NEWMONT
NORTH AMERICA

Hope Bay Mining Ltd.

Hazardous Waste Management Plan

March 2012 (Rev 1.1)

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HAZARDOUS WASTE MANAGEMENT PLAN

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1. INTRODUCTION

1.1 PROJECT LOCATION

The Doris North Project (the Project) is located on Inuit owned land in the West Kitikmeot region of Nunavut, on the south shore of Melville Sound (Figure 1). The nearest communities are Umingmaktok (75 km to the southwest of the property), Cambridge Bay (125 km Northeast of the property) and Kingaok (Bathurst Inlet; 160 km to the southwest of the property).

1.2 OBJECTIVES

The Hope Bay Project is currently under care and maintenance. This plan has been developed to address care and maintenance level activities and not full operations.

The Hope Bay Project consists of:

- Roberts Bay
- Doris Camp
- Patch Lake facility
- Windy Camp
- Boston Camp

The Hope Bay Project Hazardous Waste Management Plan has been prepared by Hope Bay Mining Ltd. (HBML) in accordance with Section 33 of the NIRB (Nunavut Impact Review Board) Project Certificate (003) and in compliance with Water License No. 2AM-DOH0713, 2BE-HOP0712 and 2BB-BOS0712. This plan has been developed to address the requirements of the three water licenses to ensure that the Hope Bay Project has a consistent plan and that all Hope Bay Belt activities operate in a uniform and integrated manner with regard to the collection, handling, segregation, storage, transport, and disposal of all hazardous wastes.

Waste management procedures ensure the prompt and appropriate collection, segregation, handling, storage, transport, and disposal of all hazardous wastes generated at the above sites. Safe and efficient management of these wastes minimizes the risk to the site workforce, the environment and reduces the financial cost to the company.

This hazardous waste management plan is a resource for employees and contractors at Hope Bay. The information in the plan is intended to enable designated, qualified individuals on the sites to properly and safely collect, segregate, handle, consolidate, store, transport, and dispose of all hazardous waste in a safe and efficient manner.

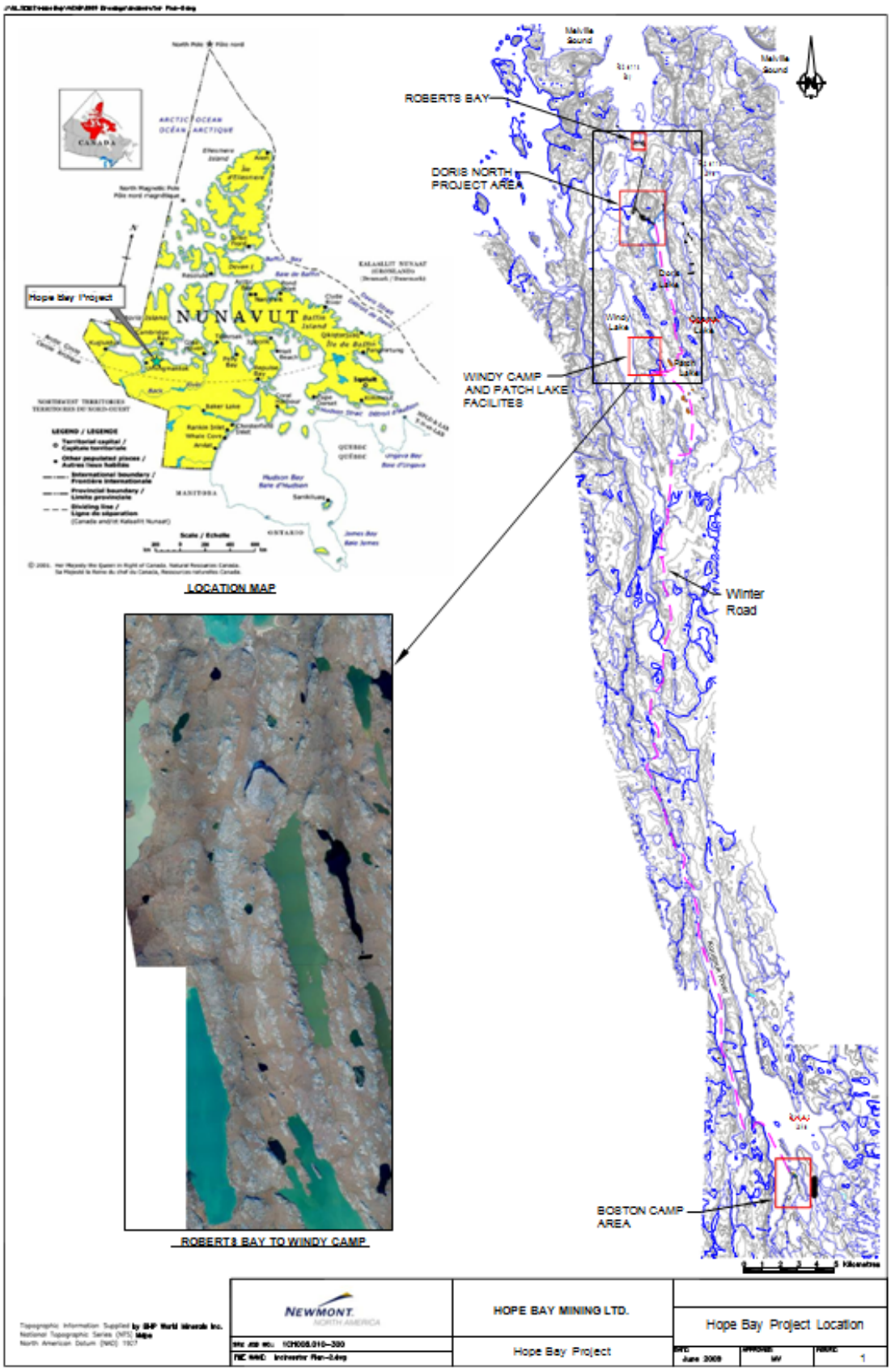

Figure 1. Hope Bay Project Location

1.3 ROLES AND RESPONSIBLITIES

Position	Responsibility
General Manager of Operations	• Review and approve this management plan • Provide the necessary resources to implement this plan
Environmental Compliance Manager	• Review and implement this management plan • Audit waste handling records
ESR Site Manager	• Review and update this management plan • Routine review of waste handling records
ESR Coordinator and Technician	• Conduct routine facility inspections • Identify corrective actions as necessary and follow-up to verify actions have been completed
Facility Manager	• Ensure waste management facility has required supplies and resources
Waste Management Personnel	• Implement this management plan; review and update document with ESR Site Manager as required • Ensure all required shipping documents are completed; maintain record of all completed shipping records • Ensure disposal records are received and filed • Ensure waste generation and volumes are tracked • Ensure waste is packaged as per TDG, IATA, and IMDG regulations • Assist all HBML employees and contractors with obtaining appropriate storage and packaging for wastes encountered in each work area • Implement corrective actions as necessary
Logistics Supervisor	• Ensure all required shipping documents are completed and maintain copies of the records

2. APPLICABLE LEGISLATION, LICENSING AND GUIDELINES

2.1 BACKGROUND AND RATIONALE

This document is based on the requirement of the NIRB Project Certificate requirements for the storage of fuel and hazardous material which requires:

> *33. MHBL shall ensure that areas used to store fuel of hazardous materials are contained using the safest methods practically available.*

HBML will meet the waste management requirements outlined in the Doris North 2AM-DOH0713 Type A Water licence:

1. Part G, Item 11: The Licensee shall submit to the Board for review by June 1, 2008, a revised Hazardous Waste Management Plan. The handling and disposal of wood crates used in the shipment of sodium cyanide shall be included in the Plan.
2. Part G, Item 12: The Licensee shall back haul and dispose of all hazardous wastes generated through the course of the operation at an approved waste disposal site; and
3. Part G, Item 13: The Licensee shall maintain records of all waste backhauled and confirmation of proper disposal. These records shall be made available to an Inspector upon request.

Although the licence specifies that wooden crates used for shipping sodium cyanide will be addressed in this plan, HBML has not included this item in Rev 1 as sodium cyanide will not be shipped to the site during care and maintenance.

