

**5050 Nunavut Limited  
McGregor Lake Campsite  
Spill and Contingency Plan, 2008**

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## TABLE OF CONTENTS

|  |    |
|--|----|
| 1. Introduction .....                                  | 1  |
| 2. Camp Details .....                                  | 2  |
| 2.1 Site Description .....                             | 2  |
| 2.2 Camp Description .....                             | 2  |
| 2.3 Camp Facilities .....                              | 2  |
| 2.4 Camp Operation Times .....                         | 2  |
| 3. Personnel Training .....                            | 2  |
| 4. Fuel and Chemical Product Transport & Storage ..... | 3  |
| 4.1 Transport to Site .....                            | 3  |
| 4.2 Fuel Types and Quantities .....                    | 3  |
| 4.3 Fuel Storage .....                                 | 4  |
| 4.4 Fuel Transfer .....                                | 4  |
| 5. Basic Steps in the Event of a Spill .....           | 5  |
| 5.1 Procedure to Follow in the Event of a Spill .....  | 5  |
| 5.2 Chain of Command .....                             | 5  |
| 6. Taking Action .....                                 | 8  |
| 6.1 Before the Fact: Preventive Measures .....         | 8  |
| 6.1.1 Response Equipment and Proximity .....           | 8  |
| 6.2 After the Fact: Mitigative Measures .....          | 8  |
| 6.2.1 Mitigative Equipment and Proximity .....         | 9  |
| 6.3 Managing Fuel Spills in Various Environments ..... | 10 |
| 6.3.1 Procedure for Spills on Land and Rock .....      | 10 |
| 6.3.2 Fuel Spills on Water .....                       | 11 |
| 6.3.3 Fuel Spills on Snow and Ice .....                | 11 |
| 6.3.4 Spills on Snow .....                             | 12 |
| 6.3.5 Spills on Ice .....                              | 12 |

## LIST OF APPENDICES

Appendix A – Contact List

Appendix B – Material Safety Data Sheets (MSDS)

Appendix C – Spill Report Form

Appendix D – Uranium Exploration Plan

Appendix E – Nunavut Waste Generator Number

Appendix F – Daily Wildlife Log

Appendix G – Figures

1-1 Site Location Map

1- 2 Exploration Area

1- 3 Camp Layout

## LIST OF TABLES

| <b>Table</b>  | <b>Page</b> |
|---|-------------|
| 4-1 Monthly Quantities of Fuel and Oil to be Stored at the Campsite                               | 6           |
| 5-1 Roles and Responsibilities  | 9           |
| 6-1 Contents of a Regular Spill Kit   | 11          |
| 6-2 General Response Inventory – Camp – 2008  | 13          |
| 6-3 Guide to Required Ice Thickness   | 16          |
| 6-4 Required Ice Thickness for Typical Aircraft Weights AK-68-14-001 Transport<br>Canada Standard | 16          |

# 1. Introduction

5050 Nunavut Limited (5050 Nunavut) was incorporated under the laws of Nunavut and presently holds 100 claims comprising 253,796.89 acres surrounding All Night Lake and McGregor Lake, and on Inuit Owned Lands (IOL). These properties are located between 60 and 100 kilometres south of Kugluktuk, Nunavut and are known as the All Night Lake Property, the McGregor Lake Property, and IOL Property (Figure 1-2). Together the properties comprise the Mackenzie Igneous Event Project (the "MIE Project") targeting Ni, Cu, Pt group element (PGE) mineralization, and the Bear Valley Uranium Project (the "BVU Project") for uranium exploration. The exploration program is at grass root stage and is considered to be low impact. It includes regional and detailed geological mapping, prospecting and sampling, airborne and ground based geophysical surveys and drilling.

5050 Nunavut is a wholly owned subsidiary of Adriana Resources Incorporated (Adriana) and has its corporate office at Adriana's office in Vancouver Canada. 5050 Nunavut's corporate office address is:

Adriana Resources Inc.  
Suite 1818, 701 West Georgia Street  
Vancouver, BC V7Y 1C6

The principals in each company are:

- Mike Beley, President and Director of Adriana and
- Gordon Addie, President of 5050 Nunavut.

