# Orano Canada Inc.

## Spill Contingency Plan

Exploration Department

Kiggavik Project

Version 10

**November 2019**

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# History of Revisions

| Version | Revision | Date | Details of Revision |
|---|---|---|---|
| 1 | 0 | March 2007 | Original submission |
| 2 | 0 | October 2007 | Update to reflect changes in field activities/capabilities and goals of continual improvement |
| 2 | 1 | May 2008 | Updated to reflect comments and conditions received by the Nunavut Water Board associated with the issuance of water licence no. 2BE-KIG0812 |
| 3 | 0 | January 2009 | Update to reflect changes in field activities/capabilities and goals of continual improvement |
| 4 | 0 | March 2009 | Updated to reflect changes in field activities/capabilities and goals of continual improvement |
| 5 | 0 | January 2010 | Updated to reflect changes in field activities/capabilities and goals of continual improvement |
| 6 | 0 | May 2011 | Updated to reflect personnel titles, grammatical changes, reorganized information and clarified responsibilities. Made consistent with other Plans and Manual and updated to reflect changes in fuel storage and equipment. |
| 7 | | May 2012 | Updated to reflect personnel changes, grammatical changes, reorganized information and clarified responsibilities. Made consistent with other Plans. |
| 7 | 1 | May 2013 | Updated to reflect personnel changes, and correction of grammatical errors. |
| 7 | 2 | May 2014 | Updated infrastructure list, surface land administration, and proximity to water mark |
| 7 | 3 | January 2015 | Minor edits for improved clarity and incorporation of new template |
| 8 | 0 | January 2017 | Updated to reflect transition to Care and Maintenance phase |
| 9 | 0 | January 2019 | Updated to reflect corporate name change and title changes |
| 10 | 0 | November 2019 | Updated to reflect personnel change |

# Table of Contents

# Acronyms and Abbreviations

| Term | Definition |
|---|---|
| Orano | Orano Resources Canada Inc. |
| CCME | Canadian Council of Ministers of the Environment |
| CEPA | Canadian Environmental Protection Act |
| ECOP | Environmental Code of Practice |
| EC | Environment Canada |
| FIRSTS | Federal Identification Registry for Storage Tank Systems |
| GN-DoE | Government of Nunavut, Department of Environment |
| IOL | Inuit Owned Land |
| CIRNAC | Crown-Indigenous Relations and Northern Affairs Canada |
| KIA | Kivalliq Inuit Association |
| NWB | Nunavut Water Board |
| SHEQ | Safety Health Environment and Quality |

# 1 Introduction

The Kiggavik Project is currently in a care and maintenance phase. The Spill Contingency Plan will be kept in this state, but is considered not applicable, with the exception of Sections 3, 4 and 5, during the care and maintenance phase. The site will be monitored annually with a site visit to ensure that containment of the remaining storage remains in good condition. This Plan will be updated prior to a change in project phase to reflect the most recent information.

This Spill Contingency Plan (Plan) applies to the Kiggavik Project located approximately 80 km west of Baker Lake, Nunavut. The Plan is made available at the Kiggavik Site and the Orano Canada Inc.(Orano) Corporate Office.

## 1.1 Purpose and Scope

The primary objective of the Plan is to help prevent or reduce the potential of spills of pollutants and prevent, reduce or eliminate any adverse effects that may result. As such, the Plan provides information and guidance on actions important for the prevention of spills and procedures to detect and respond to spills if they occur. The Plan evokes a risk management approach when considering potential spill events. By implementing effective spill prevention, the risk of spills can be reduced in magnitude and perhaps avoided.

Furthermore, the purpose of this Plan is to identify safe, effective and efficient response methods. This Plan is intended to satisfy Nunavut R-068-93 *Spill Contingency Planning and Reporting Regulations*. As per the regulations, “spill” is defined as “…a discharge of a contaminant in contravention of the Act or regulations made under the Act or a permit or license issued under the Act or regulations made under the Act.” Orano’s working definition of a spill is defined as any accidental discharge of a hazardous material to the environment.

## 1.2 Revision to Plan

During the active exploration phase the Plan is reviewed regularly and updated as required to keep the information current and consistent with regulatory and procedural changes. A History of Revisions can be found at the beginning of this Plan.

## 1.3 Responsibilities

The Manager – New Projects is responsible to ensure this Plan is implemented with the assistance of the following personnel:

- Project Geologist

- Facility and Logistics Coordinator, Kiggavik
- Coordinator, SHEQ Exploration
- Or designates

The Vice President, Exploration is ultimately responsible for any activity being carried out by Kiggavik Project personnel.

# 2 Site Information

## 2.1 Location

The Kiggavik site, located in the Kivalliq Region of Nunavut, supports the exploration of the Kiggavik mineral leases and the St. Tropez mineral leases.

