HOPE BAY PROJECT HAZARDOUS WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

MARCH 2020

Hope Bay Project Hazardous Waste Management Plan

Plain Language Overview:

This Plan describes the waste management practices used at the Hope Bay Project to manage hazardous wastes. This Plan ensures that 1) hazardous wastes are collected and separated from other non-hazardous waste streams, 2) hazardous wastes are stored, packaged and transported to a licenced disposal facility as per applicable regulations, and 3) records are kept of all waste stored and disposed of from the Hope Bay Project.

Hope Bay, Nunavut

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Revisions

Revision #	Date	Section	Changes Summary	Author	Approver
	Sep 2009	Original	Approved Plan under 2AM-DOH0713, 2BE-HOP0712, 2BB-BOS0712	SRK Consulting	HBML
	Sep 2011	Throughout	General Revision	KBL Environmental	HBML
	Mar 2012	Throughout	General Revision (Approved Plan under 2AM-DOH1323, 2BE-HOP1222, 2BB-BOS1217)	HBML	HBML
	Sep 2016	Throughout	Update to TMAC as current licensee for the Hope Bay region, conversion to TMAC modularized management plan format, changes to reflect Doris Operations phase and the amended Doris Project.	TMAC	TMAC
	Nov 2017		Update of roles and responsibilities section. Revision to methods of managing Wastewater Treatment Plant sludge. Updates to licence number references and conformity tables in all modules. Addition of Module D: Madrid North and Madrid South as per licence 2BB-MAE1727.	TMAC	TMAC
	March 2019	Table 4.1 and Throughout	Update to clarify that contaminated soils under this plan will not be disposed of in TIA and updated throughout to consider the recently issued Amended Type “A” Water Licence 2AM-DOH1335 (Amendment No. 2) for the Doris-Madrid Project and a new Type “A” Water Licence No. 2AM-BOS1835 for the Boston Project	TMAC	TMAC
	March 2020	Table 1.2 Table 1.3 Table 4.1	Updated Table 1.2 to reference Hope Bay Aircraft De-icing Management Plan. Updated Table 1.3 Roles and Responsibilities. Updated Table 4.1 to clarify management of glycol contaminated snow/water from Aircraft De-icing Facility	TMAC	TMAC

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Glossary

Term	Definition
3Rs	Reduce, Reuse, and Recycle.
CEPA	Canadian Environmental Protection Agency
Certificate of Disposal	Confirmation of final disposal or recycling of the hazardous waste in a manner outlined in the EIHWHRMR.
Dangerous Goods	As defined by the DGR.
DGR	Dangerous Good Regulations
EIHWHRMR	Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations
Hazardous Material/Waste	A dangerous good that is no longer used for its original purpose and is intended for recycling, treatment, disposal, or storage.
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
MSDS	Material Safety Data Sheet
PPE	Personal Protective Equipment
SDS	Safety Data Sheet
TDG	Transportation of Dangerous Goods
the Plan	Hope Bay Hazardous Waste Management Plan
TMAC	TMAC Resources Inc.
WHMIS	Workplace Hazardous Material Information System

1 Introduction

This Hope Bay Hazardous Waste Management Plan (the Plan) has been prepared by TMAC Resources Inc. (TMAC) in accordance with the water licences and project permits held by TMAC. This Plan is intended primarily for use by TMAC and its contractors to ensure that best practices with regard to the collection, handling, segregation, storage, transport and disposal of all hazardous wastes are followed in order to minimize risk to the site workforce, surrounding communities and environment, and ensure that the conditions of water licences, project permits and applicable legislation are met.

This Plan is structured in a manner such that one document pertaining to management and disposal of hazardous waste is approved and implemented across all TMAC Hope Bay project sites, while still addressing site- and licence-specific needs. The main document outlines TMAC's approach to hazardous waste management as it pertains to all TMAC Hope Bay developments. Appended modules provide details for each site and associated water licence. In the event of a new water licence, or existing licence amendment, only the specific modules pertaining to that licence and site will need to be revised. This is intended for consistency and efficiency across operations and for compliance management.

1.1 Objectives

The main objective of this Plan is to ensure hazardous waste is handled in a safe, efficient and environmentally-compliant manner. Consistent with TMAC's intent to be a responsible operator, these objectives are described as follows:

- Compliance with all applicable legislation and regulations pertaining to the management of hazardous waste;
- Compliance with Project Certificate and Water Licence requirements;
- Reduction of public health risk;
- Protection of the personnel handling and transporting hazardous waste;
- Protection of surface and ground water;
- Protection of land;
- Protection of local flora and fauna; and
- Conservation of resources.

