

**WASTE MANAGEMENT PLAN**  
*Hood River Gold Project*

Kitikmeot Region, Nunavut

May 2019



## PLAIN LANGUAGE SUMMARY

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This Plan describes what is done with any waste generated during construction, operation and closure of the Hood River Gold Project, near Kugluktuk, NU.

## REVISION HISTORY

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Revision #	Date	Section	Summary of Changes	Author	Approver
1	April 2019	-	New document	S. Hamm	P. Kuhn
2	May 2019	Update Table 3	Corrected waste water volumes	S. Hamm	P. Kuhn

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## 1.0 INTRODUCTION

This *Waste Management Plan* (the Plan) describes how waste generated by the Hood River Gold Project (the Project) will be managed. 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
<i>Nunavut Water Nunavut Surface Rights Tribunal Act</i> (2002) and <i>Nunavut Water Regulations</i> (2013)	Government of Canada
<i>Territorial Lands Act</i> (1985) and <i>Land Use Regulations</i> (2016)	Government of Canada
<i>Canadian Environmental Protection Act</i> (1999)	Government of Canada
<i>Interprovincial Movement of Hazardous Waste Regulations</i> (2002)	Government of Canada
<i>Environmental Emergency Regulations</i> (2003)	Government of Canada
<i>Transportation of Dangerous Goods Act</i> (1992)	Government of Canada
<i>Transportation of Dangerous Goods Regulations</i> (2012)	Government of Canada
<i>Hazardous Products Act</i> (1985)	Government of Canada
Spill Response Plan (2019a)	Blue Star Gold Corp.
Engagement Plan (2019b)	Blue Star Gold Corp.
Mineral Exploration Agreement HOODRIVER-001	Nunavut Tunngavik Inc.
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 waste generated through execution of the Project during camp operation, drilling and fuel caching.

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 Project is located 200 km southeast of Kugluktuk, Nunavut (see Figure 1), and abuts the Ulu property on three sides. The camp is located within the boundaries of the parcel as indicated in the Mineral Exploration Agreement HOODRIVER-001 (see Table 1) and may support up to 60 persons. The site is accessible by air, utilizing the nearby existing airstrip or an adjacent lake.

The Project is located within the Southern Arctic Ecozone and the Takijuk 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.

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).

The camp is located at: *(coordinates to be provided upon camp establishment)*.