Exploration of the Kiggavik mineral leases is a joint venture between Orano and Japan-Canada Uranium Company Limited, with Orano being the operator. The surface rights for 31 mineral leases on Inuit Owned Land (IOL) are administered by the Kivalliq Inuit Association (KIA) while six mineral leases remain on Crown land. The Crown land covers the Jane and Contact prospect on the south-west portion of the Project with surface rights administered by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC).

The St. Tropez area, which is north-east of the Kiggavik site, is composed of 5 mineral leases covering 16,549.21 ha with surface rights administered by the KIA. The St. Tropez area is wholly owned and operated by Orano out of the Kiggavik site.

There is an existing temporary exploration camp at the Kiggavik site which can accommodate approximately 60 people. The Kiggavik camp is located at the following coordinates:

- UTM 14W 564530 E 7146879 N
  - Latitude: 64° 26’ 29’’ N
  - Longitude: 97° 39’ 34’’ W

In 2007, the temporary camp accommodated approximately 32 persons, was expanded to accommodate approximately 50 persons in 2008 and 60 in 2009. Currently there is one shed and core storage located at the Andrew Lake drill site, as well as core storage at the Kiggavik site and Pointer Lake. Detailed site maps showing topography can be found in **Error! Reference source not found.**. The camp currently consists of the following:

- One storage shed/back-up generator/shop
- One generator building (housing current generator)
- Helicopter storage/shop
- Three helicopter pads
- One washroom/dry building constructed with separate male/female facilities
- One kitchen with storage
- One wooden office
- 15 wooden sleeping units (one is a first aid shack)
- Wooden boardwalk throughout camp
- Five prospector tents (core logging tents)
- Three weather havens (2 for sleeping units, 1 for office)

- One mechanical services room
- Grey water collection area
- Industrial incinerator
- Core storage
- Radioactive materials storage compound
- Eight bulk fuel storage tanks (50,000 L capacity per tank)

There is a fuel esker containing one shed and eight bulk fuel tanks. Three bulk tanks are for Jet A-1 aviation fuel and five are for diesel fuel. Additional fuel drums within secondary containment may also be temporarily stored at the esker.

## 2.2 Petroleum and Chemical Product Storage and Inventory

The table below provides a list of products used, along with the maximum amount stored and type of storage. Orano maintains an inventory of all petroleum and chemical products on site.

**Table 2-1 Petroleum and Chemical Storage**

| Chemical/Material | Amount | Storage Type |
|---|---|---|
| Diesel Fuel | 250,000 L | EnviroTanks |
| Jet B Fuel | 150,000 L | EnviroTanks |
| Diesel Fuel | 4 x 205 L (820 L) | Secondary Containment |
| Gasoline | 1,025 L | Secondary Containment |
| Generator Oil | 20 x 20L (400 L) | Secondary Containment |
| Hydraulic Oil | 20 x 20L (400 L) | Secondary Containment |
| Engine Oil | 20 x 20L (400 L) | Secondary Containment |
| Propane | 75 x 100 lb (7500 lb) | Secondary Containment |
| Grease (for grease gun) | 5 cases x 12 tubes (60 tubes) | Secondary Containment |
| Salt | 50,000 lbs | Secondary Containment |
| Cement | 15,000 lbs | Secondary Containment |

### 2.2.1 Fuel Storage

To accommodate increased fuel demand and reduce the potential of fuel spills, bulk fuel storage tanks were installed. The eight double-walled steel EnviroTanks, each with a capacity of 50,000 L were installed at the esker located west of the Kiggavik camp. Three tanks on the north side of the esker are for the storage of Jet A-1 fuel, and five tanks on the south side of the esker are for the storage of diesel fuel as shown in Figure 2.1. The coordinates for the fuel cache are UTM 14W 561512E 7145240N.


**Figure 2.1 Kiggavik Fuel Cache**

The site layout and tanks were designed by a professional engineer and were installed by a registered company/petroleum contractor to ensure compliance with the Canadian Council of Ministers of the Environment (CCME) *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products* (CCME COP, 2003). In 2007, Golder Associates (Golder) conducted an engineering assessment to identify potential issues with the installation of storage tanks. Recommendations were provided for the foundation support for the storage tanks. To mitigate the potential issues described in the report, Golder recommended that the tanks be placed on timbers located under each saddle to provide an increased bearing area. The use of timbers is a deviation from the CCME COP, however it should be noted that this is common practice in the area and Orano received permission from the Fire Marshal, Tim Hinds with the Government of Nunavut-Community and Government Services.

The design basis, operation and maintenance requirements for all petroleum storage and handling on site are based on the CCME ECOP for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products and in compliance with the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, under the *Canadian Environmental Protection Act, 1999* (CEPA 1999). The fuel storage system at the Kiggavik site has been registered with Environment Canada (EC) through an online database, the Federal Identification Registry for Storage Tank Systems (FIRSTS).