The Hazardous Waste Management Plan has been developed to ensure that these factors are built into the TMAC operational approach at Hope Bay. It discusses the importance of waste management and reduction of specific waste streams to ensure these objectives are met.

1.2 Relevant Legislation and Guidance

Table 1.1 provides a summary of federal and territorial regulations governing this Plan and associated guidelines.

Table 1.1. Regulations and Guidelines Pertinent to the Hazardous Waste Management Plan

Regulation	Year	Governing Body	Relevance
Canadian Environmental Protection Act	1999	Canadian Environmental Protection Agency (CEPA)	• Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (EIHWHRMR) • Polychlorinated Biphenyls (PCB) Waste Export Regulations • Interprovincial Movement of Hazardous Waste Regulations
Transportation of Dangerous Goods Act and Regulations	1992	Transport Canada	Requirements around the transportation of dangerous goods (TDG).
International Air Transport Association Dangerous Good Regulations (DGR)		International Air Transport Association (IATA)	Safe transport of dangerous goods by air
International Maritime Dangerous Goods (IMDG) Code	2016 and as revised	International Maritime Organization	Safe transport of dangerous goods or hazardous materials by sea
Nunavut Waters and Nunavut Surface Rights Tribunal Act	2002 and as amended	Nunavut Water Board	Deposit of wastes in Nunavut waters
Canada Explosives Regulations	2013	Natural Resources Canada	Disposal of explosives-contaminated wastes
National Fire Code	2015	Canadian Commission on Building and Fire Codes	Requirements for safe storage of flammable and combustible materials.
Workplace Hazardous Material Information System (WHMIS) Regulations	2015	Health Canada	Hazardous Goods classification and labelling.
Guideline	**Year**	**Issued By**	**Relevance**
Environmental Guideline for the General Management of Hazardous Waste	2010	Government of Nunavut – Department of Environment	Describes general requirements for storage, transportation and disposal of hazardous wastes
Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities	2011	Government of Nunavut – Department of Environment	Document outlines discharge criteria for process effluent and residuals for disposal into a landfill
Environmental Guideline for Used Oil and Waste Fuel	2012	Government of Nunavut – Department of Environment	Describes proper handling, storage and disposal procedures for used oils and waste fuels
Environmental Guideline for Waste Antifreeze	2011	Government of Nunavut – Department of Environment	Describes proper handling, storage and disposal procedures for waste antifreeze
Environmental Guideline for Waste Batteries	2011	Government of Nunavut – Department of Environment	Describes proper handling, storage and disposal procedures for waste batteries

Regulation	Year	Governing Body	Relevance
Environmental Guideline for Waste Solvents	2011	Government of Nunavut – Department of Environment	Describes proper handling, storage and disposal procedures for waste solvents
Environmental Guideline for Biomedical and Pharmaceutical Waste	2014	Government of Nunavut – Department of Environment	Describes proper handling, storage and disposal procedures for biomedical and biohazardous wastes
Environmental Guideline for Mercury-Containing Products and Waste Mercury	2010	Government of Nunavut – Department of Environment	Describes proper handling, storage and disposal procedures for mercury-containing products, including fluorescent lamp tubes
Environmental Guideline for the Burning and Incineration of Solid Waste	2012	Government of Nunavut – Department of Environment	Describes proper handling, storage and disposal of bottom ash generated by process of incineration.
Guideline for the Management of Waste Lead and Lead Paint	2014	Government of Nunavut – Department of Environment	Describes proper containment, removal, storage, transportation and disposal of waste lead and lead paint.

1.3 Related TMAC Documents

The documents listed in Table 1.2 are expected to be referenced and utilized in conjunction with the Hazardous Waste Management Plan.

Table 1.2. TMAC Documents and Programs Related to the Hazardous Waste Management Plan

Document Title	Relevance
Hope Bay Project Incinerator Management Plan	Management of incinerator and bottom ash disposal
Domestic Wastewater Treatment Management Plan	Management of treated domestic wastewater effluent residual
Hope Bay Project Hydrocarbon Contaminated Waste Management Plan	Management of light hydrocarbon contaminated water, snow and soil
Hope Bay Project Non-Hazardous Waste Management Plan	Describes proper handling, storage and disposal procedures for non-hazardous wastes
Hope Bay Project Air Quality Management Plan	Management and monitoring of dust and air-borne emissions
Hope Bay Project Spill Contingency Plan	Spill response procedures to minimize spill effects
Hope Bay Aircraft De-icing Management Plan	Management of glycol contaminated snow/sump water from aircraft de-icing facilities

1.4 Plan Management and Execution

The Plan is reviewed annually and updated as necessary. Personnel responsible for implementing and updating the Plan are identified in Table 1.3.

