AGNICO EAGLE

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

FEBRUARY 2023

Hope Bay Project Incinerator and Composter Waste Management Plan

Plain Language Overview:

This Plan describes the waste management processes at Hope Bay relevant to on site incineration. This Plan ensures that 1) only appropriate burnable material enters the incinerator waste stream, 2) animal attractants are promptly incinerated, 3) the incinerator is operated in a manner that reduces harmful emissions, 4) residual ash is handled and disposed of properly, and 5) that all compliance monitoring and reporting associated with incinerator operations occurs.

Hope Bay, Nunavut

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Revisions

Revision #	Date	Section	Changes Summary	Author	Approver
0	May 2009		Initial issuance of Incinerator Management Plan		HBML
1	Feb 2012		Update and revise Incinerator Management Plan	KBL Environmental	HBML
1.1	Mar 2012		General document revision	HBML	HBML
2	Sep 2015		Updated to TMAC ownership and format, added glossary, added plan implementation information, update 2AM- Licence number references and requirements, add related documents and relevant legislation tables, updated information on incinerators in use, updated ash management section, included reference to NPRI reporting, added contingencies section	TMAC	TMAC
3	December 2017		General document revision	TMAC	TMAC
4	March 2017		Update with new incinerator specifications and O&M manual. In addition, 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
5	March 2019		2019 update	TMAC	TMAC
6	February 2023	Throughout	Updated to Agnico Eagle ownership and format, inclusion of composter waste management	Agnico Eagle - Permitting	Agnico Eagle

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Glossary

Term	Definition
3Rs	Reduce, Reuse, and Recycle
Agnico Eagle	Agnico Eagle Mines Limited
CCME	Canadian Council of Ministers of the Environment
CWS	Canada-wide Standards
NIRB	Nunavut Impact Review Board
NPRI	National Pollutant Release Inventory
NWB	Nunavut Water Board
PCDD	Poly-chlorinated dibenzo-dioxin
PCDF	Poly-chlorinated dibenzo-furan
PVC	Poly-vinyl chloride

1 Introduction

This Hope Bay Incinerator and Composter Waste Management Plan (the Plan) has been prepared by Agnico Eagle Mines Limited (Agnico Eagle) in accordance with the water licenses held by Agnico Eagle. The Plan is intended primarily for use by Agnico Eagle and its contractors to ensure that best practices for domestic waste management are followed, and that the conditions of water licenses and project permits are met.

This Plan is structured in a manner such that one document pertaining to domestic waste incineration and composting is approved and implemented across all Hope Bay project sites, while still addressing site- and licence-specific needs. The main document outlines Agnico Eagle's approach to domestic waste stream segregation, incinerator and composter management. Appended modules provide details for each site and the associated water licence. In the event of a new water licence, or an 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 domestic waste incinerators and composters are operated in a safe, efficient and environmentally-compliant manner. Consistent with Agnico Eagle's intent to be a responsible operator, these objectives are described as follows:

- Compliance with the Environmental Guidelines for the Burning and Incineration of Solid Waste (Government of Nunavut Environmental Protection Division);
- Compliance with the Environment Canada Technical Document for Batch Waste Incineration;
- Compliance with the Canadian Council of Ministers of the Environment Canada-Wide Standards for Mercury Emissions and Dioxins and Furans;
- Compliance with Project Certificate and Water Licence requirements;
- Prevention of public health risk;
- Protection of the operator;
- Protection of air by reducing air emissions;
- Reducing greenhouse gas emissions;
- Protection of surface and ground water;
- Protection of land;
- Protection of local flora and fauna species; and
- Conservation of resources.

This Plan has been developed to ensure that these factors are built into the operational approach at Hope Bay. It discusses the importance of waste management and reduction of specific waste streams to ensure Canada Wide Standards (CWS) for dioxins, furans and mercury are achieved.

1.2 Relevant Legislation and Guidance

1.2.1 Incinerator

Table 1.1 provides a summary of federal and territorial regulations and associated guidelines appliable to incineration.

Table 1.1. List of federal and territorial regulations applicable to incineration

Regulation/Guideline	Year	Governing Body	Relevance
Canada Wide Standards for Dioxins and Furans	2001	Environment Canada	Contains stack testing requirements triggered by waste volumes incinerated, and numeric targets for dioxins and furans.
Canada Wide Standards for Mercury Emissions	2000	Environment Canada	Contains numeric targets for mercury.
Technical Document for Batch Waste Incineration	2010	Environment Canada	Contains recommendations for batch waste incineration to achieve emissions compliance.
Environmental Guideline for the Burning and Incineration of Solid Waste	2012	Government of Nunavut – Department of Environment	Identifies pollutants of concern, outlines best management practices for burning of wastes, types of wastes that can be burned, and ash management.
Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities	2011	Government of Nunavut – Department of Environment	Provides the criteria that determine if process residuals (including incinerator ash) may be disposed in a municipal landfill, or is classified as a hazardous waste.

Canada-wide Standards (CWSs) are intergovernmental agreements developed under the *Canadian Council of Ministers of the Environment* (CCME). CWSs can include qualitative or quantitative standards, guidelines, objectives and criteria for protecting the environment and reducing risks to human health. Canada has identified dioxins, furans and mercury as emission products that need to be managed as they pose a potentially significant health and environmental threat. Hope Bay's Project Certificate and NWB water license for the Doris North Project states that these emissions must be in compliance with the CWSs for dioxins, furans and mercury.

The Technical Document for Batch Waste Incineration was issued by Environment Canada in January 2010 and is intended to act as a guideline for owners and operators of various incinerators. The technical document focuses on batch waste incinerators ranging in size from 50 to 3,000 kg of waste per

batch. Batch waste incinerators are those that operate in a non-continuous manner (i.e., they are charged with waste prior to the initiation of the burn cycle, and the door remains closed until the ash has cooled inside the primary chamber). Batch waste incineration is the type of incineration process utilized at Hope Bay for domestic wastes.

The document recommends and describes a six-step process for batch waste incineration:

- Step 1 – Understand Your Waste Stream;
- Step 2 – Select the Appropriate Incinerator (or Evaluate the Existing System);
- Step 3 – Properly Equip and Install the Incinerator;
- Step 4 – Operate the Incinerator for Optimum Combustion;
- Step 5 – Safely Handle and Dispose of Incinerator Residues; and
- Step 6 – Maintain Records and Report.

The batch waste incineration document addresses proper system selection, operation, maintenance and record keeping, with the goals of achieving the Canada-Wide Standards for dioxins/furans and mercury, and reducing releases of other toxic substances.

