Environment Canada Environnement Canada

OIL POLLUTION EMERGENCY PLAN FOR LAND SPILLS

— Eureka High Arctic Weather Station —

In support of the
Nunavut Water Board License
No. 3BC-EUR0611

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

February 2008

Canada

Control Page

On receipt of revisions and/or amendments, the Assets, Contracting and Environmental Management Directorate (ACEMD) shall complete this control page to ensure that the Oil Pollution and Emergency Plan for Land Spills at Eureka High Arctic Weather Station (HAWS) is always current and consistently reflects the operations and activities taking place on site.

Version	Date in Force	Expiry Date	Description / Purpose
1	November. 23rd, 2007	November 22nd , 2008	Original Plan
2	February 6th, 2008	February 6th, 2009	Corrections/updates as per NWB letter of January 8, 2008

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Acronyms

ACEMD	Assets, Contracting and Environmental Management Directorate
AREET	Arctic Region Environmental Emergency Team
CCG	Canadian Coast Guard
DSD	Department of Sustainable Development – Nunavut Territorial Government
EC	Environment Canada
ERP	Emergency Response Plan
HAWS	High Arctic Weather Station
MSDS	Material Safety Data Sheets
OPEP	Oil Pollution Emergency Plan
OPI	Oil Pollution Incidents
PFD	Personal Flotation Device
PPE	Personal Protective Equipment

1. Introduction

This plan is unique to the Environment Canada (EC), Eureka High Arctic Weather Station (HAWS) in the Nunavut Territory (Lat: 79°59'41" N and 85°48'48" W).

1.1 Site Description

The Eureka High Arctic Weather Station (HAWS) is located on the north side of Slidre Fjord, at the northwestern tip of Fosheum Peninsula on Ellesmere Island in the High Arctic and is a remote operational weather monitoring facility. It is owned by the Meteorological Service of Canada and has been in operation since 1947. Although remote, the Eureka HAWS is a hub of activity for Environment Canada, the Department of National Defence, the Polar Continental Shelf Project, 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 to the site provides the station with a majority of the bulk goods and supplies. The fjord is covered with ice for most of the year. A digital topographic map of Eureka showing all of the buildings and other important locations is shown in Figure 1.

1.2 Overview of the Plan

This plan for Eureka HAWS deals specifically with the prevention, preparation and response to a spill on land that could occur during the handling or use of hydrocarbon products. The Canadian Coast Guard (CCG) shall be responsible for any spills that may occur on water during fuel re-supply activities. This specific situation is not considered in this Oil Pollution Emergency Plan. The procedures that outline the response to a spill or leak during refueling are outlined in a separate plan which has been drafted in response to the requirements of the Canada Shipping Act – Oil Handling Facility (Environment Canada, 2006).

Since Eureka HAWS personnel handle volatile products such as diesel fuel, gasoline and lubricants, a response to Oil Pollution Incidents (OPI) has been developed for these product groups. If products, other than the ones listed, are eventually handled by personnel, the Plan shall be amended and re-submitted to the authorities concerned.

This Oil Pollution Emergency Plan (OPEP) is not intended to replace or supersede Emergency Response Plans (ERP) currently in place, but shall provide specific guidance on procedures, training and response for land-based

spills. This OPEP shall demonstrate to the authorities that Eureka HAWS has the capacity to effectively respond to incidents relate to oil spills on land.

Figure 1. Map of Eureka HAWS.

This OPEP is meant to be a working document for use by Eureka HAWS management and personnel. The basis for planning emergency responses shall be established utilizing the possible scenarios established for Eureka HAWS and presented in Section 5.1.

Eureka HAWS management firmly believes that the first line of defense in the protection of the environment must be the prevention of any accidental release of any contaminant. To this end, operating procedures are regularly updated and personnel are continuously trained to ensure safe and environmentally-sound activities and operations.

To ensure safe handling and use of hydrocarbon-based products, the appropriate Material Safety Data Sheets (MSDSs) are posted, health and safety programs are stressed and personnel are made aware of the Department's concern in ensuring a clean and safe working environment.

2. General Information

The following section describes the generalities pertaining to this OPEP.

2.1 Plan Maintenance

Assets, Contracting and Environmental Management Directorate (ACEMD) is responsible for the distribution, maintenance and update of the OPEP.

This OPEP shall be updated:

a) **Annually**, taking into account changes in the regulatory regimes, in environmental factors and in Eureka HAWS's characteristics and policies, and,
b) **After** every oil pollution incident and/or exercise.

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

2.2 Plan Distribution

This Plan shall be issued to:

- Environment Canada – Meteorological Service of Canada (MSC) located in Eureka, NU;
- Environment Canada – Regional Headquarters located in Winnipeg, MB;
- Environment Canada – Assets, Contracting and Environmental Management Directorate located in Ottawa, ON;
- Department of Sustainable Development – Government of Nunavut; and
- Nunavut Water Board.

