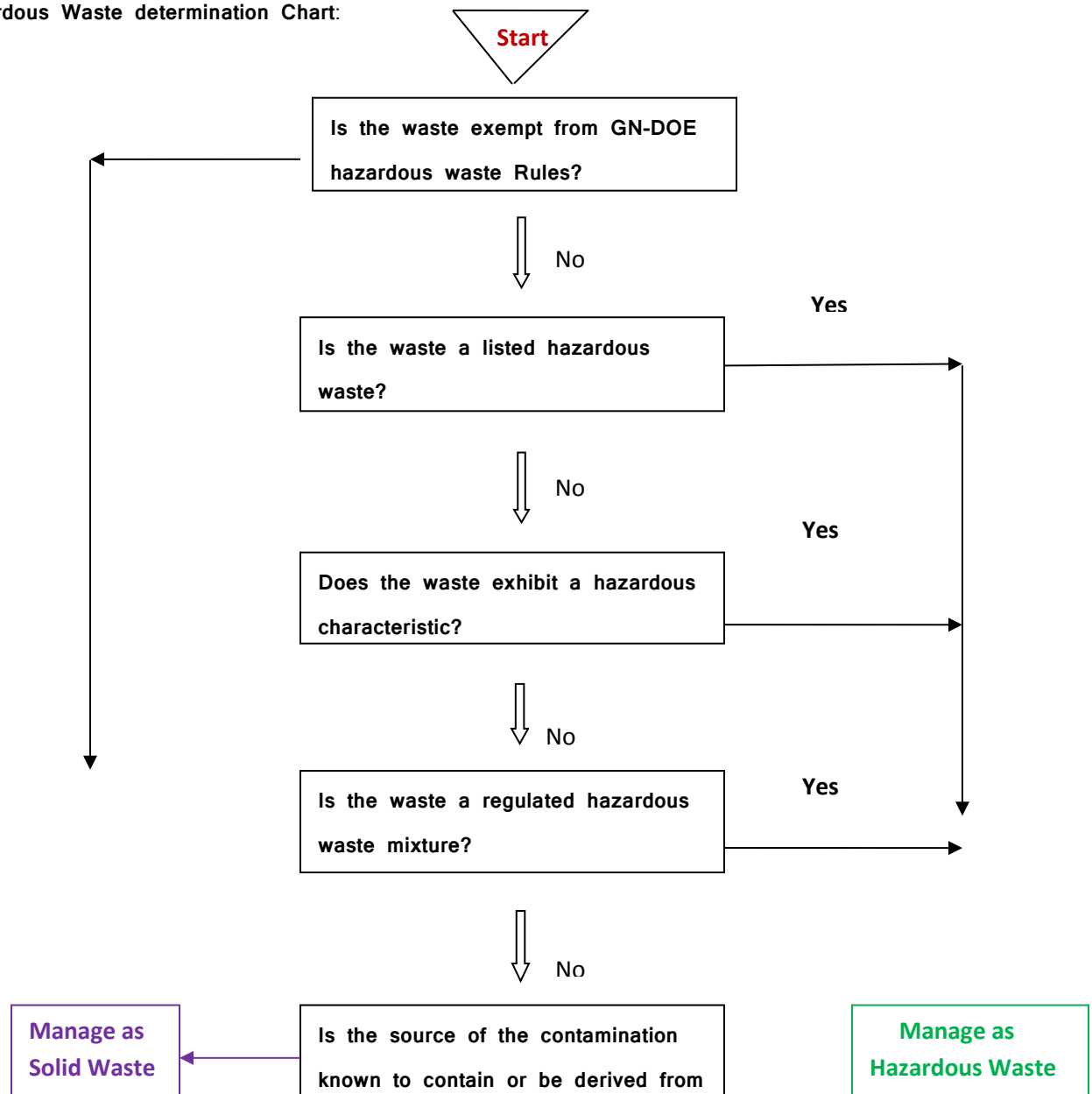
Hazardous Waste Segregation, Storage and Transportation Procedure for HAMLET OF GRISE FIORD

Hazardous waste means any material no longer of use to the possessor whose chemical or biological properties have the potential to endanger personnel, material, or the environment if handled improperly. Such wastes contain one or more hazardous properties. Hazardous wastes come from a wide range of sources, including households, businesses of all types, and public services, such as health service, schools etc.