Table 1.3. Roles and Responsibilities

Role	Responsibility
Mine General Manager	• Review, update and approve this management plan • Provide the necessary resources to implement this plan
Environmental Superintendent	• Review, update and approve this management plan • Conduct routine facility and record keeping audits • Ensure waste management facility has required supplies and resources • Identify corrective actions as necessary and follow-up to verify actions have been completed
Departmental Superintendents and Supervisors	• Ensure waste segregation and labelling is conducted by departmental employees and contractors as outlined in this management plan
Waste Management Personnel	• Implement this management plan • Participate in review and update of this plan as required • Ensure all required shipping documents are completed • Maintain record of all completed shipments and required documentation • Ensure disposal records are received and filed • Ensure waste generation and volumes are tracked • Ensure waste is packaged as per the TDG, IATA, and IMDG regulations • Assist all TMAC employees and contractors with obtaining appropriate storage containers and packaging for wastes encountered in each work area • Implement corrective actions as necessary
Warehouse Superintendent	• Ensure all required shipping documents are completed

2 Waste Management Principles

TMAC has adopted the three R's of waste management: Reduce, Reuse and Recycle. The objective of these activities is to divert as much material as possible from becoming waste (hazardous or otherwise) and therefore reduce the total volume of wastes requiring handling, storage, transportation and disposal.

Reduce:

- Purchase only the required amounts of materials and buying in bulk when the opportunity is available.
- Employ inventory control methods in an attempt to ensure that quantities of materials are completely utilized.
- Establish maintenance schedules that are consistent with the equipment manufacturers' suggested replacement.
- Maintain and protect materials to prevent damage and breakage.
- Substitute less hazardous chemicals where practical.
- Select products that provide the maximum "life-of-material".
- Utilize oil/water separators onsite to reduce the amount of contaminated water requiring shipment off site.
- Test to ensure items are "spent" (i.e., batteries) prior to removing from service.

Reuse:

- If appropriate, collect and return materials to the system (i.e., equipment, operations, etc.) following maintenance and repair.
- Make use of waste oil burners for facility heating.
- If appropriate, filter and/or use additives to replenish lost properties of material in order to extend its useful life.
- Reuse storage containers where appropriate (e.g., cleaned fuel drums used for the collection of other wastes; oil and lube totes used for waste oil collection).

Recycle:

- Commercial companies will be used to the extent practical to recycle appropriate materials on a fee-for-service basis.
- Explore waste management options that allow for the recycling of a material or product instead of disposal.

3 Waste Management at Hope Bay

3.1 Waste Management Facility

All wastes are segregated at the source to ensure hazardous waste streams are handled separately from non-hazardous waste streams. Hazardous wastes generated from activities at the Hope Bay Project are collected and transported to centralized waste management facilities to be properly packaged and temporarily stored until the waste is prepared for shipment to a designated waste transfer station. When transporting waste on site to the waste management facility, personnel will ensure containers are not leaking and are secured to minimize the potential for spills.

The waste management facilities accommodate the following activities:

- Centralized areas to receive all waste generated onsite and a sorting yard for waste drop off.
- Waste management facilities are equipped with all the appropriate personal protective equipment (PPE) and will be worn by all personnel handling the hazardous waste streams generated onsite.
- The waste management facilities are equipped with emergency response equipment (i.e., spill kit, appropriate type of fire extinguisher, etc.).
- Sorting and consolidation of various compatible waste streams to reduce waste volume and disposal costs.
- Classification, re-packaging and labelling as per WHMIS, TDG, IATA and IMDG regulations as applicable.
- Seacan containers and lined containment designated for temporary waste storage, and which can provide secondary containment to prevent spills or leaks from entering the environment.
- Weigh scale for transportation and waste volume tracking.
- Waste tracking, inventory and backhaul information management.
- Waste management facilities have specialized equipment available for handling specific waste streams, including fluorescent bulb crusher, aerosol can puncture system and oil filter crusher.

3.2 Storage and Handling

Despite the adoption and implementation of the 3R's of waste management, TMAC will produce hazardous wastes that require appropriate management, storage, transportation and disposal. The transport of hazardous waste requires that TMAC be registered as a Hazardous Waste Generator with the Government of Nunavut, Department of Environment.

Although TMAC 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 TMAC will be registered as a Hazardous Waste Storage Facility with the Government of Nunavut, Department of Environment.

