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)

November, 2007

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

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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 Floatation 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: 80°00' N, Long: 85°56'W).

This plan deals specifically with the prevention, preparation and response to a spill on land that could occur during the handling or use of hydrocarbon products. Therefore, the Canadian Coast Guard (CCG) shall be responsible for any spills that may occur on water during fuel re-supply activities. These specific situations shall not be considered in this Oil Pollution Emergency Plan.

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.

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 (MSDS's) 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.

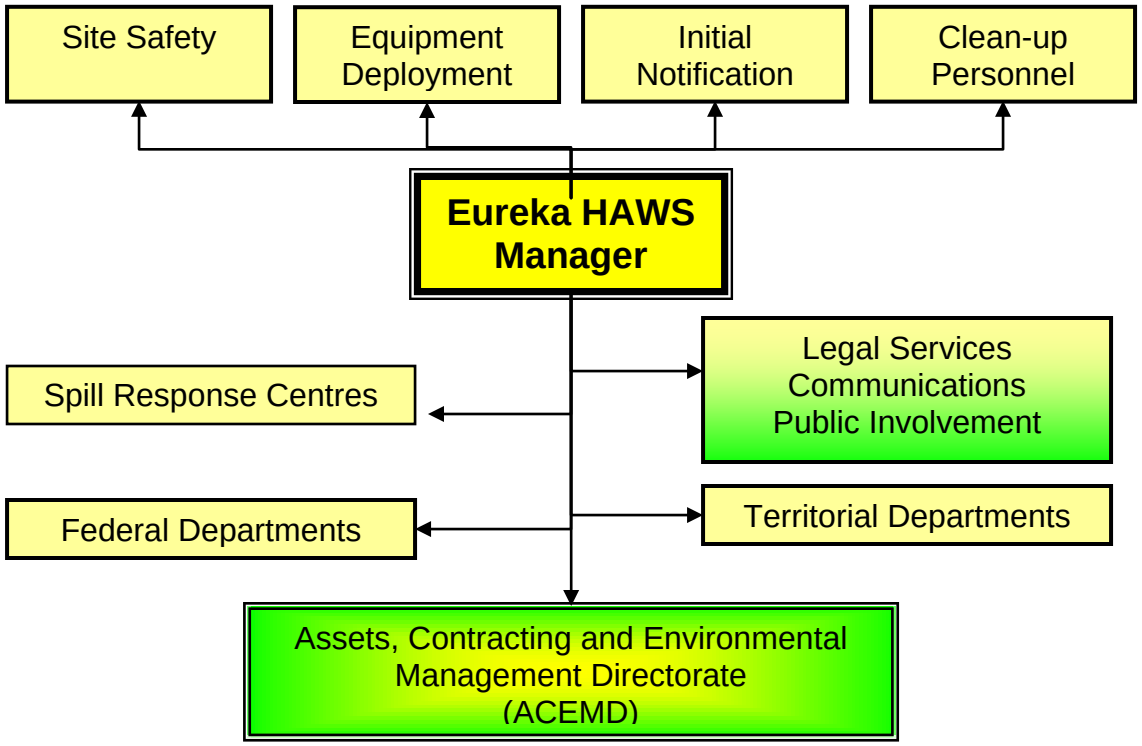

Figure 1. Environment Canada's organizational chart for responding to an OPI.

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.

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
Tel.: (867) 975-7748
Fax: (867) 873-6924
Email the completed spill reporting form in Appendix A.

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 Bldg. 3rd Floor
Iqaluit. NU
XOA OHO

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 very harsh weather conditions, long periods of darkness and isolation.

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. 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 two possible oil spill scenarios: a fuel tank farm spill 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 Fiord during re-supply. The concern for a land spill would be from the 4" supply line, which runs from the shore of Slidre Fiord, uphill to the tank farm. The land slopes away from the line to a small creek that is used for potable water by the 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 shall be checked regularly to ensure they are closed and that the line does not contain any fuel. The integrity of the berm shall be checked annually, and if need be, the berm shall 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.

