Baffinland

7 December 2018

Eqe Bay Exploration Program

Type 'B' Water Licence Application

Attachment 14

Waste Management Plan

Baffinland Iron Mines Corporation

EQE BAY

WASTE MANAGEMENT PLAN

BAF-XXX-XXX-XXX-XXXX

DRAFT

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Item No.	Description of Change	Relevant Section

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1 INTRODUCTION

1.1 PURPOSE AND SCOPE

This Waste Management Plan (Plan) has been developed for the Eqe Bay Exploration Program (Exploration Program). The purpose of this Plan is to establish the processes, procedures and responsibilities for effective waste management at the Eqe Bay exploration property, so that the handling, storing and disposal of wastes generated at the exploration property is conducted in a safe, efficient and environmentally appropriate manner that minimizes the potential for adverse impacts to the environment and ensures compliance with legislation and approvals.

The scope of this Plan includes all elements of waste management at the exploration property, including:

- Hazardous and non-hazardous solid waste;
- Sewage and greywater; and
- Drilling wastes.

The current version of the Plan has been prepared to support permitting. Future updates to this Plan will be completed based on final site layouts, equipment and the terms and conditions of approvals, including the Nunavut Impact Review Board (NIRB) Screening Decision Report (NIRB, 2018), a Land Use Lease with the Qikiqtani Inuit Association, and a Type 'B' Water Licence (Water Licence) issued by the Nunavut Water Board (NWB).

1.2 DEFINITIONS

Contractor:	A person or business which provides goods, material, equipment, personnel, and/or services to Baffinland Iron Mines Corporation under terms specified in a contract.
Waste:	The residual waste material (hazardous, non-hazardous or Putrescible) generated during the construction, operation, closure and reclamation phases of the Project.
Hazardous Waste:	The wastes generated during the lifespan of the Project that present a threat to the human health or the environment because they exhibit one or more of the following characteristics: corrosive, reactive, explosive, toxic, inflammable, or biologically infectious.
Non-Hazardous Waste:	The wastes generated during the lifespan of the Project that do not present a threat to human health or the environment.

Putrescible Wastes:	The wastes generated during the lifespan of the Project that degrade very rapidly, i.e., plants, food scraps or animal remains.
Incinerator Waste:	Waste identified as suitable for incineration based on incineration technology used on-site, applicable regulations and project approvals. Includes: food waste, domestic waste, packaging waste, wood waste, absorbents, and some types of filters (e.g., air filters)
Clean Wood Products:	Clean untreated wood waste including wood or timber, not suitable for recycling or reuse, which is substantially free of glue, petroleum based materials, other chemicals, or contains other non-wood chemical products.
Opacity	Opacity is the degree to which the exhaust gases reduce the transmission of light and obscure the view of any object in the background. It is expressed as a percentage representing the extent to which an object viewed through the gases is obscured. Although not an emission standard, opacity provides an indication of the general performance of the incinerator during normal operation.

1.3 Regulatory Requirements

The following Acts and Regulations provide specific requirements for the management of waste generated at the Eqe Bay exploration property:

- *Territorial Lands Act 1985* and Territorial Land Use Regulations;
- *Nunavut Waters and Nunavut Surface Rights Tribunal Act 2002*;
- *Canadian Environmental Protection Act*;
- Nunavut's *Environmental Protection Act*;
- *Safety Act*, Occupational Health and Safety Regulations;
- National Fire Code;
- *Public Health Act*; and
- *Fisheries Act*.

To provide waste generators with appropriate guidance, the Government of Nunavut (GN) has published a number of Environmental Guidelines under the authority of Nunavut's *Environmental Protection Act*:

- Biomedical and Pharmaceutical Waste (GN, 2014a)
- Burning and Incineration of Solid Waste (GN, 2012a)
- General Management of Hazardous Waste (GN, 2010a)

- Industrial Waste Discharges (GN, 2014b)
- Ozone Depleting Substances (GN, 2011a)
- Contaminated Site Remediation (GN, 2009)
- Ambient Air Quality (GN, 2011b)
- Waste Antifreeze (GN, 2011c)
- Waste Asbestos (GN, 2011d)
- Waste Batteries (GN, 2011e)
- Waste Paint (GN, 2010b)
- Waste Solvents (GN, 2011f)
- Fluorescent Lamp Tubes (GN, 2003)

In addition, the following federal guidelines or standards will apply to the exploration property:

- Canada-Wide Standards for Dioxins and Furans, by the Canadian Council of Ministers of the Environment (CCME, 2001)
- Canada-Wide Standards for Mercury Emissions (CCME, 2000)
- Guidelines for the Management of Biomedical Waste in Canada (CCME, 1992)

1.4 Relationship to Other Management Plans

The following management plans have been developed specifically for the Eqe Bay Exploration Program and incorporate key mitigation and management strategies used at Baffinland's Mary River Project:

As such, this Plan must be viewed in context with the following plans:

- Eqe Bay – Environmental Protection Plan
- Eqe Bay – Environmental Inspection and Monitoring Plan
- Eqe Bay – Closure and Reclamation Plan
- Eqe Bay – Spill Contingency Plan

2 BAFFINLAND POLICIES

2.1 HEALTH, SAFETY AND ENVIRONMENT POLICY

This Baffinland Iron Mines Corporation Policy on Health, Safety and Environment is a statement of our commitment to achieving a safe, healthy and environmentally responsible workplace. We will not compromise this policy for the achievement of any other organizational goals.

We implement this Policy through the following commitments:

- Continual improvement of safety, occupational health and environmental performance
- Meeting or exceeding the requirements of regulations and company policies
- Integrating sustainable development principles into our decision-making processes
- Maintaining an effective Health, Safety and Environmental Management System
- Sharing and adopting improved technologies and best practices to prevent injuries, occupational illnesses and environmental impacts
- Engaging stakeholders through open and transparent communication.
- Efficiently using resources, and practicing responsible minimization, reuse, recycling and disposal of waste.
- Reclamation of lands to a condition acceptable to stakeholders.

Our commitment to provide the leadership and action necessary to accomplish this policy is exemplified by the following principles:

- As evidenced by our motto “Safety First, Always” and our actions Health and Safety of personnel and protection of the environment are values not priorities.
- All injuries, occupational illnesses and environmental impacts can be prevented.
- Employee involvement and active contribution through courageous leadership is essential for preventing injuries, occupational illnesses and environmental impacts.
- Working in a manner that is healthy, safe and environmentally sound is a condition of employment.
- All operating exposures can be safeguarded.
- Training employees to work in a manner that is healthy, safe and environmentally sound is essential.
- Prevention of personal injuries, occupational illnesses and environmental impacts is good business.
- Respect for the communities in which we operate is the basis for productive relationships.

We have a responsibility to provide a safe workplace and utilize systems of work to meet this goal. All employees must be clear in understanding the personal responsibilities and accountabilities in relation to the tasks we undertake.

The health and safety of all people working at our operation and responsible management of the environment are core values to Baffinland. In ensuring our overall profitability and business success every Baffinland and business partner employee working at our work sites is required to adhere to this Policy.

Brian Penney
Chief Executive Officer
April 2018

2.2 BAFFINLAND SUSTAINABLE DEVELOPMENT POLICY

At Baffinland Iron Mines Corporation (Baffinland), we are committed to conducting all aspects of our business in accordance with the principles of sustainable development & corporate responsibility and always with the needs of future generations in mind. Baffinland conducts its business in accordance with the Universal Declaration of Human Rights and ArcelorMittal's Human Rights Policy which applies to all employees and affiliates globally.

Everything we do is underpinned by our responsibility to protect the environment, to operate safely and fiscally responsibly and with utmost respect for the cultural values and legal rights of Inuit. We expect each and every employee, contractor, and visitor to demonstrate courageous leadership in personally committing to this policy through their actions. The Sustainable Development and Human Rights Policy is communicated to the public, all employees and contractors and it will be reviewed and revised as necessary on a regular basis. These four pillars form the foundation of our corporate responsibility strategy:

1. Health and Safety
2. Environment
3. Upholding Human Rights of Stakeholders
4. Transparent Governance

1.0 HEALTH AND SAFETY

- We strive to achieve the safest workplace for our employees and contractors; free from occupational injury and illness, where everyone goes home safe everyday of their working life. Why? Because our people are our greatest asset. Nothing is as important as their health and safety. Our motto is "Safety First, Always".
- We report, manage and learn from injuries, illnesses and high potential incidents to foster a workplace culture focused on safety and the prevention of incidents.
- We foster and maintain a positive culture of shared responsibility based on participation, behaviour, awareness and promoting active courageous leadership. We allow our employees and contractors the right to stop any work if and when they see something that is not safe.

2.0 ENVIRONMENT

- Baffinland employs a balance of the best scientific and traditional Inuit knowledge to safeguard the environment.
- Baffinland applies the principles of pollution prevention, waste reduction and continuous improvement to minimize ecosystem impacts, and facilitate biodiversity conservation.
- We continuously seek to use energy, raw materials and natural resources more efficiently and effectively. We strive to develop more sustainable practices.
- Baffinland ensures that an effective closure strategy is in place at all stages of project development to ensure reclamation objectives are met.

3.0 UPHOLDING HUMAN RIGHTS OF STAKEHOLDERS

- We respect human rights, the dignity of others and the diversity in our workforce. Baffinland honours and respects the unique cultural values and traditions of Inuit.
- Baffinland does not tolerate discrimination against individuals on the basis of race, colour, gender, religion, political opinion, nationality or social origin, or harassment of individuals freely employed.
- Baffinland contributes to the social, cultural and economic development of sustainable communities in the North Baffin Region.
- We honour our commitments by being sensitive to local needs and priorities through engagement with local communities, governments, employees and the public. We work in active partnership to create a

shared understanding of relevant social, economic and environmental issues, and take their views into consideration when making decisions.

- We expect our employees and contractors, as well as community members, to bring human rights concerns to our attention through our external grievance mechanism and internal human resources channels. Baffinland is committed to engaging with our communities of interest on our human rights impacts and to reporting on our performance.

4.0 TRANSPARENT GOVERNANCE

- Baffinland will take steps to understand, evaluate and manage risks on a continuing basis, including those that may impact the environment, employees, contractors, local communities, customers and shareholders.
- Baffinland endeavours to ensure that adequate resources are available and that systems are in place to implement risk-based management systems, including defined standards and objectives for continuous improvement.
- We measure and review performance with respect to our safety, health, environmental, socio-economic commitments and set annual targets and objectives.
- Baffinland conducts all activities in compliance with the highest applicable legal & regulatory requirements and internal standards.
- We strive to employ our shareholder's capital effectively and efficiently and demonstrate honesty and integrity by applying the highest standards of ethical conduct.

4.1 FURTHER INFORMATION

Please refer to the following policies and documents for more information on Baffinland's commitment to operating in an environmentally and socially responsible manner:

Health, Safety and Environment Policy
Workplace Conduct Policy
Inuktitut in the Workplace Policy
Site Access Policy
Hunting and Fishing (Harvesting) Policy
Annual Report to Nunavut Impact Review Board

If you have questions about Baffinland's commitment to upholding human rights, please direct them to contact@baffinland.com.

Brian Penney
Chief Executive Officer
March 2016

3 WASTE IDENTIFICATION AND SORTING

Waste from the exploration property will be incinerated or recycled onsite or shipped offsite to approved licenced waste disposal facilities.

Records of all waste from the Project will be maintained on site and confirmation of proper disposal through the use of waste manifest tracking systems. These records will be made available upon request.

3.1 WASTE IDENTIFICATION

A summary of the types of waste expected to be generated by the Exploration Program, and disposal method, are provided below.

Tables 3-1 and 3-2 provide the possible waste types generated at the Project site and the prescribed disposal method(s).

3.2 WASTE MANAGEMENT METHODS AND PROCEDURES

Waste remaining after application of waste minimization strategies will be managed in a practical and environmentally responsible manner utilizing the following methods appropriate for each waste type generated:

- Waste sorting at all generation points in accordance with the Waste Sorting Guidelines (Appendix A);
- Incineration of non-hazardous combustible wastes in accordance with the Incinerator Maintenance and Operation Procedure (Appendix B) and the EWS CA-100 Incinerator Technical Overview (Appendix C);
- Open burning of untreated wood, cardboard and paper products in accordance with the Open Burning of Untreated Wood, Cardboard and Paper Products Procedure (pending approval; Appendix D);
- Temporary storage and offsite shipping of non-hazardous and hazardous waste materials (Section 7);
- Temporary storage and offsite disposal of contaminated materials including soil, water and snow (Sections 7.3 and 7.4)
- Temporary storage and transport offsite for disposal of used tires (Section 7.6)

TABLE 3-1 Waste Disposal by Generation Location

Source	Waste Description	Waste Type	General Disposal Method
Offices	Computers and other electronic wastes, fluorescent lights	Recycle	Offsite recycling or disposal
	Waste paper	Combustible/ non-hazardous	Incineration
Sewage treatment plant (STP)	Biological sludge (dried solids)	Combustible/ non-hazardous	Incineration
Maintenance complex	Used batteries, waste hydrocarbon products, engine oil, oil filters, glycols, aerosol cans, refrigerants, solvents, etc.	Hazardous	Offsite recycling or disposal, possible reuse of fuel and oil for heating and other uses.
	Scrap metal, rubber, plastic	Inert	Offsite recycling or disposal
Laboratory	Chemical laboratory wastes, toxic substances	Hazardous	Offsite recycling or disposal
Domestic waste from accommodation facilities and kitchens/cafeterias	Accommodation facility garbage, food wastes	Combustible/ non-hazardous	Incineration
Inert waste from construction sites and materials from operations	Treated wood, plastics, cement, used construction materials, metal, pipes, glass, insulation, etc.	Inert	Offsite recycling or disposal
	Untreated wood/cardboard	Combustible/ non-hazardous	Incineration(Cardboard)/ open burning
Medical facility	Biomedical wastes	Hazardous	Biomedical offsite disposal
Incinerator	Ash (placed in closed drums)	Inert	Offsite disposal
Fuel spill	Hydrocarbon-contaminated soil	-	Offsite disposal
Fuel spill	Hydrocarbon-contaminated snow/water/ice	-	Offsite disposal

TABLE 3-2 Waste Handling and Disposal by Waste Type

Waste Material (Listed alphabetically)	Waste Type	Classification	General Management Method	Final Disposal
Absorbents – and other similar spill response material	Petroleum	Hazardous if used for a spill clean-up. Not TDG regulated.	Collect in white Quatrex bags or open top drums. Store full bags in the hazardous waste storage areas until final disposal. Alternatively, small amounts of absorbents (i.e. spill pads) may incinerated.	Offsite disposal Incineration
Activated Carbon	Petroleum	Hazardous. Not TDG regulated	Collect in white Quatrex bags. Store in the hazardous waste storage areas until final disposal.	Offsite disposal
Aerosol Cans	HHW	Hazardous. TDG regulated as "Aerosol, Flammable, Class 2.1, UN 1950"	Disposal bins located at various locations inside the main facilities, and at the waste management area. Store in the hazardous waste storage areas in open top drum or white Quatrex bags.	Offsite disposal
Appliances	Inert/ Chemical	May be hazardous.	Appliances may contain ozone depleting substances (refrigerator) or electronic boards. Store in contained location until final disposal offsite.	Offsite disposal
Batteries, wet (lead - acid)	Chemical	Hazardous. TDG regulated as "Batteries, wet, filled with acid, class 8, UN 2794"	Collect in black Quatrex bags in workplace sorting areas. Vehicle batteries should be drained of power and terminals should be covered with electrical tape. Stacked layers of vehicle batteries should be separated by a layer of cardboard. Store full bags in the hazardous waste storage areas until final disposal offsite.	Offsite disposal
Batteries, Lithium ion.	HHW	Hazardous. TDG regulated as "Lithium Batteries, class 9, UN 3090" and "Lithium Batteries Contained In Equipment; or Lithium Batteries Packed With Equipment, Class 9, UN 3091"	Collect and store batteries separately in water-tight containers with chalk (CaCO3), lime powder (CaO) or Vermiculite. Store in a shipping container with proper identification away from other flammable and combustible materials. Batteries should be drained of power and terminals should be covered with electrical tape. Care must be taken to ensure that the batteries are not damaged while awaiting offsite disposal.	Offsite disposal
Batteries, rechargeable (NiCad, Mercury, Lithium, Silver-Oxide)	HHW	Hazardous. Small household-type batteries are generally not TDG regulated.	Disposal bins (same as for alkaline batteries) will be located at various locations inside the main accommodation facilities. Segregate per type and transfer to different 20L pails. Transfer to 20L pail, then in open top drums. Store in the hazardous waste berm until final disposal. Computer batteries should be brought to the Environmental Representative to determine the appropriate storage and disposal methods.	Offsite disposal

Waste Material (Listed alphabetically)	Waste Type	Classification	General Management Method	Final Disposal
Batteries, dry (alkaline)	HHW	Hazardous. Not TDG regulated.	Disposal bins (same as for rechargeable batteries) will be located at various locations inside the main accommodation facilities. Transfer to 20L pail, then in open top drums. Store in the hazardous waste storage areas until final disposal.	Offsite disposal
Biomedical Waste – Sharps, human anatomical, blood, and body fluids	Biomedical	Biomedical hazard.	Contain and store in suitable biohazard containers at the medical office until disposal.	Offsite disposal
Calcium Chloride	Chemical	Hazardous. Not TDG regulated.	Collect and store in white Quatrex bags.	Offsite disposal or use as dust suppressant on roads (as authorized)
Cardboard	Inert	Non-hazardous	Suitable for open-burning and/or incineration. Store accordingly in adequate container before final disposal. Incinerate if in contact with food.	Open-burning/ Incineration
Chemicals – spent lab reagents	Chemical	Hazardous. Shipping TDG instructions should follow MSDS recommendations.	Management method should follow MSDS recommendations.	Offsite disposal
Cigarette butts	Chemical	Hazardous. Not TDG regulated.	Collect in cigarette butts receptacles outside each main entrance.	Incineration
Compressed gas cylinders	Chemical	Hazardous. TDG regulation varies depending on gas.	Safely empty cylinders of all gases. Store away from sources of heat and ignition. Return containers to manufacturer for reuse following TDG procedures.	Offsite recycling or disposal
Contaminated Soils	Petroleum	Hazardous. Not TDG regulated	Store in contained area until final disposal and/or treatment offsite.	Offsite disposal
Contaminated snow, ice	Petroleum	Hazardous. Not TDG regulated	Store in contained area until final disposal and/or treatment offsite.	Offsite disposal
Contaminated water	Petroleum	Hazardous. Not TDG regulated	Store in closed top drums or totes in the contained area until final disposal and/or treatment offsite.	Offsite disposal
Diesel fuel	Petroleum	Hazardous. TDG regulated as “Diesel, Class 3, UN 1202, FP 39°C”	Store in closed top drums in hazardous waste storage areas until final disposal. Not a waste unless contaminated by a substance that makes it unusable as a fuel. Diesel not suitable as mobile fuel can be used for heating purposes.	Onsite recovery/ Offsite disposal
Drums – empty	Petroleum	Hazardous. Not TDG regulated	Empty drums frequently contain residuals. Drain content of drum into appropriate container. Crush and package drums on pallets.	Offsite disposal