The waste management facility and the hazardous wastes within the facility are stored according to the following:

- Hazardous waste is stored in its original containers where possible or in appropriately sized containers made of compatible materials (such as steel or plastic containers, UN mega bags, plastic totes, etc.) for each specific waste (as identified in the Material Safety Data Sheet [MSDS]/ Safety Data Sheet [SDS]).
- Small quantities of compatible hazardous waste are consolidated into larger containers (such as drums, totes).
- 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 safety for site personnel, protection of the environment and prevents damage from weathering and from physical damage.
- All waste containers and packages are properly labeled according to the appropriate Workplace Hazardous Material Information System (WHMIS), MSDS/SDS and/or relevant transport regulations (TDG, IATA, IMDG).
- Incompatible chemical wastes are not packaged or stored together based on the WHMIS and/or the MSDS/SDS for each chemical.
- The container is the primary containment for the majority of all liquid or solid hazardous wastes generated on site. Containers will be placed in secondary containment (e.g., a lined facility or larger container) as necessary.
- If the container is also the package for shipment, it will 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 be cleaned, or will not be used in the storage or transport of hazardous wastes.
- Personnel ensure that:
  - Container and package lids are secured tightly at all times and boxes are taped shut.
  - Leaking or deteriorated containers are removed as soon as practical and the contents transferred to a sound container or the container repackaged inside another container if transfer of waste is not possible.
  - Approved containers and packages are used that are structurally capable of withstanding the aggregate weight of all contents within the package.
  - All containers are packaged as per relevant regulations to minimize risk or release during transport.
- A record is maintained of the type and amount of waste in storage.

3.3 Off-Site Shipment

Hope Bay is a remote location and therefore TMAC faces logistical challenges when shipping waste off site for disposal. Waste may be shipped offsite to a registered waste disposal facility utilizing aircraft backhauls throughout the year or backhauled on a sealift barge during the summer months. All hazardous wastes awaiting backhaul are stored onsite in a manner that prevents release to the environment.

All hazardous waste is transported off site for recycling or disposal at licenced facilities, and must be packaged, labelled and transported according to the specific requirements of the following (dependent on mode of transportation):

- Nunavut Environmental Guideline for General Management of Hazardous Waste;
- Transportation of Dangerous Goods Regulations;
- International Air Transportation Association;
- International Maritime Dangerous Goods Regulations; and
- Interprovincial Movement of Hazardous Wastes Regulations.

In addition, specific requirements of the receiving jurisdiction must also be followed.

Personnel who prepare or offer for transport, hazardous waste for disposal must be certified in TDG. Only personnel trained, certified and competent in the 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 or Edmonton and delivered to a licenced Hazardous Waste Receiver or Transfer Facility. Once received, the waste is consolidated and shipped to various end receivers (facilities) for recycling, treatment or disposal depending on the specific waste stream. The Hazardous Waste Receiver provides a “Certificate of Disposal” to TMAC to certify that all waste was handled according to territorial and federal laws.

The Government of Nunavut Department of Sustainable Development, Environmental Protection Service 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 forms.

3.4 Training

Personnel working in the waste management facility are provided hands on training under direct supervision of qualified staff in the proper handling, packaging, labelling and storage of hazardous wastes generated onsite. This ensures that all personnel are aware of the regulations, safety

requirements, Standard Operating Procedures (SOPs) and personal protective equipment required when handling hazardous waste, packaging wastes and preparing wastes for shipment.

Waste management personnel also receive certified training in the following, as applicable:

- Workplace Hazardous Material Information System (WHMIS);
- Transportation of Dangerous Goods (TDG);
- International Maritime Dangerous Goods (IMDG); and
- International Air Transport Association (IATA).

All personnel working at the TMAC Hope Bay site are provided WHMIS training and information regarding proper waste segregation practices during initial site orientation. Containers are set up throughout camp buildings to collect hazardous materials, such as batteries and aerosol cans. Personnel who conduct tasks that produce hazardous wastes also receive specific training in proper disposal methods required for that waste. Waste management personnel provide guidance and packaging materials to other employees and contractors to ensure that proper sorting and labeling of waste occurs prior to receipt at the waste management facility.

4 Hazardous Waste Streams

The *Transportation of Dangerous Goods Act* governs the classification of hazardous materials. Copies of MSDS/SDS sheets are available onsite in areas where these materials are stored.

Hazardous waste streams that are anticipated to be encountered during the Hope Bay Project are identified in Table 4.1 below. Details regarding handling, storage and disposal methods are also discussed in this table. TDG, IATA, and IMDG packaging, labelling and shipping requirements will be applied to all hazardous waste containers. Product MSDS/SDS sheets will be used to determine these classifications.

Empty product containers or contaminated materials considered hazardous waste will be subject to the same storage and transport requirements as hazardous wastes.