The Environmental Guideline for the Burning and Incineration of Solid Waste produced by the Government of Nunavut provides guidance for incineration and ash disposition best management practices to reduce risk to the environment.

The Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities governs deposition of process residuals into municipal landfills in Nunavut, but it is expected that the Landfill Management Plan (when developed), will contain similar criteria to determine acceptable wastes for landfilling at Hope Bay, or for determining alternate disposition of incinerator bottom ash classified as a hazardous waste if sampling determines it contains pollutants of concern.

1.2.2 Composter

In Nunavut, there is currently no organics waste strategy. However, guidelines developed for Nunavut focus on diverting materials from disposal and proper safe management. According to the Government of Nunavut, in an effort for planning for effective solid waste management, there are plans to focus its resources on a number of targeted initiatives. The plans include the development of a Nunavut-wide Solid Waste Management Strategy, whose purpose is to evaluate all aspects of waste management with a focus on available land, fencing, environmental concerns, recycling, re-use, segregation, sequestration, composting and various other options. The Nunavut *Environmental Protection Act* (Nunavut, 2010) prescribes the requirements for activities relating to the environment.

A guideline from Environment and Climate Change Canada, dated 2017 and entitled, “Solid Waste Management for Northern and Remote Communities, Planning and Technical Guidance Document,” provides guidance on the complex waste management issues faced by northern and remote communities and provides planning and technical guidance and best practices relevant to the northern

communities. Composting is included in the solid waste management diversion strategies in this guideline and states that diverting organic waste from landfills through composting reduces greenhouse gas emissions (GHG). According to the guidance document, compost output is considered residual waste if it is sent to landfill for disposal, and composting represents an opportunity for northern and remote communities to reduce leachate quantity and improve leachate quality, reduce GHG emissions, preserve landfill capacity and produce a compost product that can be used for other purposes.

The final compost product from the composting process at Hope Bay is proposed to be used as overburden for remediation, to promote vegetation growth in areas impacted by operations as part of progressive reclamation, or prepared for offsite disposal. Agnico Eagle may explore other potential uses of the compost product in the future. In Nunavut, there are no regulations or guidelines specific to the quality or uses of compost product, however, guidelines for compost quality and categorization exist at the federal level. Accordingly, Agnico Eagle will adhere to the CCME Guidelines for Compost Quality (2005) for compost usage across the site.

1.2.2.1 Guidelines for Compost Quality

The CCME Guidelines for Compost Quality is intended to act as a guideline to ensure a consistent, high quality compost product that is safe for all users. The guidelines apply to compost produced from any organic feedstock and apply to the quality of compost rather than the composting process. Should a reclamation project demonstrate a useful application for compost, these guidelines will be applied to the compost used. The compost guidelines are based on four criteria, including trace elements, foreign matter, maturity, and pathogens.

1.2.2.2 Categorization of Compost

Based on the CCME Guidelines for Compost Quality, two compost categories exist for trace element concentrations and foreign matter. Categories A (unrestricted use) and B (restricted use) are based on the end use of the compost material.

- **Category A** – Compost which can be used in any application, such as agricultural lands, residential gardens, horticultural operations, the nursery industry, and other businesses.
- **Category B** – Compost that has a restricted use because of the presence of sharp foreign matter or higher trace element content. Category B compost may require additional control when deemed necessary by a province or territory.

Please note that for a compost to meet the unrestricted use category, it must meet the unrestricted (Category A) requirements for all trace elements and sharp foreign matter. If the compost fails one criterion of the guideline for unrestricted use but meets the criteria for restricted (Category B) use, then it is classified as a Category B product. Products that do not meet the criteria for either Category A or B must be used or disposed of offsite or in a landfill.

1.3 Related Documents

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

Table 1.2. List of documents related to the Hope Bay Incinerator and Composter Waste Management Plan

Document Title	Relevance
Non-Hazardous Waste Management Plan	Describes management of non-hazardous solid waste segregated from the incinerator waste stream and disposal of incinerator ash.
Hazardous Waste Management Plan	Describes management of items such as batteries, aerosol containers and other materials not acceptable for incineration or landfilling.
Air Quality Management Plan	Describes the air quality monitoring programs associated with the Hope Bay Project, including stack testing of incinerators.
Safe Waste Incineration Standard Operating Procedure	Describes safe work procedures for operation of incinerator units at Hope Bay.
Solid Waste Segregation, Handling and Disposal Standard Operating Procedure	Outlines waste segregation required by all personnel working at Hope Bay and proper handling and disposal procedures.
Kitchen Food and Waste Handling Storage	Describes proper handling and storage procedures of food wastes by all personnel at Hope Bay.
Incinerator Ash Sampling	Describes the procedure for collecting composite ash samples to be submitted for laboratory analysis.

The Plan is supported by a set of working procedures that provide detailed instructions on such topics as waste sorting, operation of specific models of incinerators in use, and ash sampling protocols. The procedures contain the various forms and checklists required to ensure the appropriate records are maintained concerning all incinerator operations.

1.4 Plan Implementation

In accordance with the requirements of the General Conditions (Part B) of the applicable water licenses, this Plan will be implemented following its submission, subject to any modifications proposed by the NWB as a result of the review and approval process.

This Plan will be periodically reviewed and updated as required as the Project moves through operations and final closure and reclamation.

2 Incineration and Composter Management

Waste management at Hope Bay has made substantial advances and improvements since activity in the Project area started. Dedicated facilities allow for centralized collection, sorting and proper packaging for various forms of waste products. This may include on-site incineration, composting, or preparing waste for transport to a waste transfer station for further recycling, treatment, or disposal. To reduce GHGs and air emissions, any waste that meets the requirements for composting on-site will be sent to the composter, otherwise it will be screened to ensure it meets the requirements for incineration on site. For more information regarding hazardous or non-hazardous waste management at Hope Bay refer to the following documents:

- Hope Bay Hazardous Waste Management Plan; and
- Hope Bay Non-hazardous Waste Management Plan.

Agnico Eagle does not allow personnel or contractors to burn hazardous waste. Hazardous waste and industrial waste are kept separate and temporarily stored according to regulations until shipped off site for disposal or recycling at approved facilities. Site incinerators are only approved to burn "domestic" camp waste such as kitchen waste, food scraps, camp room and restroom garbage, cardboard, paper and sewage sludge cake.

The only exception is that the Boston camp incinerator is approved to burn sewage waste in support of short term exploration activity.

2.1 Waste Stream Management

2.1.1 Waste Stream Composition and Segregation

The first steps to ensuring that effective and compliant incineration and composting occurs is to ensure proper waste segregation so that inappropriate wastes do not make it into the waste stream destined for the incinerator or composter, as well as to understand the resulting composition of the wastes.

