WASTE MANAGEMENT PLAN
Ulu Gold Project

Kitikmeot Region, Nunavut

March 2020

BLUE STAR GOLD CORP.

PLAIN LANGUAGE SUMMARY

This Plan describes what is done with any waste generated during construction, operation and closure of exploration and reclamation programs at the Ulu Gold Project, near Kugluktuk, NU.

REVISION HISTORY

Revision #	Date	Section	Summary of Changes	Author	Approver
1	March 2019	-	New document	S. Hamm	P. Kuhn

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1.0 INTRODUCTION

This *Waste Management Plan* (the Plan) describes how new waste generated by exploration-related activities at the Ulu Gold Project (the Project) will be managed as well as how legacy waste will be handled during progressive reclamation of historic infrastructure at Ulu. This Plan should be read in conjunction with the documents listed in Table 1.

Table 1. Related project documents, permits and licences.

Document	Authors
Guidelines for Developing a Waste Management Plan (2011a)	Mackenzie Valley Land and Water Board
Guidance for the Preparation of Waste Management Plans (2014)	Inuvialuit Water Board
Environmental Guideline for the General Management of Hazardous Waste in Nunavut (2010)	Government of Nunavut
Nunavut Water Nunavut Surface Rights Tribunal Act (2002) and *Nunavut Water Regulations* (2013)	Government of Canada
Territorial Lands Act (1985) and *Land Use Regulations* (2016)	Government of Canada
Canadian Environmental Protection Act (1999)	Government of Canada
Interprovincial Movement of Hazardous Waste Regulations (2002)	Government of Canada
Environmental Emergency Regulations (2003)	Government of Canada
Transportation of Dangerous Goods Act (1992)	Government of Canada
Transportation of Dangerous Goods Regulations (2012)	Government of Canada
Hazardous Products Act (1985)	Government of Canada
Spill Response Plan (2020a)	Blue Star Gold Corp.
Engagement Plan (2020b)	Blue Star Gold Corp.
Soil Treatment Facility Management Plan (2020c)	Blue Star Gold Corp.
Interim Closure and Reclamation Plan (2020d)	Blue Star Gold Corp.
Landfill Management Plan (2020e)	Blue Star Gold Corp.
Mining Lease	Government of Canada
Screening Decision Report	Nunavut Impact Review Board
Water Licence	Nunavut Water Board
Land Use Licence	Kitikmeot Inuit Association

1.1 SCOPE

This Plan applies to all new waste generated through execution of the Project during camp operation, as well as exploration related activities such as drilling and fuel caching (the Exploration Program). This Plan also considers treatment and disposal of legacy waste occurring at Ulu (the Reclamation Program), with specific facility and waste details provided in the *Soil Treatment Facility Management Plan* (Blue Star 2020c) and the *Landfill Management Plan* (Blue Star 2020e).

Waste management goals include maintaining worker safety, limiting impacts to the environment, and operating in a manner that is compliant with all authorizations.

1.2 OBJECTIVES

The objectives of this Plan are to:

1. Ensure employees and contractors are trained to manage waste in a safe and compliant manner; and
2. Outline appropriate waste management measures to ensure environmental protection.

1.3 SITE DESCRIPTION

The Ulu Gold Project is located on Inuit-owned land in the Kitikmeot Region, Nunavut, within the Hood watershed. It is located 126 km north of the Lupin Mine (Figure 1). The mineral claims holding the Ulu deposit were initially staked in 1988. Portal excavation at the Ulu site commenced in 1996 to confirm resource calculations and mining design for mill feed to the Lupin Mine. Equipment to construct the camp and develop the mine was mobilized to site via a winter road from the Lupin mine in 1996. Camp 3 was built at the esker sand quarry to facilitate construction of the airstrip, road and underground exploration site. It included tent accommodations, a garage and a fuel tank farm. Camp 3 was reclaimed in 2018/2019. Underground development of the ramp ceased in August 1997 at the 155 m level. The existing facilities at the Ulu underground exploration site consist of a 20-person camp with sleeping and dining quarters, a 22 m by 37 m vehicle repair shop, fuel containment areas (tanks removed in 2018) for bulk diesel and day tank storage, core storage area, core shack, and fuel staging area.

The Project is located within the Southern Arctic Ecozone and the Takijuq Lake Upland Ecoregion. Much of this region is composed of unvegetated rock outcrops. Vegetative cover is characterized by shrub tundra, consisting of dwarf birch, willow, northern Labrador tea, avens species and blueberry species. Organic Cryosols are the dominant soils in the lowlands and permafrost is deep and continuous (ECCC 2019).