Waste Material (Listed alphabetically)	Waste Type	Classification	General Management Method	Final Disposal
Drums – residuals	Petroleum	Hazardous. Considered the same hazard as original product.	Drum residuals are to be collected in different containers for reuse (diesel, jet A, oil) or disposal (antifreeze or other product). Reuse diesel and oil for heating and other uses.	Onsite recovery/ Offsite disposal
Electronic Equipment	HHW	Hazardous. Not TDG regulated. May contain heavy metals.	Typical electronic wastes consist of used computers, cell phones, cameras, TVs and monitor screens, media players, switches, and testing equipment. Electronic wastes shall be brought to the Environmental Representative or placed in a Quatrex bag in a contained storage facility until offsite shipment for recycling or final disposal. Batteries shall be removed of equipment and managed accordingly.	Offsite recycling or disposal.
Fluorescent Lamps – bulbs and tubes	HHW	Hazardous in large quantities (trace amount of mercury). Not TDG regulated.	Bulbs will be processed using an onsite bulb eater that crushes the bulbs and captures residual mercury vapour. Crushed bulbs and filters generated by the bulb eater will be sent off site for final disposal in sealed drums/barrels.	Onsite processing /Offsite disposal
Filters – Lube oil	Petroleum	Hazardous. Not TDG regulated.	Drain and crush filters. Collect in open top drums and store in the hazardous waste storage areas until final disposal offsite.	Offsite disposal
Food Waste/ Putrescible	Domestic	Non-hazardous	Collect in plastic bags. Store in animal proof steel bins outside kitchens. Incinerate each or every other day.	Incineration
Gasoline	Petroleum	Hazardous. TDG regulated as "Gasoline, Class 3, UN 1203, FP -39°C"	Store in closed top drums in the hazardous waste storage areas until final disposal. Not a waste unless contaminated by a substance that makes it unusable as a fuel.	Waste fuel will be sent offsite for disposal.
Clean Glass	Inert	Non-hazardous, inert waste	Store in designated area until final disposal offsite.	Offsite Disposal
Glycol	Chemical	Hazardous. Not TDG regulated.	Store in closed top drums or 1,000L totes in hazardous waste storage areas until final disposal offsite.	Offsite disposal
Grease	Petroleum	Non-hazardous	Store in open top drums in the hazardous waste storage areas until final disposal offsite.	Offsite disposal
Human Waste	Domestic	Hazardous. Not TDG regulated	Human waste that cannot be treated by the onsite STP will be stored in closed drums in the hazardous waste storage areas until final disposal.	Offsite disposal
Hydraulic fluid	Petroleum	Hazardous. Not TDG regulated.	Store in closed top drums in the hazardous waste storage areas until final disposal offsite.	Offsite disposal
Incinerator Ash	Inert/ Chemical	Usually inert, if non-hazardous.	Store in open top drums in contained area until final disposal offsite.	Offsite disposal

Waste Material (Listed alphabetically)	Waste Type	Classification	General Management Method	Final Disposal
Jet A Fuel	Petroleum	Hazardous. TDG regulated as "Aviation gas, UN 1863, FP 39°C"	Store in closed top drums in the hazardous waste storage areas until final disposal. Not a waste unless contaminated by a substance that makes it unusable as a fuel. Jet A not suitable as aviation fuel can be used for heating purposes.	Onsite recovery/ Offsite disposal
Kitchen Grease/Oil	Domestic	Non-hazardous.	Collect in closed-top drums or 20L pails in a shipping container outside the kitchen. Suitable for incineration or stored in shipping containers until offsite disposal.	Incineration/ Offsite disposal
Lube Oil	Petroleum	Hazardous. Not TDG regulated.	Store in 1,000L totes in the hazardous waste storage areas until final disposal.	Offsite disposal
Metal	Inert	Non-hazardous, inert waste	Collect and store in designated bins until disposal and/or recycling offsite.	Offsite disposal
Methanol	Chemical	Hazardous. TDG regulated as "Methanol, Class 3, UN 1230, P.G. II"	Collect in UN certified container. Store in the hazardous waste storage areas until final disposal offsite.	Offsite disposal
Oily rags and similar debris	Petroleum	Not hazardous if used for cleaning. Classified as absorbent if used to clean-up spills	Suitable for incineration. Collect in drums at workplace sorting areas. Bring to incinerator and disperse between waste loads.	Incineration
Ozone Depleting Substances (ODS, i.e. air conditioning and refrigerant gases)	Chemical	Hazardous.	ODS must be removed by certified technician before disposal of unit. ODS must be stored as per instructions from certified technician.	Offsite disposal
Paint	Petroleum	May be hazardous if oil based.	Collect in white Quatrex bags. Store in the hazardous waste storage areas until final disposal offsite.	Offsite disposal
Paper Products	Domestic	Non-hazardous	Collect in incinerator waste bins. If product is cardboard, manage accordingly.	Incineration
Plastics – food packaging, bags, etc.	Domestic	Non-hazardous	Collect in garbage bags.	Incineration
Plastics – oil/ hydrocarbon containers, contaminated berm liner	Petroleum	Hazardous. Not TDG regulated.	Drain fluid in appropriate tote or drum. Collect in white Quatrex bags. Store in the hazardous waste storage areas until final disposal offsite.	Offsite disposal
Plastics – bulky	Inert	Non-hazardous	Collect and store in designated area until final disposal offsite.	Offsite disposal
Plastics – PVC	Inert	Non-hazardous	Collect and store in designated area until final disposal offsite.	Offsite disposal
Plastics – Styrofoam	Inert	Non-hazardous	Collect in white Quatrex bags in designated area until final disposal offsite.	Offsite disposal

Waste Material (Listed alphabetically)	Waste Type	Classification	General Management Method	Final Disposal
Sewage sludge	Domestic	Non-hazardous	Sewage sludge generated by the sewage treatment plant will be dewatered using a filter press and placed in drums in an animal proof secure area until it can be incinerated onsite. Alternatively, the sludge will be shipped offsite for final disposal at an approved facility.	Incineration/ Offsite disposal
Textiles	Inert	Non-hazardous	Collect and store in designated area until final disposal offsite. Incinerate if textiles came in contact with food.	Offsite disposal/ Incineration
Tires	Inert	Non-hazardous	Collect and store in laydown until final disposal offsite.	Offsite disposal
Unusual waste	To be determined	To be determined	Notify the Environmental Representative. Proper management and disposal will be determined on a case-by-case basis.	Offsite disposal
Vehicles	Inert/ Petroleum/ Chemical	Non-hazardous if drained of all fluids.	Drain all fluids. Store in designated area until disposal offsite.	Offsite disposal
Wood - scraps	Inert	Non-hazardous, inert waste	Collect and store in designated area until final disposal offsite. Suitable for incineration if in small amount.	Offsite disposal/ Incineration
Wood - treated	Inert	Non-hazardous, inert waste	Attempt to restrict bringing treated wood to site. Store for offsite disposal.	Offsite disposal
Wood - untreated	Inert	Non-hazardous, inert waste	Collect and store in untreated wood bin.	Open-burning

3.3 Project Waste Flow

3.3.1 Generation Points

Waste generated by the Exploration Program will be sorted and collected. To facilitate efficient and effective waste management, waste will be required to be disposed of in labelled receptacles based on waste-type and disposal methods outlined in Table 3-1 and Baffinland's Waste Sorting Guidelines (Appendix A).

Waste is managed to ensure that it is prevented from entering water bodies. Areas designated as waste storage will be located at a minimum distance of 31 metres (m) from the ordinary high water mark of any water body.

3.3.2 Waste Collection

Collection of wastes will be completed by personnel trained in Baffinland's Waste Sorting Guidelines (Appendix A). Sorted waste will be transported to the Waste Management Area where it will be inspected (visual inspection) upon arrival to ensure proper segregation.

3.3.3 Waste Management Area

A Waste Management Area will be established at Eqe Bay. The area will provide a central area for the collection, sorting and storage of wastes and will include:

- A central depot (one or more shipping containers) where waste will be managed, properly processed, packaged, labelled, inventoried, secured (e.g., on pallets) and stored for shipment offsite (backhaul sealift);
- Incinerator; and,
- Lined containment, for the temporary storage of hazardous wastes and contaminated materials;

A separate area will be designated for open burning, in consultation with the QIA and Water Licence Inspector (Crown-Indigenous Relations and Northern Affairs Canada; CIRNAC).

4 WASTE HANDLING AND MINIMIZATION

This Plan has been developed to ensure that Baffinland's waste management strategies focus on implementing the principles of reduction, recovery, reuse and recycling throughout the lifecycle of the Eqe Bay Exploration Property, through the following initiatives:

- Grubbed organic soil material;
- Non-hazardous waste – construction materials;
- Domestic waste from accommodations complexes;
- Sewage;
- Hazardous waste; and
- Office paper.

4.1 GRUBBED ORGANIC SOIL MATERIAL

During land disturbances required for Project operations, grubbed organic soil material will be collected and stockpiled for future reclamation efforts following the decommissioning of facilities or closure of operations.

4.2 NON-HAZARDOUS CONSTRUCTION WASTE

Project construction waste material including packing and building materials, cables and wiring and other miscellaneous items (e.g., used tools, equipment, etc.) generated during construction activities will be disposed of according to waste type (Table 3-2). Most construction waste is segregated into the following waste streams:

LUMBER

Lumber will be generated by unpacking and from the disposal of temporary supports/infrastructure. Where possible, shipments will be received on pallets that can be reused onsite. Other clean lumber waste will be stacked and made available for reuse or open burned on-site as described in Section 6 and in accordance with the Open Burning of Untreated Wood, Cardboard and Paper Products Procedure (Appendix D). Chemically treated lumber will be separated and, if it cannot be reused onsite, shipped offsite for disposal at an approved licenced waste facility.

PLASTICS

Polyethylene film and other construction plastics include packaging (containers), insulation, pipelines, wire sheath and various other construction consumables. Ad-hoc opportunities for recycling these materials will be investigated and where practical materials will be reused, otherwise they will be shipped offsite for disposal at an approved licenced waste facility.

STEEL AND SCRAP METAL

Steel and scrap metal waste will be separated from the other solid waste produced during construction activities by those who generate it. If it is determined to be economically feasible, steel and other scrap metal waste will be shipped offsite for recycling, otherwise it will be shipped offsite for disposal at an approved licenced waste facility.

MISCELLANEOUS CONSTRUCTION WASTE

All other non-hazardous construction waste will be segregated at its source into categories, based on potential for recycling, such as metal containers, plastics and corrugated board. If these materials are not suitable for reuse on-site, they will be shipped offsite for disposal at an approved licenced waste facility.

4.3 Camp Domestic Waste

Accommodations facilities will house Exploration Program personnel in addition to providing meals and other domestic support facilities (e.g. offices). Wastes generated from these facilities are anticipated to be similar in nature to general residential domestic waste, however, with a higher percentage of organic (food) wastes.

Domestic waste will be collected in secure containers and removed daily. All containers containing food waste or items potentially contaminated by food (e.g. food packaging) will be required to be secured in animal-proof storage waste bins or shipping containers to prevent access by wildlife.

The Camp Manager(s) maintains the responsibility for waste management, including source separation and disposal of waste generated at accommodations facilities in accordance with Baffinland's Waste Sorting Guidelines (Appendix A).

4.4 Hazardous Waste and Materials

Hazardous materials (other than fuels) used throughout the lifecycle of the Eqe Bay Exploration Property include:

- Lubricating oils
- Lubricating greases
- Kitchen grease
- Antifreeze
- Calcium chloride salt
- Ammonium nitrate
- Lead-acid batteries
- Cleaners and degreasers

Where the generation of the hazardous waste cannot be prevented, its management will aim to prevent waste from resulting in a potential negative effect to the health and safety of personnel and the environment.

Effective implementation of the following controls will be required to ensure that hazardous materials and hazardous wastes will be properly managed in order to minimize the potential for accidental releases to the environment:

- Hazardous materials and hazardous waste will be stored within designated lined and contained areas or within shipping containers.
- Storage containers will be leak-proof and have content names and labels clearly visible.
- Hazardous materials arriving by sealift will be stored in their original shipping containers at laydown locations at the Exploration Property until transported to their final destination.
- Lubricating oils and antifreeze will be dispensed from drums or cubes using either fitted taps or pumps and will employ drip trays.
- Regular visual inspection for leaks, drips or indications of loss will be conducted at all storage areas for evidence of accidental releases and verification that wastes are properly labelled and stored.
- Waste storage sites will be monitored and sampled in accordance with the Water Licence.
- All hazardous waste shall be clearly labelled and will not be combined with other solid non-hazardous waste.
- Transportation and packaging of hazardous waste offsite shall be coordinated and supervised by fully-trained and qualified personnel.

4.5 MISCELLANEOUS REFUSE

Disposal of miscellaneous items (e.g., tools, equipment, electronics, clothing, etc.) requiring special handling will be completed by the owner/generator under the direction of the Environmental Representative. Large items containing components of variable waste types are required to be broken-down and disposed of in accordance with Baffinland's Waste Sorting Guidelines (Appendix A).

5 INCINERATION

Combustible non-hazardous wastes generated by the Exploration Program will be incinerated to minimize the negative impacts of attraction vectors to wildlife. Incinerators will be located at the Waste Management Area.

Eqe Bay incinerators will be operated in accordance with the Government of Nunavut's Environmental Guideline for the Burning and Incineration of Solid Waste (GN, 2012a) and will be maintained as per the manufacturer's recommendations (e.g. OEM manual).

Incinerator waste will be segregated according to Baffinland's Waste Sorting Guidelines (Appendix A) and the Incinerator Maintenance and Operation Procedure (Appendix B) to ensure only suitable materials are incinerated. Incineration of hazardous wastes, non-combustible materials, or treated wood products is prohibited. The incineration of plastics will be minimized to the maximum extent practicable. Incineration of some food-related and other plastics will be unavoidable; however, best efforts will be made to reduce/prevent incineration of plastics containing chlorine molecules, which can generate dioxins and furans.

It is expected that the Eco Waste Solutions (EWS) CA-100 model incinerator or similar will be used to support the Eqe Bay exploration camp. The CA-100 model has a waste capacity of 400 lbs/batch. The Eqe Bay camp is expected to have a maximum population of 100 people. Typically, EWS uses a per capita waste generation rate of 4.4 lbs (2 kg) per person per day to calculate daily waste generation at a mine camp. It is expected that a maximum of 440 lbs/day of waste generation will be produced daily, requiring at least 1 batch/day to be incinerated. The EWS CA-100 technical overview and technical specifications brochure is included as Appendix C.

5.1 PERSONNEL TRAINING PROGRAMS FOR INCINERATOR OPERATION

Only personnel trained in the Incinerator Maintenance and Operation Procedure (Appendix B) will be permitted to operate the incinerator. The incinerator manufacturer will be requested to provide onsite specialized training as required.

5.2 AIR EMISSIONS

Air emission standards establish limits on the levels of contaminants that can be released to the atmosphere. These standards are expressed as a concentration in the exhaust gases leaving the stack and are capable of being achieved using available technology or waste diversion practices.

The following emission standards apply to solid waste incinerators operating in Nunavut and have been adopted from the Canadian Council of Ministers of the Environment (CCME) Canada Wide Standards for Dioxins and Furans (CCME, 2001) and Mercury Emissions (CCME, 2000). The maximum concentration (corrected to 11% oxygen at stack) of dioxins, furans and mercury in the exhaust gases from the stack are provided in Table 5-1.

TABLE 5-1 Air Emissions Standards for Solid Waste Incinerators

Parameter	Numeric Standard	Explanation
Dioxins and Furans	80 pg I-TEQ/cubic metre	Unit of measure is picograms of International Toxicity Equivalents per cubic metre of air
Mercury	20 µg/R cubic metre	Unit of measure is micrograms per Reference cubic metre (the volume of gas adjusted to 25°C and 101.3 kilopascals)

Opacity in the incinerator stack should not exceed 5%. While it is not anticipated that opacity levels would exceed 1% to 2% under normal operation, values greater than 5% indicate the incinerator is not performing properly and additional performance evaluation and adjustment will be required.

Immediately following the commissioning of Eqe Bay incinerators, a stack test will be conducted to confirm the incinerator is operating in compliance with the applicable air emission standards. Follow up stack tests will be competed every five (5) years for dioxins, furans and mercury to confirm the incinerator continues to remain within the applicable air emission standards. Stack test results will be provided to the applicable regulatory agencies.

EWS guarantees compliance of the incinerator with the CWS standards for Dioxins and Furans. Metals emissions (Mercury) will be controlled following Baffinland's Incinerator Maintenance and Operation Procedure (Appendix B) and Baffinland's Waste Sorting Guidelines (Appendix A).

5.3 Ash Disposal

The incineration process produces bottom ash as a process residual. Several factors influence this process including the operating conditions in the burn chamber (i.e. temperature, holding time, air turbulence and waste compaction), and the wetness and chemical composition of the waste. Disposal of incinerator bottom ash and other unburned residue from incinerator operations are completed with caution due to physical (e.g., glass, nails) and chemical hazards. Appropriate PPE is required when operating the incinerator and handling the residual ash. Bottom ash will only be handled once it has completely cooled.

All non-hazardous and potentially hazardous ash from the incineration process will be stored at the Waste Management Area in open top drums and will be shipped offsite for disposal at an approved facility on an annual basis.

5.4 Monitoring

Monitoring of Eqe Bay incinerators will include routine inspections for signs of leakage, corrosion or other physical defects. If defects are identified, an assessment of health, safety, and environment risks will be conducted prior to further operation of the incinerator, and if significant risks are identified, repairs will be completed before the equipment is used again.

