Hamlet of Hall Beach, NU Spill Contingency Plan, Sewage Treatment and the Solid Waste Sites

Hamlet of Hall Beach

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Spill Contingency Plan, Sewage Treatment and Solid Waste Sites

Hamlet of Hall Beach, NU

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Submitted by

Dillon Consulting Limited

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1 INTRODUCTION AND COMMUNITY DETAILS

1.1 Community Contact Information

Anne Curley
Senior Administrative Officer
Hamlet of Hall Beach
General Delivery
Hall Beach, NU, X0A 0K0
Tel: (867) 928-8829

1.2 Purpose and Scope

The purpose of this plan is to outline response actions for potential spills. The plan identifies key response personnel and their roles and responsibilities in the event of a spill, as well as the equipment and other resources available to clean up a spill. It details spill response procedures that will minimize potential health and safety hazards, environmental damage and clean-up efforts.

1.3 Community Environmental Policy

The Hamlet of Hall Beach has no formal environmental policy; however, the Hamlet is committed to operating in an environmentally sensitive manner, and complying with requirements of the Nunavut Water Board.

1.4 Project Description

This spill contingency plan will be used by the Hamlet, for activities associated with Hamlet operations. These include:

- Operation of the sewage disposal site
- Operation of the solid waste facility

1.5 Site Description

The Hamlet of Hall Beach is located on the shore of the Melville Peninsula, at latitude 68º46'N and longitude 81º12'W (Environment Canada, 2011). Hall Beach is situated in the Foxe Basin, 840 km by air northwest of Iqaluit. It has an estimated population of 704 (Government of Nunavut, 2011). Hall Beach is located in continuous permafrost zone. The flat to gently rolling terrain is made up of raised beaches of sand and gravel which is studded by numerous lakes and ponds.

It is estimated that Hall Beach receives an average of 102.3 mm of rainfall and 124 cm of snowfall per year (Environment Canada, 2011). In the month of July, mean high temperatures are 9.4° C and mean low

temperatures are 2.8° C (Environment Canada, 2011). In the month of January, mean high temperatures are -25.8° C and mean low temperatures -35.7° C (Environment Canada, 2011). Ice freeze-up typically occurs during the month of November, but may happen as early as September or October. Spring thaw typically usually occurs at the end of May.

1.6 Spill Prevention Measures

The community is concerned about the environment and the possibility of a spill occurring and takes precautions when working with hazardous materials. In order to prevent spill occurrences, the Hamlet must take the following precautions:

1.6.1 Spill Prevention Measures for Sewage

- Sewage truck operators must be trained in safe truck operation and sewage disposal procedures
- Operators must take caution to ensure that the sewage trucks are not filled to capacity
- Inspections of sewage trucks and equipment must be performed and recorded on a regular basis
- Inspections of the sewage lagoon should be conducted on a yearly basis by a Geotechnical Engineer to help identify any potential problems prior to the breach of a berm.
- An effective reporting system for reporting potentially hazardous situations where spills might occur must be developed and implemented.

1.6.2 Spill Prevention Measures for Waste Oil and Gas

- Containers containing waste oil or gas must be stored in an approved secure area that only authorized personnel trained in hazardous waste handling procedures can access.
- Regular inspections and record keeping of containers containing waste oil or gas must be performed to ensure that they are properly sealed and not damaged or leaking.
- Anti-spill devices such as drip pans and catchments must be readily available to contain a leak or spill from spreading. Soaker spill kits must also be readily available on site.
- An effective reporting system for reporting potentially hazardous situations where spills might occur must be developed and implemented.

1.6.3 Spill Prevention Measures for Liquid Chlorine

- The liquid chlorine must be stored in an approved secure area where only authorized personnel can access and two trained staff is always present when handling the substance.
- The room where the chlorine is stored has a metal floor that will contain the substance in case of a spill.
- Regular inspections and record keeping of liquid chlorine storage containers must be performed to ensure that they are properly sealed and not damaged or leaking.

- An effective reporting system for reporting potentially hazardous situations where spills might occur must be developed and implemented.

1.6.4 Hazardous Areas Checklist

In addition to the above spill prevention measures, a checklist that identifies potentially hazardous areas where spills might occur must be provided to operators as a reference. Potential areas where spills might occur at bulk storage facilities as a result of natural causes (i.e. heavy snow, ice, and winds), equipment failure, or human error include the following:

- Spills due to overfilling of tanks
- Rupture of tanks
- Leaks in pipes, valves, pumps, fittings, and other equipment
- Leaks in containment dykes
- Inadequate secondary containment systems
- Oil flow from dyked areas through open dyke valve
- Piping and tank damage by collision with mobile equipment
- Spills from tank bottom cleanout and sludge disposal
- Poor maintenance of pipes, valves, pumps, fittings and other equipment
- Spills from pipe and tankage changes
- Spills from underground storage tanks

1.7 Additional Copies

Several copies of this plan will be kept in the community, in the Hamlet Office.