Characteristic wildlife includes caribou, muskoxen, grizzly bear, wolverine, Arctic hare, Arctic fox, red fox and wolf. Small mammals (e.g., Arctic ground squirrel, voles, and lemmings) are distributed throughout the region and provide an important food source for predators. Many species of migratory birds are present in the area during the summer season, including waterfowl, raptors, songbirds, and shorebirds, while some bird species are present year round (e.g., ptarmigan, gyrfalcon, and common raven) (ECCC 2019).

Based on regional normals from Lupin A station between 1980 and 2010 (ECCC, 2020a), average yearly rainfall in the region is 160 mm, mostly occurring during July and August, and average yearly snowfall is equivalent to 138 mm of water, most of which falls during autumn and spring. The average temperature in a year is -10.9 ° Celsius.

1.4 PLAN MANAGEMENT

The Plan is reviewed annually by the Project Manager and updated as needed following receipt of or amendments to licences and permits, to ensure alignment with relevant terms and conditions. When

material changes occur, the updated document will be provided to parties in accordance with the *Engagement Plan* (Blue Star 2020b).

1.5 PLAN IMPLEMENTATION

This Plan is effective upon approval and is valid throughout all phases of the Project.

The Project Manager or designate is responsible for Plan implementation.

A copy of this Plan is maintained on site in the Office.