Operation of Eqe Bay incinerators will be monitored using on-line sensors capable of continuous monitoring of combustion processes; this includes temperature in both the primary and secondary burn chambers, as well as in the stack. Temperature readings outside of the normal range provide warning to the operator that the system is not functioning properly. The combustion process monitor is equipped with visible alarms to warn operators of poor incinerator operation.

Incinerator operation records required to be maintained on-site and provided upon request to the Water Licence Inspector (CIRNAC) or the NWB include:

- Data from the process monitoring instruments;
- Repairs and maintenance performed on the incinerator and monitoring instruments;
- Modifications to operation procedures;
- Ash quantity and condition;
- Operator training; and,
- Incinerator logs recorded by operators that provide waste volumes, waste type and date/time of burns.

6 OPEN BURNING

Subject to approval by the NWB and the QIA, untreated wood, cardboard, and paper products will be disposed of by open burning in accordance with the Open Burning of Untreated Wood, Cardboard and Paper Products Procedure (Appendix D).

Open burning will occur in a designated area away from all other infrastructure including the Waste Management Area. Open burning disposal reduces the volume of inert waste requiring offsite disposal. Only waste suitable for open burning will be segregated for open burning disposal. Open burning activities at Eqe Bay will prohibit the burning of hazardous wastes, non-combustible materials, food waste, plastics, Styrofoam or treated wood products (plywood). To ensure removal of prohibited waste, secondary waste segregation will be completed during the loading process at the open burning area.

6.1 PERSONNEL TRAINING PROGRAMS FOR OPEN BURNING OPERATIONS

Site personnel completing open-burning activities will be required to be trained on the specific requirements necessary to maintain compliance with open-burning authorization (pending approval). Training includes a review of both Baffinland's Waste Sorting Guidelines (Appendix A), as well as the Open Burning of Untreated Wood, Cardboard and Paper Products Procedure (Appendix D). Training records are maintained on-site and provided upon request to the Water Licence Inspector (CIRNAC) or the NWB.

6.2 ASH DISPOSAL

Residual ash from the open burning of paperboard packing and untreated wood waste will be stored in open top drums (or equivalent) and shipped offsite for disposal at an approved facility. Ash will be removed from the open burn area as required.

6.3 MONITORING

On-going monitoring of open burning operations will be completed by the Environmental Representative to ensure operator compliance with Baffinland's Open Burning of Untreated Wood, Cardboard and Paper Products Procedure (Appendix D) and open-burning authorization (pending approval).

Weekly inspections of open burn area will be completed to ensure that wastes deposited remain in compliance with the procedure and are maintained in an acceptable condition and residual ash is removed.

7 WASTE STORAGE AND DISPOSAL

All hazardous waste generated at the exploration property will be shipped offsite to licenced waste disposal facilities. Prior to being shipped offsite, hazardous waste will be managed, properly processed, packaged, labelled, inventoried, secured (e.g., on pallets), as described in Baffinland's Waste Sorting Guidelines (Appendix A), and temporarily stored for shipment offsite (backhaul sealift) in designated lined and contained areas or within shipping containers.

Non-hazardous waste generated at the exploration property will be incinerated or recycled onsite, or shipped offsite to approved waste disposal facilities. Non-hazardous waste that cannot be incinerated or recycled onsite, will be packaged, labelled, inventoried, secured (e.g., on pallets), as described in Baffinland's Waste Sorting Guidelines (Appendix A), and temporarily stored for shipment offsite (backhaul sealift) at the Waste Management Area.

The following subsections further describe how specific hazardous waste types will be managed at the exploration property and expand on the management strategies described in Tables 3-1 and 3-2.

7.1 HAZARDOUS WASTE CONTAINERS

As practical, the following general waste storage requirements will be applied to the hazardous waste types generated by the Eqe Bay exploration activities:

- Store in original container when possible or in containers manufactured to store hazardous waste;
- Sound, sealable, undamaged containers;
- Store in 16 gauge (or lower) metal or plastic drums, or other appropriate container;
- Label according to WHMIS and TDG guidelines;
- Keep containers closed or sealed at all times unless in use;
- Protect containers from damage and weather;
- Train personnel in appropriate practices;
- Store in manner to prevent spills to environment; and
- Never store with food or in food containers.

7.2 HAZARDOUS WASTE STORAGE

Hazardous waste storage areas, used to temporarily store wastes prior to shipment offsite, will meet the following criteria:

- Storage areas for hazardous wastes are located at a minimum of 31 m from the ordinary high water mark of nearby water bodies;
- Storage areas for hazardous waste will be constructed to prevent discharge to the surrounding environment;

- Storage areas for hazardous waste will have emergency response equipment appropriate for the hazardous waste stored at that location; and,
- Storage areas for hazardous waste will be registered as required by applicable regulations.

7.3 On-site Containment of Hydrocarbon Contaminated Material

Soils contaminated by hydrocarbons from spills and site decommissioning initiatives will be stored in Quatrex bags until they can be transported offsite for disposal at an approved facility.

7.4 Oily Water

Oily water generated will be stored in drums or 1,000 L totes, until it can be transported offsite for disposal at an approved facility.

7.5 Ship Waste Management

Baffinland will not accept hazardous waste originating from marine vessels entering Eqe Bay.

7.6 Used Tires

Used tires are not expected to be a significant waste stream at the exploration property. Used tires generated at the exploration property will be stockpiled in shipping containers (or equivalent) in designated areas until they can be transported offsite for disposal at an approved facility. Alternatively, used tires may be recycled onsite.

7.7 Sewage Sludge

Sewage sludge generated onsite will be incinerated onsite or shipped offsite for disposal at an approved facility.

7.8 Waste Transportation Offsite

Manifests will be prepared for materials shipped offsite and the receivers will be required to maintain chain-of-custody records. Shipping will be undertaken only by those trained in the Transportation of Dangerous Goods (TDG) Regulations.

Baffinland will maintains records of waste backhauled from the exploration area and confirmation of proper disposal through the use of waste manifest tracking systems. These records will be made available upon request, to the Water Licence Inspector or the NWB.

8 SEWAGE TREATMENT

Sewage and grey water will be generated at the Eqe Bay exploration camp. A sewage treatment plant, as described in Appendix E of this Plan, or similar, will be used to treat the sewage and grey water generated by the Eqe Bay exploration camp. The sewage treatment plan will be capable of treating sewage and grey water to the water quality discharge criteria stipulated by the Water Licence.

The package sewage treatment plant described in Appendix E consists of a four-part treatment process. The first stage includes two settling tanks, the second stage includes a reactor unit, for extended aeration, and a clarifier, the third stage includes a reactor with fixed film media and clarification, and the final fourth stage includes a pump chamber to discharge the treated effluent. Raw wastewater will be pumped from a collection tank into the first and second settling tanks. The wastewater will then be hydrologically displaced into the first reactor unit for further setting and aeration, after which gravity will transport the wastewater to the second reactor unit for processing using the fixed film growth media. A sludge return air lift will circulate activated sludge from the bottom of the reactor chamber to the fixed media. Wastewater will then flow through a quiescent zone at the outlet of the reactor into the pump chamber. In the pump chamber the effluent will pass through two sets of UV lights before final discharge to an approved discharge location.

The sewage treatment plant, CWT50, described in Appendix E, is designed to treat 11.4 m^3 of raw sewage daily. A second unit will be brought online when the camp is expanded to 100 persons. The effluent will be discharged to land where the effluent will run off into the ocean. The discharge location will be approved by the Water Licence Inspector.

If the sewage treatment plant used by the Eqe Bay exploration camp, differs from the plant described in Appendix E, Baffinland will provide specifications for the sewage treatment plant to the NWB and the Water Licence Inspector (CIRNAC) 60 days prior to commissioning the plant.

8.1 PERSONNEL TRAINING PROGRAMS FOR SEWAGE TREATMENT PLANT OPERATION

Personnel operating the sewage treatment plant will trained in the sewage treatment plant's operation and will have experience operating similar plants at remote camps. The sewage treatment plant manufacturer will be requested to provide onsite specialized training as required.

8.2 MITIGATION MEASURES

The following measures will be implemented to minimize the potential for discharge of untreated or under-treated wastewater:

- The sewage treatment plant will be operated in accordance with the operation and maintenance manual provided by the vendor.

- Raw wastewater and final effluent quality will be sampled and tested regularly, in accordance with the requirements of the Water Licence.
- All issues and/or concerns with the sewage treatment plant (i.e., improper operation, pipeline rupture, system breakdown, etc.) will be reported immediately to the Camp Manager.
- In the event of an accidental release of wastewater into the environment (i.e., pipeline rupture, etc.), immediate action is required to ensure that the release is contained and prevented from reaching any water body. All sewage spills must be reported immediately to the Camp Manager, and response measures will be implemented immediately in accordance with the Spill Contingency Plan.
- Quantity of sewage discharged will be documented continuously using in-line flow monitor.
- Sludge removed from the sewage treatment plant will be dewatered using a filter press and will be placed in drums in an animal proof secure area until it can be incinerated.
- The quantity and quality of effluent treated by the sewage treatment plant will be reported as required by the Water Licence.

8.3 Contingency Measures

The package sewage treatment plant, presented in Appendix E, is a proven technology that has been used extensively at exploration and mining sites across the north. Baffinland has gained significant experience in operating similar systems during the exploration phase of the Mary River Project.

The following contingency measures will be adopted to mitigate and manage upset conditions at the sewage treatment plant that may affect the water quality of treated effluent:

- Only non-toxic cleaners will be used at the Eqe Bay exploration camp.
- Operational flexibility in the management of greywater - greywater will be either directed to the sewage water treatment plant for treatment or directly discharged to an approved sump location.
- Continued year-round maintenance and operation of the sewage treatment plant, when feasible.
- Plant design:
    - Excess storage capacity – the influent holding tank provides some excess storage capacity.
    - The sewage treatment plant is designed to treat to a much higher standard than the sewage discharge criteria normally specified by the NWB for marine discharges.

8.4 MONITORING

The quantity of treated effluent discharged from the sewage treatment plant will be monitored and recorded using inline flow monitors. To fulfill the requirements of the Water Licence, routine water quality sampling of treated effluent will be completed. Water samples collected will adhere to the protocols outlined in Baffinland's Surface Water Sampling Program - Quality Assurance and Quality Control Plan (BAF-PH1-830-P16-0001). Water samples collected will be analyzed by an accredited third party laboratory to confirm that treated effluent discharges meet applicable discharge criteria stipulated in the Water Licence.

8.5 ROLES AND RESPONSIBILITIES

8.6 CAMP MANAGER

- Provide oversight and allocation of the necessary resources for the operation, maintenance and management of the Eqe Bay Exploration Program.
- Implement this Plan in daily operations.
- Provide training and support to ensure successful implementation of this Plan.
- Initiate changes to improve and update this Plan as needed.

8.7 WASTE SYSTEM OPERATORS

- Familiarization with the relevant sections of this Plan (i.e., trained operators will operate and monitor the incinerator, sewage treatment plant and waste management area).
- Complete the necessary operational and monitoring tasks.

8.8 EQE BAY EXPLORATION PROGRAM PERSONNEL (INCLUDING CONTRACTORS)

- Read and understand the relevant sections of the WMP.
- Adhere to this Plan's protocols and procedures.

8.9 ENVIRONMENTAL REPRESENTATIVE

- Conduct routine health, safety and environmental inspections to ensure compliance with this Plan, regulations and approvals.
- Conduct water quality monitoring as required by the Water Licence.
- Submit waste and water data to regulators and stakeholders, as required by approvals.

9 TRAINING AND AWARENESS

Exploration personnel (including Contractors) will be required to obtain a general level of environmental awareness and understanding of their obligations pertaining to compliance with the applicable regulatory requirements, commitments and best practices. Exploration personnel will receive prescribed environmental training as part of Baffinland's Eqe Bay Exploration Program Site Orientation.

Additional waste management training is provided to individuals and groups of workers assuming specific authority or responsibility for environmental or waste management activities.

Ongoing review of, and modifications to, training and awareness initiatives and programs will be completed based on training requirements, findings and regulatory framework.

Refer to Sections 5, 6 and 8 for specialized training that will be given to personnel responsible for incinerator, open-burning and sewage treatment plant operations, respectively.

10 MONITORING AND REPORTING REQUIREMENTS

10.1 WASTE MONITORING AND REPORTING

The key waste monitoring and reporting requirements for the Eqe Bay Exploration Program will include the following:

- Routine environmental inspections of waste management facilities and activities to ensure compliance with this Plan and applicable approvals. Refer to the Eqe Bay Environmental Protection Plan (EPP) for the inspection forms that will be used to document compliance with this Plan.
- Monitoring and reporting the following information to applicable regulators and stakeholders:
  - Quantities of waste incinerated onsite;
  - Quantities of waste open burned onsite;
  - Quantities of treated effluent discharged to the environment;
  - Water quality data collected in accordance with the Water Licence (i.e. treated effluent);
  - Quantities of waste and contaminated materials transported offsite for disposal;
  - Waste shipping manifests and documentation detailing volumes, waste types, names/addresses of disposal facilities and disposal certificates.

The frequency of monitoring and reporting will adhere to the requirements stipulated in the Inuit Land Use Lease with the QIA and the Water Licence.

Inspection documentation and additional operational monitoring data will be made available to the Water Licence Inspector (CIRNAC) and the NWB upon request.

11 ADAPTIVE STRATEGIES

Baffinland is committed to continual improvement in its work activities with the aim of reducing risks to the environment and improving operational effectiveness. The strategy employed at Baffinland is regular monitoring supported by operational change and adoption of other mitigating measures if warranted.

Housekeeping and operational measures have been instituted. As part of the EPP, work procedures will continuously be adapted with the goal to reduce, recover, reuse and recycle waste. Regular scheduled inspections of waste management facilities will ensure continual improvement and adaptation of waste management strategies throughout the lifespan of the exploration property.

12 REFERENCES

Canadian Council of Ministers of the Environment (CCME), 2001. *Canada-Wide Standards for Dioxins and Furans.* Winnipeg.

Canadian Council of Ministers of the Environment (CCME), 2000. *Canada-Wide Standards for Mercury Emissions*. Quebec City.

Canadian Council of Ministers of the Environment (CCME), 1992. *Guidelines for the Management of Biomedical Waste in Canada.* CCME-EPC-WM-42E. CCME, February.

Government of Nunavut (GN), 2003. *Disposal Guidelines for Fluorescent Lamp Tubes.* Prepared by the Environmental Protection Division, Department of Environment. January.

Government of Nunavut (GN), 2009. *Environmental Guideline for Contaminated Site Remediation.* Prepared by the Environmental Protection Division, Department of Environment. March.

Government of Nunavut (GN), 2010a. *Environmental Guideline for the General Management of Hazardous Waste*. Prepared by the Environmental Protection Division, Department of Environment. October.

Government of Nunavut (GN), 2010b. *Environmental Guideline for Waste Paint*. Prepared by the Environmental Protection Division, Department of Environment. November.

Government of Nunavut (GN), 2011a. *Environmental Guideline for Ozone Depleting Substances*. Prepared by the Environmental Protection Division, Department of Environment. April.

Government of Nunavut (GN), 2011b. Environmental Guideline for Ambient Air Quality. Prepared by the Environmental Protection Division, Department of Environment. October.

Government of Nunavut (GN), 2011c. Environmental Guideline for Waste Antifreeze. Prepared by the Environmental Protection Division, Department of Environment. January.

Government of Nunavut (GN), 2011d. Environmental Guideline for Waste Asbestos. Prepared by the Environmental Protection Division, Department of Environment. January.

Government of Nunavut (GN), 2011e. Environmental Guideline for Waste Batteries. Prepared by the Environmental Protection Division, Department of Environment. January.

Government of Nunavut (GN), 2011f. Environmental Guideline for Waste Solvents. Prepared by the Environmental Protection Division, Department of Environment. January.

Government of Nunavut (GN), 2012a. *Environmental Guideline for the Burning and Incineration of Solid Waste.* Prepared by the Environmental Protection Division, Department of Environment. January.

Government of Nunavut (GN), 2014a. *Environmental Guideline for Biomedical and Pharmaceutical Waste*. Prepared by the Environmental Protection Division, Department of Environment. March. Retrieved from: https://www.gov.nu.ca/sites/default/files/biomedical_and_pharmaceutical_waste.pdf.

Government of Nunavut (GN), 2014b. *Environmental Guideline for Industrial Waste Discharges.* Prepared by the Environmental Protection Division, Department of Environment. April.

Nunavut Impact Review Board (NIRB), 2018. *Screening Decision for Baffinland Iron Mines Corporation's "Eqe Bay Exploration Program" Project Proposal, Qikiqtani (South Baffin) Region.* August.

APPENDIX A

Waste Sorting Guidelines

Baffinland

Eqe Bay Exploration Program
Waste Sorting Guidelines

All Eqe Bay personnel (including contractors) are required to sort their waste using the proper containers. When the waste containers are full, please contact the Camp Manager for collection and processing.

Waste Generation

Hazardous and non-hazardous wastes are generated during normal operations.

Waste Sorting

Each department is responsible for sorting their waste and restocking their working area with the required supplies (i.e. Quatrex bags).

Hazardous Waste	Non-Hazardous Waste
Hazardous waste types are stored onsite until they can be shipped offsite for proper disposal/recycling.	Non-hazardous waste types are either incinerated/recycled onsite or shipped offsite for proper disposal/recycling.
Each type of hazardous waste has an proper container that must be used to ensure safe handling, storage and disposal. The proper containers for each hazardous waste type are shown on the next page .	Wastes incinerated onsite include food, food packaging, paper, cardboard, oily rags and sewage sludge. All other waste types, including hazardous waste, are stored onsite until they can be shipped offsite for proper disposal/recycling.

Eqe Bay Exploration Program
Waste Sorting Guidelines

Waste to be incinerated onsite should be stored in designated bins at the Waste Management Area. Waste food and waste that has come in contact with food (i.e. packaging) or other wildlife attractants should be stored in designated wildlife proof bins.

