, etc. for equipment and vehicles;
4) Aviation Fuel for aircraft;
5) Diesel engine oil for equipment and vehicles;
6) Hydraulic fluids for equipment and vehicles;
7) Glycol for equipment and vehicles; and
8) Petroleum and allied petroleum wastes.

3.1.1 Description of Eureka's Petroleum and Allied Petroleum Product Systems

3.1.1(a) Diesel System

Diesel fuel is shipped to Eureka HAWS by a Canadian Coast Guard (CCG) ice breaker. The ice breaker anchors approximately 100 to 300 metres off-shore, and using a floating hose, connects to a land based pipe system to pump the oil to the tank farm (See Appendix E for details).

3.1.1(b) Gasoline System

Gasoline is brought on shore in 205 L drums. Approximately ten drums are required to fill the 2,273L gasoline tank that is located just south of the tank farm. The average yearly consumption of gasoline is approximately 3,000 L (See Appendix F for details).

3.1.1(c) Other Petroleum and Allied Products Systems

Much of the barrel petroleum and allied petroleum products that arrive each year on the ice breaker are for agencies/customers other than EC. Further, other than for a few days following the departure of the ice breaker, most of the barrel products are stored at the north apron of the runway near the DND facility. These products include diesel engine oil, solvents, and hydraulic fluids. In addition, there could be up to 4000 barrels of aviation fuel from other agencies/customer.

Finally, EC and other agencies/customers site operations result in Eureka accumulating up to 80 barrels of waste oil and waste aviation fuel which are stored at EC's Petroleum and Allied Petroleum Barrel Storage Area.

3.2 Hazards of Petroleum Products

Material Safety Development Sheets (MSDS) are provided in Appendix C and Appendix D for diesel and gasoline respectively. These outline in detail the properties of the diesel and gasoline fuel on site at Eureka for the year 2009.

3.3 Diesel and Gasoline Tank Systems at Eureka, HAWS

Table 1 documents the characteristics of Eureka's HAWS diesel and gasoline tank systems.

Table 1: Volumes and locations of tanks containing petroleum materials

EC Registration Number	Fuel	Tank Storage Volume	Number of Tanks	Containment Type	Maximum Tank Capacity*	Storage Location and Uses
EC-00001218	Diesel Fuel	770,000 L	1	Single-Walled Tank with impermeable liner and berm (110%)	693,000 L	Tank Farm
EC-00001218	Diesel Fuel	60,000 L	9	Single-Walled Tanks with impermeable liner and berm	54,000 L x 9	Tank Farm
EC-00001218	Diesel Fuel	567 L	2	Single-Walled	Day tank	Generate power; part of Tank farm system
EC-00001195	Diesel Fuel	9,000 L	1	Double-Walled Tank	8,100 L	Transmitter Building, Heating
EC-00001212	Diesel Fuel	9,000 L	1	Double-Walled Tank	8,100 L	Old Maintenance Garage, Heating
EC-00001146	Diesel Fuel	9,000 L	1	Double-Walled Tank	8,100 L	Warehouse, Heating
EC-00001124	Diesel Fuel	9,000 L	1	Double-Walled Tank	8,100 L	Incinerator, Burning
N/A (Regulated by Transport Dangerous Goods Act)	Diesel Fuel	1, 850 L	1	Double-Walled Mobile Tank AGB Product Inc.	1, 665 L	Employed to transfer diesel to Transmitter Building, Old Maintenance Garage, Warehouse & Incinerator
EC-00001251	Gasoline	2,273 L	1	Double-Walled Tank	2,045 L	South and adjacent to Tank Farm, vehicle fuel, snowmobiles, small generators
N/A Day Tank	Diesel Fuel	1,150 L	1	Single-Walled Tank	1,035 L	Inside PEARL generator room

*Tanks are only filled to 90% of their capacity to accommodate any possible volume expansion due to a rise in temperature.

3.3 Location of Petroleum and Allied Petroleum Products and Systems at Eureka

The location of Eureka's petroleum and allied petroleum products are identified in Figure 2.

Figure 2: Location of Eureka's Petroleum and Allied Petroleum Products

Legend

1: *Transmitter Tank EC-00001195*

2: *EC's petroleum and Allied Barrel Storage Area*

3: *Tank Farm EC-00001218*

4: *Diesel Dispenser Mobile*

5: *Gasoline Tank EC-00001251*

6: *Incinerator Tank EC-00001214*

7: *Warehouse Tank EC-00001146*

8: Maintenance Tank EC-00001212

9: PEARL Day tank

3.4. EUREKA SITE CONDITIONS

This section of the EERP describes types of biotic, abiotic, and human receptors present in Eureka which are relevant during any environmental emergencies.

3.4.1 Receptors

There are a number of receptors at Eureka that could be adversely affected by a spill of petroleum or allied petroleum products. Figure 3 illustrates the location of the principle environmental, human and economic receptors at Eureka.

Legend

1: *Sewage Lagoon*
2: *Slidre Fjord*
3: *CCG Ice breaker location*
4: *Buildings*
5: *Freshwater lagoon*
6: *Station Creek delta*
7: *Station Creek*
**Note: Prevailing winds travel W in Aug and NE in Sept.*

Figure 3: Location of environmental, human and economic receptors at Eureka

3.4.2 Climatic Conditions

The prevailing climatic conditions in Eureka are:

1) Wind – the prevailing wind is from the west during late summer and east for the remainder of the year;
2) Temperatures – well below freezing for the majority of the year (September to July);
3) Snow cover – snow is present for 9-10 months of the year; and
4) Ice – ice conditions are such that only an icebreaker can perform the annual re-supply. Resupply is usually conducted in August or September.

3.4.3 Topography

The topography at Eureka determines the direction and speed of spilled petroleum and allied petroleum products. Figure 4 illustrates a shallow north to south slope (10 M in 450 M or approximately 2%) in the land from the base of the tank farm to the Fjord and a steep slope of the land just to the west of the pipeline.

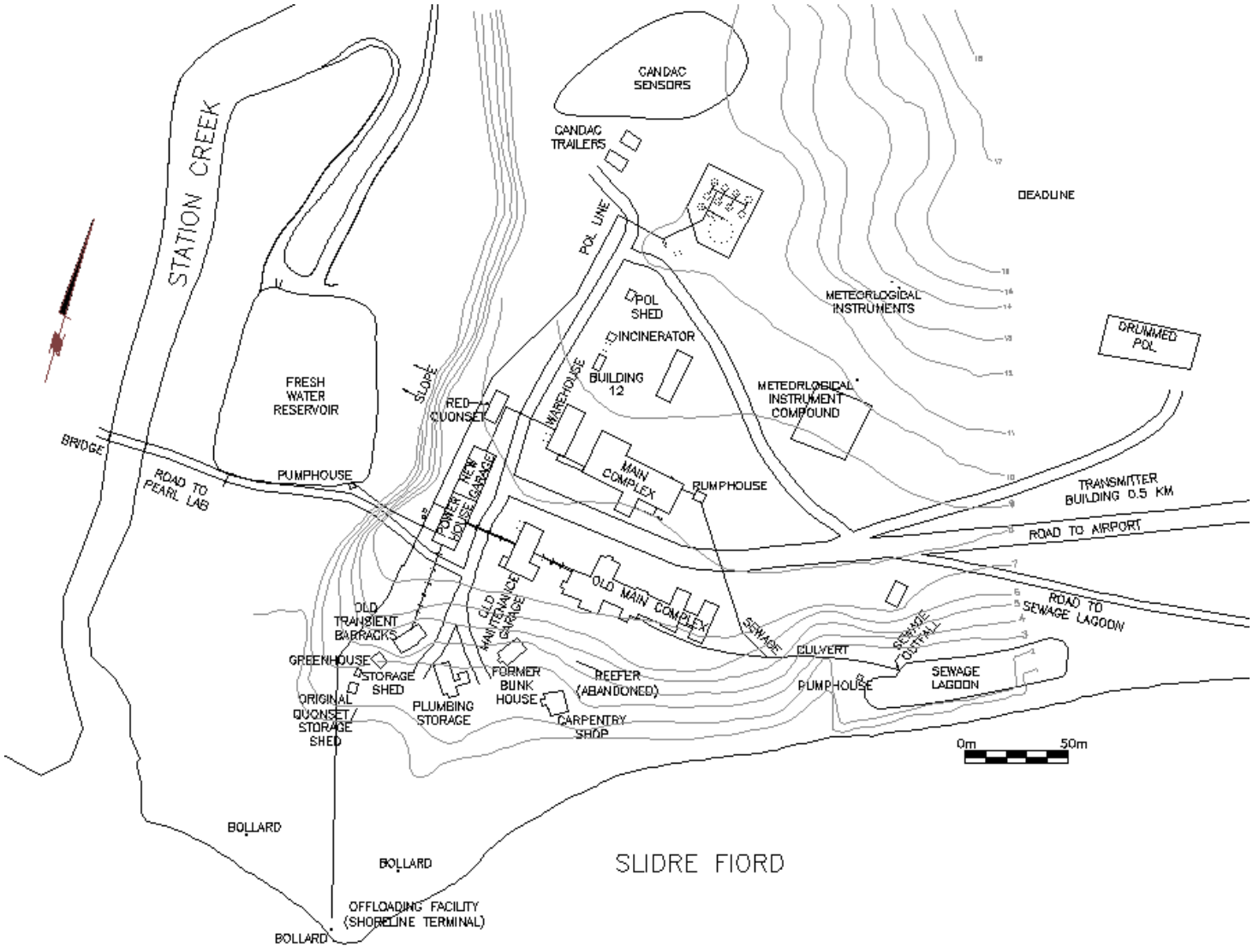
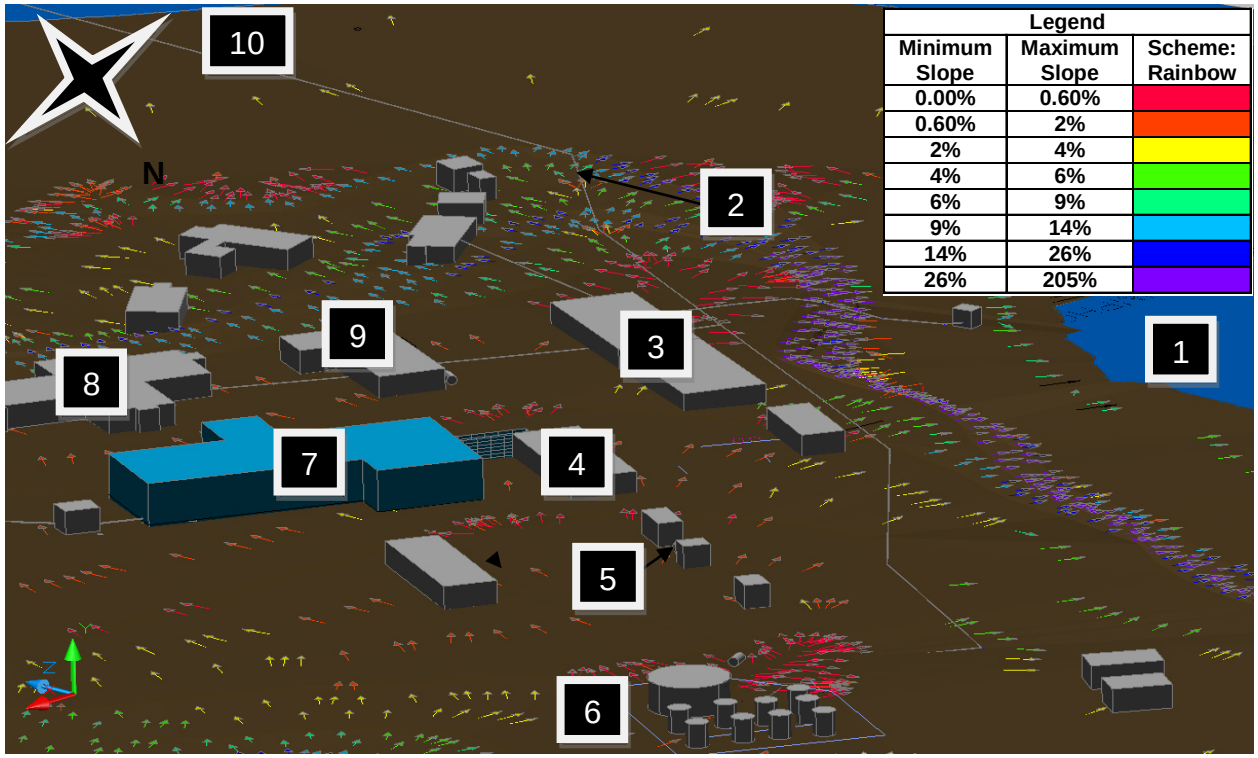


Figure 4: Topographical Map of Eureka

Figure 5 illustrates the Eureka's HAWS topography and direction of flow of possible discharges at Eureka HAWS.



Legend

1: *Freshwater Lagoon*
2: *Pipeline*
3: *Powerhouse*
4: *Warehouse*
5: *Incinerator*
6: *Tank Farm*
7: *Main Complex*
***8**: Old Main Complex*
***9**: Old Maintenance Garage*
***10**: Slidre Fjord*

Figure 5: Topography and flow transport model at Eureka

4. POTENTIAL SPILL SCENARIOS AND ENVIRONMENTAL IMPACTS

4.1 Likelihood of Spills at Eureka

Environment Canada's *Summary of Spill Events in Canada, 1984-1995* provides a review of all spill trends in Canada for the period indicated.

The report has a number of key findings:

1) The top five reasons for spills are equipment failure, human error, corrosion, material failure and storm or flood.
2) The environmental medium most frequently affected by spills is land.
3) The main consequences of spills would be vegetation, ocean and property damage.
4) Fifty-eight percent of the total number of reported spills involved petroleum products.

According to Environment Canada's *Summary of Spill Events in Canada, 1984-1995,* the likely causes ("what" went wrong) of federal spills are pipe leaks (19% of spills), above-ground tank leaks (15%), container leaks (12%) and overflows (8%). The report recommends material storage as an area in which to focus prevention efforts.
The likely reasons ("why" it went wrong) for spills in the government (all governments) sector are: storm (25%), equipment failure (22%), and human error (10%).

4.2 Overview of Non-Marine Spill Scenarios

Table 2 presents the principle petroleum products stored on site. For each, the table lists potential discharge events with associated discharge volumes and directions. The most likely discharge volume is indicated and the spill clean-up procedures will focus on spills of this quantity. A worst case scenario is also presented. Specific discharge rates are not indicated for each fuel type as these would vary from a few minutes to several hours, based on the source of leak or puncture.

Table 2: List of petroleum materials, potential discharge events, potential discharge volumes and direction of potential discharge

Material (sources)	Potential Discharge Event	Discharge Volume	Possible directions of discharge and susceptible receptors
Diesel	Over filling of portable tank or diesel vehicles from diesel dispenser Leaking pipeline (outside tank farm) to diesel dispenser and motorized valve inside tank farm stuck open	• Likely < 100L • Worst Case ~ 50,000L **(dispenser connected to 60,000L tank)**	Appendix G
	Over filling of 9,000L tanks from portable tank	• Likely: < 100 L • Worst Case: ~ 2000 L **(portable tank contains ~ 15 000 L)**	Appendix J, (Maintenance Tank) Appendix K (Warehouse Tank) Appendix L (Incinerator Tank)
	Leaking from any of the 10 tanks in Tank Farm	• Likely: < 100L • Possible: > 100 L to < 50,00L • Worst Case: ~ 700,000L **(largest single tank is ~ 700,000 L)**	Appendix G (Tank Farm)
	Leaking from pipeline during sea lift	• Likely: < 100L • Worst Case: ~ 25,000L **{volume of pipe (~ 270 M) between check valve at power house and tank farm}**	Appendix H (North End Pipeline) Appendix I (South End Pipeline)
	Leaking pipeline (outside tank farm) to power house and motorized valve inside tank farm stuck open	• Likely: < 100L • Worst Case: ~ 50,000L **(power house connected to 60,000L tank)**	Appendix H (North End Pipeline)
Gasoline	Over filling of gasoline tank or vehicles south of Tank Farm	• Likely: < 100L • Worst Case: ~ 200L **(volume of gasoline barrel)**	Appendix G (Tank Farm)
Jet A Fuel, Gasoline, Hydraulic Fluid, Glycol, Waste Petroleum	Piercing of 205L barrel	• Likely: < 100L • Worst Case: ~ 200L **(volume of barrel)**	Appendix M (Barrel Storage Area)
	Dropping of pallet of 205L barrels following sea-lift	• Likely < 100L • Worst Case ~ 800L **(pallet of 4 barrels dropped during transport)**	Appendix I (South End Pipeline)

4.3 Potential Impacts of Petroleum and Allied Petroleum Spills

Petroleum and allied petroleum products may be harmful to wildlife and aquatic life. They are not readily biodegradable and have the potential for bioaccumulation in the environment. Diesel burns slowly and thus the risk to the environment is reduced during recovery as burn can be more readily contained compared to a volatile fuel like gasoline.

Overall, for all hazardous materials discussed above, impacts are lower during winter. Snow is a natural sorbent and ice can form a barrier limiting or eliminating soil or water contamination; thus spills can be more readily recovered when identified and reported.

5. SPILL PREVENTION AND BEST MANAGEMENT PRACTICES

Planning for an emergency situation is imperative because of the hazardous nature of the petroleum and allied petroleum materials and the circumstances detailed in sub-sections 3.2.

These realities magnify the importance of focusing on preventative measures to minimize the likelihood of a spill and thereby provide for the safety of Eureka's personnel and the local environment.

5.1 Current Preventative measures

5.1.1 Tank Farm (EC-00001218) Fuel Re-supply Standard Operating Procedures (SOPs)

Due to the quantity of diesel fuel delivered and its transfer across open water to the shore piping system, the annual bulk transfer by ship offloading poses the greatest risk to the environment at Eureka. The following procedures are currently in place to mitigate the risks of a spill during re-supply:

1) Preliminary inspections of infrastructure before oil transfer operations commence:

    a) Coast Guard confirms that the transfer hose from ship to shore-line has been certified and a pressure test has been conducted on it.
    b) Coast Guard verifies the integrity of the ships mooring lines.
    c) EC personnel & Coast Guard inspect the pipeline & valves from the shore to the tank farm and review procedures to be implemented for possible spill scenarios.

