

SPILL CONTINGENCY PLAN
Grail Project, Boothia Peninsula, Nunavut
Indicator Minerals Inc.
Original Submitted November 2009

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SPILL CONTINGENCY PLAN

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1.0 Introduction

This Indicator Minerals Inc. Spill Contingency Plan shall be in effect from December 01, 2009 to December 01, 2013. All future amendments will be posted and recorded on the attached amendment record form. Please refer to this record for documentation of the most recent amendment.

This Indicator Minerals Inc. Spill Contingency Plan encompasses the Grail Project, Boothia Peninsula, in the Kitikmeot Region of Nunavut.

This Spill Contingency Plan will be posted at the drill site, camp office and kitchen.

Indicator Minerals Inc. endeavors to take every reasonable precaution toward ensuring the protection and conservation of the natural environment, the safety and health of Indicator Minerals Inc. employees, sub-contractors and contractors and (protecting) the community (at large) from any harmful effects of its materials and operations.

2.0 Facilities

A camp is being proposed for establishment at UTM coordinates NAD 83 Zone 15W 450550E/7772000N. As no camp has yet been established, the following description is the most accurate estimate for the proposed site:

2.1 A camp will consist of:

- 5 x 14x 16 insulated tents on wood frames. These tents function as sleep tents, an office, core tent and first aid station
- 2 x 14x 32 insulated tents on wood frames. These tents function as the kitchen mess and the dry
- An outhouse facility using PACTO toilets. The PACTO toilets do not require electricity or water. Instead, a flush foil is used to encapsulate the waste
- A generator building to house a 120 kW diesel generator as well as a backup generator
- A helicopter landing area, and
- A garbage incineration area

3.0 Petroleum and Chemical Product Storage and Inventory

3.1 Remote Location Fuel Inventory, Storage and Handling Procedures

At times, Indicator Minerals Inc. may establish a fuel caches for use during our exploration program. Typically these caches would consist of 19, 205 litre steel drums or less of jet fuel and or diesel, stored in accordance with CSA approved methods of storage of a drummed product. These drums are stored horizontally, on the ground with the bungs positioned at the mid-way point. This storage method prevents contact of surface water with the bungs and possible contamination of the fuel and keeps the bung seals submerged in fuel, which prevents the seals from drying out and leaking. Fuel will be stored no less than 30m from the high water mark of any water body. Whenever practical a natural depression in an area with low permeability should be chosen to prevent the spreading of chemicals or fuels. Remote fuel storage locations (e.g. fuel cache) will be plotted on a suitable topographic map and the GPS positions will be recorded. An updated inventory of the fuel used will be maintained. Regular visual inspections will be conducted of all fuel caches. Empty or otherwise no longer required fuel drums will be retrieved from all locations. Empty drums will be returned to the fuel supplier for recycling. Full fuel drums will not be stored remotely for more than one year. Fuel storage locations will have a suitable spill response kit.

A fuel camp will also be established at camp. At this time, it is proposed that this fuel cache hold no more than 100 drums of Jet Fuel and no more than 50 drums of P-50. These will be stored near the airstrip to lessen the chances of spillage via moving the drums. For both camp and drill use, approximately 25 100lb bottles of propane would be necessary and stored near the kitchen and the dry (for easy accessibility). Chemicals would ideally be stored in the generator shack, away from any prolonged areas of use by exploration personnel. Chemicals specific to drilling will be stored at the drill.

3.2 Petroleum Product Transfer

Manual and automatic pumps (and aviation fuel filters for jet fuel) are used for the transfer of all petroleum products. Smoking, sparks, or open flame are prohibited in fuel storage and fuelling areas at all times. Drip pans or the appropriate impenetrable container/material shall be used when refueling. Only personnel trained in fuel transfer and are familiar with the equipment may refuel.

