

SPILL CONTINGENCY PLAN
HAMLET OF KIMMIRUT ENVIRONMENTAL FACILITIES

MAY 2016

HAMLET OF KIMMIRUT
GOVERNMENT OF NUNAVUT

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Spill Contingency Plan

1.0 Purpose and Scope

The purpose of this plan is to outline response actions for potential spills of any size, including a worst case scenario for the Hamlet of Kimmirut Environmental Facilities. The plan identifies key response personnel and their roles and responsibilities in the event of a spill, as well as the equipment and other resources available to clean up a spill. It details spill response procedures that will minimize potential health and safety hazards, environmental damage and clean-up efforts. The plan has been prepared to ensure quick access to all the information required in responding to a spill.

2.0 Distribution List

This plan and most recent revisions will be distributed to:

Hosea Mpofa	Senior Administrative officer: Ph. 867 939 2247
Timoon Toonoo	Director of Community Support, GN-CGS: Ph.: 867 897 3601
Bhabesh Roy	Municipal Planning Engineer, GN- CGS: Ph., 867 899 7314
Karen Kharatyan	Manager of Licensing, Nunavut Water Board: Ph.: 867-360-6369
Erik Allen	Manager, Nunavut AANDC field operations: Ph. 867 -222-8458

3.0 Community Environmental Policy

The Hamlet of Kimmirut is committed to operating their Environmental Facilities in an environmentally sensitive manner, and complying with requirements of the Nunavut Water Board (NWB).

4.0 Project Description

Kimmirut is an Inuit Community located on the south end of Baffin Island, located at 62°50'06"N and 69°52'04"W. The current population of the Community is 485. The water licence of the Hamlet of Kimmirut #3BM-KIM0911 expired on January 29, 2011. This licence covers the water supply system, wastewater treatment facility and waste management facility.

Water supply system: The Hamlet of Kimmirut uses Fundo Lake for potable water. The community is 100% serviced by trucked water delivery. The truck fill station is located midway along the eastern shore of Fundo Lake, approximately 1.5 km south of the Community. As per Water Licence # KIM0911, the quantity of water extracted is not to exceed 30,000 cubic meters annually.

Waste Management Facility: The community's waste management facility is located approximately 0.75 km south of the community.

Sewage Treatment Facility: The community's existing wastewater disposal system is located next to the waste management facility approximately 0.75 km south of the community. The wastewater disposal system currently used consists of a trench at the landfill where the trucked sewage is deposited. The sewage flows onto an embankment dropping a total of 40 metres (170 metres horizontally). This is followed by a gradual drop of 20 metres (200 to 300 metres horizontally) to the ocean at Lake Harbour. The lower gradual sloped portion of the discharge area contains a significant grass and willow area that provides some degree of treatment, but this may be limited to preliminary treatment.

The Licensee requests the following two (2) facilities be removed from the water licence:

1. The enhanced sewage lagoon facility located 1.5 km west of the community
In 2001 a new sewage lagoon was constructed about 1.5 km west of the Community. This lagoon consisted of 1 berm across a natural gulch, making use of the existing terrain to form a lagoon. This

system was not commissioned and was later determined to be undersized. The system was upgraded to include two lagoons with low permeability berms. Additional treatment is achieved in the downstream wetland area. This 3 hectare wetland ultimately discharges into Tuullitsit Lake. Following the construction of the lagoons, concerns were raised by regulatory agencies and local community members regarding the presence of fish in the wetland area. A fish study was conducted to assess the downstream wetland which would ultimately accept the discharge from the lagoon system. Through community consultations and site assessments, it was confirmed that the area was fish bearing.

The Hamlet recognizes that the current wastewater disposal practice is not supported by the regulatory agencies. Over the course of 2016/2017 the Hamlet and CGS will work with the appropriate authorities to determine if the enhanced sewage lagoon can comply with all relevant regulations and be brought online. In the event that this system cannot be brought online CGS will initiate the necessary steps to develop a new sewage treatment system that complies with the terms and conditions of the water licence.

2. The solid waste disposal facility located 1.5 KM west of the community adjacent to the enhanced sewage lagoon.

In 2001 an area of land was fenced to provide a new waste management facility. This fenced area of land is not appropriate for a solid waste site, and as such there are no future plans to use this site as a municipal solid waste site.

