# Titan Uranium Inc.

# Spill Contingency Plan

## Thelon Project

## Located Northwest of Baker Lake, Nunavut

**Date Prepared:** November 17, 2005
**Prepared by:** Paul R.J. Nicholls, P. Eng.

## Table of Contents



## List of Figures



## List of Appendices

# Spill Contingency Plan
# Thelon Project
# Located Northwest of Baker Lake, Nunavut

## 1.0 Preamble

The Spill Contingency Plan will be effective from April 1, 2006 to April 1, 2008 and applies to the Thelon Project operated by Titan Uranium Incorporated. The Thelon Project is located approximately 150 kilometres northwest of the Hamlet of Baker Lake in N.T.S. Sheets 66B, 66G, and 66H and consists of seven mineral leases, one prospecting permit and fifty-one mineral claims that are subject to an agreement with Ronald McMillan. The agreement defines the boundary project boundary by the following points: Point A - 97°34'W, 65°33'N, Point B - 100°29'W, 64°57'N, Point C - 99°43'W, 64°36'N, Point D - 97°55'W, 65°02'N, and Point E - 97°13'W,65°18'N.

Additional or revised copies of the Spill Contingency Plan can be obtained from Titan Uranium Inc., Suite 202, 311 - 4th Avenue North, Saskatoon, Saskatchewan, S7K 2L8 (Phone: 306-651-2405; fax : 306-651-5105). Titan Uranium Inc. head office address is 2nd Floor - 157 Chadwick Ct., North Vancouver BC, V7M 3K2

## 2.0 Introduction

## 2.1 Purpose of Plan

The purpose of this Spill Contingency Plan is to provide a plan of action for all spills of hazardous materials that could occur within the Thelon project area or at the camp that will be located on the southwest shore of an unnamed lake in N.T.S. Sheet 66 G/1 (Crown Land; 65°03'N and 98°21'30"W) , approximately 150 kilometers northwest of Baker Lake in Nunavut. This Spill Contingency Plan defines the responsibilities of key personnel; outlines procedures to effectively and efficiently contain and recover spills of hazardous materials; lists steps that will be taken to limit the possibility of spills; and will be revised as required to reflect materials on site.

The exploration program for 2006 will be supported by helicopter and will include the operation of a diamond drill. The principal hazardous materials on site will he Jet B and P-50 diesel. Lesser amounts of gasoline, propane, lubricants, and drill additives are also considered in the plan.

## 2.2 Titan Uranium Inc. Environmental Policy

It is the policy of Titan Uranium Inc. to fully comply with all applicable Acts and Regulations to ensure the protection of the environment of Nunavut. Titan Uranium Inc. shall cooperate with other groups committed to protecting the environment and shall ensure that our employees. regulatory authorities and the public are informed on the policies and procedures we have developed to help protect the environment of Nunavut.

## 3.0 Site Information

### 3.1 General

This spill contingency plan covers the principal storage area and helicopter refueling area at the camp as well as the fuel handling at the widely separated drill sites within the project area. Refueling of the generator, camp heating and propane supply for cooking are also considered under the plan.

### 3.2 Petroleum Storage and Transport

The fuel for the project will delivered by Turbine Otter from Baker Lake. The fuel cache will be located immediately southeast of the camp on a relatively flat, elevated area more than 100 meters from the high water mark of nearby ponds and lakes. The Jet-B, P-50, and unleaded gasoline are contained in 205 litre drums. Each drum will be inspected immediately upon delivery to the cache site to ensure that there has been no damage during transport. The initial fuel haul for the 2006 program will include approximately 140 drums of JetB, 50 drums of P-50. 1 drum of unleaded gasoline and 4 (45 kg) cylinders of propane. There will be a separate floored tent for storage of lubricants and drill additives.

### 3.3 Locations of Spill Response Equipment

Spill kits (with additional absorbent pads) will be located at the fuel cache near the helicopter refueling area and at the drill. A third kit will be located in the camp. Hand tools will also be located with each spill kit. Fire extinguishers will be located in each tent and at the generator.

## 4.0 Response Organization

The Camp Manager or Field Supervisor will act as the On Site Spill Response Coordinator for Titan Uranium Incorporated in the event of a spill. On site personnel will vary from 3 to 10 people during the field season.