3. Roles and Responsibilities

The following section describes the various responsibilities of the parties involved in this OPEP.

3.1 Response Organization

The following represents a functional organization chart for responding to an OPI. Depending upon the size of the OPI, it may be possible for one person to fulfill several functions.

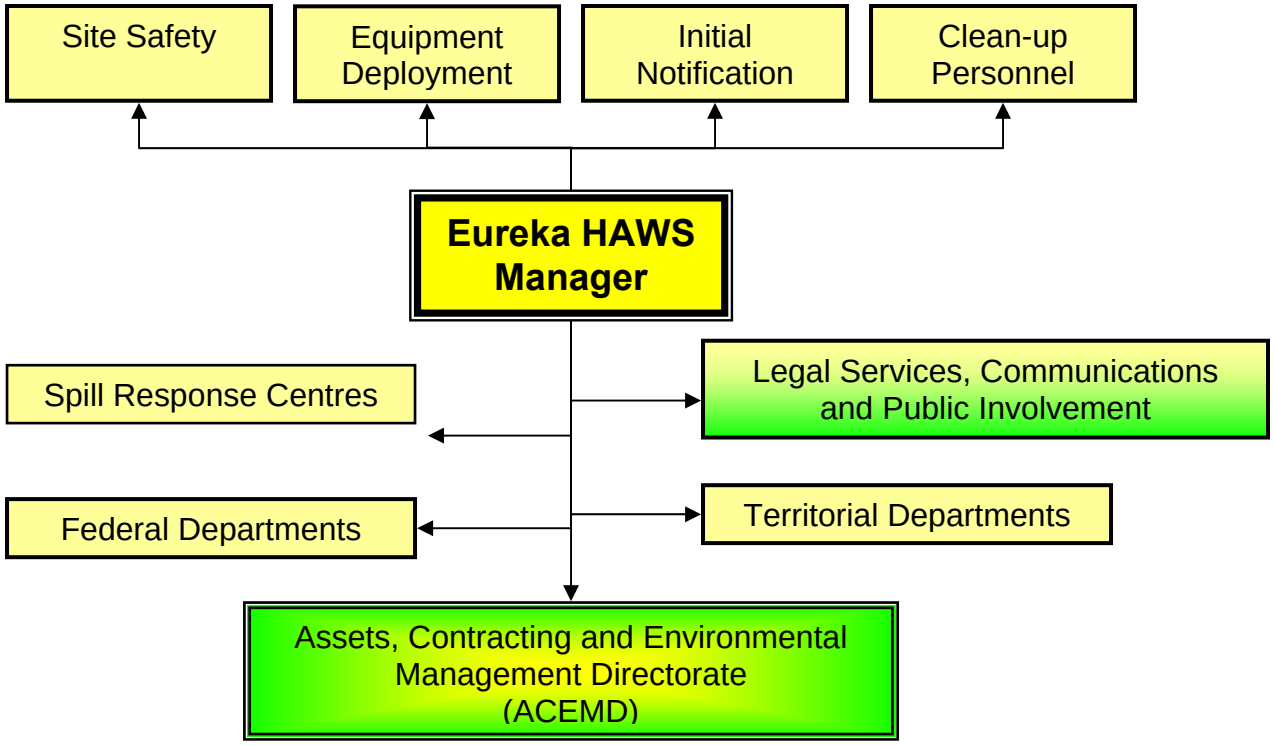

Figure 2. Environment Canada's organizational chart for responding to an OPI.

3.1.1 Eureka HAWS Station Manager

Since the Station Manager is typically in charge of all activities and operations at the facility, he or she shall have the appropriate training and shall direct clean-up operations in the event of a spill. The Station Manager is also responsible for site safety and notification of management.

In the calendar year of 2008, the duty of the Station Manager is being shared by Rai Le Cotey, Al Gaudet and John MacIver. The contact information for the Station Manager is:

Phone number: (204) 984 – 6376 Ext. 4460
E-mail address: eurekawxst@ec.gc.ca

Following any spill or leak of a petroleum or petroleum-related substance and, after ensuring that all immediate actions are taken to stop the leak and assess site safety, the Station Manager shall advise ACEMD of the OPI and provide a status on the containment and cleanup activities. If necessary, regular updates of the incident shall be established until the cleanup is completed.

3.1.2 Assets, Contracting and Environmental Management Directorate (ACEMD)

Upon spill notification, ACEMD shall be 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 OPI cannot be handled internally, then ACEMD shall request assistance from the Department of Sustainable Development (DSD) to provide the appropriate expertise to deal with a large OPI at Eureka HAWS. In the meantime, Eureka HAWS staff shall use best efforts to contain and control the OPI 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.

3.1.3 Legal Services

In the case of a major OPI involving potentially large expenditure for cleanup costs and contentious claims from third parties, specialized legal counsel shall be consulted. Arranging for legal advice shall be the responsibility of ACEMD.