Table 4.1. Hazardous Waste Stream, Handling, Storage and Disposal Methods

Hazardous Waste Category	Waste Material	Handling Methods	Storage Area	Disposal Methods
Petroleum, Oils, Lubricants	Waste Fuels (Gasoline, Diesel, Jet A, Jet B)	• Consolidated into steel containers • Re-used as a fuel source where possible	Steel containers stored within lined containment at Waste Management facility	• Re-use as fuel source where possible • Transported off site to a licensed recycling/disposal facility
	Waste oils, filters, rags, absorbent pads	• Placed in clearly labeled containers • Consolidated into steel or plastic containers, totes or UN mega bags by Waste Management personnel • Drained filters are crushed and placed in steel or plastic containers	Stored within sea cans or lined containment at Waste Management facility	• Waste oil is used in waste oil burner furnaces onsite • Transported off site to a licensed recycling/disposal facility • Residual material from waste oil burner transported off site to a licensed recycling/disposal facility
	Glycol (Antifreeze)	• Consolidated into steel or plastic containers or totes	Stored within lined containment at the Waste Management facility	• Transported off site to a licensed recycling/disposal facility • Empty containers may be reused, disposed of in the site landfill (if emptied fully) or transported off site to a licensed recycling/disposal facility

Hazardous Waste Category	Waste Material	Handling Methods	Storage Area	Disposal Methods
	Glycol contaminated snow/sump water from De-Icing Facilities	• Snow removed from surface of de-icing facility with heavy equipment • Water removed from sump with vacuum truck	Transported to TIA	• Disposal into TIA • Discharged at least 300m away from any dams and as far from shoreline as practical • Maximum disposal volume in TIA of 30m^3 per 6 months • Record product details, disposal volume, location of discharge and date
	Solvents (alcohol or petroleum based)	Consolidated into steel or plastic containers or totes	Stored within lined containment at the Waste Management facility	• Transported off site to a licensed recycling/disposal facility • Empty containers also transported off site to a licensed recycling/disposal facility
	Contaminated Soil /gravel /snow/water	Materials which are not remediated as per the Hydrocarbon Contaminated Material Management Plan, will be placed into impermeable containers (e.g., steel or plastic container or UN approved mega bag with impermeable liner)	Containers may be stored temporarily within sea cans or in lined containment at Waste Management facility	Materials which do not meet Landfarm discharge criteria will be transported off site to a licensed disposal facility or stored onsite to be backfilled underground in the permafrost zone (for soils and gravel/rock only).
Explosives	Pre-Packaged Explosives Containers (Ammonium Nitrate containing products)	Plastic bag (inner container) placed in UN approved mega bag	Plastic bags stored within locked sea cans located at the Waste Management facility	Plastic bags transported off site to a licensed disposal facility or if approved by the Inspector of Mines, backfilled underground with other ammonium nitrate contaminated waste
		Cardboard box (outer container) burnt in burn pan	Cardboard stored in burn pan and burnt as soon as practicable	Disposal of bottom ash from burn pan described below

Hazardous Waste Category	Waste Material	Handling Methods	Storage Area	Disposal Methods
Chemical Wastes and Chemical Packaging	Consumable Chemicals and Packaging (e.g., Process Plant chemicals, Wastewater Treatment Plant chemicals)	• Compatible waste chemicals consolidated into steel or plastic containers, totes or UN mega bags • Plastic packaging will be consolidated with compatible waste packaging and stored in steel or plastic containers or UN mega bags • Wood, cardboard or paper packaging with no residual chemical burnt in burn pan	• Waste chemicals and plastic packaging stored within sea cans or lined containment at Waste Management facility • Wood, cardboard and paper packaging stored at burn pan and burnt as soon as practicable	• Waste chemicals and plastic packaging transported off site to a licensed recycling/disposal facility • Disposal of bottom ash from burn pan described below
	Lead and waste with residual lead (e.g., Assay lab crucibles)	Placed into steel or plastic containers	Stored in seacan containers at Waste Management Facility	Transported off site to a licensed disposal facility
Other Hazardous Materials	Compressed Gas Cylinders	Hazardous empty gas cylinders are secured upright in wooden crates	Stored in seacan containers	Transported off site to a licensed disposal facility
	Batteries	Stored in labeled disposal bins/boxes at the source; then transferred to UN rated containers	Stored in UN rated containers located in secondary containment at Waste Management Facility	Transported off site to a licensed recycling/disposal facility
	Fluorescent tubes	Tubes crushed in site fluorescent tube crusher and placed in steel or plastic containers	Stored in seacan containers at Waste Management Facility	Transported off site to a licensed recycling/disposal facility
	Other mercury containing devices (e.g., thermometers, thermostats, switches/relays)	Placed in sealed metal or plastic containers with suitable absorbent packing material	Stored in seacan containers at Waste Management Facility	Transported off site to a licensed recycling/disposal facility
	Penetrable/ Sharps Biomedical Waste (e.g., needles, syringes, scalpels, razor blades)	Dedicated puncture proof sharps containers with non-removable lids once closed, marked 'Sharps' located in each camp washroom and in Medic's exam room. Containers collected by Waste Management personnel and consolidated into steel or plastic containers	Stored at Waste Management Facility	Transported off site to approved facility for incineration

