

Lac de Gras Project

Spill Contingency and Emergency Procedures Plan

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SPILL CONTINGENCY PLAN

1.0 Purpose and Scope

This Spill Contingency Plan (Plan) has been developed with the purpose of minimizing potential hazards to the environment, people and communities. This plan outlines the proper protocols to follow in order to minimize health & safety hazards, environmental effects and clean-up costs. It also serves as a guide to the duties of responders. All employees and contractors working at the Glowworm Lake Project are required to familiarize themselves with this Plan.

The Dominion Diamond Mines ULC (Dominion) Lac de Gras Project is located south of Lac de Gras, Northwest Territories. Temporary fuel caches will be established on the property as needed. A temporary camp or camps may also be established. This Plan describes the spill contingency measures to be employed at the Glowworm Lake Project.

2.0 Introduction

This Plan has been developed in order to formalize the actions taken in the event of a spill of hydrocarbon product or hazardous material. All employees and contractors are required to familiarize themselves with this Plan. The responsibilities of key personnel are defined, along with procedures for spill response that will minimize hazards to health & safety, damage to the environment and clean-up costs. This Plan has been prepared in order to provide easy access to the required information needed for spill response.

Equipment and machinery that may be used in the Lac de Gras area include snow machines, ATV's, helicopters and various fixed-wing aircraft on floats or ski-wheels as well as small powered equipment such as electric generators, water pumps, ice augers and power tools. There are also cook stoves, heating stoves and water heaters. Fuel types used by these items include Jet A, Jet B, gasoline, diesel, kerosene and propane. Other materials used will include lubricants and hydraulic fluids.

Non-pressurized liquid hydrocarbons are typically stored in 205 litre steel drums plastic jerry cans or engineered tanks such as Envirotanks. Pressurized hydrocarbons (propane) are typically stored in upright, 45 kg cylinders. Lubricants and hydraulic fluid are stored in sealed containers. All fuels and other hazardous materials are checked for indications of leakage or spillage.

Leaks or spills will most likely happen as a result of poor seals, improper fuel transfer, mishandling of containers, accidental puncture of fuel lines and wildlife interactions. All fuel lines and connections are checked for leakage. Absorbent padding is secured around connections to minimize the impact of leaks.

The most likely locations for spills or leaks to occur are:

1. Fuel storage areas.
2. Aircraft refueling stations.
3. Equipment using fuel.

If a leak or spill of hydrocarbons or other hazardous materials is suspected:

1. Insure personal safety by maintaining a safe distance.
2. Alert other personnel to ensure their personal safety.
3. Never approach a spill without proper training.
4. Alert appropriate personnel (Camp Manager, Crew Chief or Pilot) and follow instructions.
5. If trained and conditions allow the spill should be stopped and contained.
6. Record the pertinent information on spill status.
7. Report the spill immediately to the 24 Hour NWT Spill Report Line (867) 920-8130.
8. Resume or continue action to contain, stop or clean-up the flow of spilled material.

3.0 Initial Response

If a leak or spill of hydrocarbons or other hazardous materials is suspected:

1. Ensure personal safety by maintaining a safe distance.
2. Alert other personnel to ensure their personal safety.
3. Never approach a spill without proper training.
4. Alert appropriate personnel (Camp Manager, Crew Chief or Pilot) and follow instructions.
5. If trained and conditions allow the spill should be stopped and contained.
6. Record the pertinent information on spill status.
7. Report the spill immediately to the 24 Hour NWT Spill Report Line (867) 920-8130 or online at <https://www.enr.gov.nt.ca/en/spills>.
8. Resume or continue action to contain, stop or clean-up the flow of spilled material.

4.0 Personnel and Responsibilities

1. Pilots – Report any spills or leaks related to aircraft operations directly to the Camp Manager or Crew Chief.
2. Site Maintenance Personnel – Check & document fuel storage containers for leaks or damage on a routine basis. Make sure that spill response kits are properly supplied and up to date. Report any spills or leaks directly to the Camp Manager or Crew Chief.
3. Camp Manager – When spills or leaks are detected, ensure the safety of personnel and the environment. Assess the situation. Communicate to other personnel (as necessary), call in emergency personnel (if required) and report spill to relevant authorities and Company management.

5.0 Reportable Spills in the Northwest Territories

The following table was taken from the website <https://www.enr.gov.nt.ca/en/services/report-spill-in-October-2019>.