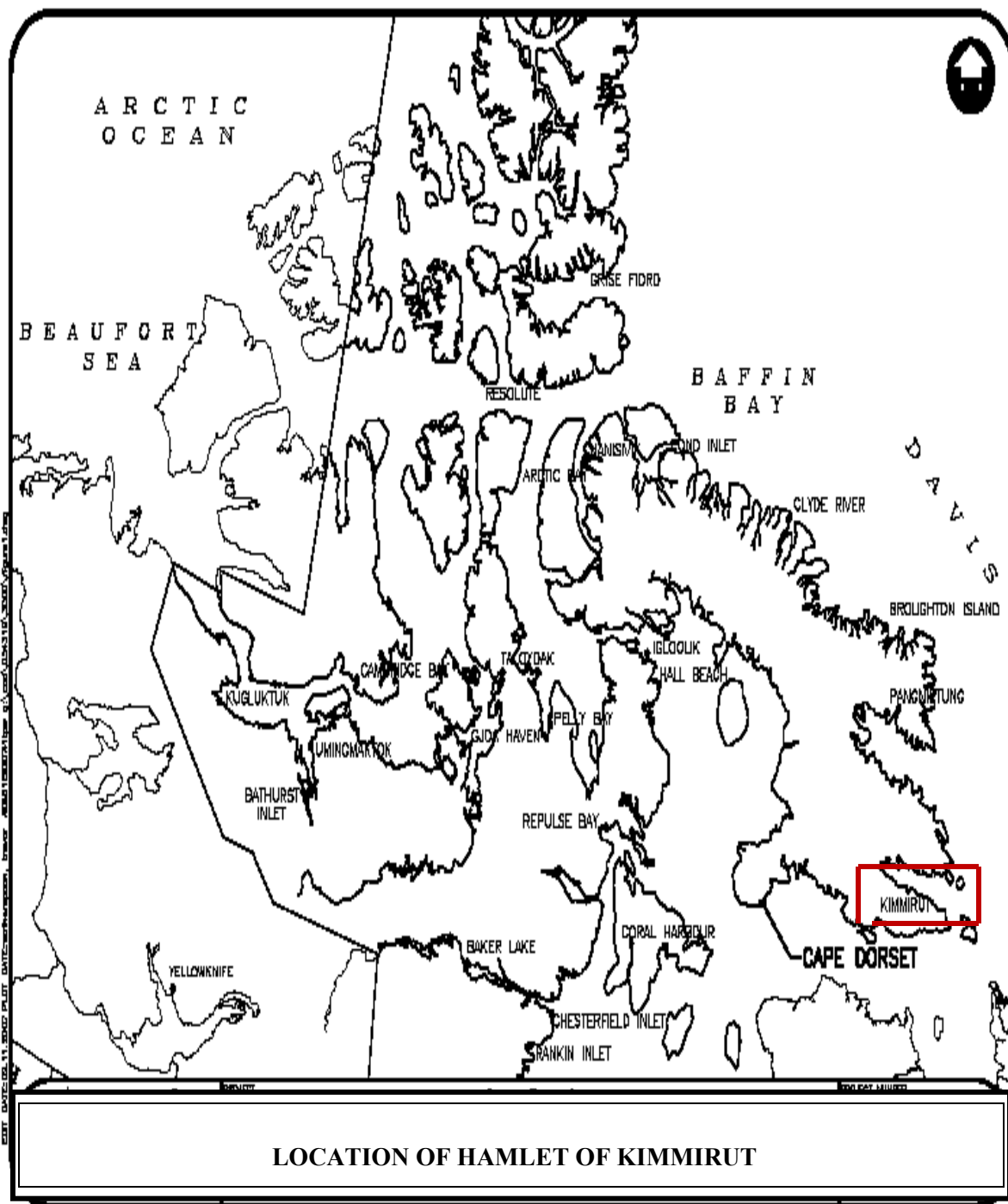


Figure 1: Map of Nunavut

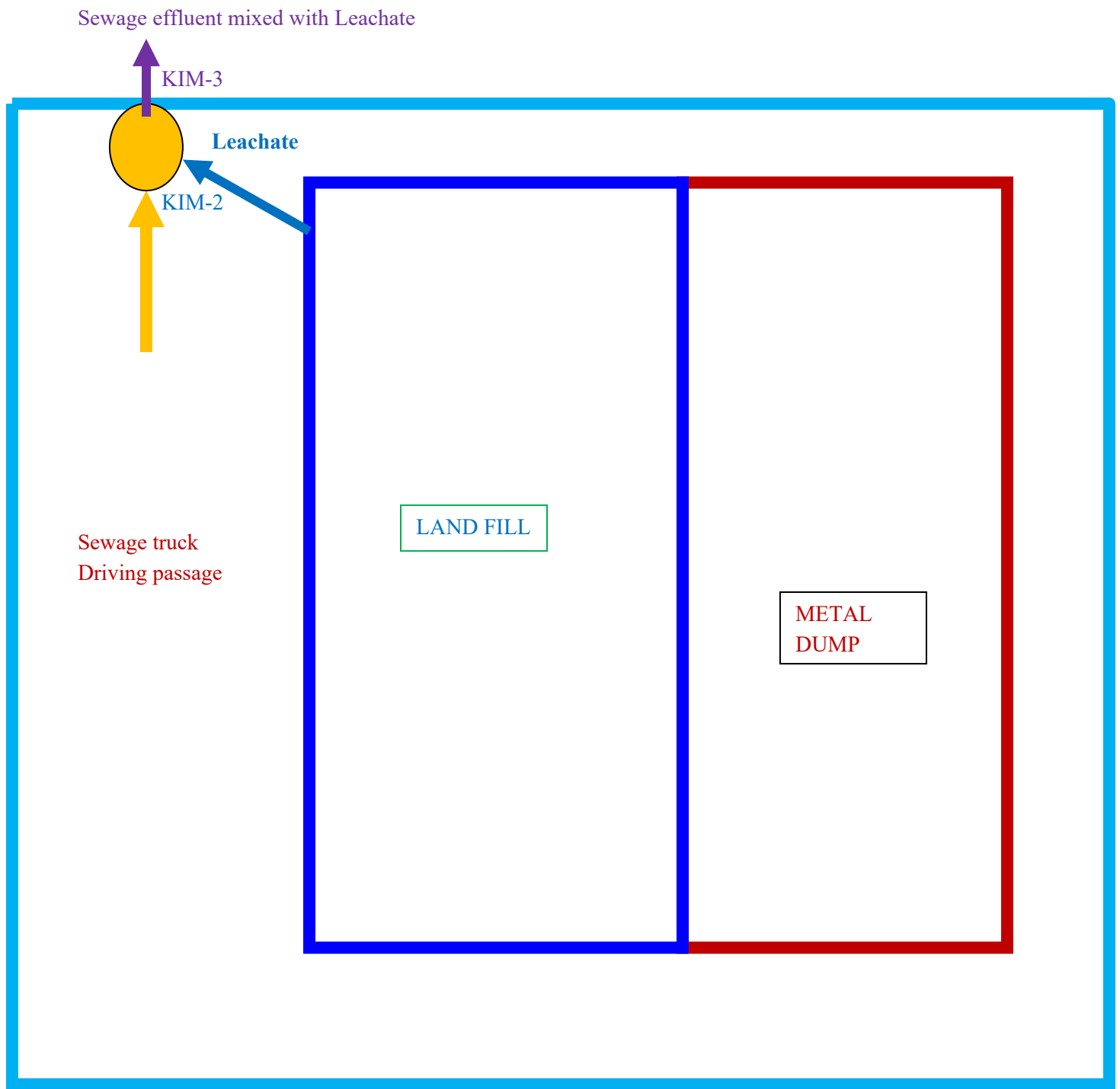


Table 1: Sampling Station Locations

Monitoring Program Station	Description of Monitoring Program Station
KIM-1	Raw Water supply intake at Fundo Lake
KIM-2	Runoff from the Solid waste Disposal Facilities
KIM-3	Effluent discharge from the existing Sewage Disposal Facilities,

5.0 Personnel training

The hamlet personnel that are taking responsibility for the sewage disposal are required to be trained in Workplace Hazardous Materials Information System (WHMIS), Transportation of Dangerous Goods Act and Regulation (TDGA and TDGR) as well as First Aid. In addition, personnel should ensure that proper vaccinations of employees are kept current and that they are familiar with the response plan. It is good practice to obtain copies of a list of procedures and equipment that are to be used for such emergencies in all sewage trucks and the common work area.

In all response cases, personnel should place their own safety as the highest priority. The procedures that should be taken in the likelihood of a potential fire or spill are described in the following sections.