Hazardous Waste Category	Waste Material	Handling Methods	Storage Area	Disposal Methods
	Wastewater Treatment Plant Sludge	Sludge from Wastewater Treatment Plant removed with vacuum truck and transported to the TIA	Sludge from Wastewater Treatment Plant is not stored onsite	Sludge is pumped from the vacuum truck directly below a spigot discharging tailings. Sludge is buried beneath the tailings solids in the TIA
	Aerosol cans	• Segregated at source into labelled pails and then consolidated at Waste Management facility • Aerosol cans are punctured, contents drained into containers and then crushed. Crushed cans are stored in separate containers or poly-lined mega bags for shipment • Liquid contents collected from crushed cans is consolidated in steel containers • Bear spray, mono and expanding foam products and spray glue cannot be punctured. These cans are segregated from other aerosols for shipment offsite	Stored in seacan containers at Waste Management facility	• Once punctured, aerosol cans may be considered as non-hazardous waste and disposed of in the landfill (dependent on original contents of the can) • Aerosol cans that cannot be disposed of in the landfill will be transported off site to a licensed disposal facility • Residual liquid from puncturing the can is transported off site to a licensed recycling/disposal facility
	Incinerator and Burn Pan Bottom Ash	Placed in steel containers	Stored within sea cans or lined containment at Waste Management Facility	• Bottom ash that meets appropriate criteria will be disposed of in landfill • Bottom ash that does not meet appropriate criteria will be transported off site to a licensed disposal facility
	Electronic waste, Printer cartridges, Toner	• Transported to Waste Management facility and consolidated with other electronic wastes • Printer cartridges and toner stored in steel or plastic containers or UN mega bags • Other electronic waste is stored in wooden crates	Stored in seacan containers at Waste Management Facility	Transported off site to a licensed recycling/disposal facility

5 Record Keeping and Reporting

TMAC maintains an accurate record of all hazardous waste materials generated on site and all materials transported off site. At minimum, these records include:

- MSDS/SDS sheets for all chemicals handled by personnel to ensure safe handling procedures are followed.
- An inventory of the materials received by, and stored at, the Waste Management facility including:
  - Type and quantity of waste;
  - Type of container used to store the waste; and
  - Location of stored material within the facility.
- An inventory of materials that have been removed from the facility for disposal including:
  - Date of removal; and
  - Type and quantity of waste removed.
- Shipping manifests as required as per the Interprovincial Movement of Hazardous Waste, TDG, IATA and IMDG regulations.
- "Certificates of Disposal" from the receiver confirming final disposal or recycling of the waste.
- Records of facility inspections and corrective actions implemented.

Information is reported as required under the various regulations, and a summary of waste disposed of is prepared annually. Records are maintained on file at the Waste Management facility for 5 years and are made available to an Inspector upon request.

5.1 Inspections and Audits

Inspections of the facility and yard are performed routinely 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.

Waste audits are conducted periodically to ensure proper sorting and labelling is conducted by all personnel on site. Waste tracking records are also reviewed to ensure accuracy and complete documentation is maintained.

5.2 Monitoring

Waste Oil and Waste Fuel Sampling

A representative composite sample of waste oil and waste fuel used in waste oil burners on site will be collected annually and submitted for analysis at an accredited laboratory. Samples are compared to the criteria outlined in the Toxicity Characteristic Leaching Procedure (TCLP; USEPA 1992).

Bottom Ash Characterisation

Bottom ash samples from the incinerator and burn pan ash are collected monthly and submitted to an accredited laboratory for analysis. Sample results are compared to the Federal and Provincial Waste Regulations Class II Landfill Disposal criteria and the NWT Schedules III and Schedule IV Standards for Solid Waste for Landfill criteria.

6 References

GN-DOE. 2010a. *Environmental Guideline for Mercury-Containing Products and Waste Mercury.* Available from GN-DOE website at https://www.gov.nu.ca/environment/information/documents/195%2C184.

GN-DOE. 2010b. *Environmental Guideline for the General Management of Hazardous Waste.* Available from GN-DOE website at https://www.gov.nu.ca/environment/information/documents/195%2C184.

