

**SPILL RESPONSE PLAN**  
***Hood River Gold Project***  
*Camp coordinates (to be provided)*

**Kitikmeot Region, Nunavut**

**April 2019**



## **EMERGENCY CONTACTS (Additional contacts in Appendix A)**

<b>Organization</b>	<b>Contact</b>	<b>Location</b>	<b>Telephone/Radio</b>
Blue Star	Program Manager Peter Kuhn	Onsite	<i>Tbd</i>
		Offsite	604-347-6999
	CEO Stephen Wilkinson	Offsite	604-787-6006
	Camp Manager <i>Tbd</i>	Onsite	<i>Tbd</i>
	Medic <i>Tbd</i>	Onsite	<i>Tbd</i>
NT-NU Spill Centre	24 hour Spill Report Line	Yellowknife	867-920-8130
Kitikmeot Inuit Association (KIA)	Inspector	Kugluktuk	867-982-3310
Crown-Indigenous Relations and Northern Affairs Canada	Inspector	Kugluktuk	867-982-4306

## **PLAIN LANGUAGE SUMMARY**

This Plan describes how people are trained and what needs to be done to respond safely to a spill of fuel or other hazardous material at the Hood River Gold Project, near Kugluktuk, Nunavut.

## **REVISION HISTORY**

<b>Revision #</b>	<b>Date</b>	<b>Section</b>	<b>Summary of Changes</b>	<b>Author</b>	<b>Approver</b>
1	April 2019	-	New document	S. Hamm	P. Kuhn

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## 1.0 INTRODUCTION

A spill is an uncontrolled or unplanned release of a regulated substance. Spills associated with Blue Star Gold Corp.'s (Blue Star) Hood River Gold Project (the Project) may occur at a variety of worksites, including the camp, fuel caches and drill sites. Regardless of the type or quantity of material involved, all worksites must implement measures to reduce the potential for spills and have an action plan for responding to spills. This *Spill Response Plan* (the Plan) describes methods for preventing and responding to spills at the Project site and considers the guidance provided in the documents listed in Table 1.

Table 1 Relevant guidance documents including legislation, permits and licences.

Document	Authority
Contingency Planning and Spill Reporting in Nunavut: A guide to the new regulations	Government of Nunavut
<i>Environmental Protection Act, 1988</i>	Government of Nunavut
<i>Spill Contingency Planning and Reporting Regulations, 1993</i>	Government of Nunavut
<i>Mine Health and Safety Act, 1994</i>	Government of Nunavut
<i>Mine Health and Safety Regulations, 1995</i>	Government of Nunavut
<i>Canadian Environmental Protection Act, 1999</i>	Government of Canada
<i>Environmental Emergency Regulations, 2003</i>	Government of Canada
<i>Transportation of Dangerous Goods Act, 1992</i>	Government of Canada
<i>Transportation of Dangerous Goods Regulations, 2012</i>	Government of Canada
<i>Hazardous Products Act, 1985</i>	Government of Canada
<i>Canada Labour Code, 1985</i>	Government of Canada
<i>Canada Occupational Safety and Health Regulation, 1986</i>	Government of Canada
Screening Decision Report	Nunavut Impact Review Board
Water Licence	Nunavut Water Board
Land Use Licence	Kitikmeot Inuit Association

### 1.1 SCOPE

This Plan applies to spill response associated with activities occurring in relation to the Project including camp operation, drilling and fuel caches.

### 1.2 OBJECTIVES

While plans and preventative measures are put in place, Blue Star recognizes that accidental spills and unplanned releases may occur. Accordingly, the objectives of this Plan are to:

- Ensure employees and contractors are trained to respond to spills in an effective manner;
- Outline appropriate spill response measures to ensure worker safety and environmental protection.

### **1.3 SITE DESCRIPTION**

The Project is located 200 km southeast of Kugluktuk, Nunavut (see Figure 1), and abuts the Ulu property to the north, south and east. The camp is located within the boundaries of the parcel as indicated in the Mineral Exploration Agreement HOODRIVER-001 (see Table 1) and may support up to 60 persons. The site is accessible by air, utilizing the nearby existing airstrip or an adjacent lake.

The Project is located within the Southern Arctic Ecozone and the Takijuj Lake Upland Ecoregion. Much of this region is composed of unvegetated rock outcrops. Vegetative cover is characterized by shrub tundra, consisting of dwarf birch, willow, northern Labrador tea, avens species and blueberry species. Organic Cryosols are the dominant soils in the lowlands and permafrost is deep and continuous.