Double walled steel EnviroTanks and associated pump meet the requirements of secondary containment within their own structure. For further secondary containment, rubberized berms or other suitable lined

structures may be used during fuel transfer to minimize the potential for spills. Absorbent padding may be used to control dripping fuel. Further protection against spills is provided by high level alarms, overfill preventers, and catch basins around each fill pipe.

The fuel is transported to the Kiggavik fuel cache during the winter via ground transport using tundra trucks such as Catapillar Challengers, Case 4-track units, and Delta Foremosts (See

Figure 2.2). With the exception of the Deltas, the fuel is hauled with steel sleighs loaded with 10,000 to 15,000 litre fuel tanks containing P-50 diesel or Jet A-1 fuel respectively. The Deltas do not pull sleighs, but instead have a deck with crane installed for offloading materials. Fuels are then transferred from the tanks to the EnviroTanks located at the Kiggavik fuel cache. Unleaded gasoline and propane cylinders may be brought to the Kiggavik site during the winter haul or by aircraft from Baker Lake.


**Figure 2.2 Winter Haul of Materials and Fuel**

Diesel fuel is transferred from the EnviroTanks to double-walled fuel tanks for use in camp and/or drill sites. There is also a fuel cache located at the Kiggavik Camp (14W 564464 E, 7146782 N). This fuel cache includes double walled fuel tanks used to supply the generators. All fuel containers are labelled, identifying the contents and the name “AREVA”. Should fuel drums be used, the 205 L drums are stored within secondary containment. Secondary containment is used for all liquid fuels, and lubricants, and drill additives are stored in sea containers to avoid adverse weather conditions. All secondary containment systems being used are capable of containing 110% capacity of the petroleum products and other hazardous materials and hazardous waste products (See Figure 2.3).

**Figure 2.3 Fuel berms**

Absorbent matting and/or drip pans must be placed under all areas where fuel leaks are likely to occur (e.g. fuel line hose connections, fuelling stations, generators, water pump), and these areas must be inspected regularly.

Waste oil, waste filters, and cleaned-up spill materials are contained in ring top barrels within secondary containment. Degreasing agents used for maintenance of equipment parts and grease are also contained in ring top barrels within secondary containment. These hazardous wastes are stored in the storage shed during the season, and later transferred to a sea container until they are removed from site during the winter haul. The materials are then disposed of at an approved facility.

## 2.3 Petroleum Product Transfer

To minimize fuel spillage associated with dispensing of product, all dispensing and tank filling operations are attended and involve the use of manually controlled nozzles equipped with automatic shut off mechanisms. Smoking, sparks or open flames are prohibited in fuel storage and fuelling areas at all times. Petroleum transfer operations will be carried out by trained personnel.

## 2.4 Location and Content of Spill Kits

Spill kits can vary in size and content depending on supplier and manufacturer however to remain consistent and provide adequate spill supplies, Orano has chosen two types of spill kits which are considered to be standard. The kits generally include the following contents, or similar products:

1. Universal Emergency Response Kit 30Gallon/135L

- Sorbant capacity of 96L
- 4 socks (3” X 10’)
- 75 pads
- 1 drain cover
- 1 caution tape
- 2 pairs nitrile gloves
- 2 pairs safety goggles
- 2 protective coveralls
- 5 disposable bags
- 1 instruction book

2. Universal Overpack Kits 95 US Gallon Drums

- Sorbant capacity of 275L
- 4 socks (3” x 10’)
- 5 socks (3” x 4’)
- 50 pads
- 5 pillows
- 1 roll
- 1 drain cover
- 1 caution tape

- 2 pairs nitrile gloves
- 2 pairs safety goggles
- 2 protective coveralls
- 10 disposable bags
- 1 instruction book

A variety of spill kits are available and other kits than those listed above may be purchased for a variety of reasons (availability, intended use, etc.). All spill kits contain an itemized list of its contents and an inventory must be conducted following use and may be completed each season if deemed necessary.


**Figure 2.4 Example of Spill Kits available at Project site**

In addition, the following spill response material is also readily available in the generator building for spill response:

- Plugging compound
- Bulk supplies of oil absorbent pads and socks
- Aluminium or brass shovels or tools
- Bonding cables

Due to the volume of fuel being stored in the fuel tank storage system and the remote nature of the sites, at least one 95 US Gallon Spill Kit will be present for each 100,000L of fuel being stored.

In addition, at least one empty fuel drum and a pump will be located at each fuel cache and tank storage system in the event of damaged or leaking drums. Fire extinguishers of the proper type, size and number will be stationed in each building, at the fuel tank storage system and near each site where equipment is

normally serviced and anywhere else it is deemed advisable. A supply of sealable 20-litre steel pails or 205-litre drums will be available for the collection and storage of used absorbent materials.