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GNWT-ENR. 2003. *Used Oil and Waste Fuel Management Requirements Plain Language Guide.* Available from GNWT-ENR website at http://www.enr.gov.nt.ca/programs/hazardous-waste/managing-used-oil-and-waste-fuel.

HOPE BAY PROJECT HAZARDOUS WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module A: Doris

Conformity Table

Licence	Part	Item	Topic	Report Section
2AM-DOH1335	D	3	The Licensee shall implement preventive and mitigation measures to prevent any chemicals, fuel or Wastes associated with the undertaking from entering an.	3.1 and 3.2
	F	1	The Licensee shall implement the following waste management plans as approved by the Board: Hope Bay Project Hazardous Waste Management Plan, Hope Bay Project.	This Plan
	F	10	The Licensee shall backhaul and dispose of all hazardous Wastes, and non-combustible Waste generated through the course of the operation at a licensed Waste disposal site in accordance with the Hazardous Waste Management Plan.	Table 4.1
	F	11	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.	5
	F	23	The Licensee shall prevent any chemicals, petroleum products, fuel or wastes associated with the Undertaking from entering any waterbody.	3.1 and 3.2
	H	3	The Licensee shall prevent any chemicals, petroleum products or unauthorized Wastes associated with the Project from entering Water.	3.1 and 3.2
	H	4	The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.	3.1

A1 Introduction

The Type A Water Licence No. 2AM-DOH1335 issued to TMAC by the Nunavut Water Board (NWB) requires the implementation of a Hazardous Waste Management Plan in accordance with Part F. The Hazardous Waste Management Plan has been prepared and is being submitted by TMAC to address this requirement, and also includes the plan for managing hazardous waste produced across the Hope Bay belt.

The 2AM-DOH1335 Licence area includes the Doris North Camp and the necessary infrastructure to support surface exploration, underground mining and development activities, and ore processing.

A2 Waste Management Facility

Hazardous waste generated during Doris North project activities are collected, managed and disposed of as described in the main document of this Plan. Hazardous waste is consolidated, sorted and stored at the Roberts Bay Waste Management Facility prior to disposal.

A3 Site Hazardous Wastes

Hazardous waste produced in support of the Doris North project are managed as described in the main document of this plan.

HOPE BAY PROJECT HAZARDOUS WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module B: Windy

Conformity Table

Licence	Part	Item	Topic	Report Section
2BE-HOP1222	D	6	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.	This Plan
	D	7	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.	5.1

B1 Introduction

The Type B Water Licence No. 2BE-HOP1222 issued to TMAC by the Nunavut Water Board (NWB) requires that all hazardous waste, waste oil and non-combustible waste generated through the course of operation be backhauled and disposed of at an approved waste disposal site. The Hazardous Waste Management Plan has been prepared and is being submitted by TMAC to address this requirement, and also includes the plan for managing hazardous waste produced across the Hope Bay belt.

The 2BE-HOP1222 Licence area includes Old Windy Camp and exploration activities within the Regional Exploration area.

Old Windy Camp was closed for operations in 2008 and is undergoing closure and reclamation. A New Windy Camp is permitted under the current water licence, but has not yet been constructed.

B2 Waste Management Facility

There is no waste management facility located at Windy Camp at this time.

B3 Site Hazardous Wastes

Waste produced in support of the Regional Exploration surface drilling program or generated during water management and licence compliance activities executed under this licence is managed as part of the Doris-Madrid waste stream. Any hazardous wastes identified in structural materials during closure and reclamation of Windy facilities (e.g., smoke detector batteries, fluorescent bulbs, etc.) or generated during decommissioning of this area will be transported to the Doris Camp and managed as outlined in in the main document of this Plan at the Roberts Bay Waste Management Facility.

HOPE BAY PROJECT HAZARDOUS WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module C: Madrid (Exploration and Operation)

Conformity Table

Licence	Part	Item	Topic	Report Section
2BB-MAE1727 (Exploration)	E	19	The Licensee shall ensure that all hazardous wastes generated through the course of the operation are backhauled and disposed of at an approved waste disposal site or as otherwise approved by the Board.	This Plan
	D	20	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.	5.1
2AM-DOH1335 (Operations)	D	3	The Licensee shall implement preventive and mitigation measures to prevent any chemicals, fuel or Wastes associated with the undertaking from entering an.	3.1 and 3.2
	F	1	The Licensee shall implement the following waste management plans as approved by the Board: …Hope Bay Project Hazardous Waste Management Plan, Hope Bay Project.	This Plan
	F	10	The Licensee shall backhaul and dispose of all hazardous Wastes, and non-combustible Waste generated through the course of the operation at a licensed Waste disposal site in accordance with the Hazardous Waste Management Plan.	Table 4.1
	F	11	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.	5
	F	23	The Licensee shall prevent any chemicals, petroleum products, fuel or wastes associated with the Undertaking from entering any waterbody.	3.1 and 3.2
	H	3	The Licensee shall prevent any chemicals, petroleum products or unauthorized Wastes associated with the Project from entering Water.	3.1 and 3.2
	H	4	The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.	3.1