The responsibilities of the Spill Response Coordinator are as follows:

1. Assume complete authority over the spill scene and coordinate all personnel involved
2. Evaluate spill situation and develop overall plan of action
3. Activate the Spill Response Plan
4. Immediately report the spill to the NWT 24-Hour Spill Report Line **(867) 920- 8130** (if spill is greater than 100 litres)
5. Obtain additional spill response resources from the Hamlet of Baker Lake if not available on site for spill response:
6. Provide regulatory agencies with information regarding the status of the clean up activities
7. Prepare and submit a report on the spill incident to regulatory agencies within 30 days of the event (Appendix 1).

## 5.0 Reporting Procedures

The following chart to illustrates the procedures to be followed in the event of a hazardous material spill incident during the exploration program:

*if spill is less than 100 litres of JetB, Diesel, or Gasoline*

A) Spill Observer Assesses Situation

↓

B) Report Spill to On Site Spill Response Coordinator

↓

C) On Site Spill Response Coordinator Implements Appropriate Spill Response Protocol (action plan)

*if spill exceeds 100 litres of JetB, Diesel, or Gasoline,*

A) Spill Observer Assesses Situation

↓

B) Report Spill to On Site Spill Response Coordinator

↓

C) On Site Spill Response Coordinator Implements Appropriate Spill Response Protocol (action plan)

↓

D) Notify Government and Local Agencies and **NWT 24-Hour Spill Report Line**
Spill Report Form Completed within Thirty (30) Days of the Spill Event

An Iridium satellite phone will be on site and available for the response team to use. The phone number has not yet been determined.

## 5.1 List of Contacts

| | | |
|---|---|---|
| Titan Uranium Incorporated | Philip Olson, President | (306) 651-2405 |
| | Paul Nicholls, Field Supervisor | (905) 640-3957 |
| | | |
| **NWT 24-Hour Spill Report Line** | | **(867) 920-8130** |
| | | |
| INAC | Spencer Dewar, Lands Administrator | (867) 975-4283 |
| | Water Resources Manager | (867) 975-4550 |
| | Field Operations Manager | (867) 975-4295 |
| | Environment Manager | (867) 975-4549 |
| | Resource Management Officer – Kivalliq (Rankin Inlet) | (867) 645-2831 |
| | | |
| RCMP | Baker Lake | (867) 793-0123 |
| | | |
| Kivalliq Inuit Association | Rankin Inlet | 867) 645-2800 |
| | | |
| Government of Nunavut | Department of Environment | (867) 975-5900 |
| | Manager Pollution Control & Air Quality | (867) 975-5907 |
| | | |
| Nunavut Water Board | | (867) 630-6338 |
| | | |
| Ookpik Aviation | Boris Kotelewetz | (867) 793-2234 |

## 6.0 Action Plans

## 6.1 Potential Sources and Sizes of Leaks

A review of the planned activities on the Thelon Project indicates that there are potentially several sources for spills as follows:

a) Leakage from Stored Drums
b) Refueling of helicopter
c) Refueling of Diamond Drill Equipment
d) Refueling of Camp Generator, Camp Stoves, Incinerator

Preventative measures to minimize the occurrence of spills are summarized in the table below

| Activity | Cause of Spill | Size of Spill | Preventative Measures |
|---|---|---|---|
| Fuel Storage | Fuel may leak from improperly sealed drums or damaged drums | maximum 205 litre | a) fuel drums routinely inspected<br>b) report any problems.<br>c) Fuel from any suspect drum is immediately pumped to an empty drum<br>d) drums stored with bungs at the 3 and 9 o'clock to limit leak to 100 litres |
| Refueling of helicopter | During refueling a hose could break, spring a leak, fall out of the receptacle, or an overfilling of the tank could occur resulting in fuel being spilled at the refueling site. | Limited fuel spills possibly resulting in small puddles of fuel | a) refueling equipment routinely examined for integrity by air crew<br>b) refueling completed by the air crew<br>c) helicopters refueled at the fuel cache<br>d) air crew will be made aware of the location of fuel spill kit and extra absorbent pads, spill kits, and spill trays |
| Refueling of Diamond Drill Equipment | During refueling a hose could break, spring a leak, fall out of the receptacle, or an overfilling of the tank could occur resulting in fuel being spilled at the drill site | Limited fuel spills possibly resulting in small puddles of fuel | a) refueling completed by the drill crew who will routinely examine equipment for integrity<br>b) spill kit with additional absorbent pads will stored at the drill site |
| Refueling of Camp Generator, Camp Stoves, Incinerator | | Limited fuel spills possibly resulting in small puddles of fuel | a) refueling equipment will be routinely examined for integrity camp<br>b) attendant will constantly monitor refueling process<br>c) absorbent pads are kept under all open drums, or drums in use<br>d) Taps for supply lines to diesel fired heating stoves are to be wrapped with a sorbent pad<br>e) absorbent pads are kept beneath the generator |

