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Revised Spill Contingency Plan for Remote Field Camp

Geological Survey of Canada

May 16, 2011

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(i) Introduction

The spill contingency plan is for a five person remote field camp on Axel Heiberg or Ellesmere Island, Nunavut. Fuel consists of 1 or 2 drums of Jet-A. This Spill Contingency Plan provides a plan of action for reasonably foreseeable spill events at the camp. Field activities are only in the summer (July to first week of August).

Instruction will be given to personel on how to properly transfer and store fuel and other hazardous substances and on the location of emergency equipment. Personnel will be instructed on the plan upon arrival in camp.

(ii) name, address and job title of the Person in Charge

Steve Grasby
Research Scientist
Geological Survey of Canada
3303-33rd St NW
Calgay AB T2L 2A7
403-292-7111

(iii) name, job title and 24-hour telephone number for the Person Responsible for activating the spill contingency plan

Mike Kristjanson
Logistics manager
Polar Continental Shelf Project,
Resolute Bay
(867) 252-3872

(iv) Description of the facility including the location, size and storage capacity;

Fuel will be stored in a secondary containment berm on sandy terrain adjacent to the airstrip, over 100 m from the creek. The berm will be approximately 2 m by 2 m to accommodate 2 drums (full and empties), and 2 propane tanks. A spill kit and contingency will be in a conspicuous and readily accessible spot. WHIMIS and MSDS information will also be available.

2 fuel drums will be delivered to the camp. These are stored on their side, with bungs at the 3 o'clock and 9 o'clock positions, and with bungs seals immersed in fuel to prevent drying and cracking. Proper support may also be used beneath the drums to ensure the drums do not settle. If needed blocks will be used to prevent drums from rolling.

Inventory tracking will also be done to ensure we are aware of the amount and type of fuel that has been used and remains in the cache.

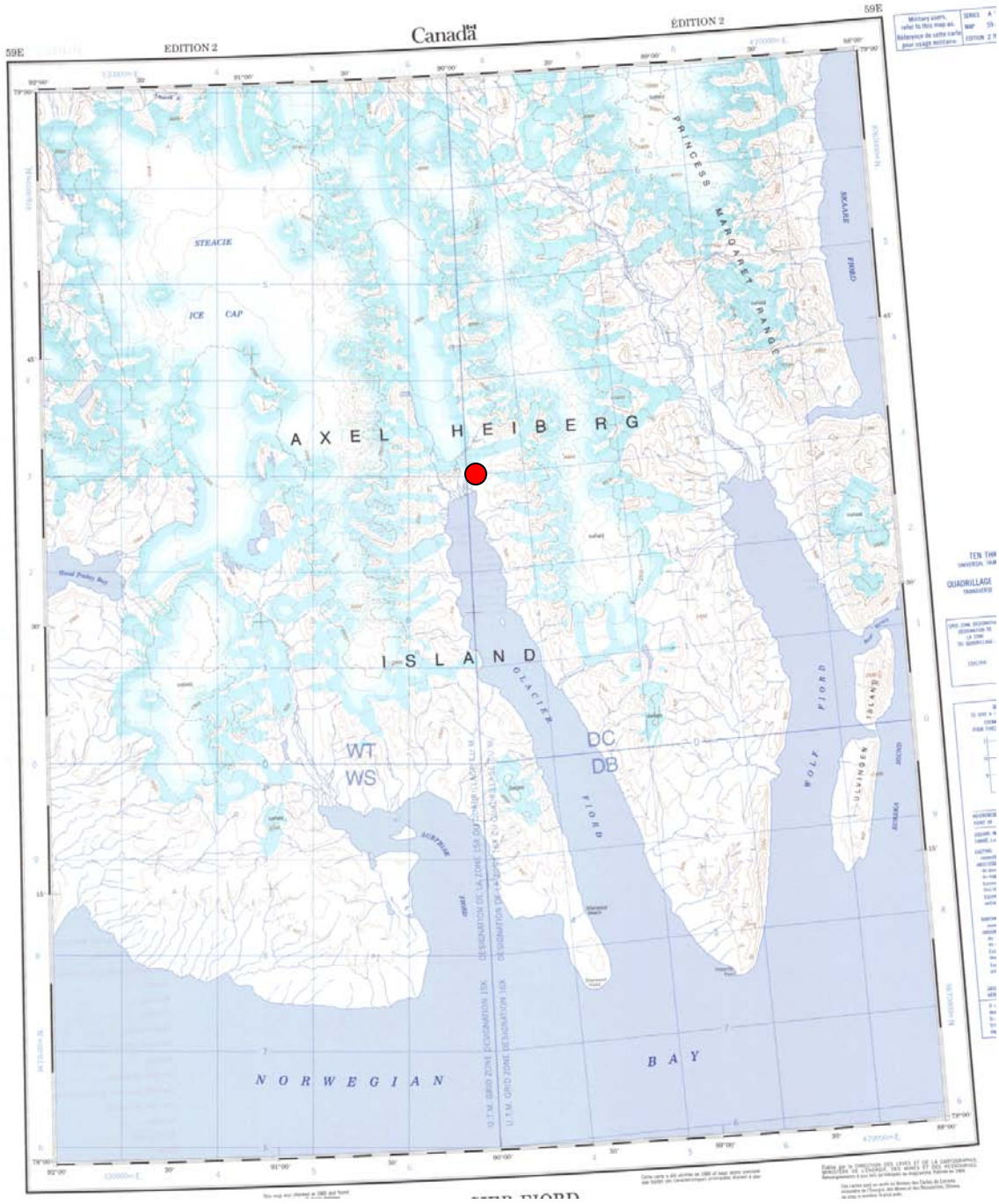
(v) a description of the type and amount of contaminants normally stored at the location described in paragraph (c);