5050 Nunavut Limited (5050 Nunavut), presently holds a Kitikmeot Inuit Association (KIA) Land Use License KTL306C016 permitting a camp (with airstrip), staking & prospecting, exploration (geophys-grd/air) drilling and bulk fuel storage at McGregor Lake to support exploration activities associated with the MIE and Bear Valley Projects. The License is valid until July 15, 2008. This license was issued to establish a new camp at Iceberg Creek along the southwest shore of McGregor Lake.

As an alternative to setting up a new camp, the Kitikmeot Inuit Association (KIA) required 5050 Nunavut use an abandoned exploration camp (to be known as the McGregor Lake Campsite) along the north shore of McGregor Lake used historically by other mining companies (Figure 1-1). This alternative location for the camp will support 5050 Nunavut's mineral exploration activities associated with the MIE and Bear Valley Project. Figure 1-2 shows the location of the campsite as well as the proposed drill targets

This Spill and Contingency Plan is provided as part of the amendment and renewal of KTL306C016 to expand 5050 Nunavut's drilling program to 10,000m on their MIE and Bear Valley properties and the use/expansion of the McGregor Lake Campsite to accommodate 25-30 personnel. Figure 1-3 presents the proposed camp layout.

This spill plan is in support of any activities conducted by 5050 Nunavut within the MIE and BVU project areas and shall be in effect when approval is obtained by the appropriate authorizing agencies, and is subject to revisions as may be necessitated by future programs.

The MIE and BVU project areas are remote; no communities are located nearby. Thus no persons other than 5050 Nunavut personnel and various contractor personnel are expected to

be affected in the event of an incident. All 5050 Nunavut employees, whether permanent or casual, and program contractors, are required to be trained in 5050 Nunavut policies and procedures prior to engaging in work at the McGregor Lake campsite and the surrounding work area.

5050 Nunavut is aware that planning for an emergency situation is not an option but an obligatory activity. Campsite and field staff will be familiar with the Spill and Contingency plan. As well, this Spill and Contingency Plan will be posted in the living quarters, Drill Shack(s) and will be distributed to supervisory personnel for distribution to staff and the drilling contractor.

## **2. Camp Details**

The following outlines the section describes the campsite, its facilities, and period of operation.

### **2.1 Site Description**

The campsite is situated on the north shore of McGregor Lake, 100 m from the high water mark of McGregor Lake (Figure 1-3). The camp is located on a flat bench of glacial gravel.

### **2.2 Camp Description**

The camp is designed to accommodate 25 – 30 people. Occupancy will be seasonal, with anywhere from 1 to 30 people living at the camp during the operational period. Figure 2-1 shows the camp layout.

### **2.3 Camp Facilities**

On-site facilities include: lakeside dock, kitchen, washrooms, sleeping accommodations, direct dial satellite phone, full time helicopter support and a full time certified First Aid Attendant as required by NWT-NT WCB.

#### ***General Waste Disposal***

Sewage treatment will be confined to Pacto style toilets. All solid waste will be collected and incinerated on site daily. All solid waste that cannot be incinerated will be flown to Yellowknife or Kugluktuk for further disposal.

### **2.4 Camp Operation Times**

Campsite preparation will begin in February or March 2008, and the exploration program for the MIE and BVU projects will run from March to October. The camp shutdown period will be from October to March. During the winter shut-down the camp will either be winterized, or if warranted, one or two people will remain on site as caretakers.

## **3. Personnel Training**

The obligations and responsibilities of the Spill Contingency Plan awareness, maintenance and preparedness begin with the arrival of employees and contractors. Particularly in the case of new arrivals; supervisors will provide an orientation to acquaint worksite staff with Company policies, procedures, and health and safety issues. This orientation will include, but will not be limited to:

- Location of all fuels and fuel products
- Location of WHMIS and MSDS sheets
- Location of spill kits and fuel spill equipment
- Instruction/direction of who uses fuel and fuel products and how to safely use, store and add fuel to equipment
- Instruction of the use of spill kits
- Instruction on the use of spill equipment
- Instruction on the clean-up and disposal of fuel products contained in a potential fuel spill

Staff will be required to familiarize themselves with the Spill Contingency Plan and their respective assigned roles. All campsite and field personnel will be trained in the areas of environmental awareness and site safety.