The Hazardous wastes include waste such as paint, waste fuel, mercury thermometers and switches from household appliances, capacitors and batteries, antifreeze, propane tanks, small flammable or explosive containers, etc. These items s properly crated and shipped to an appropriate disposal facility. It is imperative that these wastes be kept separate from each other and that no mixing of these materials is to occur.

Hazardous Waste determination Chart:



No

Yes

Hazardous wastes are those that are known to be dangerous due to their chemical, physical or biological properties, are no longer used for their original purpose, and are intended for recycling, treatment, disposal or storage (GN-DOE 2002). All hazardous wastes require special handling, storage and disposal methods to prevent human health and environmental exposure.

The *Environmental Guideline for the General Management of Hazardous Waste* (GN-DOE 2002) provides information regarding the proper management of hazardous waste in Nunavut, and has the intent to establish a monitoring system for hazardous wastes, from generation to final disposal. From the *Guide*, the generator of any hazardous waste is ultimately responsible for ensuring it will be properly managed from is creation to its disposal

(GN-DOE 2002).

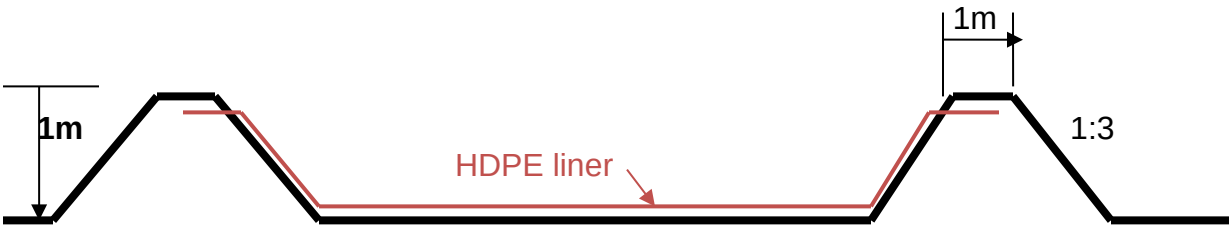
Generally, any household items which have the following symbols are considered HHW:

Corrosive Explosive Flammable

Poison

Generators typically use carriers to transport the hazardous waste to appropriate receivers for disposal. Both carriers and receivers need to be registered with GN Environmental Protection Service and follow specific regulations and training.

The bulk metal/hazardous waste storage area is currently used to store hazardous wastes from the community. This area is filled but not bermed or lined and runoff from the facility presently flows into the sewage treatment wetland. If use of this area is to continue for storage of hazardous wastes, it is recommended that an engineered berm and liner system be installed as this will limit the amount of potentially hazardous leachate entering the surrounding environment.



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Proposed Hazardous wastes open storage area

Other basic responsibilities of hazardous waste receivers in Nunavut are:

- Handling and storing the hazardous waste in accordance with the Guideline, *Environmental Protection Act, Fire Prevention Act*, *Safety Act, Public Health Act* and all other applicable statutes, regulations, standards, guidelines and local by-laws.
- Reusing, recycling, treating or disposing of the hazardous waste in a proper and safe manner.
- Completing Part C of the waste manifest form and retaining a copy for two years.
- Accepting hazardous waste only from registered generators and carriers.
- Ensuring staff are trained and qualified to safely handle hazardous waste.
- Filing a spill contingency plan with the Minister where stored quantities of hazardous waste exceed the criteria set out in Schedule A of the *Spill Contingency Planning and Reporting Regulations*.
- Reporting any spill immediately to the NWT/Nunavut Spill Report Line at (867) 920-8130.