NOTE: L = LITRE; KG = KILOGRAM; PCB = POLYCHLORINATED BIPHENYLS; PPM = PARTS PER MILLION

Substance	Reportable Quantity
Explosives	Any amount
Compressed gas (toxic/corrosive)	
Infectious substances	
Sewage and Wastewater (unless otherwise authorized)	
Radioactive materials	
Unknown substance	
Compressed gas (Flammable)	Any amount of gas from containers with a capacity greater than 100L
Compressed gas (Non-corrosive, non-flammable)	
Flammable liquid	≥100 L
Flammable solid	≥ 25 kg
Substances liable to spontaneous combustion	
Water reactant substances	
Oxidizing substances	≥ 50 L or 50 kg
Organic peroxides	≥1 L or 1 kg
Environmentally hazardous substances intended for disposal	
Toxic substances	≥ 5 L or 5 kg
Corrosive substances	≥ 5 L or 5 kg
Miscellaneous products, substances or organisms	

Substance	Reportable Quantity
PCB mixtures of 5 or more ppm	≥ 0.5 L or 0.5 kg
Other contaminants--for example, crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, wastewater.	≥ 100 L or 100 kg
Sour natural gas (i.e., contains H ₂ S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more
Flammable liquid Vehicle fluid	≥ 20 L When released on a frozen water body that is being used as a working surface
Reported releases or potential releases of any size that: are near or in an open water body; are near or in a designated sensitive environment or habitat; Pose an imminent threat to human health or safety; or Pose an imminent threat to a listed species at risk or its critical habitat	Any amount

In addition, any releases, regardless of quantity, are to be reported if near or into a body of water, designated sensitive environment or sensitive habitat, poses imminent threat to human health or safety, poses imminent threat to listed species at risk or its critical habitat, or is uncontrollable.

6.0 Reporting Procedure

All spills of petroleum products or other hazardous materials (as in previous section) **must be reported to the NWT Spill Report Line (867) 920-8130** to ensure that investigation is conducted by the appropriate government and regulatory authority. For more information see <https://www.enr.gov.nt.ca/en/services/report-spill>.

Other Phone Contact Numbers for Additional Information or Assistance:

Aurora Geosciences Ltd. 24 hour – Expediter	(867) 444-0794
NWT Environment and Natural Resources	(867) 873-7181
Dominion Diamond Mines ULC Corporate Office (Calgary)	(403) 910-1933
Dominion Diamond Mines ULC Yellowknife Office	(867) 669-6100
Discovery Mining Services (Yellowknife)	(867) 920-4600
Mackenzie Valley Land & Water Board (Yellowknife)	(867) 669-0506
Environment and Climate Change Canada (Yellowknife)	(867) 669-4700
GNWT Land Use Permit Inspector	Cell: (867) 446-0769 / Office: (867) 767-9188
Department of Fisheries & Oceans	(867) 669-4900
Workers Compensation Board	(867) 669-4418
NWT Fire Marshall	(867) 873-7469
RCMP Yellowknife	(867) 669-1111
Stanton Territorial Hospital (Yellowknife)	(867) 669-4111

7.0 Spill Response

1. Spills will be cleaned up promptly.
2. Any reportable spill will be immediately reported to the 24-Hour Spill Report Line (867) 920-8130 or online at <https://www.enr.gov.nt.ca/en/spills>.
3. All spills will be reported internally to the appropriate company representatives.
4. All regulatory reporting requirements will be followed.
5. Spill kits with PPE and absorbent materials will be available at all fuel storage locations.

Aircraft Spills

If spills or leaks occur during aircraft refueling, slinging, transporting or handling of fuel, it is the responsibility of the contractor to follow these guidelines or more stringent internal guidelines. If not accomplished to the satisfaction of the regulatory authorities, then it is the responsibility of the Company to carry out the procedures listed above.

8.0 Actions to Minimize Spills

1. Conduct routine inspections of fuel caches and transfer points.
2. Use drip pans and/or absorbent materials at transfer points and under stationary equipment.
3. Train personnel in proper fuel handling and spill response procedures.
4. Helicopter crew should regularly inspect fuel slinging gear.

