Hamlet of Arviat

Environmental Emergency Contingency Plan

Prepared for:

Nunavut Water Board

Table of Contents

Figures

1.0 Introduction

This Environmental Emergency Contingency Plan relates to the collection, transportation, storage, and treatment operations associated with water supply, sewage and solid waste for the Hamlet of Arviat, Nunavut. This plan applies to facility operations and spill events relating to sewage, solid waste, and water supply for NWB licensed facilities.

1.1 Purpose of Plan

The impacts of spills can be catastrophic and may threaten or damage the environment, especially water supplies. As such, the Government of Nunavut (GN) requires contingency plans be written and fully implemented. The purpose of this Environmental Emergency Contingency Plan is to provide a plan of action for spills (sewage, solid waste, and petroleum products) that may occur as a result of water supply and treatment, sewage collection and treatment, and solid waste collection and disposal operations undertaken within the Hamlet of Arviat, Nunavut.

The Plan also focuses on the health and safety of both workers and the general public.

This Environmental Emergency Contingency Plan will assist in implementing corrective options quickly to minimize environmental damage. Furthermore, it defines the responsibilities of key personnel and outlines procedures to effectively and efficiently contain and recover spills of sewage, solid waste, and hydrocarbon products arising from water, sewage, and solid waste, collection, transportation, storage, and treatment operations. It will assist the Hamlet in meeting the regulatory requirements related to reporting events to the appropriate authorities within the prescribed time period.

1.2 Objectives

The objectives of this Emergency Contingency Plan are to:

- Ensure the health and safety of workers and the general public (first priority at all times)
- Provide a plan with procedures so that the Hamlet and their Spill Response Team can rapidly respond to a spill situation and minimize injury to individuals and environmental damage.
- Comply with all existing regulations.
- Cooperate with other groups and agencies.
- Be prepared and able to provide an integrated team approach with various Hamlet departments and Federal and Territorial agencies
- Keep staff, government officials, and Hamlet residents informed.

1.3 Health and Safety

Health and safety of workers and the public takes priority at all times. All activities must follow the requirements of the Nunavut Safety Act.

1.4 Hamlet of Arviat Environmental Policy

It is the policy of the Hamlet of Arviat to fully comply with all applicable legislation to ensure the protection of the environment in the territory of Nunavut. The legislation includes, but is not limited to:

- Nunavut Safety Act
- Environmental Protection Act, Section 34 – Spill Contingency Planning and Reporting Regulations
- Nunavut Waters and Nunavut Surface Rights Tribunal Act.

The Hamlet will cooperate with other groups committed to protecting the environment and shall ensure that Hamlet employees, regulatory authorities, and the public are informed on the policies and procedures developed to help protect the environment and the residents of the Hamlet of Arviat.

2.0 Site Description

2.1 General Site Description

This Environmental Emergency Contingency Plan is to be implemented within the Municipal boundaries of the Hamlet of Arviat, Nunavut.

The Community of Arviat is located within the Kivalliq Region, Nunavut, at general latitude 61°6'N and general longitude 94°3'W. The Community is located approximately 225 km south of Rankin Inlet and 265 km north of Churchill, Manitoba. The community has a population of approximately 2060 (Census 2006). Community infrastructure includes:

- A Water Supply Facility consisting of a water intake pumphouse on Wolf Creek, three water reservoirs, treatment system and truckfill water station.
- A Sewage Treatment Facility consisting of a sewage lagoon which receives trucked sewage collected from holding tanks in each building and sewage treatment via an exfiltration lagoon to a wetland discharging to the ocean.
- A Solid Waste Management Facility, which includes a Bulky Metals Disposal area
- Diesel powered generators.

The community and surrounding area are shown in Figure 1.

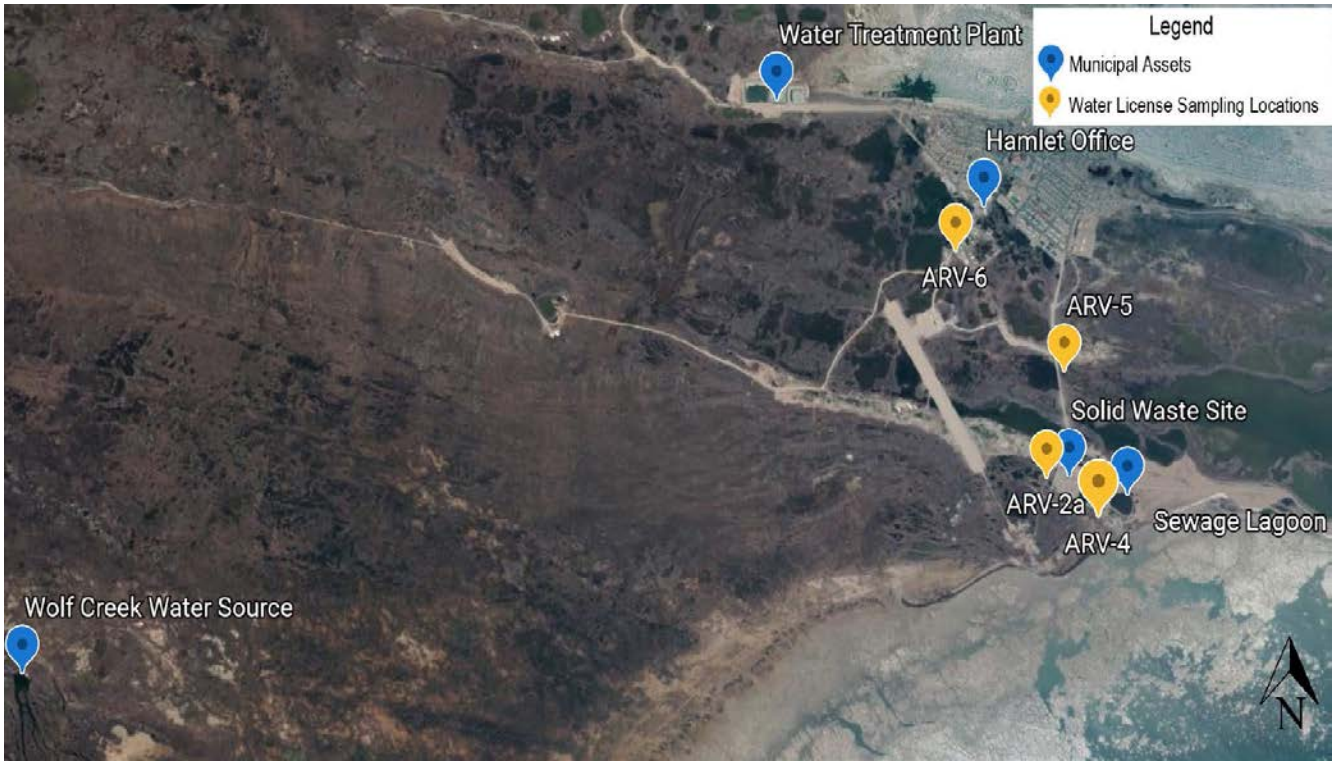


Figure 1 Hamlet of Arviat and surrounding area

2.2 Water, Sewage and Waste Disposal Activities

2.2.1 Water Supply and Treatment

The community is served by trucked water delivery. The GN, CGS is responsible for the raw water intake from wolf creek, storage in lined reservoirs, and operation of the water treatment plant. Treatment includes media filtration, cartridge filtration, UV disinfection and contact time. The hamlet operates water delivery trucks that fill at the water treatment plant and deliver water to storage tanks at each building.