## 2.5 Orientation

All personnel at camp (Orano employees, contractors, and long term visitors) are given formal orientation upon arrival at camp. The Spill Contingency Plan is reviewed during orientation which and includes the location of the Safety Data Sheets, location of spill kits and additional supplies or tools. Personnel are trained to be watchful for any leaks or spills. Where leaks or spills are most likely to occur, personnel are instructed in the proper use of equipment and materials. They are also trained in the onsite spill response and reporting, and how to collect, store and dispose of spilled product.

# 3 Potential Hazards, Mitigation and Preventative Measures

## 3.1 Potential Hazards

Potential sources for spills have been identified as follows:

- Drums of P-50 diesel (four drums), gasoline, waste fuel, and waste oil may leak or rupture
- Overfilling of tank(s) at the fuel cache of Jet A-1 or P-50 diesel
- Transfer of fuel between EnviroTanks, drums and fuel tanks
- Transportation of fuel during winter haul
- Fire at the fuel cache
- Collision at the cache
- Vandalism of the fuel cache
- Propane cylinders: propane leaks may occur at the valves
- Refuelling equipment such as diamond drill equipment, helicopters, camp generator, stoves, incinerator, wheeled vehicles, snowmobiles and pumps
- Incidents involving leaking or dripping fuels and oils may occur due to malfunctions, impact damage, lack of regular maintenance, improper storage, or faulty operation
- Damaged lead/acid batteries causing spills of acid
- Improper drilling or transport of cuttings bags causing a spill of radiologically contaminated drill cuttings or drill return water

## 3.2 Mitigation and Preventative Measures

The Environmental Code of Practice discusses how to conduct activities so as to minimize the risk of spills. In addition, the following measures will further minimize the potential for spills during fuel handling, transfer and storage:

- Fuel transfer hoses with cam lock mechanisms used when transferring bulk fuel deliveries into the bulk storage tanks
- Carefully monitor fuel content in the receiving vessel during transfer
- Always have additional absorbent pads on hand while transferring fuel
- Clean up drips and minor leaks immediately
- Regularly inspect drums, tanks and hoses for leaks or potential to leak and for proper storage
- Create fuel caches that are located at least 31 m from the normal high-water mark of any water body
- Inventory and reconciliation procedures developed to ensure tanks are not overtopped and to ensure that tank leakage is not occurring
- Overfill protection on tanks include visual and audible alarms; catch basins around fill pipe
- Additional secondary containment at transfer locations; corrosion protection

- Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures. This training is to include a “mock” spill, review of spill kit contents and their use and reporting.

### 3.2.1 Spill of Fuel from Metal Drums on Tundra

Should drums be used, the metal drums are stored in such a manner that they are not susceptible to tipping over, rolling or otherwise being unstable. Care is exercised so that nothing can cause damage to metal fuel drums by falling or rolling onto or into them. The use of a ramp or a cushion (e.g. automotive tire) while unloading metal fuel drums from aircrafts lessens the possibility of damage.

### 3.2.2 Spill of Fuel from Fuel Cache

To prevent spillage during the filling of the fuel cache system, the following items will be in place:

- Visible and audible high level alarm
- Automatic high liquid shut off device
- Manual dips are conducted in conjunction with the inventory and reconciliation procedures by fuel delivery personnel and site personnel
- Site personnel log all deliveries and fuel dips to coordinate the filling of the EnviroTanks with the contractor delivery personnel
- All tanks are double-walled
- Spill/Overfill protection – catch basins around the fill pipe will collect any liquid spilled during connecting or disconnecting of the fill hose
- Corrosion Protection – provided by painting of the tanks
- Where drums are used, the drums will be placed in appropriated lined structures for fuel transfer from tank to drum

Personnel conducting fuel transfers are to be adequately trained in the procedure and spill contingency. Most releases at a fuel tank storage system are due to piping and line failure. This system of tanks are independent of each other and do not require any piping. Spills or leaks are known to occur due to improper management of tanks prior to installation. All tanks located at the Kiggavik site have been inspected by a qualified person prior to filling and again prior to initial use.

### 3.2.3 Winter Fuel Hauling

Refer to Winter Road Plan for further details regarding transport, safety and training requirements used to minimize hazards generated during the winter haul.

### 3.2.4 Leak of Liquid Fuel from Distribution Lines

Stability of all storage tanks and distribution assemblies is of utmost importance to ensure that the risk of damage is minimized. All stands for reservoir tanks and fuel tanks are constructed to strength standards beyond those required. Distribution lines from reservoir tanks and fuel tanks are fitted with appropriate shut-off valves immediately downstream from the tank. All valves are closed when the tank is not in use. All associated distribution lines are installed in such a way to prevent being chafed in the wind, chewed on by animals or tripped on by humans. This is done by securing it to rigid structures, encasing it in armour or any other effective manner. These measures apply broadly to oil, jet fuel, gasoline, and propane set-ups.