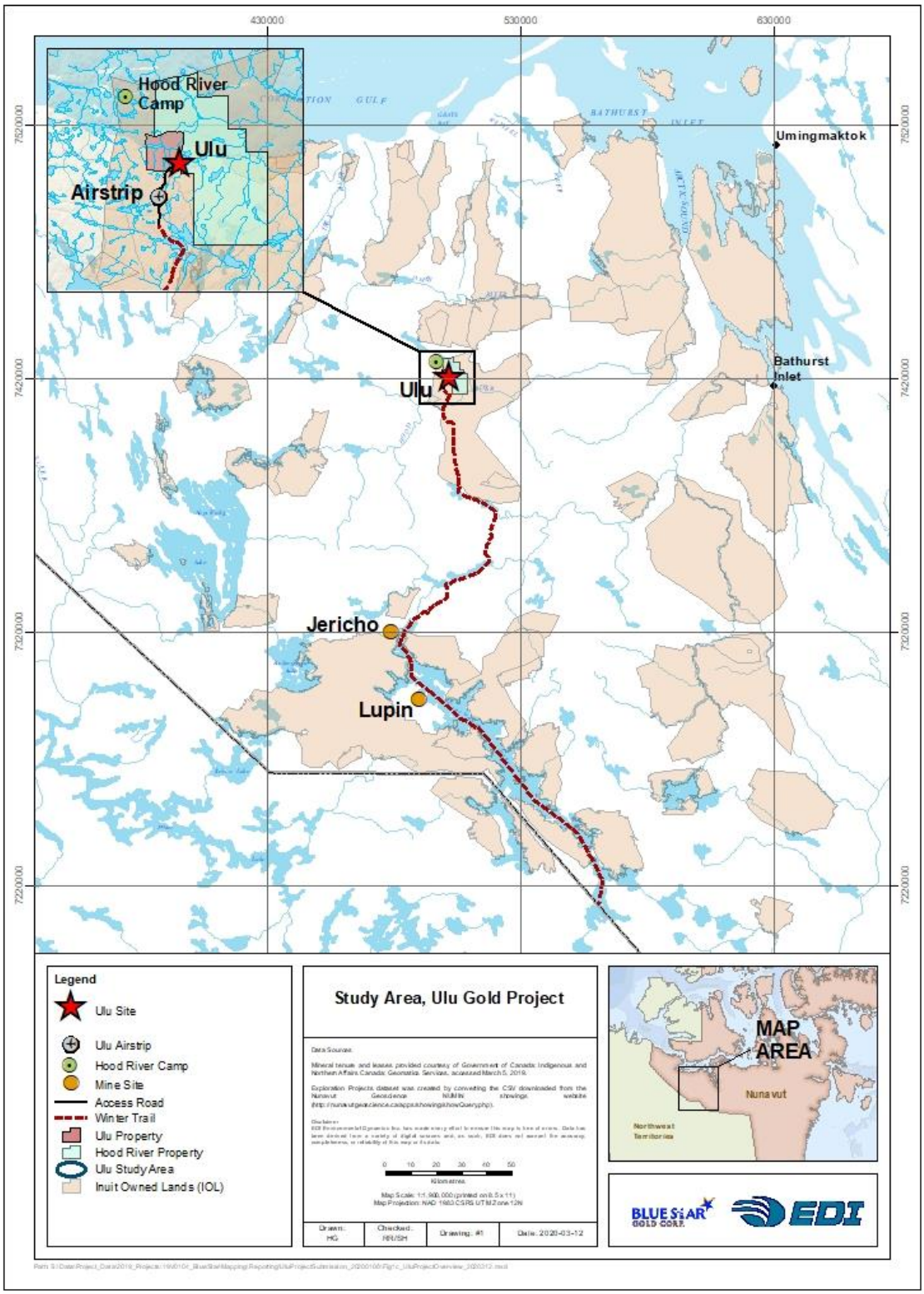

Figure 1 Ulu Gold Project location map.

2.0 ROLES AND RESPONSIBILITIES

Blue Star Gold Corp. (Blue Star) is responsible for activities associated with the Project, including implementation and management of this Plan. Blue Star's contact information is provided below.

Blue Star Gold Corp.
Suite 1125-595 Howe Street
Vancouver BC V6C 2T5
Contact: Peter Kuhn, General Manager
Phone: 1 604 347 6999
Email: kjgold2010@gmail.com

2.1 STAFF, CONTRACTORS, SUPPLIERS AND VISITORS

All personnel conducting activities on site, including staff, contractors, suppliers and visitors, are required to implement this Plan as it pertains to their activities on site. Specifically, these responsibilities include:

- Taking all necessary steps to minimize negative effects to water, land and air;
- Cooperating fully with your supervisor and/or Blue Star management to implement effective waste management program in your work area;
- Only carrying out duties and tasks that you are experienced at and trained to perform;
- Where there is uncertainty, asking questions and bringing concerns to the attention of your supervisor when working with products or conducting tasks that may pose potential environmental risks;
- Segregating and disposing of waste in the receptables provided;
- Ensuring no food waste or open top vessels containing waste are left unattended;
- Collecting all non-mineral waste generated in the field and return to camp for proper disposal.

2.2 MANAGERS AND SUPERVISORS

Managers and supervisors have a responsibility to ensure that staff, contractors, consultants and visitors have been trained in Blue Star waste management expectations and procedures, where relevant. Additional supervisor and manager responsibilities include:

- Maintaining a no blame work environment in implementing mitigation measures and follow-up actions;
- Ensuring site-, task- and material-specific training is provided to all departments and staff;
- Ensuring there are appropriate and sufficient supplies on site to support compliant waste management;
- Ensuring that facility inspections are routinely conducted;
- Ensuring that secondary containment facilities are maintained dry;
- Obtaining a hazardous waste generator #, and maintaining related documentation;
- Conducting corrective action planning and implementation in a timely manner that supports maintaining ongoing site compliance;
- Maintaining records regarding inspections, personnel training, equipment testing and maintenance, and waste transport;
- Ensuring drills site inspections are conducted following each drill move and that all corrective actions are completed prior to commencing drilling at the next site.

2.3 DRILL CONTRACTORS

Drill contractors have a responsibility to ensure that drill sites are managed in accordance with Blue Star waste management expectations and procedures. Additional drill contractor responsibilities include:

- Depositing drill cuttings in an area designated by Blue Star;
- Dewatering cuttings to the greatest extent possible;
- Ensuring that cuttings do not flow in an uncontrolled manner to the surrounding land;
- Recording the location of any drill cuttings disposal areas that may be established;
- Segregating and disposing of waste at the drill site in a manner that is consistent with how waste is managed at camp;
- Transporting waste from the drill site to the camp, and segregating and disposing of that waste appropriately;
- Conducting a drill site inspection on each shift;
- Conducting corrective action planning and implementation in a timely manner that supports maintaining ongoing site compliance;
- Maintaining records regarding inspections, personnel training, equipment testing and maintenance;
- Ensuring drill site inspections are conducted following each drill move and that all corrective actions are completed prior to commencing drilling at the next site.

2.4 REMEDIATION PROJECT MANAGER

In addition to the responsibilities listed above the Remediation Project Manager is responsible for:

- Overseeing legacy waste identification, handling, transport and management in accordance with this Plan, as well as the related *Landfill Management Plan* and *Soil Treatment Facility Management Plan*;
- Day to day oversight of all related reclamation efforts;
- Coordination with other managers and supervisors to ensure safe and appropriate allocation of resources on site;
- Maintaining the remediation schedule, and where schedule changes occur, advising the General Manager in a timely manner.