Only appropriate domestic camp waste is permitted for incineration and composting. All wastes are segregated at the source to ensure non-burnable waste streams do not enter the feed stock for the incinerator or composter. All "burnable" waste is placed in specifically identified waste containers with transparent bags and in bins located throughout the camp facilities.

2.1.1.1 Acceptable Wastes for Composting

- Organic matter including food (e.g., coffee grounds and tea bags, eggs and egg shells, fruit and vegetable peelings, meat, chicken and fish including bones, nut shells, pasta, rice, sauces and gravy, solid dairy products, table scraps and plate scraping, etc.);
- Paper and cardboard; and
- Dead animals (small size only).

2.1.1.2 Unacceptable Wastes for Incineration and Composting:

Materials that are not listed above are unacceptable for incineration and composting. These materials include, but are not limited to:

- Food containers and wrappings including plastics that are contaminated by food;
- Uncontaminated plastics, including chlorinated plastics;
- Inert materials such as concrete, bricks, ceramics, ash;
- Bulky materials such as machinery parts or large metal goods such as appliances (shipped south and recycled in an accredited facility);
- Radioactive materials such as smoke detectors;
- Potentially explosive materials such as propane tanks, other pressurized vessels, unused or ineffective explosives;
- Other hazardous materials such as organic chemicals (PCBs, pesticides), other toxics (arsenic, cyanide);
- Electronics (shipped south and recycled in an accredited facility);
- Batteries (shipped south and recycled in an accredited facility);
- Asbestos;
- Drywall board;
- Vehicles and machinery (shipped south and recycled in an accredited facility);
- Fluorescent light bulbs;
- Whole tires;
- Waste oils;
- Flammable or combustible petroleum hydrocarbons unsuitable for its purpose due to the presence or contaminants or loss of original properties (such as gasoline, diesel fuel, aviation fuel, kerosene, naphtha or fuel oil);
- Any materials containing mercury;
- Used oil that exceeds the Maximum Impurity Limits ;
- Waste oil with a flash point of less than 37.7 deg C;
- Paint; and
- Solvents.

Prior to loading the waste batches in the incinerator or composter, the feed material is visually inspected by the operator to ensure it does not contain inappropriate waste materials.

When encountered, inappropriate waste material is removed from the incinerator feed, where possible. If the inappropriate waste is too intermixed with the incinerator feed, the bag will be rejected and not incinerated. Removed inappropriate wastes and rejected batches will be stored and handled in accordance with the Hazardous Waste Management Plan. The waste feed inspections shall be recorded on the appropriate forms, and issues with proper segregation and sorting at source in the waste management stream will be addressed by identifying the source or root cause of the issue, re-enforcing or improving training of site personnel, providing additional labelled receptacles, or implementing other measures as needed.

2.1.2 Reduce, Reuse and Recycle

Agnico Eagle has adopted the 3Rs 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. Some of the most significant actions in this regard include:

Reduce:

- Purchasing only the required amounts of materials and buying in bulk when the opportunity is available.
- 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.
- Eliminating unnecessary plastic and bulky packaging by buying kitchen supplies in bulk (i.e., ketchup, salad dressings, syrups, etc.).
- Cutting down on plastic food packaging.
- Substituting less hazardous chemicals where possible.
- Selecting products that provide the maximum "life-of-material".

Re-Use:

- If appropriate, collect and return materials to the system (i.e., equipment, operations, etc.) following maintenance or repair.
- Waste oil burners will be used to heat selected facilities.
- Oil/water separators are used onsite to reduce the amount of contaminated water requiring shipment off site.
- If appropriate, filter and/or use additives to replenish lost properties of material in order to extend its useful life.

- 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.
- Explore waste management options that allow for the recycling of a material or product instead of disposal.

2.1.3 Prevention of Wildlife Attraction

Agnico Eagle is required by the Water Licence and Project Certificate to manage food wastes to prevent attraction of wildlife, and if necessary incinerate food wastes. A comprehensive program exists to educate site personnel on the importance of proper food waste (or other potential attractant) management to ensure animals are not attracted to worksites. All food waste is returned daily to the main camp facilities so it is captured in the domestic waste stream. Collection and transfer of food wastes is performed so that these attractants are stored safely, moved between facilities securely, segregated and sent for composting and as a last resort, to reduce wildlife attraction, are burned in the incinerator promptly.

2.1.4 Targeting Pre-cursors to the Formation of Dioxins and Furans

Chlorine, in almost any form, is the key component required for dioxin and furan formation. Reducing or removing the chlorinated material that enters incinerators through waste segregation and composting, is the first minimization strategy to reduce the formation of dioxins and furans. Removing all chlorine compounds is extremely difficult because chlorine is used in the manufacture of a large variety of products, and in many cases there are no substitutes. Poly vinyl chloride (PVC) containing products are, however, eliminated from the incinerator waste stream to the extent possible. Sewage sludge also generally contains chlorinated compounds. Agnico Eagle may incinerate adequately dried sewage sludge or alternatively store this material in biodegradable bags (in a secure location not accessible to wildlife) until it can be buried in the overburden stockpile or beneath tailings in the Tailings Impoundment Area.

The following components of the waste stream must be removed before incineration to reduce the presence of potential catalysts and to reduce the presence of materials that may form or act as precursors for the formation of dioxins and furans:

- **Metals:** The inorganic component of the waste is largely made of metal-containing materials. During combustion, it is possible for these metals to become catalysts for the formation of dioxins and furans and it is, therefore, important that metal be eliminated from the waste stream destined for incineration. The metals include foils, batteries, nails and screws, painted wood products, aerosol cans, etc.
- **Plastic:** Plastics, particularly PVC, must be eliminated from the incinerator waste stream to the extent possible. The chlorine compounds contained in PVC and plastics are an ideal building block for the formation of dioxins and furans.

- **Medical Waste:** Medical waste can potentially be the biggest source of dioxin- and furan-forming material. Medical waste contains a mix of sharps made of metal, plastics (frequently PVC) and organic material which frequently contain chlorine compounds. This is an ideal mix for forming dioxins and furans. Agnico Eagle avoids incinerating these materials to the extent possible by segregating them from the incinerator waste stream.

By following these waste separation guidelines the extent of dioxin and furan formation will be reduced.

2.1.5 Management Response

Current waste segregation practices, including composting, greatly reduce the volume of plastics, metals, glass, and other potential catalysts for dioxin and furan formation from ending up in the incinerator waste stream.