Characteristic wildlife includes caribou, muskoxen, grizzly bear, wolverine, Arctic hare, Arctic fox, red fox and wolf. Small mammals (e.g., Arctic ground squirrel, voles, and lemmings) are distributed throughout the region and provide an important food source for predators. Many species of migratory birds are present in the area during the summer season, including waterfowl, raptors, songbirds, and shorebirds, while some bird species are present year round (e.g., ptarmigan, gyrfalcon, and common raven) (ECCC 2019).

The camp is located at: *(coordinates to be provided upon camp establishment)*.

### **1.4 PLAN MANAGEMENT**

This Plan is intended to fulfill requirements associated with the water licence and the land use licence as well as existing legislation. The Plan will be updated to reflect final camp and fuel cache locations and capacities upon establishment, and to maintain a current contact list, as needed.

The Plan will be reviewed annually by the Project Manager and updated as needed. When material changes occur, the updated document will be provided to the Nunavut Water Board.

### **1.5 PLAN IMPLEMENTATION**

This Plan is effective upon approval and is valid throughout all phases of the Project.

The Project Manager or designate is responsible for Plan implementation.

A copy of this Plan is maintained on site in the Office, in each drill shack, in each shop, in the helicopter shack and within each spill kit deployed throughout the project area.

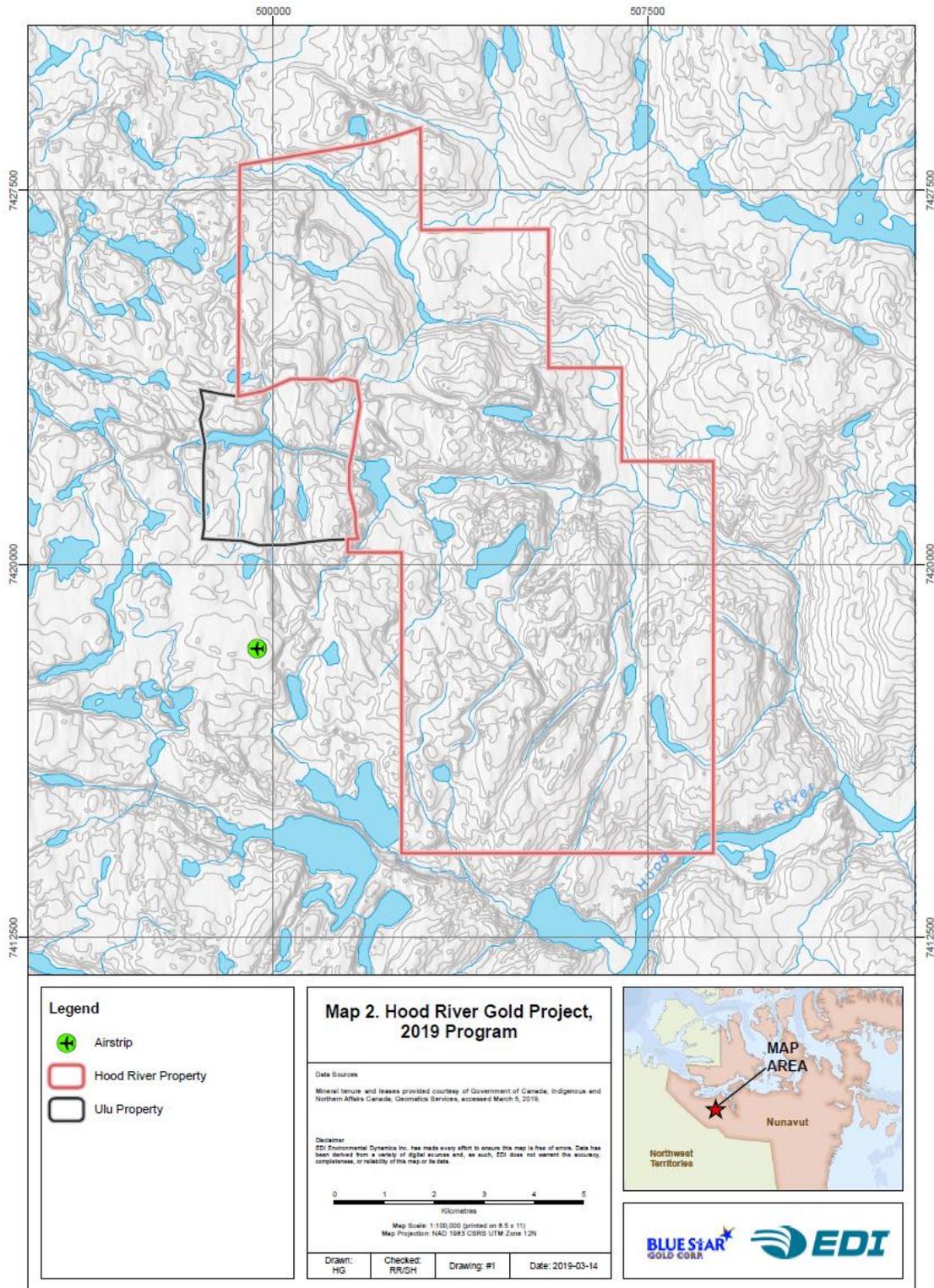


Figure 1 Figure 1 Hood River Gold Project site map.

## 2.0 ROLES AND RESPONSIBILITIES

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Blue Star is responsible for activities associated with the Project, including implementation and management of this Plan. Blue Star's contact information is provided below.

**Blue Star Gold Corp.**  
Suite 1125-595 Howe Street  
Vancouver BC V6C 2T5  
Phone: 1 778 379 1433  
**Contact: Peter Kuhn, General Manager**  
Phone: 1 604 347 6999  
Email: kjgold2010@gmail.com

### 2.1 STAFF, CONTRACTORS, SUPPLIERS AND VISITORS

All personnel conducting activities on site, including staff, contractors, suppliers and visitors, are required to implement this Plan as it pertains to their activities on site. Specifically, these responsibilities include:

- Take all necessary steps to minimize the chance of spills when working with chemicals, hydrocarbons, or regulated materials;
- Cooperate fully with your supervisor and/or Blue Star management to implement a spill prevention program in your work area;
- Only carry out duties and tasks that you are experienced at and trained to perform;
- Where there is uncertainty, ask questions and bring concerns to the attention of your supervisor when working with products that pose potential environmental and health risks;