2) Restrictions on fuel transfer from ship to diesel tank system:

    a) *If no ice in Slidre Fjord.* No transfer of fuel is permitted under the following environmental conditions:

        i) Wind speed greater than 15 knots; and
        ii) Other unacceptable conditions which increase the likelihood of a spill or impede the ability of the oil handling facility to respond in the event of an incident in the judgment of the CCG.

    b) *If light to medium new year ice conditions in Slidre Fjord.* No transfer of fuel is permitted under the following environmental conditions:

        i) Wind speed greater than 10 knots;

ii) Other unacceptable conditions which increase the likelihood of a spill or impede the ability of the oil handling facility to respond in the event of an incident in the judgment of the CCG; and
iii) Should ice flows pose a risk for damage to the floating transfer hose, and such ice flows cannot be easily diverted away from the transfer hose by CCG zodiacs or landing craft, contact will be made immediately to the CCG icebreaker to shut down the transfer of fuel. Upon draining the transfer hose of all fuel, the hose will be disconnected from the ship and will not be reconnected until ice flows do not pose any immediate problems

c) *If heavy New Year ice conditions in Slidre Fjord.* No transfer of fuel is permitted under the following environmental conditions:

i) Wind speed greater than 10 knots;
ii) Other unacceptable conditions which increase the likelihood of a spill or impede the ability of the oil handling facility to respond in the event of an incident in the judgment of the CCG; and
iii) Should ice flows pose a risk for damage to the floating transfer hose, and such ice flows cannot be easily diverted away from the transfer hose by CCG zodiacs or landing craft, contact will be made immediately to the CCG icebreaker to shut down the transfer of fuel. Upon draining the transfer hose of all fuel, the hose will be disconnected from the ship and will not be reconnected until ice flows do not pose any immediate problems.

3) Safety measures implemented on-land during diesel fuel transfer

The fuel is delivered to the tank at a pressure of approximately 30 - 80 psi which is well below the pressure capabilities of the hose and pipeline systems.

4) Single diesel tank filling procedure

The annual re-supply is only pumped into the 770,000L storage tank (any residual oil contained within the 770,000 L tank having been conveyed to the other 60,000 L tanks prior to re-supply). This procedure significantly lowers the potential for tank overfills, in that only one tank must be monitored during loading and eliminates a problematic procedure of continually switching from tank to tank during the re-supply process.

5) Monitoring procedures during re-supply

The following individuals are in constant radio contact throughout the approximately 14-24 hour transfer which takes place in August or September:

a) The Captain of the Coast Guard ship;

b) The Captain's Coast Guard counterpart (the Beachmaster) on the beach where the hose from the ship meets the fixed pipeline on land;
c) An EC contract personnel and/or the Beachmaster patrolling the pipeline; and
d) An EC contract personnel and/or the Beachmaster at the 770,000 L tank or any of the 9 - 60,000 L tanks observing the mechanical float level and comparing that observation with a physical measuring of the level of the fuel in the tank by manual dipping. The 770,000 L tank or any of the 9 - 60,000 L tanks are closely monitored during the filling process to ensure there is a minimum of 10% of its capacity remaining to accommodate any possible volume expansion due to a rise in temperature.

5.1.2 Secondary Containment Measures

Secondary containment is provided for all tanks, either in the form of double-walled tanks, or in the case of the tank farm, a berm with high density polyethylene synthetic impermeable liner providing 110% of the capacity of the 770,000 L tank.

An analysis report on fuel storage and product transfer areas for Eureka was conducted in 2009 by a consultant in order to identify measures required in order to comply with Fuels Storage Tank System (FSTS) regulations along with providing suggestions on applicable best management practices. Eureka has implemented the mitigation measures as recommended in the report entitled *Eureka Fuel Storage Product Transfer Areas Analysis Report*, October 2009.
For example:

- Drive-In/drive-out fuel containment pans have been installed at the gasoline/diesel pump re-fuelling location.
- Fuel containment pans have been purchased and installed at various locations in Eureka where storage of drummed fuels takes place such as the POL area and the airstrip.

5.1.3 Maintenance and Inspection Programs

Eureka has implemented Operational Procedures for Inspections and Maintenance of Storage Tank Systems. This consists of Monthly and Annual Checklists (see Appendices Q & R) in order to ensure that the components of Eureka's systems are compliant with the inspection and maintenance requirements of the FSTS regulations, and that Eureka is following best management practices. Copies of the checklists are kept on file in the Station Manager's Office of the Operations Complex.

The maintenance and inspection program aids in minimizing the possibility of fuel spills due to equipment failures, demonstrates due diligence, and is in compliance with FSTS regulations.

5.1.3.1 Monthly Visual Inspection Checklist

A monthly visual inspection is performed by EC personnel for its tanks, single walled piping, and related storage tank system components. Copies of the inspection are kept on file in the Eureka Station Manager Office of the Operations Complex.
EC's site (both inside and outside buildings) is patrolled by EC personnel on a constant basis in order to monitor, by sight or smell, for fuel leaks.

The components of the monthly checklist which are monitored for all FSTS, with the exception tank farm, consist of the following:

1. Inspection of all aboveground tanks and piping for surface rust
2. Inspection of the integrity of the distribution piping
3. Inspection of the vent cap on the tank to ensure it is not obstructed
4. Verification of the refill pipe cover to ensure it is firmly attached to the refill pipe
5. Verification of the integrity of the labels and plates located on the refill pipe
6. Inspection of the interior of the tanks to identify any possible water accumulation (where possible)
7. Maintenance of the valve, by repeatedly opening and closing it, to ensure it is working correctly and to prevent jamming

(See Appendix Q for a copy of the template of the monthly visual inspection checklist)

On a regular basis (for the tank farm):

1) The meters on all tanks at the tank farm are read to identify potential leaks
2) The accuracy of the tank meters is confirmed by lowering a measuring tape to gauge the fuel depth (see Figure 6). This latter reading for each tank is compared to the corresponding tank meter reading to determine if there are any discrepancies;
3) A check is made to confirm that all tank valves are closed except the ones in use;
4) A regular check is made of the motorized valve at the tank farm that opens the pipeline from one of the 60,000 L tank farm diesel fuel tanks to the powerhouse or the dispensing pump when there is a demand for diesel. It is critical that this motorized valve is operational and does not "freeze" in the open position which would cause the previously mentioned sections of the pipeline to be 'charged'. If these sections of the pipeline became damaged while the valve was in the open position, a maximum of 60,000 L tank of diesel could spill onto the land. The motorized valve must be visually checked regularly to ensure the heater is working (no frost on the heater & flag is in right direction indicating valve is off when there is no demand for fuel);
5) All tanks and associated pipelines are checked; and
6) The secondary containment area inside the berm of the tank farm is scrutinized to confirm that are no pools of oil collecting.

Figure 6: Measuring Tank Levels by Dipping

5.1.3.2 Annual Inspection Checklist

The annual inspection of all FSTS is to include the following elements:

- Inspection of all safety measures and equipment
- Inspection of the tank's overfill protection devices
- Inspection of leak detection and leak collection devices
- Inspection of all refuelling devices
- Inspection of the fixed devices connected to the tank system
- Inspection of all markings and signage
- Inspection of all tank system piping
- Review of emergency procedures and documentation

Copies of this documentation are filed in the Eureka Station Manager Office.
(See Appendix R for a copy of the Annual Inspections Checklist.

The Tank Farm containment berm is inspected yearly and, if necessary, repaired to ensure its integrity.

The tank internal inspection program for the Tank Farm (EC-00001218) is performed once every 10 years or based on API 653 inspection results (CEPA).

5.1.4 Emergency Preparedness Checklist (Cross reference table)

An emergency preparedness checklist which cross references the FSTS Regulations has been created in order to ensure that this emergency plan meets all the requirements of sections 30 to 32 of these Regulations. The table illustrates that all the mandatory requirements have been met with respect to CEPA 2008-197, TDG Regulations SOR/2008-34, with management practices outlined in CCME 2003 and the National Fire Code NFCC 2005. (Refer to Appendix S)

5.1.5 Labeling

All tanks subject to SOR/2008-197 have a plate bearing the Environment Canada identification number. Furthermore, all tanks are to display the appropriate WHMIS/TDG labels directly on a part of the tanks such that they are clearly visible to personnel accessing the tanks.

All of these labels are:

- Clearly visible and legible
- Weather- and transport-resistant
- Water-repellent and water-resistant
- Appropriately shaped/sized

5.1.6 Diesel Fuel Conveyance Safety Measures

Tank Farm diesel is only conveyed via the piping system to the power house/diesel dispenser from the 60,000 L tanks. This measure ensures that, if:

1) the motorized valve (discussed above) fails to close, leaving the piping system "charged" and
2) there is a break in the piping system outside the tank farm,

Then the potential oil spill is limited to ~ 50,000 L and not 700,000 L.

5.1.7 Diesel and Gasoline Dispensing Safety Measures

The nozzles on the diesel dispenser and gasoline tank are constructed with self-serve safety devices to ensure that fuel can only be delivered if a human is present.

5.1.8 Spill kits

Currently there are 8 spill kits located within the Eureka site. The spill kits are located in close proximity to the various FSTS located throughout the facility. This includes the pipeline manifold, the power house, warehouse (EC-00001146), old garage (EC-00001212), incinerator (EC-00001214), re-fuelling area (fuel dispensers), gasoline tank (EC- 00001251) and mobile fuel wagon. See figure 7 below for the specific location of the 8 spill kits.

5 of the 8 spill kits contain the following;

50 - 15" x 19' pads
4 - 3" x 12' SOCs
8 - 18" x 18" Pillows
1 - Goggles
1 - pair Nitrile Gloves
5 - Disposable bags
1 - Emergency Handbook

3 of the 8 spill kits are considered spill buckets and they contain the following;

10 - 15" x 19' pads
3 - 3" x 4' SOCs
1 - Pair nitrile gloves
2 - Disposable bags
1 - Instruction sheet

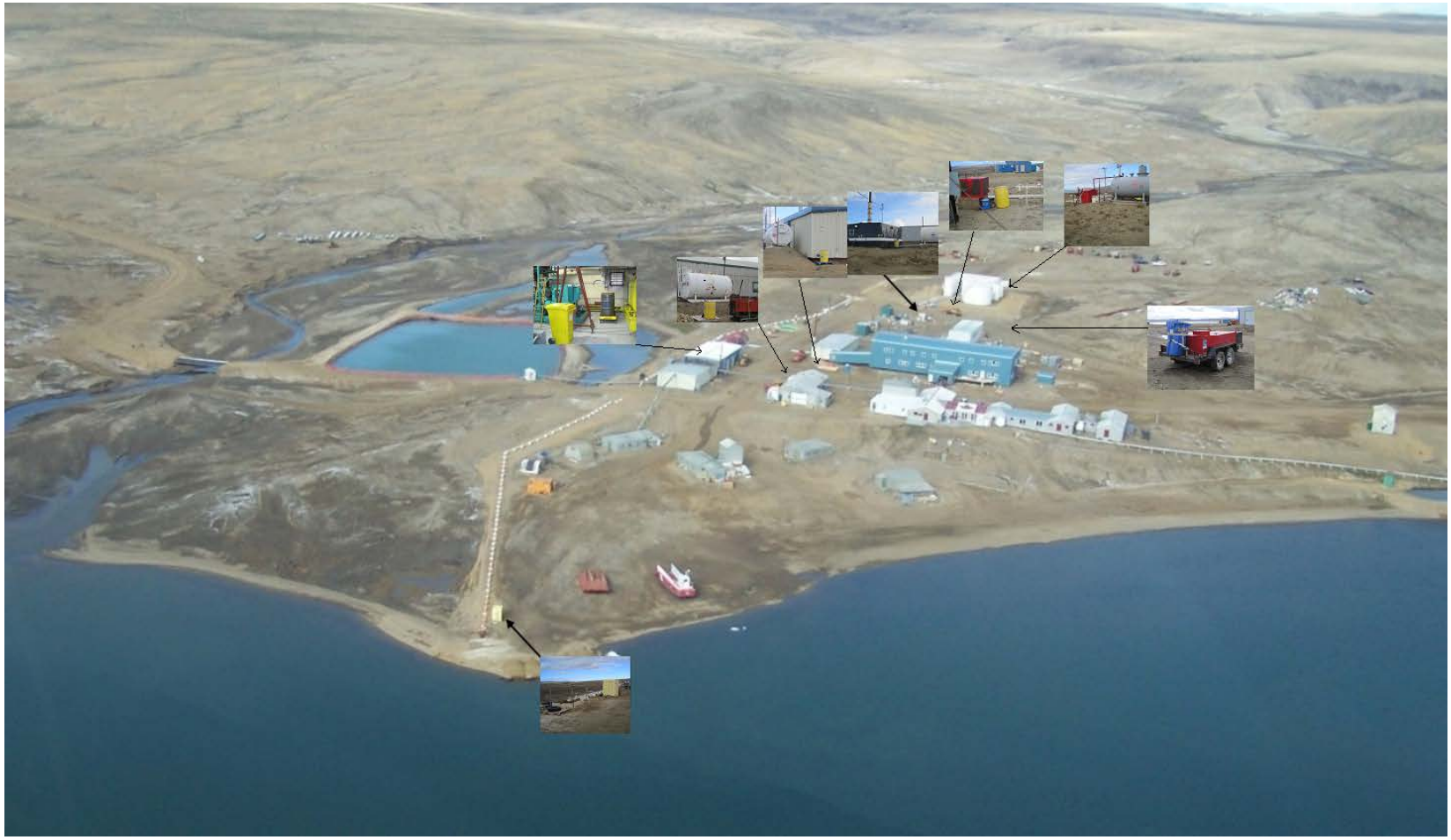


Figure 7: Location of spill kits at Eureka

5.1.9 Training

Training/instruction will assist in the prevention of petroleum and allied petroleum spills and the mitigation of associated health effects.

5.1.9.1 General Health and Safety Training

All EC employees and contractors are trained in the following:

1) Workplace Hazardous Materials Information System (WHMIS);
2) First Aid and CPR; and
3) Transportation of Dangerous Goods

A MSDS binder, containing MSDS sheets on all hazardous substances present at Eureka, is located in the front of the vestibule of the main complex. Each building has a MSDS binder containing MSDS sheets for substances contained in that building.

A Workplace Hazardous Materials Information System (WHMIS) manual is located in the front vestibule of the main complex.

Training for employees who may be involved in inspection of fuel tank systems, fuel transfer operations and/or response to a spill is currently being developed. Training will include live exercises.

5.2 Preventative Initiatives In progress

The following is a list of recently initiated preventative measures at the facility.

5.2.1 Pipeline -Ocean to the tank farm

The single walled underground pipeline portion of the tank farm system will be replaced with double walled pipeline. The portion of the pipeline which currently protrudes through the tank farm berm wall will be re-routed over the berm wall. The timeframe for project implementation and completion will depend on project approvals, cost, and method of installation.

5.2.2 EC's petroleum and Allied Petroleum Barrel Storage/Processing Area

A project has been initiated in 2011 in order to purchase a new drum washer/crusher to clean and crush the drums. This project will also address the need for secondary containment for the empty barrel processing area and an investigation is underway in order to identify possible alternative options for barrel disposal methods. The intent of this project is to minimize the possibility of fuel contamination in the empty barrel processing area and to conform to Nunavut Water Board (NWB) & AANDC regulations.

5.2.3 Product Transfer Areas (PTA)

Drive-in/Drive-out metal secondary containment pans have been installed in the fuel transfer area of the fuel tank farm and the airstrip locations. An additional investigation into the feasibility of installing “no-spill” hose connections on to the Eureka re-fuelling hoses is being undertaken. The re-fuelling hoses are sent south each year to be pressure tested at an accredited facility before they are shipped back to Eureka for use in the re-fuelling process the following year.

6. SPILL CONTINGENCY

This section within this EERP details all aspects of the organization’s response in the event of accidental release of petroleum products. The following response section demonstrates preparedness within Eureka to respond quickly and efficiently to spills, and/or other emergencies, in order to limit the danger or damage posed by the accidental release of petroleum products.

This section outlines individual roles and responsibilities relating to the plan, protocol on how information is disseminated both internally and externally in the event of an emergency, as well as procedures for emergency response, reporting, containment and management.

This section is divided into four sections:

1) Major roles and responsibilities
2) Health, safety and environmental measures common to all spill events;
3) Responses to a spill in a non-marine environment; and
4) Responses to a spill in a marine environment.

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6.1 Major Roles and Responsibilities

6.1.1 Eureka Station Program Manager

The Station Program Manager occupies the pivot role in the operations at Eureka HAWS, in general and a response to a petroleum-related spill, in particular:

1) Gathering personnel and resources and deploying and directing them in stopping, controlling, containing, storing and disposing of the spent petroleum product;
2) Communicating details of the spill to the Spill Response Centre and EC's Manager, District 3 Property Management, if spill > 100 L;
3) Providing medical care to any injured persons;
4) Providing regular updates to ACEMD on containment and cleanup activities; and
5) Completing and submitting a spill report form.

6.1.2 Manager, District 3 Property Management

Upon spill notification, Manager, District 3 Property Management is responsible for public relations, insurance and legal issues relating to an incident, as well as ongoing liaison with other Government Departments and Governments.

In the event that the spill cannot be handled internally, then Manager, District 3 Property Management will request assistance from the Nunavut Government's Department of Sustainable Development (DSD) to provide the appropriate expertise to deal with a large spill at Eureka. In the meantime, Eureka staff will use best efforts to contain and control the spill by deploying its equipment in the spill area. However, once DSD or their contractor arrives on site, they may utilize any equipment currently deployed in addition to any equipment that they may have brought with them.

In the case of a major spill involving potentially large expenditure for cleanup costs and contentious claims from third parties, specialized legal counsel will be consulted. Manager, District 3 Property Management will be responsible for arranging for legal advice

6.2 Health and Safety Measures

The following health and safety measures apply to both marine and non-marine spill scenarios

6.2.1 Site Control

In the event of a petroleum or allied petroleum product discharge, an immediate assessment shall be made to ensure that the site is secure. Any incident involving spills or leaks can attract curious onlookers, and therefore all non-authorized personnel shall be kept well outside any hazardous area. Only those directly involved in the containment, control or cleanup of the discharge shall be allowed in the general vicinity of the discharge.

6.2.2 Fires

In the event of a fire, fire extinguishers, fire hoses, axes and pull stations can be accessed throughout all major buildings on site.

6.2.3 Slippery Rocks, Decks or Other West Surfaces

Any person working in the vicinity of the shoreline shall wear oil-resistant rubber, steel-toed safety boots.

6.2.4 Working Around Water

All personnel working in close proximity to the water shall wear the appropriate Personal Flotation Devices (PFDs). Persons working on shore do not have to wear PFDs.

6.2.5 Buddy System

A buddy system shall be observed at all times when workers are in the discharge area or working on vessels. Persons shall work within sight of their assigned partner at all times.

6.2.6 Personnel Protective Equipment (PPE) Requirements

The following outlines the personnel protective equipment requirements for Eureka:

1) Selection of outer PPE shall be based on the potential for whole body contact with the product. A potential for repeated contact shall require rain gear (top and bottoms). Clothing shall be kept zippered when handling dangerous materials;
2) Personnel carrying out work where high body-contact with the spilled substance could take place, shall tape the suit over their gloves and boots;
3) 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;
4) All personnel shall wear safety glasses (regular glasses are satisfactory); and
5) Personnel handling contaminated materials shall wear outer chemical resistant gloves. Sleeves shall be taped whenever handling contaminated wet materials.

