Natural Resources Canada
Spill Contingency Plan
Kitikmeot Stream Sediment Sampling Survey
September 2011

1. Introduction

The Kitikmeot stream sediment sampling project is part of the Geo-Mapping for Energy and Minerals (GEM) initiative to provide increased prosperity to northern Canada through geoscience. The project will focus on an 11,000 km^2 area of the Kitikmeot region, 200 km southeast of Kingaok (Bathurst Inlet) and 410 km south of the community of Ikaluktutiak (Cambridge Bay). Helicopter-supported sample collection of stream sediments and waters for geochemical and mineralogical analysis will be carried out and the results made publicly available in the form of maps and databases. The objective is to address critical gaps in the geoscience knowledge of the area, increase mineral exploration effectiveness and success rates, provide a foundation for local land-use decisions and stimulate the local economies and create social benefit opportunities.

2. Location

The Kitikmeot stream sediment and water sampling project will be conducted from a temporary, low-impact tent camp from approximately October 1st to October 15th in 2011.

Proposed camp location:

Lat: 65°22'07"N Long: 105°11'32"W
NTS Map sheet: 076H

Proposed fuel cache location:

Lat: 66°04'23"N Long: 105° 14'17"W
NTS Map sheet: 076I

3. Description of Undertaking

The federal Geo-mapping for Energy and Minerals (GEM) program (2008-2013) is providing public geoscience knowledge for Canada's North. The knowledge will be used for land-use decisions by governments and for exploration investment decisions by industry. This project aims to improve knowledge of an area last mapped in 1962. A contracted team of 3-4 samplers will use a helicopter to take samples. They will operate from a small tent camp for 15 days. All tents, waste and fuel drums will be removed to complete the project.

A fuel cache will be established at the camp which will store no more than 25 drums of aviation fuel and one drum of gasoline. The fuel will be stored in neat orderly rows with

enough space in between rows to permit inspection. Bungs will face 3 o'clock and 9 o'clock. The base camp fuel cache will be inspected daily. Spill kits will be available at the refuelling site.

One remote fuel cache is planned approximately 75 km north of the main camp, at which 5-6 drums of aviation fuel and a spill kit will be located, along with an emergency pack consisting of a tent, two sleeping bags, portable stove, matches and non-perishable food.

Approximately 240 12-kg samples will be collected with shovels from streams and analyzed for mineral content and geochemistry to evaluate mineral potential. A contractor will be selected through the federal government's open bidding process.

Data will be published immediately as an Open File report, available to the public via free download. Copies of the Open File report will be sent to the communities and the Kitikmeot Inuit Association.

4. Petroleum Storage, Inventory and Transfer

Electrical pumps supplied by the helicopter contractors will be used for the transfer of Jet B aviation fuel. Smoking, sparks or open flames are prohibited in fuel storage and fuelling areas at all time.

A manual pump will be used to transfer gasoline from drum to jerry cans, for use with a generator and water pump.

Refuelling will be done in designated areas equipped with spill kits. Secondary containment will be used in areas of refuelling.

5. Risk Assessment and Mitigation of Risk

5.1 Petroleum Products and Other Fuels

1) Drummed products: Leaks or ruptures may affect storage containers of petroleum products, including drums of Jet B aviation fuel, and the drum of gasoline that will be on-site.
2) Fuel containers: Leaks or ruptures could affect plastic jerry containers holding gasoline at generating stations.
3) Propane cylinders: Propane leaks may occur at the valves of propane containers.

Regular inspection and maintenance in accordance with recognized and accepted standard practices at the camp and remote fuel cache will reduce any risks identified above. The fuel cache at the main camp will be inspected daily.

Propane tanks will be transported with appropriate Dangerous Goods documentation. Tanks will be stored and secured in an upright position. Valves will be checked regularly and sealed with Teflon tape, where required.

Spill response procedures will be provided to all personnel in camp.

Spill kits will be positioned at the refuelling stations at camp and at the remote cache. A description of the contents and configuration of the fuel spill kits is provided in Section 8.0.

6. Responding to Failures and Spills

6.1 Spill Responses and Contact List

24-hour Spill Report Line
(867) 920-8130

INAC Water Resources Inspector
Iqaluit, NU
(867) 975-4644
24-hour pager (867) 766-3737

GN-DOE
(867) 975-7700
Manager of Pollution Control and Air Quality
(867) 975-7748

Kitikmeot Inuit Association, Lands Department
P.O. Box 360
Kugluktuk, Nunavut XOE0E0
Ph.: (867) 983-2458
FAX: (867) 982-3311

John Percival, Geomapping Program Manager
Geological Survey of Canada, Natural Resources Canada
601 Booth St., Ottawa, ON
(613) 995-4723 Fax (613) 995-7997

6.2 Basic Steps – Spill Procedure

In the case of any spill or other environmental emergency, it is necessary to react in the most immediate safe and environmentally responsible manner. No spill or incident is so minor that it can be ignored and every spill must be reported.