Containers are set up throughout camp buildings to collect batteries, aerosol cans, food cans and glass containers, domestic plastic containers (toiletries, etc.), refundable cans/bottles and medical wastes. Separate labelled waste containers are available for plastic construction debris, cardboard, non-burnable wood and rags/absorbent pads. All kitchen grease is securely stored for offsite disposal and does not enter the incinerator waste stream.

2.2 Composter

Composting is an efficient means of reducing the mass and volume of organic waste generated, thus reducing GHGs and air emissions (such as dioxins and furans). Prior to the introduction of the in-vessel composter, organic material at the Hope Bay facility was being sent to the on-site incinerator. The incineration process utilizes fuel for its operation. Diverting the organic waste to the composting operation will provide an opportunity to reduce the volume of waste that will eventually go to landfill by turning it into compost and avoid fuel consumption and emissions typically associated with burning the organic material in an incinerator.

The composter would be housed where waste management activities (i.e., the incinerator) are already conducted, and within the approved mine footprint.

2.2.1 Compost Waste Stream

Acceptable and unacceptable material for the composter is provided in Section 2.1.1.

2.2.2 Wastes Volumes

It is expected that approximately 700 kg of waste will enter the composter weekly.

2.2.3 Composter Description and Installation

Agnico Eagle selected the Brome 624A in-vessel composter from the Brome series. A composter operating manual has been provided in Module E for the Brome series of composters. This manual must be referred to for all installation, operational and maintenance requirements.

Precautions must be followed for the indoor installation of this composting equipment as per the composter operating manual and include the following:

- Plan a ventilation shaft or a sanitary drain that exits the building for the elimination of composting gas and odours;
- Do not place the air exit near an air intake, a door or a window;
- Take care to place the system in a separate room to avoid any contact with human food preparation or food storage areas to minimize contamination risks;
- Make sure the building's foundation can support the weight of the composter when it's both empty and full; and
- Allow sufficient space around the composter to provide ease of movement related to composting operations (addition of matter, collecting compost at the exit, etc.).

The building where the composter is located allows personnel to operate and repair the composter in a temperature-controlled environment. If unplanned maintenance is required for the composter, the incinerator provides an alternate means for handling compostable waste.

During daily composter operation, waste is segregated at the source to ensure non-compostable waste streams do not enter the composter. Collected compostable waste are stored in dedicated waste containers, located throughout the Hope Bay Mine where organic material may be produced.

2.2.4 How the Composter Works

The Brome series in-vessel composter consist of an insulated cylinder that rotates according to pre-set timed intervals. The rotation of the cylinder allows the material inside of the chamber to mix while providing aeration. Aeration is important to provide oxygen for the microorganisms that are digesting organic material to make the compost. Heat will be produced during the composting process from the breakdown of organic material by the microorganisms.

The composter will operate in a continuous-feed manner. As more material is added and the cylinder rotates, the digesting material is moved along the vessel and is then discharged at the cylinder's extremity through an opening that also serves as an air inlet for oxygen. The amount of finished compost depends on the rotation intervals and the amount of organic material added to the vessel. Key performance indicators such as temperature and humidity will be developed with the composter supplier during commissioning, based on the model of composter selected and the site conditions.

2.2.5 Chemical Process

The composter uses an aerobic, biological process involving the succession of various microorganisms decomposing organic materials and converting them into a biologically stable product. The predominant types of microorganisms present during composting are bacteria, fungi and actinomycetes. Composting is different than the decay process that occurs in nature, as composting is monitored and controlled, aerobic conditions are maintained and includes a high-temperature phase for a specified amount of time (e.g., above 55 ˚C) that reduces or eliminates pathogens and weed seeds.

Almost any organic material is suitable for composting, as described in Section 2.1.1. The composter requires a certain ratio of carbon-rich materials, or “browns,” and nitrogen-rich materials, or “greens.” Examples of brown carbon-containing materials are paper and cardboard. Nitrogen-containing materials are fresh or green, such as kitchen scraps. Food scraps provide nitrogen to the system whereas paper and cardboard provide high carbon values. A specific strategy is used to achieve the required balance of nitrogen-rich and carbon-rich materials fed into the composting system such that optimum conditions are provided for the bacteria in the composter. The carbon to nitrogen ratio required will be confirmed by the supplier for the Brome 616 model of composter selected by Agnico Eagle prior to commissioning.

2.2.6 Process Duration

An agricultural mixer is used to break down and mix the material, which is then transferred to the composter. The breakdown of materials increases the surface area to volume ratio and allows for increased aeration and biological activity within the composter.

The compostable material spends a minimum of nine days in the composter. During the composting process the operators review the temperature of the compost within the composting chamber to ensure proper targets are being reached (between 55˚C and 65˚C). The operators visually inspect the compost for foreign matter and check that the texture and consistency of the compost appears normal. Depending on the amount of material composted, the material may have a residency time of between 9-20 days in the composter, during which time the cylinder completes one full revolution at regular intervals throughout the day. Rotating the material causes an aerobic environment to be maintained for maximum bacterial growth. The bacteria generate heat, water, and gases such as carbon dioxide during aerobic respiration. The insulated composting chamber traps heat and produces favorable temperatures for aerobic respiration. Gases produced during the composting (e.g., carbon dioxide) process is ventilated from the building using a hood vent at the output of the composting unit. The compost is discharged once the material has reached the end of the composting cylinder. Compost is only discharged during the cylinder revolutions, and thus the amount of product being discharged can be manipulated based on the time intervals between revolutions and the amount of product added to the composter.

2.2.7 Output

As the compost is discharged, it runs across a screen/sifter that removes any large material that may have been accidently introduced into the composter. The material discharged from the composter is typically equal to roughly half of the tonnage fed into the composter (i.e., 350 kg per week). Most of the weight loss will be due to the dehydration of the material as it breaks down. The solid decomposed material is discharged and stored in a bin. The full bin of compost is then transported for use, for storage, or to the waste management area for disposal.

2.2.7.1 Disposing of Residual Materials

The residual material that is discharged from the composter mainly consist of materials that are too large to fit through the sizing screen/sifter. The residual materials are sorted into incinerator waste, recyclable material, landfill material, or hazardous goods that will be shipped off site. Larger organic material may be reintroduced into the mixer to begin the composting process again. If the composting

process does not break down the material effectively after the second cycle, or if the composter is temporarily out of service for any reason, the material will then be sent to the incinerator.

2.2.8 Odour and Dust Control

Since the composter is in an enclosed area, a ventilation shaft or a sanitary drain that exits the building for the elimination of composting gas and odours is included in the building design. Odours during the operation of the equipment is mitigated by sweeping the floor, cleaning up any organic matter debris on or around the composter, and removing any material that has fallen on the floor.