### 3.2.5 Spill of Liquid Fuel into Lake Water

Fuel must be at a minimum of 31 m from ordinary high water mark on stable and level ground unless approved by regulatory agencies. Refuelling must not take place below the high water mark of any water body under any circumstance.

### 3.2.6 Release of Propane

Propane is stored in certified containers and is inspected and monitored on a regular basis for any signs of deterioration or corrosion. Containers are secured and fastened in an upright position to ensure there is no risk of damage to the regulator in the event of a fall. In the event that larger propane tanks are introduced on site, only qualified gas fitters will connect or disconnect the piping.

### 3.2.7 Spill of Battery Acid

Acquisition of non-spillable batteries reduces the risk of a spill of this type. These batteries can be shipped by air as they are exempt from UN2800 classification. All batteries are protected from damage by proper securing during transport and safe storage when not in use.

### 3.2.8 Fire at the Fuel Cache

Grounding cables minimize the potential of static discharge and potential fire, and are available during all transfers of bulk diesel or jet fuel.

### 3.2.9 Crash at Fuel Storage Tanks

To reduce the risk of a crash at the fuel cache, there is clear communication between aircraft (fixed wing and helicopters), wind socks are used, and further crash protection will be in place should additional vehicles be introduced to the operation.

### 3.2.10 Spill of Radiologically Contaminated Drill Cuttings

During drilling activities, non-mineralized drill mud solids or cuttings are deposited in low-lying areas. When mineralized core is intercepted, all drill mud and cuttings are collected in appropriate containers and categorized as radioactive through appropriate radiation measurements in accordance with work instructions. A gamma survey is also conducted before and after drilling activities at each hole to ensure there is no radiologically contaminated material at the site.

### 3.2.11 Spill of Potentially Contaminated Drill Return Water

Return water from drilling activities, including general drainage from the drill footprint, are diverted into low-lying areas to keep these waters from directly entering lakes and streams. Low lying depressions where non-mineralized drill cuttings and drill return water are deposited are monitored while in use.

# 4 Spill Response

## 4.1 Response to a Spill – Containment and Clean-Up

In the case of any spill or other environmental emergency, it is necessary to immediately react in the most 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:

**Ensure the safety of all persons at all times**

The safety of yourself and others is the most important consideration when responding to a spill. As such, all actions that you perform as part of your spill response must only be undertaken if they can be undertaken in a safe manner. If an action cannot be undertaken in a safe manner, or if you do not feel that you are adequately trained or equipped to respond to a spill, you must evacuate all personnel to a safe area upwind from the spill. You will then request assistance from trained emergency responders with the appropriate resources to manage the spill safely and effectively.

Your responsibilities when responding to a spill are as follows:

- Act safely, using appropriate personal protective equipment and work practice
- Respect the safety of others in the area
- Refuse to perform activities that you feel are unsafe
- Inform those involved or in the area if you believe that their actions, or proposed actions, are unsafe. This includes colleagues, first responders, contractors, members of the public, etc.

**Identify and find the spill substance and its source**

Individual discovering the spill shall:

- Move upwind of the material
- Call for help – contact direct Coordinatory, SHEQ Exploration and Facility and Logistics Coordinator, Kiggavik (or designates)
- Attempt to stop leak if safe to do so
- Attempt to contain spilled material if safe to do so

Facility and Logistics Coordinator, Kiggavik (or designate) shall:

- Designate responders and proceed to the scene of the spill
- The responders (including the Facility and Logistics Coordinator, Kiggavik if necessary) shall attempt to stop further spillage and contain the spilled material

- Complete documentation of the spill using the Spill Report Form, and contact the NT-NU 24-Hour Spill Report Line immediately as well as the appropriate regulatory agencies (see Section **Error! Reference source not found.** for Spill Reporting requirements).

Coordinator, SHEQ Exploration shall:

- Provide assistance and expertise in the response to a spill
- Once under control, shall interview the individual who discovered the spill. Noting name, time discovered, and details on how the spill occurred, any actions taken by the individual to stop the spill
- Submit Spill Report to regulatory agencies within seven calendar days of the incident
- Submit Detailed Spill Report to regulatory agencies within 30 days of the incident

Responders shall:

- Position themselves upwind of the spill
- Determine what has been spilled
- Consult the Safety Data Sheet (SDS) for the product to determine the appropriate personal protective equipment and to understand the physical properties of what was spilled
- If the spilled substance is flammable (Gasoline or Jet Fuel), eliminate all ignition sources and shut off machinery in the area
- Take actions to ensure the leak or spill has been stopped at the source (i.e. shut off valves, reconnect hoses, etc.)
- Contain spill with appropriate material and equipment (i.e. spill response kit, etc.). Refer to the SDS if this is a controlled substance. Pump large spills into barrels or other suitable container as available
- **Ensure that grounding or bonding cables are used for all flammable product transfers**
- Control access to the spill area and keep all bystanders away. If necessary, barricade the spill area. Do not use flares unless you are certain the spilled material and its vapours are not flammable or explosive.
- Keep spilled material out of waterways. Use aluminium/non-sparking shovels to dig trenches or make soil and sand barriers or use the placement of absorbent socks as barriers
- For fuel or oil spills, place contaminated absorbent and associated materials into steel pails or drums for storage in a sea container for removal from site to an approved facility
- For radioactive material, place material into appropriate container (i.e. cuttings bag or IP3 pail) to be stored in radioactive storage compound
- If a spill has entered flowing water, take a water sample immediately upstream of the spill and downstream (e.g., 50 m, 150 m and 500 m from spill)

The following table outlines spill supplies and their use during spill response. Items not stored in spill kits are available with replacement items in the back-up generator building, more commonly referred to as the Lonegull.

**Table 4-1 Spill Response Supplies**

| Incident | Spill Supplies | Use |
|---|---|---|
| Wet Spill | Drums with removable lids that contain bailers | For manual removal of large liquid spills<br>Empty drums |
| | Folded sweeps and white rolls | Skimming of gas or diesel from water body |
| | Socks, peat moss | Containment of wet spill on land |
| | Pads, rolls, bags of dry absorbent | Cleanup of wet spills |
| Punctured Drum | Overpack (plastic drum)<br>Plug 'n Dyke | Place overpack overtop of leaking drum, lay overpack and drum on its side, then flip upright, or<br>use Plug 'n Dyke or other plugging compounds to seal and stop leak |
| Dry Spill | Plastic sheet (roll), mallet, spikes, knife | Covering dry spills to protect from wind and rain |

If necessary ask for help and wait for others with the appropriate training and/or equipment to arrive. Acting inappropriately can often be dangerous to you, to others, and to the environment.

**Implement any necessary cleanup and/or remedial action in a safe manner;** this may be coordinated and or conducted by a third party consultant, if necessary.

**Report the spill** as per Section 5 of this Plan once it is safe to do so. Do not delay reporting as there are legal requirements in this regard.

## 4.2 Examples of Spill Scenarios

### 4.2.1 Fuel Spill from Metal Drums or Fuel Tanks

Report the spill to the Facility and Logistics Coordinator, Kiggavik and Coordinator, SHEQ Exploration or designates immediately. A puncture or rupture of containers containing liquid fuels should initially be assessed for risk of ignition. Sources of ignition will be extinguished or isolated from the spill area if safe to do so. While using appropriate personal protective equipment as described in the SDS, efforts should be undertaken to plug punctures with appropriate material from the spill kit (plugging compound or other improvised materials). Ruptures or holes should be high-centered to stop further spillage of fuel. Absorbent materials should be used to absorb spilled fuel. A containment berm should be built using available materials such as soil, snow, absorbent socks, portable berms and/or tarps to contain a large spill.

Remove the spilled products using absorbent material and place all recovered waste material into appropriate containers (metal cans, pails or drums in good condition). All containers will be stored in a sea container until the material can be transported to an approved facility. High-centered ruptures will be used as a point of entry for manually-operated fuel transfer pump suction tubes, and remaining fuel is removed to a sound drum. Small amounts of contaminated soil, vegetation or gravel is removed and placed into sealable steel drums or pail and then disposed of appropriately. Large areas of spilled product on the ground are only to be remediated after consultation with Orano SHEQ personnel and regulators to avoid unnecessary damage to the environment. Before commencing removal of soil or vegetation regulatory agencies will be contacted. If spill of significant volume occurs at one of the fuel storage tanks, attempt to prevent the spread of the fuel and immediately and contact Orano personnel to provide assistance with the spill response and clean-up.

### 4.2.2 Leak of Liquid Fuel from Distribution Lines

A detected leak from a distribution line assembly is to be initially assessed for risk of ignition. If safe to do so, sources of ignition are to be extinguished or isolated from the leak and the shut-off valve on the tank and/or distribution line is to be turned off. Report the spill to the Facility and Logistics Coordinator, Kiggavik and Coordinator, SHEQ Exploration or designates immediately. Absorbent material is placed on the spilled fuel; if spilled onto snow or ice it is scooped up with an aluminum (non-sparking) shovel and stored in an appropriate sealable steel container. Final disposal of these materials is done after consultation with the SHEQ group and the appropriate regulatory agencies.