The following hazardous waste operations and maintenance procedures deal with household hazardous wastes (HHW) only. Typical HHW which may be found in the Community include:

- Pesticides and herbicide as
- Oil filters
- Paint
- Antifreeze
- Solvents (e.g., paint cleaners)
- Propane tanks and cylinders
- Flammable liquids
- Aerosol cans (not empty)
- Empty contaminant containers (e.g., 205 L fuel drums)
- Fluorescent light tubes and compact fluorescent light bulbs
- Batteries (wet and dry cell)
- Fire extinguisher
- Used and waste fuel and oil
- Corrosive cleaners

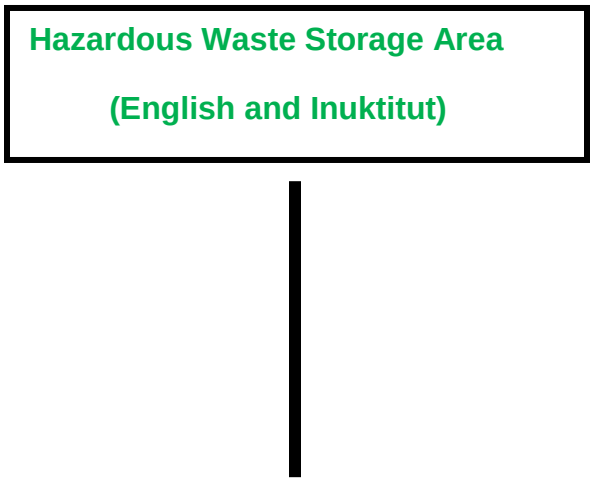
However there are certain items considered HHW that cannot be stored within the solid waste facility. These include:

- Ammunition, flares and explosives (including fireworks)
- Prescriptions, medications and bio-hazardous wastes (includes syringes) - dispose of these at the Health Care Centre
- Reactive chemicals (e.g.., ammonium nitrate) - contact the GN-DOE Environmental Protection Services for disposal options.

Contaminated soil or snow from the Hamlet's own spill clean-up is the only non-HHW that should be accepted by the Hamlet for storage at the Hazardous Waste Storage Area. Contaminated soil or snow should be stored in 205 L steel drums and shipped out of the community every year. Industry, businesses or individuals wishing to store contaminated soil at the Hazardous Waste Storage Area must contact the WSSW Foreman to discuss storage options and fees for any contaminated soil or snow. The decision to accept contaminated soil or snow for storage from industrial, commercial or private sources rests with the Hamlet.

Operations

As the current bulk metal/hazardous waste storage area is used for HHW storage, this area needs to be properly signed as the "**Hazardous Waste Storage Area**".



This area should also be fenced with a lockable gate and have appropriate storage options for expected HHW. Proper signage helps operators of the area properly store the wastes. Fencing around the area will allow only trained personnel access to the bulk metal/hazardous waste storage area and help minimize health and safety risks to the public from hazardous wastes and reduce the potential for vandalism.

The bulk metal/hazardous waste storage area is intended for storage only, not disposal. It is expected that hazardous wastes will be stored for up to five years. This should be sufficient time for the community to build up enough waste to make it economical for a back haul out of the community to a licensed waste receiver.

Additionally, the Hamlet should create a site map of the new solid waste disposal facility, detailing disposal and storage locations for various wastes. This site map should be posted at the solid waste disposal facility, the Hamlet Garage and contained within the Spill Contingency Plan. All site personnel should be familiar with the layout and disposal/storage areas.

Collection

Since the entire solid waste disposal facility is generally accessible to the public, residents can come and drop off

HHW throughout the year. However the general public should not have direct access to the bulk metal/hazardous waste storage area for health and safety reasons. If the Hamlet does not restrict access to the bulk metal/hazardous waste storage area (i.e., through a fence and locked gate), the public should be discouraged from entering the bulk metal/hazardous waste storage area and a designated public drop-off area for HHW should be used. The public drop-off area could be located within the MSW disposal area and tended to on a daily basis by the Foreman, Waste Truck Driver, or other designated and trained site personnel, to remove and properly store any deposited HHW into the bulk metal/hazardous waste storage area.