3.0 WASTE TYPES

3.1 EXPLORATION PROGRAM WASTE

Types of new waste that may be generated through the Exploration Program include:

- Non-mineral waste;
- Mineral waste;
- Mineral wastewater;
- Domestic wastewater;
- Potentially hazardous waste.

Non-mineral waste includes construction waste, spent parts and equipment, and domestic waste, all generated through routine drilling and camp operations. Non-mineral waste may be combustible or non-combustible.

Mineral waste includes cuttings from the drilling and core cutting.

Mineral wastewater is the water component of the cuttings associated with drilling and core cutting. Domestic wastewater includes greywater from the kitchen and washing facilities, and blackwater (sewage).

Potentially hazardous waste includes spent spill response materials, spent oil filters, oily rags and containers, and used oil. Water from fuel secondary containment may also be potentially hazardous.

3.2 RECLAMATION PROGRAM WASTE

Based on observations made during a site visit in 2019 and an inventory provided by the previous site owner, the types of waste expected on site that may be managed, treated and disposed of through the Reclamation Program include:

- Non-hazardous waste such as
    - Building demolition waste;
    - Equipment and tires;
    - Untreated wood waste;
    - Decontaminated, non-hazardous steel from demolition of tanks, trailers and sea cans;
    - Decontaminated fabrics including geomembrane liners, weather-haven camp fabric.
- Hazardous waste such as :
    - Oily rags, spent filters, containers, used oil associated with heavy equipment maintenance;
    - Spent spill response materials;
    - Water from secondary containment
    - Petroleum hydrocarbon contaminated (PHC) soils.

PHC soil is treated in an onsite soil treatment facility; soil and leachate handling, treatment and disposal are considered in the *Soil Treatment Facility Management Plan* (Blue Star 2020c). Should the facility experience a breach and PHC contaminated soil and water are accidentally released from the facility, the materials will be handled in the same manner as any accidental release of petroleum hydrocarbon contaminated materials.

Non-hazardous solid waste to be disposed of through the Reclamation Program will be deposited in an onsite non-hazardous waste landfill; non-hazardous solid waste management is considered in the *Landfill Management Plan* (Blue Star 2020x).

Reclamation Program waste is discussed herein for completeness and continuity; refer to the respective specific management plans for details on each facility and its management and design.

4.0 WASTE MANAGEMENT

Proper waste management is required to ensure worker safety, maintain environmental integrity, avoid wildlife encounters and support ongoing site compliance and progressive reclamation

Waste generated on site will be either treated on site, disposed of on site, or backhauled for disposal and/or treatment off-site at a suitable facility. Waste streams and their treatment and disposal are listed in Table 3.

Where waste is backhauled for disposal or treatment, considerations for preparing materials for off-site disposal include:

- Bulking like materials together (avoid co-mingling waste streams);
- Utilizing proper containers suitable for the material and volume being stored;
- Properly labelling storage containers and areas in accordance with the WHMIS and *TDG Regulations* (2012);
- Staging waste awaiting backhaul in areas with secondary containment where required;
- Disposing of waste on a regular basis and not allowing excess waste to accumulate in work areas;
- Backhauling hazardous waste annually.

5.0 WASTE INFRASTRUCTURE

As listed in Table 3, waste infrastructure that may be implemented over the life of the project includes:

- Exploration Program
    - Sumps
        - Greywater disposal;
        - Cuttings drill water disposal;
        - Core cutting water disposal;
    - Incinerator for combustible domestic waste;
    - Burn pan for large, clean, combustible waste;
    - Barrel crusher;
- Reclamation Program
    - Non-hazardous waste landfill for legacy non-hazardous waste disposal;
    - Soil treatment facility for treatment of legacy PHC contaminated soils.

Personnel using any waste management infrastructure will be designated and trained for that specific task.

Specifications, design and operation of specific waste management infrastructure are addressed in the following:

- Incinerator specifications, operations and maintenance, Appendix A of this Plan;
- Non-hazardous waste landfill design, operations and maintenance, in the *Landfill Management Plan* (Blue Star 2020e);
- Soil treatment facility design, operations and maintenance in the *Soil Treatment Facility Management Plan* (Blue Star 2020c).

Waste management infrastructure associated with the Exploration Program will be utilized over the life of exploration related activities.

The non-hazardous waste landfill is expected to be constructed, filled and covered in 1-2 year period.