C1 Introduction

The Type B Water Licence No. 2BB-MAE1727 issued to TMAC by the Nunavut Water Board (NWB) requires that all hazardous waste generated through the course of operations be backhauled and disposed of at an approved waste disposal site during exploration. The 2BB-MAE1727 Licence area includes the Madrid North and Madrid South sites.

The Type A Water Licence No. 2AM-DOH1335 issued to TMAC by the NWB requires the implementation of a Hazardous Waste Management Plan in accordance with Part F. The Hazardous Waste Management Plan has been prepared and is being submitted by TMAC to address this requirement, and also includes the plan for managing hazardous waste produced across the Hope Bay belt.

The 2AM-DOH1335 Licence area includes the Doris North, Madrid North and Madrid South, and the necessary infrastructure to support surface exploration, surface and underground mining and development activities, and ore processing.

C2 Waste Management Facility

There is no waste management facility located at Madrid North or Madrid South at this time. Hazardous waste generated during project activities are collected, managed and disposed of as described in the main document of this Plan. Hazardous waste is consolidated, sorted and stored at the Roberts Bay Waste Management Facility prior to disposal.

C3 Site Hazardous Wastes

Hazardous waste generated in support of exploration and operation activities, generated during water management and licence compliance activities, or produced during construction of planned infrastructure under this licence is managed as part of the Doris North waste stream, and will be transported to the Doris Camp and managed as outlined in in the main document of this Plan at the Roberts Bay Waste Management Facility.

HOPE BAY PROJECT HAZARDOUS WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module D: Boston (Exploration and Operation)

Conformity Table

Licence	Part	Item	Topic	Report Section
2BB-BOS1727	D	4	The Licensee shall backhaul and dispose of all hazardous wastes generated through the course of the operation at an approved waste disposal site or as otherwise approved by the Board in writing.	This Plan
	D	5	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.	5.1
2AM-BOS1835	D	3	The Licensee shall implement preventive and mitigation measures to prevent any chemicals, fuel or Wastes associated with the undertaking from entering an.	3.1 and 3.2
	F	1	The Licensee shall implement the following waste management plans as approved by the Board: …Hope Bay Project Hazardous Waste Management Plan, Hope Bay Project.	This Plan
	F	11	The Licensee shall backhaul and dispose of all hazardous Wastes, and non-combustible Waste generated through the course of the operation at a licensed Waste disposal site in accordance with the Hazardous Waste Management Plan.	Table 4.1
	F	12	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.	5
	F	21	The Licensee shall prevent any chemicals, petroleum products, fuel or wastes associated with the Undertaking from entering any waterbody.	3.1 and 3.2
	H	3	The Licensee shall prevent any chemicals, petroleum products or unauthorized Wastes associated with the Project from entering Water.	3.1 and 3.2
	H	4	The Licensee shall provide secondary containment for fuel and chemical storage as required by applicable standards and acceptable industry practice.	3.1

D1 Introduction

The Type B Water Licence No. 2BB-BOS1727 issued to TMAC by the Nunavut Water Board (NWB) requires that all hazardous waste generated through the course of operations be backhauled and disposed of at an approved waste disposal site. The Hazardous Waste Management Plan has been prepared and is being submitted by TMAC to address this requirement, and also includes the plan for managing hazardous waste produced across the Hope Bay belt.

The 2BB-BOS1727 Licence area includes Boston Camp which currently supports surface exploration activities.

The Type A Water Licence No. 2AM-BOS1835 issued to TMAC by the NWB requires the implementation of a Hazardous Waste Management Plan in accordance with Part F. The Hazardous Waste Management Plan has been prepared and is being submitted by TMAC to address this requirement, and also includes the plan for managing hazardous waste produced across the Hope Bay belt.

D2 Waste Management Facility

There is no waste management facility located at Boston Camp at this time.

D3 Site Hazardous Wastes

Hazardous waste generated in support of exploration activities, generated during water management and licence compliance activities, or produced during construction of planned infrastructure under this licence is managed as part of the Doris North waste stream, and will be transported to the Doris Camp and managed as outlined in in the main document of this Plan at the Roberts Bay Waste Management Facility.