Careful monitoring of the composting process using appropriate carbon to nitrogen ratios as discussed with the supplier, as well as using regular log book entries and adherence to the procedures and recipes will aid in avoiding the generation of odours. The monitoring of humidity is an important factor in controlling odours from the composting process. Composting often proceeds well at a moisture content of 40-60% by weight. At lower moisture levels, microbial activity is limited. At higher levels, the process is likely to become anaerobic and foul-smelling.

2.2.9 Introduction of Invasive Species

Composting is monitored and controlled. Aerobic conditions will be maintained and includes a high temperature phase for a specified amount of time (e.g., above 55 ˚C) that reduces or eliminates pathogens and weed seeds. Adherence to the composting instructions will avoid concerns over introduction of invasive species.

2.3 Dioxin and Furan Emissions

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), commonly known as dioxins and furans, respectively, are predominantly a result of human activity. These substances are toxic, persistent, and bio-accumulative. Due to their extraordinary environmental persistence and capacity to accumulate in biological tissues, dioxins and furans are slated for virtual elimination.

Dioxin and furan contamination found in soil, water, sediments, and tissues are the subject of national guidelines for dioxins and furans. The CWS Dioxin/Furan guideline for incineration is 80 pg I-TEQ/m^3, where pg = picogram, I-TEQ = international toxic equivalent, m^3 = cubic metre.

The exact mechanism of dioxin and furan formation in incinerators is poorly understood, but generally they form during the thermal breakdown of organic materials in the presence of transition metals and chlorinated compounds. Dioxin formation takes place as the flue gas cools from the initial 1,000°C to about 250°C, with peak dioxin and furan formation occurring in the range of 650°C to 250°C.

Regardless of how dioxins and furans are formed, certain operating conditions increase the potential for formation of these compounds including:

(a) Incomplete combustion of fuel;

(b) An oxidizing atmosphere;

(c) Presence of a chlorine source;

(d) Fly ash surfaces (carbon source);

(e) Fly ash with degenerated graphite structures; and

(f) Presence of catalytic metals (copper, iron, manganese, zinc, etc.).

2.3.1 Management Response

Dioxin and furan emissions from incinerators may be reduced by:

- Reducing or removing certain waste types from the incinerator waste stream as described above through appropriate waste sorting techniques, including composting;
- Placement of waste in the incinerator chamber and operating the incinerator according to manufacturer specifications to ensure optimal burning efficiency and provide adequate destruction of dioxins and furans; and
- Use of Pre-Operational, Operational and Maintenance Checklists and Log Books to ensure that the unit is operated in a safe and efficient manner.

Agnico Eagle Hope Bay Project will continue to reduce dioxins and furans through segregation and composting, however Agnico Eagle has selected and will continue to select incinerator technology that should reduce the extent to which dioxins and furans can form. This is achieved through the following mechanisms:

- Use of dual or secondary chamber incinerator technology with a clear burn process defined which eliminates spurious burn conditions and operator error.
- Operating each incinerator unit within the manufacturer specifications to achieve adequate temperatures and residence time. This should allow the materials to be combusted completely so that no precursors are available for dioxin and furan formation during cooling.

2.4 Mercury Emissions

Waste incineration has historically been responsible for a portion of the mercury emitted in Canada; however reductions in emissions have been apparent nationwide since the implementation of the CWS and the requirement to monitor specific emissions. Improved exhaust gas controls can reduce emissions of acid gases and fine particulates in addition to new activated carbon injection systems that decrease emissions of mercury and dioxins and furans.

At the same time, action has been taken by many product manufacturers to reduce the mercury content of consumer goods which could end their life cycle in domestic solid waste (e.g., alkaline batteries) and thus have reduced the mercury available in the waste stream.

Emission limits are expressed as the concentrations of specific compounds and elements present in the exhaust gas exiting the stack of the facility. New or expanding facilities are expected to comply with the standard upon attaining normal full scale operation, while the limits for existing facilities are capable of

being met using generally available technology (or waste diversion). Larger facilities are subject to annual stack testing to verify compliance with the limit. Mercury emission limits are presented in Table 2.1.

Table 2.1. Canada-Wide Standard for Mercury Emissions

Source	Mercury Standard
Municipal waste incineration	20 µg/Rm^3
Hazardous waste incineration	50 µg/Rm^3
Sewage sludge incineration	70 µg/Rm^3
Medical waste incineration	20 µg/Rm^3

µg = microgram, Rm^3 = reference cubic metre

2.4.1 Management Response

Any waste stream that may contain mercury, including thermostats, thermometers, light bulbs, etc., is disposed of at an off-site facility. These items are placed in labelled collection containers located throughout the camp and facility. Waste management employees screen for all possible mercury contaminated waste and ensure all relevant regulations are adhered to regarding handling, storage and transport for offsite disposal. For more information regarding the regulations and waste shipment procedures please refer to the Hope Bay Hazardous Waste Management Plan.

2.5 Incinerator Capacity and Operations

Incinerator capacity has been selected to ensure timely and effective management of the volumes of burnable domestic waste generated at Hope Bay. Incinerator details, including model, capacity, location, status and reference to operating details and manuals are provided in the site-specific modules appended to this plan.

2.5.1 Management Response

The Hope Bay site waste management facilities are closely supervised and waste management personnel are present to monitor incinerator burns and document burn conditions and other relevant information. Incinerator units may be enclosed within shelters to ensure efficiency of the burn process is optimized.

Employees are trained prior to commencement of work so that they are aware of the operational procedure and capacity of the incinerator, and health and safety risks associated with the incinerator and its operation.

2.5.1.1 Burn Process Operational Overview

Batch waste incineration is a process that occurs through charging the incinerator unit with a discrete load or quantity, and allowing a complete burn cycle to finish before the next load is burned.
This process is critical to the efficiency of the burn. Standard operating procedures outline the process to prepare and properly load each incinerator in accordance with manufacturer instructions to optimize burn efficiency.

2.5.1.2 Batch Preparation of Waste

Using categories defined by the supplier of the incinerator, the approximate waste composition of a batch is determined for each incinerator model used. Understanding the typical waste stream composition is important as it leads to key opportunities for waste management generally and specifically for incineration control on site. Periodic audits of the waste stream using incinerator logs and operational checklists will guide continuous improvement of batch preparation processes.

Daily record keeping and operator experience will assist in ensuring batches are prepared consistently and within the capacity of the specific incinerator unit. The weight of the various waste categories loaded into the incinerator determine the proper batch composition for efficient burn cycles.