Hazardous Waste Type	Storage Container
Absorbent pads or oily rags	White Quatrex bags or drums
Aerosol cans	White Quatrex bags or drums
Antifreeze/coolant/glycol	Plastic totes (cubic metre) or drums
Batteries (i.e. AA, AAA, etc.)	Drums (open top)
Chemical/lab wastes	White Quatrex bags
Contaminated water	Plastic totes (cubic metre) or drums
Contaminated soil	White Quatrex bags
Electronic wastes	White Quatrex bags
Fuel (contaminated)	Plastic totes (cubic metre) or drums
Grease	Drums
Incinerator ash	Drums
Kitchen grease	Drums
Lightbulbs	Drums
Oil	Plastic totes (cubic metre) drums
Oil filters	Drums
Oily or contaminated waste containers	White Quatrex bags
Vehicle batteries	Black Quatrex bags

APPENDIX B

Incinerator Maintenance and Operation Procedure

Baffinland Iron Mines Corporation

EQE BAY

INCINERATOR MAINTENANCE AND OPERATION PROCEDURE

BAF-XXX-XXX-XXX-XXXX

DRAFT

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Index of Major Changes/Modifications in Revision

Item No.	Description of Change	Relevant Section

TABLE OF CONTENTS

List of Tables

1 PURPOSE AND SCOPE

The purpose of this procedure is to provide a set of operational requirements for the operation of the incinerator (Eco Waste Solutions - CA 100) used to support the Eqe Bay Exploration Program. This procedure details the techniques that will be used to incinerate waste and the measures that will be employed to mitigate associated health, safety and environmental concerns.

2 REQUIREMENTS

2.1 ASSOCIATED HAZARDS AND REQUIRED PERSONAL PROTECTIVE EQUIPMENT

2.1.1 HAZARDS

There are numerous hazards associated with the management of the incinerator, including:

- Explosive gases (aerosol cans/ batteries);
- High temperature;
- Sharp objects (i.e. barrel lids, broken glass);
- Flying dust and small particles;
- Potential fuel spills;
- Encounters with wildlife (wildlife attractants);
- Electricity;
- Fire; and,
- Smoke.

2.1.2 PERSONAL PROTECTIVE EQUIPMENT

- Wear standard personal protective equipment (PPE) - Safety glasses, hard hat with reflective tape, safety boots, reflective vest, clothing in good condition, gloves in good condition and hearing protection as required.
- A half face dust mask with disposable cartridges (such as 3M 7502 Half-face respirator and 3M 2091 p100 particulate cartridge)

2.1.3 SAFETY AND ENVIRONMENTAL EQUIPMENT

- 20lb fire extinguisher
- Animal proof shipping containers for storage of incinerator waste
- Ash bins
- Spill kits
- Radio communication

2.2 Training and/or Qualifications

Operators will be trained in the operation of the incinerator using this procedure and documentation provided by the incinerator manufacturer (i.e. OEM). Training records will be documented and kept in the employees training files by the Camp Manager.

3 PROTOCOL

The following subsections describe the loading, operation and maintenance protocols for the Eqe Bay incinerator.

When operating the incinerator, operators should follow the following general safety and operational measures:

- Keep the electrical panel doors closed at all times except when performing electrical maintenance or troubleshooting.
- Allow only qualified operators to perform maintenance and troubleshooting on the equipment.
- Lockout energized equipment before conducting maintenance activities.
- Do not open the chambers doors if the Primary or Secondary Chambers are above 40 °C.
- Practice proper housekeeping and ensure access routes to the incinerator components are kept clear at all times.
- Report to any fuel leaks to the Camp Manager. Address fuel leaks.
- Do not overfill the incinerator. Overfilling the incinerator can result in poor burns and damage to the incinerator. Refer to Table 3-1 for appropriate load composition and quantities.
- Be aware of component-specific safety hazards described in this document.

3.1 Waste Load Design

The types of waste that can be processed in the incinerator are described in Table 3-1. Waste materials not suitable for processing are described in Table 3-2. When preparing a waste load, the operator shall adhere to the following guidelines.

- System capacity of the incinerator is 180 kg/burn cycle (approximately 400 lbs/burn cycle).
- Table 3-1 describes a typical 180 kg load. Operators should respect the proportions shown in Table 3-1 as practical.
- Weigh and record the weight of the waste loaded per burn.
- Prepare the load in layers: Start with cardboard or wood at the bottom, then domestic waste, then more cardboard, etc.
- Waste shall be kept relatively loose, as received, and not compacted prior to loading.
- The system should not be overloaded with plastics or wood, or any other high heat value materials.

TABLE 3-1 – ACCEPTABLE WASTE MATERIALS

Waste Type	Description	Origin	Proportion
Food Waste	Food, food packaging and containers, plastic and paper waste from food preparation	Kitchen and dining areas, office areas	55% or 99 kg/load
Domestic Waste	General refuse such as paper, plastics, cans, bottles, cardboard	Dormitory areas, recreation facilities, office areas, warehouse	30% or 54 kg/load
Packaging	Cardboard boxes, paper, plastic containers, plastic film	Inbound supplies to all work areas	10% or 18 kg/load
Wood	Pallets, crates	Construction activity, inbound supplies	
Absorbents	Rags, wipes, spill cleanup materials	From all work areas	5% or 9 kg/load
Filters – Air	Filters coated with fine particles and trapped solids, saturated with water or fluids (glycol, lube, oils, fuel)	From water treatment facility, or generated at point of maintenance of vehicles, machinery and equipment	
Biomedical Waste	Bandages, dressings, gloves, swabs	Medical clinic	

TABLE 3-2 - UNACCEPTABLE WASTE MATERIALS

Solid Waste	Examples
Bulky Materials	Automotive or heavy equipment parts such as engine blocks and transmissions.
Non-Combustible Materials	Drywall, bricks, concrete, soils
Radioactive Materials	Smoke detectors, laboratory wastes
Potentially Explosive Materials	Explosives (i.e. ammonia nitrate, pre-packaged explosives). Pressurized vessels including, but not limited to propane tanks and aerosol cans.
High Alkaline or High Acid Materials	Batteries
Solvents	Solvents such as acetone, xylene, methanol

3.2 Operating Instructions

The operation of the incinerator follows four (4) general steps that take place over an 8 to 11 hour period, depending on the waste load.

3.2.1 Step 1 - General Inspection of the System

- Ensure the Primary Chamber has been cleaned out, and the chamber is cool (less than 40 °C).
- Ensure that the fuel tank is adequate for the burn cycle (valves, levels).
- Perform a general visual inspection of the primary and secondary chambers to identify any deficiencies or issues.

3.2.2 Step 2 - Loading Waste into the Primary Chamber

- Load the waste.
- When loading the waste, avoid contact with refractory (wall modules, door jams, sills, lintel, etc.) to avoid unnecessary damage.
- Ensure the waste is loaded according to the incinerators 180 kg capacity and proposed waste load composition, as shown in Table 3-1.
- Weigh and record the weight of the waste loaded per burn on the incinerator log.
- Close the door.

3.2.3 Step 3 - Starting Burn Cycle from Control Panel

- Ensure that there are no faults on the panel.
- Ensure the burn time is adequate based on the manufacturer guidelines.
- At the control panel, start the system. The system will initiate the purge cycle, followed by the burn cycle and end with the cool down cycle.
- Periodically check on the incinerator as the incinerator progresses through the burn and cool down cycles.

3.2.4 Step 4 - Cleaning Out Ash

- Once fully cooled and the temperature is below 40 °C, proceed to slowly open the door of the Primary Chamber.
- Inspect the interior of the Primary Chamber for wear and/or damage and inspect around the door seals to ensure the door will maintain a tight seal upon closure.
- Inspect the color and condition of the residual ash:
    - A complete burn cycle results in light-grey ash.
    - If ash appears wet and dark, reintroduce the residual ash into the waste load of the following burn cycle.
- Shovel out residual ash into a designated open top drum (do not use fuel drums or other drums contaminated by hazardous residues).
- Once the drum is full, seal the drum, label the drum as “Incinerator Ash” and write the date of the last burn cycle added to the drum. Transport drum to the designated storage area for shipment offsite.

- Inspect the incinerator's door seals to ensure there are no gaps between the door gasket and the door jamb.
- Close the door of the Primary Chamber.
- Ensure the area around the incinerator is left clean and tidy and that access routes to the incinerator's components are kept clear.

3.3 Routine Maintenance

Only qualified operators and technicians will be allowed to perform maintenance on the Eqe Bay incinerator. Maintenance of the incinerator will adhere to the manufacture's guidance and provided equipment manual.

4 ROLES AND RESPONSIBILITIES

The following roles have specific accountabilities that must be met to ensure the Eqe Bay incinerator is operated in compliance with this procedure. The following roles and responsibilities shall be followed to safely and successfully operate the incinerator.

The Camp Manager will be responsible for ensuring that all personnel are fully trained and competent to meet the expectations of this procedure.

4.1 CAMP MANAGER

The Camp Manager will be responsible for supervising the operation of the incinerator in accordance with this procedure. Specifically, he or she shall be responsible for:

- Supervising the Incinerator Operators in the safe execution of this procedure.
- Implementing this procedure and ensuring that Incinerator Operators are qualified and knowledgeable in the operation of the Eqe Bay incinerator and waste management protocols.
- Document operator training and manage training documents.
- Providing the PPE required for the safe operation and maintenance of the incinerator.

4.2 INCINERATOR OPERATOR

The Incinerator Operator, under the general supervision of the Camp Manager or designate, will be responsible for executing the following tasks at the incinerator:

- Understanding and following this procedure, including:
    - Ensuring that no inappropriate materials are processed and that each batch contains an average mix of waste that resembles the design waste characteristics (particularly volume/weight per batch and waste composition as presented in Table 3-1).
    - Understanding the monitoring and record keeping requirements.
    - Ensuring the burn cycle lengths are appropriate for the waste loads and that burn cycles are complete and produce high-quality ash residual.
- Adhering to the health and safety protocols and wearing the proper PPE when operating the incinerator.

4.3 ENVIRONMENTAL REPRESENTATIVE

The Environmental Representative will be responsible for executing the following tasks:

- Overseeing incinerator operations to ensure that practices are in compliance with the guidelines set out in the Waste Management Plan and this document.
- Collect monthly incinerator data from the incinerator's PLC.

APPENDIX C

Eco Waste Solutions

Incinerator Technical Overview

ECO WASTE SOLUTIONS

Clean Burning Solutions

Product Spotlight

CA Model

technical description

Two Stage Process: 1st stage (Primary Burner) burns waste and produces inert ash and combustible gases. 2nd stage Afterburner (Secondary Chamber) combusts off-gases to eliminate smoke and minimize contaminants.

Cycle Time: Burn cycle of 2-6 hours per batch depending on waste type and density. Followed by a 1-2 hour cool down. Average total cycle length is 5 hours.

Controls: Integrated control panel with programmable logic control, supervisory control, monitoring, data acquisition and remote diagnostic capability. PC computer workstation optional.

Operating Environment: Inside a building or protected from the weather. Weatherproofing options available.

Other Options: Air Pollution Control System (APCS) - Scrubber, Continuous Emissions Monitoring System (CEMS).

Warranty: 1 year after start-up on defective parts or workmanship.

technical specifications

External Casing/Finish: 1/4" (0.6 cm) mild steel, sandblasted and coated with rust inhibiting and heat resistant paint.

Burners: Electronic auto spark, packaged industrial burners, secondary burners modulate.

Fuel Supply Options: Diesel, Fuel Oil, JP8, Natural Gas, Arctic Diesel, Propane. Auxiliary waste oil burners can be added.

Operating Temperature:

Primary Chamber: 1200°F (650°C) - 1560°F (850°C)

Afterburner: 1832°F (1000°C), with a 2 second retention time.

Power: Typically 3 phase, 120/208 V, 60 Hz. Other power supply options available.

advantages

- Available in 3 standard sizes
- Compact format
- Easily transportable
- Reduces waste volumes by over 90%
- Smokeless and odourless
- Automatic process control
- Low operating and maintenance costs

acceptable waste streams

Community Waste
Camp Waste
Biomedical Waste

capacities

Model		CA-50	CA-100	CA-600
Waste Capacity	Domestic Waste* lbs/batch	200	400	750
	Biomedical Waste** lbs/batch	120	240	450

*Based on typical solid waste densities.
**Based on typical biomedical waste densities.

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Eco Waste Solutions (EWS)

Technical Overview, Technical Specifications & Itemized Firm Quotation For Batch Incineration Equipment

Prepared for: Baffinland Iron Mines

Steensby Exploration Camp
Baffin Island, Nunavut, Canada

Submitted by: Eco Burn Inc. o/a

Eco Waste Solutions & Eco Waste Solutions Nunavut (collectively "EWS")

Quotation No: BSEC– CA 100C

Quotation Date: March 29, 2018

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Eco Waste Solutions is a manufacturer of innovative point-of-need waste systems. Our mission is to provide robust, reliable, thoughtfully-designed equipment that is environmentally responsible. We foster a climate of energy and engagement within our team and with our clients; and we rely on procedures and practices that evolve with input from our clients and participation of employees in a continuous improvement effort.

Eco Waste Solutions' goal is to be a world leader in sustainable waste management solutions for our planet.

INCINERATION AND WASTE MANAGEMENT

Eco Waste Solutions (EWS) is a Canadian environmental technology company focused on point-of-need waste management solutions. **EWS** incineration systems offer a sustainable waste management alternative for projects in remote locations and regions that are ecologically sensitive, where proponents want to avoid the environmental legacy of a landfill or other traditional disposal methods used in the past.

Why is incineration often the best solution for point-of-need waste management?

- Landfilling of waste, without prior treatment, is no longer an acceptable practice for domestic waste management. Many countries and the European Union have banned the practice of landfilling without recovering to the maximum extent possible and treating the residual while recovering valuable energy.
- The construction of a landfill is the creation of a permanent feature that requires on-going monitoring and management.
- With land disposal there is always a risk of material and/or microbes migrating from the landfill via wind, animal or bird movement, or water run-off causing contamination far from the site of disposal.
- Shipping material to other communities or sites for disposal is now viewed as pushing the problem onto someone else to deal with.
- Transportation is also heavily dependent upon fossil fuels, impacts the air and contributes to greenhouse gases – shipping waste long distances has a high environmental cost.
- The potential for contamination and liability is greatly increased once waste leaves the generator's site. Shipping material away from the creation point can be risky, if the material is mishandled or there is an accident the waste can pose an uncontrolled threat to the population and/or the environment

How does incineration offer a better solution?

- Processing waste at the point-of-need reduces transportation impacts and lowers the risk of contamination to waterways and/or the land.
- The ash residual, even with the presence of metal and glass containers, will represent less than 10% of the original volume of waste. The process includes a long and thorough burn down of the material to an ash residual that has minimal unburned carbon, is non-leaching and essentially inert.
- Waste materials are exposed to the required temperatures for destruction of disease causing pathogens, an important consideration in communities because of the risk of home care medical waste which often ends up in the landfill. Pathogen destruction makes incineration a suitable means for disposing of dewatered sewage sludge.
- Modern incineration with good control and high temperatures ensures that there will be no smoke and/or odour – a huge improvement over the uncontrolled burning that often occurs at landfills. Packages can be supplied with integrated air pollution control scrubbers guaranteed to meet the strictest standards in the world.
- Incineration is a fully commercialized and trusted method of waste disposal. Experimental technologies such as gasification will take many years before they are fully commercialized, dependable methods of waste disposal that a community can be relied upon for their long-term waste management needs.

ECO WASTE INCINERATION EQUIPMENT: RUGGED AND FIELD-PROVEN

A modern advanced technology incinerator, like the **Eco Waste Solutions ECO Model** proposed in this document, can be the basis of a pollution prevention approach to waste management for a remote mining operation.

Having an incinerator at the point-of-need allows for immediate and full control of the disposal of waste. This cost-effective waste management solution turns waste into non-toxic, non-leaching ash residual that will represent less than 10% of the original volume of waste prior to incineration.

The **Eco Waste Solutions (EWS)** standard equipment packages are well known to be high quality and extremely robust. In 1995, **EWS** began supplying equipment to the Canadian Department of Defence (DND). The first contract with the DND was at Canada Forces Station Alert, the northern-most inhabited place in the world. The equipment deployed to Alert in 1995 is still serving this remote military post today.

The expectation of military ruggedness was influential in the early **EWS** equipment designs and remains the construction standard used by **EWS** today. **EWS** products are noticeably more robust than traditional incinerators. Materials of construction most notably the steel shell, refractory lining, electrical and controls are more advanced and higher grade than are traditionally available. These factors are strongly correlated with equipment durability and lifespan; factors that have led to the strong following **EWS** has earned among its very demanding clients in the mining and military industries. Considerable R&D investment and continuous product improvement have led to a thoughtful design that is more practical, operator-friendly and reliable in the field.

EWS also uses the latest in control technology including PLC (Programmable Logic Controller) computer-based system automation and the latest communication protocols.

Finally, one of **EWS'** most distinguishing features is the higher standard of environmental integrity inherent in its products. **EWS** has proven its environmental performance through more independent third-party testing and verification than any other incinerator manufacturer.

How is Eco Waste Solutions Technology different?

- Our industry-leading equipment with computerized automation and comprehensive monitoring has become the benchmark for many new regulatory requirements
- The automated operation of the system minimizes the need for a highly technical operator and constant operator input
- Customer feedback has been the basis for many of the advancements that our technology has over traditional equipment. The product has developed with a focus on ease of use, safety and reduced labor.
- EWS has a patented incineration process with unique process control that minimizes harmful emissions particularly Dioxins and Furans

DESIGN SPECIFICATION CRITERIA

Reference

Baffinland Iron Mines has invited **Eco Waste Solutions (EWS)** to submit a proposal for the supply of a modular incinerator for the **Steensby Exploration Camp Project.**

Project

The **Steensby Exploration Camp Project** is an advanced exploration project, located in northern Baffin Island, Nunavut.

Baffinland requires an incinerator system on-site commissioned, as soon as possible to manage the solid waste that will be generated at the camp.

Waste Quantity & Description

Quantity

As per Baffinland, the exploration camp will have a population of ~50 people with the possibility to expand up to 100 people in the next 5 years.

Typically, as a conservative number, EWS uses a per capita waste generation rate of 2 kg per person per day, to calculate daily waste generation, at a mine camp. Therefore, the daily waste generation rate expected at the Steensby exploration camp has been calculated at ~100 kg/day and up to ~200 kg/day within the next 5 years.

Description

Baffinland did not have any waste description available. Instead, EWS has made waste assumptions based on 20+ years past experience working with mining companies and engineering firms hired to procure equipment for the mining sector.