1.8 Process for Staff Response to Media and Public Inquires

All media enquiries are directed to the SAO, Anne Curley or Acting SAO, David Crews.

2 RESPONSE ORGANIZATION

2.1 Response Personnel

The following table lists the personnel who will be involved in the spill response. Contact information is also provided.

Table 1. Response Personnel Contact Information

Name	Contact Information	24 hour Contact Number
Anne Curley (SAO)	(867) 928-8829	Unavailable
David Crews (ASAO)	(867) 928-8829	Unavailable

2.2 Flowchart of Response Organization and Communication Lines

The following flowchart outlines the chain of communication to be followed, upon discovery of a spill or release by an employee of the community.

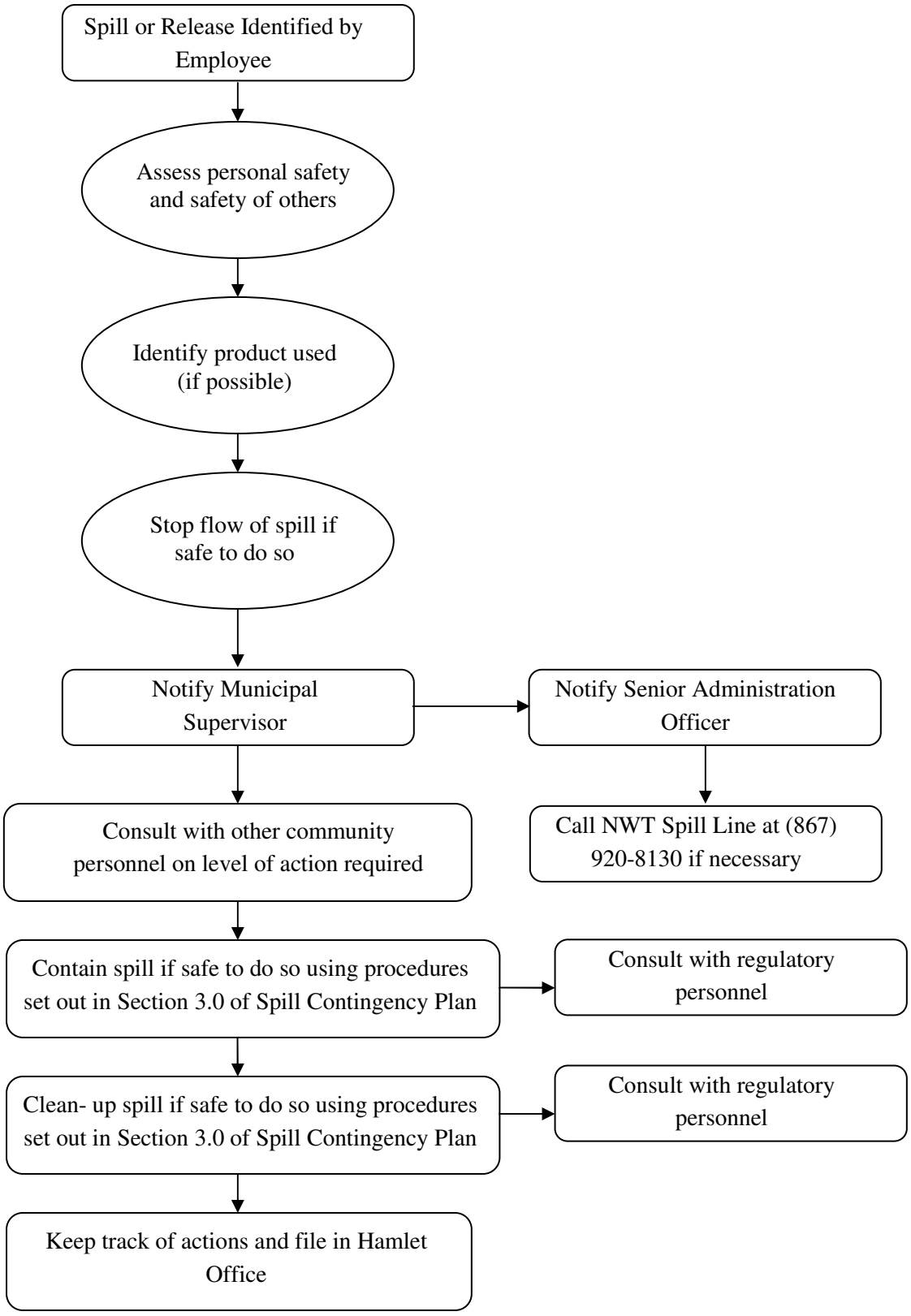

Figure 1: Flowchart of Communication Lines

2.3 Summary of Available Communication Equipment

The following equipment is available in the community for communication purposes:

- Telephone with land line
- Computers with internet connection in Hamlet Office
- Fax machine

3 ACTION PLAN

3.1 Potential Environmental Impacts of Spill

Generally, for the hazardous materials discussed below, environmental impacts are lower during the winter, as snow is a natural sorbent and ice forms a barrier lining for eliminating soil or water contamination. Spills can be more readily recovered when identified and reported.

3.1.1 Antifreeze

- Human health hazard
- Harmful to wildlife and aquatic life
- Run off into water bodies must be avoided
- Can cause permafrost melting and affect building foundations

Worst Case Scenario: Large quantities of the contaminant are released near a main water source. The contaminant is ingested by humans or animals.

3.1.2 Gasoline

- Harmful to wildlife and aquatic life
- Not readily biodegradable
- Has potential to bioaccumulate in environment
- Volatilizes easily
- Runoff into water bodies must be avoided

Worst Case Scenario: All fuel drums open simultaneously and contents pour onto ground and surrounding environment.

3.1.3 Diesel

- Harmful to wildlife and aquatic life
- Not readily biodegradable
- Has potential to bioaccumulate in environment
- Burns slowly (more readily contained than volatile fuels)
- Runoff into water bodies must be avoided

Worst Case Scenario: All fuel drums open simultaneously and contents pour onto ground and surrounding environment.

3.1.4 Waste Oil and Other Oil/Grease

- Harmful to wildlife and aquatic life
- Not readily biodegradable
- Has potential to bioaccumulate in environment
- Runoff into water bodies must be avoided

Worst Case Scenario: All storage drums open simultaneously and contents pour onto ground and surrounding environment.

3.1.5 Sewage

- Human and wildlife health hazard, and unsightly appearance
- High nutrient concentrations could negatively impact water bodies and runoff into water bodies must be avoided

Worst Case Scenario: Full sewage truck releases all of its contents onto ground or into water body and surrounding environment.

3.1.6 Liquid Chlorine

- Harmful if inhaled, corrosive, causes eye and skin burns, causes digestive and respiratory tract burns
- Run-off into water bodies must be avoided

Worst Case Scenario: All pails open simultaneously and contents pour onto ground and surrounding environment.

3.1.7 Powdered Chlorine

- Harmful if inhaled, corrosive, causes eye and skin burns, causes digestive and respiratory tract burns
- Run-off into water bodies must be avoided
- Wear protective face masks to prevent inhalation of dust

Worst Case Scenario: All pails open simultaneously and contents pour onto ground and surrounding environment.

3.1.8 Propane

- Extremely flammable gas and a compressed gas and can form explosive mixtures with air according to the Canadian Centre for Occupational Health and Safety (CCOHS). Can be ignited easily by many sources (open flames, smoking, electrical sparks, static electricity, etc.)
- Vapours are heavier than air and tend to collect in low lying areas (basements, along floors, etc.)
- Can cause severe freeze burns if liquid propane comes into contact with skin
- Can produce carbon monoxide if not burned with an adequate amount of oxygen
- Has potential to accumulate in the environment
- Please refer to the Canadian Centre for Occupational Health and Safety (CCOHS) for more information

Worst Case Scenario: All propane cylinders stored on-site are punctured or fail simultaneously. All contents leak into the surrounding environment and are ignited creating an explosion.

3.2 Procedures

3.2.1 Procedures for Initial Actions

The following list of actions should be followed by the first person on the scene:

- Ensure safety of all personnel
- Identify the product spilled if possible and safe to do so
- Assess the hazards and risks to persons in the vicinity of the spill
- If possible, without further assistance, control the danger to human life
- If it is safe to do so, and if possible, stop the spill (i.e. shut off pump, replace cap, tip drum upward, etc.)
- Gather information on the status of the situation, including:
    - Estimated size of spill
    - Estimated migration route
- Contact Municipal Supervisor, as per flowchart in Figure 1.

3.2.2 Spill Reporting Procedures

Spills should be reported immediately to the Municipal Supervisor, who will notify the SAO. Together they will determine if the spill is to be reported to the 24-Hour Spill Report Line at 867-920-8130.