6.2.7 Protection of Personnel

Any significant spills of volatile products can cause a significant threat to personnel if the vapour plume approaches a populated area. Based on the wind direction a determination of the potential area of impact shall be made and personnel shall be notified of any potential hazard.

6.2.8 Decontamination

In the event of a spill, decontamination stations may be established in the vicinity of a contaminated area. The configuration of the decontamination stations shall be such that the personnel shall pass through one of the stations prior to leaving the contaminated area. If necessary, the stations may be surrounded by a berm and lined with plastic sheeting. Special purpose washing solutions may be placed near the discharge area. All washing solutions shall be clearly marked.

6.2.9 Waste Petroleum and Allied Petroleum Storage

Secondary containment for waste petroleum and allied petroleum products awaiting disposal is provided in the form of salvage drums, crates constructed with plastic lining or secondary containment pallets at the Barrel Storage Area.

In all cases, the disposed material is:

1) Packaged and labelled; and
2) Accompanied by a manifest

in conformity with regulatory requirements (see Appendix A; *TDG*, *Interprovincial Movement of Hazardous Waste Regulations*). Copies of manifests are retained and filed at the Station Program Manager's Office at Eureka. (See Appendix T for example of Manifest)

The completed manifest form provides the detailed information on:

- the types and amounts of hazardous waste shipped;
- record of the parties involved in the shipment;
- on the storage, treatment or disposal of the waste and;
- the confirmation that the waste reached the final destination.

The Generator (Consignor), Carrier and Receiver (Consignee) must each complete their portion of the manifest

6.3 Non-Marine Spill Response

This section provides:

1) A spill response chart (see Figure 8); and
2) Detailed procedures for responding to non-marine oil spills.

6.3.1 Spill Response Organization & Roles & Responsibilities

The reduction in the number and severity of spills is facilitated by a comprehensive and clearly articulated spill response organization. Figure 8 outlines the flow chart of response in the event of a spill. The details of the roles and responsibilities are explained in the subsequent sub-sections

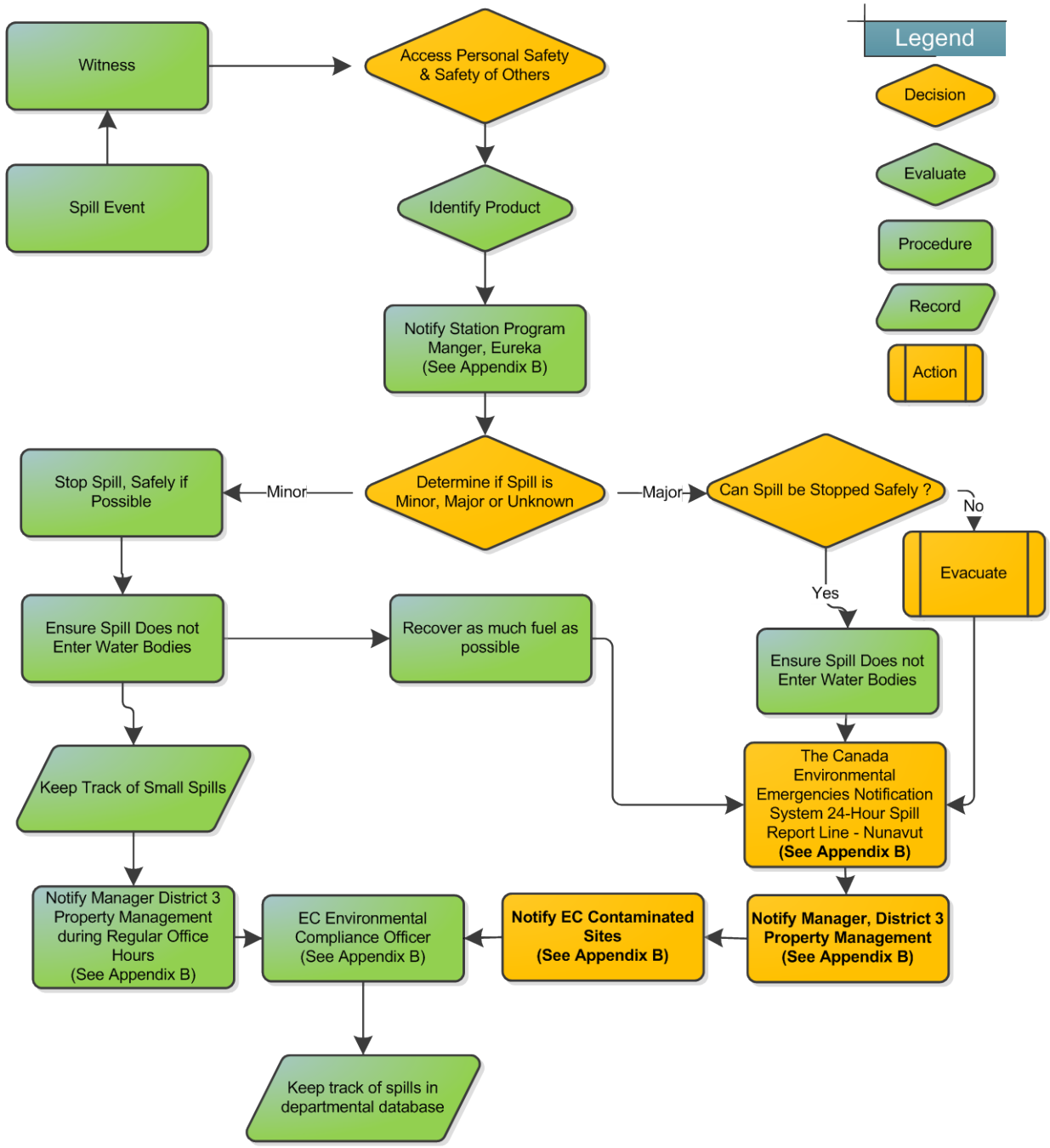

Figure 8: Response Organization for a Non-Marine Petroleum Spill

6.3.2 Procedures for Initial Actions

In the event of a spill, without exception, the health and safety of persons at Eureka is the first priority.

1) Ensure personal safety and that of others.
2) Assess spill hazards and risks.
3) No matter what the volume is, notify Eureka - Station Program Manager. (see Appendix B)
4) Remove all sources of ignition.
5) Stop the spill if safely possible e.g. shut off pump, patch leaking hole. Use the contents of the nearest spill kit to aid in stopping the spill if it is safe to do so.
6) Tyvek suits and chemical master gloves are located in the spill kit and should be worn immediately if there is any risk of being in contact with fuel.
7) Contain the spill.

6.3.3 Procedures for Spill Reporting

Spills at Eureka are required to be reported under various pieces of Environmental Legislation as listed in Appendix B, but more specifically:

1. The Nunavut Water Board License
2. CEPA, 1999, paragraph 212(1)(a)
3. Fisheries Act, subsection 38(4)
4. Government of Nunavut, EPA, paragraph 5.1(a)

An immediately reportable petroleum spill is defined as a release of greater than 100 L (A spill of any amount must be reported if it affects a body of water). These types of spills must be reported to:

1) The Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut ; This service is used throughout the NWT to inform all relevant government departments (federal, territorial and/or Aboriginal) that a spill has occurred.
2) Canadian Coast Guard for marine pollution incident.

See **Appendix B** for all Spill Emergency Telephone Numbers.

Any spills less than 100 L do not need to be reported immediately to the spill reporting line. Rather, these minor spills should be tracked and documented by Eureka and submitted to the Nunavut Water Board in Environment Canada's Annual Report to the Board (see Appendix B).

If the spill affects a body of water it must be reported to Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut (see Appendix B).

If there is any doubt that the quantity spilled exceeds reportable levels, the spill should be reported to the Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut (see Appendix B).

Following gaining control and containment of the spill, the Station Program Manager (SPM) must complete and submit the Environment Canada and Nunavut Spill Report Form (See Appendix P).

6.3.4 Procedures for Containing and Controlling the Spill

Initiate spill containment by first determining what will be affected by the spill.

1) Assess speed and direction of spill and cause of movement (water, wind and slope).
2) Determine best location for containing spill, avoiding any water bodies.

6.3.5 Procedures for Containment of Petroleum Products Spilled on Land, Water, Ice and Snow

6.3.5.1 Procedures for Containment of Spills on Land

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

1) Dykes

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

2) Trenches

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

6.3.5.2 Procedures for Containment of Spills on Land that reach a body of water

Spills that reach water such as Station Creek at Eureka are the most serious types of spills as they can negatively impact water quality and aquatic life. All measures need to be undertaken to contain spills on open water.

1) Booms

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

2) Weirs

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

3) Barriers

In some situations barriers made of netting or fence material can be installed across a stream, and sorbent materials placed at the base to absorb spilled fuel. Sorbents will need to be replaced as soon as they are saturated. Water will be allowed to flow through. This is very similar to the weir option discussed above. Note that in some cases, it may be appropriate to burn fuel or to let volatile fuels such as gasoline evaporate after containment on the water surface. This should only be undertaken in consultation with, and after approval from the INAC or lead agency Inspector.

6.3.5.3 Procedures for Containment of Spills on Ice

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

1) Dykes

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

2) Trenches

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

3) Burning

Burning should only be considered if other approaches are not feasible, and is only to be undertaken with the permission of the Indian and Northern Affairs Canada (INAC) or lead agency Inspector.

6.3.5.4 Procedures for Containment of Spills on Snow

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

1) Dykes

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

6.3.5.5 Procedures for Transferring, Storing and Managing Petroleum Spill Wastes

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

Used sorbent materials are to be placed in plastic bags for future disposal. All materials mentioned in this section are available in the spill kits located at Eureka. Following clean up, any tools or equipment used will be properly washed and decontaminated, or replaced if this is not possible.

For most of the containment procedures outlined above, spilled petroleum products and materials used for containment will be placed into empty waste oil containers and sealed for proper disposal at an approved disposal facility.

6.4 Marine Spill Response (During Resupply)

This section of the Plan is designed to enable Eureka personnel to be prepared for and respond to marine based spills of diesel fuel at Eureka HAWS during the annual sea lift operation.

6.4.1 Spill Response Organization & Roles & Responsibilities

The reduction in the number and severity of spills is facilitated by a comprehensive and clearly articulated spill response organization. Figure 9 outlines the flow chart of response in the event of a marine spill.

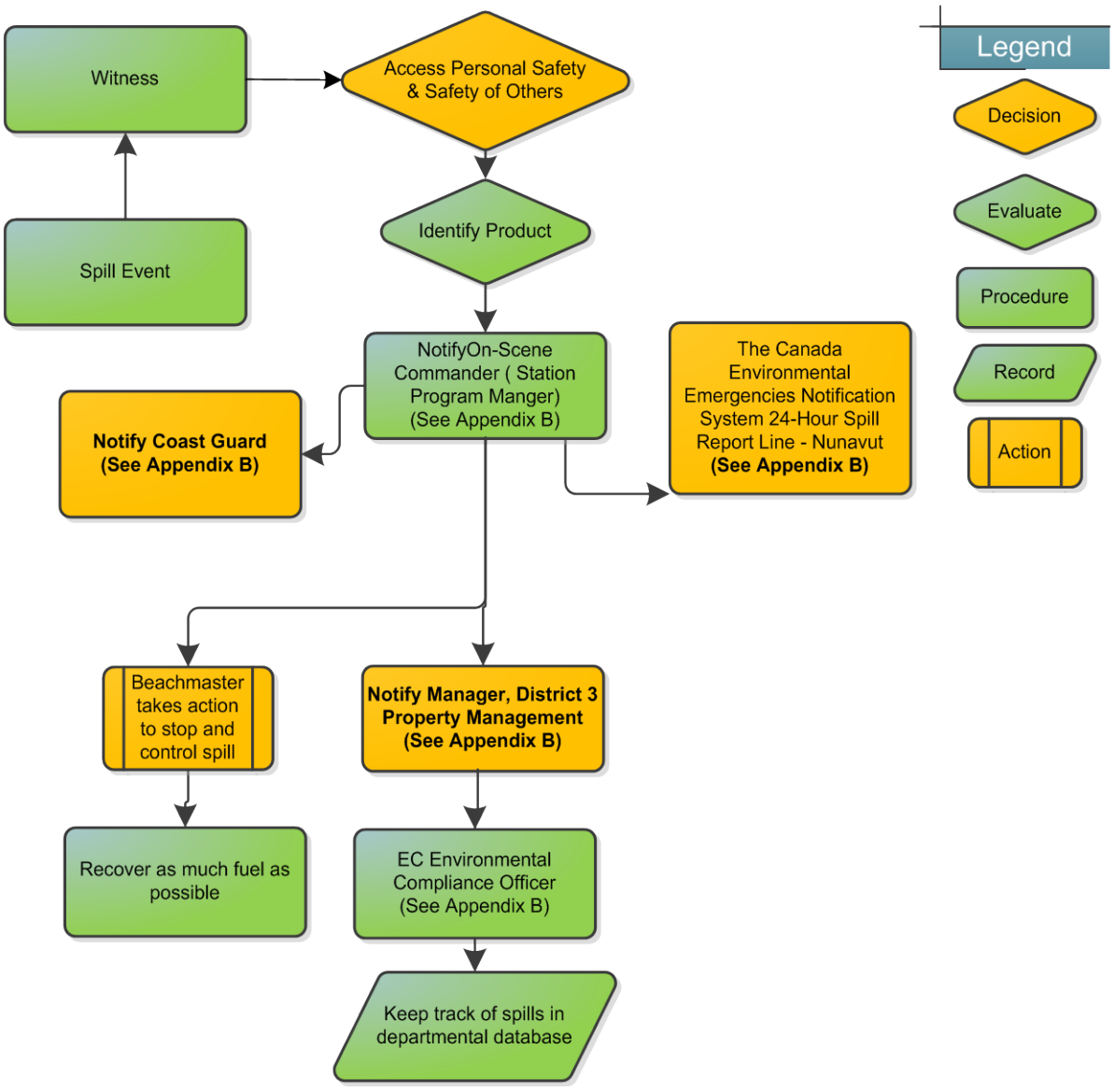

Figure 9: Response Organizations for a Marine Petroleum Spill

6.4.2 Steps Initiated Prior to Arrival of Coast Guard Ship

1) All of the equipment (see Appendix O) is pre-staged and ready for deployment prior to the CCG icebreaker's arrival
2) The containment boom is stored in a shack located on the shore edge to allow for quick deployment onto the water by CCG water craft.
3) Tow lines connected to either end of the boom will allow CCG water craft to connect to the boom and encircle a spill and direct it away from sensitive areas
4) Pipeline from shore to Tank Farm has been pressure tested
5) Any oil remaining in the 770,000 L tank has been transferred to other tanks within the Tank Farm

6.4.3 Steps Initiated Following Arrival of Coast Guard Ship

1) The Beach Master assumes control of the transfer operation and has full authority to stop the operation if he deems it unsafe for any reason and is expected to take such action
2) There are sufficient personnel on site to manage the transfer operation and any subsequent oil pollution incident

6.4.4 Steps Initiated Following a Marine Spill Incident

The health and safety of persons at Eureka is the first priority

1) In the event of a marine oil pollution incident, the Station Program Manager assumes the responsibility of the On-Scene Commander (OSC) and will request the Beach Master to immediately take action to contain or control the released product as quickly as possible providing this can be done safely.
2) Ensure personal safety of self and others.
3) Assess spill hazards and risks.
4) No matter what the volume is, notify Eureka – Station Program Manager (see Appendix B); and
5) Remove all sources of ignition.
6) Stop the spill if safely possible e.g. shut off pump, patch leaking hole. Use the contents of the nearest spill kit to aid in stopping the spill if it is safe to do so.
7) Tyvek suits and chemical master gloves are located in the spill kit and should be worn immediately if there is any risk of being in contact with fuel.
8) Contain the spill.
9) Determine the direction of any winds. If from the east, the following actions should be initiated to protect the Arctic Tern nesting grounds located at the delta approximately 200 M west of the connection of the floating transfer hose to the shore side pipeline:
    a. Scare any birds in the area
    b. If containment of the spill is ineffective, the boom should be relocated to protect the shoreline along the delta

6.4.5 Procedures for Containing and Controlling the Spill

1) Beachmaster will contact the icebreaker immediately to shut down the transfer of fuel.
2) Onshore valves will be immediately closed to prevent any back flow from the pipeline in the event the check valve fails.
3) Area will be secured.
4) CCG will deploy the containment booms downwind and down current to contain the spilled fuel.
5) If deployment of the containment boom is unsafe, ineffective or impractical the fuel spill will be dispersed into deep water by high pressure water hoses from the CCG ship for natural dissipation.
6) If the containment is ineffective, the boom will be relocated to protect the shoreline along the delta.
7) Attempt will be made to adsorb as much of the spill as possible by skimming the water surface with the sorbent booms and soaking up the remainder of the spill with absorbent rolls

6.4.6 Procedures for Spill Reporting

Spills at Eureka are required to be reported under various pieces of Environmental Legislation as listed in Appendix B, but more specifically:

1. The Nunavut Water Board License
2. CEPA, 1999, paragraph 212(1)(a)
3. Fisheries Act, subsection 38(4)
4. Government of Nunavut, EPA, paragraph 5.1(a)

An immediately reportable petroleum spill on water is defined as a release of any amount. It must be reported to:

1) Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut (see Appendix B);

See Appendix B for Emergency Spill Telephone Numbers.

Following gaining control and containment of the spill, the Station Program Manager (SPM) must complete and submit the Environment Canada and Nunavut Spill Report Form (See Appendix P).

7. Procedures for Transferring, Storing and Managing Petroleum Spill Wastes

Sorbent socks and pads are generally used for small spill cleanup. A pump with attached fuel transfer hose can suction spills from leaking containers or large accumulations on land or ice, and direct these larger quantities into empty drums. Hand tools such as cans, shovels, and rakes are also very effective for small spills or hard to reach areas. Heavy equipment can be used if deemed necessary, and given space and time constraints.

Used sorbent materials are to be placed in plastic bags for future disposal. All materials mentioned in this section are available in the spill kits located at Eureka. Following clean up, any tools or equipment used will be properly washed and decontaminated, or replaced if this is not possible.

For most of the containment procedures outlined above, spilled petroleum products and materials used for containment will be placed into empty waste oil containers and sealed for proper disposal at an approved disposal facility.

8. Procedures for Restoring Affected Areas

Once a spill has been contained it will be managed according to Environment Canada's *Summary of Operations And Maintenance Procedures For Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities – Eureka High Arctic Weather Station, 2009.* Environment Canada – Environmental Programs, Contaminated Sites should be consulted for advice (see Appendix B)
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9. Procedures for Disposal

The final destinations for the two following petroleum products are as follows:

- Petroleum products collected from spill events are sent by sealift to Safety-Kleen (Quebec) Ltd.,85 rue de Hambourg, Saint-Augustin-de Desmaures, QC G3A 1S6.

