

# **Kivalliq Energy Corporation**

## **SPILL CONTINGENCY PLAN ANGILAK PROPERTY**

### **NUNAVUT**

Submitted To: NWB, AANDC, KivIA

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## SUMMARY OF AMENDMENTS

PAGE #	DESCRIPTION	DATE
	Appendix II figures updated	01/11/2012
9	6.2 Emergency contacts updated	01/01/2012
8	5.3 Contacts updated	01/11/2012
7	5.1 Spill Response Contacts updated	01/01/2012
4	2.0 Facilities – updated	01/11/2012
4	1.0 Introduction – updated	01/01/2012
5	5.1 Additions to the Spill Response Contact List	30/08/2008
6	5.3.1 Phone numbers corrected	30/08/2008
7	6.2 Additions to the Emergency Contact Table	30/08/2008
7	6.2 Explanation of 24 hour Emergency Contact #	30/08/2008
3	2.0 New camp coordinates	01/03/2009
Appendix II	New maps and photos for new camp location	01/03/2009

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## **1.0 Introduction**

This Spill Contingency Plan shall be in effect from November 01, 2012. This Plan has been specifically prepared for the Angilak Property, Kivalliq Region, Nunavut. A copy of this plan will be kept in the office at site and at the head office in Vancouver.

Kivalliq Energy Corporation (Kivalliq Energy) has been exploring in Nunavut since 2007. Kaminak Corporation, a predecessor to Kivalliq Energy, signed an exploration agreement with Nunavut Tunngavik Inc. (NTI) in September 2007 that granted uranium rights on 18,000 acres of Inuit Owned Land (IOL RI-30), located in the Kivalliq Region of Nunavut. In discussions with NTI, it was decided cooperatively that Kaminak spin-out all of its uranium interests in Nunavut into a new, uranium exploration and development company called Kivalliq Energy Corporation (KIV: TSX-V). Kivalliq Energy was specifically formed to focus on projects in Nunavut.

Kivalliq Energy Corp. endeavours to take every reasonable precaution toward ensuring the protection and conservation of the natural environment and the safety and health of all employees and contractors from any potential harmful effects of stored materials and operations. All plans, licences and permits will be reviewed with employees and contractors when hired and copies of the plans will be available in the office tent for reference.

## **2.0 Facilities**

All mineral claims are contiguous and extend north, south, east and west between latitudes 62° 27' and 62° 48' North and longitudes 98° 21' and 99° 24' West in NTS map areas 65 J/06, 65 J/09, 65 J/10, 65 J/11 and 65 J/15 (UTM coordinates: 6925500N to 6962000N and 479300E to 533000E, NAD83, Zone 14). The camp is located at 527975m E, 6937950m N. See Appendix II for figures, maps and photos.

The main fuel cache has been established at the camp. All fuel stored on site is contained in Instaberm secondary containment, manufactured by Raymac Industries in British Columbia. Drums of fuel are stored in neat, orderly rows and are inspected daily. A spill kit is located at the fuel cache. Empty drums are removed from site regularly and returned to Aviation Fuel Enterprises in Baker Lake.

Smaller caches are established temporarily to support drilling activities and sampling/survey programs. Spill kits are located at every fuel cache.

Currently Kivalliq Energy is permitted to cache 3000 drums of fuel on site at a time.

This will include:

- 1500 - 205 L drums of diesel
- 1490 - 205 L drums of Jet fuel
- 10 - 205 L drums of gasoline
- 50 - 100 lb cylinders of propane

Most of this fuel will be used by the end of each season. However, enough fuel will be left on site over winter to ensure a supply for a safe re-opening of the camp in the spring. Kivalliq Energy is currently investigating the purchase and use of double-walled enviro tanks. Please refer to the Fuel Management Plan for more information.

The fuel will be stored in neat, orderly rows with enough space between rows to allow for inspections. Bungs will face 3 and 9 o'clock. The fuel cache will be inspected daily. A spill kit will be located at the fuel cache.

The camp currently consists of:

- 23 – 14' x 16' insulated tents on wood frames. These tents function as sleep tents, an office, core tent and first aid station
- 2 – 14' x 32' insulated tent on wood frames. These tents function as the kitchen mess and the dry
- 2 toilet facilities
- A generator building to house a 20 kW diesel generator as well as a 12 kW backup generator
- A helicopter landing area, and
- A garbage incineration area,
- A 30' x 60' Sprung Tent

Upgrades to dry and kitchen tents will be made in 2013.