## 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 2019b).

## 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.

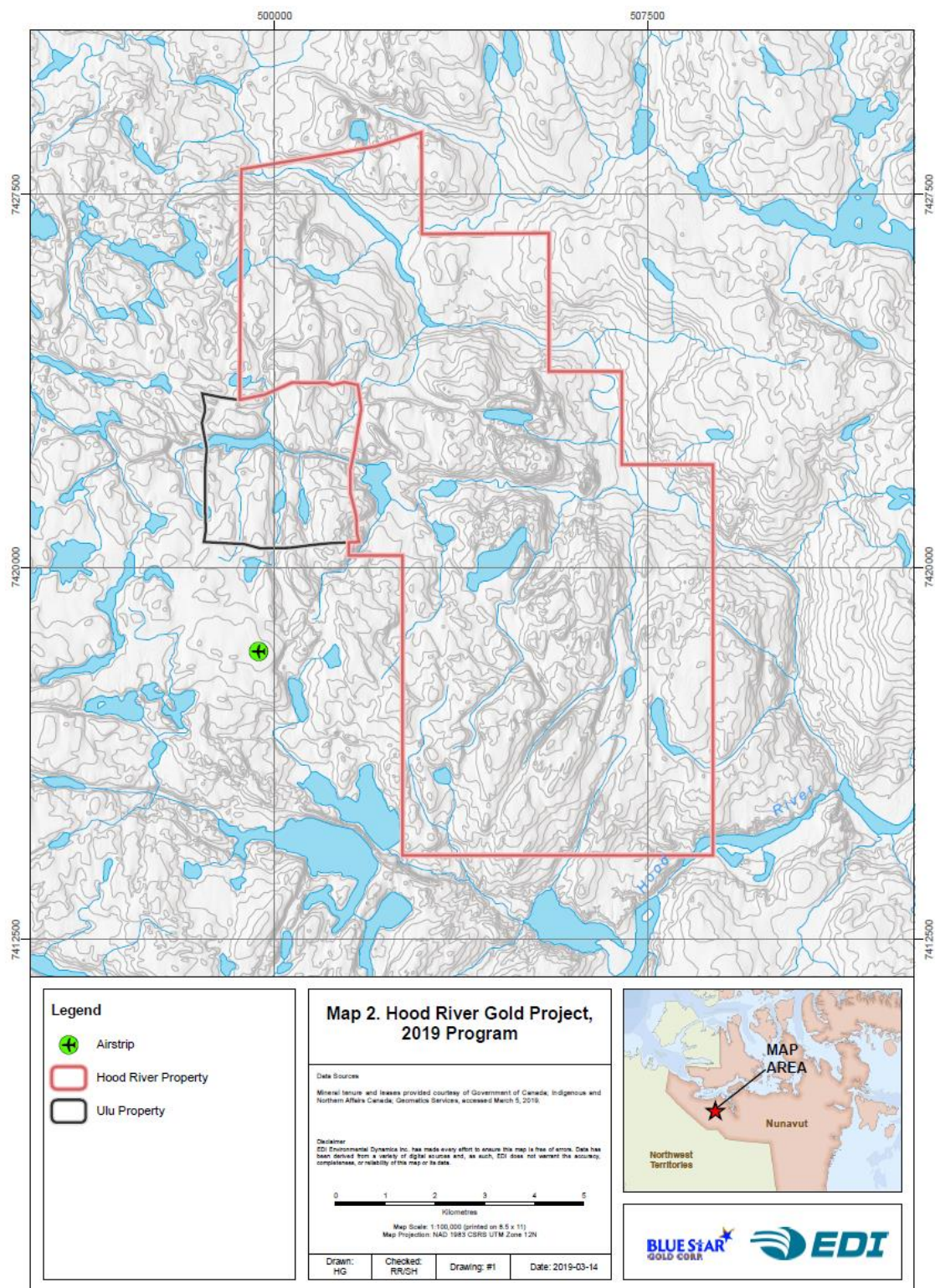


Figure 1 Hood River Gold Project location map. (to be revised to reflect final camp location).



## **2.0 ROLES AND RESPONSIBILITIES**

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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

Phone: 1 778 379 1433

**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 receptacles 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;

- 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.

## **3.0 WASTE TYPES**

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Types of waste that may be generated through the 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.



## 4.0 WASTE MANAGEMENT

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

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;
- 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

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

- 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.

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

Table 3. Waste streams, treatment and disposal.

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 <sup>3</sup> /day	-	Discharge to sump
	Core cutting water	Water	Minimal		
Domestic Wastewater	Greywater	Kitchen and bathroom wash water	Up to 54 m <sup>3</sup> /day (0.9 m <sup>3</sup> /day per person)	Grease trap in kitchen	Discharge to sump
	Sewage	Sewage from Pacto toilets	Up to 6 m <sup>3</sup> /day (0.1 m <sup>3</sup> /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
	Spent spill response materials	Various absorbent materials	Various	-	Backhaul for disposal offsite

## 6.0 TRAINING

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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.

## 7.0 REPORTING AND DOCUMENTATION

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### 7.1 REPORTING

Reporting will occur in accordance with regulatory requirements and the *Engagement Plan* (Blue Star 2019b).

### 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.

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

## 8.0 REFERENCES

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*Canadian Environmental Protection Act (CEPA)*. S.C. 1999, c.33  
*Environmental Emergency Regulations* SOR/2003-307  
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