An appropriate load composition would roughly be represented by:

55% Food Waste / 23% Paper or Cardboard Waste / 22% Other

2.5.1.3 Health and Safety

All incinerators at Hope Bay will be operated in accordance with the manufacturer's instructions. All operators will have appropriate training before being tasked with operating any unit or handling waste and will include the identification of any potential hazards that could be encountered while performing these tasks. Standard operating procedures outline the appropriate personal protective equipment that is required by all personnel operating the incinerator system.

2.5.1.4 Training

Personnel with the responsibility of operating incinerators at Hope Bay will be required to read and comprehend this Incinerator and Composter Waste Management Plan, the Operating and Maintenance Manual(s) relevant to the unit they will be operating, and any Standard Operating Procedures that support this Plan or provide site-specific information required for safe and effective incinerator operations.

In addition, an on-site training program will be provided to cover all aspects of incinerator management including: equipment pre-checks, operation, maintenance, monitoring, and record keeping. The training also includes identification of activity related risks, knowledge and use of job-specific PPE, as well as proper handling, storage, and disposal of all ash generated from the facility. A supervised competency evaluation is conducted for all trainees.

The training is both job-specific and equipment-specific and is provided to any site personnel assigned the responsibility to oversee, inspect, maintain, or monitor the incinerator.

2.6 Ash Management

Bottom ash in the incinerator can contain pollutants of concern including mercury, lead and cadmium. These residuals in the ash can be reduced to acceptable levels with proper segregation of non-burnable items from the incinerator feed stock and through maximizing efficient burn practices. The *Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities*

published by the Government of Nunavut in 2011 establishes the criteria for determining whether the bottom ash from open burning or incineration is appropriate for disposal in a landfill.

2.6.1 Management Response

The incinerator ash sampling program established for Hope Bay will determine the proper disposition of bottom ash. Once the combustion chamber of the incinerator is cool, the incinerator operator will remove the ash from the previous burn cycle before reloading the incinerator. During ash removal, the operator will inspect and clean the combustion air holes, inspect the burner tip for damage, and will also collect ash samples for analysis.

The remaining ash is placed into metal containers to be weighed. Once weighed and documented, these contents are then transferred into a labelled drum. When full, this drum is sealed and stored to await results of the ash sampling.

A composite sample of ash is sent to an external laboratory for analysis of:

- Leachable metals;
- Leachable mercury;
- Leachable benzene, toluene, xylenes, and ethylbenzene;
- Paint filter; and
- Flash point.

The details of this sampling program can be found in standard operating procedures for ash sampling for the site incinerators and burn pan. Results of the sampling will determine if the ash can be disposed of as non-hazardous waste (landfilled) or must be treated as hazardous waste and managed in accordance with the site Hazardous Waste Management Plan. Ash sampling analysis records are maintained on site, and may be conveyed offsite to receivers of ash shipments if warranted. Hazardous waste shipments will follow the Transportation of Dangerous Goods regulations as well as the Interprovincial Movements of Hazardous Waste regulations. The Waste Management Facility maintains a tracking report of all ash shipped from Hope Bay. Certificates of Disposal for waste shipped off site are provided by the off-site waste handling facility. This is provided so waste generators can demonstrate to regulatory authorities that their waste is being handled by an approved facility and that the waste was disposed according to applicable federal and territorial regulations.

2.7 Fuel Storage

Incinerator units are supplied by dedicated diesel fuel tanks.

2.7.1 Management Response

The fuel storage, secondary containment and fuel delivery lines are subject to regular inspection. There are also spill kits available nearby in the event of a spill or leaking fuel line.

3 Monitoring and Evaluation

3.1 Inspections

Routine inspections of the incinerator, composter, and associated facilities will be conducted by a qualified individual prior to every use of the incinerator as per stand operating procedures.

Detailed standard operating procedures for each type of incinerator unit and the composter contain the specific inspection checklists that are utilized. All raw data records from the operation of the incinerator will be retained for inspection by the appropriate authorities.

3.2 Monitoring

3.2.1 Composter

As described in Section 1.2.2, Agnico Eagle will adhere to the CCME Guidelines for Compost Quality if compost is used for reclamation purposes. In addition, compost output is visually inspected each time it exits the sieve as described in Section 2.7.6.

Should Agnico Eagle decide to explore other options for potential uses of compost, further analytical testing will be undertaken as detailed in relevant compost quality guidelines.

Maintenance of the composter is scheduled annually or as specified by the Brome supplier/manufacturer. This maintenance is performed to evaluate the insulation and structural integrality of the cylinder. This will be undertaken so that the composter is functioning at its optimal standard.

3.2.2 Incinerator Stack Testing

The Water Licence requires that Agnico Eagle demonstrate that the incinerators are in compliance with the CCME CWS for air emissions of dioxin, furan and mercury. A third-party service provider is used for monitoring emissions when the stack testing requirement is triggered. The requirement for stack testing is outlined in the CWS for dioxins and furans and the CWS for Mercury, with triggers related to operational state, volumes and types of wastes burned. The testing will be conducted when the thresholds for monitoring are met, unless otherwise approved by Environment Canada, and in accordance with the project Air Quality Management Plan.

The following parameters are required to be monitored based on the CWSs:

- Dioxin;
- Furan; and
- Mercury.

Results of samping are reported annually to the NWB and the Nunavut Impact Review Board (NIRB), and emissions data is used for calculating and reporting non-fugitive (point source) emissions to the National Pollutant Release Inventory (NPRI).

3.3 Documentation and Reporting

Detailed records for the operation of the incinerator and composter will be maintained. Any out-of-specification situations will be raised immediately and the incinerator and/or composter should not be used until maintenance or remedial measures have been applied.

To demonstrate appropriate operation and maintenance of the incinerator or composter, the facility will maintain records containing, at minimum, the following information:

- A list of all staff who have been trained to operate the incinerator; type of training conducted and by whom; dates of the training; dates of the refresher courses;
- All preventative maintenance activities undertaken on the equipment;
- Records of operation of the incinerator;
- Records of quantities and types of waste incinerated;
- Summarized annual auxiliary fuel usage;
- The quantity and disposal location of incinerator residual ash;
- The quantity and type of materials composted as well as the quantity of compost produced; and
- Results of any stack emission monitoring and ash sampling information.

3.3.1 Monthly Waste Summary

A monthly summary tracks incinerator burns per day, the weight and type of waste prior to the burn and the amount of ash produced. Notes from daily operations are included in this summary. A chart is produced that compares the volume of waste burned to the amount of ash produced. This information is used to determine any trends apparent in the incineration process and identify opportunities where improvements could be implemented. The summary of waste burned during the calendar year is also used for calculations and reporting to the NPRI, by July 1 each following year.