HBML will meet the waste management requirements outlined in the Boston 2BB-BOS0712 Type B Water licence:

1. Part D, Item 5: The Licensee shall backhaul and dispose of all hazardous wastes, waste oil and non-combustible waste generated through the course of the operation at an approved waste disposal site; and
2. Part D, Item 6: The Licensee shall maintain records of all waste backhauled and records of confirmation of proper disposal of backhauled waste. These records shall be made available to an Inspector upon request.

HBML will meet the waste management requirements outlined in the Hope Bay 2BE-HOP0712 Type B Water licence:

1. Part D, Item 5: The Licensee shall backhaul and dispose of all hazardous wastes, waste oil and non-combustible waste generated through the course of the operation at an approved waste disposal site; and
2. Part D, Item 6: The Licensee shall maintain records of all waste backhauled and records of confirmation of proper disposal of backhauled waste. These records shall be made available to an Inspector upon request.

The Plan was prepared based on provisions provided in the Environmental Guidelines for the General Management of Hazardous Wastes in Nunavut, issued by the Department of Sustainable Development, Environmental Protection Service (EPS) and Government of Nunavut. The Plan was also prepared with consideration of the following guideline documents:

- Environmental Guideline for Industrial Waste Discharges;
- Environmental Guideline for Waste Antifreeze;
- Environmental Guideline for Waste Batteries;
- Environmental Guideline for Waste Solvents;
- Disposal Guidelines for Fluorescent Lamp Tubes;
- Municipal Solid Wastes Suitable for Burning; and
- Guideline for the Management of Waste Lead and Lead Paint.

The EPS monitors movement of hazardous waste from the generator to final disposal with the use of, IATA, IMDG, Project Shipping Manifests, and Federal Interprovincial Movements of Hazardous Waste Manifest forms.

Federal Manifest forms must accompany all hazardous waste in transit regardless of the means of transport, and copies of the forms must be distributed to the waste generator, waste carriers, and waste disposal companies as indicated on the carbon copy form.

Applicable Legislation

Canadian Environmental Protection Act (CEPA)Hope
Transportation of Dangerous Goods Act (TDGA) and Regulations (TDGR)
International Air Transport Association (IATA)
International Maritime Dangerous Goods (IMDG) Regulations
Nunavut Water and Nunavut Surface Rights Tribunal Act, SC 2002
International Civil Aviation Organization Technical Instructions (ICAO)
Occupational Health and Safety Regulations
National Fire Code
Work Site Hazardous Materials Information System Regulations (WHMIS)
Public Health Act
National Fire Code

3. HAZARDOUS WASTE MANAGEMENT PLAN

3.1 GENERAL PRINCIPLES: THREE R'S

HBML has adopted the 3R's of waste management: Reduce, Reuse and Recycle. The objective of these activities is to divert as much material from becoming a waste (hazardous or otherwise) and therefore reduce the total volume of wastes requiring handling, storage, transportation and disposal. Actions undertaken in this regard include:

Reduce

- Purchasing only the required amounts of materials;
- Employing inventory control methods in an attempt to ensure that quantities of materials are completely utilized;
- Establishing maintenance schedules that are consistent with the equipment manufacturers suggested replacement;
- Maintaining and protecting materials to prevent damage and breakage;
- Substituting less hazardous chemicals where possible; and
- Selecting products that provide the maximum "life-of-material".

Reuse

- If appropriate, collect and return materials to the system (i.e. equipment, operations, etc.) following maintenance or repair;
- If appropriate, filter and/or use additives to replenish lost properties of material in order to extend its useful life; and
- Testing to ensure items (i.e. batteries) are "spent" before removing from service.

Recycle

- Commercial companies are used to the maximum extent practical to recycle appropriate materials on a fee for service basis.

3.2 ALTERNATE MANAGEMENT CONSIDERATIONS

HBML will continually review and re-assess the opportunities to adjust hazardous waste management strategies. Preference will be given to alternative management methods that provide a level of environmental protection equivalent to or above the standards of Environmental Guideline for Waste Batteries, Department of Sustainable Development, Environmental Protection Service (EPS), Government of Nunavut. The EPS must approve the proposed alternative disposal method prior to implementation and approval may be subject to specific conditions.

4. HAZARDOUS WASTE MANAGEMENT FACILITY

4.1 FACILITY

The waste management facility consists of two 40 foot sea cans modified to create a 40 x 16 heated, indoor working area for waste management personnel. The facility also contains an office area and indoor storage for supplies. The waste management facility was developed to allow all waste generated onsite to be delivered to a centralized location.

The building currently accommodates the following activities:

- A centralized area to receive all waste generated onsite including a sorting yard for contractor waste drop off;
- Sorting and consolidation of various compatible waste streams to reduce waste volume and disposal costs;
- Classification, re-packaging and TDG labeling;
- Weigh scale for air transportation planning and incinerator volume tracking;
- Movement of containers to designated temporary storage; and
- Waste tracking, inventory and backhaul information management.

Inspections of the facility, yard, berm and burn pit are performed each month to ensure good housekeeping and proper storage is in effect. Waste management personnel ensure all materials stored meet the compliance standards required for storage of hazardous waste on site

Containers must be properly labelled and placed so that they can easily be inspected for signs of leaks, corrosion or deterioration. If any discrepancy is found, the container is removed and the contents transferred to a sound container and/or re-labelled as required.

4.2 TRAINING

Personnel working in the waste management facility are provided certified training courses and hands on training under direct supervision of qualified staff. This ensures that all personnel are aware of the regulations; safety requirements, Standard Operating Procedures (SOP's) and personal protective equipment required when handling waste.

Employees are certified in the following:

- Incinerator Training
- Workplace Hazardous Material Information System (WHMIS)
- Transportation of Dangerous Goods (TDG)
- International Maritime Dangerous Goods (IMDG)
- International Air Transport Association (IATA)
- Various equipment and chemical handling training
- Additional courses as necessary

Contractors and employees with specific or specialized requirements for on-site waste management for their respective work areas are provided with written instruction. This ensures compliance in contractor yards as well as proper packaging, sorting and labeling of waste prior to receipt at the waste management facility.

4.3 HAZARDOUS WASTE STORAGE

Despite the adoption and implementation of the 3R's of waste management, HBML does produce hazardous wastes that require appropriate management, storage, transportation and disposal. Hope Bay is registered as a Hazardous Waste Generator with the Government of Nunavut, Department of Environment.

Hazardous Waste Generator Number NVG 1000032

Although the Hope Bay Project does not consider the onsite storage of hazardous waste an acceptable long term waste management solution, there are certain waste streams that cannot be transported on aircraft for backhauls and must be stored for transport during the barge season. For this reason HBML has registered as a Hazardous Waste Storage Facility with the Government of Nunavut, Department of Environment.

Facility Number NUF 400005

The temporary storage facility and the hazardous wastes within the facility are stored according to the following:

- The waste management supervisor in charge of the facility and storage area is trained in the TDG, WHMIS, IMDG and IATA for packaging, storage and shipping procedures for hazardous wastes. The waste management facility is equipped with all the appropriate personal protective equipment (PPE);
- All personnel working in the waste management facility are trained in TDG and WHMIS, at minimum, and will be equipped with the appropriate PPE;
- All persons interacting with hazardous wastes are required to wear the appropriate PPE;
- Regular inspections are performed and recorded;
- Containers are placed so that each container can be inspected for signs of leaks or deterioration;
- All hazardous wastes are stored in a location that provides the maximum amount of safety for site personnel and protection of the environment;
- Incompatible chemical wastes are not packaged or stored together based on the WHMIS and/or the MSDS for each chemical;
- All hazardous wastes are stored on-site for the shortest practical length of time and in a manner that prevents release to the environment;
- A material specific appropriate "container" is the primary containment for the majority of all liquid or solid hazardous wastes generated at the HBML property;
- Appropriately sized containers are used for collecting and storing the waste;
- In the case of 4 or 10 L plastic containers, 20 L pails, and 205 L drums, the container is also the "package" and shall have the appropriate waste label affixed to it;