## 6.2 Initial Action

The instructions to be followed by the first person on the spill scene are as follows:

1. Always be alert and consider your safety first
2. If possible, estimate the volume of material that has been spilled
3. Assess the hazard to people in the vicinity of the spill:
4. If possible. and safety permits. attempt to stop the release of product to minimize potential for environmental impacts
5. Immediately report the spill to the On Scite Spill Response Coordinator
6. Resume any effective action to contain. mitigate. or terminate the flow of the spilled material.

## 6.3 Action: Fuel Spills

If possible, and safety permits. stop the flow of product which is occurring and eliminate all ignition sources. ***Smoking is prohibited during all spill response activities.***

### 6.3.1 Spill on Soil, Gravel, Rock, or Vegetation

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 vapors 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. If soil gravel or vegetation are to he removed from the site, Titan Uranium Incorporated shall contact regulatory agencies for approval before commencing with the removal.

### 6.3.2 Spill 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 shoveled into plastic buckets with lids. 20 liter pails. and/or polypropylene bags.

## 6.4 Action: Chemical Spills

Members of the emergency response team who might be susceptible in certain situations. (such as asthmatics, where fumes or airborne particles are evident), should be replaced with alternates. Assemble the necessary safety equipment before response (e.g. latex or other protective gloves, goggles, or safety glasses, masks or breathers, etc.). Apply absorbents to soak up liquids. Place plastic sheeting over solid chemicals, such as dusts and powders, to prevent their disbursement by wind or investigation by birds or other mammals. eutralize acids or **caustics.** Place spilled material and contaminated cleanup supplies in an empty refuge drum and seal for disposal.

## 6.5 Storage and Transfer and Disposal of Contaminants

All contaminated water, ice, snow. soil, and clean up supplies will be stored in closed, labeled containers. All containers will be stored in a well ventilated area away from incompatible materials. Ensure contact with Federal and Nunavut regulatory agencies to identify appropriate disposal methods before disposing of contaminated material.

## 7.0 Environmental Mapping

The camp and fuel storage area will be located on a relatively flat sandy area on the southwest shore of a lake in N.T.S. Sheet 66 G/1 (Crown Land; 65°03'N and 98°21'30"W). The camp site and the fuel storage area will be located more than 100 metres from the lake and smaller bodies of water (figures 1 and 2).

## 8. 0 Resource Inventory

## 8.1 List of On-site Spill Containment Equipment

### 8.1.1 Spill Kits

A minimum of three spill kits will he maintained. one at the main fuel cache, a second at the diamond drill site, and a third kit for use at the camp. These drums will contain sphagnum absorbents, absorbent pads, gloves, coveralls, and containers for the disposal of contaminated material.

### 8.1.2 Absorbent Pads

Absorbent pads or rolls will be kept in good supply. These will be stored at the camp, fuel storage area, and at the drill.

### 8.1.3 Hand Tools

Hand tools will be stored at the camp, fuel storage area, and at the drill for the removal of contaminated material, or the construction of small containment berms.

### 8.1.4 Plastic Pails and Bags

A sufficient quantity of 20 litre plastic pails and 20 litre plastic sample bags will be stored for the disposal of contaminated material.

## 9.0 Training

## 9.1 Orientation

All field personnel upon arriving in the camp will be given a project orientation which will include:

- notification of the location of all fuels and applicable MSDS sheets:
- notification of the location, and use: of fuel spill kits and supplies;
- notification of the location of ancillary equipment - shovels, pails. plastic bags, etc.
- instruction in the use of all equipment and supplies
- instruction in the reporting of incidents
- instruction in the cleanup and proper storage *1* disposal of contaminated materials.