### **3.0 Petroleum and Chemical Product Storage and Inventory**

#### **3.1 Remote Location Fuel Inventory, Storage and Handling Procedures**

These remote fuel caches will be stored in accordance with approved methods of storage of drummed product. Inspections of the fuel caches will be conducted during each visit. There will be a spill kit at each fuel cache location.

#### **3.2 Petroleum Product Transfer**

Manual and automatic pumps are used for the transfer of all petroleum products. Smoking, sparks, or open flames are **prohibited** in fuel storage and fuelling areas at all times.

A spill kit will always be stored in areas of storage and re-fuelling. Refuelling and storage of drums will always be completed within secondary containment berms.

## **4.0 Risk Assessment and Mitigation of Risk**

### **4.1 Petroleum Products and Other Fuels**

Following, is a list of sources:

- 1) Drummed product: Leaks or ruptures may occur. This includes drums of Jet A, Diesel, Gasoline, Waste Fuel, and Waste Oil.
- 2) Fuel cylinders: Propane, leaks may occur at the valves. All cylinders are secured at all times. Full fuel cylinders are always stored in the upright position.
- 3) Wheeled vehicles and equipment, aircraft (fixed and rotary wing), snowmobiles, generators, pumps. Incidents involving leaking or dripping fuels and oils may occur due to malfunctions, impact damage, and lack of regular maintenance, improper storage, or faulty operation.

Regular inspection and maintenance in accordance with recognized and accepted standard practices at all camps and fuel caches, reduces risks associated with the categories listed above. Large fuel caches of 20 drums or more will be inspected daily.

Spill response training is provided to all personnel with particular attention to those personnel who handle fuels and other petroleum products. This training will include a presentation, “mock” spill, review of spill kit contents and their use and reporting.

Spill Kits will be located at all camps, fuel caches and drill shacks. A description of contents is listed in Section 7.0.

## **5.0 Responding to Failures and Spills**

### **5.1 Spill Response Contact List**

24 Hour Spill Line  
(867) 920-8130

GN-DOE  
(867) 975-7700

AANDC Water Resources Inspector  
Iqaluit, Nunavut  
(867) 975-4295

Manager of Pollution Control & Air Quality  
(867) 975-7748

Environment Canada  
Iqaluit, Nunavut  
(867) 975-4644  
24 hour pager – (867) 766-3737

Kivalliq Inuit Association  
Rankin Inlet  
(867) 645-2800

Kivalliq Energy Corp.  
Jeff Ward, President  
and/or Andrew Berry, Chief Operating Officer  
Suite 1020 – 800 West Pender Street  
Vancouver BC  
V6C 2V6  
Tel: 604-646-4527, Fax: 604-646-4526  
Email: [jward@kivalliqenergy.com](mailto:jward@kivalliqenergy.com)

### **5.2 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 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 Line and AANDC 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 the AANDC Water Resource Officer as required.
5. Implement any necessary cleanup and/or remedial action.

1. *Immediately* notify and report to the 24-Hour Spill Line at (867) 920-8130, the AANDC Water Resources Inspector in Nunavut at (867) 975-4295, Environment Canada personnel at 867-766-3737, Kivalliq Inuit Association Land Inspector at (867) 645-2800.
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 can be found in Appendix III.
3. Notify Jeff Ward, President at (604) 646-4527.

#### **5.4 Other contacts for spill response/assistance and further reporting**

Nunavut Water Board	(867) 360-6338
Fisheries and Oceans Canada Habitat Impact Assessment Biologist	(867) 979-8007
Government of Nunavut Department of Environment	(867) 975-5910
Kivalliq Inuit Association, Land Use Inspector	(867) 645-2800

### **6.0 Taking Action**

#### **6.1 Before the Fact: Preventative Measures**

The following actions illustrate a proactive approach to environmental stewardship. In addition, these actions minimize the potential for spills during fuel handling, transfer and storage:

1. Fuel transfer hoses with cam lock mechanisms are used. Use and placement of fuel absorbent material to protect from drips and spills.
2. Carefully monitor fuel content in the receiving vessel during transfer. Always have additional absorbent pads on hand while transferring fuel.
3. Clean up drips and minor spills immediately.
4. Regularly inspect drums, tanks and hoses for leaks or potential to leak and for proper storage.
5. Create fuel caches in natural depressions that are located a **minimum** of 31 metres from the normal high-water mark of any water body.
6. Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures.