4.0 Risk Assessment and Mitigation of Risk

4.1 Petroleum Products and Other Fuels

Following, is a list of potential sources of fuel spills:

- 1) Drummed product: Leaks or ruptures may occur. This includes and is not limited to drums of jet A/ B, diesel, waste fuel, waste oil.
- 2) Fuel cylinders: Propane, leaks may occur at the valves. All cylinders are secured at all times.
- 3) Aircraft and equipment: Aircraft (fixed and rotary wing), 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 Indicator Minerals Inc. Grail Project drill sites and/ or fuel caches, reduces risks associated with the categories listed above.

Spill response training is provided to personnel who handle fuels and other petroleum products, and at minimum one emergency response drill will be held during the season. A report will be prepared by the response coordinator following each drill, noting response time, personnel involved and any problems or deficiencies encountered. This report will be used to evaluate emergency response capability and remedy any deficiencies if required.

Oil/Fuel Spill Kits are positioned at all drill sites and/ or fuel caches. A list of Spill Kits, their location, description, and contents are listed in Section 7.

5.0 Responding to Failures and Spills

5.1 Spill Response Contact List

Indicator Minerals Inc. Project Geologist on site (person in charge):

Andrea Maynes
Project Geologist
Work: 604-331-4605
Office: 604-331-5098

Indicator Minerals Inc. 24 hour telephone contact:

Bruce Counts President & CEO

Work: 604-331-4605

Office: 604-331-5091

Cell: 604-506-2804

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.

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 immediate supervisor or his/her designate at once, so that he/she may take appropriated action. (Appropriate action includes the notification of a government official; if required, Spill Report forms are included in Appendix 3.
- 4) **Contain** the spill or environmental hazard, as per its nature, and as per the advice of the Spill Line as required.
- 5) **Implement** any necessary cleanup or remedial action.

5.3 Basic Steps ÷ Chain of Command

- 1) **Immediately** notify Indicator Minerals Inc. All spills MUST be reported to:

24-Hour Spill Line

Tel. 1-867-920-8130, Fax 1-867-873-6924.

Diand Water Resources Inspector

Tel. 1-867-975-4289

Environment Canada Personnel

Tel: 1-867-975-4639

Government of Nunavut Department of Environment

Tel: 1-867-975-7700 or 1-866-222-9063

- 2) **A Spill Report Form (Appendix 2)** is filled out as completely as possible before or after contacting the 24 Hour Spill Line.
- 3) Other members of the team are notified as deemed necessary.

5.4 Other contacts for spill notification

Kitikmeot Inuit Association, Kugluktuk, NU	1-867-982-3310
Fisheries and Oceans Canada	1-867-979-8007
Environmental Protection	1-867-975-4644
Environment 24-Hour Emergency Pager	1-867-920-5131

6.0 Taking Action

6.1 Before the Fact: Preventative Measures

The following actions illustrate the proactive approach of Indicator Minerals Inc. to environmental care. 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.
- 2) Carefully monitor fuel content in the receiving vessel during transfer.
- 3) Clean up drips and minor spills immediately.
- 4) Regularly inspect drums, tanks and hoses for leaks or potential to leak.
- 6) Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures.
- 7) Spill pans are to be used when refueling equipment.

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 life, if necessary.
 - c) Identify the source of the spill.
 - d) Notify your supervisor.
 - e) Assess whether or not the spill can be readily stopped.
 - f) Contain or stop the spill at the source, if possible, by following these actions:

If filling is in progress, STOP AT ONCE.

Close or shut off valves.

Place plastic sheeting at the foot of the tank, barrel, or piece of equipment to prevent seepage into the ground or runoff of fuel

Use absorbent materials (sheets, pads, booms) to absorb and contain the fuel spill.

Use a patch kit to seal leaks, if practical to do so.

2. Secondary steps to take:

Determine status of the spill event.

