



# **SOUTH KITIKMEOT GOLD PROJECT**

## ***WASTE MANAGEMENT PLAN***

**MARCH 2023**

**VIRIDIS MINING & MINERALS**  
Level 50, 108 St Georges Terrace  
Perth, WA 6000

## SUMMARY

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This Plan describes what is done with any waste generated during construction, operation and closure of the South Kitikmeot Gold Project.

## REVISION HISTORY

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Revision #	Date	Section	Summary of Changes	Author	Approver
1	Oct 2022	All	New document	S. Hamm	A. Pervez
1.1	Mar 2023	Sections 4, 5, 9, Tables 1 & 2	Address party comments, reflect authorizations	S. Hamm	A. Pervez

## TABLE OF CONTENTS

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<b>I</b>	<b>INTRODUCTION .....</b>	<b>1</b>
<b>I.1</b>	<b>SCOPE .....</b>	<b>2</b>
<b>I.2</b>	<b>SITE DESCRIPTION.....</b>	<b>3</b>
<b>I.3</b>	<b>PLAN MANAGEMENT .....</b>	<b>3</b>
<b>I.4</b>	<b>PLAN IMPLEMENTATION.....</b>	<b>3</b>
<b>2</b>	<b>ROLES AND RESPONSIBILITIES.....</b>	<b>4</b>
<b>2.1</b>	<b>STAFF, CONTRACTORS, SUPPLIERS AND VISITORS.....</b>	<b>4</b>
<b>2.2</b>	<b>MANAGERS AND SUPERVISORS .....</b>	<b>4</b>
<b>2.3</b>	<b>PROJECT MANAGER.....</b>	<b>5</b>
<b>2.4</b>	<b>DRILL CONTRACTORS.....</b>	<b>5</b>
<b>3</b>	<b>WASTE TYPES .....</b>	<b>6</b>
<b>4</b>	<b>WASTE MANAGEMENT .....</b>	<b>6</b>
<b>5</b>	<b>WASTE INFRASTRUCTURE .....</b>	<b>7</b>
<b>6</b>	<b>TRAINING.....</b>	<b>11</b>
<b>7</b>	<b>MONITORING AND INSPECTION .....</b>	<b>11</b>
<b>8</b>	<b>REPORTING AND DOCUMENTATION .....</b>	<b>11</b>
<b>8.1</b>	<b>REPORTING .....</b>	<b>11</b>
<b>8.2</b>	<b>DOCUMENTATION .....</b>	<b>12</b>
<b>9</b>	<b>REFERENCES .....</b>	<b>13</b>
	<b>APPENDIX A. INCINERATOR OPERATIONAL GUIDANCE .....</b>	<b>AI</b>

## LIST OF FIGURES

---

Figure 1. South Kitikmeot Gold Project are map .....	2
Figure 2. Camp Layout and related waste management infrastructure.....	10

## LIST OF TABLES

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Table 1. Related project documents and authorizations.....	1
Table 2. Waste streams and related management.....	9

## GLOSSARY & ACRONYMS

Term	Meaning
Aurora	Aurora Geosciences Ltd., the exploration program manager acting on behalf of the proponent
Backhaul	Transport off site back to Yellowknife
Blackwater	Sewage
Combustible	A substance that can catch fire and burn
Cuttings	Very fine bits of rock that result from cutting drill core either in the ground by drilling or with a core saw
Domestic wastewater	Greywater from the kitchen and washing facilities, and blackwater
Greywater	Wash water from the kitchen, bathrooms and laundry
Hazardous waste	Waste designated under legislation, requiring special handling and management
IATA	International Air Transport Association
Mineral waste	Cuttings from the drilling and core cutting
Movement document	Documentation required to accompany any shipment of hazardous waste
Non-mineral waste	Construction waste, spent parts and equipment, and domestic waste, all generated through routine drilling and camp operations, may be combustible or non-combustible
Project	South Kitikmeot Gold Project and all of its components
Site	Work areas associated with South Kitikmeot Gold Project
Sump	A person-made depression to temporarily contain liquids
TDG	Transportation of Dangerous Goods
Sump	A person-made depression to temporarily contain liquids
Waste manifest	Document required to accompany and shipment of waste, includes waste shipper and receiver identification as well as waste details such as volume and type
Waste segregation	Separation of different types of waste, based on their makeup and disposal method
WHMIS	Workplace Hazardous Materials Information Systems

# I INTRODUCTION

Viridis Mining & Minerals (Viridis) of Perth, Australia, is a junior exploration company with 100% ownership of the South Kitikmeot Gold Project (the Project) in the Kitikmeot Region of Nunavut. The Project is comprised of series of seven different claim blocks occurring over an area of approximately 11,000 ha, known as Hiqiniq, Ujaraq, Gold Bug, Esker, Bling, Uist, and Qannituq claim blocks, as illustrated in Figure 1.