- Respond to spills for which you are responsible or discover, and for which you have the requisite training and equipment; and
- Report all spills, no matter how small or seemingly insignificant, to your supervisor or Blue Star management in a timely manner.

### 2.2 MANAGERS AND SUPERVISORS

Managers and supervisors have a responsibility to ensure that staff, contractors, consultants and visitors have been trained in Blue Star spill response expectations and procedures. Additional supervisor and manager responsibilities include:

- Maintain a no blame work environment in initiating a spill response and related follow-up actions;
- Ensure site-specific and material-specific training is provided to all departments and staff;
- Ensure there are appropriate and sufficient spill response supplies in their area for the hazard characteristics and quantities of materials stored or handled;
- Provide assistance in response to spills including the coordination of additional response personnel or equipment;
- Maintain records regarding inspections, personnel training, emergency equipment testing and spill kit maintenance; and
- Contact appropriate government agencies and emergency services where appropriate.

An emergency contact list is provide in Appendix A.

### 3.0 SPILL PREVENTION

Successful spill prevention is largely based on safe storage and handling of materials and maintaining a known inventory of materials located within in suitable secondary containment.

#### 3.1 PRODUCT INVENTORY

Table 2 provides a product inventory of typical products and volumes maintained on site during seasonal operations. Efforts are made to minimize the amount of materials stored on site during seasonal closure.

Table 2 Petroleum and chemical products typically stored on site.

Material	Amount	Container	Location	Storage
Diesel	48,000 L	205 L drums, bladders, fuel cubes, tidy tanks or equivalent	Drills Camp Remote fuel cache	Secondary containment
Jet B	33,000 L	205 L drums	Camp Remote fuel cache	Secondary containment
Gasoline	3,300	205 L drums	Camp	Secondary containment
Propane	1,700 lbs	100 lb cylinders	Camp	Secondary containment
Various lubricants	180 gal	5 gal pails	Drills Camp	Secondary containment
Waste oil and related products (filters, rags)	Various	205 L drums or lined mega bags		Secondary containment
Glycol	180 gal	5 gal pails		Secondary containment
Salt	21,600 L	50 lb bags	Drills Camp	Secondary containment
Drill additives	180 gal	5 gal pails	Drills Camp	Secondary containment
Acetylene	200 lbs	100 lb cylinders	Camp	Secondary containment
Oxygen	200 lbs	100 lb cylinders	Camp	Secondary containment
Spent spill response materials	Various	205 L drums or lined mega bags	Camp	Secondary containment
Hazardous waste for backhaul and offsite disposal	Various	205 L drums, lined mega bags, or other TDG-approved container	Camp	Secondary containment