In short, the solid waste generated is considered to be typical mining camp waste such as, but not limited to, food waste, domestic waste and packaging material.

Regardless of recycling programs that may or may not be available, it is assumed that the solid waste, listed above will include some plastic packaging and containers. The waste is assumed to be bagged, stored in skips/bins around the camp and then brought to the incinerator by truck or some other means.

It is important to note that inappropriate materials including, but not limited to, reactive/explosive chemicals and items containing heavy metals will not be processed in the incinerator proposed herein.

Please see *Appendix A: Acceptable & Unacceptable Waste Streams*

DESIGN SPECIFICATION CRITERIA (CONTINUED…)

EWS Waste Assumptions

In addition to the daily waste generation rate calculated above, one of the most critical assumptions to be made in planning a waste management/incineration disposal system is the estimation of the waste density.

With batch incinerators in particular, waste density is critical to determining the size of the incineration system.

EWS has based the waste characteristics assumptions upon our previous work experience for similar applications and on industry standard. Please see table below:

Description	Total Moisture Content	Average Density	Average Heat Value
Domestic Camp Waste	Up to 40%	10-15 lbs/ft^3 160-240 kg/m^3	6,500 BTU/lb 15,150 KJ/kg

PRODUCT SELECTION

EWS offers a range of products to accommodate point-of-need waste disposal. These incinerator systems can be combined with other components, as required, such as weigh scales, building enclosures, air pollution control systems (scrubbers), continuous emissions monitoring systems, heat recovery features, etc.

The needs of the **Steensby Exploration Camp** can be addressed by using batch incineration equipment. The Eco Waste Solutions **CA Model** is an excellent option and is often selected because of the minimal labour requirements of the once or twice per day operation cycle. Also, combustion of waste materials as a single batch load without disturbance to the waste bed (by continuous feeding of waste) produces a much cleaner emission particularly lower dust emissions.

EWS has recommended the purchase of the CA 100 Model containerized system sized as follows:

	CA 100
Maximum Incinerator Processing Rate	Up to 180 kg per batch
Hours of operation	Burn Cycle: 5-6 hours, Cool-Down Cycle: 3-5 hours
Maximum Waste processed in 24 hours (operated twice per day only)	360 kg per day (over 2 batches)

The **CA 100** containerized system is a small format modular incinerator. The main components of the incinerator are permanently installed in one modified shipping container. However, the incinerator requires some assembly on site.

Addressing Waste Oil On-site

EWS' enclosed offering includes a **Waste Oil Burner**, **Tank and Piping Package**, to dispose of any used waste oil generated at the mine site.

This packaged burner can utilize some of the waste oils generated on site and function as a fuel source to operate the incinerator system. This packaged burner will not only dispose of the waste oils in an environmentally sound manner, but it will also decrease the daily operating costs of the waste incinerator system.

There is no need to mix waste oil/used oils with diesel for combustion purposes. Each fuel source should be used independently at the same time to operate the system.

CA 100 MODEL INCINERATOR PACAKGE

CA 100 Model Overview
(CA 600 depicted)

1. **Primary Chamber**
2. **Secondary Chamber**
3. **Main Control Panel**

ECO WASTE SOLUTIONS TECHNOLOGY

COMPONENT	FUNCTIONAL OVERVIEW
Primary Chamber	In the first stage, a burner is used to elevate the temperature of the **Primary Chamber** to ignite the waste. Once the Chamber reaches a temperature of approximately 650-850°C, the burn process becomes self-fuelling and the burner will shut off. To save fuel and control temperatures, only when the energy contained within the waste is depleted will the burner periodically turn on. At these operating temperatures, waste is allowed to fully combust and is rendered sterile. Waste is reduced in volume by over 90%. Independent tests have shown that the residual ash is non-hazardous, non-leaching and essentially inert. After enduring the combustion process, metals and glass remain intact. Preservation of metals and glass not only protects the refractory lining from damage caused by melted and fused metals and glass, but also allows for post-combustion recycling where possible.
Secondary Chamber	As waste burns in the Primary Chamber, gases containing the products of combustion enter the high temperature zone of the **Secondary Chamber** for cleansing. The Secondary Chamber is sized to retain the incoming gases for a **minimum of 2 seconds** at 1000°C. This chamber utilizes a packaged, high output, fully modulating burner to maintain the required temperature (even in the absence of energy input from the first stage which is important when processing wet or low energy waste such as food). This stage employs a large blower, tightly controlled by the control system using a variable frequency drive on the motor. The blower creates the turbulence required to mix the gases and oxygenate them. This fosters the high efficient combustion required to break hydrocarbon chains into carbon dioxide and water vapour
Main Control Panel	There is one **Main Control Panel** that controls all of the interconnecting modules. The Operator has one simple interface to start the equipment, view system status and change control settings if required. The system utilizes a PLC (programmable logic controller) to automate its functions. Incinerator critical process parameters such as temperature, combustion airflow and burner output are operated using EWS' patented system control program to maintain optimal combustion.

EWS BATCH SYSTEM OPERATING PHILOSOPHY

The proposed incinerator is permanently installed in a modified shipping container to house the unit. Generally speaking there is no need for pre-sorting of the waste if source separation is practiced to keep inappropriate materials out of the waste feed.

The system operates in a batch style. As proposed, the system includes a large front door for easy access to load the waste manually. It is expected that each day the **Primary Chamber** will be loaded to design capacity or at a minimum, to half capacity. If waste quantities are not sufficient to operate the machine daily, it can be used to store the waste until requirement is met. The use of a weigh scale to confirm daily throughput and for record keeping is recommended and included as an option.

Once loading is complete, the door is sealed shut and the **Secondary Chamber** is fired. The system is interlocked so that **Primary Chamber** waste is not allowed to combust until the **Secondary Chamber** is at operating temperature. Once this occurs, usually within the first 20 minutes of the cycle, the **Primary Chamber** cycle is initiated. During this phase, gaseous products of combustion produced from the solid waste burning in the **Primary Chamber** are burned off in the highly oxygenated, turbulent environment of the **Secondary Chamber** for up to 2 seconds at a temperature of 1000°C to complete the combustion reaction.

Typically, the Operator only remains present to load waste and supervise the beginning of the process, generally the first hour of the burn, and then is no longer required to be at the incinerator. The system will complete the burn-cycle and cool-down phases automatically. Based on the waste quantity and description, the burn-cycle is expected to occur over 5 to 6 hours, but could be longer depending on waste characteristics, to allow for thorough burn down. The cool-down phase that automatically follows is generally 3 to 5 hours. At completion, the operator will then be able to open the **Primary Chamber** door and clean out the ash. This is generally performed during the second part of the day or the next day prior to loading the **Primary Chamber** with another batch of domestic camp waste material.

Waste oils such as waste crankcase, hydraulic and other lubricating oils can be burned in the **Secondary Chamber** of the modular incinerator system by utilizing the optional item for purchase, **Waste Oil Burner, Tank and Piping Package.** The heat value of the waste oil is significant and can reduce the need for virgin fuels when they are being processed greatly reducing the system's operating costs and solving another waste problem on-site.

Waste oils, when available, should be delivered to the system on a regular basis. Waste oils will be pumped from a tanker truck or from a storage drum using a customer supplied pump, to the **Waste Oil Burner's** integral waste oil metering tank. The waste oil feed rate will be metered automatically based on the system's temperature control loop.

The entire process will be controlled by the PLC in the **Main Control Panel**. All key operating parameters will be controlled to factory pre-set settings using the integrated PLC. For simplicity of operation, the **Main Control Panel** comes with a user interface that utilizes the EWS proprietary HMI monitoring and control application viewable on a full-colour graphic display with touch screen controls. The Operator can see the status of all the critical components and visual alarms for any malfunctions. The software also allows for logging and recording of system data, including historical trends. With this feature, it is not necessary to constantly monitor the process.

SPECIFICATIONS: CA MODEL BATCH INCINERATION SYSTEM

INCINERATOR COMPONENT	DETAILS
General Overview	• Model **CA 100** • Custom sized, high capacity, two-stage (dual chamber), controlled air, batch style incineration system with internal insulation and refractory lined chambers with burners and blowers • Factory assembled, pre-piped, pre-wired and pre-tested prior to shipping • Some disassembly required for shipping purposes • Designed with lifting lugs for installation and maintenance purposes • Designed to meet all local codes and standards

Primary Chamber	• One (1) chamber to hold up to a maximum of 180 kg of waste material per batch
	• Total throughput is 360 kg per day, if operated twice a day
	• Batch cycle time: 5-6 hours (burn cycle) and 3-5 hours (cool-down)
	• Operating temperature of 650°C to 850°C
	• Includes:
	  • Manifold with air inlets (ports) for combustion air and blower for cooling
	  • Viewing ports to permit safe observation of the combustion process during the burn cycle
	  • Large front access door for on-ground loading of waste and for manual ash removal

Secondary Chamber	• Separate vessel from the Primary Chamber to expose gaseous products of combustion to high temperature
	• Operates at 1000°C with a retention time of 2 seconds
	• Includes:
	  • Manifold air inlet (ports) for combustion and cooling air with excess air blower
	  • Viewing ports to permit safe observation of the process
	  • Access door for maintenance

Outer Shell/ Casing	• 6 mm (1/4” steel) thick carbon (mild) steel refractory lined, sand blasted, primed, painted with inhibiting and heat resistant paint
Refractory Lining	• Combination of durable, resilient refractories; castable and ceramic fiber modules.

INCINERATOR COMPONENT	DETAILS
Diesel Burner Package	• CSA approved burners • General: Forced draft, pressure-mechanical atomizing, with built-in blower to supply combustion air, complete with silencer and damper, oil pump driven by blower motor, complete with integral relief valve and filter, pressure gauge, high voltage ignition transformer. • Control: electronic combustion control relay with scanner to control combustion and to supervise flame. Fuel control cut-off, ignition and supervision of burner operation. Main burner in the Secondary Chamber is fully modulating.
Diesel Day Fuel Tank	• Double-walled constructed fuel day/storage tank capacity of 2200 L, to be installed by others in accordance with applicable codes and standards • Storage fuel tank allows for interstitial monitoring and includes a spill contaminant box for filling • Integrated low-level switch shuts burner off, when tank level reaches minimum • Valve train from burners to container wall included. Interconnecting piping from tank to burner maximum 10' • The packaged burner has an integrated fuel pump to suction fuel from the supplied tank, no additional pump is required, if located within 15' • Customer to use own transfer pump to fill tank • Tank location to be determined based on site location
Waste Oil Burner, Heated Waste Oil Tank with Mixer and Heated Piping Package **(winter rated)** *Itemized separately in Pricing Section*	Packaged supplementary burner for processing waste oils at a rate of 13 litres per hour. Includes: • Automatic control package as well as all necessary valves, pressure gauges/switches, fuel supply and return piping. Piping will be heat-traced (with thermostat) for outdoor use. • Doubled-walled tank specially rated to contain waste oil. Capacity: 1100 litres. • Includes a low level shut off (to be installed in the field) • It is recommend that the tank to be located outside. It is anticipated that the waste oil may contain some water (less than 5% bv). Therefore a stir mixer has been included to prevent liquid stratification. An in-tank immersion heater and heat tracing of the lines have been included has been included. • Valve train from burners to container wall included. Interconnecting piping from tank to burner maximum 10'
Blowers	• One (1) in Primary Chamber, used for cool-down only • One (1) in Secondary Chamber for Oxidation, VFD controlled

INCINERATOR COMPONENT	DETAILS
Stack	• Self-supporting exhaust stack, refractory lined carbon steel • Refractory held in place with Type 310 SS (stainless steel) anchors • Stack sections with flanged/bolted connections for mounting on the outlet from the Secondary Chamber Container • External surface is sand blasted, primed and painted with high temperature paint • Includes Air Emission test/sampling ports with caps • Includes opacity monitor ports
Main Control Panel Package	Main Control Panel with motor starters, overloads and fuses for all components is housed in a NEMA 12 enclosure. Features include: • Variable Frequency Drive (VFD) controls the Secondary Combustion Fan • Single point electrical connection • Emergency stop switch Integrated Allen Bradley Programmable Logic Controller (PLC) automatically monitors the process, and controls the following functions: • Temperature control, air/fuel modulation, system interlocks • Environment Canada's **Technical Document for Batch Incineration (March 2009) compliant monitoring and data acquisition system**. Equipment includes temperature sensors (primary, secondary and stack), differential pressure sensors with transmitter, monitoring of burner functions, auxiliary burner operation and fan amperage monitoring via current transducer, door position interlock monitoring, high temperature limit and interlock, low fuel level limit and interlock, air proving switch interlocks and integrated weigh scale to record the weight of waste prior to incineration

<table>
<tr><th>INCINERATOR COMPONENT</th><th>DETAILS</th></tr>
<tr><td>4G Control System</td><td>Touch-Screen Operator Control Panel Display makes system start up and operation visual and intuitive. The display also allows the Operator to view operating parameters (settings and signal outputs) during operation.

• Pre-installed with EWS' user friendly easy to understand graphics customized to reflect the package's unique configuration and components.
• Screens include graphic representation of the equipment with status of all major components, display of alarms or system faults and data trending using historical charts
• All system inputs above are recorded and logged for record-keeping purposes
• Data acquisition system allows for historical trending of key operating conditions
• The system automatically records operations to a USB Key on the HMI. Data can be transferred to a computer for future use. This feature is also useful in managing data for submission to regulatory bodies</td></tr>
<tr><td>Process Monitoring[1]</td><td>
<table>
<tr><th>ELEMENT</th><th>DETAIL</th></tr>
<tr><td>Base System Parameters</td><td>Continuous Process Monitoring Includes:
• Primary Chamber, Secondary Chamber and Stack Temperature;
• System Pressure and Draft</td></tr>
<tr><td>Analyzer Type</td><td>Temperature: Thermokinetics thermocouple
Pressure Transmitter: Dwyer transmitter</td></tr>
<tr><td>Measurement Sensitivity</td><td>Temperature range: 0 C to 1,250C
Pressure range: -2” WC to 2” WC</td></tr>
<tr><td>Data Acquisition System</td><td>Integrated into the HMI (touchscreen) and logged internally and displayed in historical trending graphs.</td></tr>
</table>
</td></tr>
</table>

INCINERATOR COMPONENT	DETAILS	
Continuous Emissions Monitoring System[2] (CEMS) *Itemized separately in Pricing Section*	**Base System Parameters**	Measures Opacity
	Compliance	EPA PS-1
	General	• Flanged mounting to stack ports • Transceiver/Reflector • Local control panel (standard specifications available, other specifications may be available) • Air purge Assembly
	Calibration	Calibration kit with 3 standards and carrying case included (on-site calibration or RATA by others)
	Data Acquisition System	Signal outputs sent to the incinerator PLC for display on the local HMI.

Note:

1. These items are included as part of our standard supply and are at no additional cost and will comply with CCME and Nunavut requirements

2. Nunavut Department of Environment " Environmental Guideline for Burning and Incineration of Solid Waste" section 4.3 "Commercial Camps" lists the monitoring and control systems required as "key operational parameters must be monitored using on-line instruments capable of continuously measuring the combustion process and stack emissions quality."

INCINERATOR COMPONENT	DETAILS
Optional Electronic Weigh Scale	The Environment Canada's **Technical Document for Batch Incineration (March 2009)** requires that materials are weighed prior to incineration to avoid exceeding the incinerator's rated capacity. To ensure that this step is taken, **EWS** recommends an integrated weigh scale that will track weights automatically instead of manual methods but pricing and specifications for one of each type is provided. An accessory for measuring the weight of waste materials charged to the incinerator. The package will be integrated with the incinerator so that it automatically logs and totals the weighs and signals a cut-off when the maximum weight of waste has been reached. • Low profile above ground 3' x 3' with 5000 lbs capacity • Mild Steel platform and base • Hermetically sealed (protection from dust, dirt and liquids) • Self-aligning ball bearing suspension of scale • Wall-mountable local weight indicator for Operator viewing at point of use c/w LED digital display in IP69 enclosure (rated for temperatures from -10 C to +50 C) • Includes analog output module (4-20mA) to send signal to the incinerator PLC to automatically record measured values
Optional Spare Parts Packages	The following recommended spare parts packages can be purchased at the same time or at a later date to keep at site as inventory, when required: • Commissioning & Start Up Spares • Special Tools required for installation, operation or maintenance • Capital Spares • Operating Spares For budgetary purposes, EWS has provided estimated figures herein.
Domestic Packaging	This containerized packages includes two (2) 20' ISO shipping containers to transport all incinerator components to site: 1) Incinerator Housing Container: high-cube container 2) Shipping Container: to transport smaller incinerator components such as stack sections, spare parts packages, etc. from EWS facility. Small components will be packaged appropriately (in crates or skidded).

MODIFIED SHIPPING CONTAINER SPECIFCATIONS

BUILDING COMPONENT	DETAILS
General	• One sea-worthy container modified by EWS to act as an enclosure for the proposed incinerator. Finished product supplied with marine survey. • Pre-piping, pre-wiring of incinerator proposed, then tested, prior to shipping
Outside Dimensions	• 8' wide x ~20' long x 9.5' high (High Cube container)
Wall Construction	• Continuous-corrugated steel panels and steel plate reinforced floor
Roof Construction	• Rigid steel framework supports the corrugated steel roof
Roof Modification	• Roof opening and flashing for weather-tight seal
Floor Construction	• Removed original container wood floor and reinforced the base with S4@13 beams • Installed tubing 1" solid bar on top of the cross members at 13" centre, 20' long • Installed steel plates 44W stitch weld the plates to solid bar • Weldedplates to the bottom rail and the seams, install unistrut • Strong, non-combustible, slip resistant, easy to clean
Door (s)	• Shipping container barn-doors at each end (non-modified)
HVAC	• Includes one electric space heater • Includes 3 ventilation louvers • Includes wall mounted fan c/w switch for manual operation when required
Lighting	• Outdoor lighting above man-door with photocell • Indoor lighting: 3 LED fixtures c/w 1 wall switch
Electrical	Breaker panel for all above named electrical devices c/w 2 spare breakers

Estimated Shipping Dimensions and Weights

20' High Cube Container for Primary chamber, Secondary chamber (LxWxH)	6090 x 2440 x 2896 mm	20 x 8 x 9.5 ft
20' High Cube Container Weight	7257 kg	16,000 lbs
20' ISO Container for secondary chamber, stacks, tanks etc. (LxWxH)	6090 x 2440 x 2590 mm	20 x 8 x 8.5 ft
20' ISO Container Weight	19,000 kg	41,900 lbs

EWS DOCUMENTATION PACKAGE

The following list defines the EWS standard documentation package.