Aviation fuel 2 x 45 gal. drum = 21840 L. Aviation fuel is be contain a secondary containment (berms) and spill kit on hand.

Propane 2 x 20lb tank = 40lbs. Stored in well ventilated area with berms and an approved fire extinguisher.

(vi) a site map of the location described in paragraph (c);

Camp location (1:250 000)



(vii) the steps to be taken to report, contain, clean up and dispose of contaminants in the case of a spill;

Prevention

While response plans are necessary in the event a fuel spill occurs, all involved with fuel handling and storage will strive to take all necessary feasible precautions to ensure fuel spills do not occur. To minimize the risk of a fuel spill many preventative measures and

standard operating procedures will be implemented. Some key preventive measures include:

- Following federal and territorial requirements affiliated with storing fuel based on amounts and locations.
- All fuel will be stored and transported in approved sealed containers.
- All fuel will be accompanied by a secondary containment structure (berm) to catch any fuel spills.
- No fuel storage containers will be placed within 30m of the ordinary high water mark of any water body.
- No fuelling or servicing of equipment will be done within 30m of a water body.
- Any portable fuel storage not in use will be placed a minimum of 30m from the ordinary high water mark of any water body.
- Precautions will be taken in the transportation and handling of fuels to prevent contamination of soil or water.
- Fuel storage areas and equipment will be inspected regularly to detect leaks and overall condition. Leaks will be repaired immediately.
- Fuel spill kits and tools needed to contain a fuel spill will be kept handy at the necessary caches as well on board aircraft that use fuel.
- Those refuelling will be trained on proper fuelling procedures (e.g. uses of drip pans, proper drum storage) and equipment (e.g. hand and electric transfer pumps, filter units, spill kits).

Fuel transfers are often the primary causes of fuel contamination, thus all individuals involved with refuelling will undertake reasonable measures to ensure that fuel transfers are done properly to avoid spills and contamination. To minimize the risks of fuel contamination during a fuelling event all persons involved will be trained and aware of the following:

- Safe operation of the equipment they use;
- Operation of emergency controls;
- Procedures to be followed in the event of a fuel spill or leak and in response to an emergency condition;

Spill kits will also be readily available and key personnel will be trained in the proper dispensing of fuel and use of equipment if ever needed (e.g. spill kits.) Drip pads will be used when transferring fuel or filling the aircraft to minimize contamination. Drums will be inspected on a regular basis and in the event that there is a risk of a fuel spill such as a damaged drum, the drum will be manoeuvred to reduce any potential leaking, patch the drum if needed from items in the spill kit. Leaking drum will be marked so it is not to be reused and the drum removed from the site.

Responding to a Spill

In the event that a fuel spill has occurred, below is a list of procedures and suggested course of action to be used upon detection of a spill.

Initial Action

1. Be alert and consider your safety first. If possible, identify the product spilled;
2. Assess the hazards to persons in the vicinity of the spill and alert or take appropriate evacuation measures if needed (e.g. eliminate sources of ignition);
3. If possible, control danger to human life;
4. Assess whether the spill can be readily stopped or brought under control;
5. If safe to do so, and if possible, try to stop the flow of material (e.g. stop fuelling, shut off valve (if present), manoeuvring a leaking drum);
6. Gather information on the status of the situation;
7. Report the spill without delay to the spill response person/team affiliated with the project and ensure that where applicable the government is notified at the same time according to via the 24 Hour Spill Report Line for the appropriate jurisdiction (see Reporting Procedures below);
8. Resume any effective action to contain, clean up, or stop the flow of spilled material.