2.2.2 Sewage Collection

Sewage collection is provided by the Hamlet. Each building has a sewage holding tank that is pumped out by the Hamlet's sewage trucks daily. Sewage is treated at the Sewage Treatment Facility lagoon located approximately 2.8 km southeast from the Hamlet (Figure 1).

Sewage is discharged into the lagoon, which provides primary treatment before exfiltrating to a down gradient Wetland Treatment Area. Potential environmental emergencies include:

- House tank spill
- Tank truck spill
- Uncontrolled spill/discharge from the lagoon, of untreated or partially treated sewage.

2.2.3 Solid Waste Collection and Disposal

The Hamlet of Arviat provides regular solid waste pickup for the Community's residents, businesses, and institutions. Solid waste is trucked to the Hamlet's Solid Waste Management Facility which is located 2.8 km southeast of the community (Figure 1). The Solid Waste Management Facility includes a landfill site for municipal solid waste and a long-term storage area for bulky metals and hazardous waste. Potential environmental emergencies include:

- Fuel spill (from a truck)
- Uncontrolled discharge of landfill impacted surface water (leachate)
- Fire in the waste
- Hazardous waste spill.

2.3 Hazardous Materials in the Community

Material	Quantity in Community	Uses	Potential Discharge
Oil	Unknown	Vehicle operation	Overturned drums
Gear Oil	Unknown	Vehicle servicing	Overturned drums
Antifreeze	Unknown	Vehicle Servicing	Overturned container
Granular Hypochloride		Water Treatment	Overturned container – local spill
Gasoline	Unknown	Vehicle operation	Tank or pipe leaks
Diesel	Unknown	Power generation	Tank or pipe leaks
Jet Fuel A-1	Unknown	Aircraft	Tank or pipe leaks
Propane	Unknown	Household use	Tank leaks
Hydrofluorosilicic Acid	27 Pails	Water treatment	Overturned pail

2.3.1 Hydrofluorosilicic Acid

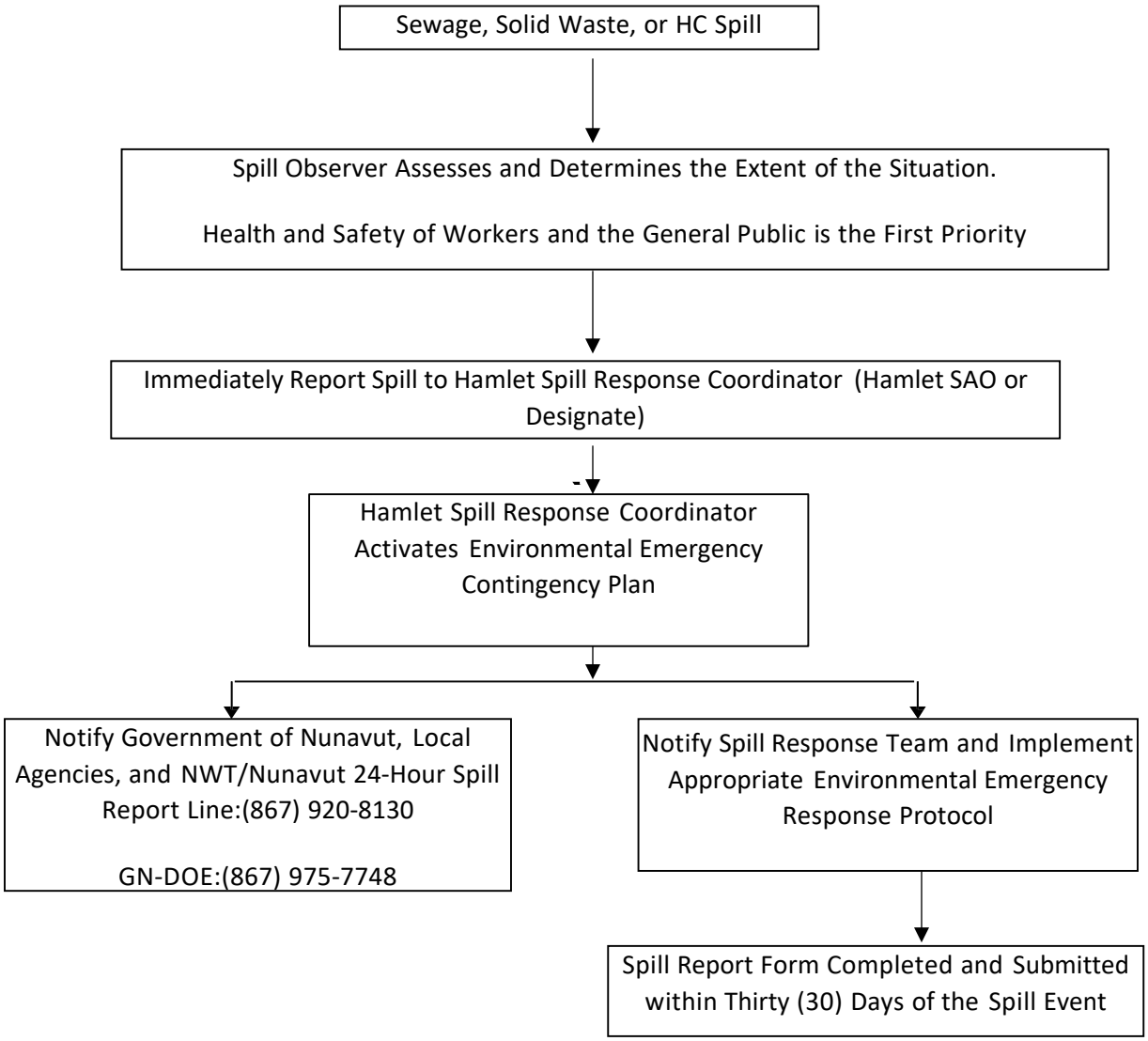
Hydrofluorosilicic acid is a chemical often known by other names like fluorosilicic acid, fluosilicic acid, silicofluoride, and silicofluoric acid and is often abbreviated to HSA or FSA. The most common application for this chemical is water fluoridation. 25% Fluorosilicic Acid is kept on site at the Water Treatment Plant as an additive to the Hamlet's drinking water. This process helps prevent periodontal problems.