6.0 Spill Contingency

A spill contingency plan has been developed by the Hamlet of Kimmirut that identifies the procedures to follow when a spill of any hazardous material has occurred. Similar procedures can be used for the case of sewage spills.

Below, in the subsequent sections, the measures that are to be implemented if a spill or uncontrolled release of a substance occurs during the collection and transportation of wastewater are described for the following areas:

- Initial Response
- Containment Procedures
- Spot Spills
- Spills in Proximity to a Water body

6.1 Initial Response

If a spill occurs, the first person at the scene will:

1. Perform an initial assessment to identify immediate danger.
2. Identify the material spilled and verify the nature of the hazard by corresponding to the Material Safety Data Sheets (MSDS) so to apply appropriate safety procedures.
3. If possible and safe to do so, cut off and/or stop the source of the spill.
4. Control danger to the human life without further assistance, if possible. If, for instance, the spill creates a fire, explosion or other hazard, remove all potential ignition sources.
5. Obtain immediately assistance from others and start to contain and/or clean up the spill.
6. Contact the Hamlet SAO/Foreman to notify them of the spill as they will contact relevant regulators and community residents of the occurrence.
7. Mark off the spill site as to warn the public of the incident and to prevent access.

Once the Hamlet of Kimmirut has been contacted and have arrived on site, he/she will immediately ensure that:

1. Necessary arrangements for first aid and removal of injured personnel have been made. Where possible, necessary action will be taken to secure the site to protect human safety.
2. If not already done and is safe to do so, take the appropriate action to stop the flow or release of material/substance as well as to contain or prevent the spread of the spilled material if at all possible.
3. Contact the 24 Hour Spill Line at (867) 920-8130 to report spill and obtain additional assistance.
4. Contact the Hamlet's Senior Administrative Officer at Ph. 867 939 2247.
5. If required, notify the Fire Department at (867) 939-4422 and RCMP Detachment at (867) 939-1111.

6.2 Containment Procedures

Response personnel will immediately start to contain the spill to ensure that the spill does not spread and contaminant other areas and/or environment. The following actions might also be taken if relevant to the spill situation:

1. If the source of the spill is coming from a leaking fuel truck, then pump fuel into a suitable container or another tank until the tank is dry.
2. Culverts that have been potentially affected by the spill should be blocked off to minimize travel of the substance.
3. Dig a basin or construct a berm to stop and contain the pathway and flow of the spill.
4. Apply absorbent materials to contain and recover small volumes of spilled substance.

5. Spilled substance and/or material are to be collected and transported to an approved waste disposal facility in the appropriate manner.

6.3 Spot Spills

Spot spills are those that involve a small volume of substance in a controlled material over a small, contained surface area. For spot spills involving hazardous materials, the following steps may be taken by personnel:

- Immediately take action to clean up spill by implementing proper or suitable handling and containment procedures for the material spilled.
- Report spill to the SAO/Foreman of the Hamlet of Kimmirut
- Determine suitable methods for removal of contaminated soils and restoring site of the spill. Consult environmental and government agencies for assistance.
- Flag and record locations and information of spot spills for future reference and monitoring.
- In the case of a spot sewage spill, place lime over the sewage, collect and transport the material to the solid waste facility for proper disposal.

6.4 Spills in Proximity to a Water body

If a spill occurs in close proximity to a water body, take necessary actions to prevent the spill entering the nearby water body. Similar containment procedures discussed above in Section 4.9.2 can be used to assist with the likelihood of spills located near water bodies.

6.5 Existing Preventative Measures

The community is concerned about the environment and the possibility of a spill occurring and takes precautions when working with hazardous materials; however, no formal preventative measures are in place.

6.6 Additional Copies

Several copies of this plan will be kept in the Hamlet of Kimmirut Office.

6.7 Process for Staff Response to Media and Public Inquires

All media enquiries are directed to the SAO of the Hamlet of Kimmirut...

7.0 RESPONSE ORGANIZATION

7.1 Response Personnel

The following table lists the personnel who will be involved in the spill response. Contact information is also provided.

Table 10. Response Personnel Contact Information

Name	Contact Information
HOSEA Mpofu, SAO, Hamlet of Kimmirut	Ph-867 939 2247Fax-867 939 2256 e-mail: saokim@qiniq.com
Bhabesh Roy, MPE, GN-CGS	Ph.- 867-899-7314;Fax -867-899-7330; e-mail: broy@gov.nu.ca

7.2 Flowchart of Response Organization and Communication Lines

The following flowchart outlines the chain of communication to be followed, upon discovery of a spill or release by an employee of the community.