## 6.2 After the Fact: Mitigative Measures

1. First steps to take when a spill occurs:
  - a) Ensure your own safety and that of others around you, beginning with those nearest to the scene.
  - b) Control danger to human and aquatic life.
  - c) Identify the source of the spill.
  - d) Notify your supervisor, request assistance if needed.
  - e) Assess whether or not the spill can be readily stopped.
  - f) Contain or stop the spill at the source.
2. Secondary steps to take:
  - a) Determine status of the spill event.
  - b) If necessary, pump fuel from a damaged and/or leaking tank or drum into a refuge container.
  - c) Notify the 24-hour Spill Report Line, and receive further instructions from the appropriate contact agencies listed in *Section 5.3*. (Disposal of contaminated soil or ice/snow in sealed containers for removal from site, etc.).
  - d) Complete and Fax a copy of the Spill Report Form (*Appendix I*).
  - e) Notify permitting authorities.
  - f) If possible, resume cleanup and containment.

### **Emergency Contact Information**

CONTACT	TELEPHONE NUMBER
AANDC Water Resource Officer, Iqaluit	(867) 975-4295
Environment Canada	(867) 975-4644, 24hr page (867) 766-3737
Nunavut Department of Environment	(867) 975-7700
Manager Pollution Control/Air Quality	(867) 975-7748
Kivalliq Inuit Association – Land Use Inspector	(867) 645-2800
DFO	(867) 979-8007
Kivalliq Energy Corp., Jeff Ward, President	(604) 646-4527
Air Tindi	(867) 669-8212
Yellowknife Fire Department	(867) 873-2222
Baker Lake RCMP	(867) 793-0123
Stanton Regional Hospital – Yellowknife	(867) 920-4111
Discovery Mining Services	(867) 920-4600

The Project Manager will be available **24 hours a day** at camp at 604-759-4750 during operations.

### 6.3 SPILL RESPONSE ACTIONS

#### DIESEL FUEL, HYDRAULIC OIL, AND LUBRICATING OIL

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 or vegetation.  
Remove pooled oil with sorbent pads and/or skimmer.  
Flush with low pressure water to herd oil to collection point.  
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 small spills.  
Use skimmer for larger spills.

##### **On Ice and Snow**

Build a containment berm around spill using snow.  
Remove 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, and/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 from 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. Kivalliq Energy Corp. will register at DOE with Robert Eno at [reno@gov.nu.ca](mailto:reno@gov.nu.ca) or (867) 975-7748.

### 6.3 SPILL RESPONSE ACTIONS

#### PROPANE

Take action only if safety permits. Gases stored in cylinders can explode when ignited. Keep vehicles away from area. **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 Ice and Snow**

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<sub>2</sub>.

Personnel should withdraw immediately from area unless a small leak is stopped immediately after it has been detected.

If tanks are 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 from 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. Kivalliq Energy Corp. will register at DOE with Robert Eno at [reno@gov.nu.ca](mailto:reno@gov.nu.ca) or (867) 975-7748.

## **7.0 Spill Equipment**

Complete spill kits are kept on hand at all camps and drill shacks. Spill kits contain:

- 1 – 360 litre/79 gallon polyethylene over-pack drum
- 4 – oil sorbent booms (5" X 10')
- 100 – oil sorbent sheets (16.5" X 20" X 3/8")
- 1 – drain cover (36" X 36" X 1/16")
- 1 – caution tape (3" X 500')
- 1 – 1 lb plugging compound
- 2 – pair Nitrile gloves
- 2 – pair Safety goggles
- 2 – pair Tyvek coveralls
- 1 – instruction booklet
- 10 – printed disposable bags (24" X 48")
- 1 – shovel

In addition, at least one empty fuel drum will be located at each fuel cache in the event of damaged or leaking drums. Extra absorbent pads will be kept with the helicopter, drill and any area where re-fuelling, transferring and/or handling is done.

## **8.0 Training**

All employees and contractors will be familiar with the spill response resources at hand, this Contingency Plan, and will also be trained for initial spill response methods. Involvement of other employees may be required, from time to time. Annual refreshers will be conducted to review the procedures within this plan.