Hydrofluorosilicic Acid can release hydrogen fluoride when it evaporates, is corrosive, and can damage the lungs if breathed in. also interacts negatively with metals to produce a flammable hydrogen gas, meaning a stainless-steel chemical storage tank is not a viable option. Fluorosilicic Acid is to be stored in corrosion resistant containers in a well-ventilated area, and appropriate PPE including gloves, protective clothing, and eye protection is to be worn when handling it.

At the time of this report the SDS sheet from the manufacturer of the Hydrofluorosilicic Acid used in Arviat, Brenntag, was unavailable. For full details, including first aid, accidental release, and firefighting measures, please see the equivalent SDS sheet from PVS Benson in Appendix C.

3.0 Spill Response Organization

The following is a flow chart to illustrate the sequence of events that must be followed in the event of a sewage, solid waste, or HC (hydrocarbon) spill occurring during supply, distribution, collection, transportation, storage, and treatment operations:



Emergency Response Flow Chart

3.1 Spill Response Team

The Hamlet Senior Administrative Officer (SAO) or his/her designate will serve as the Spill Response Coordinator for the Hamlet in the event of a sewage or HC spill during collection, transportation, storage, or treatment operations. The SAO of the Hamlet of Arviat will appoint and train appropriate personnel to make up the Spill Response Team, which normally consist of the following personnel:

- Spill Response Coordinator (Hamlet SAO or designate)
- Hamlet Public Works Personnel.

The responsibilities of the Spill Response Coordinator are as follows:

1. Assume complete authority over the spill scene and coordinate all personnel involved.
2. Control access and ensure the health and safety of workers and the general public.
3. Evaluate the spill situation and develop an overall plan of action.
4. Activate the Environmental Emergency Contingency Plan for the Hamlet of Arviat
5. Immediately report the spill to the NWT/Nunavut 24-Hour Spill Report Line at (867)920-8130, and other applicable regulatory or assistance agencies.
6. Provide regulatory agencies with information regarding the status of the clean-up activities.
7. Act as a spokesperson on behalf of the Hamlet of Arviat with regulatory agencies, the public, and the media
8. Prepare and submit a report on the spill incident to regulatory agencies within 30 days of the event.
9. Obtain the assistance of regulatory agencies, consultants, and/or contractors with the skills and equipment to deal with emergency situations deemed to be beyond the capabilities of Hamlet staff.

3.2 Contact Information

A complete listing of contact information, including telephone numbers of standard regulatory agencies, Hamlet personnel, and assistance agencies who may be contacted to supply resources, expertise, and advice needed to deal with a spill emergency is included in Appendix A.

4.0 Spill Reporting Procedure

The Spill Response Coordinator must be notified immediately by any individual who is aware of any spill either by phone, email, or in person.

The following are the incident reporting procedures once the Spill Response Coordinator activates this Environmental Emergency Contingency Plan:

1. Report spills immediately to the 24-Hour NWT/Nunavut Spill Report Line Phone (867)920-8130 (Section 4.1)
2. Report immediately to the CIRNAC Manager, Water Resources in Iqaluit at (867) 975-4550 and GN-DOE (867) 975-7748
3. Notify Hamlet of Arviat Fire Department
4. Fill out the NWT/Nunavut Spill Report Form (Appendix B) within thirty (30) days of the spill event occurring.

4.1 NWT/Nunavut Spill Report Line

All spills, as defined in this document, must be reported immediately to the 24-hour NWT/Nunavut Spill Report Line. The following information should be gathered prior to making the call:

- Date and time of spill (if known)
- Location and map coordinates (if known) and direction of flow of spill materials if moving.
- Party responsible for spill
- Product/material spilled and quantity estimate.
- Cause of spill.
- Note whether spill has been contained or if it is still releasing into the environment.
- Extent of contaminated area
- Factors affecting spill or recovery, such as weather conditions or terrain.
- Note whether spill containment is available.
- Action taken or proposed.
- If assistance is required
- Possible hazards to individuals, property or environment (e.g., fire, drinking water, fish, wildlife, etc.)
- Health and safety issues.

The information collected should be brief, and rough estimates made to enable the Spill Report Line and the Spill Response Coordinator to assess the situation. The information is the same as to that required on the Nunavut Spill Report form that must be completely filled out and submitted within thirty days of the incident. This form is included as Appendix B.

4.1.1 Spill Response Contact List

Organization	Contact/Location	Contact Number
AANDC Water resources	Water Resource Officers - Iqaluit	Ph: (867) 975-4295 Ph: (867) 975-4500
Northwest Territories/Nunavut 24 Hour Spill Report Line		Ph: (867) 920-8130 Fax: 867-873-6924 spills@gov.nt.ca
Nunavut Department of Environment		Ph: (867) 920-8130
Environment Canada	Environmental Protection Operations, Environmental Emergencies	Ph: (780) 951-8861
Kivalliq Inuit Association	Rankin Inlet	Ph: (867) 645-5725
Fisheries Management, Department of Fisheries and Oceans.	Iqaluit	Ph: (867) 979-8000
Environmental Health Officer		Ph: (867) 645-8071 gnelson@gov.nu.ca

5.0 Action Plans

5.1 Initial Action

The instructions to be followed by the first person on the spill scene are as follows:

1. Always be alert and consider your safety and the safety of others first.
2. If possible, estimate the volume of material that has been spilled.
3. Assess the hazard of people in the vicinity of the spill.
4. If possible, and safety permits, attempt to stop the release of product to minimize potential for environmental impacts.
5. Immediately report the spill to the Spill Response Coordinator
6. Resume any effective action to contain, mitigate, or terminate the flow of the spilled material.

5.2 Environmental and Human Health Protection and Mitigation Measures – General Procedures

The environmental protection and mitigation measures outlined in the following sections are to be taken by all personnel responding to a spill event. This will reduce the chance of environmental impairment and health hazards due to a spill, release, or other incident.

The following general clean-up procedures shall apply for all spill areas within the Hamlet:

- Control access to the area and ensure the health and safety of workers and the general public.
- Always wear personal protective equipment (PPE)
- Smoking is prohibited during all spill response activities.
- Eliminate all ignition sources.
- Contain spills on soil or rock by construction of earthen dykes using available material. If soil is not available, place sorbent materials or a boom in the path of the spill. As the sorbent barrier becomes saturated, continually replace it. Fuel or other liquids lying in pools, or trenches are to be removed with pumps, buckets, or skimmers.
- If the ground is snow covered, create snow dykes, and line them with a chemically-compatible liner for containment and recovery of liquid.
- For fuel spills on water, deploy containment booms, and recovery as much fuel as possible with a work boat and skimmer if less than $1/10^{th}$ of the area is covered in ice. If the area is frozen, burn fuel spills using igniters.
- Apply sorbent materials, if necessary
- Assess potential for disturbance of wildlife, fish, and archaeological sites from spill or clean-up operations.
- Notify environmental authorities to discuss available and feasible disposal and clean- up options.