Copies of the Spill Report form are available in each spill kit and in Appendix A of this manual. The form will be filled out by the Public Works Foreman (or designate), and faxed or emailed to the 24-Hour Spill Report Line. Contact information is as follows:

24-Hour Spill Report Line
Phone: (867) 920-8130
Fax: (867) 873-6924
Email: spills@gov.nt.ca

Refer to Appendix B for immediately reportable spill quantities.

3.2.3 Procedures for the Protection of Human Health and Safety

Following a spill, the health and safety of workers as well as the general public is a priority. Actions taken will depend on the type of spill.

- ***In the event of a chemical spill***: Restrict public access to the spill area. Workers involved in the clean-up of the spill must be properly trained to deal with the type of spill and must wear appropriate personal protective equipment (PPE).
- ***In the event of a flammable or combustible material spill***: Evacuate adjacent buildings and restrict public access to the spill area. Remove sources of ignition if safe to do so (no smoking, flares, sparks or flames in the area). Never walk through or touch the spilled material. De-energize electrical equipment from a remote location if safe to do so. If ignition sources can not be removed safely, evacuate the area immediately and report the spill situation. All equipment used when handling the material must be grounded. Only spark-arresting equipment must be used during clean-up of the spill. Workers involved in the clean-up of the spill must be properly trained on how to deal with the type of spill. Appropriate PPE must also be worn by workers involved in the clean-up. Refer to the product Material Safety Data Sheet (MSDS) for further instruction. The Hamlet must ensure that the Material Safety Data Sheets are kept current within three years.
- ***In the event of a sewage spill***: Restrict public access (including pets and animals) to the spill area. Workers involved in the clean-up of the spill must be properly trained to deal with the type of spill and must wear appropriate personal protective equipment (PPE).

3.2.4 Public Notification Procedure

The Contingency Planning and Spill Reporting Regulations for Nunavut require that Spill Contingency Plans include a public reporting procedure used to alert anyone who may be affected by a spill.

On a case-by-case basis, Hamlet's Senior Operating Officer and the Hamlet Council decide on the type of public notification procedure that is to be implemented to ensure public health and safety in the case of a spill.

Typically, in the case of a large scale spill that is deemed to have a potential impact on public health and safety, the Hamlet will notify local residents verbally and in person, via individual household visits.

In the case of a small spill, where a negative impact on public health and safety is unlikely, the Hamlet gives public notice of the spill via the local community radio.

3.2.5 Procedures for Containing and Controlling Spill

General procedures noted below will be used to contain and control all spills. Specific procedures for spills on land, water, snow and ice follow.

- First anticipate what will be affected by the spill.
- Assess direction and speed of spill, and any factors that could affect these.
- Determine best location for containing spill.

3.2.5.1 Spills on Land:

Dykes and trenches can be constructed to contain spills on land. Soil surrounding the spill area can be dug out, and piled up, to create a barrier for the spill. A plastic tarp can be placed at the base of the dyke, so that the pooled material can be removed with sorbent materials. Conversely, trenches can be excavated to permafrost, which will provide a natural containment of the spill. Once the material is contained, it can be pumped out, or removed by using sorbent materials. If the spill is moving very slowly, such structures may not be necessary and the material can be removed before migrating away from the spill location.

3.2.5.2 Spills on Water:

Spills on water are considered the most serious types of spills, as there is often no containment of the spilled material and water quality and aquatic life are negatively impacted. Booms and weirs can be installed to contain the spill. Booms are designed to float, and are made of absorbent material to soak up the spilled fuel. They are deployed from the shore or a boat, to create a circle around the spill. Weirs are installed across a stream, to prevent further migration. Plywood or other materials found onsite can be used. Barriers made of fence or netting can be used as well, with sorbent material placed at the base of the barrier. Once contained, the fuel can be removed by absorbent materials, pumped out or allowed to volatilize.

3.2.5.3 Spills on Snow:

Snow acts as a natural sorbent for spilled fuel. Impacted snow is easily visible, and can be shoveled into empty drums or barrels for proper disposal. If the spill is migrating down a hill, a snow dyke can be constructed to contain the spill. A plastic tarp can be placed at the base of the dyke, where spilled fuel is expected to pool. The collected fuel and impacted snow ban be removed with absorbent materials, pumped out, or shoveled into barrels for disposal.

