



# Courageous Lake Project

## Waste Management Plan

September 2019

**Seabridge Gold (NWT) Inc.**

106 Front Street East, Suite 400  
Toronto, Ontario M5A 1E1 Canada

T: 416-367-9292

F: 416-367-2711

[www.seabridgegold.net](http://www.seabridgegold.net)

**SEABRIDGE GOLD**

## REVISION TABLE

Version	Date of Revision	Summary of Changes	Date Approved by MVLWB
1	Sept. 2019	Submitted as supporting document with Land Use Permit application	

## CONTENTS

<b>REVISION TABLE .....</b>	<b>I</b>
<b>ACRONYMS AND ABBREVIATIONS .....</b>	<b>III</b>
<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1 Purpose of Plan.....	1
1.2 Regulations .....	1
1.3 Revisions and Distribution of Plan.....	5
<b>2. PROJECT ACTIVITIES.....</b>	<b>6</b>
2.1 Site Description .....	6
2.2 Location of Waste Management Activities .....	6
<b>3. WASTE MANAGEMENT HIERARCHY .....</b>	<b>9</b>
<b>4. IDENTIFICATION OF WASTE TYPES.....</b>	<b>10</b>
<b>5. WASTE MANAGEMENT .....</b>	<b>12</b>
5.1 Hazardous or Potential Hazardous Wastes .....	12
5.2 Non-mineral Wastes.....	12
5.3 Mineral Wastes .....	12
<b>6. WASTE MANAGEMENT INFRASTRUCTURE.....</b>	<b>13</b>
6.1 On-site Storage .....	13
6.2 Incinerators .....	13
6.3 Off-site Disposal.....	14
<b>7. REFERENCES.....</b>	<b>15</b>
 <b>APPENDIX A SEABRIDGE ENVIRONMENTAL POLICY</b>	
<b>APPENDIX B OVERVIEW OF WASTE HANDLING AND DISPOSAL METHODS AT COURAGEOUS LAKE</b>	
<b>APPENDIX C INCINERATOR SPECIFICATIONS</b>	
<b>APPENDIX D WASTE ACCEPTANCE LETTERS</b>	

### List of Tables

Table 1: Hazardous or Potentially Hazardous Wastes .....	10
Table 2: Non-Mineral Waste.....	11
Table 3: Mineral Waste.....	11

### List of Figures

Figure 1: Regional Map of the Courageous Lake Property .....	2
Figure 2: Courageous Lake Property – Proposed Exploration Land Use and Water Use .....	3
Figure 3: Courageous Lake Property – Waste Disposal Areas .....	7

## ACRONYMS AND ABBREVIATIONS

Camp	Matthews Lake Camp
ECCC	Environment and Climate Change Canada
GNWT	Government of Northwest Territories
ha	hectares
km	kilometre
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	<i>Mackenzie Valley Resource Management Act</i>
NWT	Northwest Territories
WMP	Waste Management Plan

## 1. INTRODUCTION

Seabridge Gold (NWT) Inc. (Seabridge) is a Canadian based resource exploration company that has been conducting gold exploration in the Courageous Lake area since 2003. The Courageous Lake area is approximately 240 kilometres (km) northeast of Yellowknife, NWT (Figure 1). The property comprises 62 mineral leases and 26 mineral claims, totaling 50,258 hectares (ha) which are wholly owned by Seabridge. The property is located within an historic mining district that includes two past producing mines, underground exploration workings, and undeveloped mineral resources.

Exploration activities since 2012 have been regulated by a Class A Land Use Permit (MV2012C0025) issued by the Mackenzie Valley Land and Water Board (MVLWB). This permit expires December 27, 2019. For the next five to seven years, Seabridge proposes to conduct exploration activities that are focused on growing the mineral resources, maintaining community relationships and expanding the geological, ecological and traditional knowledge of the area.

To authorize these exploration activities Seabridge is submitting one Type A land use application and two Type B water licence applications to the MVLWB. The land use permit application describes the same activities within the same permit boundary as the expiring permit. Seabridge is submitting two Type B water licence applications to provide greater logistical flexibility and allow Seabridge to operate up to five drills simultaneously. While the proposed exploration activities remain the same as those previously authorized, the use of three or more drills at one time may result in daily water usage that exceeds the 100 m<sup>3</sup>/day allowed by regulations without a water licence. At Courageous Lake, two Type B water licences are required because the proposed activities will occur on both Territorial lands and Federal lands. With the exception of the winter road, all activities will occur within the land use permit area identified on Figure 2.

Seabridge acknowledges the traditional uses of the land and water resources by Indigenous peoples and the cultural significance of the Courageous Lake area. Seabridge is committed to protecting the environment within which it operates, through compliance to existing regulatory standards including this Plan. More information on Seabridge's Environmental Policy can be found in Appendix A.