- Waste glycol is sent by sealift to Safety-Kleen (Quebec) Ltd.

APPENDIX A: FEDERAL AND TERRITORIAL LEGAL AND POLICY REQUIREMENTS

Environmental, Health & Safety Legislation, Policies, Agreements, etc.	Major Provisions	Reference
Federal Legislation		
Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations	• S.30-31,32, 41 • Technical standards related to tank systems holding petroleum or allied petroleum products • Emergency Plan Requirements	http://www.ec.gc.ca/st-rs/default.asp?lang=En&n=06EF27CF-1
Transportation of Dangerous Goods Act and Regulations	• Transport manifest • Identify & classify waste • Packaging • Labelling	http://www.tc.gc.ca/tdg/clear/tofc.htm
Nunavut Water Board Licence No. 3BC-EUR0611	• Part H • Requirement for a Spill Contingency Plan • Plan requirements	On File
Canada Occupational Health and Safety Regulation, Part X – Hazardous Substances	• Records of hazardous substances • Hazard investigation • Storage, handling & use • Warnings of hazardous materials • Employee education • Control of hazards	http://laws-lois.justice.gc.ca/eng/regulations/SOR-86-304/index.html
Canada Shipping Act	• Response Measures (s.180) • Requirements of Oil Handling Facilities (s.168)	http://www.tc.gc.ca/eng/acts-regulations/acts-2001c26.htm
Canadian Environmental Protection Act (Part 8) (CEPA)	• Petroleum is a hazardous substance • Reporting of spills • Remedial measures	http://laws.justice.gc.ca/eng/C-15.31/page-7.html#anchorbo-ga:l_9-gb:s_212
Controlled Products Regulations	• MSDS • Labels • Classes of controlled products	http://laws.justice.gc.ca/en/H-3/SOR-88-66/index.html
Environmental Emergency Regulations	• Waste information • Emergency environmental plan	http://www.ec.gc.ca/ee-ue/Default.asp?lang=En&n=E3A506F8-1
Environmental Enforcement Act	Once it is in force • Penalties for environmental offences • liabilities and duties of corporate directors and officers	Not presently on-line

Environmental, Health & Safety Legislation, Policies, Agreements, etc.	Major Provisions	Reference
Export and Import of Hazardous Wastes Regulations	• Release of substances • List of toxic substances	http://laws.justice.gc.ca/eng/C-15.31/index.html
Fisheries Act	• Prohibitions • Duties of persons handling hazardous waste	http://laws-lois.justice.gc.ca/eng/acts/F-14/
Hazardous Products Act	• Designates diesel and gasoline as hazardous products	http://laws-lois.justice.gc.ca/eng/acts/M-7.01/
Interprovincial Movement of Hazardous Waste Regulations	• Manifests	http://www.canlii.org/en/ca/laws/regu/sor-2002-301/latest/sor-2002-301.html
Migratory Birds Convention Act	• Prohibitions	http://laws.justice.gc.ca/eng/M-7.01/page-3.html#anchorbo-ga:s_5
Nunavut Legislation		
Safety Act (Nunavut)	• Safety duties of employers • Safety duties of employees • Powers and duties of safety operators	*www.wscc.nt.ca/YourWSCC/.../Safety%20Act%20-%20**Nunavut**.pdf*
Spill Contingency Planning and Reporting Regulations (Nunavut)	• Requirement for a Spill Contingency Plan • Spill Report Form	http://www.canlii.org/en/nu/laws/regu/nwt-reg-nu-068-93/latest/nwt-reg-nu-068-93.html
Work Site Hazardous Materials Information System Regulations (Nunavut)	• Worker education • Hazardous material labels	link not working. Can't find new site.
Federal Policy		
Environment Canada's Sustainable Development Strategy 2007-2009	• EC Commitments	http://www.ec.gc.ca/dd-sd/default.asp?lang=En=E19EE696-1
Codes of Practice/Guidelines		
Canadian Labour Code II	• Duties of employer • Duties of employees	http://laws.justice.gc.ca/en/L-2/
Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products	• Registration and approval of tank systems • Design and installation • Monitoring and leak detection • Operation and maintenance • Withdrawal of systems	http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=61B26EE8-1
National Building Code	• Safety • Health • Accessibility • Fire and Structural Protection of Buildings	http://www.nationalcodes.nrc.gc.ca/eng/nbc/index.shtml
National Fire Code	• Safety • Health • Fire Protection of Buildings and Facilities	http://www.nationalcodes.nrc.gc.ca/eng/nfc/index.shtml

Environmental, Health & Safety Legislation, Policies, Agreements, etc.	Major Provisions	Reference
Technical Guidelines for Above Ground Storage Tank Systems that contain Petroleum Products and Allied Petroleum Products	• Regulatory requirements • Timelines for existing systems • Leak detection & monitoring • Record keeping	http://www.ec.gc.ca/st-rs/default.asp?lang=En&n=400DB49F-1
Implementation Guidelines for Part 8 of the Environmental Protection Act 1999 – Environmental Emergency Plans	• Emergency reporting requirements • Compliance and enforcement	http://www.ec.gc.ca/CEPARegistry/guidelines/impl_guid/toc.cfm

APPENDIX B: SPILL EMERGENCY TELEPHONE NUMBERS

EUREKA EMERGENCY CONTACTS & TELEPHONE #'s

CONTACT	Telephone Numbers
Medical Assistance	
Nurse (Resolute Bay)	(867) 252-3844
Doctor (Iqaluit Hospital)	(867) 975-8600
Medical Evacuation, Kenn Borek Air (Resolute)	(867) 252-3845
Spill Emergency Reporting Centers	
Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut	(867) 920-8130
Canadian Coast Guard Emergency Line (24 hours) In all regions, marine pollution incidents may also be reported by contacting a MCTS centre on VHF channel 16.	1-800-265-0237
National Environmental Emergency Centre for physical help	(819) 997-3742 or 1-866-845-6037
Federal	
Environment Canada – Station Program Manager, Eureka, NU (from Ottawa line)	(613) 945-3145 Ext: 4460
Environment Canada – Station Program Manager, Eureka, NU (from Winnipeg line)	(204) 984-6376 Ext:4460
Environment Canada – Head Aerological & Surface Operational Programs, Winnipeg, MB	(204) 983-4385
Environment Canada – Manager, District 3 Property Management, Ottawa, ON	(613) 998-1316
Environment Canada – Environmental Compliance Officer, Environmental Programs, Property Management Division, Ottawa, ON	(819) 934-3211
Environment Canada – Environmental Programs, Contaminated Sites	(819) 934-6921
Nunavut Water Board, Gjoa Haven, NU	(867) 360-6338

Aboriginal Affairs and Northern Development, Iqaluit, NU	(867) 975-4295
Aboriginal Affairs and Northern Development Water Resources Inspector	(867) 975-4298
HRSDC (Human Resources and Skills Development Canada-Labour Program)	Working Hours 1-800-641-4049
Environment Canada, Environmental Enforcement Branch (Yellowknife)	Working Hours (867) 222-1925 After Working Hours (967) 975-4644
Territorial	
Department of Environment, Government of Nunavut	(867) 975-5900
Eureka	
DND (Eureka)	(613) 945-3145 (Ext: 4469 or 4450)
Polar Continental Shelf Program - Resolute	(867) 252-3872
Polar Environment Atmospheric Research Lab	(716) 803-6470 Ext: 100
Media & Public Enquiries	
Environment Canada - Media Relations	1-888-908-8008 or media@ec.gc.ca
Prairie & Northern Region's Communications Unit	(780) 951-8721

IMMEDIATELY REPORTABLE SPILL QUANTITIES

TDG Class	Substance for NWT 24 Hour Spill Line	Immediately Reportable Quantities
1 2.3 2.4 6.2 7 None	Explosives Compressed gas (toxic) Compressed gas (corrosive) Infectious substances Radioactive Unknown substance	Any amount
2.1 2.2	Compressed gas (flammable) Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100 L
3.1 3.2 3.3	Flammable liquids	> 100 L
4.1 4.2 4.3	Flammable solids Spontaneously combustible solids Water reactant	> 25 kg
5.1 9.1	Oxidizing substances Miscellaneous products or substances excluding PCB mixtures	> 50 L or 50 kg
5.2 9.2	Organic peroxides Environmentally hazardous	> 1 L or 1 kg
6.1 8 9.3	Poisonous substances Corrosive substances Dangerous wastes	> 5 L or 5 kg
9.1	PCB mixtures of 5 or more ppm	> 0.5 L or 0.5 kg
None	Other contaminants (e.g. crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, waste water, etc.)	> 100 L or 100 kg
None	Sour natural gas (i.e. contains H2S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more

Source: http://www.aadnc-aandc.gc.ca/eng/1100100024236#aB3

APPENDIX C: 2010 MSDS SHEETS FOR DIESEL STORED IN EUREKA'S STORAGE TANK SYSTEM

An MSDS binder, containing MSDS sheets on all hazardous substances present at Eureka, is located in the front of the vestibule of the main complex. Each building has a MSDS binder containing MSDS sheets for substances contained in that building.

Material Safety Data Sheet

DIESEL FUEL

1 . Product and company identification

Product name : DIESEL FUEL

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

Code : W104, W293; SAP: 120, 121, 122, 125, 126, 129, 130, 135, 287, 288

Material uses : Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining Diesel has a higher flash point requirement, for safe use in underground mines.

Manufacturer : PETRO-CANADA
P.O. Box 2844
150 – 6th Avenue South-West
Calgary, Alberta
T2P 3E3

In case of emergency : Petro-Canada: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Bright oily liquid.

Odour : Mild petroleum oil like.

WHMIS (Canada) :

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

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

Emergency overview : WARNING!

COMBUSTIBLE LIQUID AND VAPOUR. CAUSES EYE AND SKIN IRRITATION.

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

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.

Ingestion : Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract.

Skin : Severely irritating to the skin.

Eyes : Irritating to eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

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

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

2 . Hazards identification

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

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

See toxicological information (section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Kerosine (petroleum), hydrodesulfurized / Fuels, diesel / Fuel Oil No. 2	64742-81-0 / 68334-30-5 / 68476-30-2	95 - 100
Fatty acids methyl esters	61788-61-2 / 67784-80-9 / 73891-99-3	0 - 5

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

4 . First-aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

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

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

5 . Fire-fighting measures

Flammability of the product : Combustible liquid

Extinguishing media

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

Not suitable : Do not use water jet.

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

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), sulphur compounds (H2S), smoke and irritating vapours as products of incomplete combustion.

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

5 . Fire-fighting measures

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

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

6 . Accidental release measures

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

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

Methods for cleaning up

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

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

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

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

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Kerosine (petroleum), hydrodesulfurized	**ACGIH TLV (United States). Absorbed through skin.** TWA: 200 mg/m³ 8 hour(s).
Fuels, diesel	**ACGIH TLV (United States). Absorbed through skin.** TWA: 100 mg/m³, (Inhalable fraction and vapour) 8 hour(s).
Fuel oil No. 2	**ACGIH TLV (United States). Absorbed through skin.** TWA: 100 mg/m³, (Inhalable fraction and vapour) 8 hour(s).

Consult local authorities for acceptable exposure limits.

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

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

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

Personal protection

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

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: nitrile, neoprene, polyvinyl alcohol (PVA), Viton. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

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

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

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

9 . Physical and chemical properties

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

10 . Stability and reactivity

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

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Kerosine (petroleum), hydrodesulfurized	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapour	Rat	>5000 mg/m³	4 hours
Fuels, diesel	LD50 Dermal	Mouse	24500 mg/kg	-
	LD50 Oral	Rat	7500 mg/kg	-
Fuel oil No. 2	LD50 Oral	Rat	12000 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Carcinogenicity

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

11 . Toxicological information

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Kerosine (petroleum), hydrodesulfurized	A3	-	-	-	-	-
Fuels, diesel	A3	3	-	-	-	-
Fuel oil No. 2	A3	3	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

13 . Disposal considerations

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

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

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

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN1202	DIESEL FUEL	3	III		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Combustible liquid
Irritating material

Canada

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

15 . Regulatory information

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

International regulations

Canada inventory : All components are listed or exempted.

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

Europe inventory : All components are listed or exempted.

16 . Other information

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

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

Health	2
Flammability	2
Physical hazards	0
Personal protection	H

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

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

Date of printing : **7/6/2010.**

Date of issue : 6 July 2010

Date of previous issue : 7/3/2009.

Responsible name : **Product Safety - JDW**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : Internet: www.petro-canada.ca/msds

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

For Product Safety Information: (905) 804-4752

Notice to reader

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

APPENDIX D: 2010 MSDS SHEETS FOR GASOLINE STORED IN EUREKA'S STORAGE TANK SYSTEM

A MSDS binder, containing MSDS sheets on all hazardous substances present at Eureka, is located in the front of the vestibule of the main complex. Each building has a MSDS binder containing MSDS sheets for substances contained in that building.

Esso Imperial Oil

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: (see Section 16 for Synonyms) **UNLEADED GASOLINE FOR EXPORT**
Product Description: Hydrocarbons and Additives
MSDS Number: 10910
Intended Use: Fuel

COMPANY IDENTIFICATION

Supplier: **Imperial Oil Products Division**
240 4th Avenue
Calgary, ALBERTA T2P 3M9 Canada
24 Hour Environmental / Health Emergency Telephone 519-339-2145
Transportation Emergency Phone Number 519-339-2145
Product Technical Information 1-800-268-3183
Supplier General Contact 1-800-567-3776

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*	Acute Toxicity
GASOLINE	86290-81-5	> 99%	None
METHYL-TERT-BUTYL ETHER	1634-04-4	0 - 15%	Dermal Lethality: LD50 > 10.0 g/kg (Rabbit); Inhalation Lethality: LC50 23576 ppm (Rat); Oral Lethality: LD50 4.0 g/kg (Rat)

Hazardous Constituent(s) Contained in Complex Substance(s)

Name	CAS#	Concentration*	Acute Toxicity
BENZENE	71-43-2	0 - 1.5%	Dermal Lethality: LD50 > 9.4 g/kg (Rabbit); Inhalation Lethality: LC50 13328 ppm (Rat); Oral Lethality: LD50 0.93 g/kg (Rat)
CUMENE	98-82-8	0 - 1%	Dermal Lethality: LD50 10.6 g/kg (Rabbit); Inhalation Lethality: LC50 8000 ppm (Rat); Oral Lethality: LD50 1.4 g/kg (Rat)
CYCLOHEXANE	110-82-7	0 - 1%	Dermal Lethality: LD50 > 18 g/kg (Rabbit); Oral Lethality: LD50 12 g/kg (Rat)
ETHYL BENZENE	100-41-4	0 - 3%	Dermal Lethality: LD50 15 g/kg (Rabbit); Inhalation Lethality: LC50 4000 ppm (Rat); Oral Lethality: LD50 3.5 g/kg (Rat)
n-Hexane	110-54-3	0 - 3%	Dermal Lethality: LD50 3.295 g/kg (Rabbit); Inhalation Lethality: LC50 97469 ppm (Rat); Oral

			Lethality: LD50 28.7 g/kg (Rat)
NAPHTHALENE	91-20-3	0 - 1%	Dermal Lethality: LD50 > 20 g/kg (Rabbit); Oral Lethality: LD50 0.49 g/kg (Rat)
TOLUENE	108-88-3	0 - 20%	Dermal Lethality: LD50 12.10 g/kg (Rabbit); Inhalation Lethality: LC50 8000 ppm (Rat); Oral Lethality: LD50 5.0 g/kg (Rat)
XYLENES	1330-20-7	0 - 10%	Dermal Lethality: LD50 4.5 g/kg (Rabbit); Inhalation Lethality: LC50 5000 ppm (Rat); Oral Lethality: LD50 4.3 g/kg (Rat)

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

NOTE: The concentration of the components shown above may vary substantially. In certain countries, benzene content may be limited to lower levels. Oxygenates such as tertiary-amyl-methyl ether, ethanol, di-isopropyl ether, and ethyl-tertiary-butyl ether may be present. Because of volatility considerations, gasoline vapor may have concentrations of components very different from those of liquid gasoline. The major components of gasoline vapor are: butane, isobutane, pentane, and isopentane. The reportable component percentages, shown in the composition/information on ingredients section, are based on API's evaluation of a typical gasoline mixture.

SECTION 3 HAZARDS IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

PHYSICAL/CHEMICAL EFFECTS

FLAMMABLE. Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited. Material can accumulate static charges which may cause an ignition.

HEALTH EFFECTS

May cause cancer. Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage. May be irritating to the eyes, nose, throat, and lungs. May cause central nervous system depression. High-pressure injection under skin may cause serious damage. Prolonged and repeated exposure to benzene may cause serious injury to blood forming organs and is associated with anaemia and to the later development of acute myelogenous leukaemia (AML).

Target Organs: Blood and/or blood-forming organs |

NFPA Hazard ID:	Health:	1	Flammability:	3	Reactivity:	0
HMIS Hazard ID:	Health:	1*	Flammability:	3	Reactivity:	0

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

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use

adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

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

EYE CONTACT

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

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE

Benzene- Individuals with liver disease may be more susceptible to toxic effects.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

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

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Extremely Flammable. Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources, causing a flashback fire danger.

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

FLAMMABILITY PROPERTIES

Flash Point [Method]: -40C (-40F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 1.4 UEL: 7.6
Autoignition Temperature: >250°C (482°F)

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

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

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for Personal Protective Equipment.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Do not confine in area of spill. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Allow liquid to evaporate from the surface. Seek the advice of a specialist before using dispersants.

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

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid breathing mists or vapour. Avoid contact with skin. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Do not siphon by mouth. Use only with adequate ventilation. Do not use as a cleaning solvent or other non-motor fuel uses. For use as a motor fuel only. It is dangerous and/or unlawful to put petrol into unapproved containers. Do not fill container while it is in or on a vehicle. Static electricity may ignite vapour and cause fire. Place container on ground when filling and keep nozzle in contact with container. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers or other electronic devices etc) in or around any fuelling operation or storage area unless the devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

STORAGE

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. The container choice, for example storage vessel, may effect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Storage containers should be earthed and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Substance Name	Form	Limit/Standard			Note	Source
BENZENE		STEL	2.5 ppm		Skin	ACGIH
BENZENE		TWA	0.5 ppm		Skin	ACGIH
CUMENE		TWA	50 ppm			ACGIH
CYCLOHEXANE		TWA	100 ppm			ACGIH
ETHYL BENZENE		STEL	125 ppm			ACGIH
ETHYL BENZENE		TWA	100 ppm			ACGIH
GASOLINE		STEL	200 ppm			Supplier
GASOLINE		TWA	100 ppm			Supplier
GASOLINE	Vapour.	TWA	300 mg/m3	100 ppm		Supplier
METHYL-TERT-BUTYL ETHER		TWA	50 ppm			ACGIH
n-Hexane		TWA	50 ppm		Skin	ACGIH
NAPHTHALENE		STEL	15 ppm		Skin	ACGIH
NAPHTHALENE		TWA	10 ppm		Skin	ACGIH
TOLUENE		TWA	20 ppm			ACGIH
XYLENES		STEL	150 ppm			ACGIH
XYLENES		TWA	100 ppm			ACGIH

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

ENGINEERING CONTROLS

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

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

PERSONAL PROTECTION

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

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator

selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Half-face filter respirator

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

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

If prolonged or repeated contact is likely, chemical-resistant gloves are recommended. If contact with forearms is likely, wear gauntlet-style gloves.