The Hamlet should also hold a 'grace' day for residents, helping them collect and drop off their HHW or bulky metal wastes. This grace day can be held once or twice per year (e.g., in spring and/or fall) and should be advertised in the community up to 30 days before the event. This grace day will encourage residents to drop off their HHW and bulky metals wastes, and provide information pamphlets on HHW, waste disposal, segregation, and recycling. Like many community-based management programs, successful implementation comes from informed and concerned residents. Providing facts and figures supporting proper disposal, segregation and minimization of hazardous wastes will help sustain hazardous waste management in the community.

Containers: Hazardous waste storage containers are designed to hold, store and transport small quantities of waste. Many different types of containers are available (i.e. barrels, bottles, bags and boxes) and are made from a variety of materials (i.e. aluminum, plastic, steel, and stainless steel). Selecting the proper container requires an understanding of the properties of the waste to be stored. If transport is to be undertaken, the generator should consult the Transport Authority to confirm the container meets all legislated requirements. The following are additional general points for consideration:

- Hazardous waste should be stored in their original containers where possible or in containers specially manufactured for the purpose of storing hazardous waste. The containers must be sound, sealable and not damaged or leaking. Sea can is the best option.
- Containers should be clearly labeled to identify their contents according to requirements of the Workplace Hazardous Materials Information System (WHMIS) and the relevant Transport Authority, if transport is planned.
- Small quantities of compatible hazardous waste should be bulked into 16 gauge or equivalent metal or plastic 205 litre (45 gallon) drums for the purpose of secondary containment.
- Containers should be closed and sealed at all times, except while waste is being added or removed.

Storage: Storage refers to containment of a hazardous waste for transport, or while awaiting treatment and disposal. Except under extraordinary circumstances (i.e. radioactive materials), storage should always be considered as a temporary measure and is not acceptable for the long-term management of hazardous waste.
Recognition of the incompatibility of different wastes during storage is important in order to avoid the possibility of violent, explosive reactions and toxic fumes. Various systems have been developed to ensure compatible storage including the 'Hazardous Waste Compatibility Chart' adopted by the United States' Environmental Protection Agency.

All HHW collected needs to be properly stored in sea cans to ensure any environmental and human health hazards are minimized. The GN-DOE provides information on proper storage of specific HHW; these include:

- **Antifreeze** - use original containers where possible, or bulk-store waste antifreeze into good condition 16 gauge or lower gauge steel or plastic 205 L drums.

- **Batteries** - bulk-store waste batteries into good condition 16 gauge or lower gauge steel or plastic 205 L drums, or other form of containment away from weather; wooden pallets should be used to keep batteries and containers off the ground during storage and transport.

- **Fluorescent light tubes/compact fluorescent light bulbs** - use original containers where possible and prevent breakage of light tubes/bulbs; keep away from weather.

- **Ozone Depleting Substances** (ODS') - do not landfill; wastes with ODS' (i.e., refrigerators and refrigeration equipment, vehicle air conditioners, ODS-containing fire extinguishers (typically purchased before 1997) should be diverted to the bulk metal waste disposal area. The Hamlet can hire technicians to remove ODS' from stored equipment.

- **Paint** - use original containers where possible, or bulk-store compatible paints into good condition 16 gauge or lower gauge steel or plastic 205 L drums; do not mix different types of paint (i.e., alkyd and latex).

- **Solvent** - use original containers where possible, or bulk-store compatible waste solvents into good condition 16 gauge or lower gauge steel or plastic 205 L drums.

As the Hamlet currently stores waste oil in drums at the bulk metal/hazardous waste storage area (if not burned within BLCS' waste oil burners), it is recommended they register the site as a hazardous waste storage facility with the GN-DOE Environmental Protection Services (R. Eno, *pers. comm.*). Registering the facility will help the GN-DOE monitor and track hazardous wastes, and eventually improve handling and disposal in the territory. When developing and operating the bulk metal/hazardous waste storage area in the community, several factors also need to be considered. From GN-DOE (2002) guidelines, these are:

- **Regulatory Compliance**

The GN-DOE *Environmental Guideline for the General Management of Hazardous Waste* and hazardous waste minimum storage volumes should be considered when planning and operating the bulk metal/hazardous waste

storage area.