- Conduct required clean-up operations.
- Assess and appropriately treat any areas disturbed by clean-up activities with laboratory testing.
- Ensure that the site has been completely restored. Resume operations, only once all work is finalized and laboratory testing confirmed.

Procedures for containing spills of specific contaminants are provided in the following sections.

5.3 Mitigative Measures: Hydrocarbon Spills

Hydrocarbon spills include gasoline, diesel fuel, hydraulic fluid, lubricating oil and aviation fuel. If possible, and safety permits, stop the flow of product, which is occurring, and eliminate all ignition sources. Smoking is prohibited during all spill response activities.

5.3.1 Hydrocarbon Spill on Soil, Gravel, Rock, or Vegetation

- Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm easily capture the spill after all vapours have dissipated.
- Remove the spill by using absorbent pads or excavating the soil, gravel or snow.
- Remove spill splashed on vegetation using particulate absorbent material.

5.3.2 Hydrocarbon Spill on Water

- Use containment boom to capture spill for recovery after vapours have dissipated.
- Use absorbent pads to capture small spills.
- Use a petroleum skimmer for larger spills.
- GN-DOE requires that Environment Canada be consulted regarding clean-up methods.

5.3.3 Hydrocarbon Spill on Ice and Snow

- Build a containment berm around spill using snow.
- Remove spill using absorbent pads or particulate sorbent material.
- The contaminated ice and snow must be scraped and shovelled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.
- GN-DOE requires that Environment Canada be consulted regarding clean-up methods.

5.3.4 Hydrocarbon Contaminated Material Storage and Transfer

In the absence of a landfarm, soil and gravel contaminated by hydrocarbons should be bagged, contained, and transported out of the community for proper disposal.

As space permits, small quantities of water, ice, snow, vegetation, and cleanup supplies contaminated by HC may be stored in labeled drums in the hazardous waste storage facility in

accordance with normal operating procedures. If the quantity of contaminated material makes storage in drums unfeasible, the Hamlet shall contact the appropriate regulatory agencies before removing any materials.

5.4 Mitigative Measures: Sewage

If possible, and safety permits, stop the flow of sewage escaping to the environment.

A small spill (truck leak or household tank leak) is not a significant environmental issue, site control containment and clean up can be accomplished without significant concerns. Dilution with water is an effective remedy for any residual.

In the event of a catastrophic failure of the sewage lagoon, which allowed a large volume of partially treated sewage to escape, efforts should focus on re-establishing containment. The following mitigative measures would follow:

- Control flow and attempt to pump sewage back into containment.
- Cordon off the area and warn the public
- Maximize the length of the flow path of the sewage in the wetland through ditching and diversion berms.
- Dilute with water pumped from local streams.
- Sample along the flow path and direct efforts to areas of most concern
- Recover solids as best as possible while limiting the environmental impacts.

5.4.1 Sewage Spill on Soil, Gravel, Rock, or Vegetation

- Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm to easily capture the spill, and to prevent sewage from entering any water body.
- Remove the spill by using vacuum trucks or excavating the soil, gravel, or snow.

5.4.2 Sewage Spill into Water

Use containment boom to capture spill, and pump contaminated water into vacuum trucks.

- Deposit contaminated water in the Hamlet sewage lagoon
- As a minimum, monitor the affected water body by sampling for Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), ammonia (NH_3), and faecal coliforms (FC)
- Environment Canada should be contacted regarding clean-up methods.

5.4.3 Sewage Spill on Ice and Snow

- Build a containment berm around spill using snow.
- Remove spilled sewage and contaminated snow and ice and dispose of it at the Hamlet sewage lagoon.
- Environment Canada should be contacted regarding clean-up methods.

5.4.4 Sewage Storage and Transfer

All contaminated water, ice, snow, soil, and clean-up supplies will be deposited to the Hamlet sewage lagoon (liquid or frozen liquid) or landfill facility (solid), as appropriate.

Environment Canada should be contacted regarding clean-up methods.

5.5 Mitigative Measures: Solid Waste

5.5.1 Solid Waste Spill on Soil, Gravel, Rock, or Vegetation

- Physically remove the spilled solid waste from the area, and deposit in the Hamlet Solid Waste Management Facility.

5.5.2 Solid Waste Spill into Water

- Use containment boom to capture soil waste for recovery.
- Physically remove the spilled solid waste from the water, and deposit in the Hamlet Solid Waste Management Facility
- Capture any sheen from the water using absorbent pads or skimmer, and deposit any used absorbent pads to the Hamlet Solid Waste Disposal facility
- Environment Canada should be contacted regarding clean-up methods.

5.5.3 Solid Waste Spill on Ice and Snow

- Build a containment berm around spill using snow.
- Physically remove the spilled solid waste and deposit in the Hamlet Solid Waste Management Facility
- Environment Canada should be contacted regarding clean-up methods.

5.5.4 Disposal

Any solid waste shall be transferred to the Hamlet Solid Waste Management Facility.

5.6 Mitigative Measures: Hazardous Materials

5.6.1 Hazardous Solid Waste Spill on Soil, Gravel, Rock, or Vegetation

- Physically remove the spilled hazardous solid waste from the area, and store in the Hazardous Waste Storage Area at the Hamlet Solid Waste Management Facility.

5.6.2 Hazardous Solid Waste Spill into Water

- Use containment boom to capture solid hazardous waste for recovery.

- Physically remove the spilled solid waste from the water, and store in the Hazardous Waste Storage Area at the Hamlet Solid Waste Management Facility
- Capture any sheen from the water using absorbent pads or skimmer and store any used absorbent pads as hazardous waste.

5.6.3 Solid Waste Spill on Ice and Snow

- Build a containment berm around spill using snow.
- Physically remove the spilled hazardous solid waste and store in the Hazardous Waste Storage Area at the Hamlet Solid Waste Management Facility.

5.6.4 Disposal

Any solid hazardous waste shall be transferred to the Hazardous Waste Storage Area at Hamlet Solid Waste Management Facility until it can be properly characterized and shipped out of the community.

