

Spill Contingency Plan

Aviat Project, Melville Peninsula, NU

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1.0 Introduction

This Spill Contingency Plan was revised on December 3, 2008. Any proposed changes and/or amendments will be submitted to the Nunavut Water Board, DIAND and the Qikiqtani Inuit Association

This Spill Contingency Plan has been specifically prepared for the Aviat Project exploration program. This Plan shall be posted at operational remote camps and drill shacks.

Stornoway Diamond Corporation 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.

2.0 Facilities

Camp Location: 69° 26.13' N, 83° 14.53' W

See schematic contained in Appendix II for an illustration of the camp layout. Please note that schematic is for illustration purposes only (structures are not to scale) and applies to the camp's typical layout during its operational season of May through to October (weather permitting).

3.0 Petroleum and Chemical Product Storage and Inventory

3.1 Remote Location Fuel Inventory, Storage and Handling Procedures

Fuel caches and chemical storage areas during the operational season are typically as follows:

Description of the type and amount of potential contaminants normally "in use" at camp

- 2 Drums of Diesel located behind each tent
- 1 Drum of Diesel located behind the generator
- 2 (100lb) Propane Tanks located outside of the "Kitchen" tent
- 2 (100lb) Propane Tanks located outside of the "Dry" tent

Description of the type and amount of potential contaminants normally stored at camp

- JET B fuel for the helicopter – 2050 litres (10 drums)
- Diesel - 1845 litres (9 drums)
Drums will be stored on flat stable terrain during the summer to reduce chances of a leak. If available a natural depression situated well away from water bodies will be utilized for storage.
- Oil – Several Cases of 4 Cycle Engine Oil
All oil containers will be removed from the packaging in which they were shipped, placed in plastic tubs that are lined with enviromats, and stored in a plywood floored tent.
- Propane- 10 to 15, 100 lb propane tanks
A small cache of propane tanks is kept to the northwest of the generator shack. All tanks are stored upright and tied together to prevent them from falling over.

- **Drilling Additives -**
All drilling muds, greases, and oils will be stored in a plywood shed constructed for this purpose. The floor will be lined with plastic and enviromats placed on top of the plastic liner in order to absorb any potential leakage.

Additional fuel caches are typically located to the northeast of the camp perimeter where helicopters are stored when not in use. These caches are illustrated in the accompanying figure and are typically comprised of small amounts of Jet B drums positioned at each of the three helicopter landing sites (when in use) with an additional cache to the west comprised of only diesel. Numbers making up these caches vary throughout the exploration season as fuel is burned and then re-stocked.

One large spill kit is located at generator shack and one large spill kit is located outside of the spare survival shack in the outdoor storage area. Four small spill kits are kept inside the television/storage tent.

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 flames are **prohibited** in fuel storage and fuelling areas at all times.

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 B, Diesel, Gasoline, Waste Fuel, and Waste Oil.
- 2) Fuel cylinders: Propane, leaks may occur at the valves. All cylinders are secured at all times.
- 3) Vehicles and equipment: 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.

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.

One large spill kit is located at generator shack and one large spill kit is located outside of the spare survival shack in the outdoor storage area. Four small spill kits are kept inside the television/storage tent, and another small spill kit is located at the middle helicopter landing site/fuel cache.

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.

5.0 Responding to Failures and Spills

5.1 Spill Response Contact List

24 Hour Spill Line
(867) 920-8130

DIAND Water Resources Inspector
Iqaluit, Nunavut
(867) 975-4298

Environment Canada
Iqaluit, Nunavut
24 Hour Duty Officer
Phone: (867) 766-3737
Fax: (867) 873-8185

Qikiqtani Inuit Association
Phone: (867) 979-5391
Fax: (867) 979-1643

Stornoway Diamond Corporation
Phone: (604) 983-7750
Fax: (604) 987-7107

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 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 DIAND 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 DIAND Water Resource Officer as required.
5. Implement any necessary cleanup and/or remedial action.