4 Contingencies

Multiple incinerators are utilized at the Hope Bay project. This redundancy ensures there is limited interruption to management of the incinerator waste stream, and reduces the possibility that stockpiling of any burnable domestic waste is required. In the event that temporary stockpiling is required, all food waste is packaged and stored securely from access by wildlife until functioning of the incinerator can resume.

Should Agnico Eagle determine the need to add additional composters to the on-site operation, the Plan will be reviewed and updated to reflect this change to the operation.

5 References

CCME. 1998. *Policy for the Management of Toxic Substances.* Canadian Council of Ministers of the Environment.

CCME. 2006. *2006 Review Update for Dioxins and Furans Canada Wide Standards.* Canadian Council of Ministers of the Environment.

CCME. 2001. *Canada Wide Standards for Dioxins and Furans.* Canadian Council of Ministers of the Environment.

CCME. 2000. *Canada Wide Standards for Mercury Emissions.* Canadian Council of Ministers of the Environment.

CCME. 2005. Guidelines for Compost Quality, 2005. PN 1340.

Environment Canada. 2010. *Technical Document for Batch Waste Incineration.*

Environment and Climate Change Canada, 2017. Solid Waste Management for Northern and Remote Communities.

Government of Canada. 1999. *Canadian Environmental Protection Act* (CEPA)

Government of Canada. 1995. *Federal Toxic Substances Management Policy* (TSMP)

Government of Nunavut. 2012. *Environmental Guideline for the Burning and Incineration of Solid Waste.*

Health Canada. 2005. *Dioxins and Furans.*

Westland Consulting. 2011. *Incinerator General Operational Plan and Standard Operating Procedure.*

Westland Consulting. 2009. *Forced Air Incineration Systems Operating and Maintenance Manual.*

Westland Consulting. No date. *Maintenance Operating Specification and Technical Data for CY2020FA.*

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module A: Doris

Conformity Table

Licence	Part	Item	Topic	Report Section
2AM-DOH1335	F	1	The Licensee shall implement the following waste management plans as approved by the Board: Hope Bay Project Incinerator Management Plan.	Full Document
	F	6	The Licensee shall dispose of all food Waste in an incinerator designed for this purpose and meets the requirements of the Canada-Wide Standards for Dioxins and Furans and Canada Wide Standards for Mercury emissions or other standards as they become available	Section 1.1, 2.2, 2.3

Contents: Module A

A1 Introduction

The Type A Water Licence No. 2AM-DOH1335 issued to Hope Bay by the Nunavut Water Board (NWB) allows the incineration of approved waste streams.

Agnico Eagle is required, under Part F of the Licence, to implement the Hope Bay Project Incinerator Management Plan and dispose of all food Waste in an incinerator designed for this purpose and meets the requirements of the Canada-Wide Standards for Dioxins and Furans and Canada Wide Standards for Mercury emissions or other standards as they become available.

A1.1 Background

A1.1.1 Overview of Doris Incineration Compliance

It is the aim of Agnico Eagle to continue implementing the practices that reduce the probability of formation of pollutant compounds during waste incineration. In addition, Agnico Eagle will comply with the relevant Canada-wide Standards for Incinerator emissions, through effective waste segregation and efficient burn practices.

A2 Incinerator Management at Doris

Two incinerators for the Doris project are currently located at the Roberts Bay laydown waste management facility with a third planned for installation in 2019. Two older incinerators units are CY‑2050-A-FA models with a capacity of burning 75 kg of waste per hour. The operating manual for these units is provided in Appendix A of this module.

The one new incinerator is a CY-100-CA-D model with a capacity of three (3) Batches/Day and about 150 to 185 kg/Batch. The CY-100-CA-D is a dual-chamber incinerator, operated under starved-air conditions with batch feeding. The operating manual for this unit is provided in Appendix B of this module.

Waste management at Doris involves comprehensive sort-at-source and segregation of domestic wastes generated at the Doris Camp, return of all food waste attractants from remote worksites to the Doris Camp domestic waste stream, and collection of wastes for transfer to the centralized waste management area at Roberts Bay for timely incineration.

A3 Monitoring and Evaluation

Agnico Eagle is required to report the results of Incinerator Stack Testing in the 2AM-DOH133523 Licence Annual Report by March 31 of each year when stack testing is required. A third-party consultant is contracted to conduct the test, and their report is forwarded to the NWB and NIRB; in addition, the results are summarized in annual reporting to those agencies.

Bottom ash for incinerators located at Doris Camp is sampled as outlined in Section 2.5.1 of the main body of this Incinerator Management Plan.

Records of materials deposited to the landfill (when constructed), including qualifying incinerator ash, will be reported annually to the NWB per the relevant requirements of the Licence.

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module A – Appendix A:
Operating and Maintenance Manual
CY-2050-A-FA

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

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Module A – Appendix B:
Operating and Maintenance Manual
CY-100-CA-D

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module B: Windy

Conformity Table

Licence	Part	Item	Topic	Report Section
2BE-HOP2232	D	3	The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator.	Main Document and this Module

Contents: Module B

B1 Introduction

The Type B Water Licence No. 2BE-HOP2232 issued to Agnico Eagle by the Nunavut Water Board (NWB) allows the incineration of approved waste streams.

A New Windy Camp is permitted under the current water licence 2BE-HOP2232, but has not yet been constructed. No domestic wastes are produced at Windy Camp and there is no incinerator operated under this Licence. 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 transported to Doris Camp and managed as part of the Doris Camp waste stream. This waste undergoes the same comprehensive sort-at-source and segregation processes as domestic wastes generated at the Doris Camp. Waste is collected and transferred to the centralized waste management area at Robert Bay for timely incineration.

The plan addresses all relevant aspects of waste stream management, and the operation, maintenance and monitoring of incinerator units used to burn permitted wastes. The plan includes the management and disposal of all residual ash waste generated by the operation of the incinerator.

B1.1 Background

B1.1.1 Overview of Windy Incineration Compliance

Domestic waste is not produced at Windy Camp and is managed as part of the Doris Camp waste stream. Incineration at Doris North, under the prior project owner, was demonstrated to comply with the relevant Canada-wide Standards for incinerator emissions, through effective waste segregation and efficient burn practices. It is the aim of Agnico Eagle to continue implementing the practices that reduce the probability of formation of pollutant compounds during waste incineration.