The purpose of the Project is to conduct exploration-related activities to re-evaluate previously identified historic gold targets and locate new gold targets.

This *Waste Management Plan* (the Plan) describes how waste generated by the Project is managed. This Plan should be read in conjunction with the documents listed in Table 1, which may be updated from time to time.

Table 1. Related project documents and authorizations.

Document	Authority
<i>Transportation of Dangerous Goods Act</i> (1992) and <i>Regulations</i> (2015)	Transport Canada
<i>Canadian Environmental Protection Act</i> (1999)	Environment and Climate Change Canada
<i>Hazardous Products Act</i> (1985)	Government of Canada
<i>Interprovincial Movement of Hazardous Waste Regulations</i> (2002)	Environment and Climate Change Canada
<i>Nunavut Water Nunavut Surface Rights Tribunal Act</i> (2002) and <i>Nunavut Water Regulations</i> (2013)	Indigenous and Northern Affairs Canada
<i>Territorial Lands Act</i> (1985) and <i>Land Use Regulations</i> (2016)	Indigenous and Northern Affairs Canada
Environmental Guideline for the General Management of Hazardous Waste in Nunavut (2010)	Government of Nunavut
Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (2003)	Canadian Council of Ministers of the Environment
Technical Document for Batch Waste Incineration (2010)	Environment Canada
Screening Decision	Nunavut Impact Review Board
Water Licence	Nunavut Water Board
Land Use Licence	Kitikmeot Inuit Association
Land Use Permit	Crown-Indigenous Relations and Northern Affairs Canada