## 9.2 Inventories

Regular inventory updates will be provided in list form to all team members. Information will include a listing of all resources, number of items, their location, condition, date of last inspection and any special comments (such as expiry dates, under whose authority they may be accessed and special handling instructions).

## 9.3 Practice Drills

At least one practice drill will be held per season to give personnel a chance to practice emergency response skills. Each practice will be evaluated and a report prepared with the objective of learning where gaps and deficiencies (either in skills or physical resources) exist, and in what areas more practice is required.

## 10.0 Product Information

The following sections summarize some of the more important details that need to be considered when dealing with the fuels and chemicals that will be at the project. The MSDS sheets are given in Appendix 2 and a separate book containing the MSDS sheets will be kept in the office. A copy of this plan with the MSDS sheets will be kept with the Spill Kits at the camp, fuel storage area and at the drill.

## 10.1 Diesel, Jet-B and Gasoline

- Diesel, Jet-B and Gasoline are highly flammable and easily ignited by heat, sparks or flames
- ***Do not smoke***
- Gasoline and Jet-B are more volatile than diesel
- Explosion hazard indoors, in confined spaces and outdoors
- Vapours may form explosive mixtures with air
- Vapours may travel to source of ignition and flash back
- Most vapours are heavier than air. They will spread along ground and collect in low or confined areas.
- Keep pump or electrical equipment far away, be very careful with metallic tools that could sparks on rocks, wait for vapours to dissipate
- Inhalation may cause central nervous effects
- Eye and skin irritation
- Prolonged exposure has caused cancers in laboratory animals

## 10.2 Propane

- Extremely Flammable, easily ignited by heat, sparks or flames
- ***Do not smoke***
- Cylinders may explode when heated
- Cylinders may rocket if ruptured
- Explosion hazard indoors, in confined spaces and outdoors
- Vapours may form explosive mixtures with air
- Vapours may travel to source of ignition and flash back
- Vapours from liquefied gas are initially heavier than air and spread along ground.
- Contact with gas or liquefied gas may cause burns, severe injuries and / or frostbite
- Keep pump or electrical equipment far away, be very careful with metallic tools that could sparks on rocks, wait for vapours to dissipate
- Liquid may cause frostbite and blisters
- Blurred vision if goes in the eyes
- Narcotic asphyxiant
- Dizziness, disorientation, excitation, headache, vomiting, unconsciousness if inhaled