The basic steps of the spill response plan are as follows:

1. Ensure the safety of all persons at all times.

2. Identify and find the spill substance and its source, and, if possible, stop the process or shut off the source.
3. Inform the on-site coordinator or his/her designate at once, so that he/she may take the appropriate actions. Appropriate action includes the notification of the spill to the 24-hour Spill Report Line and INAC Water Resource Officer. A copy of the Spill Report form can be found in Appendix I.
4. Contain the spill or environmental hazard, as per its nature, and as per the advice of the Spill Line and INAC Water Resources Officer as required.
5. Implement any necessary clean-up and/or remedial action.

6.3 Basic Steps – Chain of Command

1. Immediately notify and report the 24-hour Spill Report Line at (867) 920-8130, the INAC Water Resource Officer at (867) 975-4295, Environment Canada personnel at (867)766-3737, and Kitikmeot Inuit Association at (867) 983-2458.
2. A Spill Report Form (Appendix 1) is filled out as completely as possible before or after contacting the 24-hour Spill Report Line. A copy of the guidelines for completing the Spill Report form is found in Appendix II.
3. Notify John Percival, Geomapping Program Manager at (613) 995-4723.

6.4 Other contacts for spill response/assistance and further reporting

Nunavut Water Board	(867) 360-6338
Fisheries and Oceans Canada, Habitat Impact Biologist	(867) 979-8007
Government of Nunavut Department of Environment	(867) 975-5910

7. Taking Action

7.1 Spill Response Actions for Gasoline and Jet B Aviation Fuel

Take action only if safety permits. Stop the source flow if safe to do so and eliminate all ignition sources. Never smoke when dealing with these types of spills.

On Land
Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill after all vapours have dissipated.
Remove the spill by using absorbent pads or excavating the soil, gravel or snow.
Remove spill splashed on vegetation using particulate absorbent material.
Contact regulatory agencies for approval before commencing with the removal of any soil, gravel or vegetation.

On Muskeg
Do not deploy personnel and equipment on marsh and vegetation/;
Remove pooled gasoline or Jet B with sorbent pads and/or skimmer.
Flush with low pressure water to push toward collection point.

On advice from regulatory agencies, burn only in localized areas, e.g. trenches, piles or windrows.
Do not burn if root systems can be damaged (low water table).
Minimize damage caused by equipment and excavation.

On Water
Contain spill as close to release point as possible.
Use containment boom to capture spill for recovery after vapours have dissipated.
Use absorbent pads to capture smaller spills.
Use skimmer for larger spills.

On Snow and Ice
Build a containment berm around spill using snow.
Remove the spill using absorbent pads or particulate sorbent material/
The contaminated ice and snow must be scraped and shovelled into plastic buckets with lids, 205 litre drums, or polypropylene bags

Storage and Transfer
All contaminated water, ice, snow, soil and clean-up supplies will be stored in closed, labelled containers. All containers will be stored in a well-ventilated area away from incompatible materials.

Disposal
Any contaminated material will be shipped to an appropriate and approved disposal facility. The DOE monitors the movement of hazardous wastes from generators, carriers to receivers, through a tracking document (Waste Manifest). A waste manifest will accompany all movements.

7.2 Spill Response Actions for Propane

Take action only if safety permits. Gases stored in cylinders can explode when ignited. Never smoke when dealing with these types of spills.

On Land
Do not attempt to contain the propane release.

On Water
Do not attempt to contain the propane release.

On Snow and Ice
Do not attempt to contain the propane release.

General
It is not possible to contain vapours when released.
Water spray can be used to knock down vapours if there is no chance of ignition.
Small fires can be extinguished with dry chemical or CO_2.

Personnel should withdraw immediately from the area unless the leak is small and can be stopped immediately upon being detected.
If the tank is damaged, gas should be allowed to disperse and no recovery attempt should be made.
Personnel should avoid touching the release point on containers since frost forms very rapidly.
Keep away from tank ends.

Storage and Transfer
It is not possible to contain vapours when released.

Disposal
Any contaminated material will be shipped to an appropriate and approved disposal facility. The DOE monitors the movement of hazardous wastes from generators, carriers to receivers, through a tracking document (Waste Manifest). A waste manifest will accompany all movements.

8.0 Spill Equipment

Spill kits will be at all fuel storage and refuelling sites. Spill kits consist of:
Heavy PVC tarp, impermeable to Jet B aviation and gasoline spills, sized in accordance with fuel containers (12'x14' for drums of Jet B and gasoline, 4'x4' for plastic jerry cans at generator and pump stations
Aluminum stakes to secure impermeable tarp to ground
Particulate absorbent
Petroleum sorben pads
2 pair PVC gloves
2 pair safety goggles
Disposable bags
1 shovel
Fire extinguisher per spill site

9.0 Permits and Licences

The applicant has applied for all necessary Land Use and Scientific Research permits and licences. These include:

Nunavut Research Institute	Pending
Kitikmeot Inuit Association	Pending (applied 16 August 2011)
Nunavut Water Board	This application

10.0 Contacts

Project Proponent:

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Government of Canada | Gouvernement du Canada

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