### **3.2 MATERIAL STORAGE AND INSPECTION**

The materials listed in Table 2, along with their associated dispensing pumps and hoses, are stored in secondary containment, capable of containing 110% of the largest container. Secondary containment typically consists of Arctic-grade instaberm or equivalent. Secondary containment is periodically inspected, is maintained dry and is covered during seasonal closure.

Other considerations for proper material storage include the following:

- Store materials >31 m above the ordinary high water mark of any watercourse;
- Inspect material storage areas weekly or in accordance with permit and licence requirements, for capacity, ventilation, stability, organization, cleanliness and leak detection;
- Properly label storage containers and areas in accordance with the Workplace Hazardous Materials Information Management System (WHMIS);
- Identify fuel storage areas with multilingual signage (English, Inuktitut, Inuinnaqtun);
- Maintain storage area capacity such a that it is safely accessible;
- Store gas cylinders securely in an upright position;
- Store drums for immediate use in an upright position, and cached drums on their sides with bungs visible and in the 10 o'clock and/or 2 o'clock positions.

### **3.3 MATERIAL HANDLING AND DISPOSAL**

Considerations for proper material handling include:

- Conduct refueling and equipment repair in a designated area, >31 m above the ordinary high water mark of any watercourse, within secondary containment or utilizing a drip tray;
- Use equipment or seek assistance when transporting heavy or awkward containers;
- Use funnels and spill containment trays when pouring or transferring chemicals from one container to another; and
- Utilize proper Personal Protective Equipment (PPE) when handling hazardous materials.

## **4.0 SPILL RESPONSE**

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A spill response will vary depending upon the situation, the material spilled and location of the spill. As materials on site that pose the highest spill risk due to their volume and handling frequency are all petroleum products or allied petroleum products, the response procedures outlined in this document are considered to apply under most spill scenarios.

In all spill responses, the following steps should be taken to ensure worker safety and environmental protection are maintained:

- 1) Ensure your own safety and the safety of your coworkers by:
  - a) Stopping what you are doing;
  - b) Staying clear of the spill;
  - c) Warning others nearby,
  - d) Shutting down nearby equipment;
- 2) If required, assist injured or contaminated persons;
- 3) Assess the situation. Notify and report, as needed:
  - a) Emergency: if the spill poses a significant risk to persons, property or the environment, call for help and contact your supervisor or the Project Manager immediately;
  - b) Non-emergency: proceed with appropriate spill response;

- 4) Consult the Material Safety Data Sheet (MSDS) for exposure risk;
- 5) Put on appropriate PPE (gloves, safety glasses, apron, footwear);
- 6) Contain the spill as outlined in the following sections;
- 7) Label and store containers of waste and spent spill response materials in accordance with Sections 3.2 and 3.3;
- 8) Conduct spill reporting as outlined in Section 5;
- 9) Where required, participate in incident investigations and follow-up measures.

#### **4.1 SPILLS TO TUNDRA**

In the event of a spill to the ground surface or tundra:

- If flowing fluid:
  - trench or ditch to intercept or contain fluid where feasible; or
  - construct a berm or barrier downslope of the spill. Use soil, or synthetic, impervious sheeting;
- Recover free product through manual or mechanical means including shovels, heavy equipment and pumps;
- Absorb petroleum residue with synthetic sorbent socks, pillows, pads or granular materials;
- Mechanically recover contaminated rock, soil and vegetation using a shovel;
- Backfill any excavated areas with available soil, sand gravel or bentonite.

#### **4.2 SPILLS TO SNOW**

In the event of a spill to snow:

- If flowing fluid, construct an ice berm or barrier downslope of the spill by compacting snow and spraying with water (if conditions permit) or use synthetic, impervious sheeting;
- Compact snow around the perimeter of the spill area;
- Locate the low point of the spill area and clear channels in the snow towards this low point, to allow free product to flow into the low point;
- Recover free product through manual or mechanical means including shovels, heavy equipment and pumps, or if approved, combust in situ;
- Absorb petroleum residue with synthetic sorbent socks, pillows, pads or granular materials;
- Mechanically recover all contaminated snow and ice.