If necessary, pump fuel from a damaged and/or leaking tank or drum into a refuge container.
Notify the 24-hour Spill Report Line, and receive further instructions from the appropriate contact agencies listed in *Section 5.4*. (e.g. disposal of contaminated soil or ice/snow in sealed containers for removal from site, etc.).
Complete and Fax a copy of the Spill Report Form (*Appendix 3*).
Notify permitting authorities.
If possible, resume cleanup and containment.

6.3 Fuel Spills on Land

Land may be defined as soil, gravel, sand, rock, and vegetation. Advice on spill containment and cleanup may be obtained from the DIAND Water Resource Inspector.

6.3.1 Procedure for Spills on Rock

For hydrocarbon spills on rock outcrops, boulder fields, etc.:

- 1) First responder or his designate obtains plastic tarp(s) and absorbent sheeting on-site.
- 2) A berm of peat, native soil or snow is constructed down slope of the seepage or spill.
- 3) The tarp is placed in such a way that the fuel can pool for collection and removal (e.g. at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare empty drums for sealing and disposal.
- 4) Absorbent sheeting is placed on the rock to soak up spilled oil, fuel, etc.
- 5) Multi Sorb (crushed lava rock) can be used to scrub the rock surface.
- 6) Saturated material is disposed of in an empty drum, which is then labeled and sealed. Alternatively, the pads may be wrung out into the empty drum(s), the drums marked and then secured for eventual disposal.
- 7) Depending on the nature and volume of the spill, the 24-Hour Spill Line may be contacted after Step 4 or Step 5.

6.3.2 Procedure for Spills on Land

- 1) First responder or his designate obtains plastic tarp(s), absorbent sheeting, Multi Sorb or other ultra-dry absorbent and any other necessary spill containment equipment, pump, hoses, etc.
- 2) A berm of peat, native soil or snow is constructed down slope of the seepage or spill.
- 3) The tarp is placed in such a way that the fuel can pool for collection and removal (e.g. at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare empty drums, and dispose of product as advised by the 24-Hour Spill Line.
- 4) Petroleum-product sheen on vegetation may be controlled by applying a thin dusting of Multi Sorb or other ultra-dry absorbent to the groundcover.
- 5) Contact the 24-Hour Spill Line, Receive instructions from the appropriate contact agencies listed in Section 5.4 regarding collection of the contaminated soil or vegetation, its removal and site cleanup/restoration.

6.4 Fuel Spills on Water

6.4.1 Procedure for Spills on Water

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

- 1) If the spill is small, deploy hydrophobic (water repellent) absorbent pads on the water. Hydrophobic pads readily absorb hydrocarbons. Alternatively, an ultra-dry absorbent designed for use on water-based spills may be deployed.
- 2) If the spill is larger, ready several empty drums to act as refuge containers for the spill.
- 3) Deploy *containment* booms on the water surface to fence in the spill area gradually and to prevent it from spreading. Keep in mind those environmental factors such as high winds and wave action can adversely affect attempts at spill cleanup.
- 4) *Absorbent* booms can then be deployed to encircle and then absorb any hydrocarbon spillage that may have escaped the *containment* boom.
- 5) Once a boom has been secured, a skimmer may be brought on-scene to aid in capture of the hydrocarbon; once captured, the product should be pumped to the empty fuel drums and held for disposal.
- 6) As soon as possible either during or after the incident, contact the 24-Hour Spill Line. (This will ensure government agencies are informed).

6.5 Fuel spills on Snow and Ice

By its nature, snow is an absorbent, and fuel spilled on snow is collected with relative ease, either by shovel, in the case of small-range spills, and by loader, in the case of more extensive spills.

6.5.1 Procedure for Spills on Snow

- 1) Assess the nature of the spill. Necessary equipment might include shovels, plastic tarp(s), empty drums, and wheeled equipment.
- 2) Shovel or scrape contaminated snow and deposit in empty refuge drums. If the spill is more extensive, build peat-bale berms or compacted snow berms with plastic over top, around the affected area.
- 3) Either during or immediately after the accident, notify the 24-Hour Spill Line. Receive instructions on the preferred disposal method (e.g. storage in sealed drums, incineration or deposit in a designated lined containment area on land) from the appropriate contact agencies listed in *Section 5.4*.