The soil treatment facility is expected to operate for 4-5 years, depending on remediation success.

Table 2. Waste streams, treatment and disposal associated with the Exploration Program.

Type of Waste		Composition	Quantity Generated	Treatment Method	Disposal Method
Non-Mineral Waste	Combustible Wastes	Clean wood, paper, cardboard	Various	Incinerate where possible, otherwise, open burn	Backhaul ash for disposal offsite
	Non-combustible waste	Food packaging, various containers, scrap metal, plastics, hoses	Various	Crush to reduce bulk for a shipping	Backhaul for recycle where possible, or disposal
Mineral Waste	Drill cuttings	Rock, water, salt, non-toxic drill additives	Various	Dewater	Discharge to sump
	Core cuttings				
Mineral Wastewater	Drill water	Water, salt, non-toxic drill additives	Up to 90 m^3/day	-	Discharge to sump
	Core cutting water	Water	Minimal		
Domestic Wastewater	Greywater	Kitchen and bathroom wash water	Up to 54 m^3/day (0.9 m^3/day per person)	Grease trap in kitchen	Discharge to sump
	Sewage	Sewage from Pacto toilets	Up to 6 m^3/day (0.1 m^3/day per person)	Incinerate	Backhaul ash for disposal offsite Discharge to a sump Backhaul for appropriate disposal
Potentially Hazardous Waste	Hazardous waste	Oily rags, spent filters, containers, used oil	Various	-	Backhaul for appropriate disposal
	Water from secondary containment	Water, hydrocarbons	Various	Activated carbon filter and/or oil water separator	Discharge to sump, tundra or reuse as dust control in soil treatment facility
	Spent spill response materials	Various absorbent materials	Various	-	Backhaul for disposal offsite

Table 3. Waste streams, treatment and disposal associated with the Reclamation Program.

Type of Waste		Composition	Quantity Existing[1]	Treatment Method	Disposal Method
Non-Mineral Waste	Combustible Wastes	Clean wood, paper, cardboard	Various	Incinerate where possible, otherwise, open burn or disposal	Backhaul ash for disposal offsite; disposal in on site landfill
	Non-combustible waste	Building demolition waste, equipment and tires; untreated wood waste; decontaminated, non-hazardous steel from demolition of tanks, trailers and sea cans; decontaminated fabrics including geomembrane liners, weather-haven camp fabric.	20,000 m^3	Crush/compact	disposal in on site landfill
Mineral wastes	Hazardous waste	Petroleum hydrocarbon contaminated soil	4,000 m^3	Landfarming in on site soil treatment facility	Treated soil meeting criteria may be reused as cover in the landfill or for construction or remediation activities. Soil not meeting criteria will be backhauled for disposal off site.
Potentially Hazardous Waste	Hazardous waste	Oily rags, spent filters, containers, used oil	Various	-	Backhaul for appropriate disposal
	Water from secondary containment	Water, hydrocarbons	Various	Activated carbon filter and/or oil water separator	Discharge to sump, tundra or reuse as dust control in soil treatment facility
	Spent spill response materials	Various absorbent materials	Various	-	Backhaul for disposal offsite

[1] Existing on site or generated through reclamation activities such as equipment maintenance and refueling

6.0 TRAINING

All attendees to site participate in a site orientation which outlines waste management obligations that must be fulfilled while on site, and identifies personnel roles and responsibilities regarding waste management. Further, all project personnel must be trained in WHMIS.

Personnel with specific tasks will be trained accordingly and training documentation will be maintained on site. Specific tasks and training include:

- Incinerator operators: trained in accordance with manufacturer specifications;
- Hazardous waste bulking and backhaul:
    - trained in accordance TDG.
    - trained in the International Air Transport Association Dangerous Goods Regulations (IATA DGR; IATA 2016) where necessary.
- Remediation waste segregation, sampling, treatment, and disposal oversight will be provided by a Qualified Professional.

7.0 REPORTING AND DOCUMENTATION

7.1 REPORTING

Reporting will occur in accordance with regulatory requirements and the *Engagement Plan* (Blue Star 2020b).

7.2 DOCUMENTATION

A variety of documentation related to facility inspection and waste management is required to be maintained on site, including:

- Waste manifests;
- Federal Movement Document (FMD), where required, filled out by an individual holding a valid certificate in TDG;
- Facility inspection records;
- Material inventories;
- Incinerator log;
- Burn pan log.

A layer in the GIS system will be maintained identifying the location of all sumps used, and the location of waste management infrastructure.