9.0 Containment and Clean Up Guidelines

In addition to the Initial Response Actions, the following steps should be completed:

Spills on Land

1. Identify the source.
2. If possible and safe, contain the spill at the source.
3. Stop any filling operations if the receiving container is leaking.
4. Check valves and seals. Stop using valves if leaking.
5. Transfer fuels out of leaking containers.
6. Place impermeable material and absorbent material below the leak to minimize seepage.
7. Land spills can be contained and cleaned up by:
 - a. Creating a soil berm down slope of leaking material. In winter a snow berm and impermeable liner may be used.
 - b. Place impermeable material at the foot of and over top of the berm to allow pooling of leaked material.
 - c. Use appropriate absorbent material to soak up the fuel. It may also be used to transfer fuel into drums or pails for re-use of the pads. Larger quantities of fuel may be pumped into empty drums.
 - d. Use a light covering of absorbent material to remove films of petroleum products.
 - e. In winter, contaminated snow or ice should be moved into drums or on impermeable material.
 - f. Material must be transported to an approved disposal/recovery site.
 - g. Where safe and with regulatory approval, in situ combustion may be used as a disposal method.
 - h. Disposal on land is only to occur with the explicit approval of the appropriate authorities.
8. Snow spills can be contained and cleaned up by:
 - a. Construct a trench or ditch to channel and control the flow of spilled product.
 - b. Compact any snow lying along the outside perimeter of the control ditch.
 - c. Construct a snow dike or dam.
 - d. Use impermeable lining material to create and impervious barrier.
 - e. Locate the topographic lowest point of the spill area and create snow channels to direct unabsorbed material away from water courses.
 - f. Collect the spilled material for disposal.

- g. Where safe and with regulatory approval, in situ combustion may be used as a disposal method.
 - h. Residues left from controlled combustion of spilled material must be packaged and properly disposed.
9. Ice spills can be contained and cleaned up by:
- a. Contain the spill using the methods mentioned above for snow.
 - b. Prevent spilled material from penetrating ice and entering water.
 - c. Remove any contaminated material quickly.
 - d. Containment is challenging if material gets under the ice.
 - e. Use an auger to locate material that has seeped under ice.
 - f. Cut slots with chain saws and remove blocks.
 - g. Use suction hose if available to clean up spill.
 - h. Disposal by in situ combustion is allowed with approval from relevant regulatory authority

Spills on Water

1. Contain water spills quickly.
2. Use floating booms for containment, if available.
3. Absorbent matting material may be used to capture any floating product.

Chemical Spills

1. Assess the hazard of the spilled material using SDS.
2. Assemble the appropriate PPE & safety equipment before response.
3. Apply absorbent pads to soak up any liquids.
4. Place impermeable sheeting over dry chemicals to prevent wind dispersion and wildlife interaction.
5. Neutralize acids or caustics then package clean up materials in an empty fuel drum for disposal.
6. Contact the 24 Hour Spill Report Line (867) 920-8130 for additional instructions on disposal methods and locations.

Loss of External Load (Helicopter)

Loss of external loads of fuel, oil or chemicals often results in the catastrophic failure of the container. Prompt containment and cleanup is vital:

1. Notify camp immediately and give GPS co-ordinates along with type and amount of loss.
2. Camp will notify 24-Hour Spill Report Line (867) 920-8130.
3. Administer the appropriate procedure for spills on land, water or ice.

Disposal

1. Contaminated soil or vegetation will be placed on impermeable liners and burned (if appropriate) or packaged and backhauled.
2. Contaminated absorbent pads should be placed in a container for later off-site disposal.

Other Response Alternatives

Chemical response methods may also be available and consist of:

1. Dispersants
2. Emulsion Treatments
3. Visco-elastic Agents
4. Herding Agents
5. Solidifiers
6. Shoreline cleaning Agents

Biological response methods may include nutrient enrichment and microbe seeding.

10.0 Training

All personnel will be oriented as to the location of spill kits, their contents and use, potential & nature of spill hazards, and locally available spill control materials. In addition, all employees and contractors will be familiarized with documented procedures and given a copy upon arrival at the site. Plan details will be posted in the Camp.

11.0 Resources

Camp Resources (Full-time)

1. Spill kits
2. Hand tools
3. Wheel barrow
4. Absorbent pads
5. Water
6. PPE
7. First Aid
8. Satellite Telephone

Camp Resources (Periodic)

1. Helicopter
2. Fixed Wing aircraft
3. Snow Machines
4. Boat

Spill Kit Items

1. Tyvek splash suit(s)
2. Chemical resistant gloves (min. = 2 pair)
3. 10 large garbage bags with ties
4. Oil only booms (5"x 10') (min. = 1)
5. Oil only mats (16"x 20") (min. = 25)
6. Sorbent socks (min. = 2)
7. Sorbent pads (min. = 5)
8. 2 Large Tarps
9. 1 roll Duct or Tuck tape
10. 1 utility knife
11. Notebook and pencil
12. Copy of these guidelines
13. Aluminum scoop shovels (min. = 2)

All items are to be stored in a plastic tub or barrel which is clearly marked and suitably labelled.