The GN-DOE monitors the movement of hazardous waste through the use of a tracking document known as a Waste Manifest. A Waste Manifest must accompany all movements, and all parties must register with DOE by contacting:

Sean Noble (867) 975-7769 snoble@gov.nu.ca

Michele LeBlanc-Havard (867) 975-7726 mleblanc-havard1@gov.nu.ca

5.7 Spill Recovery Assessment

In order to determine whether a spill has been successfully remediated, samples of the soil and/or water within the spill containment area and surrounding the area, are to be collected and sent to an accredited Canadian Association of Environmental Analytic Laboratories (CAEAL) laboratory to be analyzed for the chemical parameters contained expected in the spill material. If concentrations of the spill chemicals are not detected, or are at concentrations below the applicable Territorial, Federal, or CCME regulations/criteria, the spill clean-up will be determined a success. Clean-up operations may then cease.

Refer to the Environmental Monitoring Program and Quality Assurance/Quality Control Plan for the Hamlet of Arviat for a description of sampling protocols and parameters.

Sampling and monitoring results (air, sediments, water, and soil) will be compared to the applicable landuse classification of the site (residential, commercial, industrial, etc.), as contained within the Canadian Environmental Quality Guidelines (CCME, 2007). Should NWB Water License or Nunavut guideline criteria exist that are applicable to the situation, then the most stringent criteria should be followed.

Depending on the nature of the spill or emergency, the material requiring clean-up and handling must be handled and disposed of in accordance with Nunavut Guidelines for Industrial Waste Discharges or General Management of Hazardous Waste.

Refer to the Monitoring Program and Quality Assurance/Quality Control Plan, Hamlet of Arviat, for directions on obtaining sample bottles, conducting sampling, and laboratory analysis of samples. Refer to the following documents for the handling and disposal of liquid and solid waste within the Hamlet of Arviat:

- Solid Waste Management Facility Operation and Maintenance (O&M) Plan
- Sewage Treatment Facility Operation and Maintenance (O&M) Plan.

6.0 Spill Response Resource Inventory

6.1 Additional Personnel Available

In addition to Hamlet Public Works staff, the Arviat Fire Department is available to assist in spill response and clean-up activities. Personnel from the local RCMP Detachment will be available for securing the site from unauthorized individuals, closing roads, etc. The Community Health Centre has personnel to assist in the treatment of anyone injured during the emergency.

Environmental consulting companies can provide technical guidance and spill response impact evaluation, remediation, and post remedial confirmatory sampling.

6.2 Spill Response Equipment Inventory

Within the community, there is some equipment available to assist in responding to a spill including heavy equipment (i.e., vacuum trucks, dozer, front end loader, and grader), as well as various handheld tools including shovels. In addition, the Hamlet spill kit should be available during spill incident response operations. Each spill kit should contain the following supplies.

Composition of Spill Kit

	Quantity
• 360 litre polyethylene over pack drum	1
• oil sorbent booms (5” X 10’)	6
• oil sorbent sheets (16.5” X 20” X 3/8”)	100
• drain cover (36” X 36” X 1/16”)	1
• Caution tape (3” X 500’)	1
• 1lb plugging compound	1
• Nitrile gloves (pair)	4
• Safety goggles (pair)	4
• Tyvek coveralls (pair)	4
• instruction booklet	1
• printed disposable bags (24” X 48”)	10

Sorbent capacity of each spill kit is 240 litres.

The spill response kits should be stored in the on-site locker at the Hazardous Waste Storage Area provided for this purpose. Some equipment may be stored in other areas throughout the community.

7.0 Training

All members of the Spill Response Team should be trained in the safe operation of all machinery and tools to help prevent sewage solid waste and hazardous material spills. All Public Works staff should also be trained for initial spill response. Annual refresher exercises should be conducted to review the procedures of this Environmental Emergency Contingency Plan with all members the Spill Response Team, including members of the local volunteer fire department, RCMP Detachment, and Community Health Centre.

Spill Response Team training should include the following aspects:

- Spill awareness and prevention
- Methods of detection
- Types of spills and seasonal considerations
- Reporting procedures and initial responses
- Spill response kit familiarization
- Clean-up and site remediation methods
- Occupational health and safety including proper selection and use of protective equipment.

8.0 Annual Review of this Environmental Emergency Contingency Plan

As part of the preparation of the Annual Report to the Nunavut Water Board as required by the Water License, the Hamlet should review and update the information contained within this plan. The purpose of the update is to ensure all changes to regulations are incorporated into this plan, along with the use of any new technology or method advances, to prevent or stop a spill and to mitigate and/or remediate a spill. This ensures that the plan adapts as the Hamlet grows, to ensure the community is properly prepared in the event of an incident.

Staff training must accompany the use of this document.

Annual refresher training of personnel should be completed after any revisions to this document have been approved. This will familiarize personnel with the updated plan, and to provide a rapid and coordinated response.