#### **4.3 SPILLS TO ICE**

In the event of a spill to ice:

- Follow procedures for a spill to snow.

In the event that materials penetrate and are under the ice:

- Drill holes through ice using ice auger to locate fuel/petroleum product;
- Once detected, cut slots in the ice using chain saws and remove ice blocks. Light non-aqueous phase liquids will collect in openings in the ice;
- Recover free product through manual or mechanical means including scoops or pumps, or, if approved, combust in situ;
- Absorb petroleum residue with synthetic sorbent socks, pillows or pads.

#### **4.4 SPILLS TO WATER**

In the event of a spill to water:

- Monitor the movement of the spilled materials from a helicopter;
- Deploy and secure booms around the perimeter of the spilled material;
- Absorb petroleum residue with synthetic sorbent socks, pillows or pads;
- Recover free product by floating absorbent socks, pillows or pads on the water surface, deploying a skimmer, or, if approved, combust in situ or apply chemical dispersants.

#### **4.5 SPILL KITS**

Spill kits on site may vary based on location and supplier. Contents of typical small and large kits are presented below. Large spill kits will be located at each fuel cache, drill helipad and refueling area and adjacent to aircraft landing areas. Small spill kits will be located in the boat, adjacent to water pumps and elsewhere as needed.

A typical small (68 L) spill kit may contain the following:

- 50 oil sorbent pads;
- 4 small pillows;
- 2 large pillows;
- 4-4 inch socks;
- 1 plug patty (instant leak-stop);
- 1 pair of nitrile gloves;
- 1 pair of splash goggles; and
- 1 disposable respirator.

A typical large (220 L) spill kit may contain the following:

- 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; and
- 1 instruction book.

Spill kits are inspected at the start of each field season and following each spill response to ensure contents are sufficient.

Additional spill response materials will be stored on site in the Shop and include a trash pump, several shovels, extra nitrile gloves, extra sorbent pads and extra granular sorbent material. A boat will be available to assist in responding to a spill on water should a lake be used to land aircraft.

## **5.0 REPORTING AND DOCUMENTATION**

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### **5.1 MATERIAL SAFETY DATA SYSTEM**

MSDS sheets are maintained on site in the Office, the Shops and the Medical Tent. The MSDS sheets are reviewed annually at the start of the field program to ensure that appropriate and current MSDS sheets are available.

### **5.2 SPILL REPORTING**

Spill reporting is a key component of the spill response efforts. Once it is safe to do so, the first responder shall collect the following info:

- 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;
- Material and quantity spilled;
- Cause of spill;
- Whether spill is contained or stopped;
- Action taken to contain, recover, clean-up and dispose of spilled material

All spills and unplanned releases are reported to the Project Manager. Materials and quantities listed in Appendix B that are spilled or released in an unplanned manner require external reporting. In the event of a reportable spill, and once it is safe to do so, the Project Manager or designate will initiate notification of the following (contact info is provided in Appendix A):

- Blue Star Project Manager;
- NT-NU 24-hour spill report line;
- Kitikmeot Inuit Association;
- CIRNAC Inspector.

Following initial notification, the Project Manager will complete the NT-NU Spill Reporting Form (Appendix C). The completed form must be submitted to the CIRNAC Inspector and the KIA within seven calendar days of the incident.

A detailed follow-up report must be submitted to the CIRNAC Inspector within 30 days of the incident.

## **6.0 TRAINING**

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All attendees to site participate in a site orientation which outlines onsite hazards and roles and responsibilities regarding material handling, storage and spill response. Spill kit contents and deployment are periodically reviewed at weekly site safety meetings.

All attendees to site must be trained in WHMIS.