- Efforts are made not to contaminate the outside of the container during filling. Containers and packages with visible signs of external contamination will not be used in the storage or transport of hazardous wastes;
- Personnel ensure that all container and package lids are secured tightly and boxes are taped shut;
- Personnel ensure that all approved containers and packages are structurally capable of withstanding the aggregate weight of all containers within the package;
- Personnel ensure that all containers are properly packaged. All containers other than 4 or 10 L plastic containers, 20 L pails, or 205 L drums must be enclosed in a package with sufficient appropriate packing material to ensure that the container(s) will not be damaged during transport;
- Leaking or deteriorated containers are removed as soon as practical and their contents transferred to a sound container;
- A record is maintained of the type and amount of waste in storage;
- The storage facility is equipped with emergency response equipment appropriate for the type and volume of materials stored within (i.e. spill kit, appropriate type of fire extinguisher, etc.);
- All waste containers and packages are properly labeled according to the appropriate WHMIS, MSDS and/or federal Transportation of Dangerous Goods Regulations. The following general requirements apply:
    - Each package must be labeled with a waste label
    - Each container must be labeled with the container number and contents prior to being packed;
    - When more than one container is in a package, each container within must be labeled accordingly;
    - Only proper chemical names are used on all labels. Acronyms, trade names, or chemical formulas are NOT acceptable;
    - UN numbers (United Nations Committee of Experts on the Transport of Dangerous Goods Numbers) should be used in labeling where applicable to ensure clear identification of materials;
    - Personnel ensure that all labels are securely attached to the container so that it will not come off during transport;
    - All other labels must be removed from the container or otherwise made illegible (i.e. painted over, scratched out, or otherwise defaced);
    - No waste may protrude from the packaging container and must be sealed for transport; and
    - When transporting waste on site to the waste management facility, ensure it is secure and will not leak.

4.4 HAZARDOUS WASTE SHIPMENT OFF-SITE

Due to the remote location of the project, HBML faces logistical challenges when shipping waste off site for disposal. Waste must be shipped off site utilizing aircraft backhauls throughout the year. To ensure cost effectiveness of air transport, various types of aircraft carry waste off site for treatment, recycling or disposal. During the short summer months a large sealift delivers supplies to site and is loaded with backhauled waste.

All hazardous waste transported off site for recycling or disposal must be packaged and transported according to the specifications provided in the Nunavut Environmental Guideline for General Management of Hazardous Waste, the Northwest Territories Guideline for General Management of Hazardous Waste in the NWT, the federal Transportation of Dangerous Goods Regulations (TDG), the International Air Transportation Association (IATA), the International Maritime Dangerous Goods (IMDG), and the Interprovincial Movement of Hazardous Wastes Regulations to meet specific requirements for packaging and labeling (i.e. placards, limitations, etc.) dependent on the mode of transportation

Only personnel trained, certified and competent in listed regulations for shipment of hazardous waste on an aircraft or barge (IATA/IMDG) can complete designated shipping documents.

Waste transported via aircraft is shipped to Yellowknife and delivered by ground transport to an approved waste receiver in Yellowknife, Northwest Territories. Once received, the waste is consolidated and shipped to various facilities for recycling, treatment or disposal depending on the specific waste stream. The receiver provides a "Certificate of Disposal" to the generator (HBML) to certify that all waste was handled according to territorial and federal laws.

4.5 SITE RECORD KEEPING

Part G, Item 13 of Water License No: 2AM-DOH0713 and Part D, Item 6 of Water License No. 2BB-BOS0712 and No. 2BE-HOP0712 require HBML to maintain records of all waste backhauled and records of confirmation of proper management. HBML maintains an accurate record of all hazardous waste materials generated on site and all materials transported off site. That record, at a minimum, includes:

- A list of the materials being stored/transported;
- The volume of each material being stored/transported;
- The type of container used to store the material;
- The location of the stored material; and
- MSDS sheets for all waste handled by personnel to ensure safe handling and procedures are followed.

Electronic files are kept of all wastes transported off site. A summary of this information is prepared annually.

"Certificates of Disposal" from the receiver are sent to the waste management facility to be retained with the waste tracking sheets and a copy of the Interprovincial Movement of Hazardous Waste forms. These copies are stored for a period of at least five years.

5. HAZARDOUS WASTE STREAMS

5.1 WASTE GLYCOL (ANTIFREEZE)

Definition

"Antifreeze" is defined as a chemical additive (ethylene glycol and propylene glycol) that lowers the freezing point of water in cooling or heating systems. For the purpose of this plan, antifreeze used in fuel systems is not included. Ethylene glycol and propylene glycol antifreeze are used to lower the freezing point of water.

"Waste antifreeze" is antifreeze that is no longer useable for its intended purpose due to the build-up of impurities or loss of original properties and is therefore diverted to storage, recycling or disposal. Waste antifreeze is a contaminant under the Nunavut Environmental Protection Act and must be managed as a hazardous waste.

Environmental Risks

Ethylene and propylene glycol are toxic by ingestion and many of the corrosion and antifoaming inhibitors added to antifreeze are also toxic. In addition, during use the material picks up wear metals from the engine and pipes (such as lead, phosphorous and cadmium) which are also toxic. Mishandling and mismanagement of this waste could potentially result in a hazard to people and the environment.

Both ethylene and propylene glycol are water soluble. Improper disposal can potentially result in the contamination of groundwater and surface lands. Fish, aquatic animals and people can be poisoned.

If antifreeze is allowed to enter sewage treatment works in sufficient concentrations it may affect the bacteria responsible for sewage treatment. Improper disposal of antifreeze can result in permafrost degradation.

Storage and Labeling

All waste antifreeze is stored as follows:

- When possible, re-use the original container, containers manufactured for the purpose or bulked into good quality 16 gauge (or lower) steel or plastic 205 L drums;
- Use only containers that are sound, sealable and not damaged or leaking; and
- Containers will be clearly labelled according to the Workplace Hazardous Materials Information System (WHMIS) and the relevant Transportation of Dangerous Goods (TDG) requirements.

At a minimum, the labeling of waste antifreeze will include the following information:

Environmentally Hazardous Substance, Liquid, N.O.S. (Used Glycol)
P.I.N.: UN3082
Classification: 9
Packing Group III

In addition to the waste classification label this waste stream will require the following:

- diamond shaped "Class 9 Placard" label must be affixed to the container
- package orientation label (double arrows pointing up)
- consignor and receiver address label
- "Cargo Aircraft Only" sticker

As per the dangerous goods requirements set out in the International Air Transport Association (IATA) there are other labeling requirements and as such each packaging instruction must be read and adhered to. These packaging instructions are three digit numbers associated with each waste stream and can be found listed next to the specific waste stream in Section 4 (blue page section) of the IATA regulations. IATA regulations are updated yearly and these numbers can vary year to year. The "Packaging Instruction" number MUST be included on the IATA waybills.

- All storage containers will be kept sealed or closed at all times.
- All storage containers will be stored in manner that prevents damage from weathering and from physical damage.
- Temporary on site storage will be in an appropriate container located within a dedicated area.
- Waste antifreeze will NEVER be stored with food or in used food containers such as bottles or cans, as it is toxic if ingested.

The short term storage of waste antifreeze will only be an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycling or disposal facility.

Transportation

The transport of waste antifreeze will be completed with the proper TDG, IATA or International Maritime Dangerous Goods (IMDG) classification, packaging, labeling and manifesting as required by the transport authority. Containers that are suitable for transporting waste antifreeze include 205 L steel and plastic drums that are in good condition. Prior to shipping, all containers will be inspected to ensure that they are sound, securely covered, suitably and clearly labeled.

Disposal

The preferred method for management of bulk waste antifreeze will be shipping the material to a registered recycling facility. Contacts for recycling companies are available by contacting the waste management associations listed in Appendix II of the Nunavut Environmental Guideline for General Management of Hazardous Waste.

Waste antifreeze will not be disposed of in a landfill, the sewage management system or drains because it can destroy the bacteria responsible for sewage treatment and contaminate ground and surface waters.