In the event of a spill protective equipement and tools will be used on site to clean the spill. Including the use of the following:

- Protective wear (e.g. hand, eye, foot, etc.)
- Basic Hand tools (e.g. shovels, picks, axes, rakes, etc…)
- A method to move soil (i.e. wheel barrow, buckets)
- A competent fuel drum(s) for transferring any leaking fuel
- Absorbent materials (i.e. EnviroMat, Sorb-Sox Blankets, granular absorbent sand, etc…)

Procedure

1) The person who first discovers a fuel spill would follow the procedures set out in the '*Initial Action*' section (stated above).
2) If the spill is not easily contained and/or cleaned up by the person who first discovers it, then that person will immediately report the incident to the project lead or camp/environmental manager.
3) Together with the project lead or camp/environmental manager, the situation will be reassessed and effective actions will be carried out in order to contain, clean up, and stop the flow of the spillage. Such actions may include:

    a) Determining the origin of the spill, if fuel drums have been punctured or are leaking due to unsatisfactory seals, the fuel should be transferred into competent drums and/or seals should be replaced;
    b) Absorbents and/or booms should be placed in order to recover all the free fuel before it is allowed to seep into the surrounding ground and/or caught up within any runoff water that may pass to a nearby water source;

c) The construction of containment dykes and recovery trenches, using available hand tools to divert and control runoff from the leaking fuel to allow for collection before contamination of waterways (in the event that fuel manages to escape the secondary (berm) containment;
d) Continual monitoring of the site to ensure no subsequent or new spills have occurred;
e) Safe and proper disposal of any materials used during the containment and clean up of spilled fuel (i.e. if the amount of fuel is extensive, possibility using old drums to collect and store the contaminated fuel for use in burn pits, burning or packaging of absorbent materials), and
f) Continual assessment of soils and waterways within the area in order to determine if further remediation is required.

Managing recovered petroleum and contaminated soil.
a) liquid petroleum and contaminated water from the berm or that can be drained from contaminated soil will be returned to an empty oil drum, sealed and returned to Resolute for disposal.
b) contaminated soil (soil stained or smelling of hydrocarbon) will be documented with location, extent of contamination (horizontally and vertically) and relative degree of contamination (i.e. free oil with strong odor vs. staining).
c) contaminated soil will be collected in containers, sealed and returned to Resolute for disposal.
d) no fuel will be stored on ice, and field operations only occur in the summer months. In the unlikely event of a spill on ice, the ice will be recovered and stored in a drum, and the resulting water/hydrocarbon mix removed to Resolute for safe disposal. No attempt at oil-water separation will be made on site.
e) Water-based spills are highly unlikely since the fuel is cached away from running water and no refueling is done near rivers. In the remote chance of a spill near water, the source of the leak will be stopped, and floating hydrocarbon removed as best as possible. The leak will be reported.

Reporting

All spills or potential spills of petroleum products or other hazardous materials over a certain volume must be reported to the 24 hour spill report line to ensure that an investigation may be undertaken by the appropriate government authority. If a reportable spill has occurred we will be contacting the Nunavut and NWT 24-hour Spill Report Line.

Phone (867) 920 – 8130
Fax (867) 873 – 6924

A spill report form is also to be completed as soon as possible and submitted.

(viii) the means by which the spill contingency plan is activated;

Anyone in camp can activate the spill response by alerting the camp manager. Daily visual inspections will be made of the space between the rows of drums for evidence of any leakage. Prior to the project beginning all that will be at the camp site will be provided an orientation of the site, the equipment available and key personnel (e.g. camp manager, project leader).

(ix) a description of the training provided to employees to respond to a spill;

All staff will be trained in workplace hazardous materials inventory system (WHMIS). At least one person in camp will have completed a one-day spill responder course.