12.0 Hazardous Material Information

The following is a summary of potentially hazardous materials found on site and that are used for field operations and the typical containers in which the products may be found. See labels on containers and/or SDS for details, spill response and safety advice.

CHEMICAL	TYPICAL CONTAINER	HAZARDS
Diesel fuel, P50, P40 with additives	205 litre steel drum, usually black; engineered tank such as an Envirotank	Fire, explosion, environment
Kerosene	205 litre steel drum, usually black; engineered tank such as an Envirotank	Fire, explosion, environment
Jet A/B Fuel	205 litre steel drum, usually black with yellow stripe	Fire, explosion, environment
Unleaded Gasoline	205 litre steel drum, usually red; 10-25 litre jerry cans; engineered tank such as an Envirotank	Fire, explosion, environment
Liquefied Propane	45kg pressurized cylinder	Fire, explosion
Hydraulic Oil	1 litre jug to 20 litre pail	Fire, environment
Lubricants	1 litre jug to 20 litre pail	Fire, environment
Battery acid	Batteries	Burn, corrosion, environment

EMERGENCY PROCEDURES

1.0 General

Despite the best efforts of a Health & Safety Management System to identify and reduce the risk of workplace hazards, incidents do occur. You need to know how to respond in the event of an emergency. You will be given specific training and instructions for the work site. The following general guidelines apply to any situation:

1. Make yourself safe

- a. Determine the cause of the incident and if the emergency is over.
- b. Identify immediate dangers and get away from them.
- c. Assist others to evacuate the area.
- d. Take action to minimize the danger if you have the training and equipment available.

2. Treat the injured

- a. Check if you are injured and either treat yourself or ask for help from a First Aider.
- b. Assist other injured people and render First Aid.

3. Assess the situation

- a. Identify and minimize or avoid any secondary hazards.
- b. Determine available resources (shelter, food, water, First Aid supplies, fuel and communications). Carefully plan and ration their use.
- c. Determine your position and the location of the nearest help.

4. Call for help

- a. Use whatever means available to notify outside emergency help. Try to communicate with your supervisor first.
- b. You need to provide your name, company name, location, assistance required (medical takes first priority) and your available resources.
- c. Verify that your information has been received correctly.
- d. Listen carefully and write down any instructions.

5. Stay at your location and prepare for rescue

- a. Remain at your location unless it is unsafe to do so.
- b. Carry out instructions provided by outside help.
- c. Plan how to assist in making rescue quick and effective.

Remain calm, think before you take action and prevent the incident from becoming worse. Help will be dispatched, but it is vital to know your correct location and current situation.

2.0 Fire Procedures

In Arctic winter conditions, exposure to the cold can be just as deadly as the fire itself. Everyone must prepare for the possibility of having to evacuate their quarters in the middle of the night.

You must always keep a warm coat in your tent and wear appropriate indoor/outdoor shoes for the conditions around camp in case you have to leave the tent and go outside immediately.

If you hear the fire alarm or three blasts of a hand held air horn in a tent camp these procedures are to be followed:

- Treat all fire alarms as if they were an actual fire.
- In case of fire pull the nearest fire alarm or sound 3 blasts with a hand held air horn in a tent camp.
- If the fire can be put out with an extinguisher, do so **AFTER** you have sounded the alarm.
- If you are awakened by the alarm, **GRAB YOUR COAT AND FOOTWEAR AND GET OUT!**
- If you are awakened by the alarm and you smell smoke, **DO NOT STAND UP!** Roll out of bed and stay as close to the floor as possible. Collect your **COAT AND FOOTWEAR QUICKLY and EXIT THE TENT**. If the door is hot to the touch cut a hole in the wall or use a window to exit the tent.

- Everyone is to meet in the **DESIGNATED MUSTER AREA** for a crew count. Report to your supervisor at once.
- **DO NOT LEAVE THE DESIGNATED MUSTER AREA.** Your Crew Chief or Camp Manager will give you further instructions.

UNDER NO CIRCUMSTANCES are you to attempt to retrieve personal belongings or sample materials until you have authorization to return to your tent.

3.0 Safety Equipment

- Wear safety glasses and appropriate gloves while fueling equipment from bladders and when operating hand power tools.
- Wear ear protection in generator buildings or anywhere loud noise is prevalent.
- Boats should be equipped with proper safety equipment (life jackets, bailer, rope, whistle, paddle, emergency tool kit, parts and spare propeller).
- Life jackets or immersion suits should be worn at all times when boating.



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