## 4. Fuel and Chemical Product Transport & Storage

This section discusses the required fuels, how they will be handled, stored and transferred.

### 4.1 Transport to Site

The McGregor Lake Campsite and the associated project areas are remote. Fuel will be transported to the Camp by fixed wing aircraft: float plane in the summer and ski plane in the winter.

### 4.2 Fuel Types and Quantities

The types of fuel and lubricants that will be stored on the campsite will consist of P-50 diesel motive, JET-B, Gasoline, Propane and an assortment of hydraulic oils and motor oils. The P-50 diesel motive will be used for heating purposes and powering generators, pumps, drill rigs, Caterpillar, Bobcat and other related heavy equipment. The JET-B will be used for helicopter refuelling. Gasoline will be used for re-fuelling snowmobiles and other small equipment. The propane will be on site in the event it is required for the drill-rigs. Oils and lubricants will be used on the equipment.

The following table provides the type of fuel and the containers the fuel will be stored in.

**Table 4-1**  
Monthly Quantities of Fuel and Oil to be Stored at the Campsite

| Fuel Type         | Container Type | Number of Containers | Container Capacity (litre) | Total Volume to be Stored On-Site |
|-------------------|----------------|----------------------|----------------------------|-----------------------------------|
| Diesel (P-50)     | Barrels        | 100                  | 170L                       | 17,000L                           |
| Gasoline          | Barrels        | 10                   | 170L                       | 1,700L                            |
| Jet B             | Barrels        | 300                  | 170L                       | 51,000L                           |
| Propane           | Barrels        | 10                   | 100 lb tank                | 1000 lbs                          |
| Lubricants & Oils | Plastic Jugs   | 25                   | 20L                        | 500L                              |

The appropriate Material Safety Data Sheets are attached in Appendix B of this Plan.

Waste oil volumes from the camp and related activities will be less than 0.04 cubic metres per

week. Waste oil will be incinerated or used for heating purposes. Uranium may also be encountered in the drill cores.

5050 Nunavut currently holds Nunavut Waste Generator # NUG 100022 (attached in the appendices). All such waste will be documented and transported from the Project area for proper disposal. The same individual in charge of documenting the hazardous wastes will have completed a course in the Transportation of Dangerous Goods specifically designed to train geologists in the safe transport of nuclear substances.

For the long term storage of drill core, radiation levels will be reduced to less than 1.0  $\mu\text{Sv}$  measured at 1.0 meter from the surface and in no instance will the level be allowed to exceed 2.5  $\mu\text{Sv}$ . In practice, it is anticipated that major uranium intersections will be transported to the Saskatchewan Research Council for testing and storage at their nuclear materials storage facility

Please refer to the attached Uranium Exploration Plan for further details regarding the Uranium exploration project.

#### **4.3 Fuel Storage**

All fuel on the camp site will be stored in 170L structurally sound steel drums with secondary containment in accordance with Section 3.9 of the *CCME Environmental Code of Practice for Aboveground and Underground storage Tank Systems Containing Petroleum and Allied Products* (2003), and located 100m from the high water mark of McGregor Lake.

Upon arrival at the camp all drums are factory sealed and clearly marked. All drums will be inspected daily by 5050 Nunavut personnel for container and bung soundness. Prior to re-fuelling, all drum rubber seals will be replaced. Any drum(s) noted to be leaking or showing signs of weakness and fatigue will immediately have all product transferred to a new drum(s). The discarded drum will then be hauled off site with the next backhaul shipment to Yellowknife.

To encourage progressive reclamation, no more than 20% of the fuel drums will be empty at any one time. Any empties that are deemed not worthy of holding fuel will be back hauled to landfill sites by and/or flown out in the summer months by plane for proper disposal in approved facilities in Yellowknife or Kugluktuk.

Spill kits will be available at all fuelling storage sites and fuel transfer areas as well as the campsite generator shack and drill rig.

#### **4.4 Fuel Transfer**

The helicopter will be fuelled directly from the JetB drums by an electric pump powered by the aircraft's battery. A spill kit and 170 L plastic tray will be placed beneath the pump handle to catch any potential leaks. . There will also be a spill kit on site to mitigate any spillage of fuel during the process.