6.5.2 Procedure for spills on Ice

Spills on ice are handled in similar fashion as those on snow. However, as ice presents the added 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.

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

- 2) 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 or frozen absorbent pads) must be scraped from the ice surface and disposed of in an appropriated manner.
- 3) Contact the 24-Hour Spill Line. Receive disposal instructions (e.g. sealing in drums, burn off, etc.) from the appropriate contact agencies listed in *Section 5.4*.

6.6 Procedure for Chemical Spills

- 1) Assess the hazard of the spilled material. REFER TO THE MSDS SHEETS NOW. 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.
- 2) Assemble the necessary safety equipment before response (e.g. latex or other protective gloves, goggles, or safety glasses, masks or breathers, etc.)
- 3) Apply absorbents to soak up liquids.
- 4) Place plastic sheeting over solid chemicals, such as dusts and powders, to prevent their disbursement by wind or investigation by birds or other mammals.
- 5) Neutralize acids or caustics. Place spilled material and contaminated cleanup supplies in an empty refuge drum and seal for disposal.
- 6) Contact the 24-Hour Spill Line. Receive instructions on disposal methods and designated locations from the appropriate contact agencies listed in *Section 5.4*.

6.7 Procedure for Loss of External Load

The loss of external loads of fuel, oil, or chemicals from aircraft almost certainly results in complete and catastrophic failure of the container that once held the product. Immediate response is imperative.

- 1) Mark the loss target with GPS coordinates and relay to camp or base ASAP. Include quantity and type of load loss.
- 2) Base or camp will contact 24-Hour Spill Line, and receive direction and instruction.
- 3) Administer the appropriate procedure for Spills on Land, Water, Snow, or Ice.

7.0 Spill Equipment

Complete spill kits, oil absorbent kits, are kept on hand in several locations. Spill kit locations include the following: fuel cache near the helicopter refueling area, the drill and in the camp. Hand tools will also be a part of, or next to each spill kit. Fire extinguishers will be located in each tent, at the generator and at the drill.

The contents of the spill kit are listed below:

- 1 ĩ 360 litre/79 gallon polyethylene overpack drum
- 4 ĩ oil sorbent booms (50X 100)
- 100 ĩ oil sorbent sheets (16.50X 200X 3/80)
- 1 ĩ drain cover (360X 360X 1/160)
- 1 ĩ Caution tape (30X 5000)
- 1 ĩ 1 lb plugging compound
- 2 ĩ pair Nitrile gloves
- 2 ĩ pair Safety goggles
- 2 ĩ pair Tyvek coveralls
- 1 ĩ instruction booklet
- 10 ĩ printed disposable bags (240X 480)

Sorbent capacity of this spill kit is 240 litres.

8.0 Training and Practice Drills

8.1 Training

All members of the Response Team will be familiar with the spill response resources at hand, this Contingency Plan, and appropriate spill response methods. Involvement of other employees may be required, from time to time.

This familiarity will be acquired through:

- 1) Initial or refresher training, as appropriate, provided once per season.
- 2) Regular inventory updates are provided in list form to all team members. Information to be reported includes 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).

8.2 Practice Drills

Indicator Minerals Inc. is aware that without practice, no Contingency Plan has value.

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.

Appendix #1

Manual Distribution

Title

Company President

Bruce Counts

Project Supervisor

Dave Kelsch or Andrea Maynes

Safety Officer

TBA

An amendment instruction sheet shall be included that lists and identifies pages in the manual to be added or replaced.

Amendment No.	Amendment Date	Date Entered	Entered By

Appendix #2

Spill Report Form

No spills have occurred to date.