5.2 WASTE SOLVENTS

Definition

"Solvents" are defined as alcohol or petroleum based liquids capable of dissolving another substance to form a uniformly dispersed mixture at the molecular level. The major uses include paint and coatings (paints, varnishes, and lacquers), industrial cleaners and extractive processes.

"Waste Solvents" is a general term used to describe a solvent that is no longer useable for its intended purpose due to the build-up of impurities or loss of original properties and is therefore diverted to storage, recycling or disposal. Waste solvents are a contaminant under the Nunavut Environmental Protection Act and must be managed as a hazardous waste.

Environmental Risks

Many solvents are flammable and toxic; substances that can contribute to fire hazards and the contamination of air and water.

Solvent vapours, if they originate from flammable solvents, can explode. Depending on the type of solvent the vapour may be explosive in air at concentrations as low as one percent.

Solvents are toxic by ingestion, skin contact, and vapour inhalation. Solvent vapours can also deprive the lungs of oxygen. Numerous human health disorders are attributed to solvent exposures. Long term or chronic exposure to specific types of solvents can damage vital organs and affect the human immune system.

Improperly managed solvents and waste can harm or kill plants, wildlife and aquatic life. Chlorinated solvents bio-accumulate and are difficult to destroy. Chlorinated solvents are commonly found in cleaning and degreasing operations.

Storage and Labeling

All waste solvents will be stored as follows:

- Re-use original containers, where possible, or bulk waste solvent into containers manufactured for the purpose of containing solvents. Good quality 16 gauge or lower steel or plastic 205 L drums;
- Use containers that are sound, sealable and not damaged or leaking; and
- Containers will be clearly labeled according to the requirements of the WHMIS and the relevant TDG.

At a minimum, the labeling of waste solvent will include the following information (depending on the type of solvent):

Waste Flammable Liquids, N.O.S. (technical name of waste)
P.I.N.: UN1993
Classification: 3
Packing Group III

In addition to the waste classification label this waste stream will require the following:

- diamond shaped "Class 3 Placard" label must be affixed to the container;
- package orientation label (double arrows pointing up);
- consignor and receiver address label; and
- "Cargo Aircraft Only" sticker.

As per IATA there are other labeling requirements and as such each packaging instruction must be read and adhered to. These packaging instructions are three digit numbers associated with each waste stream and can be found listed next to the specific waste stream in Section 4 (blue page section) of the IATA regulations. The "Packaging Instruction" number MUST be included on the IATA waybills so care must be taken to ensure accuracy.

- All storage containers will be kept sealed or closed at all times;
- Temporary on site storage will be in an appropriate container located within a dedicated area; and
- Waste solvent will NEVER be stored with food or in used food containers such as bottles or cans, as it is toxic if ingested.

The short term storage of waste solvent will only be an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycling or disposal facility.

Transportation

The transport of waste solvent will be completed with the proper classification, packaging, labeling and manifesting as required by regulations related to TDG, IMDG or IATA. Containers that are suitable for transporting waste solvent include 205 L steel and plastic drums that are in good condition. Prior to shipping, all containers will be inspected to ensure that they are sound, securely covered, suitably and clearly labelled.

Disposal

The preferred method for management of bulk waste solvent will be shipping the material to a registered recycling facility. Contacts for recycling or disposal companies are available by contacting the waste management associations listed in Appendix II of the Nunavut Environmental Guideline for General Management of Hazardous Waste.

Waste solvents will not be disposed of in a landfill, the sewage management system or drains because it can destroy the bacteria responsible for sewage treatment and contaminate ground and surface waters.

5.3 WASTE BATTERIES

Definition

"Waste batteries" is a general term used to describe spent electrical storage batteries which are no longer useful for their intended purpose and are intended for storage, recycling, treatment or disposal. Waste batteries are a contaminant under the Environmental Protection Act and must be managed as a hazardous waste.

There are many types of batteries in use at Hope Bay (i.e. lead acid; potassium hydroxide; nickel cadmium, lithium ion and alkaline). For the purpose of this plan, waste batteries also include dry cell size MA to D, 6 or 9-volt domestic batteries.

Lead batteries (i.e. automotive and heavy equipment batteries) are electrical storage devices that contain sulphuric acid and lead.

Rechargeable batteries (i.e. industrial forklift, radio and transmitter batteries) are electrical storage devices that can be charged and used again; these usually contain either potassium hydroxide or nickel cadmium.

Domestic use batteries (i.e. AAA to D cells, 6 or 9 volt, and button batteries) may contain mercury, cadmium and/or silver and must be disposed of in an appropriate manner by segregating from regular domestic waste and shipping offsite for disposal.

Environmental Risks

All batteries contain a corrosive liquid or semi-liquid electrolyte that is either a strong acid or a strong base. In addition, batteries contain metals, such as cadmium, lead, lithium and potassium, which generally are toxic and persist in the environment.

Hazards from waste batteries are associated with improper handling and disposal. Improper handling can release corrosive fluids that can cause chemical burns and damage to a wide variety of materials. Improper disposal of batteries may result in the release of corrosive fluids and dissolved metals into groundwater and the environment. Metals in batteries, including lead, mercury and cadmium, are toxic and bio-accumulate in plants and animals and persist in the environment.

Storage and Labeling

All industrial batteries will be temporarily stored as follows:

- Only containers that are sound, sealable and not damaged or leaking will be used;
- Spent batteries will be placed into a lined plywood box with a sound sealable lid; and
- Each container will be labeled according to the requirements of the WHMIS and the relevant TDG regulations.

At a minimum, the labeling of containers containing spent batteries will include the following information (depending on the type of batteries):

Battery, wet, filled with acid
P.I.N.: UN2794
Classification: 8
Packing Group III

OR

Battery, wet, filled with alkali
P.I.N.: UN2795
Classification: 8
Packing Group III

OR

Battery, dry, containing potassium hydroxide solid
P.I.N.: UN3028
Classification: 8
Packing Group III

OR

Lithium Ion Batteries
P.I.N.: UN3480
Classification: 9
Packing Group II

In addition, a diamond shaped "Class 8 Placard" label must be affixed to the container.

As per IATA there are other labeling requirements and as such each packaging instruction must be read and adhered to. These packaging instructions are three digit numbers associated with each waste stream and can be found listed next to the specific waste stream in Section 4 (blue page section) of the IATA regulations book. The "Packaging Instruction" number MUST be included on the IATA waybills.

In general, the following requirements apply:

- Must be packed in an IATA approved outer container and must incorporate an acid/alkali-proof liner to prevent leakage;
- All fill ports and vents must be upward, the batteries cushioned and rendered incapable of sparking or short circuiting;
- A Package Orientation label must be affixed to the outer packaging. The words "This Side Up" may also be displayed on the top of the package;
- All storage containers will be kept sealed or closed at all times;
- All storage containers will be placed on wooden pallets to keep the containers and batteries off the ground during storage and transport; and
- Temporary on site storage will be in a lined plywood container within a dedicated area.

The temporary storage of spent (waste) batteries on site is only an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycler or disposal facility.

Transportation

The transportation of waste batteries to a recycling, treatment, or disposal facility will be completed with the proper TDG, IMDG or IATA classification, packaging, labeling and manifests for the specific transport.

Alkaline and Nickel Cadmium Batteries:

- Spent Alkaline and Nickel Cadmium batteries will be transported in secure packages (poly drums or pails) secured to wooden pallets.

- Alkaline batteries are not restricted if the requirements of Special Provision A123 are met. The words "Not restricted and special provision A123" must be included on the Air Waybill.
- Nickel Cadmium batteries are not restricted if the requirements of Special Provision A123 are met. The words "Not restricted and special provision A123" must be included on the Air Waybill.

Lithium Ion batteries must be packaged according to IATA regulations:

- They are forbidden on passenger aircraft and must be sent on a cargo only plane.
- A maximum of 35 kg of batteries can be shipped per package.
- They must be placed in combination packaging and the requirements of packaging instruction 965 must be met.
- The outer container must include a special "Lithium Battery Label" in addition to all the other labeling requirements. The IATA Air Waybill must be filled out correctly.

