

SPILL CONTINGENCY PLAN

INULIK PROJECT

1.0 BASIC STEPS - SPILL PROCEDURE

The basic steps of a response plan are as follows:

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, 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.

1.1. BASIC STEPS - CHAIN OF COMMAND

1. Immediately notify the Project Geologist of any spill. He/she then notifies the Response Co-ordinator (if a different individual).
2. Response Co-ordinator or his/her designate then contacts the 24-Hour Spill Line, if warranted, as follows:

Phone: (867) 920-8130

FAX: (867) 873-6924

A "Spill Report Form" is filled out as completely as possible before or after contacting the 24-Hour Spill Line.

1.2. OTHER CONTACTS FOR SPILL RESPONSE/ ASSISTANCE IN
NWT AND NUNAVUT

Mobile Emergency Spill Response Unit Canadian Northern Oil
(Shell Canada Bulk Plant, Yellowknife)

Matthew Wasserman	(867) 873-3337 (during business hours)
Peter Lane	(867) 669-1459 (24-hour cell-phone number)

Environment Canada

David Tilden, Yellowknife Nunavut Office (FAX line)	(867) 669-4728 (867) 979-6581 (867) 979-6808
--	--

Lands Administration, Indian and Northern Affairs Canada

Ken Leishman, Nunavut District	(867) 669-2677 FAX (867) 669-2713
-----------------------------------	--

RCMP, Yellowknife detachment

Emergencies only:	(867) 669-5100 669-1111
-------------------	----------------------------

RCMP, Kugluktuk detachment

Emergencies only:	(867) 982-4111
-------------------	----------------

Yellowknife Fire Department

(867) 873-4506 (867) 873-9056 (FAX)

Kugluktuk Fire
Department

(867) 982-4222

Workers' Compensation Board -Occupational Health and Safety
(Iqaluit Office)

(877) 404-4407

Workers' Compensation Board-Exploration Site Accident
Reports

(867) 4412

(867) 873-0123 (cell)

2. TAKING ACTION

2.1. BEFORE THE FACT: PREVENTIVE MEASURES

The following actions illustrate a proactive approach to environmental care. In addition, they minimise 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. Clean up drips and minor spills immediately.
4. Regularly inspect drums, tanks and hoses for leaks or potential to leak. (For example, fabric-sheathed hose, such as fire hose or petrol-transfer hoses may develop pinholes or surficial cracks from normal weathering out of doors.
5. Drip pans are to be used at all sites where fuel is transferred and under stationary machinery (e.g., gen-sets).
6. Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures.

2.2. 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 the Project Geologist, as soon as is practical; he in turn notifies the Response Coordinator (if a different individual).
 - e) Assess whether or not the spill readily can 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 plastic sheeting at the foot of the tank or barrel to prevent seepage into the ground or runoff of fuel.
 - iv. Use a patch kit to seal leaks, if practical to do so.

2. Secondary steps to take:

- a) Determine status of the spill event.
- b) If not reported under 1. d), report incident and steps taken to the Project Geologist, who in turn informs the Response Co-ordinator (if a different individual).
- c) If necessary, pump fuel from a damaged and/or leaking tank or drum into a refuge container.
- d) Notify the 24-hour Spill Report Line, and receive further instructions from the appropriate contact agencies listed in 1.2 (e.g., disposal of contaminated soil or ice/snow in sealed containers for removal from site, etc.)
- e) Complete and FAX a copy of the Spill Report Form.
- f) Notify permitting authorities and the Lands Adviser.
- g) If possible, resume cleanup and containment.

2.3. 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 24-Hour Spill Line.

2.3.1. Procedure for spills on rock

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

1. Response Co-ordinator or his designate obtains plastic tarp(s) and absorbent sheeting on-site.
2. A berm of peat, native soil or snow is constructed downslope 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 later off-site.
4. Absorbent sheeting is placed on the rock to soak up spilled oil, petrol, etc.
5. Saturated sheeting is disposed of in an empty drum, which is then labelled and sealed. Alternatively, the pads may be wrung out into the empty drum(s); the drums marked and then secured for eventual disposal off-site. The pads may be reused.
6. The disposal container is then transported off-site.
7. Depending on the nature and volume of the spill, the 24-Hour Spill Line may be contacted after Step 4 or after Step 5.