3.1.4 Spill Reporting Authorities

The Facility recognizes that there are other plans or organizations that shall be integrated into any response.

In any incident involving loss of product through a spill or leak, there is a requirement to report the incident to the following authorities:

NW/NU 24-hour Spill Line
Fax or email the completed spill reporting form that is presented in Appendix A.

Tel.: (867) 920-8130
Fax: (867) 873-6924
Email address: spills@gov.nt.ca

Environment Canada's 24-hour Environmental Emergencies Centre (Yellowknife)
Tel.: (867) 766-3737

Arctic Region Environmental Emergency Team (AREET)
Tel.: (867) 669-4728

Department of Indian Affairs and Northern Development (Yellowknife)
Tel.: (867) 975-4295

Department of Sustainable Development
Tel.: (867) 975-7748
Mail to: Government of Nunavut
Brown Building, 3rd Floor
Iqaluit. NU, XOA OHO

Department of Fisheries and Ocean
Tel: (867) 979-8007

Local or Regional Health Officer, Iqaluit
Tel: (867) 975-4815

RCMP

Grise Fjord Detachment	Tel: (867) 980-0123
Iqaluit Detachment	Tel: (867) 979-0123
Resolute Bay Detachment	Tel: (867) 252-0123

QIKIQTANI INUIT ASSOCIATION
Tel: (867) 979-5359

A checklist of the activities to be followed in the event of an OPI is summarized in Appendix B and can therefore be posted at the Station.

4. General Site Activities

The personnel at Eureka HAWS handle diesel fuels in bulk and various other drummed fuels such as aviation gasoline, gasoline and hydraulic fluids. Every time these are handled, specific procedures are followed.

4.1 Sensitivity Identification

Environmental Sensitivities for the purpose of this plan are defined as follows:

- Areas containing natural, cultural or man made features, which may be threatened during an oil spill. These features may represent socio-economic value (either through resource extraction or non-consumptive use of resources) and/or life support value (e.g. productive habitat).
- Sensitive areas may include; threatened, vulnerable or endangered species or their habitat; areas of concentration of species; areas of cultural significance (e.g. archaeological sites); areas of socio-economic significance (e.g. marinas, recreation sites, water intakes); and, shoreline habitats sensitive to oil (e.g. marshes).

Eureka HAWS is only responsible for identifying and addressing ecologically sensitive areas which are located in the immediate vicinity of the facility that could be impacted by a spill of a substance that is stored or used by EC staff at this facility.

4.2 Site Setting and Conditions

The following section outlines the site setting, sensitivities in the immediate area and meteorological conditions that might impact on a spill response.

4.2.1 Site Setting

Eureka HAWS is subject to severe weather conditions which include long periods of temperatures in the range of minus 40 degrees Centigrade and extended periods of darkness.

4.2.2 Sensitivities in the Immediate Area

The land area is predominately sedimentary sand and gravel over permafrost and is snow and ice covered for the major portion of the year.

Wildlife is prevalent and seasonally includes arctic wolf, arctic fox, arctic hare, polar bear and a wide variety of migrating waterfowl.

4.2.3 Meteorological Conditions

The prevailing meteorological conditions in Eureka, NU are:

- Wind – the prevailing wind is from the westerly direction during late summer and easterly for the remainder of the year.
- Temperatures – well below freezing for the majority of the year (September to July)
- Snow cover – snow is present for 9-10 months of the year.
- Ice – ice conditions are such that only an icebreaker can perform the annual re-supply of all good. This is done usually in August or September.

5. Possible Oil Spill Scenarios and Response Strategies

The following section describes the oil spill scenarios that could potentially occur at Eureka HAWS, along with the response strategies to address them.

5.1 Possible Oil Spill Scenarios

At this site, there are three possible oil spill scenarios occurring on land, snow and land-based ice: a fuel tank farm spill, a spill from refueling vehicles or other equipment used at Eureka and a fuel or oil drum spill. These are described in greater detail below.

5.1.1 Fuel Tank Farm Spill

The tank farm at Eureka HAWS contains one large 700,000 liter tank and nine 55,000 liter tanks. Bulk storage is for Jet A-1 fuel only and is delivered annually by CCG Icebreaker. The CCG has agreed to respond to any spills into the fjord during re-supply. The concern for a land spill would be from the 4" supply line, which runs from the shore of Slidre Fjord, uphill to the tank farm. The land slopes away from the line to a small creek that is used for potable water by Eureka HAWS. The plan to prevent this possibility is simply to ensure the supply line never has fuel in it except during re-supply.

Valves at the tank farm are checked regularly to ensure they are closed and that the line does not contain any fuel. The integrity of the berm is checked annually, and if need be, the berm will be repaired.

Should a slow leak be discovered at the tank farm, if possible, all fuel shall be pumped out of the leaking tank into an empty tank, and clean up operations shall commence immediately.