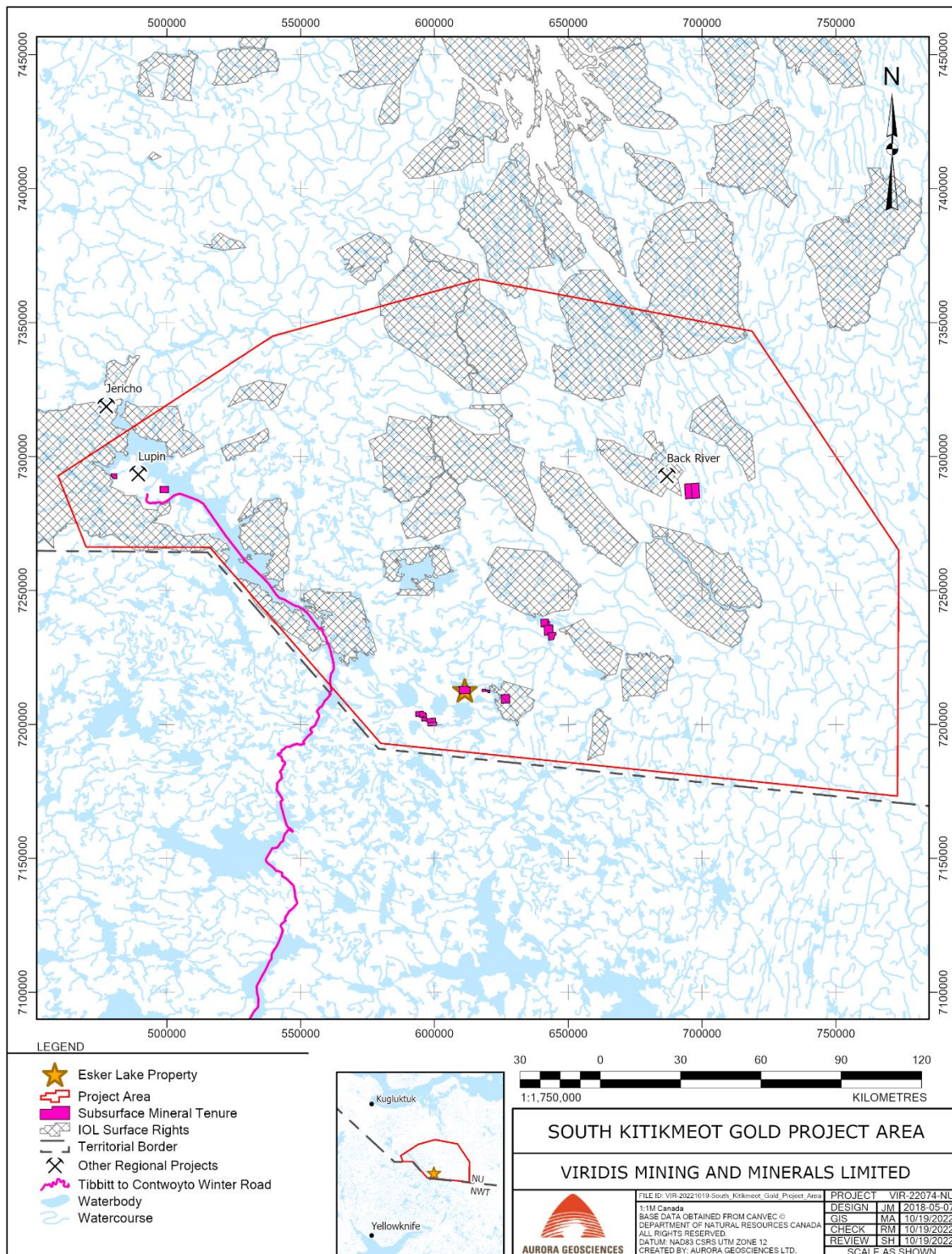


Figure 1. South Kitikmeot Gold Project area map

## 1.1 Scope

This Plan applies to all waste generated throughout the Project during camp operation, drilling and fuel caching.

## 1.2 Site Description

The Project is located 424 km southeast of Kugluktuk, NU, 400 km northeast of Yellowknife, NT and 145 km east - southeast of the Lupin Mine on Contwoyto Lake (Figure 1). Yellowknife is the nearest major centre and main point of access and coordination.

The Project is located within the Southern Arctic Ecozone and the Takijuk Lake Upland Ecoregion. The area is characterized by very cold winters, brief cool summers and short fall and spring seasons. Climate data from the nearest weather station at the Lupin Mine, 145 km NE of the property, indicate that mean daily temperatures in the area vary from -30°C in January to +12°C in July and that average annual rainfall is 16.0 cm. The topography is gently undulating with sparse bedrock exposures. Lakes and some swamps cover much of the low lying areas (AGL 2016).

The property is centred south of the informally named Esker Lake and includes a small lake in the eastern portion of the claim informally named Sheit Lake in past reports. Elevations on the property range from 390 m at Esker Lake to 430 m at the top of Brandon Hill (AGL 2016).

The Esker claim block located on Esker Lake is the approximate geographic centre of the Project at 65°01' N 108° 01' W (Zone 12N and NAD 83).

## 1.3 Plan Management

This Plan is intended to fulfill requirements associated with all authorizations.

The Plan is reviewed annually by the Project Manager and updated as needed and following issuance of new or amended authorizations to ensure alignment with relevant terms and conditions. When material changes occur, the updated document is provided to parties in accordance with the *Engagement Plan*.

## 1.4 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, in the local project office in Yellowknife, and in the head office in Perth.

## 2 ROLES AND RESPONSIBILITIES

Viridis is responsible for activities associated with its exploration program in the South Kitikmeot Project area, including implementation and management of this Plan. Viridis's contact information is:

**Viridis Mining & Minerals**  
Level 50, 108 St Georges Terrace  
Perth, WA 6000  
Phone: 61 3 9071 1847  
**Contact: Agha Shahzad Pervez**  
Email: agha@viridismining.com.au

Aurora Geosciences Ltd. (Aurora) is Viridis's exploration program manager. In some instances, Viridis may delegate its authority for program components to Aurora. Aurora's contact information is:

**Aurora Geosciences Ltd.**  
3506 McDonald Drive  
Yellowknife, NT  
X1A 2H1  
Phone: 867-920-2729  
**Contact: Dave White or Gary Vivian**  
Email: dave.white@aurorageosciences.com, gary.vivian@aurorageosciences.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 Viridis management to implement an 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 returning it 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 Viridis 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 of 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.