Documentation and reporting related to specific design and geotechnical aspects of the landfill and soil treatment facility can be found in the respective design documents within the associated management plans.

A copy of documents will be made available to an Inspector upon request.

8.0 REFERENCES

ACTS AND REGULATIONS

Canadian Environmental Protection Act (CEPA). S.C. 1999, c.33
Environmental Emergency Regulations SOR/2003-307
Hazardous Products Act R.S.C., 1985, C. H-3
Interprovincial Movement of Hazardous Waste Regulations. SOR/2002-301
Nunavut Waters and Nunavut Surface Rights Tribunal Act. S.C. 2002, c.10
Territorial Lands Act. R.S.C.. 1985, c. T-7
Territorial Land Use Regulations. SOR/2016 R-32, s.1.
Transportation of Dangerous Goods Act. S.C. 1992, c.34
Transportation of Dangerous Goods Regulations. SOR/2012-245

DOCUMENTS

Blue Star Gold Corp.. 2020a. Spill Response Plan, Ulu Gold Project, Kitikmeot Region, Nunavut.

Blue Star Gold Corp.. 2020b. Engagement Plan, Ulu Gold Project, Kitikmeot Region, Nunavut.

Blue Star Gold Corp.. 2020c. Soil Treatment Facility Management Plan, Ulu Gold Project, Kitikmeot Region, Nunavut.

Blue Star Gold Corp.. 2020d. Interim Closure and Reclamation Plan, Ulu Gold Project, Kitikmeot Region, Nunavut.

Blue Star Gold Corp.. 2020e. Landfill Management Plan, Ulu Gold Project, Kitikmeot Region, Nunavut.

Environment and Climate Change Canada. 2020a. 1981-2010 Climate Normals & Averages. Retrieved February 1, 2020, from https://climate.weather.gc.ca/climate_normals/index_e.html

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Government of Nunavut. 2010. Environmental Guideline for the General Management of Hazardous Waste in Nunavut.

International Air Transport Association (IATA). 2016. Dangerous Goods Regulations. 57th Edition. 1 January 2016. Montreal, Geneva.

Inuvialuit Water Board (IWB). 2014. Guidance for the Preparation of Waste Management Plans.

MVLWB. 2011. Guidelines for Developing a Waste Management Plan.

APPENDIX A. INCINERATOR SPECIFICATIONS, OPERATIONS AND MAINTENANCE SOP

Model A400
Incineration System

Unique Design Compliant with Air Quality Regulations

- Recirculating flue gases assure clean operation.
- Built by specialists in incinerator systems.
- Designed for safe, easy operation with simple to use controls.
- Includes many benefits of high-priced systems, yet within the budgets of small facilities.
- **400 pound rated load capacity.**
- Easy to use… Set timers and walk away.
- Available with LP, Natural Gas, or Oil burners. Single burner model shown.

LOWEST OPERATING COST IN THE INDUSTRY!

One simple solution to solid/liquid waste disposal
Immediately eliminates potential to spread diseases

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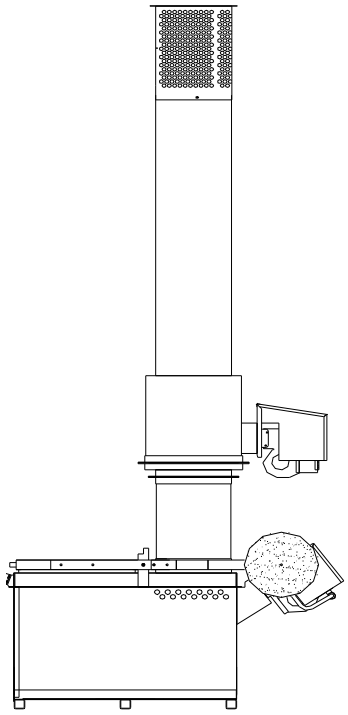
Benefits and Features of the A400 Series



- Concave refractory bottom specifically designed to insure burnout and total destruction of solid and liquid wastes.
- Secondary chamber with burner available.
- Insulated, refractory-lined chambers and stacks for durability, energy retention, and emissions control.
- High temperature refractory lined chamber walls.
- Factory assembled, aluminized steel jacket lined with high-temperature refractory.
- Factory cured chambers and stacks.
- Assembly on-site can be done with common farm equipment.
- Counter-balanced fill door.
- Manual set burn time and automatic shut off.
- Burn times are adjustable by operator to meet varying loads.
- Choice of fuels: LP, Natural Gas, or Fuel Oil.
- Stack Test Data available on many models.
- We provide permit and compliance assistance at no cost.