Should the integrity of a tank be lost completely, and the tank lose its content in a volume that is deemed impossible to control, the tank shall be isolated from any other tanks (all valves leading to and from the tank shall be closed) and the personnel shall ensure that the spilled fuel remains in the berm and clean up operations shall commence immediately.

5.1.2 Spill from Transfer of Fuel to Vehicles or equipment

The second possible situation involves the transfer of fuel from the tank (holding fuel dedicated for vehicle usage) into a vehicle or another container. All pumping equipment is manually operated which means personnel is present when the

transfer operation takes place and there is no possibility of an overflow due to failure of automatic shut-off switches. Spill kits are located next to the transfer area and in the vicinity of the marine transfer area: spill kit #1 and 2 (Figure 3, 4 and 5).

As stated above, no transfer or handling of fuel or other dangerous products is done in the vicinity of any water body, with the exception of the annual re-supply all goods – and at that time, all spills occurring in the vicinity of the shore shall be responded to by the CCG.

5.1.3 Fuel or Oil Drum Spill

The third possible situation is the moving and/or re-positioning of fuel or oil drums. The possibility of fork truck punctures, dropped drums and leakage is magnified during handling. Oil spill response equipment is readily at hand during all fuel drum handling operations to facilitate quick response to spills or leaks. The spill kit #1 is located at the shore line (Figures 3 and 4) and can be used in case of an accident in the transportation of drums when they are being off-loaded from the sea-lift barge.

Figure 3. Eureka HAWS showing locations of the two on-site spill kits.

Figure 4. Detail of spill kit #1.

Figure 5. Detail of spill kit #2.

Prior to the delivery of drummed petroleum or related products in drums, the spill response equipment shall be verified to make sure that it is ready for immediate deployment. Throughout the year, the spill response equipment shall be checked on a regular basis to make sure that nothing has reached the end of its life cycle and that the equipment can be used in an emergency situation.

5.2 Product Categories

Eureka HAWS personnel are knowledgeable about the MSDSs pertaining to the products that are being stored and moved at the site. Refer to Appendix E for the complete list of MSDSs. For the purpose of this section the products can be associated to one of the two categories described below:

- Products with a flashpoint less than 38 degrees Celsius (Gasoline); and
- Products with a flashpoint greater than 38 degrees Celsius (Furnace oil, Diesel fuel, most Jet fuels).

The decision tree for determining the response strategy for flammable and hazardous products (irrespective of their flashpoints) is shown in Figure 6.