## 2.3 Project Manager

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

- Overseeing waste handling, transport, sampling, and management; and
- Coordinating with other managers and supervisors to ensure safe and appropriate allocation of resources on site.

## 2.4 Drill Contractors

Drill contractors are responsible for ensuring that drill sites are managed in accordance with Viridis waste management expectations and procedures. Additional drill contractor responsibilities include:

- Depositing drill cuttings in an area designated by Viridis;
- Dewatering cuttings to the greatest extent possible;
- Ensuring that cuttings do not flow in an uncontrolled manner to the surrounding land through the use of casing pots or other similar devices or methods;
- 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 of 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 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, used batteries, used oil and contaminated soil that may occur as a result of a spill. Precipitation accumulating in secondary containment may also be potentially hazardous.

### 4 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 management are listed in Table 2.

Open burning through use of a burn pan is limited; it is specifically noted that solid wastes that are conditionally suitable for open burning are paper products, paperboard packaging and untreated wood. Plywood, painted wood or other treated wood should not be disposed of in this manner, and instead is backhauled for suitable management offsite.

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 Workplace Hazardous Materials Information System (WHMIS) and *Transportation of Dangerous Goods* (TDG) Regulations (2012);
- Staging waste awaiting backhaul in areas with suitable containment;
- Disposing of waste on a regular basis and not allowing excess waste to accumulate in work areas;
- Backhauling hazardous waste annually.

Secondary containment for fuel and other materials supports waste management as any leaked materials or precipitation that accumulates within secondary containment is treated as a waste stream. Accordingly, aspects of secondary containment management are discussed in this Plan, with more detail provided in the *Spill Response Plan*. Fuel caches with containment berms are covered during periods when the site is unoccupied to limit precipitation ingress and ensure secondary containment is adequate. During periods of occupation, active fuel caches may be uncovered to allow daily ease of access. Any accumulated precipitation is discharged through an activated carbon filter such as Rain Drain<sup>1</sup> or Spill Monkey. If needed, Viridis may pump accumulated water out of secondary containment into another vessel such as empty drum and backhaul for treatment and disposal. Any waste that may attract wildlife is securely stored.

## 5 WASTE INFRASTRUCTURE

As listed in Table 2 and illustrated in Figure 2, waste infrastructure that may be implemented over the life of the project includes:

- Sumps and natural depressions
  - Greywater disposal;
  - Cuttings drill water disposal;
  - Core cutting water disposal;
- Incinerator for combustible domestic waste (as needed);
- Burn pan for large, clean, combustible waste (as needed).

Greywater management involves installation and maintenance of a grease trap as well using a strainer basket to prevent food from entering the grey water stream. The grey water sump may contain a plywood box (approx. 1 m x 6 m x 10 m) with baffles, gravel, drain holes and a weeping drain hose (known as a French Box), allowing particulate matter to settle and grey water to seep out.

Sump and natural depression locations are chosen based on the local terrain, proximity to source, distance from nearby watercourses (>100 m) and expected capacity needs. Disposal locations are routinely monitored to ensure capacity is sufficient and stable.

<sup>1</sup> Manufacturer (SEI Industries) specifications for the Rain Drain activated carbon filter indicates that effluent discharged through a Rain Drain meets Canadian Council of Ministers of the Environment (CCME) *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products*, being **15 mg/L of free oil and grease** (section 3.10.3(1)i; CCME 2003).

Should an incinerator be installed on site, it will be dual chamber, forced air style; manufacturer specifications and operational guidance are provided in Appendix A. Incineration occurs in accordance with the Technical Document for Batch Waste Incineration (EC 2010).

Personnel using any waste management infrastructure are designated and trained for that specific task, where required.

Table 2. Waste streams and related management.