The drill will be refuelled from drums of P-50 that are slung to the site by helicopter. The diesel will be pumped directly into the drill's fuel tank from the drums by an electric pump powered by the drill's battery. A spill kit and 170 L plastic tray will be placed beneath the pump handle to catch any potential leaks. . There will also be a spill kit on site to mitigate any spillage of fuel

during the process.

The camp stoves and generator will be refuelled directly from the drums of P-50 using a small portable electric pump. A spill kit and 170 L plastic tray will be placed beneath the pump handle to catch any potential leaks. . There will also be a spill kit on site to mitigate any spillage of fuel during the process.

The small engines (snowmobiles, geophysics generators, and the water pump) will be refuelled with gasoline from 5 gallon jerry cans with a spill kit on hand.

## 5. Basic Steps in the Event of a Spill

For the purposes of flammable liquids, Environment Canada defines a spill as a volume greater than 100L. 5050 Nunavut believes that, in the case of a spill or environmental emergency, it is necessary to react immediately in the most safe and environmentally responsible manner. No spill or incident (leak or drip) is so minor that it can be ignored. The following outlines the chain of communication and responses that will be followed in the event of a spill or other environmental emergency.

### 5.1 Procedure to Follow in the Event of a Spill

5050 Nunavut personnel will follow the following basic response steps in the event of a spill at the McGregor Lake campsite and their MIE and BVU exploration areas:

1. Ensure the safety of all persons at all times.
2. Find and identify the spill substance and its source, and, if possible, stop the process or shut off the source.
3. Inform the immediate supervisor or his/her designate at once by SAT Phone, so that he/she may take appropriate action. (Appropriate action includes the notification of a government official, if required).
4. Contain the spill or environmental hazard, as per its nature, and as per the advice of the Spill Line and Environmental Advisers, as required.
5. Implement any necessary cleanup or remedial action.

### 5.2 Chain of Command

The following provides the chain of command to be followed in the event of a spill:

1. Immediately notify one of the following individuals of a spill:
  - a. The President of 5050 Nunavut, Gordon Addie,
  - b. The Exploration Manager, Anthony Kovacs
  - c. The Project Manager, Afzaal Pirzada
  - d. The Camp Manager, John Maclean



**Table 5-1**  
**Roles and Responsibilities**

| <b>Individual</b>   | <b>Role Location Contact #s</b>  | <b>Responsibilities</b>   |
|---|--|---|
| <b>Gordon Addie,<br/>5050 Nunavut Ltd.<br/>President</b>    | Vancouver: 604-629-0250<br><br>McGregor Lake Campsite:<br>Numbers to be provided<br>once a communication<br>system is chosen and set<br>up for the camp. | Assume authority over the spill<br>scene and personnel involved.<br><br>Activate the Spill & Contingency<br>Plan. Report, or direct Response<br>Co-coordinator (if a different<br>individual) to report, the spill to the<br>NWT 24-Hour Spill Report Line<br>(867) 920-8130.   |
| <b>Afzaal Pirzada<br/>Project Manager</b>                   | Vancouver: 604-629-0250<br><br>McGregor Lake Campsite:<br>Numbers to be provided<br>once a communication<br>system is chosen and set<br>up for the camp. | In the absence of the President,<br>assume authority over the spill<br>scene and personnel involved.<br><br>Activate the Spill & Contingency<br>Plan. Report, or direct Response<br>Co-coordinator (if a different<br>individual) to report, the spill to the<br>NWT 24-Hour Spill Report Line<br>(867) 920-8130.   |
| <b>Anthony Kovacs,<br/>Exploration Manager</b>              | Vancouver: 604-629-0250<br><br>McGregor Lake Campsite:<br>Numbers to be provided<br>once a communication<br>system is chosen and set<br>up for the camp. | In the absence of the President or<br>Project Manager, assume authority<br>over the spill scene and personnel<br>involved.<br><br>Activate the Spill & Contingency<br>Plan. Report, or direct Response<br>Co-coordinator (if a different<br>individual) to report, the spill to the<br>NWT 24-Hour Spill Report Line<br>(867) 920-8130.   |
| <b>John Maclean,<br/>Camp Manager<br/>Responsibilities:</b> | McGregor Lake Campsite:<br>Numbers to be provided<br>once a communication<br>system is chosen and set<br>up for the camp.                                | Camp Manger will be the first<br>person to be on site and may<br>assume authority over the spill<br>scene and personnel involved in<br>the absence of the above persons.<br><br>Activate the Spill & Contingency<br>Plan. Report, or direct Response<br>Co-coordinator (if a different<br>individual) to report, the spill to the<br>NWT 24-Hour Spill Report Line<br>(867) 920-8130. |