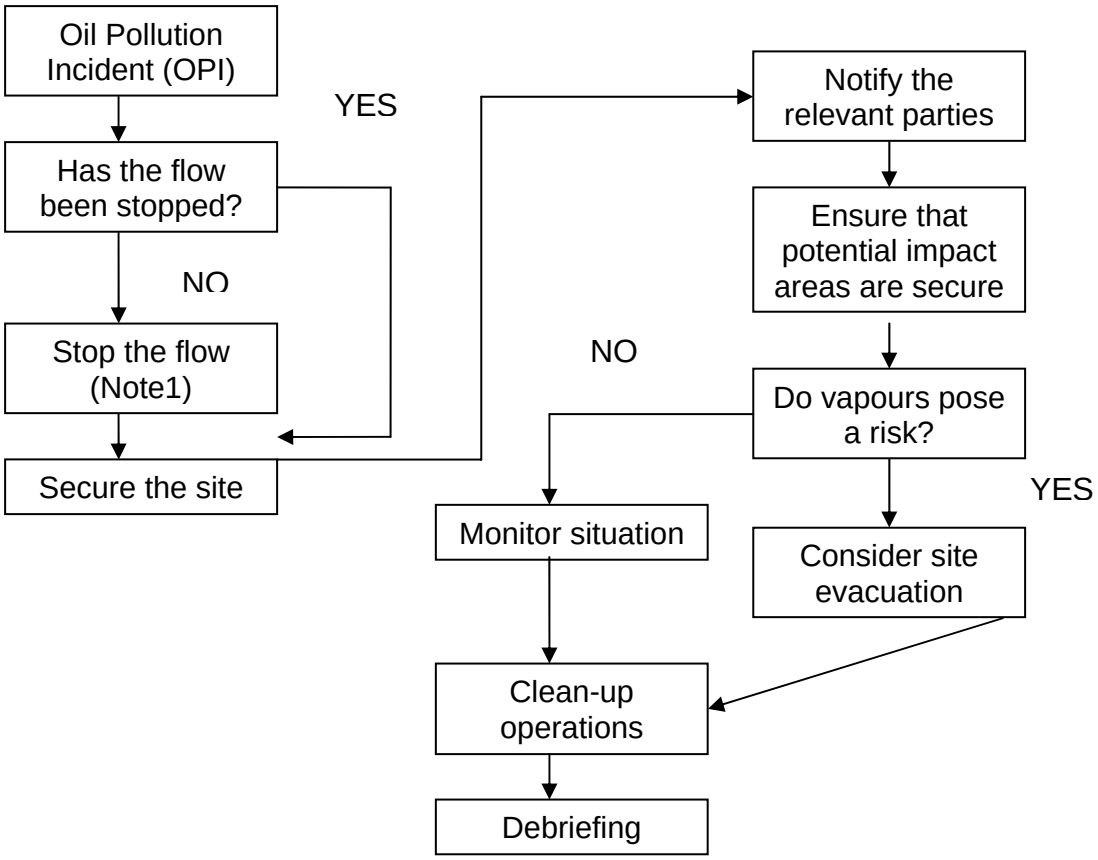

Figure 6. Example of a decision tree for response to spill of low flashpoint products.

NOTE 1: In case the flow can not be stopped, on-site personnel shall minimize the amount of material that is “free flowing” into the environment, and attempt to control the dispersion of the material at the spill site.

5.3 Response Strategies

The following section describes the steps of the two response strategies established for the product categories at Eureka HAWS.

5.3.1 Response Strategy for Products with a Flashpoint Less than 38 Degrees Celsius

If an OPI involves products with a flashpoint of less than 38 degrees Centigrade, the amount of spilled product is 1-2 barrels; then the following represents the sequence of response events and related times:

Time	***Activity***
0-10 minutes	Discover the OPI.
10-25 minutes	Asses and secure the site and stop the leak spill if safe and operationally possible. Deploy spill response team and equipment if appropriate.
25-35 minutes	Notify site/area personnel. Notify ACEMD.
35-40 minutes	Notify appropriate authorities.
40 minutes +	Monitor the site.
2 hours and up to 24 hours	Some gasoline shall evaporate and if larger quantities were present, it shall be contained and cleaned up. Monitoring of the spill site shall be maintained until there is absolutely no danger of fire or explosion from the vapors.

5.3.2 Response Strategy for Products with a Flashpoint Greater than 38 Degrees Celsius

If an OPI involves products with a flashpoint of greater than 38 degrees Centigrade, the amount of spilled product is 1-2 barrels; then the following represents the sequence of response events and related times:

Time	***Activity***
0-10 minutes	Discover the OPI.
10-25 minutes	Asses and secure the site and stop the leak spill if safe and operationally possible. Deploy spill response team and equipment if appropriate.
25-35 minutes	Notify site/area personnel. Notify ACEMD.
35-40 minutes	Notify appropriate authorities.
40 minutes +	Monitor the site.
2 hours and up to 24 hours	Some gasoline shall evaporate and if larger quantities were present, it shall be contained and cleaned up.

5.4 Escalation

In the event that the OPI is larger than can be reasonably handled by the Eureka HAWS personnel, the Station Manager shall escalate the response by notifying ACEMD in Ottawa, who shall then contact the Nunavut Department of

Sustainable Development (NDSD) to request any needed assistance. Eureka HAWS personnel shall keep its containment equipment in place and do the best it can to stop the flow of the product as an ongoing activity until support crews from the Nunavut Territorial Government DSD arrive on site. At this point, Eureka HAWS staff shall assist as required.

The following is meant to be a checklist of activities to be followed in the event of an oil pollution incident at the Station. Refer to Appendix C for a list of response equipment.

6. Health and Safety

Eureka HAWS management firmly believes that the health and safety of its employees, contractors and the general public is of utmost importance. Eureka HAWS has developed and implemented a program to ensure compliance with applicable health and safety requirements.

6.1 Site Control

In the event of an OPI, 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 zone. Only those directly involved in the containment, control or cleanup of the OPI shall be allowed in the general vicinity of the spilled product.

6.1.1 Fires

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

6.1.2 Slippery Rocks, Decks or Other Wet Surfaces

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

6.1.3 Work On or Near Water

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

6.1.4 High Noise Exposure

Hearing protection shall be worn by all personnel when operating equipment or machinery or in areas where noise levels require personnel to raise their voices to be heard.

6.1.5 Buddy System

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

6.1.6 Personal Protective Equipment (PPE) Requirements

The following outline the personal protective equipment requirements for Eureka HAWS:

- **a)** 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/bottoms). Clothing shall be kept fully zippered when handling dangerous materials.
- **b)** Personnel that shall be carrying out work where high body-contact with the spilled substance could take place, shall tape the suit over their gloves and boots,
- **c)** 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,
- **d)** All personnel on shore cleaning operations shall wear safety glasses (regular glasses shall be satisfactory), and
- **e)** Personnel handling contaminated materials shall wear outer chemical resistant gloves. Sleeves shall be taped whenever handling contaminated wet materials.

6.2 Protection of Personnel

A list of on-site response equipment is provided in Appendix C and can be posted and serve as a checklist for Eureka Haws staff.