Figures

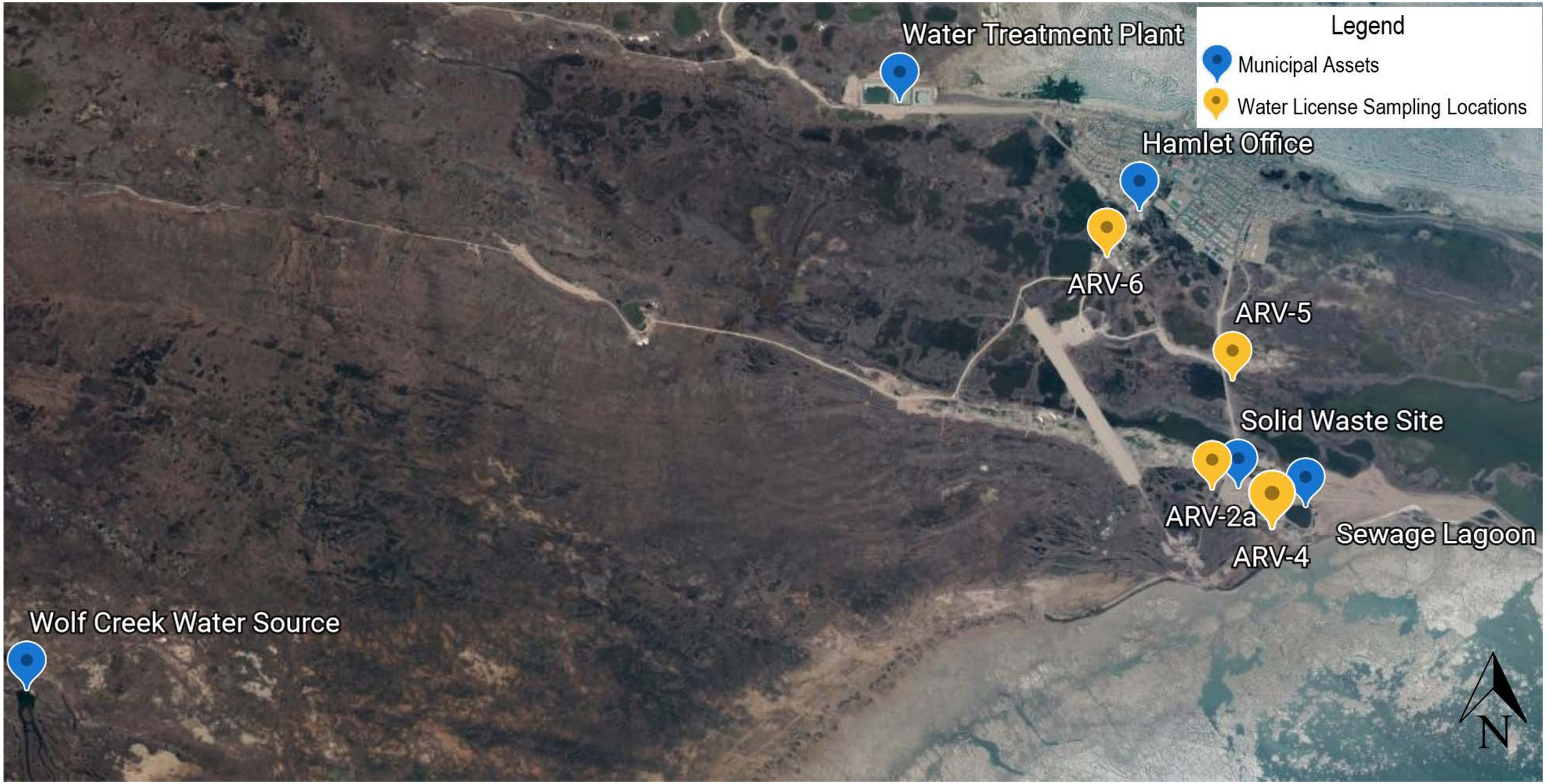

Legend
Municipal Assets
Water License Sampling Locations
Water Treatment Plant
Hamlet Office
ARV-6
ARV-5
Solid Waste Site
ARV-2a
ARV-4
Sewage Lagoon
Wolf Creek Water Source
N

Figure 1

Appendix A

Contact Information

Contact Information – Hamlet of Arviat

Contact	Location	Telephone Number	Fax Number
Hamlet of Arviat SAO	Arviat	(867) 857-2841	(867) 857-2519
24-Hour NWT/Nunavut Spill Report Line	Yellowknife	(867) 920-8130	(867) 873-6924
INAC–Water/Wastewater Resources Manager	Iqaluit	(867) 975-4550	(867) 979-6445
CGS Community Support - Mnager, Municipal Works	Iqaluit	(867) 975-5478	-
Environment Canada - Inspector	Iqaluit	(867) 975-4644	(867) 979-4594
Fire Department	Arviat	(867) 857-2525	-
RCMP Detachment	Arviat	(867) 857-1111	-
Community Health Centre	Arviat	(867) 857-3100	-
GN-DOE Manager of Pollution Control *Ian Rumbolt*	Iqaluit	(867) 975-7748	(867) 975-6445

Appendix B

NWT Spill Report

NUNAVUT SPILL REPORT (Oil, Gas, Hazardous Chemicals or other Materials)

ᓄᓇᕗᑦᒥ ᑯᐱᔪᓄᑦ ᐅᓂᒃᑳᖅ (ᐅᖅᓱᐊᓗᐃᑦ, ᒦᓯᑦ, ᐊᑦᑕᕐᓇᖅᑐᑦ, ᐃᓚᖏᐃᑦ ᐅᑉᐊᓗ ᐊᓯᖏᑦ)

24-Hour Report Line 24-ᓄᑦ ᐃᑲᕐᕆᓄᑦ ᐅᓂᒃᑲᐱᐅᔪᓐᓇᖅᑐᖅ ᐅᖃᓚᐅᑦ

Phone/ᐅᖃᓚᐅᑖ (867) 920-8130

Fax/ᓱᑲᑦᑐᒃᑯᑦ (867) 873-6924

Nunavut ᓄᓇᕗᑦ

A Report Date and Time
ᐅᓪᓗᖅ ᓯᕗᓪᓕᖅᐹᕐᓗ ᖃᕆᓗᐊᖅᑎᓪᓗᒍ ᐅᓂᒃᑳᑎᒋᔭᐃᑦ

B Date and Time of Spill(if known)
ᐅᓪᓗᖓ ᑯᐱᑎᓪᓗᒍ ᖃᕆᓗᐊᖅᑎᓪᓗᒍ (ᖃᐅᔨᒪᔭᐅᒃᐸᑦ)

C ☐ Original Report
ᓯᕗᓪᓕᖅᐹᒥ ᐅᓂᒃᑳᓯᐅᔪᖅ

☐ Update No. ____________
ᓂᒃᑳᓯᐅᒃᑲᓂᖅᑐᖅ ᓇᓴᐅᑖ

Spill Number
ᑯᐱᔫᑦ ᓈᓴᐅᑖ

D Location and Map Coordinates (if known) and Direction (if moving) ᓇᓂ ᑯᐱᐸ ᐊᒻᒪᓗ ᓄᓇᙳᐊᑉ ᓈᓴᐅᑎᖏᑦ (ᖃᐅᔨᒪᔭᐅᒃᐸᑦ) ᐊᒻᒪᓗ ᓇᒧᙵᐅᕙᓪᓕᐊᖕᒪᖔᑦ (ᐃᖏᕐᕋᒃᐸᑦ)

E Party Responsible for Spill (Full Name and Address) ᑭᒃᑯᑦ ᑯᐱᑎᑦᑎᐸᑦ (ᐃᑎᑦ ᐊᒻᒪᓗ ᑐᕌᕕᖓ)

F Product(s) Spilled and Estimated Quantities(provide metric volumes/weights if possible) ᑭᓱᑦ ᑭᓱᓪᓗᓃᑦ ᑯᐱᕙᑦ ᖃᓄᑎᒋᓗ ᐊᖏᓂᖃᕐᐸᑦ (ᐊᖏᓂᖓ ᐅᕿᖏᓐᓂᖏᓪᓗᓃᑦ ᐊᔾᔨᓇᖏᑉᐸᑦ)

G Cause of Spill ᑭᓱ ᑯᐱᔾᔪᑕᐅᕙ

H Is Spill Terminated?
ᑯᐱᔪᖅ ᓄᖅᑲᖅᑕᐅᕚ?

☐ Yes/ᐄ ☐ No/ᐋᒃᑲ

I If Spill is Continuing, Give Estimated Rate
ᓱᓕ ᑯᐱᒃᐸᑦ ᖃᓄᑎᒋ ᓱᒃᑲᓕᑎᒋᖅᐸᒌᖅᐸ

J Is Further Spillage Possible?
ᑯᐱᒃᑲᓐᓂᓗᐊᕐᓇᖅᐸᐅᖁᖅᐹ?