Lead Acid Batteries:

- Due to specific IATA regulations for the shipment of Lead Acid Batteries (vehicle, equipment batteries) it is difficult to ship these wastes on an aircraft. As a result, First Air, a member of International Civil Aviation Organization (ICAO), has obtained an equivalency permit that allows them to transport batteries from remote locations that have no other practical or readily available means of shipping this waste stream off site.
- In order meet the packaging requirements, spent lead acid batteries are stacked upright and sealed in drum liners inside a reinforced wooden crate and each layer of batteries will be separated by a layer of cardboard.
- The package will be maintained in an upright position and sealed with banding.
- Prior to shipping, all containers will be inspected to ensure that they are sound, securely covered, suitably and clearly labeled.

The following IATA regulations must be applied and the Air Waybill filled out accordingly:

(11) Dangerous goods that are UN2794, BATTERIES, WET, FILLED WITH ACID, Class 8, UN2795, BATTERIES, WET, FILLED WITH ALKALI, Class 8, or UN2800, BATTERIES, WET, NON-SPILLABLE, Class 8, must:

(i) be transported in accordance with the third sentence of Special Provision A123 of Chapter 3, Special Provisions, of Part 3, Dangerous Goods List and Limited Quantities Exceptions, of the ICAO Technical Instructions, and SOR/2003-400
(ii) the following packing instructions of Chapter 10, Class 8 — Corrosives, of Part 4, Packing Instructions, of the ICAO Technical Instructions, except that, when the aircraft is not a pressurized aircraft, section 1.1.6 of Chapter 1, General packing requirements, of Part 4, Packing Instructions, of the ICAO Technical Instructions does not apply: SOR/2002-306

(A) batteries with the UN number UN2794 or UN2795, Packing Instruction 870 applies, and are forbidden on board a passenger aircraft.

(B) batteries with the UN number UN2800, Packing Instruction 872 applies; and are forbidden on board a passenger aircraft.

Disposal

The long term goal for the management of spent batteries is recycling. All spent batteries will be transported to a recycling or disposal company or disposed of in an approved management facility.

5.4 FLOURESCENT TUBES

Definition

Fluorescent light tubes are bulbs that contain mercury phosphor powder and trace cadmium. These chemicals are environmental contaminants under the Nunavut Environmental Protection Act.

Environmental Risks

Hazards from spent fluorescent tubes are associated with improper handling and disposal, particularly in the event that a tube is broken resulting in the release of mercury phosphor powder and trace cadmium contained within the tube. In addition, both mercury phosphor powder and cadmium are toxic and bio-accumulates in plants and animals and persists in the environment. As a result, special handling and safety procedures are required of persons handling broken fluorescent tubes.

Storage and Labeling

All fluorescent tube shipping boxes are retained for the storage of unbroken spent tubes. Provided that the fluorescent tubes are not broken they are placed in the original shipping container and securely stored in the dedicated hazardous waste storage area located in the vicinity of the Roberts Bay incinerator.

If fluorescent tubes are broken, compliance with the Government of Nunavut Environmental Guideline for General Management of Hazardous Waste and the Transportation of Dangerous Goods Regulations (Canada) is required. As a result, all broken tubes will be collected and delivered to the waste management area where they will properly dispose of the material.

- All containers used for the storage of broken fluorescent tubes will be sound, sealable and not damaged or leaking;
- A good quality 16 gauge or lower gauge metal or plastic 205 L drum will be suitable for the storage of broken tubes;
- The containers will be sealed or closed at all times;
- Use wooden pallets to keep the containers off the ground during storage and transport;
- Storage should be in a secure area with controlled access; and
- A label will be fixed to each container according to the requirements of WHMIS or the relevant TDG regulations.

At a minimum, the labeling of broken tubes will include the following information:

Broken Fluorescent Tubes
Contains Mercury Phosphor Powder

On-site Processing

With the addition of the CFL Premium "Bulb Eater" Fluorescent Lamp Crushing System to the Waste Management Facilities in late 2010, HBML is able to process fluorescent lamps onsite in a safe and environmentally friendly manner. The Lamp Crusher greatly minimizes risk of accidental exposure and environmental release of hazardous materials during handling and transportation. All related filters and contaminated replacement parts are to be disposed of in the same package with the crushed glass.

After the tubes are crushed on site using the specially designed unit to remove any airborne mercury contamination, the broken glass falls into a 205 L drum. When the drum is full the unit is lifted off the drum,

the filters containing the mercury vapours are removed and placed on top of the crushed glass. The drum is sealed and prepped for transport.

There is a Standard Operating Procedure (SOP) approved for the processing of unbroken fluorescent light tubes on site. Employees are required to demonstrate understanding of the appropriate procedures prior to using the lamp crushing system.

Transportation

The transportation of crushed fluorescent tubes to a disposal facility will be completed with the proper TDG, IMDG or IATA classification, packaging, labeling and manifests for the specific transport.

The IATA shipping information is as follows:

Mercury Contaminated in Manufactured articles
P.I.N.: UN2809
Classification: 8
Packing Group III

In addition, a diamond shaped "Class 8 Placard" label must be affixed to the container.

As per IATA there are other labeling requirements and as such each packaging instruction must be read and adhered to. These packaging instructions are three digit numbers associated with each waste stream and can be found listed next to the specific waste stream in Section 4 (blue page section) of the IATA regulations. IATA regulations are updated yearly, as a result of additions and deletions, these numbers can vary year to year. The "Packaging Instruction" number MUST be included on the IATA waybills so care must be taken to ensure accuracy.

Disposal

The only disposal method for fluorescent tubes (whether whole or broken) is through an approved hazardous waste recycling or disposal company. As such, the crushed tubes will be shipped off-site for disposal.

The Nunavut Guideline for Industrial Waste Dangerous Discharges prohibits landfill disposal if mercury is present in excess of 0.2 mg/L (parts per million) based on leachate quality test results.

5.5 PENETRABLE (SHARPES) WASTE

Definition

"Penetrable wastes" or "Sharps" (needles) are defined as waste consisting of any object that can penetrate the skin. This includes: needles, syringes, scalpel/razor blades, broken pipettes, broken glassware, broken blood tubes, and broken culture dishes, slides, cover slips, tubing with needles attached, wooden applicator sticks or any other objects that can puncture skin or a plastic bag.

Environmental Risks

Penetrable wastes (sharps) are a biohazard that poses a significant health risk to workers. These must be properly contained to prevent injury and illnesses.

Storage and Labeling

- Sharps are never disposed of in another waste vessel such as garbage bags or bins;
- All sharps/needles/razor blades will be disposed of in a dedicated sharps container;
- Small sharps will be collected in the specially designed puncture proof plastic containers that are labeled appropriately and located in each camp washroom; and
- All larger sharps such as broken glass are collected in a 205 L barrel (plastic or steel) or another form of containment (such as a plywood box), as appropriate.

Transportation

The sharps are collected from the sealed sharps containers once a month or as required. Once a sufficient amount is collected they are repackaged in an over-pack and sent to Yellowknife via aircraft. All required paperwork is filled out and the sharps are sent to the Stanton General Hospital.

Disposal

The Stanton General Hospital in Yellowknife has a permitted bio-hazard incinerator. The sharps will be disposed of at this facility.

5.6 WASTE LUBRICATING OILS

Definition

Lubricating oils are defined as the various used motor oils, pump oils, hydraulic fluids, etc. that are used on site.

Waste lubricating oils refers to oils that are no longer useable for the intended purpose due to the build-up of impurities or loss of original properties and is therefore diverted to storage, recycling or disposal.

Waste lubricants are not specifically identified as a contaminant under the Nunavut Environmental Protection Act, however they do pose environmental risk if not properly managed and have, therefore, been included in this plan.

Environmental Risks

As with any liquid there is the potential for spills and leaks into groundwater and/or the environment during storage and transport if the waste oil is not contained properly. Although oil is not a contaminant itself, it may contain other contaminants such as lead or gasoline. In that case, the waste must be labelled and handled appropriately as a regulated waste detailing the contaminant. Any spills onsite, including those containing non-regulated oil must be reported immediately.