2.3.2. Procedure for spills on land

1. Response Co-ordinator or his designate obtains plastic tarp(s), absorbent sheeting, Spagh-zorb 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 downslope 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 by transporting to a solid waste disposal facility.

4. Petroleum-product sheening on vegetation may be controlled by applying a thin dusting of Spagh-Zorb or other ultra-dry absorbent to the groundcover.
5. Contact the 24-Hour Spill Line. Receive instruction from the appropriate contact agencies listed in 1.2 regarding collection of the contaminated soil or vegetation, its removal and site cleanup/ restoration.
6. Depending on the nature and volume of the spill, Response Co-ordinator or his designate implements the spill action plan.

2.4. FUEL SPILLS ON WATER

2.4.1. Procedure for spills on water

It is important to limit immediately 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 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 that environmental factors such as high winds and wave action can adversely affect attempts at spill cleanup.
4. Absorbent booms then can 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.)
7. If the spill is sufficiently large, and cannot be contained by rapid action of personnel present, contact the Mobile Environmental Response Unit for assistance. (Weather permitting, this unit can be flown to an emergency spill site within several hours.)

2.5. FUEL SPILLS ON SNOW AND ICE

2.5.1. Procedure for spills on snow and ice

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-range spills.

Drilling from ice: Best practice

Driving the casing invariably is a messy (visually untidy) but benign operation. Although drilling from ice is accomplished by means of a closed-circuit system, wet sediments brought to surface may drip onto the ice surrounding the drill. Dribblings of fuel and oil from the drill, heater, compressor(s), etc., occasionally may collect on ice during a shift, even when drip pans are placed under equipment, but easily are absorbed by snow, and, if required, by ultra-dry commercial absorbent. Drillsites are marked with flags and pickets prior to drilling, and this enables easy visual location of drillsites after move-off. Scraping and/or steaming removes all such material, and removed material is then bagged and transported by snowmachine or other vehicle to a containment area (sump or depression) on shore. After drillsite cleanup, no débris will remain on the ice.

Unless required for immediate use, material or equipment should not be stored by the company or its contractors on the surface ice of lakes or other waterbeds. Material or equipment so placed (e.g., survey stakes, fuel, timbers, pipe racks, drill sheds, and the like) is to be placed on ice of sufficient thickness (see attached Table 1) and removed promptly once temporary use has ceased.

2.5.1.1. SPILLS ON SNOW

1. Assess the nature of the spill. Necessary equipment might include shovels, plastic tarp(s), empty drums.
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 incident, notify the 24-Hour Spill Line. Receive instructions on the preferred disposal method (e.g., storage in sealed drums, transport off-site for disposal) from the appropriate contact agencies.

2.5.1.2. SPILLS ON ICE

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.

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) must be scraped from the ice surface and disposed of in an appropriate manner.

4. Contact the 24-Hour Spill Line. Receive disposal instructions (e.g., sealing in drums, transport off-site, etc.) from the appropriate contact agencies.
3. Where fuel or oil has escaped to the receiving waters, also contact the 24-hour emergency line of the Mobile Environmental Response Unit.

2.6. PROCEDURE FOR CHEMICAL SPILLS

1. Assess the hazard of the spilled material. Members of the camp 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 or powders, to prevent their disbursement by wind, or investigation by birds or other mammals.
5. Neutralise 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.

TABLE 1

GUIDE TO REQUIRED ICE THICKNESS

ICE STRENGTH FOR TRAVEL

(expressed in inches and centimetres)

(weights and ice thickness measures rounded to nearest whole)

242,500lb.(121t)	= 50 inches (127cm)
154,000lb.(77t)	= 40 inches (102cm)
100,000lb.(50t)	= 32 inches (81cm)
55,000lb. (28t)	= 25 inches (64cm)
22,000lb. (11t)	= 15 inches (38cm)
17,600lb. (9t)	= 14 inches (36cm)
7,700lb. (4t)	= 10 inches (25cm)

ICE STRENGTH FOR STATIONARY LOADS

(expressed in inches and centimetres)

(weights and ice thickness measures rounded to nearest whole)

242,500lb.(121t)	= 90 inches (229cm)
154,000lb.(77t)	= 70 inches (178cm)
100,000lb.(50t)	= 60 inches (152cm)
55,000lb. (28t)	= 43 inches (109cm)
22,000lb. (11t)	= 30 inches (76cm)
17,600lb. (9t)	= 24 inches (61cm)
7,700lb. (4t)	= 18 inches (46cm)