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

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

If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended.

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

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid
Colour: Clear (May Be Dyed)
Odour: Petroleum/Solvent
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.73
Flash Point [Method]: -40C (-40F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 1.4 UEL: 7.6
Autoignition Temperature: >250°C (482°F)
Boiling Point / Range: 35C (95F) - 210C (410F)
Vapour Density (Air = 1): 3.2 at 101 kPa
Vapour Pressure: > 26.6 kPa (200 mm Hg) at 20°C | 76 kPa (570 mm Hg) at 38 C - 103 kPa (772.5 mm Hg) at 38C
Evaporation Rate (n-butyl acetate = 1): > 10
pH: N/A

Log Pow (n-Octanol/Water Partition Coefficient): > 3
Solubility in Water: Negligible
Viscosity: <1 cSt (1 mm2/sec) at 40°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION
Freezing Point: N/D
Melting Point: N/A

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

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

MATERIALS TO AVOID: Halogens, Strong Acids, Alkalies, Strong oxidizers

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

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Mildly irritating to skin with prolonged exposure. Based on test data for structurally similar materials.
Eye	
Irritation: Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Laboratory animal studies have shown that prolonged and repeated inhalation exposure to light hydrocarbon vapours in the same boiling range as this product can produce adverse kidney effects in male rats. However, these effects were not observed in similar studies with female rats, male and female mice, or in limited studies with other animal species. Additionally, in a number of human studies, there was no clinical evidence of such effects at normal occupational levels. In 1991, The U.S. EPA determined that the male rat kidney is not useful for assessing human risk. Vapour concentrations above recommended exposure levels are irritating to the

eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Contains:

BENZENE: Caused cancer (leukemia), damage to the blood-producing system, and serious blood disorders from prolonged, high exposure based on human epidemiology studies. Caused genetic effects and effects on the immune system in laboratory animal and some human studies. Caused toxicity to the fetus in laboratory animal studies.

CUMENE: Repeated inhalation exposure of cumene vapour produced damage in the kidney of male rats only. These effects are believed to be species specific and are not relevant to humans. GASOLINE UNLEADED: Carcinogenic in animal tests. Chronic inhalation studies resulted in liver tumours in female mice and kidney tumours in male rats. Neither result considered significant for human health risk assessment by the United States EPA and others. Did not cause mutations in-vitro or in-vivo. Negative in inhalation developmental studies and reproductive tox studies. Inhalation of high concentrations in animals resulted in reversible central nervous system depression, but no persistent toxic effect on the nervous system. Non-sensitizing in test animals. Caused nerve damage in humans from abusive use (sniffing). METHYL TERTIARY BUTYL ETHER (MTBE): Carcinogenic in animal tests. Inhalation exposure to high concentrations resulted in higher than expected mortality in male mice due to urinary tract obstructions and female mice displayed benign liver tumours. Inhalation exposure to high concentrations resulted in higher than expected mortality in male rats due to progressive kidney damage as well as increased benign and malignant kidney tumours, and benign testicular tumours. Did not cause mutations in-vitro or in-vivo. Rabbits exposed to high vapour concentrations did not have any offspring with adverse developmental effects. Mice exposed to high vapour concentrations (maternally toxic) had offspring with embryo/fetal toxicity and birth defects. Rats exposed to high vapour concentrations did not display any treatment-related effects in a two generation reproduction study. The significance of the animal findings at high exposures are not believed to be directly related to potential human health hazards in the workplace. NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.

N-HEXANE: Prolonged and/or repeated exposures to n-Hexane can cause progressive and potentially irreversible damage to the peripheral nervous system (e.g. fingers, feet, arms, legs, etc.). Simultaneous exposure to Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) and n-Hexane can potentiate the risk of adverse effects from n-Hexane on the peripheral nervous system. n-Hexane has been shown to cause testicular damage at high doses in male rats. The relevance of this effect for humans is unknown. TOLUENE : Concentrated, prolonged or deliberate inhalation may cause brain and nervous system damage. Prolonged and repeated exposure of pregnant animals (> 1500 ppm) have been reported to cause adverse fetal developmental effects. ETHYLBENZENE: Caused cancer in laboratory animal studies. The relevance of these findings to humans is uncertain.

XYLENES: High exposures to xylenes in some animal studies have been reported to cause health effects on the developing embryo/fetus. These effects were often at levels toxic to the mother. The significance of these findings to humans has not been determined.

Additional information is available by request.

CMR Status:

Chemical Name	CAS Number	List Citations
BENZENE	71-43-2	1, 4, 5
CUMENE	98-82-8	4
CYCLOHEXANE	110-82-7	4
ETHYL BENZENE	100-41-4	3, 4
GASOLINE	86290-81-5	3, 4
METHYL-TERT-BUTYL ETHER	1634-04-4	4
n-Hexane	110-54-3	4

NAPHTHALENE	91-20-3	3, 4
TOLUENE	108-88-3	4
XYLENES	1330-20-7	4

--REGULATORY LISTS SEARCHED--

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

SECTION 12 ECOLOGICAL INFORMATION

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

ECOTOXICITY

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

MOBILITY

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

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

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Majority of components -- Expected to be inherently biodegradable

Atmospheric Oxidation:

More volatile component -- Expected to degrade rapidly in air

BIOACCUMULATION POTENTIAL

Majority of components -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

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

DISPOSAL RECOMMENDATIONS

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

REGULATORY DISPOSAL INFORMATION

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER,

DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG)

Proper Shipping Name: GASOLINE
Hazard Class & Division: 3
UN Number: 1203
Packing Group: II
Marine Pollutant: Yes
Special Provisions: 17

LAND (DOT)

Proper Shipping Name: GASOLINE
Hazard Class & Division: 3
ID Number: 1203
Packing Group: II
ERG Number: 128
Label(s): 3
Transport Document Name: UN1203, GASOLINE, 3, PG II

SEA (IMDG)

Proper Shipping Name: MOTOR SPIRIT or GASOLINE or PETROL
Hazard Class & Division: 3
EMS Number: F-E, S-E
UN Number: 1203
Packing Group: II
Label(s): 3
Transport Document Name: UN1203, MOTOR SPIRIT or GASOLINE or PETROL, 3, PG II, (-40°C c.c.)

AIR (IATA)

Proper Shipping Name: MOTOR SPIRIT or GASOLINE or PETROL
Hazard Class & Division: 3
UN Number: 1203
Packing Group: II
Label(s) / Mark(s): 3
Transport Document Name: UN1203, GASOLINE, 3, PG II

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Class B, Division 2: Flammable Liquids Class D, Division 2, Subdivision A: Very Toxic Material

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

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

NATIONAL CHEMICAL INVENTORY LISTING: AICS, DSL, EINECS, ENCS, KECI, PICCS, TSCA

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
BENZENE	71-43-2	6
CUMENE	98-82-8	6
CYCLOHEXANE	110-82-7	6
ETHYL BENZENE	100-41-4	6
METHYL-TERT-BUTYL ETHER	1634-04-4	6
n-Hexane	110-54-3	6
NAPHTHALENE	91-20-3	1, 5, 6
TOLUENE	108-88-3	6
XYLENES	1330-20-7	1, 5, 6

--REGULATORY LISTS SEARCHED--

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

SECTION 16 OTHER INFORMATION

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

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:
Section 05: Fire Fighting Measures - Unusual Fire Hazards was modified.
Section 06: Protective Measures was modified.
Section 06: Notification Procedures - Header was modified.
Section 11: Acute Toxicity Table Header was modified.
Section 09: Physical State was modified.
Section 11: Ingestion Acute Lethality - Header was modified.
Section 11: Inhalation - Header was modified.
Section 09: Evaporation Rate - Header was modified.
Section 08: Hand Protection was modified.
Section 07: Handling and Storage-Handling was modified.
Section 07: Handling and Storage-Storage Phrases was modified.
Hazard Identification: Physical/Chemical Hazard was modified.
Section 07: Static Accumulator was modified.
Section 11: Inhalation Lethality Test Data was modified.
Section 05: Hazardous Combustion Products was modified.
Section 09 Viscosity was modified.
Section 14: Sea (IMDG) - Header was modified.
Section 14: Proper Shipping Name was modified.
Section 14: Label(s) - Header was modified.
Section 14: Marine Pollutant was modified.
Hazard Identification: Hazards Note was modified.
Section 16: CA Prepared by - Header was modified.

Composition: Component table was modified.
Section 08: Exposure Limits Table was modified.
Section 16: Physical Hazards additional was modified.
Section 16: First Aid Inhalation - Header was modified.
Section 16: Precautions was modified.
Section 16: Precautionary Label Text - Header was modified.
Section 09: Oxidizing Properties was modified.
Section 15: Canadian List Citations Table was modified.
Section 11: Tox List Cited Table was modified.
Section 11: Chronic Tox - Component - WHMIS was modified.
Composition: Constituents Table - Header was added.
Composition: CAS Number was added.
Composition: CAS Number was added.
Composition: Concentration - Header was added.
Composition: Concentration - Header was added.
Composition: Primary Ingredient Name was added.
Composition: Primary Ingredient Name was added.
Composition: Substances Table - Header was added.
Composition: No components was added.
Composition: Concentration Footnote was added.
Composition: Footnotes was added.
Section 08: OEL Table - Substance Name Column - Header was added.
Section 08: OEL Table - Form Column - Header was added.
Section 08: OEL Table - Limit Column - Header was added.
Section 08: OEL Table - Notation Column - Header was added.
Section 08: OEL Table - Source Column - Header was added.
Section 13: Regulatory Disposal Information - Header was added.
Section 13: Regulatory Disposal Information - Header was deleted.
Composition: Concentration Footnote was deleted.
Composition: Primary Ingredient Name was deleted.
Composition: Primary Ingredient Name was deleted.
Composition: CAS Number was deleted.
Composition: CAS Number was deleted.
Composition: Concentration - Header was deleted.
Composition: Concentration - Header was deleted.
Composition: Constituents Table - Header was deleted.
Composition: Substances Table - Header was deleted.
Composition: No components was deleted.
Composition: Footnotes was deleted.
Section 08: OEL Table - Form Column - Header was deleted.
Section 08: OEL Table - Limit Column - Header was deleted.
Section 08: OEL Table - Notation Column - Header was deleted.
Section 08: OEL Table - Source Column - Header was deleted.
Section 08: OEL Table - Substance Name Column - Header was deleted.

SYNONYMS: REGULAR UNLEADED (WITHOUT MMT), REGULAR UNLEADED FOR EXPORT, PREMIUM UNLEADED FOR EXPORT, MIDGRADE UNLEADED FOR EXPORT, SUPER PREMIUM UNLEADED GASOLINE (EXPORT), GASOLINE REGULAR UNLEADED RUL87 (EXPORT USA), GASOLINE PREMIUM UNLEADED PUL93 (EXPORT USA), GASOLINE MIDGRADE UNLEADED MUL89 (EXPORT USA), GASOLINE REGULAR UNLEADED RUL87 WITHOUT MMT, GASOLINE PREMIUM UNLEADED PUL91 (EXPORT USA), GASOLINE, FACTORY FILL RUL 87

PRECAUTIONARY LABEL TEXT:

WHMIS Classification: Class B, Division 2: Flammable Liquids Class D, Division 2, Subdivision A: Very Toxic

Material

HEALTH HAZARDS
May cause cancer. Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage. May cause central nervous system depression.

Target Organs: Blood and/or blood-forming organs |

PHYSICAL HAZARDS
FLAMMABLE. Material can accumulate static charges which may cause an ignition. Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited.

PRECAUTIONS
Avoid breathing mists or vapour. Avoid contact with skin. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Do not siphon by mouth. Use only with adequate ventilation. Use proper bonding and/or earthing procedures.However, bonding and earthing may not eliminate the hazard from static accumulation.

FIRST AID
Inhalation: Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

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

Oral: Seek immediate medical attention. Do not induce vomiting.

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

FIRE FIGHTING MEDIA
Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

SPILL/LEAK
Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Recover by pumping or with suitable absorbent.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Do not confine in area of spill. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Allow liquid to evaporate from the surface. Seek the advice of a specialist before using dispersants.

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DGN: 5008900 (1013582)

Prepared by: Imperial Oil Limited, IH and Product Safety

APPENDIX E: EUREKA'S DIESEL FUEL SYSTEM

Prior to the annual arrival of the CCG ice breaker, any remaining diesel in the 770,000 L tank is pumped to one or more of the 9 x 60,000 L tanks. Diesel fuel is then conveyed to the tank farm from the CCG ice breaker via the piping system to the 770,000 L tank. If there is still excess capacity in the 60,000 L tanks, diesel will be pumped into those tanks from the 770,000 tank and the 770,000 L tank will then be filled to tank capacity. Approximately 500,000 - 900,000 L of diesel are conveyed to Eureka's tank farm each year.

Only the 60,000 L tanks deliver fuel. When a 60,000 L tank is emptied, it is filled by gravity feed from the 770,000 L tank. From the 60,000 L tanks, it travels to:

1) Two tanks at the generator building (via pipeline; and
2) The diesel dispenser (just south of the tank farm) where it is pumped into the portable tank, which is employed to transport diesel to the 4 x 9,000 L tanks and to Fort Eureka's & Skull Point's 20,000 L fuel tanks.

Due to the geographic location of Eureka HAWS and the restrictions that could be caused by severe ice seasons, Eureka always stores diesel fuel for the generator for two years with the hope that, if the ice breaker cannot bring fuel one year, it will be able to do so the following year. Yearly consumption of diesel for the generators and other various uses throughout the station ranges from 500,000 to 700,000 L.

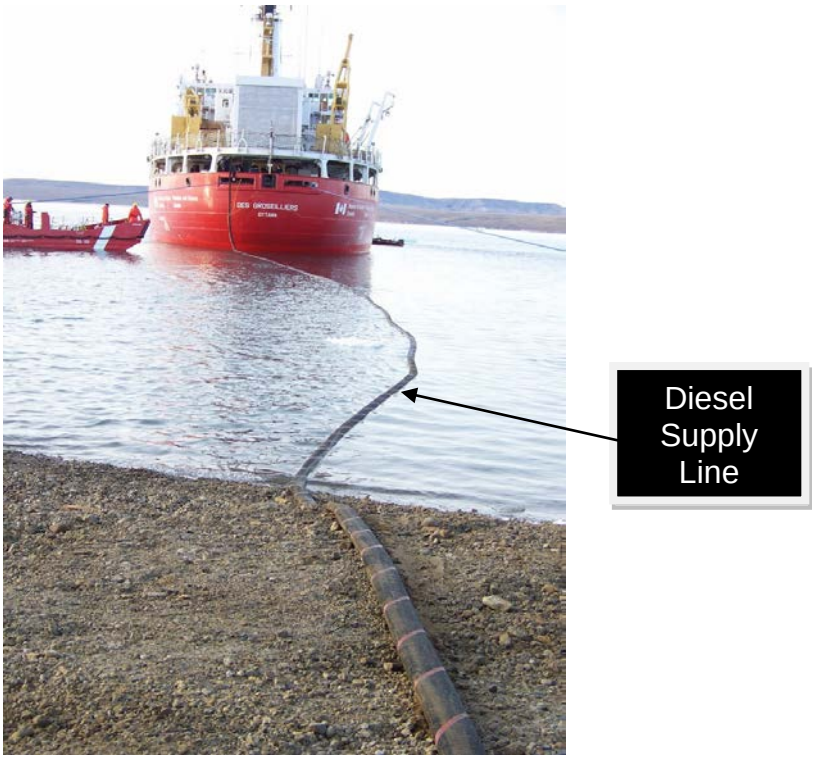


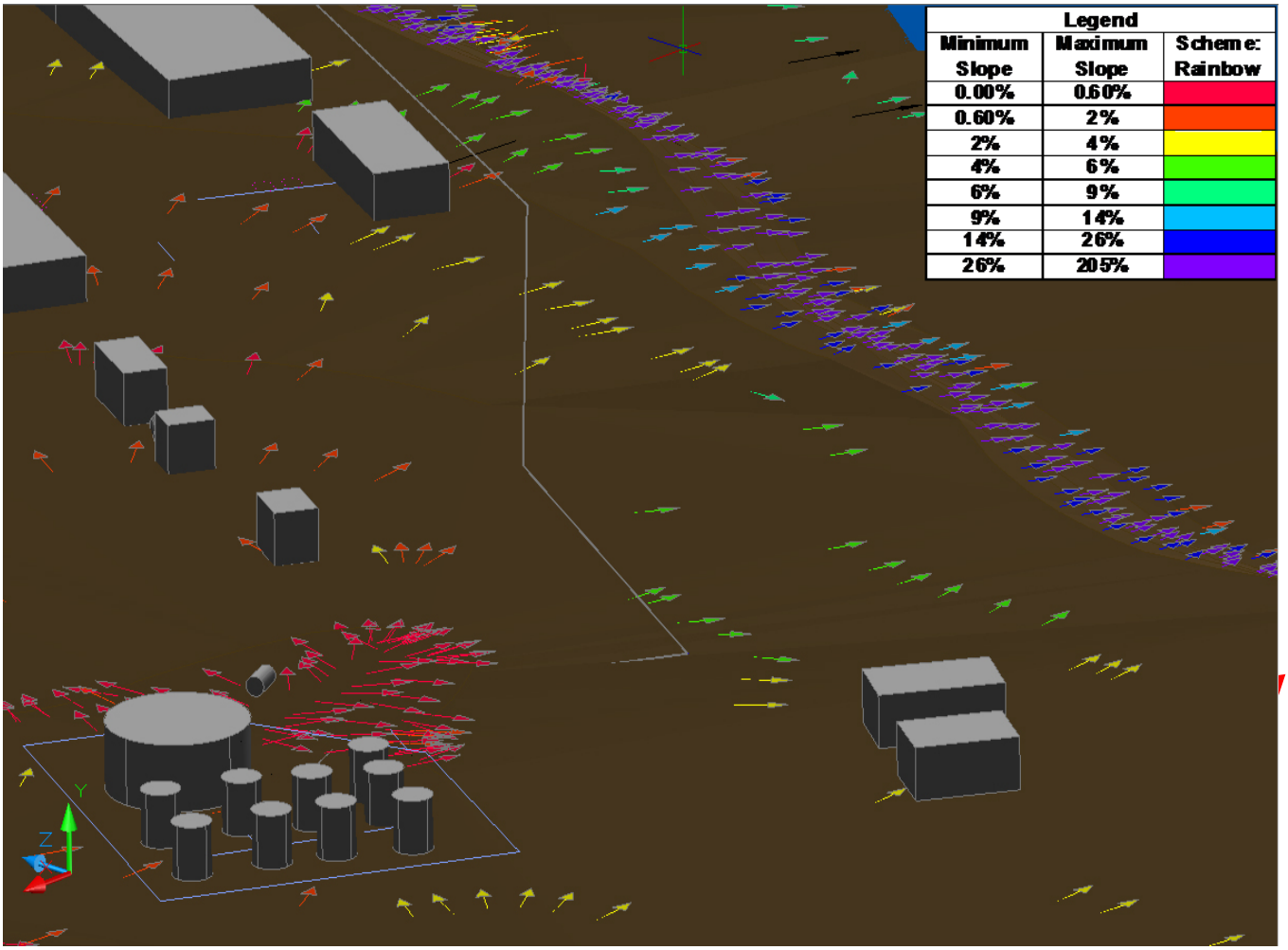
Figure 10: Supply Ship Delivering Diesel Fuel to Eureka

APPENDIX F: EUREKA'S HAWS GASOLINE FUEL SYSTEM

Ten to fifteen barrels of gasoline are brought to Eureka HAWS on the sea-lift each year. The barrels are lifted by a crane on the ship onto a barge which delivers the barrels to the shore (Figure 4). From the barge they are placed on land by a crane located on shore. From the shore, the barrels are conveyed by a loader to the Barrel Storage Area east of the buildings (see Figure 2 and Appendix M) until they are needed to refill the 2,273 L tank. The barrels are brought to the tank by a loader and the contained gasoline is pumped into the gasoline tank.