Storage and Labeling

All waste lubricants will be stored as follows:

- Use original containers, where possible, containers manufactured for the purpose or bulked into good quality 16 gauge or lower steel or plastic 205 L drums;
- Use only containers that are sound, sealable and not damaged or leaking; and
- Containers will be clearly labeled according to the requirements of WHMIS. At a minimum, the labeling of waste lubricants will include the following information:

Non Regulated Waste, (Used Oil)

The short term storage of waste lubricants will only be an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycling or disposal facility.

Transportation

The transport of waste lubricants will be completed with the proper classification, packaging, labeling and manifesting as required by the transport authority. Containers that are approved for transporting waste lubricants include 205 L steel and plastic drums that are in good condition and that contain a secure leak proof lid. Prior to shipping, all containers will be inspected to ensure that they are sound, securely covered and clearly labelled.

Disposal

Any contaminated or non-burnable oil will be packaged and labeled appropriately and will be sent to an approved disposal or recycling facility depending on the amount and type of contamination present.

5.7 WASTE AEROSOLS

Definition

"Aerosol Cans" are defined as a dispenser that holds a substance under pressure and that can release it as a fine spray (usually by means of a propellant gas).

Aerosols may contain various types of hazardous or non-hazardous materials. The pressurized can is a hazard regardless of the contents.

Environmental Risks

Aerosol cans are a safety risk due to the explosion hazards associated with compressed air and may also pose additional safety and environmental risks due to flammable, corrosive or otherwise hazardous contents.

Storage and Labeling

In order to ship this waste stream on an aircraft, the cans must be punctured and drained. However, some cans cannot be punctured due to their ability to impair the function of the can puncture, or they may pose a health hazard. These cans must be removed from the waste stream and stored for shipment via barge. The following aerosol products cannot be punctured:

- Bear spray;
- Mono and Expanding foam products; and
- Spray glue.

All aerosol cans are stored as follows:

- In the camp accommodations area, pails are provided so that the cans do not end up in the "Burnable Waste Stream". When these are full they are collected and brought to the waste management area and temporarily stored in drums until processed;
- All storage containers are kept sealed or closed at all times;
- Temporary on site storage will be in an appropriate container located within a dedicated area; and
- Containers will be clearly labeled according to the WHMIS and the relevant TDG requirements.

At a minimum, the labeling of waste aerosols will include the following information:

Aerosols, flammable
Class 2

The short term storage of waste aerosols will only be an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycling or disposal facility.

On-Site Processing

HBML uses an "Aerosolv 7000" unit to puncture and drain empty aerosol cans. Puncturing the aerosol cans eliminates the hazards associated with shipping compressed cylinders on aircraft.

This unit attaches directly to a 205 L drum and contains a two stage coalescing filter cartridge which prevents the operator from exposure to the propellants from the can. The operator places an aerosol can upside down into the unit and locks the safety cap. A carbide (non-sparking) pin then punctures the can and allows the contents to drain directly into the sealed drum. Individuals must demonstrate an understanding of the safe operating procedures prior to operating the Aerosolv.

Transportation

Due to regulations for shipment of waste aerosol cans, it would be difficult to meet the requirements set out by IATA if puncturing and elimination of the compressed gas was not removed as a hazard. Once punctured and drained the metal cans are shipped to a metal recycler. The cans must still be shipped as a regulated good ("waste paint related material") as there are residuals in the can.

The transport of waste aerosols will be completed with the proper TDG, IATA or IMDG classification, packaging, labeling and manifesting as required by the transport authority. Containers that are suitable for transporting waste aerosols include 205 L steel and plastic drums in good condition as well as lined mega bags. Prior to shipping, all containers will be inspected to ensure that they are sound, securely covered, suitably and clearly labeled.

The TDG/IATA classification and labeling required for air transport of **PUNCTURED** cans is as follows:

Waste Paint Related Material
P.I.N: UN1263
Class: 3
Packaging Group: III

In addition to the waste classification label this waste stream will require the following:

- diamond shaped "Class 3 Placard" label must be affixed to the container;
- package orientation label (double arrows pointing up);
- consignor and receiver address label; and
- "Cargo Aircraft Only" sticker.

As per IATA there are other labeling requirements and as such each packaging instruction must be read and adhered to. These packaging instructions are three digit numbers associated with each waste stream and can be found listed next to the specific waste stream in Section 4 (blue page section) of the IATA regulations. The "Packaging Instruction" number MUST be included on the IATA waybills.

The TDG/IMDG classification and labeling required for barge transport of **UN-PUNCTURED** cans is as follows:

Aerosols, Flammable
P.I.N: UN1950
Class: 2.1
Packaging Group: N/A

In addition, a diamond shaped "Class 2 Placard" label must be affixed to the container.

All IMDG regulations regarding shipping this waste stream on a barge must be followed and adhered to.

Disposal

The preferred method for management of aerosol cans is to process onsite to enable recycling or disposal by a certified Waste Management Facility in Yellowknife, NT.

5.8 MEDICAL WASTE AND SEWAGE TREATMENT PLANT SLUDGE

Definition

A biohazard refers to a biological substance that may pose a threat to the health and safety of humans, animals or the environment. Anything that comes in contact with a biohazard is normally deemed contaminated. There are essentially two potential categories of biohazard waste generated at the Hope Bay Project site: sewage sludge and medical waste (sharps, blood soaked towels or gauze).

Medical wastes will include such items as dressings, bandages, items having had contact with human blood or fluids.

Although not specifically identified as a hazardous waste these materials do have the potential to pose a level of safety and environmental risk if not properly managed and have therefore been included in this plan.

Environmental Risks

Medical wastes and sewage sludge are considered a biohazard due to the potential to transfer disease between humans. This waste must be bagged properly and handled with care. Any persons who are required to handle sewage sludge waste should be immunized against Tetanus/Diphtheria and Hepatitis A and B.

The release of sewage water and sludge into water bodies adds nutrients to the receiving lakes which, under certain conditions, can lead to increase rates of algal growth. When organic matter (including the sludge and resulting algal cells) decays, oxygen is consumed within the water column, reducing the available oxygen in the water column to protect aquatic life. Consequently, the release of untreated sewage wastewater and sludge into receiving water bodies can affect the ability of these water bodies to sustain aquatic life.

In northern lakes, this can have adverse effects, particularly in lakes that are shallow and are covered by a relatively thick ice cover over an extended winter period. In these lakes, dissolved oxygen typically decreases under ice-cover, although sufficient oxygen generally remains to sustain aquatic life. Any additional oxygen consumed (such as untreated sewage sludge) can result in further decreases in oxygen, which would lead to the death of the over-wintering fish populations within these lakes.

Storage and Labeling

Drums or pails should not be contaminated with sewage waste from any level of processing. These drums are considered contaminated and cannot be re-used for any other purpose. Empty drums have to be cleaned and sterilized, then placed with the scrap metal for shipment off site.

If containers must be used, the following precautions will be taken:

- UN approved drums located at the sewage treatment plant will be used for internal site use;
- All storage containers will be kept sealed or closed at all times;
- Temporary on site storage will be in a dedicated area;
- Sewage sludge will NEVER be stored with food or in used food containers such as bottles or cans; and
- Containers will be clearly labeled.

At a minimum, the labeling of sewage sludge will include the following information:

Possible Biohazard Waste
Sewage Sludge

All waste is to be labeled as “Possible Biohazard Waste” regardless of the processing stage ensure that proper precautions are taken to prevent exposure to personnel or the environment.

The sewage sludge will be incinerated as soon as practicably possible.

Transportation

Processed and pressed sewage sludge from the STP is double bagged and delivered to waste management for immediate incineration. Bags are kept below 30 lbs to ensure the waste can be safely lifted and loaded into the incinerator with minimal handling. The STP sludge is picked up with the routine collection of camp domestic waste. Prior to moving a bag, it will be inspected to ensure there are no leaks.

Disposal

Currently, sewage treatment plant sludge is incinerated in the Westland CY100 FA (dual Chamber) incinerator located at the Roberts Bay Waste Management area.

HBML is currently investigating opportunities for using the dried sewage sludge as a fuel or fertilizer for re-vegetation if the material is found to be chemically suitable.