## **7.0 REFERENCES**

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*Canada Labour Code R.S.C., 1985, c. L-2*

*Canada Occupational Safety and Health Regulation. 1986. SOR/86-304*

*Canadian Environmental Protection Act (CEPA). S.C. 1999, c.33*

*Hazardous Products Act R.S.C., 1985, C. H-3*

*Environmental Emergency Regulations SOR/2003-307*

*Environmental Protection Act. R.S.N.W.T. 1988, c.E-7*

*Mine Health and Safety Act, SNWT (Nu) 1994, c25*

*Mine Health and Safety Regulations, NWT Reg (Nu) 125-95*

*Spill Contingency Planning and Reporting Regulations R-068-93*

*Transportation of Dangerous Goods Act (TDGA). S.C. 1992, c.34*

*Transportation of Dangerous Goods Regulations. SOR/2012-245*

Environment and Climate Change Canada. 2019. The Ecological Framework of Canada, Southern Arctic Ecozone, Takijuq Lake Upland Ecoregion. Accessed March 2019  
<http://ecozones.ca/english/region/41.html>

Government of Nunavut. Contingency Planning and Spill Reporting in Nunavut: A guide to the new regulations.

## APPENDIX A: EMERGENCY CONTACTS

Organization	Contact	Location	Telephone/Radio
Blue Star	<b>General Manager</b> Peter Kuhn	<b>Onsite</b>	<b>Tbd</b>
		<b>Offsite</b>	604-347-6999
	CEO Stephen Wilkinson	Offsite	604-787-6006
	<b>Camp Manager</b> Medic	<b>Onsite</b> Onsite	<b>Tbd</b> Tbd
<b>NT-NU Spill Centre</b>	<b>24 hour Spill Report Line</b>	<b>Yellowknife</b>	<b>867-920-8130</b>
<b>Kitikmeot Inuit Association (KIA)</b>	Lands Department	Kugluktuk	867-982-3310
	<b>Inspector</b>	<b>Kugluktuk</b>	867-982-3310
Crown-Indigenous Relations and Northern Affairs Canada	<b>Field Operations</b>	<b>Iqaluit</b>	<b>867-975-4295</b>
	Inspector	Kugluktuk	867-982-4306
Environment and Climate Change Canada	Operations Manager	Yellowknife	867-669-4730
Fisheries and Oceans Canada	Regional Office	Yellowknife	867-669-4800
GN Department of Environment	Director Environmental Protection	Iqaluit	867-975-7748
Nunavut Water Board	Executive Director	Gjoa Haven	867-360-6338
Kugluktuk Health Centre		Kugluktuk	867-982-4531
RCMP		Kugluktuk	867-982-0123 or 867-982-1111
Mines Inspector		Iqaluit	800-661-0792

## SITE RADIO CHANNELS

Channel	Contact
1	General
2	Medic/Emergency
3	Aviation
4	Drills

## APPENDIX B: IMMEDIATELY REPORTABLE SPILLS

Unplanned releases of the materials listed below will immediately be reported to the NT-NU 24 Hour Spill Report Line, Yellowknife, Tel: 867-920-8130 (Email: [spills@gov.nt.ca](mailto:spills@gov.nt.ca); Fax: 867-873-6924) using the NT-NU Spill Report.

Description of Contaminant	Amount Spilled	TDG Class
Explosives	Any amount	1.0
Compressed gas (Flammable)	Any amount of gas from containers with a capacity greater than 100L	2.1
Compressed gas (Non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100L	2.2
Compressed gas (toxic/corrosive)	Any amount	2.3
Flammable Liquid	≥ 100L	3.1
		3.2
		3.3
Flammable Solid	≥ 25kg	4.1
Spontaneously combustible substance	≥ 25kg	4.2
Water reactant substances	≥ 25kg	4.3
Oxidizing substances	≥ 50 L or 50 kg	5.1
Organic peroxides	≥ 1 L or 1 kg	5.2
Toxic/poisonous substances	≥ 5 L or 5 kg	6.1
Infectious substances	Any amount	6.2
Sewage and Wastewater (Unless authorized)	Any amount	6.2
Radioactive substance	Any amount	7.0
Corrosive substances	≥5 L or 5 kg	8.0
PCB mixtures of 5 or more ppm	≥ 0.5 L or 0.5 kg	9.1
Miscellaneous substances	Not defined	9.1
Environmentally hazardous substances intended for disposal	≥ 1 L or 1 kg	9.2
Other contaminants	≥ 100 L or 100 kg	None

## **APPENDIX C: NT-NU SPILL REPORT FORM**

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Form is also available online at:

[http://www.gov.nu.ca/sites/default/files/NT%20NU%20Spill%20Report%20Form\\_0.pdf](http://www.gov.nu.ca/sites/default/files/NT%20NU%20Spill%20Report%20Form_0.pdf)