Additional documentation can be provided but must be agreed upon and defined in the contract. Also, additional documentation may result in increased costs.

DOCUMENT NAME	FORMAT	QUANTITY
Production Schedule*	Electronic PDF file	1
ISO Quality Plan*	Electronic PDF file	1
ISO Inspection & Test Plan	Electronic PDF file	1
Installation, Operation, Maintenance & Training Operator Manual	Hardcopy in 3-ring binder and files on a compact disc	2 binders, 2 CDs In English
Equipment Layout Drawing – General Arrangement* with weights and dimensions	Electronic PDF file	1
Itemized Spare Parts Lists	Electronic PDF file	
Piping & Instrument Diagram*	Electronic PDF file	1
Electrical Wiring Diagram	Electronic PDF file	1

Note*: Items highlighted above are typically included in the preliminary documentation package which will be submitted to client at 2ARO (After Receipt of Order).

ITEMIZED PRICING: INCINERATOR w/ MODIFIED SHIPPING CONTAINER

CA 100 INCINERATOR PACKAGE WITH MODIFIED SHIPPING CONTAINER		
Item	**Description**	**Unit Price $CAD**
1	**CA 100 Modular Containerized Incineration System** • As per technical specifications given herein • Includes EWS Documentation Package given herein • The bracing of smaller incinerator components within the shipping container • Loading the containers onto Purchaser's nominated transportation supplier	$321,100
2	**Start Up & Training Package (Commissioning)** • 1 Technician, 7 days on-site for system installation check, system start-up • This is performed once assembly has been completed and photos have been provided to EWS • $3000 per additional day on-site	$35,860
3	**Expediting Charges (4 weeks) to meet sealift schedule**	$44,000
4	**Requested:** **Waste Oil Burner, Heated Waste Oil Tank with Mixer and Heated Piping Package (winter rated)**	$26,480
5	**Requested:** **Opacity Monitoring System to meet Nunavut Regulation**	$55,000
	FCA BURLINGTON, ONTARIO TOTAL EQUIPMENT PACKAGE	**$482,540**

ITEMIZED PRICING: OPTIONAL ITEMS FOR PURCHASE

OPTIONAL ITEMS FOR PURCHASE		
1	**Recommended Commissioning Spares Package[1]**	$4,840
2	**Recommended Special Tools Package[1]**	$9,350
3	**Recommended Operations Spares Package [1]**	$26,400
4	**Recommended Capital Spares Package [1]**	$14,300
5	**EWS Installation and Assembly Supervision Package [2]** • 1 Technician on-site 5 days to supervise equipment installation and assembly by buyer's local trades people • $3000 per additional day on-site • Based on 1 day travel to site	$23,760
6	**Electronic Weigh Scale**	$7,865
7	**Shipping cost of incinerator package to Valleyfield, Quebec utilizing one (1) stepdeck truck[3]**	$2,500

Notes:

1) Spare parts packages are estimated at this time. Upon receipt of signed Purchase Order and after completion of in-house detailed engineering, EWS will provide itemized spare parts list with firm pricing. Spare parts packages are considered critical as mine site is located in remote location.

2) EWS Installation/Assembly Supervision Package is not mandatory but recommended

3) Shipping cost is estimated at this time and is based on truck availability. Upon receipt of signed Purchase Order (PO) and after completion of in-house detailed engineering, including confirmation of actual ship date, EWS will obtain a firm shipping cost to Valleyfield

EWS TECHNICAL ASSISTANCE RATES

In-field Service & Training Rate	Price	Description
Standard Rate	$3,000.00	per day for standard ten (10) hour day (Monday to Friday)
Overtime Rate	$375.00	per hour for weekdays (Monday to Friday) in excess of ten (10) hour per day
Weekends/ Holidays	$375.00	per hour for Saturday, Sunday or Holidays in excess of ten (10) hours per day
Weekends/ Holidays Overtime Rate	$560.00	per hour for Saturday, Sunday or Holidays in excess of ten (10) hours per day
Travel Time	$850.00	per day
Travel Costs	TBD	Travel expenses charged out at cost + 10%
Standby Time	$850.00	per day

EWS MAINTENANCE PACKAGES

EWS is committed to working with our customers to ensure that they have reliable, well maintained equipment.

Therefore, we offer Maintenance Packages to help manage the total cost of ownership. Planned and budgeted service and maintenance costs are considerably less expensive and less difficult to manage than emergency repairs or impromptu service calls. The cost of a Maintenance service contract is generally outweighed by the costs of any downtime with unplanned emergency service calls.

With the purchase of a Maintenance Package we can also offer discounted technical assistance rates and training rates. For more details please request a quotation for an EWS Maintenance Package

EWS QUOTATION TERMS

1. Equipment quotation valid for 30 days

2. Excludes all applicable taxes, duties and tariffs

3. Subject to correction in the event of errors and/or omissions

4. Incinerator to be operated using diesel oil

5. Pricing is FCA EWS Shop in Burlington, ON. However, upon request, EWS can arrange shipping of incinerator package to Valleyfield, Quebec. An estimated freight rate has been provided, herein, as an optional item for purchase.

6. Incinerator air emissions testing that may be required by Environmental Regulators must be carried out by an independent, third-party, accredited laboratory. Definition of the test plan, arrangements for testing and the contract with the lab is normally arranged by the Owner. EWS can assist the Owner in finding a suitable lab and planning for the test. EWS can also arrange to have a Technician on-site during the tests. Additional fees apply.

7. **EWS** Technical Services
   - All pricing is subject to change based on actual days on-site and unforeseen circumstances while on-site.
   - All travel expenses (air travel, taxi, etc.), accommodations and other expenses incidental to the work will be charged and invoiced directly to the customer at cost plus 10%. Charges will be substantiated by copies of receipts and billed separately.
   - **EWS** Technician will be working 12 hour days
   - Weekends are included in package price
   - Travel days included in package price but not listed for total days on site.
   - Standby days are not included and will be charged at $850 per day, invoiced to customer separately

8. Optional items for purchase such as, but not limited to the following, are not included:

   a. Maintenance Packages
   b. Signed and sealed drawings by a P.Eng., if required
   c. Any upgrades external to proposed design. EWS requires all applicable specifications, such as but not limited to climatic conditions and mechanical, especially Control & Electrical specifications to give revised price, if those apply.

ITEMS BY OTHERS: (not included in equipment price)

1. Site preparation, including concrete pad or other suitable level surface
2. Installation and assembly of incinerator
3. Final electrical terminations and power to main control panel and junction boxes
4. Environmental permits, testing, bonding, local permits
5. Shipping arrangements and cost to final site in the Nunavut
6. Crane and forklift for off-loading equipment at site
7. Mobilization to and from Jobsite by EWS technicians (air travel, taxi etc.) and Room and Board on-site. To be billed separately at $ per Diem.
8. Time for site specific safety orientation or other safety requirements such as Medical Exam (if required)
9. Air Emissions Testing and Test Plan by Independent Certified Laboratory

EWS PAYMENT TERMS

Eco Burn Inc. o/a Eco Waste Solutions manufactures equipment on a custom order basis. Therefore, the Schedule of Payments is as follows:

Progress payment schedule:

- 20% Down Payment with Purchase Order
- 30% of Purchase Order after all major sub-orders placed (steel, refractory and electrical) as evidenced by un-priced work orders
- 40% of Purchase Order upon readiness to ship
- 10% of Purchase Order upon system commissioning or 90 days after readiness to ship, whichever occurs first

EWS DELIVERY

The incinerator will be ready-to-ship from EWS facility in Burlington, ON, Canada, by client's preferred shipping carrier at 15 **weeks** upon receipt of down payment and signed PO. For example, if EWS receives PO by **Monday April 2nd**, the system will be ready to ship on **July 15, 2018**. Note that to meet the July 15 ship date an expediting fee is required as presented in the itemized pricing to meet the 15 week ready to ship, otherwise ready to ship is 20 weeks.

EWS ENVIRONMENTAL PERFORMANCE

Eco Waste Solutions (EWS) is a leader in providing environmentally responsible waste management equipment. EWS has certified air emissions test data proving that the equipment can reproducibly achieve the emission regulations referenced in the RFQ.

The Government of Nunavut is a signatory to the CCME (Canadian Council of the Ministers of the Environment) CWS (Canada Wide Standards). It is therefore assumed that these limits will be imposed on this project as with other projects in the region. These limits can be met using the ECO Model incinerator packages proposed herein when processing the described waste in accordance with factory recommended operating procedures.

The waste types to be processed are considered non-hazardous and it is assumed that any/all hazardous materials including batteries will be eliminated from the incinerator waste stream. The waste types to be processed are typical of camp waste and should not include any heavy metals or other problematic compounds.

However, it should be noted that heavy metals cannot be controlled by incinerator design. To avoid the need to add an additional air pollution control system (scrubber) to the package it is important that waste segregation and tracking procedures are in place whenever waste is to be incinerated and meet the regulations specified. In particular, materials that may contain Mercury should be diverted away from the incinerator waste in-feed.

EWS will guarantee compliance of the Incinerator Package with the Canada Wide Standards for Dioxins and Furans

Pollutant	**Limit**
Dioxins & Furans	80 pg/ Rm3 TEQ

NO guarantee is included for the any METALS (Mercury, Arsenic, Cobalt, Chromium, Copper, Manganese, Nickel, Cadmium, Lead and Thallium). All metals have been left out of the scope of the guarantee as they are not controlled by the equipment but rather a function of the waste input. If waste is properly segregated emissions will be well below those given as limits.

Please note, control equipment for metals can be added to the scope if metals in the waste cannot be controlled, pricing for this additional equipment can be provided upon request. EWS is a leader in providing environmentally responsible waste management equipment.

EWS Performance Guarantee Criteria

1. The owner and/or operators are responsible for installing and operating the unit according to the manufacturer's instructions and in compliance with local codes.

2. Only the prescribed, non-hazardous waste will be processed during normal operation.

3. The waste mix during testing must be proven to be representative of the waste details provided herein in "EWS Waste Assumptions" defined in this document.

4. The owner / operator is responsible for preventative measures to ensure that no unapproved waste is processed.

5. The unit must be operated within the rated operating ranges according to instructions and ensuring that the incinerator is not overloaded. The owner / operator will ensure that each chamber is not charged with any load weighing greater than stated capacity or 75-80% of the chamber's internal capacity by volume per burn cycle (as indicated by the lowest aspect of the opening of the breech, or the burner port of the Primary Chamber). The chamber volumes are calculated to provide enough space for the total weight at the assumed density in the area below the burner port.

6. All waste processed must be weighed and recorded, and weights must not exceed the design capacity of the system.

7. Equipment must only be operated by persons who have been trained by EWS Technicians.

8. The equipment must be operated in accordance with EWS Operating and Maintenance Instructions.

9. The Operator must not create excess air and particulate emissions by stoking of the waste bed during burning or continuous feeding. Both actions are not acceptable.

10. Dusty, granular and friable materials that are expected to generate particulate matter should be avoided.

11. Operator is responsible for ensuring the safe operation of the unit, including good housekeeping practices such as ash cleanout prior to re-loading the unit.

12. The unit must be maintained according to the Eco Waste Maintenance Schedule including all EWS recommended daily, weekly and monthly, preventative maintenance procedures outlined in the EWS Operator Manual. Compliance with the EWS Maintenance Program must be well-documented including evidence of parts replacement and labour.

13. Corrective maintenance procedures must also be carried out to maintain the system in good working order at all time.

14. Spare parts must be kept in inventory to accommodate the prompt replacement of any worn or damaged parts and materials.

15. Modification, abuse or other impairment of the unit voids all warranties and equipment performance obligations by Eco Waste Solutions.

16. If these conditions are not met Eco Waste Solutions (EWS) cannot assure the performance of the unit as designed.

17. Performance test plans for the emissions will only consider emissions produced after the “start-up phase” of the burn cycle has concluded but before the burn cycle ends and the cool down is initiated.

18. In the event that the equipment does not meet the limits identified above, EWS has the option at its own expense to make adjustments or additions to the equipment, to ensure that compliance can be met.

19. Items that may affect the EWS Performance Guarantee Criteria that are not included with the price of EWS equipment or services:

- Services of independent experts, testing labs or any costs associated with testing such as purchase or rental of equipment
- CEMS utilized for the Performance Test must have been RATA tested and calibrated within 14 days of the Performance Test.
- An Eco Waste Technician must be present at the Performance Test

EWS EQUIPMENT WARRANTY

Equipment Warranty

The warranty period provided by **Eco Waste Solutions** ("**EWS**" or the "Corporation") is 18 months from notice of ready-to-ship or 12 months from start-up at Purchaser's site, whichever occurs first (the "Warranty Period). To the original Purchaser, **EWS** warrants that the products and parts manufactured by the Corporation and supplied hereunder shall be free from defective workmanship and material during the Warranty Period. In the case where **EWS** has purchased components from other vendors or suppliers ("3rd Party Components"), the warranty is limited to to **EWS** supplying the part to the Purchaser (F.O.B. Purchaser site). For all warranty issues, including **EWS** manufactured components and 3rd Party Components, the Purchaser must provide written notice to **EWS** within three (3) days after defect is discovered.

EWS will provide all labour related to **EWS** manufactured components for the Warranty Period. **EWS** has the option to use outside labour to fulfil its Warranty obligation. The Purchaser cannot use local labour for Warranty items unless agreed to by **EWS** in writing. If the Purchaser proceeds with labour without **EWS** agreement, the Warranty will be null and void, and will be at the full cost of the Purchaser.

Equipment Covered by Warranty

Equipment supplied under a purchase order to **EWS** including:

- Primary and Secondary Chamber
- Connecting ductwork between Primary and Secondary Chambers (Breech Sections) and the Stack Sections
- Controls – Manual, Electronic and Electric

Extent of Warranty Coverage

All costs related to the repair or replacement of system components where failure is due to defect in material, workmanship or design is covered by **EWS** for one year from the date of repair or replacement.

Replacement due to abuse, misuse, and/or lack of maintenance or carelessness is not covered. Wear from normal use, or alternative disposal costs are not covered.

There is no warranty on the following parts and/or any consumables:

- All burner flame-front parts
- Thermocouple elements + protection tubes
- Electrodes, photocells
- Gaskets, Seals and tubing
- Fuses, light bulbs and glass assemblies
- Nozzles, filters
- Refractory Surface Cracks*
- Tubing

*Note: Normal in high temperature applications

Warranty Provisions and Exceptions

EWS does not guarantee or warrant, either expressly or implied, the materials and workmanship of supplies, materials, equipment or machinery manufactured by third parties and furnished and installed by **EWS** (outside of the scope of this proposal) in the performance of the Work, to the extent such supplies, materials, and equipment or machinery is itself an end product with its own customary warranty.

EWS shall endeavor to obtain from all such vendors and suppliers and assign to Purchaser the customary warranties and guarantees of such vendors and suppliers with respect thereto. **EWS** shall, at the sole expense to Purchaser, render reasonable assistance to Purchaser when requested in order to enable Purchaser to enforce such warranties and guarantees by third party manufacturer's suppliers.

EWS will not be liable for any consequential damages, loss or expense arising from any change in or alteration to equipment of its manufacturer such changes or alterations having been made by any persons other than personnel of **EWS** or its agents, in which event such agents must have written permission of **EWS** prior to making such changes or alterations.

EWS shall in no event, be liable for consequential damages as a result of any breach of this agreement by or for any other reason. This warranty shall not apply to products or parts not manufactured by **EWS** or to equipment parts which shall be subject negligence, accident or improper control, improper operation, maintenance, storage, or damage or circumstances beyond the control of **EWS** or to other than normal use or service. Regarding parts of the equipment purchased by **EWS**, no warranty is made other than that offered by the original equipment manufacturer.

THE ABOVE ARE **EWS**' SOLE WARRANTIES, AND THE REMEDIES SET FORTH ABOVE CONSTITUTE PURCHASER'S EXCLUSIVE REMEDIES IN THE EVENT SUCH WARRANTIES ARE BREACHED. WITH RESPECT TO THE CONSTRUCTION AND MECHANICAL FUNCTION OF THE PRODUCTS, EWS MAKES NO OTHER WARRANTIES OF ANY KIND WHATEVER, AND THESE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES OR GUARANTEES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

ECO WASTE SOLUTIONS

Acceptable Waste-Streams

The **Eco Waste Solutions Waste Oxidizer** can process a range of waste materials. The following list has some of the potential waste streams that can be effectively processed in our system. This list is only a guide and should not be assumed to be an exhaustive list of materials. Please contact EWS for more details.

Acceptable Waste Materials Suitable for Processing in Eco Waste Solutions Technology

Solid Waste	Description	Origin
Food Waste	Food, food packaging and containers, plastic and paper waste from food preparation	Kitchen and dining areas
Domestic waste	General refuse such as paper, plastics, cans, bottles, cardboard, newsprint	Dormitory areas, recreation facilities, office areas, warehouse, plant and production facilities
Packaging	Cardboard boxes, paper, plastic containers, plastic film, styrofoam, poly-weave bags	Inbound supplies to all work areas.
Wood waste	Skids, pallets, crates, including wood materials contaminated with chemical residues from Cyanide or explosives	Construction activity, inbound supplies, reagent and chemical packaging.
Absorbents	Rags, wipes, spill cleanup materials	From all work areas
Filters – Air and Fluid	Filters coated with fine particles and trapped solids, saturated with water or fluids (glycol, lube oils, fuel)	From water treatment facility, or generated at point of maintenance of vehicles, machinery and equipment
Medical Waste	Bandages, dressings, gloves, swabs, syringes, sharps	Medical clinic or first aid centre
Tires & Rubbers	Tires, belts, hoses	From vehicles and equipment maintenance shop
Low-level radioactive waste[1]	Personal protective equipment (gloves, overalls, etc.), pallets, packaging, rags, construction debris that have come in contact with radioactive elements.	From maintenance activities, operations and construction activities
Liquid Waste[2]	**Description**	**Origin**
Glycol	Used antifreeze	From vehicles and equipment maintenance shop
Used Oils	Used lubricating and hydraulic oils, including synthetics	From vehicles and equipment maintenance shop
Semi-solid Waste[3]	**Description**	**Origin**
Sewage sludge	Dry filter cakes	From sewage treatment plant dewatering equipment
Kitchen grease, oils	Solid kitchen fats, grease, used cooking oil	Kitchen grease traps, fryers

Note: the following items require special features and handling please consult with EWS for details

1. Processing of radioactive materials requires the inclusion of specifically designed air pollution control system.
2. Glycol can be blended with waste oil (up to 5%) – only with optional upgraded waste oil burner package.
3. Dewatered sewage sludge and kitchen grease can be comingled with waste – restrictions apply.