3.2.5.4 Spills on Ice:

Ice is considered impermeable to fuel, so these spills are generally easy to clean up. Small spills can be cleaned up by placing absorbent materials on top of the ice. Impacted snow and slush can then be removed by shovels, and placed in barrels for disposal. For larger spills, dykes of snow and trenches can

be constructed to contain the spill. Pooled fuel can then be removed by adsorbent materials or pumped out. Impacted snow and slush can be shoveled into barrels for disposal.

3.2.5.5 Worst Case Scenarios:

Worst case scenarios include a dyke or trench overflowing and a large spill on water that cannot be contained with materials available in the community. In the first case, a trench or collection pit could be constructed downstream to collect the fuel. In the second case, an emergency response team would need to be called, with appropriate equipment to deal with the spill.

3.2.6 Procedures for Transferring, Storing and Managing Spill Related Wastes

Spills are generally cleaned up starting at the outer limit of the spill, and working towards the point of the spill. Sorbent materials and hand tools such as cans and shovels are used for smaller spills. Larger spills can be contained with the use of a pump and/or heavy equipment.

Spill wastes include used absorbent materials and containers of impacted water and snow. Sorbent materials should be placed in plastic bags for proper disposal. The containers of impacted water and snow should be sealed and stored until disposal at an approved facility can be arranged.

Following a spill, all used materials need to be properly washed and/or replaced.

3.2.7 Procedures for Restoring Affected Areas

Once a spill has been contained, community personnel will consult with regulatory personnel assigned to the file to determine the level of clean-up required. Regulatory personnel may request that a site specific study be conducted, to ensure appropriate clean-up levels are met.

4 RESOURCE INVENTORY

4.1 On-site Resources

It is recommended that the Hamlet of Hall Beach retain one spill kit in the community, located at the Maintenance Garage. The spill kit should contain the following:

- 30 socks/booms (3" x 4')
- 30 pillows (2L)
- 24 dispersal bags
- 4 pairs gloves
- 2 pairs goggles
- 6 pairs Tyvek coveralls
- 4 shovels
- 2 spill signs
- 2 repair putty
- 1 Emergency Response Guidebook
- 1 Safety and Compliance Directory
- 1 Spill Response Pocket Guide

This response kit is designed to contain and collect up to 56 gallons of spilled oil. Additional volumes will be accommodated with the use of absorbent products that will be maintained in inventory in sufficient quantities.

4.2 Off-site Resources

The following resources are available for assistance if needed:

NWT 24-Hour Spill Line	(867) 920-8130
Indian and Northern Affairs Canada Inspector	(867) 669-2761
GN – Environmental Protection Service	(867) 975-7700
Hall Beach Health Centre	(867) 928-8827
RCMP (Hall Beach)	(867) 928-1111
Emergency Duty Officer (Environment Canada)	1-866-845-6037
GNWT Environmental Health Office	(867) 669-8979
Medivac (Yellowknife)	(867) 669-4115
First Air Cargo	1-800-267-1247 or (867) 769-7505
Adlair Aviation (1983) Ltd.	(867) 983-2569
Kenn Borek Air Ltd.	(867) 769-6819
Melissa Joy, Water Resources Officer, INAC	(867) 982-4302
Robert Eno, Director Environmental Protection, Department of Environment	(867) 975-7729
Bram Sikma, Head Kitikmeot Regional Operations, CGS Fisheries Management, Department of Fisheries and Oceans - Iqaluit	(867) 983-4135 (867) 979-8000

5 TRAINING PROGRAM

5.1 Outline of Training Program

The Department of Environment and Natural Resources schedules a few training sessions each year for spill contingency. Selected members from the community works department can attain these training sessions. Once key personnel have the fundamental information, training sessions will be conducted as a part of the normal operation of the community. To obtain more information on training needs, please contact the Federal Programs Division, Environment Canada.

5.2 Training Schedule and Recordkeeping

Training will be conducted on an as-needed basis. Records will be kept in the community office.

APPENDIX A

NWT Spill Report Form

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

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

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ 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 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

Immediately Reportable Spill Quantities

Table C 1: Immediately Reportable Spill Quantities

TDG Class	Description of Contaminant	Amount Spilled
1 2.3 2.4 6.2 7	Explosives Compressed gas (toxic) Compressed gas (corrosive) Infectious Substances Radioactive	Any amount
2.1 2.2	Compressed gas (flammable) Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity of 100 L
3.1, 3.2, 3.3	Flammable liquids	≥100 L
4.1 4.2 4.3	Flammable solid Spontaneously combustible solids Water Reactant Solids	≥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 Substances	≥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 parts per million	≥0.5 L or ≥0.5 kg
None	Other contaminants	≥100 L or ≥100 kg