Natural Resources Canada
Spill Contingency Plan
Cumberland Peninsula Integrated Geoscience (CPIG) project
May 2009

Addendum

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1. Introduction:

The Cumberland Peninsula Integrated Geoscience (CPIG) project is part of the Geo-Mapping for Energy and Minerals (GEMs) initiative to provide increased prosperity to northern Canada through geoscience. The project will focus on a 58,000 km^2 area of Cumberland Peninsula, eastern Baffin Island between the communities of Pangnirtung in the south and Qikiqtarjuaq in the north. Helicopter-supported field activities include mapping exposed bedrock and surficial materials, sampling and geophysical measurements, all of which will be integrated into publicly-available bedrock geology and surficial maps and databases 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 Cumberland Peninsula Integrated Geoscience project will be conducted from temporary, low-impact tent camps from approximately June 25th to August 22nd in 2009 and 2010.

Proposed 2009 camp location:
Lat: 65°51'44"N Long: 64°13'59"W
NTS Map Sheet No: 026H16 Scale: 1:50,000

Proposed 2010 camp location:
Lat: 66° 28'24"N Long: 63° 2'59"W
NTS Map Sheet No: 016L06 Scale: 1:50,000

3. Description of Undertaking:

The Cumberland Peninsula Integrated Geoscience (CPIG) project campsite is intended to support up to 25 scientists and support staff, and proposed to be located on a glaciofluvial terrace in a broad valley overlooking a meandering river east of Kingnait fjord, located in the northwestern part of the NTS 26H map sheet (65°50' North Lat.; 64°30' West Long.), ~75 km east of Pangnirtung and ~300 km northeast of Iqaluit (Nunavut). The camp will be supplied (groceries, mail, etc…) approximately once every 10 days by Twin Otter aircraft equipped with tundra tires. Two helicopters in camp will support bedrock and surficial mapping activities, respectively.

Tents are gabled double-walled canvas-covered aluminum frames with tarp floors, outfitted with a fuel-burning space heaters. The kitchen tent will consist of three 12'x14' tents aligned end-to-end to accommodate a kitchen, dining area and food storage. Other communal tents include a similar long-house office tent, a 10'x12' shower tent, storage tent, and social tent. Each researcher and student will have a one-person, cotton, personal Logan tent, whereas pilots, engineers, camp manager, cook and local hires will each have a 10'x12' gable tent outfitted with a fuel-burning stove.

Kitchen equipment includes 3 propane-fired refrigerators, 2 propane-fired ranges, extra 3-burner propane stoves, an electric freezer and professional mixer, pots/pans/dishes. Accordingly, ten 100lb tanks of propane (Baffin Suppliers) will be maintained at the camp, as well a gasoline-fueled generators. Water for the kitchen and shower tents will be pumped from the river once daily and stored in plastic and metal buckets. On average, we expect to use between 250 L and 500 L of potable water per day. Over the course of a 50-day field season, the total amount of water used is expected to be between 12.5m^3 to 25m^3. Grey water will be disposed in pits that will be dug at least 35m from a water body and covered with fill on a regular basis. Similarly, pits for sewage disposal will be dug at least 50m from a water source and downstream/downslope from the potable water source.

Our experienced camp manager will oversee most of the camp logistics including safety issues, camp maintenance, daily phone calls to our expeditor, and management of the local community members employed as wildlife monitors, camp staff and field assistants. Meaningful and friendly community

interaction is a very important factor in the success of the project. The project has been represented in the community a number of times prior to the field season in order to build good relationships and share the goals and plans for the project. We will hire local residents on a 10-day basis throughout the summer to have as many people as possible benefiting financially and from the experience.

A fuel cache will be established at the camp which will store no more than 220 drums of aviation fuel and 1 drum of gasoline. The fuel will be stored in neat orderly rows with enough space between the rows to allow for inspections. Bungs will face 3 o'clock and 9'oclock. The base camp fuel cache will be inspected daily. Spill kits will be established at all designated refueling sites.

Three remote fuel caches are planned approximately 50 km from the main base camp, at which 3-4 drums of aviation fuel, a mechanical hand pump, a spill kit will be located, as well as an emergency pack, consisting of tent, 2 sleeping bags, whisper-lite stove, matches, water and non-perishable food.