Regulatory Agencies

The regulatory agencies may have to be consulted regarding the management of hazardous waste as there may be other environmental or public and worker health and safety issues to consider. The other regulatory agencies are as follows:

Department of Economic Development and Transportation (ED&T): The Motor Vehicles Division is responsible for ensuring the safe transport of hazardous waste and other dangerous goods by road through administration of the *Transportation of Dangerous Goods Act*.

Workers' Safety and Compensation Commission (WA&CC): The Workers' Safety and Compensation Commission is responsible for promoting and regulating worker and workplace health and safety in Nunavut. The Commission derives its authority from the *Workers' Compensation Act* and *Safety Act* which require an employer to maintain a safe workplace and ensure the safety and well being of workers.

Department of Community and Government Services (CGS): The Department of Community and Government Services is responsible under the *Commissioners' Lands Act* for the issuance of land leases, reserves, licenses and permits on Commissioner's Lands. Emergency planning responsibilities under the *Emergency Measures Act* include developing territorial emergency response plans, coordinating emergency operations at the territorial and regional levels and supporting community emergency response operations. The Office of the Fire Marshal is responsible for ensuring the safe storage, handling and use of flammable and combustible liquids and materials. The Office of the Fire Marshal derives its authority from the *Fire Prevention Act*, National Fire Code and National Building Code.

Department of Health and Social Services (DOH$SS): Activities related to the generation, storage, transportation, treatment and disposal of hazardous waste may have an impact on public health. The Office of the Chief Medical Officer of Health and Regional Environmental Health Officers should be consulted regarding legislated requirements under the *Public Health Act*.

Environment Canada (EC): EC is responsible under the *Canadian Environmental Protection Act* for ensuring the safe management of designated hazardous waste at Federal facilities and on federal lands. The management, disposal and export of polychlorinated biphenyl (PCB) waste is controlled under the *PCB Regulations*, the *Federal Mobile PCB Treatment and Destruction Regulations* and the *PCB Waste Export Regulations*. The interprovincial and international transport of waste is controlled under the *Interprovincial Movement of Hazardous Waste Regulations* and the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations*. Environment Canada is also responsible for administering the pollution prevention provisions of the federal *Fisheries Act*.

Aboriginal affairs and Northern Development Canada (AANDC): **ANDC** is responsible under the *Territorial Lands Act* and *Nunavut Waters and Nunavut Surface Rights Tribunal Act* for the management of federal lands and waters in Nunavut, including the impact hazardous waste may have on the quality of these lands and waters. AANDC works with NWB and maintains the Water licence protocol on hazardous waste management in the community.

- **Compatibility**

Compatibility of wastes and their storage containers, and wastes and nearby materials should be considered. For

example, some wastes need to be stored in specific containers to minimize the potential for corrosion and leaks (e.g., acids cannot be stored in steel drums due to corrosion; waste fuel should not be stored long-term in plastic drums). Additionally, not all wastes can be stored in the same area (e.g., flammable wastes near ignition sources).

- **Packaging**

Storage of HHW in original containers is acceptable. Bulk storage of compatible HHW in 205 L 16 gauge or lower gauge steel or plastic drums is generally acceptable though may depend on the type of waste. All containers need to be in good condition and sealable. Contact the GN-DOE or a licensed waste carrier or receiver for advice on specific wastes. All storage containers also need to be properly labeled, following requirements of WHMIS or *Transportation of Dangerous Goods* regulations, if transport is planned.

- **Segregation**

If some HHW can be recovered or recycled at a later time, the HHW should be segregated and stored in a manner to allow this. Final destination of the HHW should be considered during storage.

- **Ventilation**

All HHW should be properly ventilated to reduce buildup of potentially poisonous or noxious fumes. Most wastes should be stored outside in sheds or under roofs providing free air movement.

- **Climate**

Not all HHW can be stored directly outside. Waste containers should be stored with some overhead cover (e.g., roof or tarp) and on an impermeable base to prevent contact with rain, snow and direct sunlight. This also makes cleanup of spills and leaks easier and cheaper. Some communities utilize old sea cans for storage of some HHW.