(x) an inventory of and the location of response and clean-up equipment available to implement the spill contingency plan;

Two spill kits will be on site, each containing:
1 - 10' PIG® BLUE Absorbent Sock
4 - 48" PIG® BLUE Absorbent Socks
15 - PIG® Universal Mat Pads
2 - PIG® Pillows
5 - Disposal Bags and Ties
1 - Emergency Response Guidebook
6 - Tamper-proof Labels
Protective Equipment - Gloves, Safety Glasses
MSDS sheets
A copy of the Contingency Plan

(xi) the date prepared and effective period of the contingency plan
Date prepared: May 16, 2011
Effective period: June 30, 2011 to September 01, 2011

xii) Contact numbers

Spill Response Contact List

Nunavut 24 Hour Spill Line
(867) 920-8130

INAC Manager of Field Operations
Iqaluit, Nunavut
(867) 975-4295

Environment Canada
Iqaluit, Nunavut
(867) 975-4644

Polar Continental Shelf Project,

Resolute Bay
(867) 252-3872

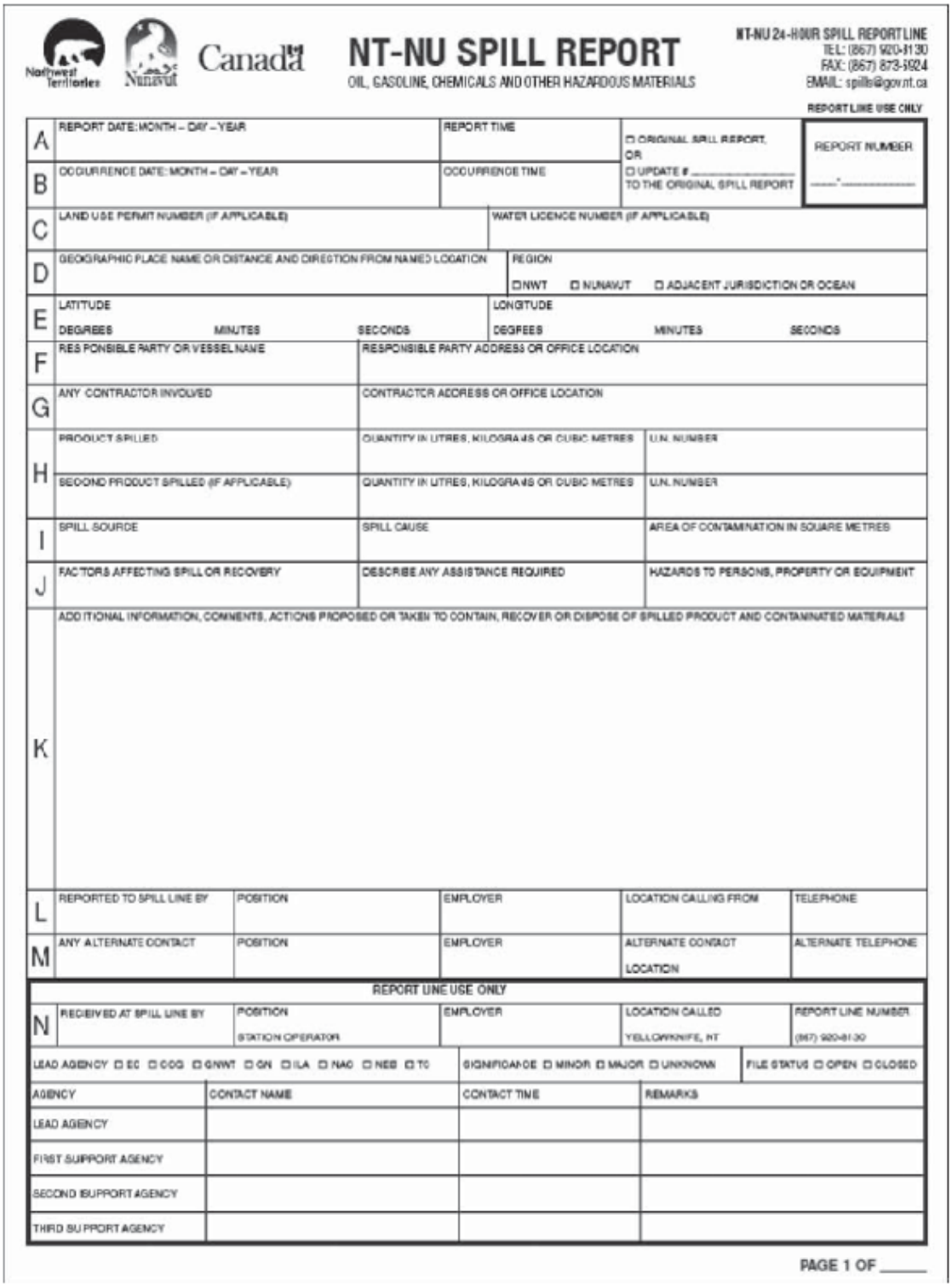
Qikiqtani Inuit Association
Director of Lands & Resources
Stephen Williamson-Bathory
Telephone: (867) 975-8417
Fax: (867) 979-1643