5.3 Basic Steps — Chain of Command

1. Immediately notify and report to the 24-Hour Spill Line at (867) 920-8130, the DIAND Water Resources Inspector in Nunavut at (867) 975-4298, and Environment Canada personnel at 867-766-3737.
2. ***A Spill Report Form (Appendix I)*** is filled out as completely as possible before or after contacting the 24 Hour Spill Line.
3. Notify Robin Hopkins , Stornoway Diamond Corporation at (604) 983-7750.

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	
- <i>General Reception</i>	(867) 975-7700
- <i>Manger of Pollution Control</i>	(867) 975-7748

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.
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 life, if necessary.
 - 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.

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

Contaminated water, ice, soil and clean up supplies will be disposed of at a facility approved by Federal and/or Territorial regulatory agencies.

6.3 SPILL RESPONSE ACTIONS GASOLINE AND JET B AVIATION FUEL

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 gasoline or Jet B with sorbent pads and/or skimmer.

Flush with low pressure water to herd oil to collection point.

On advice from regulatory agencies, 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

Contaminated water, ice, soil and clean up supplies will be disposed of at a facility approved by Federal and/or Territorial regulatory agencies.

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 CO₂.

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

Contaminated water, ice, soil and clean up supplies will be disposed of at a facility approved by Federal and/or Territorial regulatory agencies.

7.0 Spill Equipment

Complete spill kits are kept at the camp location and at the drill shack.

One large spill kit is located at generator shack and one large spill kit is located outside of the spare survival shack in the outdoor storage area. Four small spill kits are kept inside the television/storage tent, and another small spill kit is located at the middle helicopter landing site/fuel cache.

Large Spill Kits Contain :

- 1 20L Poly containment pail
- 12 16" x 20" oil absorbent pads
- 2 3" by 48" oil absorbent socks
- 1 heavy duty disposal bag (6 mil)
- 1 pair Chemi-pro gloves
- 3 lbs all purpose absorbent.

Shovels and a garden sprayer will also be available for spill containment measures.

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 and Practice Drills

8.1 Training

At the beginning of each field season all employees and contractors will be made familiar with the location and contents of the spill kits and containment resources available at the camp facility and will be briefed on the contents of this plan. A safety drill will be held imitating a spill situation and its occurrence documented in the camp's safety records.

Appendix I

Spill Report Form



Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____
	OCCURRENCE DATE: MONTH – DAY – YEAR		OCCURRENCE TIME			
C	LAND USE PERMIT NUMBER (IF APPLICABLE)			WATER LICENCE NUMBER (IF APPLICABLE)		
	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION				REGION <input type="checkbox"/> NWT <input type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE			LONGITUDE		
	DEGREES	MINUTES	SECONDS	DEGREES	MINUTES	SECONDS
F	RESPONSIBLE PARTY OR VESSEL NAME		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION			
	ANY CONTRACTOR INVOLVED		CONTRACTOR ADDRESS OR OFFICE LOCATION			
H	PRODUCT SPILLED		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
I	SPILL SOURCE		SPILL CAUSE		AREA OF CONTAMINATION IN SQUARE METRES	
	FACTORS AFFECTING SPILL OR RECOVERY		DESCRIBE ANY ASSISTANCE REQUIRED		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS					
L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE	
	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE	

REPORT LINE USE ONLY


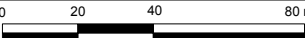
N	RECEIVED AT SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLED	REPORT LINE NUMBER
		STATION OPERATOR		YELLOWKNIFE, NT	(867) 920-8130
LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS	
LEAD AGENCY					
FIRST SUPPORT AGENCY					
SECOND SUPPORT AGENCY					
THIRD SUPPORT AGENCY					

Appendix II

Maps and Figures



Buildings not to scale. For illustrative purposes only.

Aviat Camp Layout	
Date: July 2008	
Author: JP	
Drawing: Camp Layout	
Scale: 1:2,000	
 Projection: UTM Zone 17, Nad27	

Appendix III

Material Safety Data Sheets