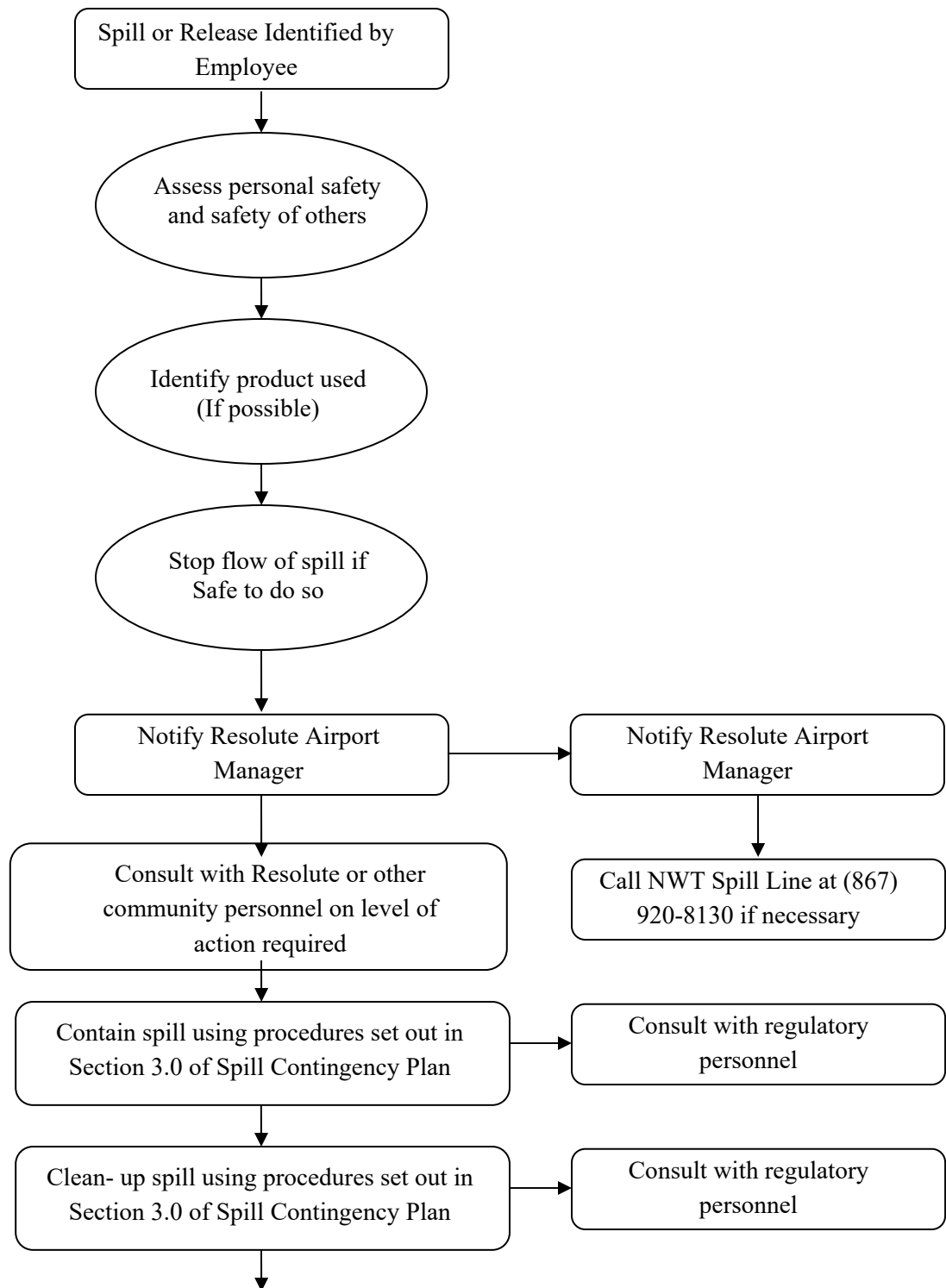


Figure 5: Flowchart of Spill Communication Lines

7.3 Summary of Available Communication Equipment

The following equipment is available in the community for communication purposes:

- Telephone with land line
- Computers with internet connection in Hamlet of Kimmirut Office
- Fax machine

8.0 ACTION PLAN

8.1 Potential Environmental Impacts of Spill

Generally, for the hazardous materials discussed below, environmental impacts are lower during the winter, as snow is a natural sorbent and ice forms a barrier lining for eliminating soil or water contamination. Spills can be more readily recovered when identified and reported.