**10.3 Motor Oil, Hydraulic Oil, Transmission Fluid**

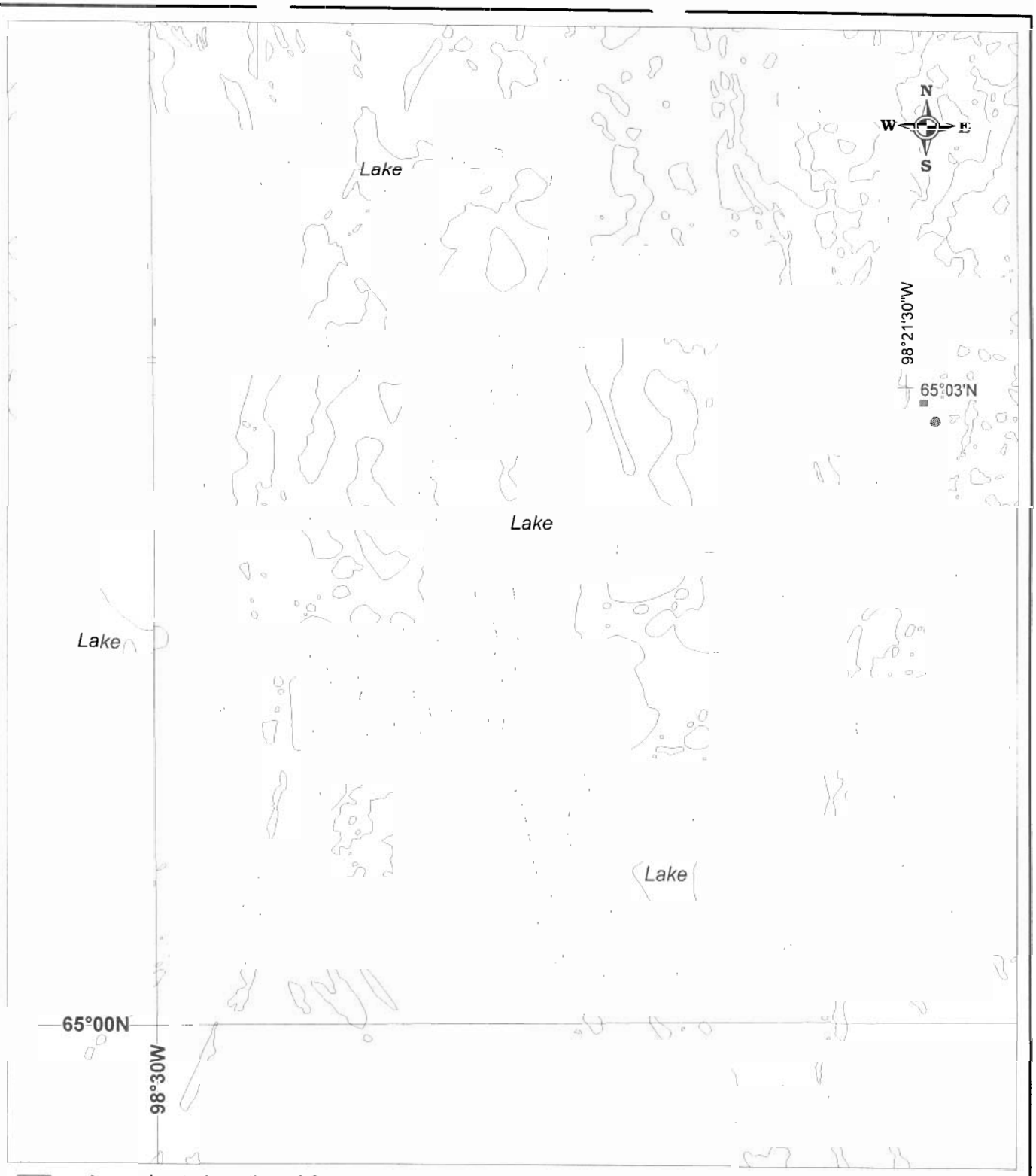
- Avoid breathing mists, may cause lung irritation
- On skin may cause mild irritation

**10.4 Antifreeze**

- Respiratory irritation with prolonged exposure.
- Kidney, liver and bladder problems reported in animals.

**10.5 Battery Acid**

- Fire and explosion hazard
- Can be extinguished with dry chemical fire extinguisher.
- Ventilate area
- Remove combustible materials
- Mist inhalation hazard when being charged or spilled
- Acid burns to skin and eyes irritation