4. Petroleum Storage, Inventory & 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 storgae and fuelling areas at all times.

A manual pump will be used to transfer gasoline from drum to jerry cans, for use with 1000W and 2000W generators and the water pump.

Refuelling will be done in designated areas, all 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 generator 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 caches will reduce any risks identified above. The large fuel cache at the 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 training will be provided to all personnel in camp, with particular attention to those individuals who will regularly be handling fuels. The training will include a presenation, mock spill, review of spill kit contents and their use, and reporting.

Spill kits will be positioned at all refueling stations, including two designated locations for each helicopter, at the transfer point for gasoline from drum to jerry cans, at each generator location and at remote fuel caches. 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 Response Contact List

24 hour Spill Line
(867) 920-8130

INAC Water Resources Inspector
Iqaluit, NU
(867) 975-4295
Environment Canada
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

Qikiqtani Inuit Association
Salamonie Shoo
Lands and Resources
P.O. Box 1340
Iqaluit, NU X0A 0H0
Tel: (867) 975 8422
Fax: (867) 979 1643

Natural Resources Canada
John Percival, Program Manager GEMs Minerals
(613) 995-4723

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
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 line and INAC Water Resource Officer, a copy of the Spill Report 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 the INAC Water Resource Officer as required.
5. *Implement* any necessary cleanup and/or remedial action.

6.3 Basic Steps – Chain of Command

1. *Immediately* notify and report to the 24-hour Spill Line at (867) 920-8130, and the Water Resource Officer at (867) 975-4295, Environment Canada personnel at (867) 766-3737, Qikiqtani Inuit Association Land Inspector at (867) 975-8422

2. ***A Spill Report Form (Appendix I)*** is filled out as completely as possible before or after contacting the 24 hour Spill Line. A copy of the guidelines for completing the spill report form are found in Appendix II

3. Notify John Percival, Program Manager for GEMs Minerals Program 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

Qikiqtani Inuit Association, Land Use Inspector.....(867) 975 8422

Cumberland Project 24-hour on-site contact: Mary Sanborn-Barrie
Research Scientist
Mobile Satellite Telephone # 8816 514 33414
with voice mail

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 dissapated.
Remove the spill by using absorbant pads or excavating the soil, gravel or snow.
Remove spil splashed on vegetation using particulate absorbant 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 herd oil to 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 damages (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 vapoures 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 absorbant 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 a site to an appropriate and approved 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 of CO2
Personnel should withdraw immediately from the area unless the leak is small and can be stopped immediately upon being detected
If tank is damaged, gas should be allowed to disperse and no recovery attempt should be made
Personnel should avoid touching 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 a site to an appropriate and approved facility. The DOE monitors th 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 on site at all designated refuelling stations. Spill kits consist of:

- heavy PVC tarp, impermeable to jet B aviation and gasoline spills, sized in accordance with fuel containers (12x14' for drums of Jet B, 4x4' for jerry cans of gasoline at generator stations
- aluminum stakes to secure impermeable tarp to ground
- particlate absorbant
- petroleum sorbent 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.....Licence #: 0100809N-M.....issued: Feb. 2, 2009
Nunavut Impact Review Board....Report #: 08YN085.....issued: Feb. 2, 2009
INAC Landuse Permit.....Permit #: N2009J0001.....issued: Feb. 3, 2009
Qikiqtani Inuit Association.....Landuse Permit: Q09XN13.....issued: June 15, 2009
Amendment to Research Licence to accommodate airborne magnetic survey
.....Licence # 0100809N-M Amendment.....issued April 30, 2009
Nunavut Water Board.....Licence: 3BC-CPI0910.....issued: August 5, 2009

10 Contacts:

Project Proponent:

Mary Sanborn-Barrie
Research Scientist
Geological Survey of Canada
Natural Resources Canada
611-615 Booth St., Ottawa, Ontario, K1A 0E9
tel: 613-995-4793
fax: 613-943-5318
msanborn@NRCan.gc.ca

24-hour field contact number
8816 514 33414
valid until August 31, 2009

Corporate Office – Program Manager:

John Percival
Interim Program Manager, Geomapping for Minerals
Geological Survey of Canada
Earth Science Sector
Natural Resources Canada
Government of Canada
604-615 Booth St., Ottawa, Ontario, K1A 0E9
fax (613) 943-5318
tel (613) 995-4723
joperciv@NRCan.gc.ca

Map of Cumberland Peninsula showing the proposed camp locations for 2009 and 2010.