Gasoline:

Environmental Impacts:

- Harmful to wildlife and aquatic life
- Not readily biodegradable
- Has potential to bio accumulate in environment
- Volatilizes easily
- Runoff into water bodies must be avoided

Worst Case Scenario: All fuel drums open simultaneously and contents pour onto ground and surrounding environment.

Diesel:

Environmental Impacts:

- Harmful to wildlife and aquatic life
- Not readily biodegradable
- Has potential to bio accumulate in environment
- Burns slowly (more readily contained than volatile fuels)
- Runoff into water bodies must be avoided

Worst Case Scenario: All fuel drums open simultaneously and contents pour onto ground and surrounding environment.

Waste Oil and Miscellaneous Oils and Grease:

Environmental Impacts:

- Harmful to wildlife and aquatic life
- Not readily biodegradable
- Has potential to bio accumulate in environment
- Runoff into water bodies must be avoided

Worst Case Scenario: All storage drums open simultaneously and contents pour onto ground and surrounding environment.

Sewage:

Environmental Impacts:

- Human health hazard, and unsightly appearance
- High nutrient concentrations could negatively impact water bodies and runoff into water bodies must be avoided

Worst Case Scenario: Full sewage truck releases all of its contents onto ground and surrounding environment.

8.2 Procedures

8.2.1 Procedures for Initial Actions

The following list of actions should be followed by the first person on the scene:

- Ensure safety of all personnel
- Identify the product spilled
- Assess the hazards and risks to persons in the vicinity of the spill
- If possible, without further assistance, control the danger to human life
- If it is safe to do so, and if possible, stop the spill (i.e. shut off pump, replace cap, tip drum upward, etc.)
- Gather information on the status of the situation, including:
 - Estimated size of spill
 - Estimated migration route
- Contact SAO/Foreman of the Hamlet of Kimmirut, as per flowchart in **Figure 5**.

8.2.2 Spill Reporting Procedures

Spills should be reported immediately to the SAO/Foreman of the Hamlet of Kimmirut, who will notify the spill hot line. Together they will determine if the spill is to be reported to the NWT 24-Hour Spill Line at 867-920-8130.

Copies of the Spill Report form are available in each spill kit and at the back of this manual. The form will be filled out by the Public Works Foreman (or designate), and faxed or emailed to the NWT Spill Line. Contact information is as follows:

Territorial 24-Hour Spill Line

Phone: (867) 920-8130

Fax: (867) 873-6924

Email: spills@gov.nt.ca

8.2.3 Procedures for the Protection of Human Health and Safety

Following a spill, the health and safety of workers as well as the general public is a priority. Actions taken will depend on the type of spill.

- ***In the event of a chemical spill:*** Restrict public access to the spill area. Workers involved in the clean-up of the spill should wear personal protective equipment (PPE).
- ***In the event of a flammable or combustible material spill:*** Evacuate adjacent buildings and restrict public access to the spill area. Remove sources of ignition if safe to do so (no smoking, flares, sparks or flames in the area). Never walk through or touch the spilled material. De-energize electrical equipment from a remote location if safe to do so. If ignition sources cannot be removed safely, evacuate the area immediately and report the spill situation. All equipment used when handling the material must be grounded. Only spark-arresting equipment should be used during clean-up of the spill. PPE should also be worn by workers involved in the clean-up. Refer to the product Material Safety Data Sheet (MSDS) for further instruction.
- ***In the event of a sewage spill:*** Restrict public access (including pets and animals) to the spill area.

8.2.4 Procedures for Containing and Controlling Spill

General procedures noted below will be used to contain and control all spills. Specific procedures for spills on land, water, snow and ice follow.

- First anticipate what will be affected by the spill.
- Assess direction and speed of spill, and any factors that could affect these.
- Determine best location for containing spill.