Specifications Summary

A400 Propane, Natural Gas, or Diesel Fired Incineration System complete with one burner, optional second burner and secondary burn chamber, stainless and / or refractory lined stack and chambers, and manual operating timers.

WASTE CHAMBER

Chamber capacity (Type 4 waste-pathological)	400 lbs		182 kg
Chamber volume (approximate)	12.6 cu. ft.		.36 cu. m.
Chamber size (inside)	Width	29”	74 cm
	Height	22”	56 cm
	Length	42”	106 cm
Door opening	22”W x 29”L		56 cm x 74 cm
Height to door	30.5”		77 cm
Overall dim’s 1 burner, w/stack	132”H x 57”Wx 71”L		3.35 m x 145 cm x 180cm
Overall dim’s 2 burner, w/stack	186”H x 57”Wx 71”L		4.7m x 145 cm x 180cm
Suggested min. slab size (l x w x thick)	8’ x 6’ x 4”		1.8 m x 2.4m x 10cm

STACK

Diameter	1 burner system	12”	30.5 cm,	2 burner system 14”	35.5 cm
Material	14 gauge (2 mm) lined Aluminized Steel and/or unlined stainless steel				

REFRACTORY THICKNESS

Primary	3.0”(2800F)	7.6 cm
Secondary	1.5”(2800F)	3.8 cm
Stack	1.5”(2800F)	3.8 cm

INSTALLATION

Must be installed in accordance with local codes and ordinances, subject to regulatory agencies. Outside installation is recommended with a simple metal roof or three-sided metal shelter, providing a minimum of four foot clearance from any combustible roof materials. Minimum of 18” clearance is required for penetration of combustible roof materials. Inside installations may have special insurance requirements.

GENERAL

Electrical service
Standard – 115 volt, 60 HZ, 20 amp
Also available – 220 volt, 50 HZ, 10 amp

BURNERS

LP or Natural or Diesel burner(s) with spark ignition and flame safety shut-off.

OPERATION

Manual timers

TOTAL WEIGHT

1975 lbs. (approximate) 896 kg

APP. FUEL CONSUMPTION	A400 LP	A400 NATURAL GAS	A400 Diesel
Upper burner	0.83 GPH	83 CFH	0.5 GPH
Lower burner	3.0 GPH	275 CFH	2.5 GPH

* Fuel consumption approximate. Actual fuel use depends on BTU content of waste.

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Standard Operating Procedure

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INTRODUCTION

The Incinerator SOP outlines specific measures to be carried out for the safe operation of a waste management incinerator. This SOP applies to all staff working in all provinces and territories in Canada. Clients may have their own SOP, policies, procedures and forms for the management of waste. Where it is a requirement that client procedures and forms are used, MATRIX requirements will be met in addition to those of the client.

The SOP is located in MATRIX Camps, Logistics, and Aviation Management Corporate Office, MATRIX worksites and is part of the MATRIX employee safety training.

PURPOSE

The objective of this SOP is to provide a safe job procedure for the operation and maintenance of a disposal incinerator unit.

This SOP is intended to provide education and knowledge to employees that may be working at worksites that have incinerator units. It is a proactive component to minimizing injuries while operating and maintaining incinerator units.

DEFINITIONS

"Client" refers to sites that MATRIX conducts work as a contractor.
"***Company***" refers to MATRIX Camps, Logistics, and Aviation Management.
*"**Incinerator unit**"* refers to waste management equipment in remote locations.
"Safety Manager" refers to the MATRIX designee based at MATRIX headquarters.
"Camp Manager" refers to MATRIX'S representative at the client's worksite.

RESPONSIBILITIES

Safety Manager: _____
The **Safety Manager** is responsible to ensure:

1. All employees are oriented and understand the Incinerator Installation & Maintenance SOP.
2. All camp managers understand their role and responsibilities.
3. The SOP is monitored for effectiveness and at a minimum reviewed annually.
4. Provide support to camp managers on the client worksite.
5. An investigation is conducted subsequent to an incinerator operational incident.
6. Proper documentation is completed when required.

Camp Manager: _____
The **Camp Manager** is responsible to ensure that:

1. They have read and understand the Incinerator Installation & Maintenance SOP.
2. Ensure all company employees are familiar with SOP.
3. Ensure that workers have been trained in all tasks required to install and maintain a waste management incinerator.