- **Handling**

All handlers of HHW will have proper training. At a minimum, all handlers should have WHMIS (Workplace Hazardous Materials Information System) training.

- **Security**

Certain security precautions may need to be taken to prevent theft, accidental discharge or harm to the public from collected HHW. Only persons authorized and trained to handle HHW should have access to the bulk

Maintenance

General maintenance procedures for the bulk metal/hazardous waste storage area should occur during daily operations at the solid waste disposal facility. These maintenance procedures involve ensuring proper segregation and storage of wastes, prompt cleaning and reporting of any leaks or spills, and general site tidiness. Inspections of the bulk metal/hazardous waste storage area should occur with the weekly inspections of the entire solid waste disposal facility by the Foreman or other trained personnel.

Hazardous Waste Management Facilities A hazardous waste management facility is a facility or specially-designated area that is used for the collection, storage, transfer, treatment, recycling or disposal of hazardous waste for commercial purposes. Where the facility is used solely for the collection, storage or transfer of hazardous waste, the facility must be registered where waste is stored for a period of 180 days or more or the quantities exceed those set out in the Guideline. Where the facility is to be used for the treatment, recycling or disposal of hazardous waste, the facility must be registered where the quantity treated, recycled or disposed of in any single month exceeds a ‘small quantity’. The collection, storage, transfer, treatment, recycling or disposal of hazardous waste on behalf of a third-party does not remove the obligation of the owner or operator of a hazardous waste

management facility to register the facility. The owner or operator may obtain an original form and users' guide by contacting Nunavut's Department of Environment or by downloading through the department's web site. Registration of a hazardous waste management facility does not remove the obligation to comply with all other applicable municipal, territorial and federal statutes, regulations, standards, guidelines and by-laws. Further assistance in completing a waste manifest may be obtained by referring to the *User's Guide for the Hazardous Waste Manifest* produced by Environment Canada or by contacting the Motor Vehicles Division of the Department of Economic Development and Transportation.

Transportation: The International Air Transport Association (IATA) requires that all shipments of hazardous wastes tendered to air carriers be accompanied by the IATA Shipper's Declaration of Dangerous Goods. The consignor is responsible for completion of the form in accordance with IATA requirements and to ensure all packaging, placarding and labeling is consistent with the product being transported. The International Marine Dangerous Goods Code requires use of the International Marine Organization's Multimodal Dangerous Goods Form when transporting dangerous goods or hazardous waste by ship or barge.
Further information on transporting hazardous waste by air or marine can be obtained by contacting Transport Canada. Information and instructions on manifesting, placarding and labeling hazardous waste commonly generated in Nunavut can be obtained by referring to waste-specific guidelines produced by the Department of Environment. A complete listing of guidelines is available at http://env.gov.nu.ca/programareas/environmentprotection.

Classifications of Dangerous Goods:

C**lass 1 - Explosives**1

Class 2 - Compressed Gases
Division 2.1 - Flammable Gases
Division 2.2 - Non-flammable and Non-toxic Gases
Division 2.3 - Poison Gases

Class 3 - Flammable Liquids

Class 4 - Flammable Solids
Division 4.1 - Flammable Solids
Division 4.2 - Spontaneously Combustible
Division 4.3 - Water Reactive

Class 5 - Oxidizing Substances and Organic Peroxides
Division 5.1 - Oxidizing Substances
Division 5.2 - Organic Peroxides

Class 6 - Toxic and Infectious Substances
Division 6.1 - Toxic Substances
Division 6.2 - Infectious Substances

Class 7 - Radioactive Materials 2

Class 8 - Corrosives

Class 9 - Miscellaneous

1. Class 1 substances (Explosives) are regulated by Natural Resources Canada under the *Explosives Act*.
2. Class 7 substances (Radioactive Materials) are regulated by the Canadian Nuclear Safety Commission under the *Nuclear Safety and Control Act* and *Nuclear Liability Act*.

References: Guidelines of GN-DOE and Baker Lake's Solid waste existing O&M manual.