Director, Geological Survey of Canada Calgary
Natural Resources Canada
John Harper
(403) 292-7156

Health, Safety & Environment Coordinator, Earth Science Sector
Natural Resources Canada
Dana West
Telephone: (613) 995-4997
Fax : (613) 943-0925

xiii) NT-NU spill report form

The NT-NU spill report is available from
http://www.ainc-inac.gc.ca/ai/scr/nt/ntr/pubs/SCP-eng.asp#aA



Northwest Territories Nunavut Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

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

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ 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 ☐ COG ☐ GNWT ☐ GN ☐ ILA ☐ NAC ☐ 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			

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Instructions for Completing the NT-NU Spill Report Form

This form can be filled out electronically and faxed to the spill line at 867-873-6924. Commencing on January 2, 2007, the form can also be e-mailed as an attachment to spills@gov.nt.ca. Until further notice, please verify receipt of e-mail transmissions with a follow-up telephone call. Spills can still be phoned in by calling collect at 867-920-8130.

A. Report Date/Time	The actual date and time that the spill was reported to the spill line. If the spill is phoned in, the Spill Line will fill this out. **Please do not fill in the Report Number**: the spill line will assign a number after the spil is reported.
B. Occurrence Date/Time	Indicate, to the best of your knowledge, the exact date and time that the spill occurred. Not to be confused with the report date and time (see above).
C. Land Use Permit Number /Water Licence Number	This only needs to be filled in if the activity has been licenced by the Nunavut Water Board and/or if a Land Use Permit has been issued. Applies primarily to mines and mineral exploration sites.
D. Geographic Place Name	In most cases, this will be the name of the city or town in which the spill occurred. For remote locations – outside of human habitations – identify the most prominent geographic feature, such as a lake or mountain and/or the distance and direction from the nearest population center. **You must include the geographic coordinates** (Refer to Section E).
E. Geographic Coordinates	This only needs to be filled out if the spill occurred outside of an established community such as a mine site. Please note that the location should be stated in degrees, minutes and seconds of Latitude and Longitude.
F. Responsible Party Or Vessel Name	This is the person who was in management/control/ownership of the substance at the time that it was spilled. In the case of a spill from a ship/vessel, include the name of the ship/vessel. Please include full address, telephone number and e-mail. Use box K if there is insufficient space. **Please note that, the owner of the spilled substance is ultimately responsible for any spills of that substance, regardless of who may have actually caused the spill.**
G. Contractor involved?	Were there any other parties/contractors involved? An example would be a construction company who is undertaking work on behalf of the owner of the spilled substance and who may have contributed to, or directly caused the spill and/or is responding to the spill.
H. Product Spilled	Identify the product spilled: most commonly, it is gasoline, diesel fuel or sewage. For other substances, avoid trade names. Wherever possible, use the chemical name of the substance and further, identify the product using the four digit UN number (eg: UN1203 for gasoline; UN1202 for diesel fuel; UN1863 for Jet A & B)
I. Spill Source	Identify the source of the spill: truck, ship, home heating fuel tank and, if known, the cause (eg: fuel tank overfill, leaking tank; ship ran aground; traffic accident, vandalism, storm, etc.). Provide an estimate of the extent of the contaminated/impacted area (eg: 10 m^2)
J. Factors Affecting Spill	Are factors which might make it difficult to clean up the spill: rough terrain, bad weather, remote location, lack of equipment. Do you require advice and/or assistance with the cleanup operation? Identify any hazards to persons, property or equipment: for example, a gasoline spill beside a daycare centre would pose a safety hazard to children. Use box K if there is insufficient space.
K. Additional Information	Provide any additional, pertinent details about the spill, such as any peculiar/unique hazards associated with the spilled material. State what action is being taken towards cleaning up the spill; disposal of spilled material; notification of affected parties. If necessary, append additional sheets to the spill report. Number the pages in the same format found in the lower right hand corner of the spill form: eg. "Page 1 of 2", "Page 2 of 2" etc. **Please number the pages to ensure that recipients can be certain that they received all pertinent documents.** If only the spill report form was filled out, number the form as "Page 1 of 1".
L. Reported to Spill Line by	Include your full name, employer, contact number and the location from which you are reporting the spill. Use box K if there is insufficient space.
M. Alternate Contact	Identify any alternate contacts. This information assists regulatory agencies to obtain additional information if they cannot reach the individual who reported the spill.
N. Report Line Use Only	**Leave Blank.** This box is for the **Spill Line's use only.**