Spills on Land:

Dykes and trenches can be constructed to contain spills on land. Soil surrounding the spill area can be dug out, and piled up, to create a barrier for the spill. A plastic tarp can be placed at the base of the dyke, so that the pooled material can be removed with sorbent materials. Conversely, trenches can be excavated to permafrost, which will provide a natural containment of the spill. Once the material is contained, it can be pumped out, or removed by using sorbent materials. If the spill is moving very slowly, such structures may not be necessary and the material can be removed before migrating away from the spill location.

Spills on Water:

Spills on water are considered the most serious types of spills, as there is often no containment of the spilled material and water quality and aquatic life are negatively impacted. Booms and weirs can be installed to contain the spill. Booms are designed to float, and are made of absorbent material to soak up the spilled fuel. They are deployed from the shore or a boat, to create a circle around the spill. Weirs are installed across a stream, to prevent further migration. Plywood or other materials found onsite can be used. Barriers made of fence or netting can be used as well, with sorbent material placed at the base of the barrier. Once contained, the fuel can be removed by absorbent materials, pumped out or allowed to volatilize.

Spills on Snow:

Snow acts as a natural sorbent for spilled fuel. Impacted snow is easily visible, and can be shoveled into empty drums or barrels for proper disposal. If the spill is migrating down a hill, a snow dyke can be constructed to contain the spill. A plastic tarp can be placed at the base of the dyke, where spilled fuel is expected to pool. The collected fuel and impacted snow can be removed with absorbent materials, pumped out, or shoveled into barrels for disposal.

Spills on Ice:

Ice is considered impermeable to fuel, so these spills are generally easy to clean up. Small spills can be cleaned up by placing absorbent materials on top of the ice. Impacted snow and slush can then be removed by shovels, and placed in barrels for disposal. For larger spills, dykes of snow and trenches can be constructed to contain the spill. Pooled fuel can then be removed by adsorbent materials or pumped out. Impacted snow and slush can be shoveled into barrels for disposal.

Worst Case Scenarios:

Worst case scenarios include a dyke or trench overflowing and a large spill on water that cannot be contained with materials available in the community. In the first case, a trench or collection pit could be constructed downstream to collect the fuel. In the second case, an emergency response team would need to be called, with appropriate equipment to deal with the spill.

8.2.5 Procedures for Transferring, Storing and Managing Spill Related Wastes

Spills are generally cleaned up starting at the outer limit of the spill, and working towards the point of the spill. Sorbent materials and hand tools such as cans and shovels are used for smaller spills. Larger spills can be contained with the use of a pump and/or heavy equipment.

Spill wastes include used absorbent materials and containers of impacted water and snow. Sorbent materials should be placed in plastic bags for proper disposal. The containers of impacted water and snow should be sealed and stored until disposal at an approved facility can be arranged.

Following a spill, all used materials need to be properly washed and/or replaced.

8.2.6 Procedures for Restoring Affected Areas

Once a spill has been contained, community personnel will consult with regulatory personnel assigned to the file to determine the level of clean-up required. Regulatory personnel may request that a site specific study be conducted, to ensure appropriate clean-up levels are met.

9.0 RESOURCE INVENTORY

9.1 On-site Resources

It is recommended that the Hamlet of Kimmirut retains one spill kit and the spill kit should contain the followings:

- 30 socks/booms (3" x 4')
- 30 pillows (2L)
- 24 dispersal bags
- 4 pairs gloves
- 2 pairs goggles
- 6 pairs Tyke coveralls
- 4 shovels
- 2 spill signs
- 2 repair putty
- 1 Emergency Response Guidebook
- 1 Safety and Compliance Directory
- 1 Spill Response Pocket Guide

This response kit is designed to contain and collect up to 56 gallons of spilled oil. Additional volumes will be accommodated with the use of absorbent products that will be maintained in inventory in sufficient quantities.

The following heavy equipment is also available in the community for spill containment:

- Loader
- Dozer

9.2 Off-site Resources

The following resources are available for assistance if needed:

Territorial 24-Hour Spill Line	(867) - 920-8130
Aboriginal and Northern affair Canada (AANDC)	(867) - 669-2761
GN – Emergency Measures Officer	(888) - 624-4043
RCMP (Resolute Bay)	(867) - 939-1111
Environment Canada (Emergency) Yellowknife	(867) - 669-4725
GN Environmental Health Office	(867) - 975-4815
Health Center	(867) –939-2217
First Air	(867) –939-2250

Training Schedule and Recordkeeping:

Training will be conducted on an as-needed basis. Records will be kept in the Hamlet office.