5.1.2 Fuel or Oil Drum Spill

The second 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 shall be readily at hand during all fuel drum handling operations to facilitate quick response to spills or leaks.

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. 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 C (Gasoline); and
- Products with a flashpoint greater than 38 degrees C (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 2.

5.3 Response Strategies

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

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

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 C

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 peronnel, 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.

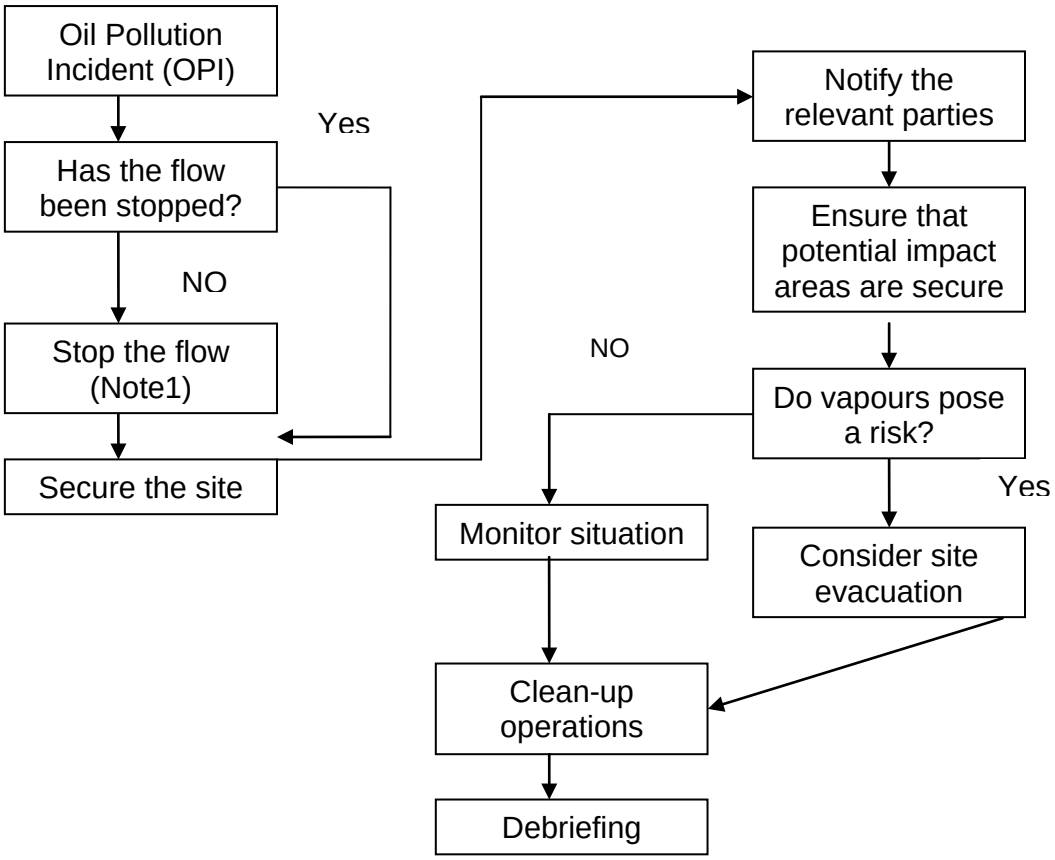

Figure 2. Example of a decision tree for response to spill of low flashpoint products.

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.

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

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),
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 the Facility, it provides specific training to the Facility employees. 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.

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** ☐ **UPDATE # TO THE ORIGINAL SPILL REPORT**	**REPORT NUMBER** -
B	**OCCURRENCE DATE: MONTH – DAY – YEAR**	**OCCURRENCE TIME**		
C	**LAND USE PERMIT NUMBER (IF APPLICABLE)**	**WATER LICENCE NUMBER (IF APPLICABLE)**		
D	**GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM 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
Ray 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