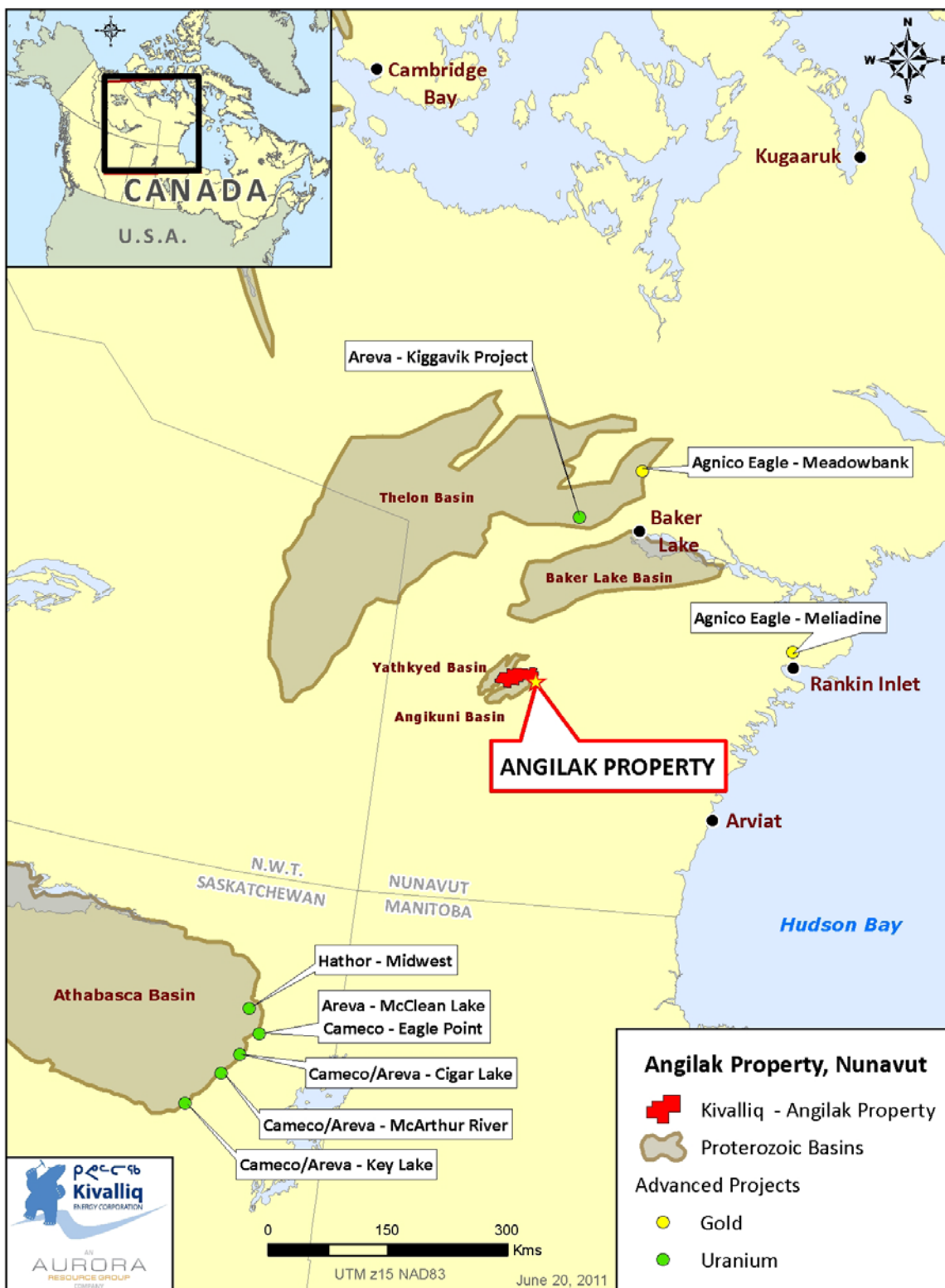
# Appendix I

## Nunavut Spill Report Form