APPENDIX:

Appendix- A: Spill Reporting Form

REFERENCE:

- Dillon Consulting Limited. "P lake Sewage Lagoon System", produced for Department of Community and Government Services, Government of Nunavut, January 2006.

APPENDIX-A

SPILL REPORTING FORM

Instructions for Completing the NT-NU Spill Report Form

This form can be filled out electronically and e-mailed as an attachment to spills@gov.nt.ca. Until further notice, please verify receipt of e-mail transmissions with a follow-up telephone call to the spill line. Forms can also be printed and faxed to the spill line at 867-873-6924. Spills can still be phoned in by calling collect at 867-920-8130.

A. Report Date/Time	The actual date and time that the spill was reported to the spill line. If the spill is phoned in, the Spill Line will fill this out. Please do not fill in the Report Number: the spill line will assign a number after the spill is reported.
B. Occurrence Date/Time	Indicate, to the best of your knowledge, the exact date and time that the spill occurred. Not to be confused with the report date and time (see above).

C. Land Use Permit Number /Water Licence Number	This only needs to be filled in if the activity has been licenced by the Nunavut Water Board and/or if a Land Use Permit has been issued. Applies primarily to mines and mineral exploration sites.
D. Geographic Place Name	In most cases, this will be the name of the city or town in which the spill occurred. For remote locations – outside of human habitations – identify the most prominent geographic feature, such as a lake or mountain and/or the distance and direction from the nearest population center. You must include the geographic coordinates (Refer to Section E).
E. Geographic Coordinates	This only needs to be filled out if the spill occurred outside of an established community such as a mine site. Please note that the location should be stated in degrees, minutes and seconds of Latitude and Longitude.
F. Responsible Party Or Vessel Name	This is the person who was in management/control/ownership of the substance at the time that it was spilled. In the case of a spill from a ship/vessel, include the name of the ship/vessel. Please include full address, telephone number and e-mail. Use box K if there is insufficient space. Please note that, the owner of the spilled substance is ultimately responsible for any spills of that substance, regardless of who may have actually caused the spill.
G. Contractor involved?	Were there any other parties/contractors involved? An example would be a construction company who is undertaking work on behalf of the owner of the spilled substance and who may have contributed to, or directly caused the spill and/or is responding to the spill.
H. Product Spilled	Identify the product spilled; most commonly, it is gasoline, diesel fuel or sewage. For other substances, avoid trade names. Wherever possible, use the chemical name of the substance and further, identify the product using the four digit UN number (e.g.: UN1203 for gasoline; UN1202 for diesel fuel; UN1863 for Jet A & B)
I. Spill Source	Identify the source of the spill: truck, ship, home heating fuel tank and, if known, the cause (e.g.: fuel tank overfills, leaking tank; ship ran aground; traffic accident, vandalism, storm, etc.). Provide an estimate of the extent of the contaminated/impacted area (e.g.: 10 m ²)
J. Factors Affecting Spill	Any factors which might make it difficult to clean up the spill: rough terrain, bad weather, remote location, lack of equipment. Do you require advice and/or assistance with the cleanup operation? Identify any hazards to persons, property or environment: for example, a gasoline spill beside a daycare centre would pose a safety hazard to children. Use box K if there is insufficient space.
K. Additional Information	Provide any additional, pertinent details about the spill, such as any peculiar/unique hazards associated with the spilled material. State what action is being taken towards cleaning up the spill; disposal of spilled material; notification of affected parties. If necessary, append additional sheets to the spill report. Number the pages in the same format found in the lower right hand corner of the spill form: e.g. "Page 1 of 2", "Page 2 of 2" etc. Please number the pages to ensure that recipients can be certain that they received all pertinent documents. If only the spill report form was filled out, number the form as "Page 1 of 1".
L. Reported to Spill Line by	Include your full name, employer, contact number and the location from which you are reporting the spill. Use box K if there is insufficient space.
M. Alternate Contact	Identify any alternate contacts. This information assists regulatory agencies to obtain additional information if they cannot reach the individual who reported the spill.
N. Report Line Use Only	Leave Blank. This box is for the Spill Line's use only.



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

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 LINE USE ONLY REPORT NUMBER -
	B	OCCURRENCE DATE: MONTH – DAY – YEAR		
C	LAND USE PERMIT NUMBER (IF APPLICABLE)		WATER LICENCE NUMBER (IF APPLICABLE)	