| Individual  | Role Location Contact #s   | Responsibilities   |
|---|--|--|
| <b>Franz Environmental Inc.,<br/>Environmental Advisers</b> | Phone : (604) 632-9941<br>(Vancouver)<br><br>Fax : (604) 632-9942<br>(Vancouver)<br><br>Contact: Thomas Franz<br>Carlos da Ponte | Advisor provides expert advice on environmental/logistical cleanup requirements.<br><br>Each/both may provide assistance in developing any required testing or monitoring program, or in activating an existing program.<br>Each/both may recommend preventive measures. |

If the spill is minor (such as dripping of fuel during transfer, which can be absorbed by padding, absorbent crystals, etc.) then one of these individuals should be contacted at the end of the business day.

2. Once 5050 Nunavut senior staff (above) have been notified, they will then notify the field response coordinator or his/her designate to contact the 24-Hour Spill Line, if warranted, as follows:

#### **24 HOUR SPILL LINE**

Phone: (867) 920-8130  
FAX: (867) 873-6924

A "Spill Report Form" (Appendix C) will be filled out as completely as possible before or after contacting the 24-Hour Spill Line by the field response coordinator.

## 6. Taking Action

The following sections outline the 5050 Nunavut's preventative and clean-up procedures to be followed during all 5050 Nunavut activities.

### 6.1 Before the Fact: Preventive Measures

The following actions illustrate the approach of 5050 Nunavut to environmental care, by minimizing the potential for spills during fuel handling, transfer or storage:

1. Fuel transfer hoses with camlock mechanisms are to be used.
2. Carefully monitor fuel content in the receiving vessel during transfer.
3. If, during fuel transfer, drips are noted, clean up drips and minor spills immediately using absorbent pads.
4. Inspect drums daily, tanks and hoses for leaks or potential to leak.
5. Use plastic drip pans at all fuel transfer sites when and where fuel is transferred.
6. Use blue absorbent matting under any stationary machinery (e.g., bobcat, generator-sets and drill engines).
7. Train personnel, especially those who will be operators, in proper fuel-handling and spill response procedures.

#### 6.1.1 Response Equipment and Proximity

Equipment available to aid in spill response and remediation includes:

- Spill kits will be available at all fuelling storage sites and fuel transfer areas as well as the campsite generator shack and drill rig. Table 6-1 documents the regular contents of a spill kit.

**Table 6-1**  
**Contents of a Regular Spill Kit**

- Absorbent Pads (Oil, & Diesel)
- Universal Absorbent Pads (Antifreeze & Non-Haz)
- 3" x 4' Absorbent Socks (Oil, Gas & Diesel)
- HD Hazmat Disposal Bags
- Nitrile Gloves

### 6.2 After the Fact: Mitigative Measures

1. Primary 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 life, if necessary.
  - c) Identify the source of the spill.
  - d) Notify the appropriate member of the chain of command, as soon as is practical; they in turn notify the Response coordinator (if a different individual).

- e) Assess whether or not the spill can readily be stopped.
- f) Contain or stop the spill at the source, if possible, by following these actions:
  - i) If filling is in progress, STOP AT ONCE.
  - ii) Close or shut off valves.
  - iii) Place absorbent pads at the foot of the tank or barrel to prevent seepage into the ground or runoff of fuel.
2. Secondary steps to take:
  - a) Determine status of the spill event.
  - b) If not reported under 1d), report incident and steps taken to the appropriate member of the chain of command
3. If a fuel container is damaged and/or leaking, pump fuel from the damaged and/or leaking container into a refuse container.
4. Notify the 24-hour Spill Report Line, and receive further instructions from the appropriate contact agencies listed in Appendix A (e.g., disposal of contaminated soil or ice/snow in sealed containers for removal from site, etc.).
5. Complete and FAX a copy of the Spill Report (Appendix C)
6. Notify permitting authorities and the Lands Manager. If possible, resume cleanup and containment.