Appendix I

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 ENVIRONMENT	
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			

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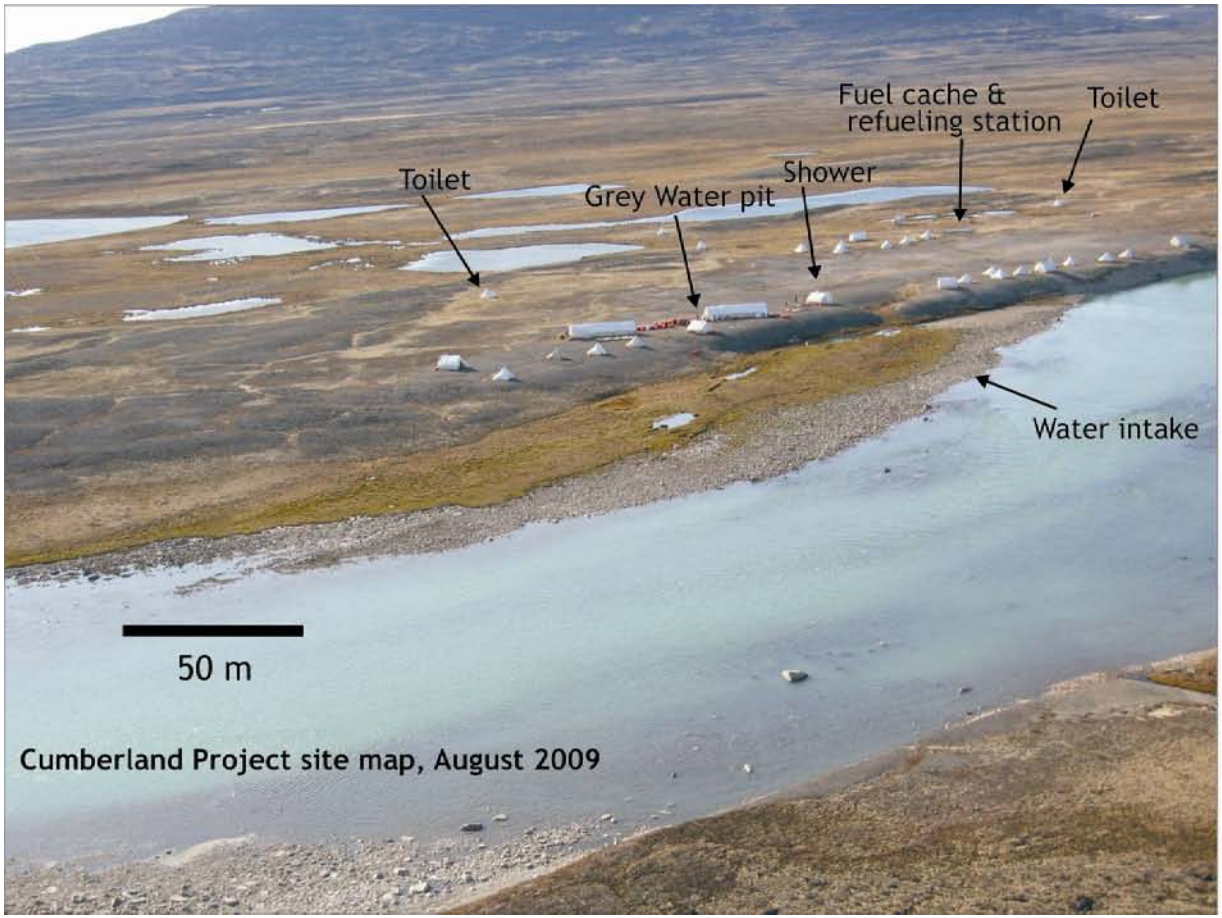
Fuel cache &
refueling station
Toilet
Toilet
Shower
Grey Water pit
Water intake
50 m
Cumberland Project site map, August 2009


August 10, 2009
Shower
Water intake


Restored site on demobilization,
August 22, 2009