Unacceptable Waste-Streams

The following is a list of some of the waste-streams that should not be processed in the Eco Waste Oxidizer. This list is only a guide and should not be assumed to be an exhaustive list of materials. Please contact EWS for more details and to discuss your specific waste processing requirements.

A waste and procurement audit is highly recommended and encouraged to ensure that all sources of heavy metals are identified and diverted to other disposal methods. Small amounts of materials containing heavy metals may be acceptable if air pollution control equipment specially designed for metals removal is included with the package.

Unacceptable Waste Materials - NOT Suitable for Processing in Eco Waste Solutions Technology

Solid Waste	Description	Origin
Bulky Materials	Automotive or heavy equipment parts such as engine blocks and transmissions	From vehicles and equipment maintenance shop
Non-Combustible Materials	Drywall, asbestos, bricks, concrete, soils	Construction activity
Radioactive Materials	Smoke detectors, laboratory wastes	From Buildings, laboratories
Potentially Explosive Materials	Aerosol spray cans, large propane tanks, other pressurized vessels. Actual explosives	From warehouse, plant and production facilities
Heavy Metals	Items containing lead, mercury, cadmium, for example: batteries, electronic devices, fittings, old pipe work, fluorescent light bulbs, electrical switches, thermometers, PVC plastics, aluminum solder, photovoltaic cells	From maintenance activities, operations and construction activities
Liquid Waste	**Description**	**Origin**
High Alkaline or High Acid Materials	By-products of industrial processes, unrefined fuels	From warehouse, plant and production facilities
Solvents	Solvents such as acetone, xylene, methanol	From vehicles and equipment maintenance shop

ECO WASTE SOLUTIONS

SAMPLE

ASSEMBLY & INSTALLATION PROCEDURES

CA 600WC

Corporate Office:

Eco Waste Solutions

5195 Harvester Road, Unit 14

Burlington, ON, Canada L7L 6E9

Tel: 905-634-7022 Fax: 905-634-0831

Email: info@ecosolutions.com

Web: www.ecosolutions.com

Introduction

The units will require assembly in the field. Consult Eco Waste Solutions (EWS) for component weights so that properly sized cranes are available at the site for unloading and erecting.

The majority of this unit has been pre-assembled at the factory inside the high cube 20' container, but the upper section of the secondary chamber, the flashing from the container to the secondary chamber and the stack sections will have to be assembled on-site.

Lifting lugs are provided on stacks, and major accessories. These lugs should be used in setting the pieces into position. Do not attach lifting chains or cables to piping or mounting flanges as they may be damaged. Avoid dragging lifting gear across painted surfaces as this will cause damage to the high temperature paint. When placing the incinerator into position be extremely careful not to subject the refractory to mechanical shock as this may result in refractory damage.

Additional utility connections are as follows and some instructions follow at the end of this section:

- Electrical
- Propane

Incinerator Assembly and Installation Procedures

Assembly of CA 600WO Incinerator System

Reference: Drawing: CA 600-01-02 General Arrangement (GA)

Step 1: Foundation for containers

The incinerator's container, the storage container and related components must be installed on a level concrete pad or compacted gravel pad. It is recommended that appropriate consultation with civil engineers and/or architects is taken before designing an appropriate foundation.

Please refer to EWS supplied drawings CA-600-01-04 Foundation Support Details.

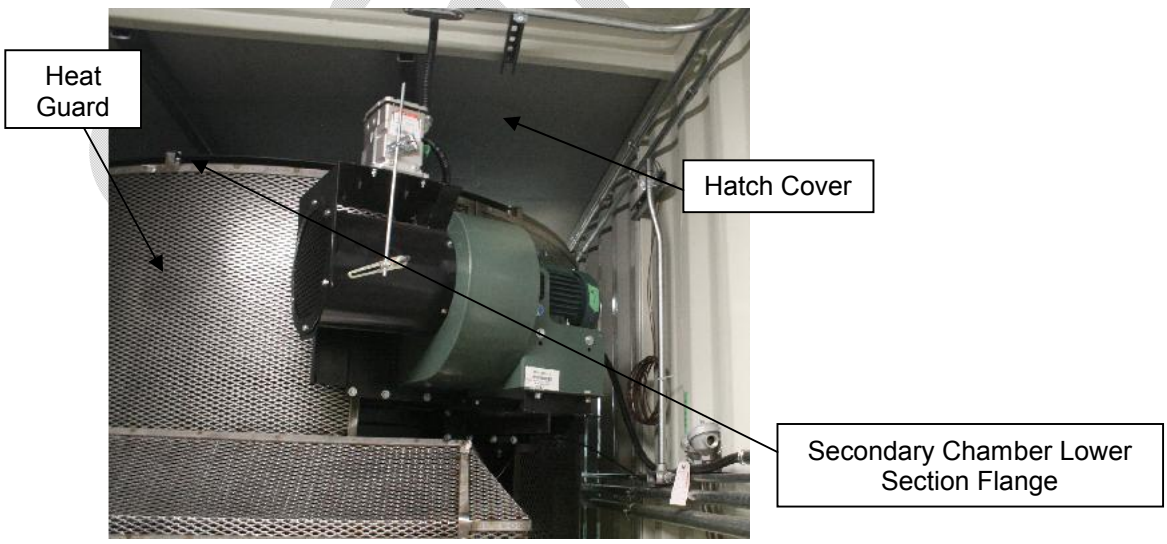
Once the containers are installed on the appropriate foundation, the primary chamber and its components, as well as the lower section of the secondary chamber and its components will be fully installed, assembled and wired.

Step 2: Secondary Chamber Upper Section

Remove the hatch cover installed on the container roof for protection during shipping and the heat guard that was installed on top of the secondary chamber flange for shipping.

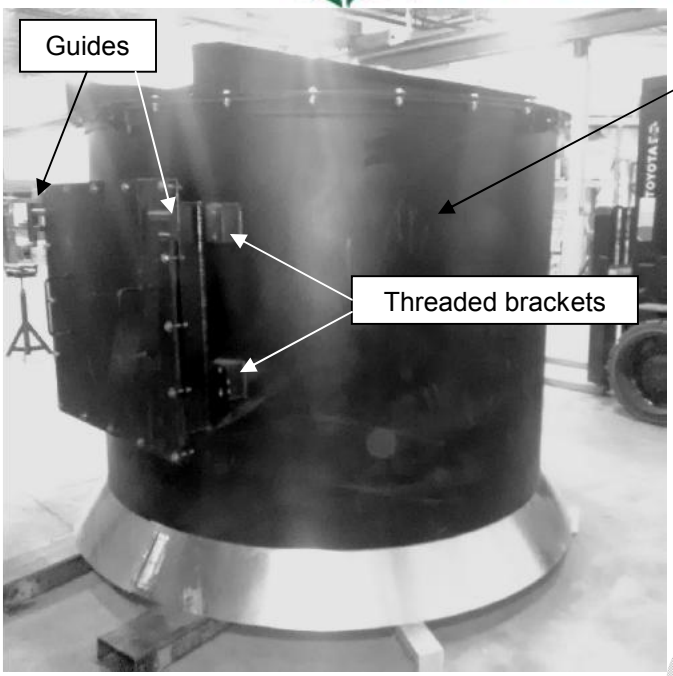
Install the *Secondary Chamber Upper Section* aligned with the *Secondary Chamber Lower Section*. Lower *Secondary Chamber Upper Section* slowly onto *Secondary Chamber Lower Section* through the opening on the top of the container, compressing the insulating blanket between the *lower* and *upper sections* of the *Secondary* Chamber.

Align bolt holes and install the ½" x 2" UNC bolts with flat washer from the top of the aligned flanges, leaving the ends without nuts, re-install the heat guard but this time under the flange, bolt together the upper section the lower section and the heat guard using the flat washers, the lock washers and the nuts provided.

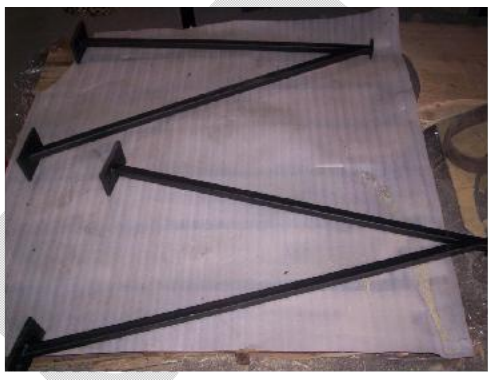


Step 3: Secondary Chamber Door

With the door attached to the secondary chamber, disassemble the guides attached to the door. These guides will ride on the rails shipped loose



Rails

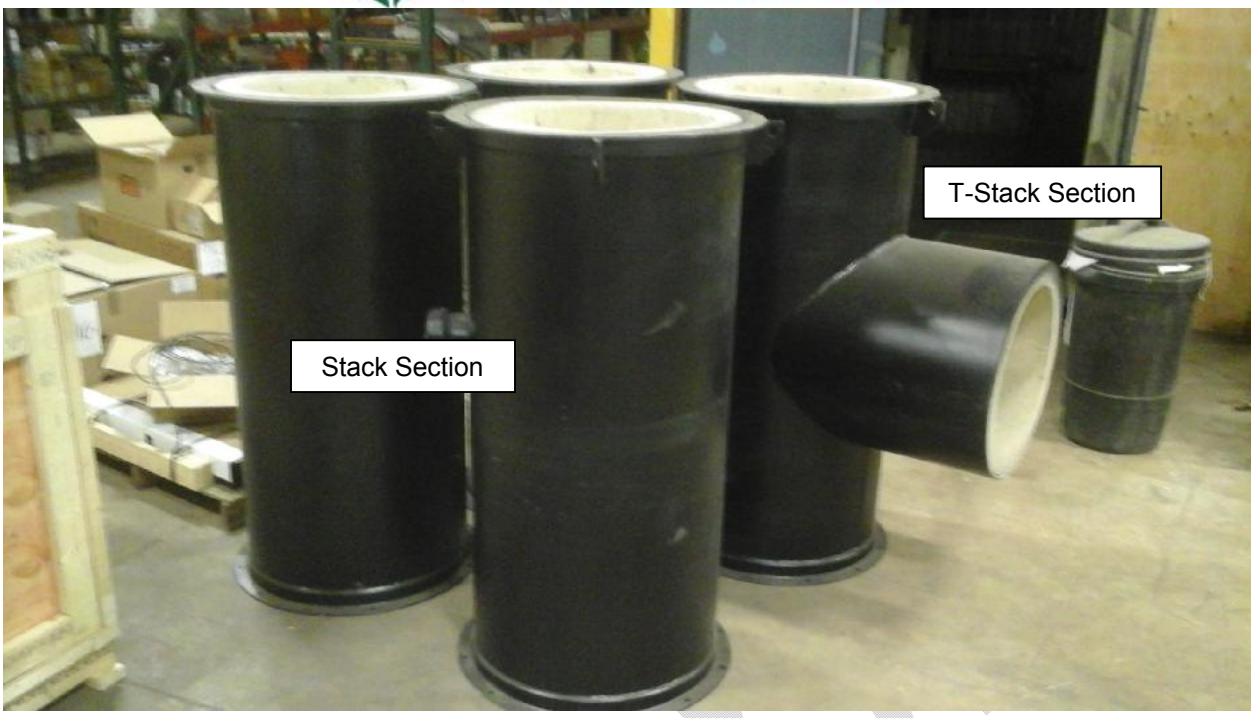


Install the rails to the secondary chamber using the pre-installed threaded Brackets

This secondary chamber door can only be opened when the incinerator is cold and for maintenance purposes.

Step 4: T-Stack and Stack Sections
Install stack gaskets between stack sections.

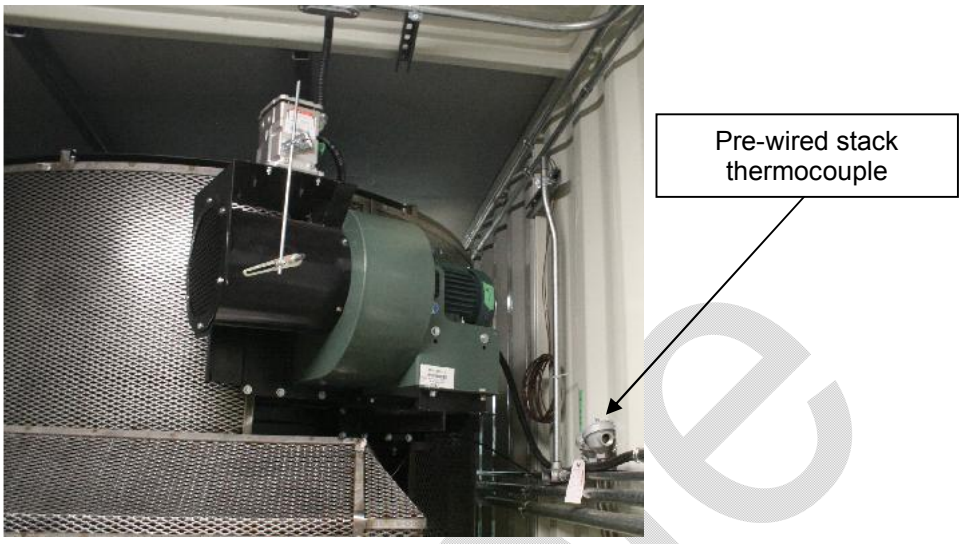
Install refractory-lined *T-Stack Section* on top of the *Secondary Chamber* using the hardware provided. Then install the next three *Stack Sections* as per the drawing using hardware provided.



This is a Sample Photo only of Erection of the Stack Sections

Step 5: Stack Thermocouple

Install the pre-wired stack Thermocouple at port in the T-Stack (not shown in picture).



NOTE When wiring the thermocouples there must be no splices between the Main Control Panel and the thermocouple.

On the Thermocouples the red wire is NEGATIVE and the Yellow is POSITIVE.

Step 6: Roof Flashing

Once steps 1 through 5 are completed, install the container's roof flashing to prevent rain, snow or dust to get inside the container. Use plenty of high temperature silicone in all the transition surfaces (chamber body to collar, flashing to collar and flashing to container frame) before installing the screws to fix the flashing to the chamber and to the container.

Collar installed to Upper Secondary Chamber Body

Flashing sections to be installed over the collar and attached to the container opening frame

Step 7: Propane Gas Connections
Reference: Drawing CA 600-01-02 General Arrangement (GA)

The Propane gas tank and evaporator are pre-assembled on a skid; the gas trains for the burners are pre-installed in the container. The connection from the tank/evaporator skid to the burners' gas train has to be carried on-site (by client's qualified contractors). There must be a clearance of at least 25' (7,620mm) from the tank/evaporator skid to the container, or a distance according to the local code.

Propane Skid

Propane Burners gas Train

NOTE All Propane Gas connections to be done by a certified technician and should satisfy all local codes (all lines to be pressured tested), including the distance between the incinerator system and the tank.

Step 8: Electrical Connections
Reference: Electrical Drawings provided

NOTE All electrical connections, terminations and conduit installation to be done by a certified electrician and should satisfy all local codes.

Most of the internal incinerator wiring of the incinerator was completed at the factory; the pre-wired stack thermocouple needs to be installed in the T-Stack.

The external wiring necessary om-site (by client's contactors) is from the *power source* to the *Main Control Panel,* from the incinerator's container to the storage container and from the container to the propane vaporizer

Step 9: Start-Up

NOTE **CAUTION**: Do not attempt to place the equipment into operation until an EWS Service Technician has checked out all equipment and interlocks.

Upon completion of mechanical erection, interconnection of equipment and provisions of utilities as described above, arrangements should be made with the EWS field service department for scheduling of a service technician for initial start-up.

An EWS representative must perform start-up of all incinerator systems unless specifically arranged otherwise in writing by EWS.

Attempts to start-up incinerator systems by the buyer without prior written approval may result in revocation of all expressed or implied warranties.

APPENDIX D

Open Burning of Untreated Wood, Cardboard and Paper Products Procedure

Baffinland Iron Mines Corporation

EQE BAY

OPEN BURNING OF UNTREATED WOOD, CARDBOARD, AND PAPER PRODUCTS PROCEDURE

BAF-XXX-XXX-XXX-XXXX

DRAFT

Prepared By: Andrew Vermeer
Department: Sustainable Development
Title: Regulatory Reporting Specialist
Date: December 7, 2018
Signature:

Approved By: Thomas Iannelli
Department: Exploration
Title: Head of Exploration
Date: December 7, 2018
Signature:

DOCUMENT REVISION RECORD

Issue Date MM/DD/YY	Revision	Prepared By	Approved By	Issue Purpose
12/07/18	DRAFT	AV	TI	DRAFT – Issued for Permitting

Index of Major Changes/Modifications in Revision

Item No.	Description of Change	Relevant Section

TABLE OF CONTENTS

1 PURPOSE AND SCOPE

The purpose of this procedure is to provide a set of operational requirements for the controlled open burning of paper, cardboard and untreated wood waste at the Eqe Bay exploration property. This procedure details the approved techniques for open burning activities and the measures that will be employed to mitigate associated health, safety and environmental concerns.

2 REQUIREMENTS

2.1 HAZARDS AND PERSONAL PROTECTIVE EQUIPMENT

2.1.1 HAZARDS

There are numerous hazards associated with open burning activities, including:

- Hand injuries, such as punctures, slivers;
- Smoke and/or dust inhalation; and,
- Burns, from direct contact with flames or handling embers/ash.