B2 Incinerator Management at Windy

There is no incinerator operated at Windy Camp at this time.

B3 Monitoring and Evaluation

Agnico Eagle is required to report a summary of waste disposal activities in the 2BE-HOP2232 Licence Annual Report by March 31 of each year. No wastes are currently deposited under the 2BE-HOP2232 Licence. All incinerator monitoring is reported under the 2AM-DOH1335 Licence Annual Report; however, no wastes are currently deposited.

Records of materials deposited to the landfill (when constructed), including qualifying incinerator ash, will be reported annually to the NWB per the relevant requirements of the Licence.

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module C: Madrid
(Exploration and Operation)

Conformity Table

Licence	Part	Item	Topic	Report Section
2BB-MAE1727 (Exploration)	E	17	The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator.	Main Document and this Module
2AM-DOH1335 (Operations)	F	1	The Licensee shall implement the following waste management plans as approved by the Board: Hope Bay Project Incinerator Management Plan.	Full Document
	F	6	The Licensee shall dispose of all food Waste in an incinerator designed for this purpose and meets the requirements of the Canada-Wide Standards for Dioxins and Furans and Canada Wide Standards for Mercury emissions or other standards as they become available.	Section 1.1, 2.2, 2.3

Contents: Module C

C1 Introduction

Both the Type B Water Licence No. 2BB-MAE1727 and the Type A Water Licence No. 2AM-DOH1335 issued by the Nunavut Water Board (NWB) allows the incineration of approved waste streams.

The Incinerator Management Plan has been prepared to address the requirement specified in Part F, Item 6 of the 2AM-DOH1335 Water Licence, and also includes the plan for incineration throughout the Hope Bay belt. The plan addresses all relevant aspects of waste stream management, and the operation, maintenance and monitoring of incinerator units used to burn permitted wastes. The plan includes the management and disposal of all residual ash waste generated by the operation of the incinerator.

C1.1 Background

C1.1.1 Overview of Madrid Incineration Compliance

Domestic waste will not be incinerated Madrid North or Madrid South sites. Any domestic waste produced at Madrid North or Madrid South will be transported to Doris for treatment.

C2 Incinerator Management at Madrid

There is no incinerator operated at Madrid North or Madrid South at this time.

C3 Monitoring and Evaluation

Agnico Eagle is required to report a summary of waste disposal activities in the 2BB-MAE1727 Licence Annual Report by March 31 of each year. No wastes are currently deposited under the 2BB-MAE1727 Licence. All incinerator monitoring is reported under the 2AM-DOH1335 Licence Annual Report.

Records of materials deposited to the landfill (when constructed), including qualifying incinerator ash, will be reported to the NWB per the relevant requirements of the Licence.

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module D: Boston (Exploration and Operation)

Conformity Table

Licence	Part	Item	Topic	Report Section
2BB-BOS1727	D	3	The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator.	Main Document and this Module
2AM-DOH1335	F	1	The Licensee shall implement the following waste management plans as approved by the Board: Hope Bay Project Incinerator Management Plan.	Full Document
	F	7	The Licensee shall dispose of all food Waste in an incinerator designed for this purpose and meets the requirements of the Canada-Wide Standards for Dioxins and Furans and Canada Wide Standards for Mercury emissions or other standards as they become available	Section 1.1, 2.2, 2.3

Contents: Module D

D1 Exploration

D1.1 Introduction

The Type B Water Licence No. 2BB-BOS1727 issued by the Nunavut Water Board (NWB) allows the incineration of approved waste streams.

Boston Camp was closed in 2011 and remained in a state of Care and Maintenance until June 2017. The camp was reopened in June 2017 to support seasonal exploration activities surrounding the Boston Camp.

The Incinerator Management Plan has been prepared to address the requirement specified in Part F, Item 7 of the 2AM-BOS1835 Water Licence, and also includes the plan for incineration throughout the Hope Bay belt. The plan addresses all relevant aspects of waste stream management, and the operation, maintenance and monitoring of incinerator units used to burn permitted wastes. The plan includes the management and disposal of all residual ash waste generated by the operation of the incinerator.

D1.1.1 Background: Overview of Boston Incineration Compliance

Incineration at Boston Camp, under the prior project owner, was demonstrated to comply with the relevant Canada-wide Standards for incinerator emissions and waste ash disposal, through effective waste segregation and efficient burn practices. It is the aim of TMAC to continue implementing the practices that reduce the probability of formation of pollutant compounds during waste incineration.

D1.2 Incinerator Management at Boston

One incinerator is located at Boston Camp and is a CY-20-20-FA-D model with a capacity of burning 50 kg of waste per hour. This unit was recommissioned in June 2017, and is used to support seasonal exploration activities. Waste management at Boston involves comprehensive sort-at-source and segregation of domestic wastes generated at the Boston Camp, return of all food waste attractants from remote worksites to the Boston Camp domestic waste stream, and collection of wastes for transfer to the designated waste incineration area.

All residual ash generated waste generated by the operation of the incinerator is transported to Doris Camp for disposal.

D1.3 Monitoring and Evaluation

Agnico Eagle is required to report a summary of waste disposal activities in the 2BB-BOS1217 Licence Annual Report by March 31 of each year. No wastes are currently deposited under the 2BB-BOS1217 Licence. All incinerator monitoring is reported under the 2AM-BOS1835 Licence Annual Report.

D2 Operations

D2.1 Introduction

The Incinerator Management Plan has been prepared to addresses all relevant aspects of waste stream management, and the operation, maintenance and monitoring of incinerator units used to burn permitted wastes. The plan includes the management and disposal of all residual ash waste generated by the operation of the incinerator for the Hope Bay Belt. Agnico Eagle's vision is to continue to utilize existing plans for all developments on the Hope Bay belt, and modify the plans as required and at the appropriate stage of permitting or development of the Project. This includes updates related to the proposed Madrid-Boston Phase 2 Development.

D2.2 Incinerator Management at Boston

Subject to permitting, when the proposed Phase 2 Boston Camp has been constructed and it enters into the operational phase of the project, the same point source waste segregation and efficient burning practices achieved at Doris Camp and Madrid will be applied.

D2.3 Monitoring and Evaluation

As per 2AM-BOS1835 requirements, Agnico Eagle reports a summary of waste disposal activities in their Annual Reports to the NWB by March 31 of each year.

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module D – Appendix A: Operating and Maintenance Manual CY-2020-FA-D

HOPE BAY PROJECT INCINERATOR AND COMPOSTER WASTE MANAGEMENT PLAN

HOPE BAY, NUNAVUT

Module E: Composter
(Brome Composter Instruction Manual)