### 4.2.3 Spill of Liquid Fuel into Lake Water

Identify the source of the spill and prevent further release of fuel. Report the spill to the Facility and Logistics Coordinator, Kiggavik and Coordinator, SHEQ Exploration or designates immediately. Never attempt to contain or clean up a spill of gasoline on water, the risk of fire is simply too high. Confinement needs to occur as close to the release point as possible. Prior to attempting any clean up on water, a site specific safety plan needs to be developed that factors in water safety aspects. After vapours have dissipated, the collection of liquid diesel or lubricating oil in lake water is attempted with floating booms of petroleum absorbent material. For larger spills of diesel or lubricating oil, raw liquid can often be removed by skimming. Absorbent pads can be used to collect small spills. All fuel skimmed or wicked off of the water surface as well as spent absorbent materials must be disposed of, in appropriate sealable steel containers. Ultimate disposal of these materials shall only be done after consultation with the SHEQ Group and the appropriate regulatory agencies.

### 4.2.4 Release of Propane

Where propane has been released, report the spill to the Facility and Logistics Coordinator, Kiggavik and Coordinator, SHEQ Exploration or designates immediately. Personnel shall withdraw from the area immediately upon identifying a leak and shall not return until the leak is stopped and all the vapours have diffused. Contact will be made with the proper agency for disposal instructions of a defective container.

- No attempt should be made to contain a propane release
- Water spray can be used to knock down vapours and to reduce the risk of ignition
- Small fires can be extinguished with dry chemical or $CO_2$

### 4.2.5 Fire at Fuel Cache

In the event that a fire occurs at the fuel cache, it is Orano's primary intentions to ensure the safety of the site personnel by allowing the fire to burn. Report the spill to the Facility and Logistics Coordinator, Kiggavik and Coordinator, SHEQ Exploration or designates immediately. Appropriate third party personnel will be contacted to ensure proper response and clean-up occurs. In the event of a fire anywhere on site, the Government of Nunavut, Department of Environment (GN DoE) shall be contacted. This includes the local Conservation Officer in Baker Lake and the Environmental Compliance Manager.

### 4.2.6 Spill of Radiologically Contaminated Drill Cuttings

Should mineralized drill cuttings be spilled, report the spill to the Facility and Logistics Coordinator, Kiggavik and Coordinator, SHEQ Exploration or designates immediately. Any amount of radioactive materials must be collected into appropriate storage containers (i.e. cuttings bag or IP3 pail). The site will be remediated as much as practical, meeting/exceeding the minimum necessary abandonment criteria of less than 1 μSv/h above background at a height of 1 metre.

### 4.2.7 Spill of Drill Return Water or Cuttings into Water

In the event of a spill of any amount of potentially contaminated/drill return water or cuttings into a water body, any activities which are the possible cause will cease until a review of the incident has taken place. Report the spill to the Facility and Logistics Coordinator, Kiggavik and Coordinator, SHEQ Exploration or designates immediately. Water and potentially sediment samples will be taken and gamma survey conducted on the affected area. Activities will continue once the Manager – New Projects or designate is satisfied with the corrective measures taken.

# 5 Spill Reporting Requirements

This Plan is initiated by the Project Geologist or designate, which includes initiating response, documenting associated activities and reporting the spill within 24 hours to the NT-NU 24-HOUR SPILL REPORT LINE. All emergency contact phone numbers are located in **Error! Reference source not found.** Contact List.

Based on Environment Canada's recommendation, all releases of harmful substances, regardless of quantity are immediately reportable where the release is:

- Near or into a water body
- Near or into a designated sensitive environment or sensitive wildlife habitat
- Poses an imminent threat to human health or safety
- Poses an imminent threat to listed species at risk or its critical habitat

The Government of Nunavut *Spill Contingency Planning and Reporting Regulations* consider any spill of flammable liquids greater than 100 L a reportable spill. In addition, any quantity of spilled radioactive material is reportable. The following table (Schedule B) is adapted from the *Spill Contingency Planning and Reporting Regulations* and outlines the quantities of spilled product that requires reporting to the Government of Nunavut-Department of Environment (GN-DoE).