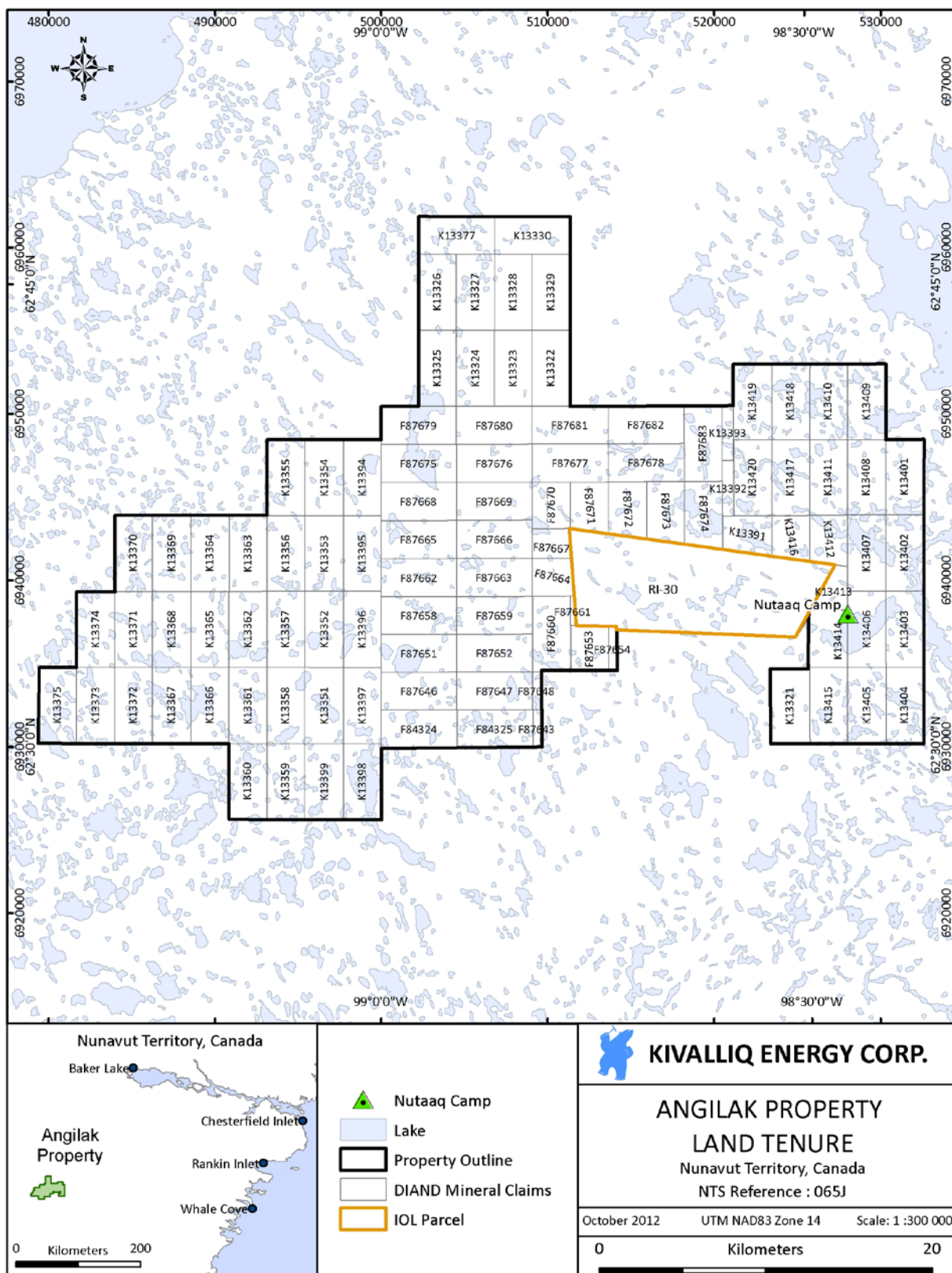
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