Type of Waste		Composition	Quantity Generated	Management Rationale				
				Reduce	Reuse	Recycle/ Recover	Treatment	Disposal
Non-Mineral Waste	Combustible Wastes	Clean wood, paper, cardboard, putrescible and organic waste	Various		Reuse/ repurpose wood where possible	When backhauled, recycle cardboard and paper offsite	Open burn, or incinerate on site	Backhaul ash, and putrescible and organic waste for disposal offsite
	Non-combustible waste	Food packaging, various containers, scrap metal, plastics, hoses	Various	Purchase in bulk to reduce packaging, where available	Repurpose containers and scrap where safe and suitable	Backhaul all recyclables to waste receiver for suitable handling	Crush to reduce bulk for shipping	Backhaul all non-recyclables to waste receiver for suitable disposal
Mineral Waste	Drill and core cuttings	Rock, water, salt, non-toxic drill additives	Various					Capture with casing pot, discharge to natural depression
Mineral Wastewater	Drill water	Water, salt, non-toxic drill additives	Various	Recirculate drill water to reduce freshwater required	Reuse drill water where possible		Settling tanks and/or use of flocculants to support reuse where possible	Discharge to natural depression
	Core cutting water	Water	Minimal		Reuse core saw water where possible			
Domestic Wastewater	Greywater	Kitchen, laundry, and bathroom wash water	Up to 8 m <sup>3</sup> /day <sup>1</sup>	Limit unnecessary use			Grease trap in kitchen	Discharge to sump or natural depression
	Sewage	Sewage	Up to 0.1 m <sup>3</sup> /day per person <sup>1</sup>				Incineration	Backhaul ash for disposal offsite  Backhaul sewage for appropriate disposal offsite
Potentially Hazardous Waste	Hazardous waste	Oily rags, spent filters, batteries, containers, used oil, contaminated soil, hydraulic fluid, solvents, and other similar materials used for cleaning and maintenance	Various			Backhaul all recyclables to waste receiver for suitable handling		Backhaul all non-recyclables to waste receiver for suitable treatment and/or disposal
	Water from secondary containment	Water, hydrocarbons	Various	Cover containment areas to reduce ingress of rain and snow		Pump out for backhaul and treatment offsite	Activated carbon filter and/or oil water separator	Discharge treated effluent to upland area
	Spent spill response materials	Various absorbent materials	Various					Backhaul for disposal offsite

<sup>1</sup> Approximate, based on activities and number of persons on site. Total maximum volume of wastewater deposited expected altogether to be approximately equivalent to maximum authorized water use, 299 m<sup>3</sup>/day.



***Placeholder:*** map to be inserted following camp establishment.

*Map will include camp location, camp layout and identification of the greywater and core cutting water sump, incinerator and burn pan, as installed.*

Figure 2. Camp Layout and related waste management infrastructure

## 6 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 related personnel roles and responsibilities. Further, all project personnel are trained in WHMIS.

Personnel with specific tasks are trained accordingly and training documentation is maintained on site and in off-site offices. Specific tasks and training include:

- Incinerator operators trained in accordance with manufacturer specifications.
- Hazardous waste bulking and backhaul:
  - trained in accordance with *TDG Regulations* (2012) where necessary.
  - trained in the *International Air Transport Association Dangerous Goods Regulations* (2016) where necessary.

## 7 MONITORING AND INSPECTION

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Monitoring of waste management facilities includes routine inspection of camp facilities during periods of occupation, and inspection of drills before, during and after activities at each drill.

Camp facilities are informally inspected daily by the Camp Manager, through the execution of their duties. Formal documented inspection of camp waste management facilities occurs weekly.

Drill sites are inspected by the Project Manager or designate to document pre-disturbance conditions, compliant drill site management, and suitable clean-up and stabilization of drill areas. Frequency of drill site inspections varies as the duration the drill may be in a particular location varies with program scope and conditions encountered.

Inspection documents identified in the following section are available for the Inspector to review upon request.

## 8 REPORTING AND DOCUMENTATION

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### 8.1 Reporting

Reporting occurs pursuant to its authorizations, and in accordance with the *Engagement Plan*, where applicable.

## 8.2 Documentation

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

- Waste manifests;
- Movement documents, 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 Project GIS system is maintained identifying the location of all sumps and natural depressions used, and the location of waste management infrastructure.

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

## 9 REFERENCES

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- Canadian Environmental Protection Act*. 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  
*Nunavut Waters Regulations*. SOR/2013-69  
*Territorial Lands Act*. R.S.C., 1985, c. T-7  
*Territorial Land Use Regulations*. SOR/2016 R-32, s.1.  
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- International Air Transport Association (IATA). 2016. Dangerous Goods Regulations. 57th Edition. 1 January 2016. Montreal, Geneva.

## **APPENDIX A. INCINERATOR OPERATIONAL GUIDANCE**

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*To be provided prior to installation and use of an incinerator on site.*