#### **6.2.1 Mitigative Equipment and Proximity**

- A helicopter can be dispatched to the drill rigs from the campsite area within minutes.
- Spill-response equipment is available from Kugluktuk, 35 minutes away by air, and or from Yellowknife. Miscellaneous equipment at the 5050 Nunavut camp area (Table 6-2) is available for spill response and cleanup, including hand tools, shovels (earth and snow), fire extinguishers, fuel transfer pumps, water pumps, miscellaneous hoses and fittings.
- Personnel, including first aid attendant and cleanup crews are available for immediate dispatch from the camp site.

**Table 6-2**  
**General Response Inventory at the Camp**

---

Fire extinguishers (valid/recharged) in each structure.  
Water pump, hoses and fittings  
Hammers, shovels and picks of assorted sizes  
Assorted 10 L plastic pails  
Ice auger  
Plastic garbage bags  
Plastic tarps  
Extra bundles of absorbents  
Fuel-transfer pumps

### **6.3 Managing Fuel Spills in Various Environments**

5050 Nunavut conducts activities in a variety of different environments that react differently to fuel spills. As such it is important that environment specific procedures be followed in order to minimize the potential environmental impact. These environments include rock, soil, ice, snow, and water. However, no matter the environment, spills must be managed following a similar set of general steps:

1. **Containment** of spill;
2. **Disposal** of spilled product;
3. **Remediation** of the affected area.

Further advice on how to proceed with managing a spill will be obtained from the 24-Hour Spill Line.

#### **6.3.1 Procedure for Spills on Land and Rock**

As soon as possible either during or after the incident, contact the 24-Hour Spill Line (ensuring the government agencies are informed).

The following procedures are to be followed for hydrocarbon spills on land (soil) rock outcrops, boulder fields, etc.

##### **Containment**

Construct a berm of peat, native soil or snow down slope of the seepage or spill.

Inform response coordinator or his/her designate to obtain plastic tarp(s) and absorbent sheeting on-site.

Place the tarp in such a way that the fuel can pool for collection and removal (i.e., at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare drums, and dispose of product by transporting to a liquid-waste disposal facility.

Control petroleum-product sheening on vegetation by applying a thin dusting of Spagh-Zorb or other ultra-dry absorbent to the groundcover.

Place absorbent matting on the rock to soak up spilled product, etc. Dispose of saturated matting in an empty drum, labelling and sealing the drum when it is full.

**Removal**

Remove the labelled and sealed drums offsite by plane or helicopter to Yellowknife where they are dealt with accordingly.

**Remediation**

Receive instruction from the appropriate member of the chain of command (Table 5-1) or contact agencies listed in Appendix A regarding collection of the contaminated soil or vegetation, its removal and site cleanup/restoration.

**6.3.2 Fuel Spills on Water**

As soon as possible, either during or after the incident, contact the 24-Hour Spill Line (ensuring the government agencies are informed).

It is important to limit immediately the extent of spills on water. The following is the procedure to be implemented when a spill incident occurs:

**Containment**

If the spill is small enough to be controlled by absorbent pads or a boom, deploy hydrophobic (water repellent) absorbent pads (blue matting) on water. Hydrophobic pads readily absorb hydrocarbons, and not water.

Containment booms should be deployed on the water surface to "fence in" the spill area gradually and to prevent it from spreading by encircling the spill with the boom. Absorbent mats will then be deployed to manage any hydrocarbon that may have escaped containment. Keep in mind that environmental factors such as high winds and wave action can adversely affect attempts at spill cleanup.

If the volume of the hydrocarbon spill is so great that it cannot be absorbed by the hydrophobic absorbent pads and or booms, the contained hydrocarbon will be pumped into refuse drums.

**Removal**

Once a boom is in place, a skimmer may be brought on-scene to aid in capture of the hydrocarbon; once captured, the product should be pumped to the empty refuse drums and held for disposal.

**Remediation**

Receive instruction from the appropriate member of the chain of command (Table 5-1) or contact agencies listed in Appendix A regarding collection of the contaminated soil or vegetation, its removal and site cleanup/restoration.