Approximate Location of Camp

Approximate Location of Fuel Storage Area

0 2000m

Scale 1:50,000

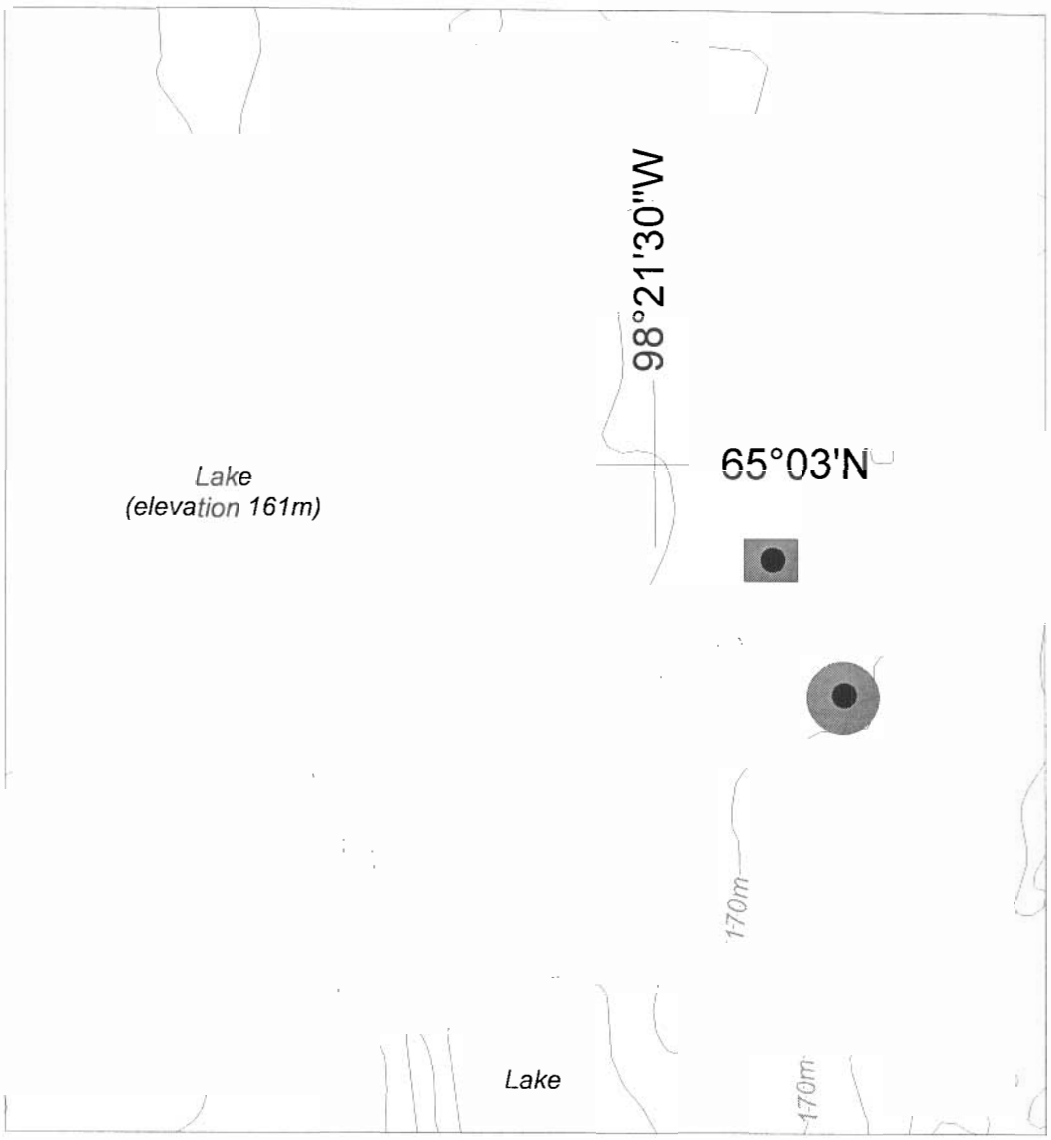
Stouffville Geological Services Ltd. October 2005

**Titan Uranium Inc.**

**Thelon Project**

# General Location of Camp and Fuel Storage Area

**Figure 1**




Topographic Contour

Approximate Location of Camp

Approximate Location of Fuel Storage

Approximate Location of
Spill Response Equipment Depots

0 metres 500

Scale 1:10,000

**Titan Uranium Inc.**

**Thelon Project**

# Location of Proposed Camp and Fuel Storage Area

Stouffville Geological Services Ltd. October 2005

**Figure 2**

# Appendix 1

## Spill Report Form

# NWT SPILL REPORT

(Oil, Gas, Hazardous Chemicals or other Materials)

24 – Hour Report Line
Phone: (867) 920-8130
Fax: (867) 873-6924

| | | | |
|---|---|---|---|
| A Report Date and Time | B Date and Time of spill (if known) | C ☐ Original Report ☐ Update no.____ | Spill Number |

D Location and map coordinates (if known) and direction (if moving)

E Partly responsible for spill

F Product(s) spilled and estimated quantities (provide metric volumes/weights if possible)

G Cause of spill

| | | | |
|---|---|---|---|
| H Is spill terminated? ☐ yes ☐ no | I If spill is continuing, give estimated rate | J Is further spillage possible? ☐ yes ☐ no | K Extent of contaminated area (in square meters if possible) |

| | |
|---|---|
| L Factors effecting spill or recovery (weather conditions, terrain, snow cover, etc.) | M Containment (natural depression, dikes, etc.) |

N Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials

| | |
|---|---|
| O Do you require assistance? ☐ no ☐ yes, describe: | P Possible hazards to person, property, or environment; eg: fire, drink water, fish or wildlife |

Q Comments or recommendations

**FOR SPILL LINE USE ONLY**

Lead agency

Spill significance

Lead Agency contact and time

Is this file now closed? ☐ yes ☐ no

| | | |
|---|---|---|
| Reported by | Position, Employer, Location | Telephone |
| Reported to | Position, Employer, Location | Telephone |