Figure 11: Transfer of drummed petroleum products to Eureka HAWS

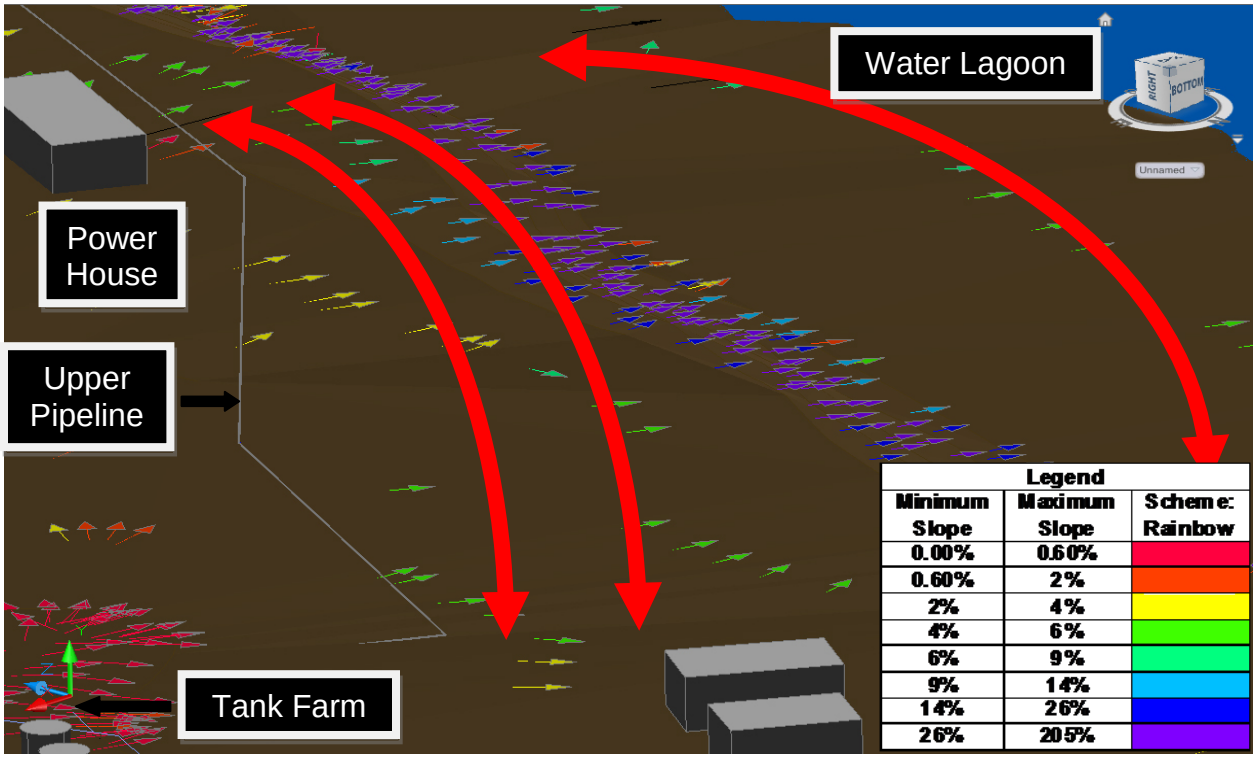
APPENDIX G: TANK FARM: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from tank farm, diesel dispenser, gasoline tank and possible locations of barriers to prevent contamination of water lagoon

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching water lagoon
- Distance from tank farm, diesel dispenser and gasoline tank to ridge is ~ 85 M
- Distance from ridge to water lagoon is an additional ~ 30 M

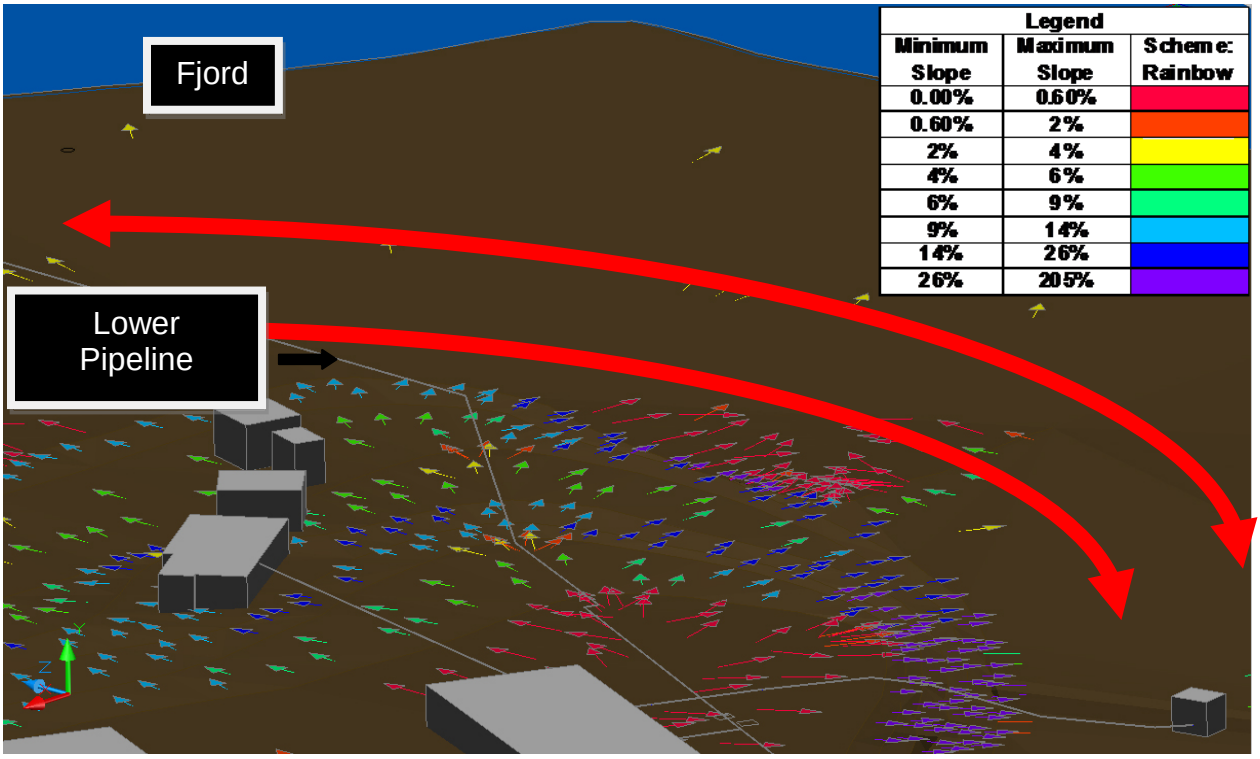
APPENDIX H: NORTH END OF PIPELINE: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from upper end (north end) of pipeline and possible locations of barriers to prevent contamination of water lagoon

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching water lagoon
- Distance from ridge to water lagoon is ~ 30 M

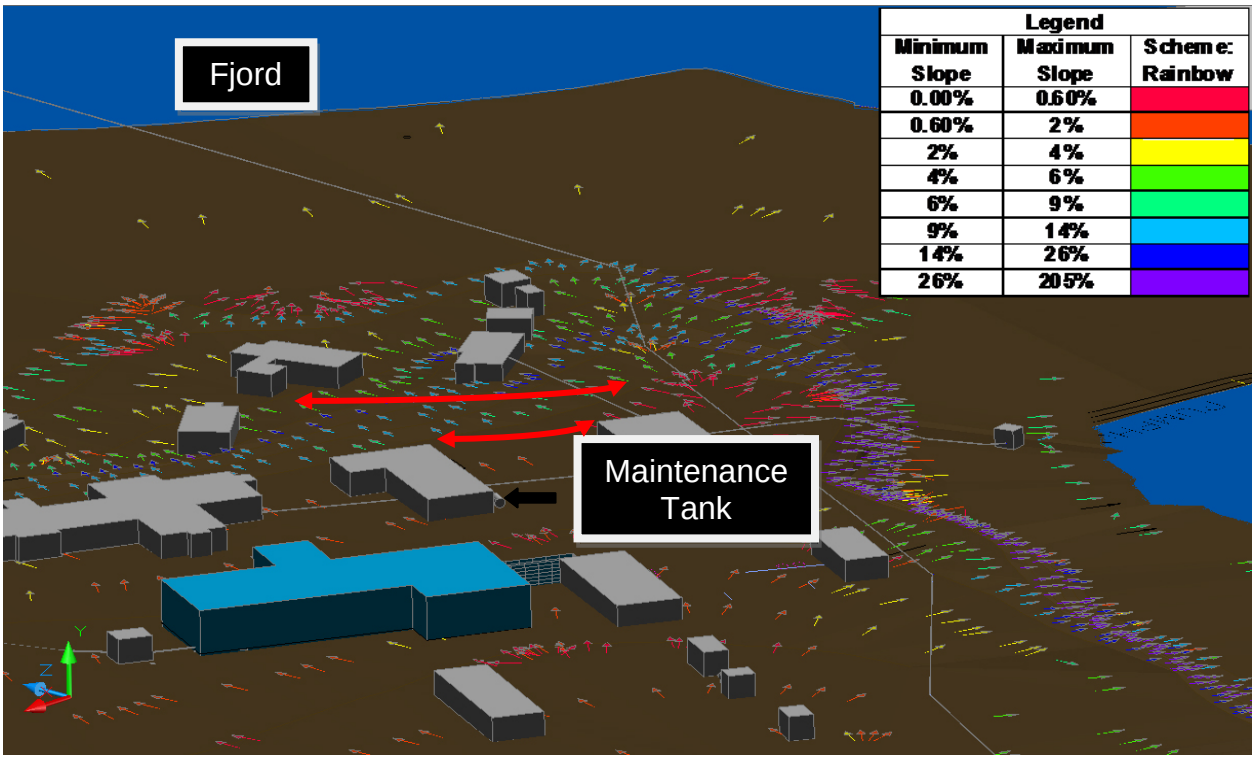
APPENDIX I: SOUTH END OF PIPELINE: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from lower end (south end) of pipeline and possible locations of barriers to prevent contamination of Fjord

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord

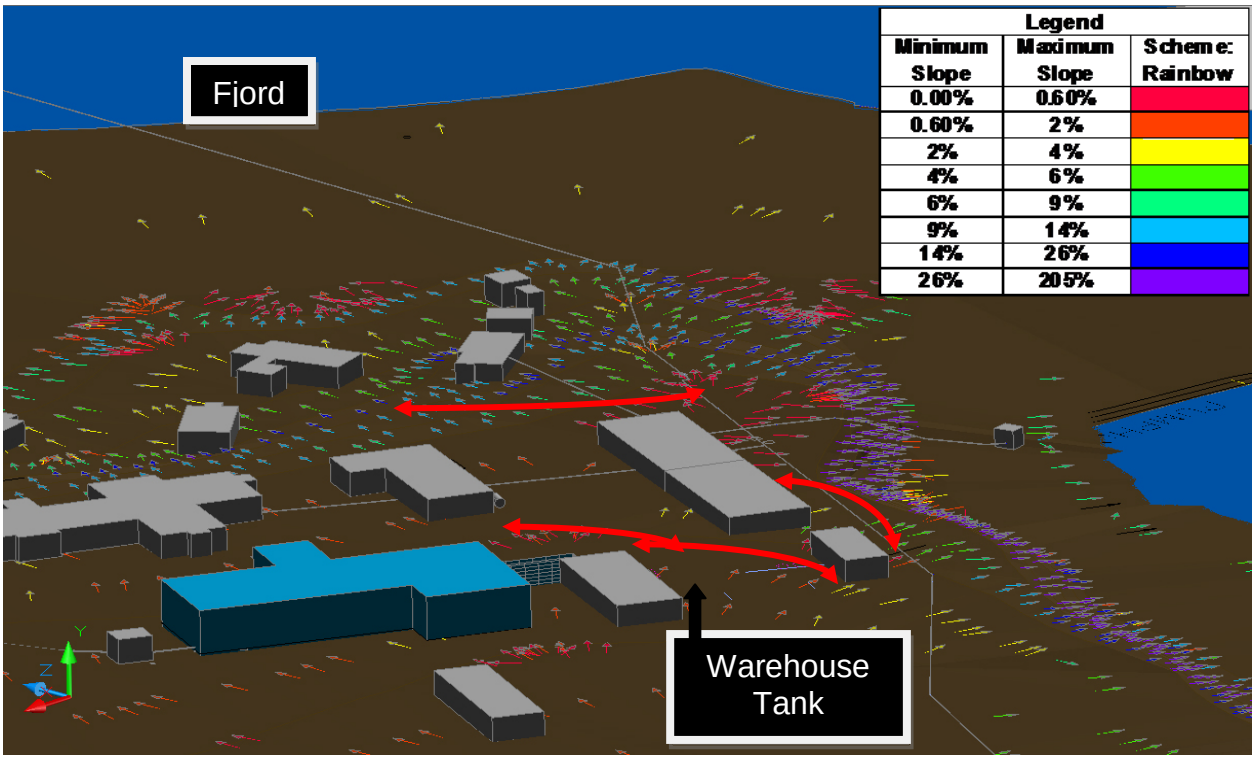
APPENDIX J: MAINTENANCE TANK: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from maintenance tank and possible locations of barriers to prevent contamination of Fjord

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord
- Distance from Maintenance Tank to Fjord is ~ 200 M

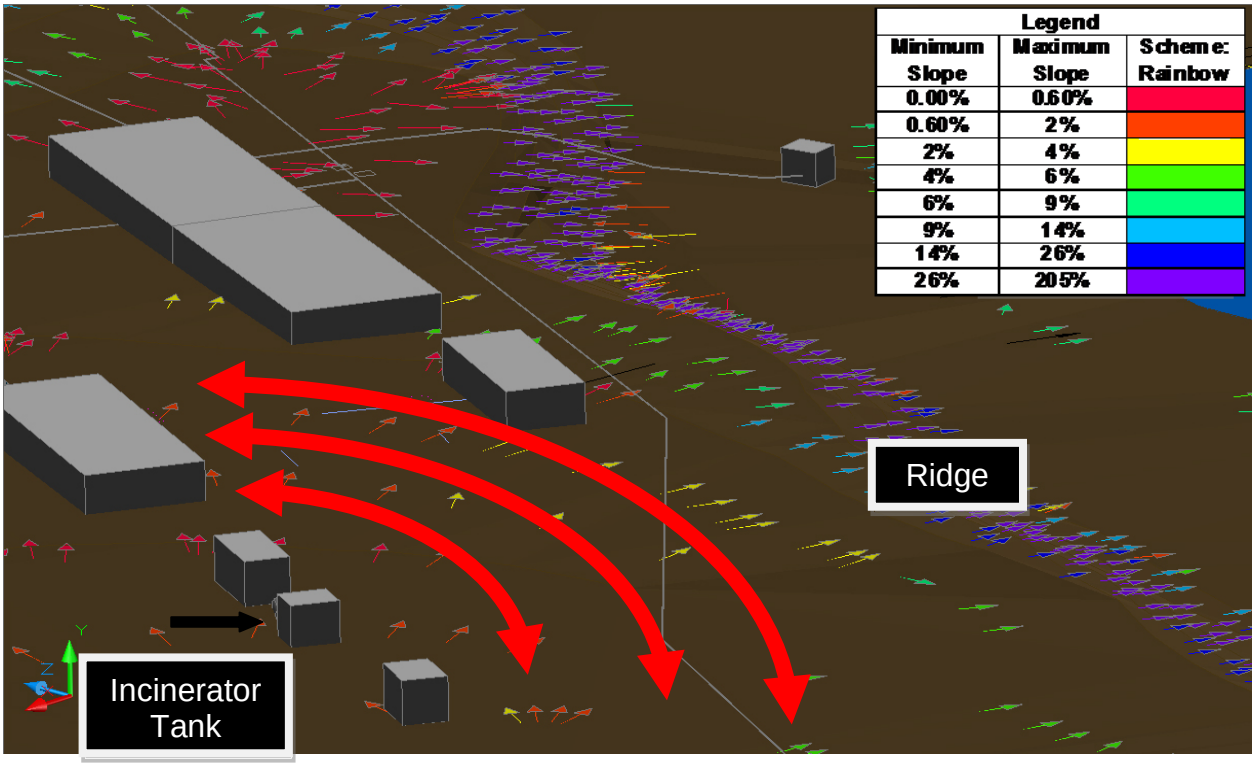
APPENDIX K: WAREHOUSE TANK: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from warehouse tank and possible locations of barriers to prevent contamination of Fjord.