**6.3.3 Fuel Spills on Snow and Ice**

As soon as possible, either during or after the incident, contact the 24-Hour Spill Line (ensuring the government agencies are informed).

Hydrocarbons spilled on snow behave much differently than hydrocarbons spilled on ice. As a result, the following two sections provide information and direction on what to do in these two

different scenarios.

#### **6.3.4 Spills on Snow**

By its nature, snow is an absorbent, and fuel spilled on snow is collected with relative ease, e.g., by shovel, in the case of small spills.

##### **Containment & Removal**

Assess the nature of the spill. Necessary equipment might include shovels, plastic tarp(s), and empty drums.

Shovel or scrape contaminated snow and deposit in empty refuse drums.

If the spill is more extensive, build peat-bale berms or compacted-snow berms. Place absorbent pads behind the berm and secure them in place with more snow. The snow with the absorbent pads inside will serve to contain the flow of the spill. Continue this process until the horizontal flow has been contained.

Once contained, any liquid can be pumped into a refuse drum. Snow and absorbent pads should also be contained in refuse drum after excess liquid has been removed.

##### **Remediation**

Receive instruction from the appropriate member of the chain of command (Table 5-1) or contact agencies listed in Appendix A.

#### **6.3.5 Spills on Ice**

Before work (e.g. spill management) or travel can occur on an ice surface, the ice has to be the required thickness according to safety standards (Table 6-3 and Table 6-4).

##### **Containment**

Spills on ice are handled in similar fashion as those on snow. However, as ice presents the potential danger of immediate access to water, care must be taken to respond quickly to such spills. Should fuel seep or flow through cracks or breaks in the ice, despite all precautions, assistance should be sought immediately.

Construct a compacted-snow berm around the edge of the spill area.

##### **Removal**

Although hard ice will retard or prevent fuel entry to the receiving waters below, all contaminated snow and ice, as well as objects embedded in the ice (such as gravel) must be scraped from the ice surface, placed in refuse drums, and disposed of in an appropriate manner.

##### **Remediation**

Receive instruction from the appropriate member of the chain of command (Table 6-1) or contact agencies listed in Appendix A.

**TABLE 6-3**  
**Guide to Required Ice Thickness**

| Weight     |         | Ice Thickness<br>Travel | for Ice Thickness<br>Stationary Loads |
|------------|---------|-------------------------|---------------------------------------|
| 242,500lb. | (12 1t) | 50 inches (127cm)       | 90 inches (229cm)                     |
| 154,000lb. | (77t)   | 40 inches (102cm)       | 70 inches (178cm)                     |
| 100,000lb. | (50t)   | 32 inches (81cm)        | 60 inches (152cm)                     |
| 55,000lb.  | (28t)   | 25 inches (64cm)        | 43 inches (109cm)                     |
| 22,000lb.  | (11t)   | 15 inches (38cm)        | 30 inches (76cm)                      |
| 17,600lb.  | (9t)    | 14 inches (36cm)        | 24 inches (61cm)                      |
| 7,700lb.   | (4t)    | 10 inches (25cm)        | 18 inches (46cm)                      |

**Expressed in inches and centimetres.**

**Weights and ice thickness measures rounded to nearest whole.**

Table 6-4 below presents a numerical summary of the Transport Canada (1974) required fresh water ice thickness versus aircraft load from the AK-68-14-001 standard.

**Table 6-4**

**Required Ice Thickness for Typical Aircraft Weights**  
**AK-68-14-001 Transport Canada Standard**

| Weight  |         |         | Required Fresh-Water<br>Ice Thickness |      |
|---------|---------|---------|---------------------------------------|------|
| Lb      | kg      | kN      | M                                     | in   |
| 10 000  | 4 545   | 44.5    | 0.33                                  | 13   |
| 30 000  | 13 640  | 133.5   | 0.58                                  | 23   |
| 67 000  | 30 400  | 300.0   | 0.90                                  | 35.5 |
| 135 000 | 61 360  | 600.0   | 1.27                                  | 50   |
| 800 000 | 364 000 | 3 570.0 | 3.20                                  | 126  |

**Source: Winter Operations Report 1995/96, Kennecott/Aber, Lac de Gras, by 669107 Alberta Ltd.**