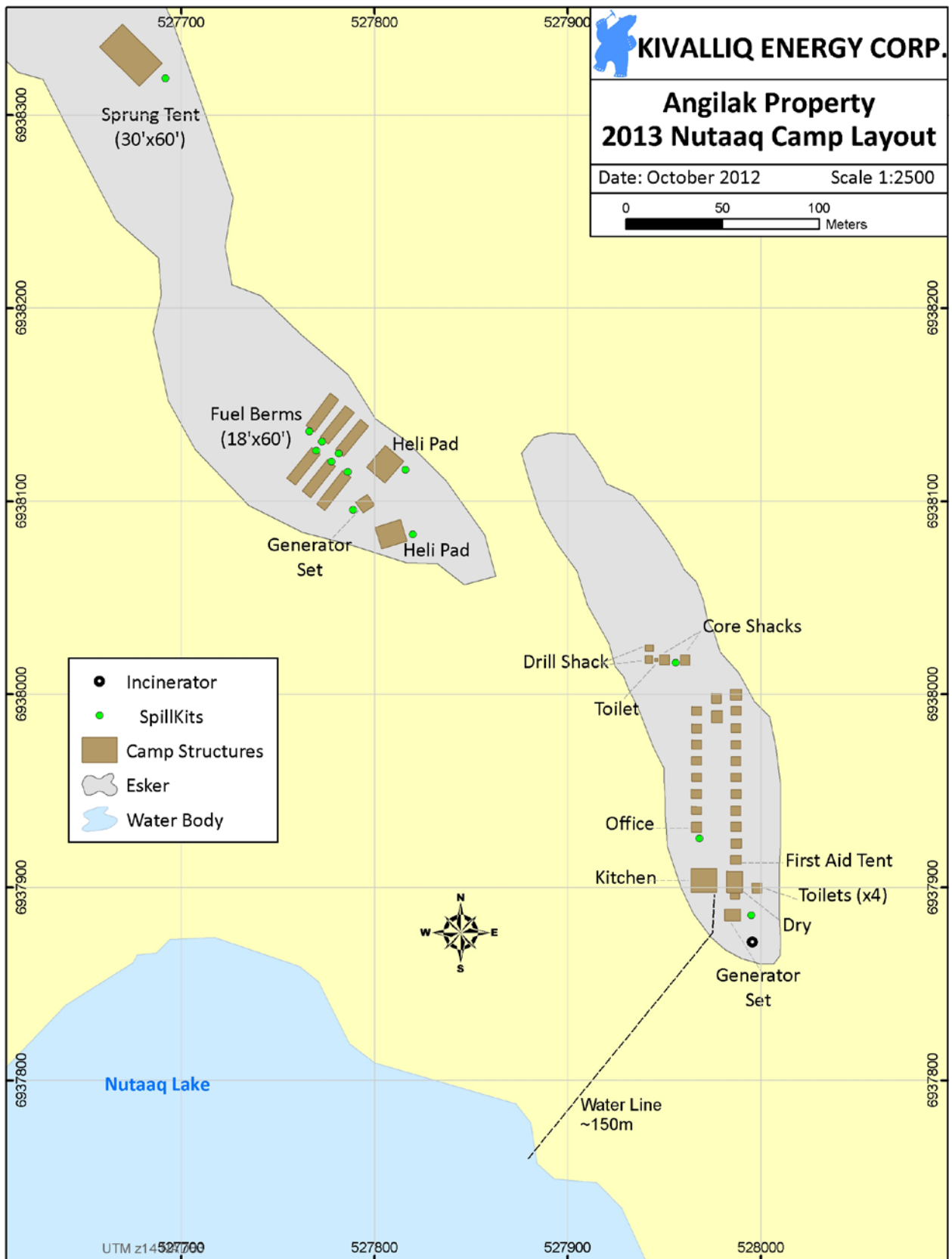
## Appendix II

### Location Map



**FIGURE 1: Angilak Property Location**





**Figure 3: Nutaaq Camp Layout**

## Appendix III

### Instructions for Completing the NU Spill Report Form

## Instructions for Completing the NT-NU Spill Report Form

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

<b>A. Report Date/Time</b>	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. <b>Please do not fill in the Report Number:</b> the spill line will assign a number after the spill is reported.
<b>B. Occurrence Date/Time</b>	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).
<b>C. Land Use Permit Number /Water Licence Number</b>	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.
<b>D. Geographic Place Name</b>	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. <b>You must include the geographic coordinates</b> (Refer to Section E).
<b>E. Geographic Coordinates</b>	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.
<b>F. Responsible Party Or Vessel Name</b>	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. <b>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.</b>
<b>G. Contractor involved?</b>	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.
<b>H. Product Spilled</b>	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)
<b>I. Spill Source</b>	Identify the source of the spill: truck, ship, home heating fuel tank and, if known, the cause (eg: fuel tank overflow, leaking tank; ship ran aground; traffic accident, vandalism, storm, etc.). Provide an estimate of the extent of the contaminated/impacted area (eg: 10 m <sup>2</sup> )
<b>J. Factors Affecting Spill</b>	Any 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.
<b>K. Additional Information</b>	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. <b>Please number the pages to ensure that recipients can be certain that they received all pertinent documents.</b> If only the spill report form was filled out, number the form as "Page 1 of 1".
<b>L. Reported to Spill Line by</b>	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.
<b>M. Alternate Contact</b>	Identify any alternate contacts. This information assists regulatory agencies to obtain additional information if they cannot reach the individual who reported the spill.
<b>N. Report Line Use Only</b>	<b>Leave Blank.</b> This box is for the <b>Spill Line's use only.</b>