Sewage sludge generated by the onsite SaniBrane sewage treatment facility have a typical solids content of 25-30% after the frame press, giving the material a consistency of top soil. This material can be further composted or it can be incinerated. If the material can be further processed and subjected to composting at high enough temperatures to destroy remaining pathogens, the compost could possibly be used as a source of fertilizer for rehabilitation in the future. The sludge will be required to be acceptable to local regulators as well as comply with regulations in terms of metal content and pathogen content.

The sludge is reported to sustain combustion at 50% solids. If the sludge can be adequately dried it could be used as a source of fuel, possibly even to sustain composting temperatures at high enough levels. Burning of the sludge would have to comply with emission requirements contained in Water License No. 2AMDOH0713 and the ash would need to be safely disposed of in an appropriate facility. HBML is committed to investigating these and other opportunities to ensure their environmental footprint is limited to the extent possible.

5.9 INCINERATOR AND WOOD ASH

Definition

The operation of the Westland Model CY-100-FA-D Incinerator located at the Roberts Bay site and the approved burning of waste solid wood in the burn pan both generate ash which contains remnants of metals (i.e. nails, etc.) and other “foreign” material. Both streams of ash are transported off-site for appropriate disposal.

Incinerator and wood ash are not specifically identified as a contaminant under the Nunavut Environmental Protection Act, however may have the potential to pose an environmental risk if not properly managed and have therefore been included in this plan.

Environmental Risks

Incinerator ash can contain constituents of concern for the environment, particularly in a leachate creation situation. Representative samples of the ash created by the incineration process is sampled and analysed against landfill criteria prior to shipping.

Storage and Labeling

All ash will be stored as follows:

- Good quality 16 gauge or lower steel 205 liter drums are used for ash storage;
- Use containers that are sound, sealable and not damaged or leaking;
- All storage containers will be kept sealed or closed at all times;
- Temporary on site storage will be in a dedicated area; and
- Containers will be clearly labelled.

At a minimum, the labeling of ash will include the following information:

Non-Regulated Waste
Incinerator Ash w/Debris

OR

Non-Regulated Waste
Burn Pan Ash w/Debris

The short term storage of ash will only be an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycling or disposal facility.

Transportation

The transport of ash will be completed with the proper classification, packaging, labeling and manifesting as required by TDG regulations. Containers that are suitable for transporting ash are 205 litre steel drums that are in good condition. Prior to shipping, all containers will be inspected to ensure that they are sound, securely covered, suitably and clearly labelled.

Disposal

The current method for management of bulk ash is shipping the material to an approved disposal facility. The ash is consolidated at a waste transfer station, confirmed to be inert and transported to the Yellowknife landfill.

In the event that the on-site disposal of ash in an environmentally sound manner is identified, Hope Bay Mining will make a separate application to the appropriate regulatory and other authorities. Approval for ash disposal on-site ash will be secured from all relevant authorities prior to commissioning the plan.

5.10 CONTAMINATED RAGS, ABSORBENTS, AND SOIL

Definition

Contaminated rags, absorbent pads, and soil are defined as having been in contact with oil, grease, fuel, or similar products, typically as a result of cleaning or spill response operations.

It must be noted that there is a significant difference when classifying this waste stream depending on what the rag, absorbent, or soil has been contaminated with. In some cases the waste will be "non-regulated", but if the material is contaminated with a “regulated” waste, then all regulations (TDG/IATA or IMDG will apply).

Rags and absorbent pads or soil contaminated with lubricating oils are considered “non-regulated” and may be shipped as non-regulated waste.

Rags and absorbent pads or soil contaminated with any “regulated” product such as a flammable liquid will have to be shipped as “regulated” waste. This could include fuels like Aviation fuel (Jet A and Jet B), diesel or gasoline.

Environmental Risks

Used rags and absorbents, or contaminated soil may contain enough hazardous products to pose a risk of contamination of the environment or a health risk and must be handled accordingly.

Storage and Labeling

All contaminated rags and absorbents will be stored as follows:

- Good quality 16 gauge or lower steel 205 liter drums are used for rag and absorbent storage or the use of a UN approved mega bag completed with impermeable liner;
- Use containers that are sound, sealable and not damaged or leaking;
- All storage containers will be kept sealed or closed at all times;
- Temporary on site storage will be in a dedicated area; and
- Containers will be clearly labeled.

Contaminated soils are stored in 205 liter drums and are sealed with lids for storage and transport. If the hydrocarbon contamination is a light hydrocarbon product that can be remediated in the landfarm, the soil will be transferred to the landfarm facility as per the Landfarm Management Plan (SRK 2010).

At a minimum, the labeling of rags and absorbents or soil will include the following information:

NON REGULATED WASTE (Rags and Absorbents c/w oil) or (Soil c/w oil)

HOWEVER, If the contaminant is a regulated product such as fuel, the waste will have to be labelled as follows:

Solids containing flammable liquids, N.O.S (Rags c/w fuel) or (soil c/w fuel)
PIN: UN 3175
Class: 4.1

In addition to the waste classification label this "regulated" waste stream will require the following:

- diamond shaped "Class 4.1 Placard" label must be affixed to the container;
- package orientation label (double arrows pointing up);
- consignor and receiver address label; and
- "Cargo Aircraft Only" sticker.

IATA regulations state that not more than 50 kg of this material may be shipped per container, even on a cargo only airplane. In order to transport this material off site, special permission is needed from Transport Canada in the form of an Equivalency Permit. The carrier must apply for the permit and be granted permission to carry a larger volume of solids contaminated with flammable liquids, and they will have to follow specific rules in accordance with IATA Dangerous Goods Regulations. A copy of this permit will be available at that waste management facility.

If the waste weighs more than 50 kg, will have to follow all packaging and labeling instructions on the Equivalency Certificate in addition to the packing instructions found in the most up to date IATA Regulations book. The IATA Shippers Goods Declaration form must clearly state the following information:

Dangerous Goods Certificate No. _____ – expiry date: Month Day, Year

Although the Airline Carrier is to maintain a copy in their operations manual, a copy of the Equivalency Permit should be included with all other relevant documents given to the pilot prior to transport.

The short term storage of contaminated rags and absorbents will only be an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycling or disposal facility.

Transportation

The transport of contaminated rags and absorbents or soil will be completed with the proper classification, packaging, labeling and manifesting as required by IATA regulations. Containers that are suitable for transporting contaminated solids include 205 L steel drums that are in good condition or poly-lined mega bags of suitable rating as detailed within the IATA Regulations.

Prior to shipping, all containers will be inspected to ensure that they sound, securely covered, suitably and clearly labelled.

Disposal

Hope Bay is limiting the incineration of contaminated rags and absorbents. The manufacturers of the incinerator have recommended that only small quantities of this material be placed in each batch as the on-site CY100 FA-D incinerator may overheat if large quantities are included in a batch. The preferred method for disposal of contaminated rags and absorbents is shipping the material to an approved off-site disposal facility.

Contaminated soil is never incinerated. Soils contaminated with light hydrocarbons suitable for remediation are managed in the landfarm as per the Landfarm Management Plan. All other contaminated soils are shipped off-site for proper disposal.

5.11 RESIDUE LAST CONTAINED AMMONIUM NITRATE BAGS

Definition

Residue last contained ammonium nitrate packaging refers to any packaging, box and bag, that was used to contain ammonium nitrate explosives. Ammonium Nitrate residue packages are considered to be oxidizers according to the TDG regulations.

The shipment of residual Ammonium Nitrate on aircraft is strictly controlled. Containers with residue may be packaged in mega bags and shipped off-site provided that there are no hydrocarbons on the backhaul with the potential to produce an explosive mixture.

Environmental Risks

Containers with residual Ammonium Nitrate may contain enough trace product to pose risk to personnel as well as the environment and must be handled accordingly. Specifically, precautions should be taken to ensure that the residue containers and packaging does not come into contact with hydrocarbons as the resulting mixture has potential to produce a highly volatile and explosive compound.