4. All personnel are trained in spill response and emergency procedures and know what to do in case of a spill emergency.
5. Daily inspections are completed.
6. Maintenance documentation is completed monthly and yearly.

The **Employees** are responsible to ensure that:

1. They understand the Incinerator Installation & Maintenance SOP.
2. Procedures outlined in the SOP are followed.
3. Report all unsafe conditions & equipment.
4. All spills are reported to the camp manager.

TRAINING & CERTIFICATIONS

1. MATRIX Health & Safety Orientation
2. WHIMS

PERSONAL PROTECTIVE EQUIPMENT

1. High Visibility Vest
2. Safety Glasses
3. Temperature Appropriate Clothing
4. Coveralls Fire Retardant
5. Fuel Resistant Gloves
6. Safety Footwear

EQUIPMENT

1. Bobcat
2. Helicopter
3. Loader/Tractor

POTENTIAL HAZARDS

Potential sources of hazards commonly identified at site are:

1. Slip, trips
2. Fuel Spills
3. Musculoskeletal injury
4. Exposure to fire
5. Exposure to extreme temperature

INSTALLATION

Manufacturer's instructions should be followed at all times. Make sure all applicable parts, equipment and tools are in place prior to commencing the installation. Given the heavy weights of components, extreme care must be taken when lifting and setting utilizing helicopter sling, gantry crane of heavy equipment in order to avoid personal injury and/or property damage.

1. Ensure that a toolbox meeting is conducted prior to the installation of an incinerator.

2. Ensure all workers have been trained in all task required for installation of an incinerator.
3. The unit should be housed in a level building at least 10 feet x 10 feet with 10 feet high walls, with 1 side (normally the front) that can be left open during operation.
4. Do not place combustible material within 4 feet of the stainless-steel stack of the incinerator unit.
5. Place metal cladding on the outside of the incinerator structure.
6. Limit the use of combustible material on the interior of the incinerator structure.
7. Place the incinerator unit on a non-combustible floor. Concrete base is ideal. Heavy wooden floor with metal covering in adequate. There is no need for a floor over the entire 10x10 building and in fact it is recommended no floor be installed.
8. Locate the incinerator structure at least 15 feet away from a tree line and where the prevailing winds direct smoke away from site buildings.
9. Place the unit in the center of the floor leaving access on all 4 sides.
10. Electrical wire and fixtures must be exterior grade.
11. Power the unit with a GFI outlet.
12. Install interior and exterior lighting.

PROHIBITED FOR INCINERATION

The following items are **not** to be disposed of by incineration and shall be disposed of in an orange hazmat garbage bag. This will reduce the risk of accidentally disposing of the prohibited items in the incinerator. Incinerating the below items can cause catastrophic overheating of the incinerator and poses a serious risk:

1. Used oil or fuel filters.
2. Waste grease of any kind (empty pails or cartridges, greasy rags, etc.).
3. Batteries of any kind.
4. Aerosol cans, compressed air cans, propane cylinders.
5. Excessive amounts of plastic containers, plastic packaging, garbage bags.
6. Flammable accelerants.

MAINTENANCE

Daily

In order to have the unit in good working condition:

1. Inspect fire rope under the lid for damage. Replace if necessary.
2. Inspect refractory for abnormal damage to the lining.
3. Inspect external steelwork for scorch damage.
4. Check all fuel and power connections.
5. Inspect chimney for visible damage.

Monthly To have the unit in good working condition:

1. Inspect fire rope under the lid for damage. Replace if necessary.

2. Inspect chimney for visible damage.
3. Inspect the outside body of the incinerator for corrosion of metal parts, discolorations and leaks.
4. Inspect condition of temperature probe.
5. Inspect condition of fuel and power connections.
6. Maintenance log must be kept and sign off by the supervisor.

Yearly

To have the unit in good working condition:

1. Service the unit once per year or every 1000 hours, whatever comes first.
2. Replace fire rope under the lid.
3. Adjust counterbalance so lid is balanced and sealed.
4. Do parallel measurement of temperature probe (if regulated by law).
5. Service burner by an approved professional.
6. Inspect sealing between individual sections of chimney including secondary chamber.
7. Maintenance log must be kept and sign off by the supervisor.

DOCUMENTATION

1. Maintenance Log

REFERENCES

1. MATRIX Health & Safety Orientation
2. Toolbox Meeting Form
3. Slinging Safe Job Procedures
4. Manufacturer's Installation & Operators Manual
5. Spill Response Plan and emergency procedures

Appendix A – Maintenance Log