## SCHEDULE B

**(Section 9)**

| *Item No.* | *TDGA Class* | *Description of Contaminant* | *Amount Spoiled* |
|---|---|---|---|
| ***1.*** | 1 | Explosives | Any amount |
| ***2.*** | 2.1 | Compressed gas (flammable) | Any amount of gas from containers with a capacity greater than 100 l. |
| ***3.*** | 2.2 | Compressed gas (non-corrosive, non flammable) | Any amount of gas from containers with a capacity greater than 100 l. |
| ***4.*** | 2.3 | Compressed gas (toxic) | Any amount |
| ***5.*** | 2.4 | Compressed gas (corrosive) | Any amount |
| ***6.*** | 3.1, 3.2, 3.3 | Flammable liquid | 100 l |
| ***7.*** | 4.1 | Flammable solid | 25 kg |
| ***8.*** | 4.2 | Spontaneously combustible solids | 25 kg |
| ***9.*** | 4.3 | Water reactant solids | 25 kg |
| ***10.*** | 5.1 | Oxidizing substances | 50 l or 50 kg |
| ***11.*** | 5.2 | Organic Peroxides | 1 l or 1 kg |
| ***12.*** | 6.1 | Poisonous substances | 5 l or 5 kg |
| ***13.*** | 6.2 | Infectious substances | Any amount |
| ***14.*** | 7 | Radioactive | Any amount |
| ***15.*** | 8 | Corrosive substances | 5 l or 5 kg |
| ***16.*** | 9.1 (in part) | Miscellaneous products or substances, excluding PCB mixtures | 50 l or 50 kg |
| ***17.*** | 9.2 | Environmentally hazardous | 1 l or 1 kg |
| ***18.*** | 9.3 | Dangerous wastes | 5 l or 5 kg |
| ***19.*** | 9.1 (in part) | PCB mixtures of 5 or more parts per million | 0.5 l or 0.5 kg |
| ***20.*** | None | Other contaminants | 100 l or 100 kg |

**If you are in doubt as to whether or not a spill is reportable, it is best to report the spill.**

## 5.1 Spill Response Contact List

The Exploration Emergency Contacts is available in **Error! Reference source not found.** of this Plan. The list is also made available in drill rigs and field offices.

## 5.2 Reporting Requirements

1. Collect Required Information

During spill response, the following information should be generated and reported (complete the Spill Report Form found in **Error! Reference source not found.**):

- Date and time of spill
- Location of spill
- Direction the spill is moving
- Name of contact person at location of spill, and phone number where applicable
- Type and quantity of contaminant
- Cause of spill
- Whether spill is contained or stopped
- Description of the existing contaminant
- Action taken to contain, recover, clean-up and dispose of spilled material

2. Report

It is the responsibility of the senior Orano staff on site to report spills to regulatory agencies. Contractors are asked to report all spills to the Project Geologist or designate immediately who will notify the following agencies/people (See **Error! Reference source not found. Error! Reference source not found.**).

- Project Geologist or designate (if not on site during incident)
- Manager – New Projects Facility and Logistics Coordinator, Kiggavik
- Coordinator, SHEQ Exploration (if not on site during incident)
- NT-NU 24-Hour Spill Report Line (within 24hours) by phone; use the information collected for the spill report form
- Vice President, Exploration
- Manager, Nunavut Affairs and Baker Lake office
- The Nunavut Water Board (NWB) and INAC request verbal notification as soon as possible, however they will also be notified by the spill report line
- A copy of the written Spill Report Form must be submitted to the GN-DoE, INAC (Water Resources Office and Manager of Field Operations), NWB and Environment Canada (EC) within seven calendar days of the incident
- A detailed report must be submitted to the GN-DoE, INAC, NWB and EC within 30 days
- Submit a copy of the Spill Report Form and detailed report to Kivalliq Inuit Association (KIA)

# 6 Training and Practice Drills

All employees and contractors must be familiar with the resources for spill response which include this Plan, SDS sheets, and training for spill response. Involvement of other employees or third parties may occasionally be required. Annual refreshers are conducted to review the procedures within this Plan. Practice drills are conducted to familiarize field-personnel with emergency response equipment and ensure awareness of product hazards.

# 7 References


AREVA Resources Canada Inc. 2013. Environmental Code of Practice. June 2013.

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Fire Marshal, Tim Hinds with the Government of Nunavut-Community and Government Services via email (Trevor Carlson, AREVA) on November 20, 2007.

Government of Nunavut Environmental Protection Service Department of Sustainable Development. *Contingency Planning and Spill Reporting in Nunavut*.

Government of Nunavut. 2010. *Environmental Protection Act.* March 2010.

Government of Nunavut R-068-93. 1998. *Spill Contingency Planning and Reporting Regulations*. July 1998.

Indian and Northern Affairs Canada (INAC). 2007. *Guidelines for Spill Contingency Planning*. April 2007.

Northwest Territories-Nunavut Spill Report Form. Available at: http://env.gov.nu.ca/sites/default/files/NT%20NU%20Spill%20Report%20Form.pdf

# Appendix A Exploration Emergency Contacts

Available at:

Exploration SHEQ SharePoint site

# Appendix B Spill Report Form

Available at:

https://www.gov.nu.ca/environment/documents/nt-nu-spill-report-form-pdf
https://www.gov.nu.ca/sites/default/files/NT%20NU%20Spill%20Report%20Form_0.pdf

# Appendix C Site Maps