Storage and Labeling

All residue packages of Ammonium Nitrate will be stored as follows:

- Good quality, UN approved mega bags;
- Use containers that are sound, sealable and not damaged or leaking;
- All storage containers will be kept sealed or closed at all times;
- Temporary on site storage will be in a dedicated area;

- All residue containers shall be kept clear and away from any product or packaging containing hydrocarbons of any type; and
- Containers will be clearly labeled.

At a minimum, the labeling of residue Ammonium Nitrate packaging will include the following information:

Residue Last Contained (Ammonium Nitrate Bags)
UN 1942
Class: 5.1
PG: III

As per IATA there are other labeling requirements and as such each packaging instruction must be read and adhered to. These packaging instructions are three digit numbers associated with each waste stream and can be found listed next to the specific waste stream in Section 4 (blue page section) of the IATA regulations. IATA regulations are updated yearly, as a result of additions and deletions, these numbers can vary year to year. The "Packaging Instruction" number MUST be included on the IATA waybills so care must be taken to ensure accuracy.

In addition to the waste classification label this waste stream will require the following:

- diamond shaped "Class 5.1 Placard" label must be affixed to the container;
- consignor and receiver address label; and
- "Cargo Aircraft Only" Sticker.

Short term storage of residue containing Ammonium Nitrate containers will be an interim measure to permit time for the collection of sufficient volumes for cost effective transport to a recycling or disposal facility.

Transportation

The transport of residue Ammonium Nitrate packages will be completed with the proper classification, packaging, labeling and manifesting as required by IATA regulations. Poly lined mega bags with a suitable rating, as detailed within the IATA Regulations, may be used.

Prior to shipping, all containers will be inspected to ensure that they sound, securely covered, suitably and clearly labelled.

Disposal

Bags with Ammonium Nitrate residues are considered a regulated waste and must be manifested as such. HBML ships ammonium nitrate product bags with residuals off site for disposal. Residual means there is less than 2% of the total volume of product remaining in the bag and it is classified as a Residue Last Contained (RLC). If there is more than 2% of the product remaining, it must be removed and utilized onsite. This waste stream is shipped to an approved Hazardous Waste Receiving Facility in Yellowknife.

Alternatively, larger volumes can be shipped via aircraft but will require an Equivalence Permit from Transport Canada for the carrier. Ammonium Nitrate is a controlled product under the Explosives Act, and additional approval must be granted from an Explosives Inspector through a notification process if disposing or recycling any volume greater than a residue.

5.12 EXPLOSIVE PRODUCTS AND EXPLOSIVE RESIDUE CONTAINERS

Definition

Explosive products (i.e. detonating cord) and explosive residue containers are wastes that have been in contact with explosives and may contain trace amounts of explosive products. Residue packages are still considered to be oxidizers and must be managed as such.

The shipment of explosive products on aircraft is forbidden, therefore alternative management options of such products and the residue containers or packaging must be considered. Under no circumstance can the residual cardboard or plastic containers of explosive products be incinerated in the Rob Bay incinerator. Items may be flattened and burnt in the existing burn pan.

Environmental Risks

Containers with residual explosives may contain enough trace product to pose an explosion risk to personnel as well as the contamination of the environment with nutrients. Placing materials containing explosives residue into the incinerator may result in a serious explosion, creating a significant risk to the safety of personnel.

Storage and Labeling

All residue packages of explosive material will be stored as follows:

- Good quality mega bags;
- Use containers that are sound, sealable and not damaged or leaking;
- All storage containers will be kept sealed or closed at all times;
- Temporary on site storage will be in a dedicated area;

- All residue containers shall be kept clear and away from any product or packaging containing hydrocarbons of any type; and
- Containers will be clearly labeled.

At a minimum, the labeling of residue explosive packaging will include the following information:

Residue Last Contained (Explosive Articles, Containers)

In addition, a diamond shaped "Class 1 Placard" label must be affixed to the container.

The short term storage of residue explosive packages will only be an interim measure to permit time for the collection of sufficient volumes or conditions to initiate a burn at the existing burn pan.

Transportation

IATA regulations forbid the shipment of explosive products on aircraft. The wastes will be transported to the burn pan.

Disposal

The method for disposal of residue explosive packages is to burn them in the existing burn pan. They are not to be burned in the on-site incinerator or shipped off-site for disposal.

6. REGISTERING HAZARDOUS WASTE GENERATORS, CARRIERS AND RECEIVERS

6.1 GENERAL

When hazardous waste requires transport off site, the generator (HBML), carrier and receiver must be registered with the Government of Nunavut or Northwest Territories depending on where the business is based. The agency responsible for ensuring environmentally accepted management practices is the Environmental Protection Service (EPS) of the Department of Sustainable Development.

All sites that produce hazardous waste must be registered as a generator. Occasionally due to logistics, waste must be stored on site for over 180 days. As such, the generator is then required to register their facility as a storage facility. HBML is registered with the Government of Nunavut Environmental Protection Services as a waste generator and as a hazardous waste storage facility.

Hope Bay Generator Number: NVG 1000032
Hazardous Waste Storage Facility Number: NUF 400005

All hazardous waste generated by HBML will be transferred to an approved and registered waste transfer centre.

HBML ensures that each material carrier and the receiver of those materials are either registered in Nunavut or in the province or territory in which the company is based.

7. WASTE MANIFESTS FOR TRANSPORTING WASTES

7.1 GENERAL

The TDG, IMDG and IATA require that a completed hazardous waste manifest form accompany each shipment of hazardous waste. Manifests are available from the Environmental Protection Service, Government of Nunavut and are completed by competent and certified HBML Personnel or their designated shipper or the shipper's agent, prior to the off-site shipment of any hazardous wastes.

The completed manifest form provides:

- Detailed information on the types and amounts of hazardous waste being shipped;
- A record of the generator, carriers and receives involved in the shipment;
- Information on the storage, treatment or disposal of the waste and confirmation that they reached their intended final destination; and
- These manifests must be stored and retained for a period of two years.

Waste manifests must be completed according to the specific mode of transport required. TDG, IMDG and IATA all have specific packaging, labeling and manifesting requirements. Only employees competent and certified in the specific mode are to prepare the waste and complete the manifest. An employee who is not certified may still prepare the containers under direct supervision but may not complete or sign off on the manifests or waybills.

The information provided on the manifest as well as other TDG requirements (i.e. labeling) are intended to assist first responders (police, ambulance, fire fighters) with hazard information in the unlikely event that an accident occurs during transportation.

The Hope Bay Project site maintains a record of all hazardous waste manifests for materials that have been shipped from the site.

The Federal Government requires completion of the Interprovincial Movement of Hazardous Waste manifests for all hazardous waste shipments being transported out of the province or territory where it was generated.

A sample of the applicable IATA Shippers Declaration, IMDG Dangerous Good Declaration and Interprovincial Movement of Hazardous Waste Manifests documents are included as follows:

8. BOSTON AND WINDY CAMP WASTE SHIPMENTS

8.1 GENERAL

All hazardous wastes collected at the Boston or Windy facilities will be transported to and managed through the Doris North waste management facility. Volumes of waste from Boston and Windy camp areas will be tracked separately in all documentation.

Hazardous wastes transported by aircraft between Boston and Doris are required to meet regulations specified by IATA for shipping dangerous goods. All waste must meet the segregation, packaging, and labeling requirements in order to meet IATA regulations.

Waste may be removed from Boston during the winter road access window. These wastes will be properly segregated, packaged, and labeled prior to shipment. Records for waste that are source from Boston will be tracked separately.

10. REVIEW AND REVISION

Hazardous waste management procedures will be reviewed periodically. The hazardous waste management plan will be re-submitted to the appropriate regulatory agencies, if appropriate.

Each revision will be recorded in Table 1.

Table 1. Incinerator Management Plan Revision Record

Revision	Revision Date	Description of Revisions	Revised By
0	09-2009	Hope Bay Project Hazardous Waste Management Plan, September 2009	SRK Consulting
1.0	09-2011	General Revision	Krystal Malkin, KBL
1.1	03-2012	General Revision	Michelle Tanguay, HBML

11. REFERENCES

SRK. 2010. Doris North Land Farm Management and Monitoring Plan

HBML. 2012. Incinerator Management Plan