☐ Yes/ᐄ ☐ No/ᐋᒃᑲ

K Extent of Contaminated Area (in square metres if possible)
ᖃᓄᖅ ᐊᖏᑎᒋᐸ ᑯᐱᕕᐅᔪᖅ (ᐆᑦᑐᖅᓯᒪᓗᒍ ᐊᔾᔨᓇᖏᑉᐸᑦ)

L Factors Affecting Spill or Recovery(weather conditions, terrain, snow cover, etc.)
ᑭᓱᑦ ᐱᒃᔪᑕᐅᕙᑦ ᑯᐱᔪᒥᑦ ᐅᑉᐊᓗ ᐋᖅᑭᒃᑕᐅᓇᓱᐊᕐᓂᖓᓄᑦ (ᓯᓚ ᖃᓄᐃᓕᖓᓂᖓᓄᑦ, ᓄᓇ ᖃᓄᐃᓕᖓᓂᖓᓄᑦ ᐊᐳᑦᔪᐅᓯᒪᓂᖓᓄ, ᐊᓯᑦᓱᓪᓗᔪᖏᓪᓗ)

M Containment (natural depression, dykes, etc.)
ᐅᖅᓱᐊᓗᖃᑦᐱᐅᑉ ᑭᓕᐊᒍᑦ ᐃᓱᖕᓴᓕᖅᓯᒪᔪᖅ (ᓄᓇᒥ ᐃᓱᖕᓴᐃᑦ, ᐊᓯᑦᓱᓪᓗᔪᖏᓪᓗ)

N Action, if any, taken or Proposed to Contain, Recover, Clean Up or Dispose of Product(s) and Contaminated Materials
ᖃᓄᐃᓕᔭᐅᕙ, ᖃᓄᐃᓕᔭᐅᒋᐊᖅᐸᑦ ᐅᑉᐊᓗ ᖃᓄᐃᓕᔭᒋᐊᕐᓂᐊᖅᐸᑦ ᐊᑕᐅᓯᕐᑎᑕᐅᓇᓱᒃᐸ, ᓄᖅᑲᖅᑎᑕᐅᓇᓱᒃᐸ, ᓴᓗᒪᖅᓴᖅᑕᐅᕙ ᐅᑉᐊᓗ ᐃᒥᑕᐅᓂᐊᖅᐸᑦ ᑯᐱᔪᖅ (ᑯᐱᔫᓪᓗᓃᑦ) ᐊᒻᒪᓗ ᑯᐱᕕᐅᔪᑦ.

O Do You Require Assistance? ☐ No ᐋᒃᑲ ☐ Yes, describe: ᐄ, ᓇᓗᓇᐃᔭᕐᓗᒍ
ᐃᑲᔪᖅᑕᐅᔪᓐᓇᕐᖃᐱᑦ?

P Possible Hazards to Persons, Property or Environment e.g. fire, drinking water, fish or wildlife
ᐊᑦᑕᕐᓇᑐᐃᓐᓇᕆᐊᖃᖅᑐᑦ ᐃᓄᖕᓄᑦ, ᐱᖁᑎᖏᓐᓄᑦ ᐅᑉᐊᓗ ᐊᕙᑎᒧᑦ ᓱᓗ - ᐃᑭᓪᓗᓂ, ᐃᒥᕐᒧᑦ ᓂᐅᖅᑲᖅᑕᐅᔾᔪᓂ, ᐃᖃᓗᒃᓄᑦ ᐅᑉᐊᓗ ᓂᕐᔪᑎᓄᑦ

Q Comments and/or Recommendations ᐅᖃᐅᓯᖏᐃᑦ ᐊᒻᒪᓗ ᐅᑉᐊᓗᓃᑦ ᖃᓄᐃᓕᒋᐊᕙᔭᐅᔪᑦ

FOR SPILL LINE USE ONLY
ᐊᑐᖅᑕᐅᔪᖕᓴᖅ ᑯᐱᔪᓄᑦ ᐅᖃᓚᐱᐅᑉᐊᑐᓄᑐᐊᖅ

Lead Agency
ᐃᖅᑲᓇᐃᔭᖅᑐᓕᕆᐃᑦ ᑯᐱᔪᒥᒃ ᑲᒪᒋᔭᖅᑐᑦ

....

Spill Significance ᑯᐱᔫᑦ ᖃᓄᐃᓕᖓᓂᖓ

....

Lead Agency Contact and Time
ᐃᖅᑲᓇᐃᔭᖅᑐᓕᕆᐃᑦ ᑯᐱᔪᒥᒃ ᑲᒪᒋᔭᖅᑐᑦ ᖃᐅᔨᒃᑲᖅᑕᐅᓂᖓ ᐊᒻᒪᓗ ᖃᕆᓗᐊᖅᑎᓪᓗᒍ

....

....

....

Is this file now closed?
ᑖᓐᓇ ᐅᓂᒃᑲᓇᔭᐅᔪᖅ ᒪᑐᔭᐅᕚ? ....

Reported By ᐅᓂᒃᑳᖅᑐᖅ	Position, Employer, Location ᖃᓄᐃᑦᑐᒥᒃ ᐃᖅᑲᓇᐃᔮᓕᒃ, ᐃᖅᑲᓇᐃᔭᖅᐱᖓ, ᓇᐃ	Telephone ᐅᖃᓚᐅᑖ
Reported To ᐅᓂᐱᐅᔪᖅ	Position, Employer, Location ᖃᓄᐃᑦᑐᒥᒃ ᐃᖅᑲᓇᐃᔮᓕᒃ, ᐃᖅᑲᓇᐃᔭᖅᕝᕕᖓ, ᓇᓂ	Telephone ᐅᖃᓚᐅᑖ

Appendix C

Hyrdofluorosilicic Acid SDS

SAFETY DATA SHEET

1. Identification

Product identifier	**25% Hydrofluorosilicic acid**
Other means of identification	None
Recommended use	Industrial applications
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	PVS Benson
Address	1012 Gore Road Freelton, ON L0R1K0 Canada
Telephone	1-800-265-0014
e-mail	pvsbensoninfo@pvschemicals.com
Emergency phone number	24 hours/7 days: 1-519-821-0215
Supplier	See above.

2. Hazard identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 3
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	May be corrosive to metals. Causes severe skin burns and eye damage. Harmful if swallowed. Toxic if inhaled.