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord
- Distance from Warehouse Tank to Fjord is ~ 250 M

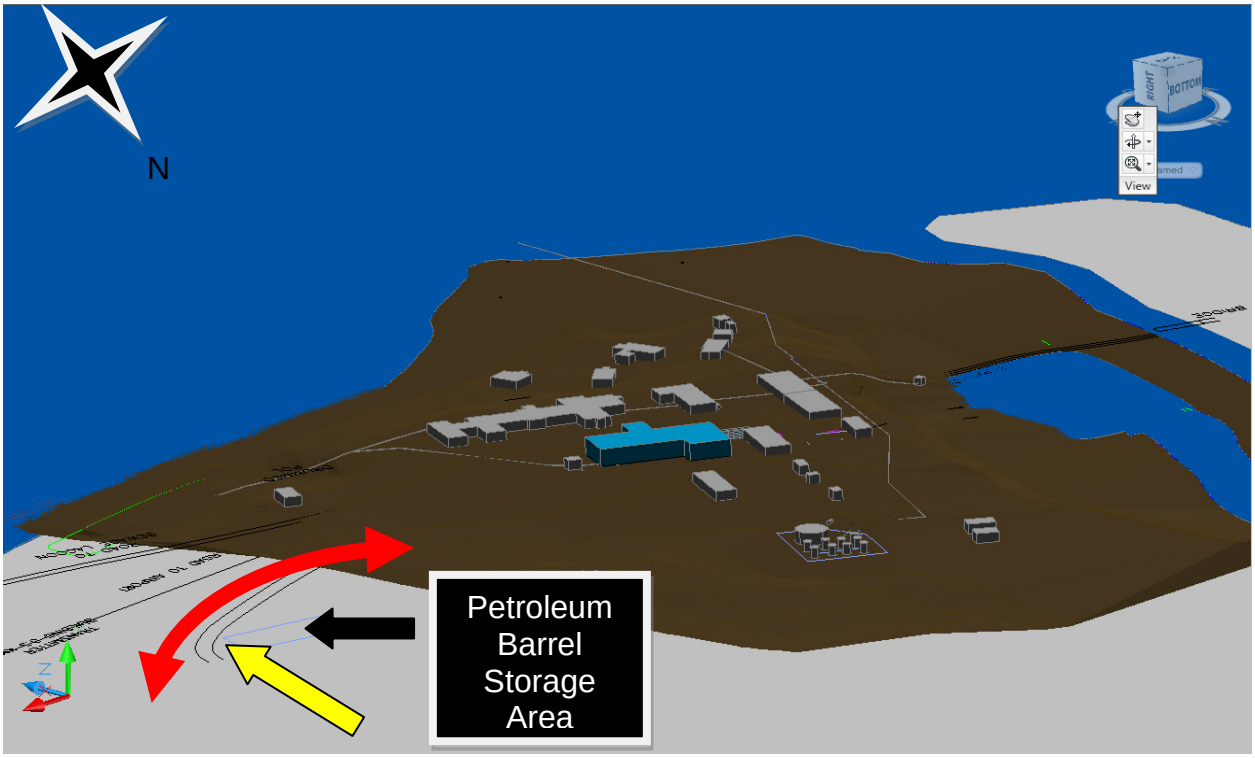
APPENDIX L: INCINERATOR TANK: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from incinerator tank and possible locations of barriers to prevent contamination of water lagoon

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord
- Distance from Incinerator Tank to Water Lagoon is ~ 120 M

APPENDIX M: BARREL STORAGE AREA: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from barrel storage area and possible locations of barriers to prevent contamination of water lagoon

- Yellow arrow indicates direction of flow of petroleum spill
- Red line with arrows indicate possible location of barrier (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord

APPENDIX O: SPILL RESPONSE RESOURCES & EQUIPMENT

The following is a list of Environment Canada equipment on site at Eureka:

1) 2 - 50’ x 24” Containment booms
2) 2 - 5/8” x 100’ Tow Lines
3) 5 - Sorbent Booms (not packages)
4) 5 - Sorbent Rolls
5) 1 - 1000 gallon Port-A-Tank
6) 4 - Hollow Back Round Point Shovels
7) 4 - Rakes
8) 1 - 10 lb. Sledge Hammer
9) 1 - Fire Axe
10) 100 - heavy duty oil spill garbage bags
11) 2 - Portable Honda Generators
12) 6 - portable/mobile radios (167.7 MHz)
13) 1 - Air/Ground base Station (122.8 MHz & 121.5 MHz)
14) 4 - Fire Extinguishers
15) 1 - CAT IT28B Loader
16) 1 - Case 721D Loader

The following could be provided in case of emergency by the Canadian Coast Guard:

1) 1 - Canadian Coast Guard Motorized Landing Craft (LCM)
2) 1 - Canadian Coast Guard Dumb Barge

The following is a list of personal protective equipment (PPE) on site:

1) 10 - goggles
2) 10 - pair nitrile/natural rubber gloves
3) 10 - pair Tyvek Coveralls
4) 6 - set 3 piece rain suits
5) 6 - pair rubber safety boots

APPENDIX P: SPILL REPORTING FORMS

Environnement Canada Environment Canada

Spill Report

Internal use only

All releases of petroleum product or allied product MUST be reported by telephone as soon as possible.

This form should be completed by the owner, operator, or the person responsible for managing the response.

Date of Incident :	**Time of Incident:**	**EC Property:**
_____	_____	_____
Weather Conditions:		
_____		

Owner Name:_____ **Division and Direction:** _____

Telephone Number: _____

Operator Name:_____ **Telephone Number:** _____

Reported by:_____ **Signature:**_____

EC Tank Registration Number, if applicable:	EC-_____	EC-_____
Type of Fuel:	_____	
Source of Spill:	Storage Tank ☐ Barrel/Drums ☐ Pumping Operation ☐	Vehicle ☐ Other: _____
How much fuel spilled?	Litres:_____	**If more than 100L, this report SHALL be faxed or scanned to the federal authority with 48 hours.**

Property Management Division, ACEMD

Canada

Environnement Canada Environment Canada

Spill Report

Internal use only

Description of the spill:	Location of spill:	_____
		_____
	Surface or approximate area affected:	_____
	Is the spill contained?	YES ☐ NO ☐
Release Site Description:	Surface at Site:	☐ Paved ☐ Gravel ☐ Vegetation ☐ Concrete Surface
What waterways are in the vicinity of the product release (if applicable)?	_____	
	_____	
Did you contact the appropriate federal authority spill action centres?[1]	YES ☐ NO ☐	Which centre did you contact? _____
Who at EC spill center did you talk to?	Name: _____	Function: _____
	Date: _____	
Incident Number:	_____	
Was a 3rd party property affected by the release?	YES ☐ NO ☐	If yes, who: _____
		_____

[1] Refer to PDF Canadian Environmental Emergencies Notification System

Property Management Division, ACEMD

Canada

Environnement Canada Environment Canada

Spill Report

Internal use only

What mitigating measures did you take?	☐ Stop the flow of product ☐ Turned off pumping unit (if applicable) or close manifold valve ☐ Eliminated all sources of ignition ☐ Secured the area ☐ Put on goggles and petroleum resistant gloves and boots ☐ Used absorbents located in storage units to contain and clean up all product ☐ Placed all absorbents in metal drums for disposal ☐ Transport drums to a secure area within facility for temporary storage ☐ Made arrangements to dispose of contaminated materials at an authorized disposal site Other:_____ _____		
Is it possible to keep the system running?	YES ☐	NO ☐	
Is someone supposed to come and fix anything?	YES ☐	NO ☐	If yes, who: _____ _____ _____
The organizations that were notified and / or are involved as well as other relevant information:	_____ _____ _____ _____ _____		

Property Management Division, ACEMD

Canada

Environment Canada | Environnement Canada

Northwest Territories | Nunavut | Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPO
TEL: (867) 9
FAX: (867) 8
EMAIL: spills@g

REPORT LINE USE O

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR	REPORT NUMBER -
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME	☐ UPDATE # TO THE ORIGINAL SPILL REPORT	
C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM THE NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION C		
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 METRE	
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR EQUIP	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MA			

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

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION **Station operator**	EMPLOYER	LOCATION CALLED **Yellowknife, NT**	REPORT LINE NU **(867) 920-8130**

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

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

APPENDIX Q: MONTHLY VISUAL INSPECTION CHECKLISTS FOR EUREKA'S TANK SYSTEMS

The use of digital cameras, it is also a good idea to take some high definition digital photographs of inspection results. The photographs can be taken from consistent perspective each month to clearly document how the facility changes over time. Remember the old saying, "a picture is worth a thousand words".

Monthly FSTS Inspection Checklist
Enviro Tanks
District 3, Property Management Division

Internal system number and/or name:_____

Facility: _____Eureka_____ **EC Identification #:**

Date(Month/Day/Year):_____ **Inspected by:** _____

Fuel Type: Diesel

1. READ CAREFULLY THE CHECKLIST PRIOR TO THE INSPECTION
2. ALWAYS TAKE A PHOTO OF ANY DAMAGES OR PROBLEMS
3. ALWAYS DOCUMENT ANY PROBLEMS AND REPAIR THEM

- **KEEP CHECKLIST ON FILE AT THE SITE**

	Y or N	Comments
General Conditions		
Are the tank's support, foundation, Walls (side, top, and underneath) in good condition? (look for lack of corrosion protection and its deterioration, unstable foundation, etc) *(NFCC, B139)*	☐ Yes ☐ No	
Are the labels in good condition? (look for WHMIS, TDG, EC TAG) *(WHMIS, TDG, NFCC)*	☐ Yes ☐ No	
Is the emergency spill kit complete? *(NFCC, BP)*	☐ Yes ☐ No	
Physical Protection		

Is the tank damaged? (look for cracks, brittles, fractures, etc) *(CEPA, NFCC, B139)*	□ Yes □ No	
Is there collision protection and fencing in place around the tank, and are they in good condition? (look for bollards, etc.) *(NFCC, B139)*	□ Yes □ No □ N/A	
Is the area clear of debris? (Nothing should get in touch with the tank and piping) (BP)	□ Yes □ No	
Petroleum product pump □ N/A		
Are there any leaks on pump, pipes, belts or filters of the petroleum product? *(CEPA, NFCC)*	□ Yes □ No	
Is the petroleum product pump properly working and does it pump product smoothly without making any unusual sounds? (Check mainly for unusual sounds) *(BP)*	□ Yes □ No □ Don't know	
Devices		
Is the product shut-off device working properly? *(NFCC)*	□ Yes □ No	
Are the valves (anti-siphon valve, power cut-off valve, recovery valve, drainage valve) working properly? *(NFCC, B139)*	□ Yes □ No	
Is the product level alarm warning system (visual/auditory) working properly? *(NFCC, CCME)*	□ Yes □ No □ None	
Piping		
Are there any signs of leaks on any aboveground pipes, elbows, or pipe joints? *(CEPA, NFCC, B139)*	□ Yes □ No □ N/A	
Is the tank vent clear? *(NFCC, B139)*	□ Yes □ No	

Summary of leaks		
Has there been a leak alarm (if applicable) or signs of leaks in then interstitial space since the last inspection for double walled tanks? *(BP)*	□ Yes □ No □ N/A	
Inventory reconciliation and tank bottom water *(CEPA, NFCC)* ***Complete the form in Appendix L-2*** ***Appendix L-2 completed?*** □ Yes □ No ***Unfeasible*** □		
Overall Conditions		
Is the system working properly? *(CEPA, NFCC, B139)*	□ Yes □ No	
Are there any measures that need to be implemented? *(BP)*	□ Yes □ No	*If so, what are they?*

Monthly FSTS Inspection Checklist
Tank Farm System
District 3, Property Management Division

While walking the tank farm, take note of signs of overfill, corrosion, recent repairs that were not apparent by records or discussion. Look for stains on steel where leak may be occurring, check valve function and nozzle welds, check associated piping, check foundation for wash-out/deterioration.

Internal system number and/or name:_____

Facility: _____Eureka_____ **EC Identification #: EC-00001218**

Date(Month/Day/Year):_____ **Inspected by:** _____

Fuel Type: Diesel

1. READ CAREFULLY THE CHECKLIST PRIOR TO THE INSPECTION
2. ALWAYS TAKE A PHOTO OF ANY DAMAGES OR PROBLEMS
3. ALWAYS DOCUMENT ANY PROBLEMS AND REPAIR THEM

- **KEEP CHECKLIST ON FILE AT THE SITE**

	Y or N	Comments
General Conditions		
Are the tank's shell, foundation, (Side, top) and roof in good condition? (look for deterioration, unstable foundation, of welds, plates, and appurtenances) *(NFCC & API)*	☐ Yes ☐ No	
Are the labels in good condition? (look for WHMIS, TDG, EC TAG) (*WHMIS, TDG, NFCC*)	☐ Yes ☐ No	
Is the emergency spill kit complete? *(NFCC, BP)*	☐ Yes ☐ No	
Protection		
Are the tanks damaged? (look for cracks, brittles, fractures, etc) *(CEPA, NFCC, B139)*	☐ Yes ☐ No	

Are the collision protections in good condition? (Look for bollards, door-gate etc.) *(NFCC, B139)*	□ Yes □ No	
Is the exterior coating in good condition, both shell and roof? (Look for lack of corrosion protection) (*API*)	□ Yes □ No	
Petroleum product pump □ N/A		
If applicable, are there any leaks on pipes or filters of the petroleum product? *(CEPA, NFCC)*	□ Yes □ No	
If applicable, is the petroleum product pump properly working and does it pump product smoothly without making any unusual sounds? (Check mainly for unusual sounds around yellow tanks inside generator building.) *(BP)*	□ Yes □ No □ Don't know	
Is the product shut-off device working properly? *(NFCC)*	□ Yes □ No	
Are the valves and flanges working properly? *(NFCC, B139)*	□ Yes □ No	
Piping		
Are there any signs of leaks on any aboveground pipes, elbows, or pipe joints? *(CEPA, NFCC, B139)*	□ Yes □ No □ N/A	
Is the tank vent clear? (Look at the vents of the Yellow tanks) *(NFCC, B139)*	□ Yes □ No □ Not accessible	
Monitoring leaks		
Are there any petroleum products or water in the containment enclosure for tanks with secondary containment? (Check at the tank Farm, check secondary	□ Yes □ No	

containment integrity) *(CEPA)*		
Are the drain valve locked to prevent leak? (*API)*	☐ Yes ☐ No	
Inventory reconciliation and tank bottom water *(CEPA, NFCC)* ***Complete the form in Appendix L-2*** ***Appendix L-2 completed?*** ☐ Yes ☐ No		
Overall Conditions		
Is the system working properly? *(CEPA, NFCC, B139)*	☐ Yes ☐ No	
Are there any measures that need to be implemented? *(BP)*	☐ Yes ☐ No	*If so, what are they?*

Monthly FSTS Inspection Checklist
Gasoline Dispenser
District 3, Property Management Division

Internal system number and/or name:_____

Facility: _____Eureka_____ **EC Identification #:**

Date(Month/Day/Year):_____ **Inspected by:** _____

Fuel Type: Gasoline

1. READ CAREFULLY THE CHECKLIST PRIOR TO THE INSPECTION
2. ALWAYS TAKE A PHOTO OF ANY DAMAGES OR PROBLEMS
3. ALWAYS DOCUMENT ANY PROBLEMS AND REPAIR THEM

- **KEEP CHECKLIST ON FILE AT THE SITE**

	Y or N	Comments
General Conditions		
Are the tank's support, foundation, Walls (side, top, and underneath) in good condition? (look for lack of corrosion protection and its deterioration, unstable foundation, etc) *(NFCC, B139)*	☐ Yes ☐ No	
Are the labels in good condition? (look for WHMIS, TDG, EC TAG) *(WHMIS, TDG, NFCC)*	☐ Yes ☐ No	
Is the emergency spill kit complete? *(NFCC, BP)*	☐ Yes ☐ No	
Physical Protection		
Is there any evidence of damage to any of the tank system equipment? (look for cracks, brittles, fractures, etc) *(CEPA, NFCC, B139)*	☐ Yes ☐ No	

Is collision protection is in good order? (look for bollards, etc.) *(NFCC, B139)*	□ Yes □ No	
Is the area clear of debris? (Nothing should get in touch with the tank and piping) (BP)	□ Yes □ No	
Pump, devices and dispenser		
Are there any leaks on Pump and pipes of the petroleum product? *(CEPA, NFCC)*	□ Yes □ No	
Is the petroleum product pump properly working and does it pump product smoothly without making any unusual sounds? (Check mainly for unusual sounds) *(BP)*	□ Yes □ No	
Check suction pump operation; Is there any leakage at the fuel pump: fittings, belts or fuel filters? *(NFCC, B139)*	□ Yes □ No	
Is the nozzle without cuts and tears?	□ Yes □ No	
Is the dispenser hose without cracks or crimps?	□ Yes □ No	
Piping		
Is there anything broken on any of the connections or the piping? (look at supply, fill and vent pipes) *(BP)*	□ Yes □ No	
Are there any signs of leaks on any aboveground pipes, elbows, or pipe joints? *(CEPA, NFCC, B139)*	□ Yes □ No	
Is the tank vent clear of obstructions? *(NFCC, B139)*	□ Yes □ No	
Leak Summary		

Was there any evidence of a leak in the interstitial space of the double walled tank since the last inspection? (look at the vacuum gauge)	☐ Yes ☐ No	
Is the product level alarm warning system (visual/auditory) working properly? *(NFCC, CCME)*	☐ Yes ☐ No	
Overall Conditions		
Is the system working properly? *(CEPA, NFCC, B139)*	☐ Yes ☐ No	
Are there any measures that need to be implemented? *(BP)*	☐ Yes ☐ No	*If so, what are they?*

Monthly FSTS Inspection Checklist
Mobile Tank
District 3, Property Management Division

Internal system number and/or name:_____

Facility: _____Eureka_____ **EC Identification #: N/A**

Date(Month/Day/Year):_____ **Inspected by:** _____

Fuel Type: Diesel

1. READ CAREFULLY THE CHECKLIST PRIOR TO THE INSPECTION
2. ALWAYS TAKE A PHOTO OF ANY DAMAGES OR PROBLEMS
3. ALWAYS DOCUMENT ANY PROBLEMS AND REPAIR THEM

- **KEEP CHECKLIST ON FILE AT THE SITE**

	Y or N	Comments
General Conditions		
Are the tank's support, foundation, Walls (side, top, and underneath) in good condition? (look for lack of corrosion protection and its deterioration, unstable foundation, etc) *(NFCC, B139)*	☐ Yes ☐ No	
Are the labels in good condition? (look for WHMIS, TDG, EC TAG) *(WHMIS, TDG, NFCC)*	☐ Yes ☐ No	
Is the emergency spill kit complete at the storage mobile tank area? *(NFCC, BP)*	☐ Yes ☐ No	
Physical Protection		
Is the tank damaged? (look for cracks, brittles, fractures, etc) *(CEPA, NFCC, B139)*	☐ Yes ☐ No	