Any significant spills of volatile products may cause a significant threat to personnel if the vapor 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.

6.3 Decontamination

If necessary (as determined by the Station Program Manager), decontamination stations shall be established in the vicinity of the contaminated area. The configuration of the decontamination stations shall be so that personnel shall

pass through the station prior to leaving the contaminated area. If necessary, the decontamination stations may be surrounded by a berm and lined with plastic sheeting. Special purpose washing solutions may be placed near the "OPI Zone". All solutions in tubs shall be clearly marked.

7. Preparedness

Response preparedness includes ensuring that employees are properly trained in OPI response, containment and control and have a clear understanding of what their roles are in the event of an OPI. This mandate shall be clearly communicated to the employees and endorsed by senior management.

7.1 Responder Training

The success of any OPI response depends on a clear mandate as to expectations and adequately trained personnel. The level of training has to be tailored to the functions to be performed and the skills of the individual: In the case of this facility, it provides specific training to the Eureka HAWS staff. It is assumed that when the DSD is called in, its employees and contractors are adequately trained.

Please refer to Appendix D for Eureka HAWS staff training.

7.2 Basic Oil Spill Response Training

The frequency and complexity of training depends on the number of personnel that could be involved in an OPI response situation. Also, the amount of training depends on how well the employees have learned the system and whether or not modifications to the OPI response system are needed, which would call for retraining. In this case the Facility personnel shall receive initial training with an annual refresher. A summary of Oil Spill Response Training received by the Station employees is found in Appendix D.

This plan is directed towards Eureka HAWS's personnel and provides training in fundamental OPI response and safety. A specific course which is recommended to staff is entitled "*Oil Spill Containment and Clean up Techniques*". This is a convenient training as it is a videotaped training session, which is available from:

> **Government of the Northwest Territories**
> Renewable Resources, Wildlife and Economic Development (RWED)
> Yellowknife, NWT

7.3 Exercise Programs

Exercise is a demonstration of response capability. After the employees have been appropriately trained in response techniques, the following indicates the frequency and type of exercise.

Table 1. Timelines for various emergency response training.

Frequency	Type
Yearly	Paper exercise involving notification/verification of internal and external contacts including the CCG.
Tri-annually	Every third year there shall be an equipment deployment at Eureka HAWS utilizing their personnel. Where possible DSD shall be invited to observe the exercise

Each exercise shall be evaluated and a process put in place to review and implement those recommendations that are viable.

8. References

Environment Canada (2006). *Petroleum Transfer Operation Contingency Plan for Eureka Weather Station*. Eureka, Nunavut. A report prepared for the requirements of the *Canada Shipping Act*. Environment Canada.

Appendix A

Nunavut Spill Reporting Form

Northwest Territories Nunavut Canada

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

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 OR OCEAN
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS

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

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

REPORT LINE USE ONLY

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

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

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

Appendix B

Initial Response to an Oil Pollution Incident

*******TO BE POSTED*******

The following is meant to be a checklist of activities to be followed in the event of an oil pollution incident at the Facility.

Activities	Responsibilities
1. If safe, shut off the flow and/or stop the leak.	Station Manager
2. Assess the safety and take action to secure the site.	Station Manager
3. Notify the Region.	Station Manager
4. Notify the regulatory authorities.	Station Manager
5. For a larger spill, request assistance.	Station Manager reports to ACEMD
6. Arrange for public relations.	ACEMD
7. Arrange for legal advice, if required.	ACEMD

The following lists the various centres to which spills shall be reported.

Spill Reporting Centres	Telephone Numbers
The Spill Line	(867) 920-8130
Government Of Nunavut – Department of Sustainable Development	(867) 975-7748
Environment Canada – Environmental Emergency Centre	(867) 766-3737
Arctic Region Environmental Emergency Team (AREET) (8:00AM to 5:00PM, answering machine)	(867) 669-4728

Appendix C

On-site Response Equipment

*******TO BE POSTED*******

The following describe the type and number of equipment required on-site.

1. Containment Equipment

1	x	100 ft. of 24" containment boom
2	x	Tow ropes – 100 ft each
5	x	Bales of sorbent boom
1	x	Sorbent roll
20	x	Heavy duty garbage bags
1	x	1000 gal. port-a-tank
5	x	Drum tourniquets
1	x	Assorted pipes (3",4", 6")
1	x	Piece of plywood

2. Protective Clothing

6	x	Personal flotation devices
10	x	Pairs of oil resistant work gloves
5	x	Pairs of rubber boots
10	x	Tyvek-type protective suits
10	x	Pairs of safety goggles
5	x	Sets of rain gear

3. Tools and Other Equipment

1	x	Toolbox – complete with small hand tools
4	x	Shovels (round mouth)
4	x	Rakes
2	x	Pick axes

Appendix D

Record of Spill Response Training for Eureka High Arctic Weather Station Personnel

The following describe the training received by the Eureka HAWS personnel.