Precautionary statement

Prevention	Keep only in original packaging. Do not breathe mist or vapour. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area.
Response	Absorb spillage to prevent material-damage. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Specific treatment (see information on this label).
Storage	Store in a corrosion resistant container with a resistant inner liner. Store locked up. Store in a well-ventilated place. Keep container tightly closed.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards	None known.
Supplemental information	None

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Hydrofluorosilicic acid		16961-83-4	25

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation

IF INHALED: remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

Skin contact

a. Immediately remove contaminated clothing and continually flush exposed areas of skin with large volumes of water. Rinsing may be limited to 5 minutes if 0.13% benzalkonium chloride solution or 2.5% calcium gluconate gel is available, with the soaks or gel applied as soon as the rinsing is stopped. If not available, rinsing must continue until medical treatment is rendered.

b. Immediately after thorough washing, use one of the measures below:

1. Begin soaking the affected areas in iced 0.13% benzalkonium chloride solution. Use ice cubes, not shaved ice, in order to prevent frostbite. If immersion is not practical, towels should be soaked with iced 0.13% benzalkonium chloride solution and used as compresses for the burned area. Compresses should be changed every 2 to 3 minutes. Soaks or compresses should be continued until pain is relieved or until more definitive medical treatment is provided. Relief of the pain is an indication of the success of treatment; therefore, local anesthetics should be avoided. It is recommended the applier wear chemical protective gloves (e.g. butyl rubber gloves).

2. Gently massage a liberal quantity of calcium gluconate 2.5% gel - commercial preparation,'HF Antidote Gel' if available or prepare at site by adding 10 mL of 10% calcium gluconate injectable solution to 30 mL of KY jelly or Muko other water soluble gels also suitable. (Note: Taro Gel is physically incompatible with calcium gluconate and must not be used. Do not use calcium chloride as it causes skin necrosis). Apply gel every 15 minutes and massage continuously until pain subsides and/or redness disappears or until medical attention becomes available. It is recommended the applier wear chemical protective gloves, (e.g. butyl rubber gloves).

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire-fighting measures

Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Carbon dioxide.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

Hazardous combustion products

May include and are not limited to: Fluoride gases. Hydrogen fluoride.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

Move containers from fire area if you can do so without risk.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8.

Methods and materials for containment and cleaning up

Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and storage

Precautions for safe handling

Do not breathe mist or vapour. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash thoroughly after handling. Use good industrial hygiene practices in handling this material.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep out of reach of children.

8. Exposure controls/Personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling time
Hydrofluorosilicic acid (CAS 16961-83-4)	3 mg/L	Fluoride	Urine	*
	2 mg/L	Fluoride	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls	Ensure adequate ventilation, especially in confined areas. Avoid generating mists. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles) and a face shield.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Impervious gloves. Confirm with reputable supplier first.
Other	As required by employer code. Use of an impervious apron is recommended. Wear appropriate chemical resistant clothing. Where contact is likely, wear chemical-resistant gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2). Emergency responders should wear self-contained breathing apparatus (SCBA) to avoid inhalation of vapours generated by this product during a spill or other clean-up operations.
Thermal hazards	Not applicable.
General hygiene considerations	Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. When using do not eat or drink.

9. Physical and chemical properties

Appearance	Clear
Physical state	Liquid.
Form	Fuming liquid
Colour	Light yellow
Odour	Pungent
Odour threshold	Not available.
pH	1.2 (1% solution)
Melting point/freezing point	-15.56 °C (4 °F)
Initial boiling point and boiling range	105.56 °C (222 °F)
Flash point	Not available.
Evaporation Rate	N/A
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	24 @ 77°F
Vapour density	N/A
Relative density	Not available.
Solubility(ies)	
Solubility (Water)	Complete
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.

Viscosity	Not available.
Other information	
Bulk density	10.29 lbs/gal @ 25%
Explosive properties	Not explosive.
Molecular weight	144.08
Oxidizing properties	Not oxidising.
Percent volatile	N/A
Specific gravity	1.234 @ 25%

10. Stability and reactivity

Reactivity	May be corrosive to metals. Caustics. This product may react with strong oxidizing agents.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Do not mix with other chemicals.
Incompatible materials	Strong oxidizing agents. Metals.
Hazardous decomposition products	May include and are not limited to: Fluoride gases. Hydrogen fluoride.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Toxic if inhaled.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed. May cause stomach distress, nausea or vomiting.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Toxic if inhaled. Harmful if swallowed.

Components	**Species**	**Test results**
Hydrofluorosilicic acid (CAS 16961-83-4)		
Acute		
Inhalation		
LC50	Rat	1.1 mg/L, 1 hr, ACROS ORGANICS
Oral		
LD50	Guinea pig	200 mg/kg, HSDB
	Rat	430 mg/kg, HSDB
		125 mg/kg, LOLI

Skin corrosion/irritation	Causes severe skin burns and eye damage.
Exposure minutes	Not available.
Erythema value	Not available.
Oedema value	Not available.
Serious eye damage/eye irritation	Causes serious eye damage.
Corneal opacity value	Not available.
Iris lesion value	Not available.
Conjunctival reddening value	Not available.
Conjunctival oedema value	Not available.
Recover days	Not available.
Respiratory or skin sensitisation	
Respiratory sensitisation	Not a respiratory sensitizer.
Skin sensitisation	This product is not expected to cause skin sensitisation.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity See below.

ACGIH Carcinogens

Hydrofluorosilicic acid (CAS 16961-83-4)	A4 Not classifiable as a human carcinogen.

Canada - Manitoba OELs: carcinogenicity

FLUORIDES, AS F (CAS 16961-83-4)	Not classifiable as a human carcinogen.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. Exposure to fluorides over the years may produce an embrittlement and densification of bones, and an increased calcification of ligaments and vertebrae resulting in spinal stiffness.

Further information Not available.

12. Ecological information

Ecotoxicity Not available.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Mobility in general Not available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

General Canada: TDG Proof of Classification: In accordance with Part 2.2.1 (SOR/2014-152) of the Transportation of Dangerous Goods Regulations, we certify that the classification of this product is correct as of the SDS date of issue. If applicable, the technical name and the classification of the product will appear below.

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number	UN1778
Proper shipping name	FLUOROSILICIC ACID
Hazard class	8
Packing group	II

TDG

15. Regulatory information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Canada CEPA Schedule I: Listed substance

Hydrofluorosilicic acid (CAS 16961-83-4) Listed.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

WHMIS status Controlled

International regulations

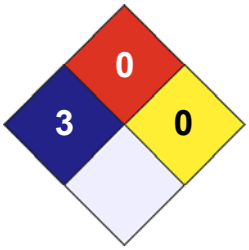
Inventory Status

Country(s) or region	Inventory Name	On Inventory (Yes/No)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0



Issue date 26-October-2016

Revision date 26-October-2016

Version # 01

Other information For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

Prepared by Dell Tech Laboratories Ltd. Phone: (519) 858-5021