Is the area clear of debris? (Nothing should get in touch with the tank and piping) (BP)	□ Yes □ No	
Dispenser		
Are there any leaks on pump, pipes, belts or filters of the petroleum product? *(CEPA, NFCC)*	□ Yes □ No	
Is the petroleum product pump properly working and does it pump product smoothly without making any unusual sounds? (Check mainly for unusual sounds) *(BP)*	□ Yes □ No □ Don't know	
Is the nozzle without cuts and tears?	□ Yes □ No	
Is the dispenser hose without cracks or crimps?	□ Yes □ No	
Devices		
Is the product shut-off device working properly? *(NFCC)*	□ Yes □ No	
Are the valves (anti-siphon valve, power cut-off valve, recovery valve, drainage valve) working properly? *(NFCC, B139)*	□ Yes □ No	
Is the product level alarm warning system (visual/auditory) working properly? *(NFCC, CCME)*	□ Yes □ No □ None	
Piping		
Are there any signs of leaks on hose or venting port? *(CEPA, NFCC, B139)*	□ Yes □ No □ N/A	
Is the tank vent clear? *(NFCC, B139)*	□ Yes □ No	

Summary of leaks		
Has there been a leak alarm (if applicable) or signs of leaks in then interstitial space since the last inspection for double walled tanks? *(BP)*	□ Yes □ No □ N/A	
Inventory reconciliation and tank bottom water *(CEPA, NFCC)* ***Complete the form in Appendix L-2*** ***Appendix L-2 completed?*** □ Yes □ No ***Unfeasible*** □		
Overall Conditions		
Is the system working properly? *(CEPA, NFCC, B139)*	□ Yes □ No	
Are there any measures that need to be implemented? *(BP)*	□ Yes □ No	*If so, what are they?*

L-2

Inventory Reconciliation Form		
Federal registration number (EC):		
Tank location:		
Date:		
Name of person responsible for reconciliation:		
A	Date of last reconciliation (manual immersion):	
B	Date of current reconciliation:	
C	Number of days since last reconciliation: (**B** – **A** = **C**)	
D	Average daily consumption rate (litres): *Note: This data is determined using counter reading records (precise average) or product delivery record histories (approximate average).*	
E	Estimated total consumption (litres): (**D** x **C** = **E**)	
F	Previous immersion reading (cm):	
G	Conversion of immersion reading (**F**) in litres based on the tank's specific conversion chart:	
H	Quantity of product delivered since the last immersion reading (litres):	
I	Current immersion reading (cm):	
J	Conversion of immersion reading (**I**) in litres based on the tank's specific conversion chart:	
K	Difference in volume: (**G** + **H** – **I** = **K**) Note: A negative result indicates a loss of volume; a positive result indicates an increase in volume.	
Does the consumption rate (**E**) match the difference calculated (**K**)? If not, explain:		

Tank bottom water	
Quantity of water measured (cm): Conversion into litres:	
Quantity of water removed (litres): Date:	
Company or individual who disposed of the tank bottom water:	
Method and location of water disposal:	

APPENDIX R: CHECKLIST FOR ANNUAL INSPECTION

Environment Canada

Checklist for Yearly Inspection of Fuel Storage Tank Systems

Internal system number and/or name: _____

EC Identification number: EC-_____

Date of inspection: _____

Inspected by (company): _____

Inspector's signature: _____

A. Applies to storage tank system locations				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
1			Access for emergency and delivery vehicles (15 m turn radius around the location) *(BP)*	
2			Restricted sources of ignition (7.5 m radius) *(NFCC)*	
3			Drainage control in event of spill or emergency *(NFCC)*	

B. Applies to all storage tank systems				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
4			Inspect debris and clean the ULC-certified vent. The vent must measure 2 000 mm (diesel) or 3 500 mm (gasoline) in height and located at least 1 200 mm above the surface of the tank and 1 000 mm away from any building openings *(NFCC)*	
5			The ULC label on the emergency tank ventilation (aboveground tanks only), is in good condition *(BP)*	
6			Check the secondary containment for spills or leaks (and repair if necessary) *(CEPA, NFCC)*	
7			Repair any damaged corrosion protection on	

			metallic surfaces *(BP)*	
8			Check the working condition of the vapour- and water-tight fill pipe and its cap *(NFCC)*	
9			Ensure the pump shut-off device is in good working condition *(NFCC)*	
10			The spill containment has a ULC label (max. capacity of 15 litres) and is free of debris *(CEPA, BP)*	
11			There is access to stairs (if the height to reach the product distribution equipment is above 990 mm) *(BP)*	
12			The overfill protection device is in good condition and is labelled *(NFCC, BP)*	
13			Check the tank's secondary containment for any product *(CEPA, NFCC)*	
14			Perform a diagnostic test on the tank's secondary containment control system *(BP)*	
15			Check and calibrate the product level gauge, ensure it has a ULC label *(NFCC, B139, BP)*	
16			Ensure the aboveground tank support framework (at least 150 mm above the ground) is in good condition *(BP)*	
17			Annual precision leak detection tests for storage tank systems *(CEPA, NFCC, B139)*	
18			Check and record : the tank bottom water by during manual immersions, measure using a dip stick covered with a water-reactive paste *(CEPA)*	

C. Refuelling device				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
19			Verify that the refuelling pipe and filter (bearing a ULC label, to be replaced once a year) are secure and in good condition *(NFCC, BP)*	
20			Verify that the automatic shut-off nozzle (bearing a ULC label) is in good condition *(NFCC)*	
21			Verify that there is an emergency shut-off device at least 2 500 mm away from the refuelling area, is in good condition, and that is properly labelled *(NFCC)*	
22			Examine and update the operational procedures for the petroleum product management system and the shut-off device *(BP) (See EERP section 5.1.1)*	

D. Fixed device supplied with petroleum products (e.g. boiler, cooling pump, generator)				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
23			Verify that there is an emergency pump shut-off device (on the pump, boiler or generator), that it is in good condition, and that it is properly labelled *(B139)*	
24			Inspect and repair potential leaks on transfer pumps *(B139)*	
25			Annual integrity testing on the storage tank as per section	

			15.2 of the Code *(B139*)	
26			Annual test of petroleum product quality as required under the NFCC *(NFCC, C282)*[1]	
27			Inspect and repair all control valves in damaged pipes *(B139)*	

E. Marking and signage for all tanks				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
28			Replace missing or damaged CEPA labels (Identification Tags) on the supply pipe *(CEPA, NFCC)*	
29			Replace missing or damaged TDG plates (for aboveground tanks only) *(BP)*	
30			Regularly inspect attached ULC labels (for aboveground tanks) *(BP)*	
31			Replace missing or damaged “no smoking” and anti-static signs *(NFCC)*	
32			Verify that there are monthly inspection forms and ensure they are legible *(CEPA)*	
33			Replace any missing or damaged pipe labels indicating flow direction *(NFCC, B139)*	

F. Piping for all tank types				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
34			Repair any damaged corrosion protection on metallic surfaces *(BP) (painting)*	
35			The anti-siphon [2]valve is present and in good working order *(B139)*	
36			Check that the locking closure valve works and is in the open position *(NFCC, B139)*	
37			Check that valves bearing ULC/CSA/ASTM/ASME labels work *(BP)*	
38			Annual precision leak detection test for all buried pipes and the secondary containment *(CEPA, NFCC, B139*) Ensure there are leak detection test records and update them (*CEPA, NFCC) (underground piping)*	
39			Check the condition of all aboveground pipes used to transport petroleum products and repair them if necessary *(CEPA, NFCC, B139)*	

[1] Option: Purchase kits to test the fuel, change the fuel if not used frequently or have it filtered if dough of sediment and water contamination to prevent device damage.
[2] Anti-siphon valve in the suction pipe; Should a leak occur in the suction pipe between the Anti-siphon valve and the burner, the valve will prevent the oil in the tank from being siphoned off.

G. Emergency procedures				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
40			Update the emergency response plan (ensure that the location of the environmental emergency response plan matches what is indicated on the CEPA FIRSTS[3]) *(CEPA)*	
41			The tank refuelling log (i.e. registries) is on-site and up-to-date *(CEPA, NFCC, B139)*	
42			All documents relating to tests are conducted on the tank and its equipment (including product loss/spill reports) *(CEPA)*	

Legend:

C282 : Emergency electrical power supply for buildings

CEPA: *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*

BP: Best Management Practices

B139: Installation Code for Oil-Burning Equipment (standard B139)

- the installation of aboveground tanks that have a maximum individual capacity of 2 500 L (550 gal) and a maximum aggregate capacity of 5 000 L (1 100 gal), and the piping and tubing systems from the tanks to the oil-fired appliance.

NFCC: National Fire Code of Canada, National Research Council of Canada, 2010:

- The National Fire Code of Canada (NFCC), part 4, details the storage, handling, usage, and treatment of flammable and combustible liquids in buildings, structures and open spaces equipped with underground storage tank systems and aboveground storage tank systems with a total capacity of over 2 500 litres.

[3] Federal Identification Registry for Storage Tank Systems. Environmental Programs group is the Administrator of all EC regulatees.

APPENDIX S: EMERGENCY PREPARATION CHECKLIST

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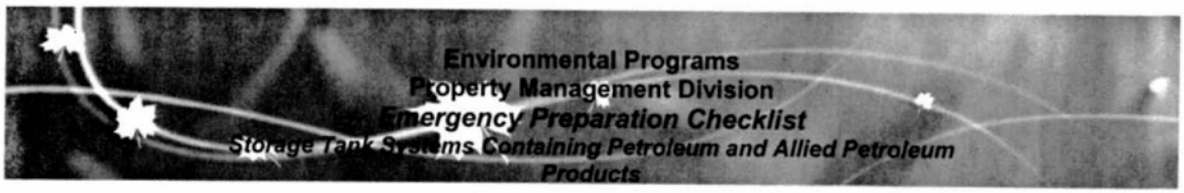

Revised July 2012 by
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Appendix E-1

	Detailed Requirement	Regulatory or Management Practice Reference[1]	Finding	
			Yes (Y)	No (N)
1	The owner or operator of a storage tank system has prepared an emergency plan taking into consideration the following factors: (a) the properties and characteristics of each petroleum product or allied petroleum product stored in each tank of the system and the maximum expected quantity of the petroleum product or allied petroleum product to be stored in the system at any time during any calendar year; and (b) the characteristics of the place where the system is located and of the surrounding area that may increase the risk of harm to the environment or of danger to human life or health.	CEPA-197, 30 (1) Section 3.5 pg 14 MSDS sheet Section 4.3 Section 3.6 pg 15 Topography	✓ ✓	Appendices pictures etc

1) [1] Regulatory: Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, CEPA 2008-197;
2) Regulatory: Transports of Dangerous Goods (TDG) Regulations SOR/2008-34;
3) Management Practice: Environmental Code of Practice for Aboveground and Underground Storage Tank Systems containing Petroleum and Allied Petroleum Products, Canadian Council of Ministers of the Environment (CCME, 2003);
4) Management Practice: National Fire Code of Canada, the National Research Council Canada (NFCC, 2005);
5) Management Practice: Ontario Fire Code (OFC) O. Reg. 388/97.

Adapted from PWGSC *Emergency Preparedness Checklist*, 2009.

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2	The emergency plan required in section 30 (*a*) includes a description of the factors considered under section 30 (1); (*b*) a description of the measures to be used to prevent, prepare for, respond to and recover from any emergency that may cause harm to the environment or danger to human life or health; (*c*) a list of the individuals who are required to carry out the plan and a description of their roles and responsibilities; (*d*) identification of the training required for each of the individuals listed under paragraph (*c*); (*e*) a list of the emergency response equipment included as part of the plan, and the equipment's location; and; (*f*) the measures to be taken to notify members of the public who may be adversely affected by the harm or danger referred to in paragraph (*b*).	CEPA-197, 30 (2) 6.1 to 6.6 pg 34 section 6.4.0 & 5 & 6.3.1.1 to & 6.3.1.4 6.1 pg 27 Flow chart Section 5.3 pg 26 Appendix D Section 6.2 pg 29 2.4 pg 10	✓ ✓ ✓ ✓ ✓	
3	The owner or operator of a storage tank system must ensure that the emergency plan is implemented (a) in the case of a storage tank system that is installed before the coming June 12, 2008, no later than June 12, 2010; and (b) in any other case, before the day on which the first transfer of petroleum products or allied petroleum products into any tank of the storage tank system occurs.	CEPA-197, 30 (3) Effective Date April 1, 2010. N/A.	✓	
4	The owner or operator of a storage tank has kept the emergency plan up-to-date and keep a copy of it readily for the individuals who are to carry of it into effect and at the place where the storage tanks system is located if that place is a place of work. The owner or operator has notified the Minister of the civic address of each location where the emergency plans.	CEPA-197, 31 pg i + control page updated July 2012	✓	

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5	For the purposes of paragraph 212 (1) (a) of the Canadian Environmental Protection Act, 1999, the written report have contained the following information: -the names of both the owner and the operator of the storage tank system; -the identification number of the storage tank system; the date on which the spill, if any, occurred; -the type of each petroleum product or allied petroleum product that is the subject of the report; -the quantity of each petroleum product or allied petroleum product that is the subject of the report or, if the quantity cannot be determined, an estimate of that quantity; -a description of the circumstances of the spill, if any, and any mitigating measures taken; -and a description of the measures taken following the spill, if any, to prevent a subsequent occurrence.	CEPA-197, 41 Section 3.5 pg 14 Section 6.4 + 6.5 Section 5.1	✓	
6	Standard procedures for normal product transfer operation as well as for emergencies are given to operators and posted in print. Fuel Transfer Training must be periodically followed up to ensure that proper procedures are being followed.	CCME, 8.5.3 (2) 5.1 pg 22+23	✓	
7	The owner of each registered storage tank systems prepares and maintains an emergency response planned procedures for reporting, containing, removing, and cleaning up spill or leak.	CCME, 8.9.1 6.4 + 6.5	✓	
8	Where dangerous goods are stored or handled, the fire safety plan includes the names, addresses and telephone numbers of persons to be contacted in case of fire during non-operating hours.	NFC, 3.1.2.6.1 emergency contacts pg 46 Appendix B - Non specific to fire	✓	

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9	1) Appropriate materials and measures are available to clean up any type of spilled liquid or solid dangerous materials or prevent spills from flowing outside the spill area. 2) Materials used to clean up dangerous materials spills are -compatible and non-reactive with the dangerous goods being cleaned up and -are disposed of in a receptacle with a lid.	NFC, 3.2.7.11 6.4.5 pg 35-37 pg 42	✓	✓
10	Individual storage areas used for storage of dangerous goods are clearly designated as such by posted placards conforming to the Transportation of Dangerous Goods Regulations	TDG, 4 6.3.9 section 5 Nothing on placards	✓	Placards Installed
11	All employees involved in the storage and handling of dangerous goods are trained in safe handling procedures and correct responses to an emergency situation by the appropriate federal, provincial, or territorial Occupational Health and Safety. (WHMIS)	Workplace Hazardous Materials Information System (WHMIS) and Hazardous Product Act WHMIS Labels section 5	✓	
12	Areas used for storage of dangerous goods are secured against unauthorized access.	NFC, 3.2.7.16 did not find		✓ - But, the facility is so isolated, the risks are almost inexistent
13	A spill of flammable or combustible liquids is prevented from flowing outside the spill area and from reaching waterways, sewer systems and potable water sources by: a) constructing a non combustible barrier that can contain the spill; or b) grading site or sloping of the floor to divert the spill to a dedicated drainage system	NFC, 4.1.6.1.1 6.4.5.2 pg 36	✓	
14	Any drainage system designated to collect spills of dangerous goods: a) terminate at a location where the spill will not create a fire hazard or any risk to public health and safety ; and b) directs the spill away from buildings, means of egress or water supplies for	NFC, 4.1.6.2.1 unsure See Appendices "potential discharge" dykes ? 6.4.5.1	✓	

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	fire fighting.			
15	Absorbents used to remove spilled or leaked are non combustible. spill kit	NFC, 4.1.6.3.4 and Controlled Products Regulations	6.2 ✓	
16	All employees concerned with transfer operations involving flammable liquids and combustible liquids are trained in: a) emergency procedure; b) the importance of attendance during loading and unloading c) extinguishing procedures for fires; and d) the colour coding and identification system.	NFC, 4.5.10.2.1 and WHMIS 5.3.1 pg 26 fraing "Being developed"	✓	PTA training under development
17	If applicable, Measures to accommodate possible leakage or spillage from HOSE couplings are provided: 1) by constructing a non-combustible barrier of sufficient height to contain the spill or grading the site to divert the spill to a drainage system; 2) having a drainage system that terminate at a location where the spill will not create a hazard and direct the spill away from buildings, exits and access; or 3) preventing the escape of spilled liquids through flushing or use of absorbents.	NFC, 4.8.7.2.1 6.4 pg 36	✓	
18	If applicable, provisions are in place to prevent spillage resulting from the disconnection of hoses.	NFC, 4.8.7.2.2 5.1.1 pg 23	✓	
19	If applicable, pump house are non-combustible construction with floors that are chemically resistant to the liquid being handled, liquid-tight and equipped with curbs or flashings around the base of the wall not less than 100 mm in height to contain any spilled liquid.	NFC, 4.8.10.1 looks like a pump house from picture	✓	
20	Transfer operations are carried out only under continuous supervision of a person	NFC, 4.8.11.1.1 5.1.1	✓	under process to be changed 2013-2015

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	qualified to supervise such operations.			
21	Spill control procedures are approved and implemented for any occupancy where any quantity of flammable or combustible liquids are stored, handled, processed or used.	OFC, 4.1.6.4 (1) 6.4 pg 32-41	✓	
22	Employees engaged in the operation of equipment for the transfer of flammable or combustible liquids are trained in the location, function and operation of valves used for the operation of fire protection equipment and manual emergency shut-off valves.	OFC, 4.4.11.2 (2) 5.3.1 pg 26 "Being developed"		✓

Adapted from PWGSC *Emergency Preparedness Checklist*, 2009.
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REFERENCES

1. Eureka Site Safety and Emergency Contingency Plans, Environment Canada, August 2009.
2. Guidelines for Spill Contingency Planning, Indian and Northern Affairs Canada, April 2007.
3. Nunavut Water Board Licence No. 3BC-EUR0611 issued to Environment Canada by the Nunavut Water Board, February 6, 2006.
4. Oil Pollution Emergency Plan for Fuel Transfer at Eureka HAWS, Environment Canada, July 2006.
5. Oil Pollution Emergency Plan for Land Spills, - Eureka High Arctic Weather Station – in support of the Nunavut Water Board Licence No. 3BC-EUR0611, Environment Canada, March 2009.
6. Summary of Operations and Maintenance Procedures for Sewage, Solid Waste Disposal and Waste Treatment Facilities – Eureka High Arctic Weather Station – in support of the Nunavut Water Board Licence No. 3BC-EUR0611, Environment Canada, March 2009.
7. Summary of Spill Events in Canada, 1984-1995, Environment Canada.