Employee Name	Course / Training Received	Date of Course	Date of Required Update
Rai LeCotey	Marine Spill Response Operations Course (MSROC), offered by the Canadian Coast Guard, Sidney, Vancouver Island	2001	2006-2008
Al Gaudet	Marine Spill Response Operations Course (MSROC), offered by the Canadian Coast Guard, Sidney, Vancouver Island	2001	2006-2008

Appendix E

MSDS for Arctic Diesel Fuel – Calendar Year 2008

EXPIRES JUL 2008

IRVING

MATERIAL SAFETY DATA SHEET

Product Name: Arctic Diesel Fuel (3090)

SECTION 1 – PRODUCT IDENTIFICATION AND USE

Product name	Arctic Diesel Fuel	**PIN #, UN #**	1202
Chemical name	None	**TDG, DOT class**	Class 3
Common names and synonyms	Diesel fuel No. 1, Fuel oil #1-D	**Packing group**	III
Product use	Fuel	**Shipping name**	Diesel Fuel

WHMIS classification: Combustible liquid Class B Division 3; Toxic material Class D Division 2 Subdivision B

Hazard codes

NFPA	Health	2	**HMIS**	Health	2
	Flammability	2		Flammability	2
	Reactivity	0		Reactivity	0

NFPA & HMIS Ratings: 0=Insignificant/No Hazard. 1=Slight Hazard. 2=Moderate Hazard. 3=High/Serious Hazard. 4=Extreme/Severe Hazard.

Supplier: Irving Oil Limited, Refining Division, Box 1260, Saint John, New Brunswick Canada E2L 4H6

Phone (506) 202-2000
Emergency (Chemtrec) 1-800-424-9300
Refinery (506) 202-3000

SECTION 2 – HAZARDOUS INGREDIENTS

Ingredients	CAS#	Wt (%)	ACGIH-TLVs (2004)	OSHA PELs (general industry) (2004)	NIOSH RELs (2004)	LD_{50} (rat, oral)	LC_{50} (rat, 4 hours)
Diesel fuel no. 1	68334-30-5	100	200 mg/m^3 TWA (total hydrocarbon vapour)	NAv for this product name or CAS#	100 mg/m^3 TWA	>5 g/kg	~5g/m^3
May contain: Benzene	71-43-2	Trace	0.5 ppm TWA 2.5 ppm STEL	1 ppm TWA 5 ppm STEL	0.1 ppm TWA 1.0 ppm STEL	930 mg/kg	13,200 ppm
May also contain: Sulphur	7704-34-9	Trace	NAv	NAv	NAv	>8.4 mg/kg	NAv
Which, under certain circumstances, may result in the evolution of: Hydrogen sulphide (H_2S)	7783-04-6	NAp	10 ppm TWA 15 ppm STEL	20 ppm CEILING	10 ppm CEILING	NAp	444 ppm

Arctic diesel is a complex mixture of hydrocarbons. Its exact composition depends on the source of the crude oil from which it was produced and the refining methods used. Arctic diesel contains hundreds of individual organic chemicals. This section identifies only some of the well-known chemical constituents.

SECTION 3 – PHYSICAL DATA

Form	Liquid	**Vapour pressure**	10.5 mm Hg @ 38°C
Colour	Colourless to pale yellow	**Evaporation rate**	NAv
Odour	Kerosene-like	**Boiling point**	157 to 261°C (315 to 501°F)
Odour threshold	Not available	**Freezing point**	- 47°C (- 53°F)
Specific gravity	0.81 @ 15°C	**pH**	NAp
Vapour density	4.5	**Coefficient of water/oil distribution**	3.3 to >6(Log P_{oct})

SECTION 4 – FIRE AND EXPLOSION HAZARDS

Flammability ☒ Yes ☐ No **Conditions** Easily ignited by heat, sparks or flames.

Flash point	40°C (104°F) (cc)	**Auto ignition temperature**	210°C (410°F)
Lower flammable limit	0.7%	**Upper flammable limit**	5%

Explosion data: Sensitivity to: **Mechanical impact** Not expected to be sensitive **Static discharge** Yes

Means of extinction In general, do not extinguish fire unless flow can be stopped. Use carbon dioxide, dry chemical, or foam. Cool containers with flooding quantities of water until well after the fire is out.

Special precautions Vapour is heavier than air. It will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Vapour may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous combustion products Carbon monoxide. Nitrogen oxides. Aromatic hydrocarbons.

SECTION 5 – REACTIVITY INFORMATION

Stability	Stable
Conditions to avoid	Sources of ignition. Static discharges. High temperatures.
Incompatible substances	Oxidizers such as peroxides, nitric acid, and perchlorates.
Hazardous decomposition products	Carbon monoxide. Nitrogen oxides. Aromatic hydrocarbons. H_2S and sulphur dioxide (SO_2) may be produced from minor amounts of sulphur in the product.