2.1.2 PERSONAL PROTECTIVE EQUIPMENT

- Wear Standard Personal Protective Equipment (PPE) - Safety glasses, hard hat with reflective tape, safety boots, reflective vest, clothing in good condition and gloves in good condition.
- Do not wear loose flammable clothing such as an unbuttoned work shirt when working around the burn shipping container.
- A half face dust mask with disposable cartridges when shovelling ash (such as 3M 7502 Half-face respirator and 3M 2091 p100 particulate cartridge)

2.1.3 SAFETY AND ENVIRONMENTAL EQUIPMENT

- 20lb fire extinguisher
- Spill kits
- Radio communication

2.2 TRAINING AND/OR QUALIFICATION REQUIREMENTS

Operators will be trained in the approved techniques for open burning activities at the Eqe Bay exploration property using this procedure. Training records will be documented and kept in the employees training files by the Camp Manager

3 DEFINITIONS

Clean, Untreated Wood Waste: Clean untreated wood waste includes wood or timber that is not suitable for recycling or reuse and is free of glues, paints, petroleum based materials and/or other chemicals. Treated wood is not permitted to be open burned.

Cardboard and Paper Products: Includes paper, cardboard, boxboard and other products comprised of natural wood fibers.

4 PROTOCOL

4.1 Open Burning Location And Access Control

Open burning will occur in a designated area (Open Burn Area) away from all other infrastructure, including the Waste Management Area, to prevent impacts to personnel from airborne emissions. The limits of the designated area will be located at least 31 metres from the ordinary high water mark of nearby water bodies.

The Open Burn Area will be established once the Eqe Bay Exploration Program has been initiated, in consultation with the QIA and the Water Licence Inspector (Crown-Indigenous Relations and Northern Affairs Canada; CIRNAC).

Access to the Open Burn Area will be restricted to trained personnel responsible for conducting open burning activities.

4.2 Use of an Open Top Shipping Container

All open burning activities will occur within in an open top shipping container. This will prevent the unnecessary distribution of waste and ash by weather conditions (i.e. wind) and will facilitate the management of residual ash.

4.3 Acceptable Waste

Acceptable wastes for open burning activities will be free of glues, paints, petroleum based materials and/or other chemicals and will not be suitable for recycling or reuse at the exploration property. Acceptable wastes include:

- Lumber;
- Timber;
- Pallets; and,
- Paper products (paper, cardboard, etc.).

The following waste types are not permitted for open burning activities:

- Treated or painted wood;
- Plywood;
- Petroleum-based materials;
- Materials contaminated with petroleum or petroleum derivatives;
- Petroleum products; and,
- Other operational wastes (plastics, electrical wire, Styrofoam, etc.).

4.4 Weather Conditions

Mild to moderate winds are optimal for smoke dispersal. Extreme winds can be dangerous and have the potential to cause an uncontrollable burn/fire. Open burning activities will not be initiated during weather conditions with wind speeds greater than 20 km/h.

Open burning activities shall be temporarily halted if the burn has the potential to:

- Create a condition in which a fire hazard is created or a condition in which the open burning can cause a fire to spread beyond the shipping container, and/or
- Cause air pollution that creates a health and safety hazard for personnel.

Open burn operators shall call for assistance if the burn/fire becomes uncontrollable and spreads beyond the shipping container.

4.5 Open Burn Supervision

Prior to ignition, Open Burn Operators shall receive approval from the Camp Manager to commence open burning activities. The Camp Manager will be responsible for ensuring compliance with this procedure and that open burn activities are adequately monitored and supervised.

4.6 Ignition

The only authorized methods for igniting the waste in the open top shipping container will be:

- Propane burners, and
- Personal lighters or matches.

No fuel or other petroleum based products or other chemicals (diesel, gasoline, etc.) will be permitted to be used to ignite waste at the Open Burn Area.

4.7 General Open Burning Guidelines

The primary goal in operating the Open Burn Area is reduce clean waste volumes by means of complete and efficient burns. To achieve complete and efficient burns, the following measures shall be implemented:

- Open burning activities should be conducted during dry conditions whenever possible. Waste should be kept dry as much as possible to ensure dry conditions and a complete burn.
- The size of the waste pile during a burn should be kept relatively consistent, with a constant feed rate, to avoid over feeding and/or damping the burn.
- Waste piles in the shipping container should be kept loose, with air spaces in between waste items, to allow for adequate air flow throughout the burn.
- Waste piles in the shipping container should be constructed in a dome or teepee shape. Flat and sprawling waste piles, with limited air spaces, rarely result in complete and efficient burns.

4.8 Inspection and Disposal of Residual Ash

Following a burn, inspect the color and condition of the residual ash. Ash that is dry, light and light-grey in color is indicative of a complete and efficient burn. Ash that appears wet and dark and/or contains unburnt waste items should be incorporated into the next burn to ensure the complete combustion of waste items and ash.

Prior to transferring residual ash out of the shipping container, the ash shall be inspected and confirmed to be cool and absent of any signs of smoldering or continued combustion (i.e. flames). Residual ash that is acceptable will be shovelled into drums. Once a drum is full, seal the drum, label the drum as “Open-Burn Ash” and write the date of the last burn added to the drum. Transport drum to the designated storage area for shipment offsite.

An appropriate dusk mask shall be worn by personnel responsible for shovelling the residual ash into drums to mitigate hazards associated with ash/dust inhalation.

4.9 Housekeeping and Documenting Open Burning Activities

The open burning area should always be kept clean and organized. Waste to be burned shall only be stored in the burn shipping container. Residual ash shall be routinely transferred into drums to mitigate health and safety hazards (dust re-suspension, tripping hazards, etc.) associated with loading the shipping container with new waste for the next burn.

The Camp Manager will keep a log of the approximate quantities of waste burnt during each open burn. The log will be maintained by the Camp Manager.

5 ROLES AND RESPONSIBILITIES

The following roles have specific accountabilities that must be met to ensure that open burning activities at the Eqe Bay exploration property are in compliance with this procedure.

The Camp Manager will be responsible for ensuring that all personnel are fully trained and competent to meet the expectations of this procedure.

5.1 CAMP MANAGER

The Camp Manager will be responsible for supervising open burning activities. Specifically, he or she shall be responsible for:

- Supervising Open Burn Operators;
- Implementing this procedure and ensuring that open burn operators are qualified and knowledgeable in the open burning and waste management protocols.
- Documenting operator training and managing training documentation.
- Maintaining the open-burn log, detailing quantities of waste open burned.
- Providing the PPE required for the safe operation and maintenance of the Open Burn Area.

5.2 OPEN BURN OPERATOR

The Open Burn Operator, under the general supervision of the Camp Manager or designate, will be responsible for executing the following tasks during open burning activities:

- Understanding and following this procedure, including
  - Ensuring that no inappropriate materials are processed and that waste burns are constructed to ensure complete and efficient burns.
  - Ensuring the open burn lengths are appropriate for the waste loads and that burns are complete and produce high-quality ash.
  - Notifying the Camp Manager of the approximate volume of waste burned during each open burn.
- Adhering to the health and safety protocols and wearing the proper PPE when conducting open burning activities.

5.3 ENVIRONMENTAL REPRESENTATIVE

The Environmental Representative will be responsible for executing the following tasks:

- Overseeing open burn operations to ensure that practices are in compliance with the guidelines set out in the Waste Management Plan and this document.

APPENDIX E

Sewage Treatment Plant Technical Overview

Canwest Tanks &
Ecological Systems Ltd.

DESIGN SPECIFICATIONS

For

MODEL CWT50
50 MAN MOBILE CAMP
SEWAGE TREATMENT PLANT

Office & Plant: 11975 Old Yale Road, Surrey, B.C. V3V 3X4, Canada
Tel: 604-580-3030, Toll Free (Canada) 1.888.704.3030 Fax: 604-580-1171
Email:canwest@direct.ca Web: www.canwest-tanks.com

Contents

PREAMBLE

The Canwest Tanks' Mobile Sewage Treatment Plant is designed for efficiency and mobility when deployed in remote areas. The design takes into consideration that the camp site may be located in areas with severe weather conditions and thus is furnished to accommodate such conditions.

SYSTEM OVERVIEW

The system is divided into four (4) parts, and the waste water flows through four stages, they are:

1st Stage - two settling tanks (trash tanks) @ 1,760 I.gals in serie
2nd Stage - Reactor Unit - extended aeration with clarifier
3rd Stage - Reactor Unit - Fixed Film Media and Clarification
4th Stage - Pump Chamber to discharge

The wastewater treatment plant (WWTP) utilizes the activated sludge extended aeration and Fixed Film Media process.
Raw wastewater is being pumped from a collector tank into the first & second Settling Tank.
Wastewater is then hydraulically displaced into the first Reactor Unit for further settling and Aeration then gravity flows into the second Reactor Tank, housing the Fixed Film Growth Media

The fixed media is designed to promote colonization of microorganisms on the surface of the media thereby increasing process stability and sludge settle-ability.

A Sludge Return air lift is installed in the Reactor, circulating activated sludge from the bottom of the chamber to the Fixed Media. This increases effectiveness of the media by delivering more nutrients to the microorganisms, accelerating growth thus enabling increased digestion.

Wastewater lastly flows through a quiescent zone at the outlet of the Reactor into the Pump Chamber.
In the pump Chamber the effluent passes through two sets of UV lights before final discharge.
Clear supernatant leaves the WWTP

DESIGN CRITERIA

The treatment plant is designed to treat 2,500 imp. gals Average Daily Flow (ADF) of raw sewage with domestic influent strength.
The treatment plant is designed for influent with a max. Strength of BOD_5 = 250 mg/l
TSS = 250 mg/L

However the treatment plant capable of delivering effluent quality of 20/20 BOD & TSS.
It should be noted that—, the influent strength and characteristics as well as proper maintenance are determining factors on the quality of the discharged effluent.
Expected Nitrate reduction is approx. 70%

A Commercial Grease Trap is strongly recommended in all cases where there is a kitchen attached.

ENGINEERS REPORT

ENGINEERS LETTERS FOR STRUCTURAL DESIGN OF TANKS & PERFORMANCE OF THE SYSTEM

GREY OWL ENGINEERING

July 31, 2013

TO WHOM IT MAY CONCERN:

Re: Design Review of Tanks for Canwest Mobile Sewage Treatment Plants - Model CWT25, CWT50, CWT100 & CWT200

Dear Sir/Madam,

Grey Owl Engineering Ltd. has been retained by Canwest Tanks & Ecological Systems Ltd.to conduct a design review of certain aspects of the Canwest Mobile Sewage Treatment Plants, Model CWT25, CWT50, CWT100 and CWT200.

I have reviewed the design of the tanks for the above applications, and have found them to be suitable for the intended purpose, and in conformance with all relevant Canadian federal and provincial design codes and regulations, industry standards and accepted practice. The tanks are suitably designed for their intended usage.

I confirm by this letter that the tanks will meet the necessary structural and seismic requirements.

Yours sincerely,

GREY OWL ENGINEERING

PROFESSIONAL ENGINEER ALBERTA STEPHEN RADISH

Steph[illegible] P.Eng.

Grey Owl Engineering Ltd. 1000, 825 – 8th Avenue SW Calgary, Alberta T2P 2T3 Phone: 403 266 5810 Fax: 403 218 6439 www.greyowleng.com

GREY OWL ENGINEERING

July 31, 2013

TO WHOM IT MAY CONCERN:

Re: Design Review of Sewage Treatment Process for Canwest Mobile Sewage Treatment Plants - Model CWT25, CWT50, CWT100 & CWT200

Dear Sir/Madam,

Grey Owl Engineering Ltd. has been retained by Canwest Tanks & Ecological Systems Ltd.to conduct a design review of certain aspects of the Canwest Mobile Sewage Treatment Plants, Model CWT25, CWT50, CWT100 and CWT200.

Further to your request, we have reviewed the general arrangement drawings, process flow diagrams (PFDs) and relevant design documents for the above captioned sewage treatment systems. Based on our experience with similar sized systems at industrial or work camps, it is our opinion that the systems proposed are capable of treating the influent wastewater such that carbonaceous biological oxygen demand (BOD5) and Total Suspended Solids TSS) are less than 25 mg/L and 25 mg/L, respectively, based on the following design and operating assumptions:

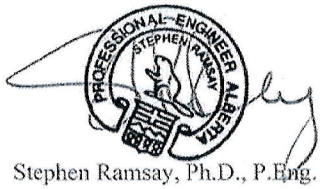
- When the systems were tested by NSF they produced effluent, consistently, of BOD5 and TSS less than 20 mg/L and 20mg/L, respectively.
- The source of the wastewater will be domestic in nature, i.e. toilet, sink, shower, kitchen and laundry with no significant industrial sources or deleterious substances discharged into the sewer
- The sewage flow rate for the various camps shall not exceed the design Average Daily Flow (ADF) specified for the individual models.
- The system will be maintained in good working order by personnel skilled and experienced in the operation of wastewater treatment plants. Specifically, the air compressor will operate continuously and sludge and ,mixed liquor suspended solids concentration will be managed.
- Grease from the kitchen shall be discharged to a suitably sized commercial grease trap prior to discharging to the building sewer.

Grey Owl Engineering Ltd. 1000, 825 – 8th Avenue SW Calgary, Alberta T2P 2T3 Phone: 403 266 5810 Fax: 403 218 6439 www.greyowleng.com

We trust that this provides the information you currently require. If you have any questions r require comments, please feel free to contact the undersigned.

Yours truly.

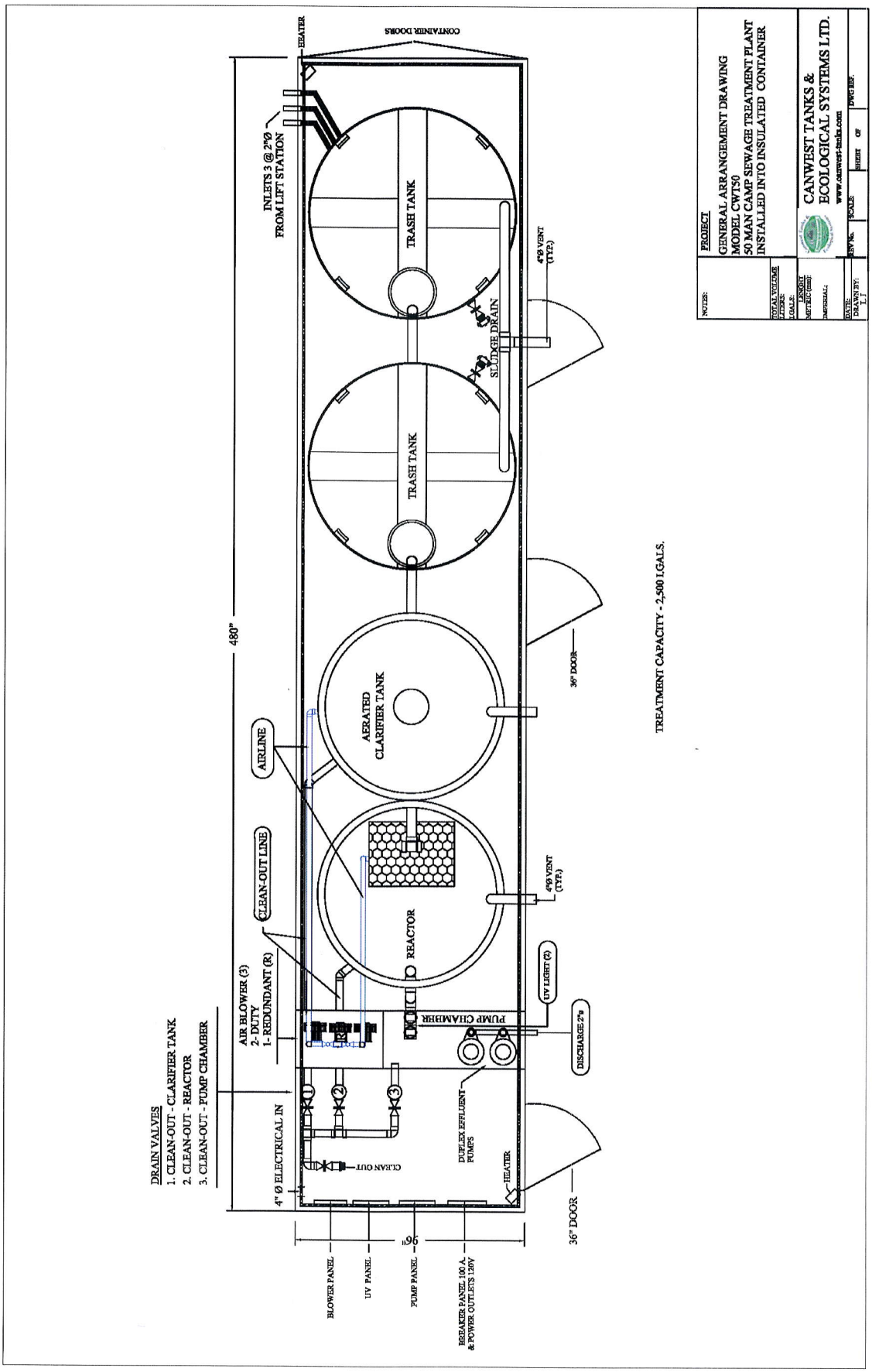
GREY OWL ENGINEERING



Stephen Ramsay, Ph.D., P.Eng.

2

SYSTEM DRAWING


HEATER
CONTAINER DOORS
INLETS 3 @ 2"Ø FROM LIFT STATION
TRASH TANK
TRASH TANK
4"Ø VENT (TYP.)
SLUDGE DRAIN
480"
AERATED CLARIFIER TANK
AIRLINE
CLEAN-OUT LINE
AIR BLOWER (3) 2- DUTY 1- REDUNDANT (R)
REACTOR
PUMP CHAMBER
4"Ø VENT (TYP.)
UV LIGHT (2)
DISCHARGE 2"Ø
36" DOOR
36" DOOR
DRAIN VALVES
1. CLEAN-OUT - CLARIFIER TANK
2. CLEAN-OUT - REACTOR
3. CLEAN-OUT - PUMP CHAMBER
4" Ø ELECTRICAL IN
CLEAN OUT
DUPLEX EFFLUENT PUMPS
HEATER
96"
BLOWER PANEL
UV PANEL
PUMP PANEL
BREAKER PANEL 100 A. & POWER OUTLETS 120V
TREATMENT CAPACITY - 2,500 I.GALS.
NOTES:
PROJECT
GENERAL ARRANGEMENT DRAWING
MODEL CWTS0
50 MAN CAMP SEWAGE TREATMENT PLANT
INSTALLED INTO INSULATED CONTAINER
CANWEST TANKS & ECOLOGICAL SYSTEMS LTD.
www.canwest-tanks.com
REV No.
SCALE:
SHEET OF
DWG REF.
DRAWN BY:
L.J