SECTION 6 – HEALTH HAZARD INFORMATION

Route of Entry

- ☐ **Eye**
- ☒ **Skin absorption** Diesel fuel itself, as well as some components
- ☒ **Inhalation**
- ☒ **Ingestion**

Hazardous Contact

- ☐ **Eye**
- ☒ **Skin contact**

Acute exposure Headache and other symptoms of central nervous system (CNS) depression, such as nausea and dizziness, as well as burning sensation in chest following inhalation. Aspiration into the lungs can cause severe pneumonitis (serious lung irritation), chest pain, and/or pulmonary edema (swelling). Ingestion may produce nausea, vomiting, and cramping.

Note: H_2S may offgas from the product in confined spaces such as the headspace in tanks, even though the concentration of sulphur in the product is minimal. H_2S is very toxic. At concentrations as low as 1 to 5 ppm, nausea and severe eye irritation may occur. Sense of smell may be impaired at about 20 ppm, with headache and respiratory tract lung irritation. At 250 to 500 ppm, potentially fatal pulmonary edema (fluid in the lungs) may occur. Dizziness, sudden (often fatal) collapse, unconsciousness, and death occur at higher concentrations. Pulmonary edema may be delayed as long as 48 hours.

Chronic exposure Dermatitis. Possibly blood and nervous system disorders. Fatigue, and severe nervous and respiratory system symptoms may follow survival of H_2S poisoning.

Carcinogenicity Benzene is known to be carcinogenic. Exposure to fuel oils during refining is considered "probably carcinogenic to humans". IARC and NTP classify untreated and mildly treated mineral oils as known human carcinogens. ACGIH, EPA, NIOSH, and OSHA have not classified them.

Mutagenicity Not known to be mutagenic
Sensitization No
Irritancy Skin, respiratory
Teratogenicity NAv
Reproductive toxicity NAv

Toxicologically synergistic products Other CNS depressants can be expected to produce additive or synergistic effects. May increase photosensitizing ability of certain chemicals, such as dinitrochlorobenzene (DNCB).

SECTION 7 – FIRST AID

Inhalation Move victim to fresh air Give artificial respiration if breathing has stopped and if a qualified AR administrator is available. Apply CPR if both pulse and breathing have stopped. Obtain medical attention immediately.

Ingestion Never give anything by mouth if the person is unconscious, rapidly losing consciousness, or convulsing. If the person is conscious, have them drink 8 to 10 ounces of water or milk to dilute the material in the stomach. **Do not** induce vomiting. If vomiting occurs spontaneously, have the person lean forward to avoid aspiration. Obtain medical attention immediately.

Eye If irritation occurs, flush eye with lukewarm, gently flowing fresh water for at least 10 minutes.

Skin Quickly and gently blot away excess chemical. Gently remove contaminated clothing and shoes under running water. Wash gently and thoroughly with water and non-abrasive soap. Obtain medical assistance.

SECTION 8 – PRECAUTIONARY MEASURES

Do not attempt rescue of an H_2S knockdown victim without the use of proper respiratory protective equipment.

Personal protective equipment	**Gloves**	Nitrile, Viton™, polyethylene preferred.
	Eye	Chemical safety goggle or face shield, as a good general safety practice.
	Respiratory	NIOSH-approved. SCBA or air line respirator with escape cylinder for confined spaces or work with sulphur-containing product. A qualified occupational health and safety professional should advise on respirator selection. If an air-purifying respirator is appropriate, use organic vapour cartridges.
	Clothing & footwear	Coveralls to prevent skin contact with product. If clothing or footwear becomes contaminated with product, completely decontaminate it before re-use, or discard it.

Engineering controls	Enclose processes. Use local exhaust ventilation to remove vapour at its site of generation. Handle laboratory samples in a fume hood. Use mechanical ventilation in confined spaces.
Handling procedures & equipment	Avoid heating open containers of product so as to minimize vapour production and accumulation. Use non-sparking equipment, explosion-proof ventilation, and intrinsically safe electrical equipment. Ground handling equipment. Have clean emergency eyewash and shower readily available in the work area.
Leak & spill procedure	Keep unauthorized persons away Eliminate all sources of ignition. Ventilate area. Stop leak if it can be done safely. Prevent entry into sewers, waterways, or confined spaces. Absorb or cover with dry earth, sand or other non-combustible material and use clean, non-sparking tools to transfer to container.
Waste disposal	Consult local authorities for advice.
Storage	Cool, dry, well-ventilated area. No ignition sources. Containers should be vented and have flame arresters
Shipping	Stable during transport. May be transported hot.

SECTION 9 – PREPARATION DATE OF MSDS

Prepared by	Irving Oil Limited, Refining Division	**Phone**	(506) 202-3000
Revision date	July 26, 2005	**To re-order MSDS, phone**	(506) 202-2000