### 1.1 Purpose of Plan

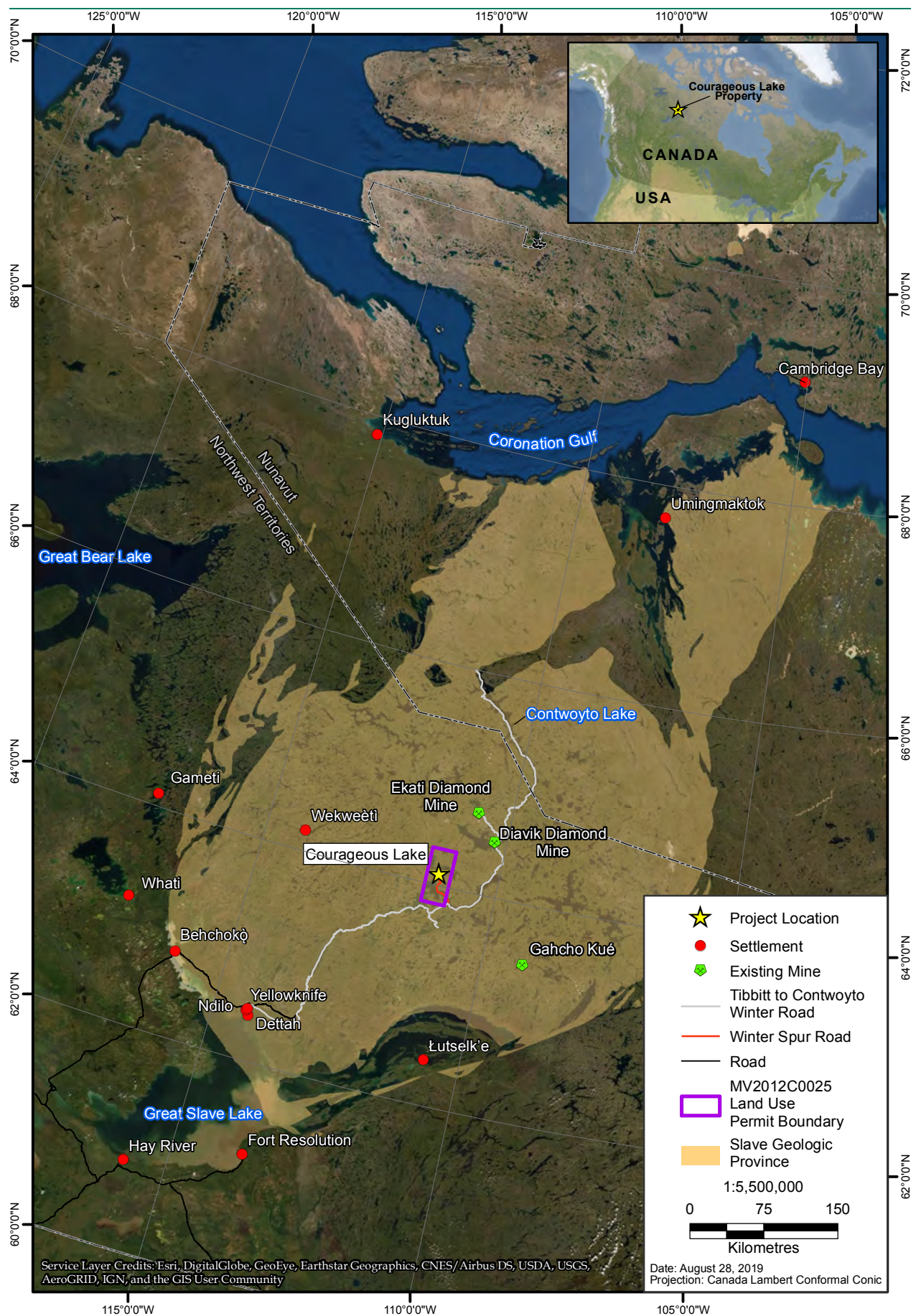
The Courageous Lake Waste Management Plan (Plan or WMP) is a key supporting document and part of Seabridge's applications for a land use permit and two water licences. The WMP provides directions to Seabridge and its contractors on the proper handling and management of waste streams resulting from exploration activities. Seabridge is committed to eliminating or reducing potential project-related impacts on the environment, and operating in a manner that protects workers, surrounding communities, wildlife and the land. Proper execution of the WMP will show commitment to environmental compliance, as well as ensuring the health, safety and well-being of all personnel involved in the project. The Plan addresses the activities proposed in the land use permit and water licence applications, which are summarized in Section 2.

### 1.2 Regulations

This Plan was developed pursuant to MVLWB requirements and in consideration of the following Federal and Territorial regulations, codes and guidelines:

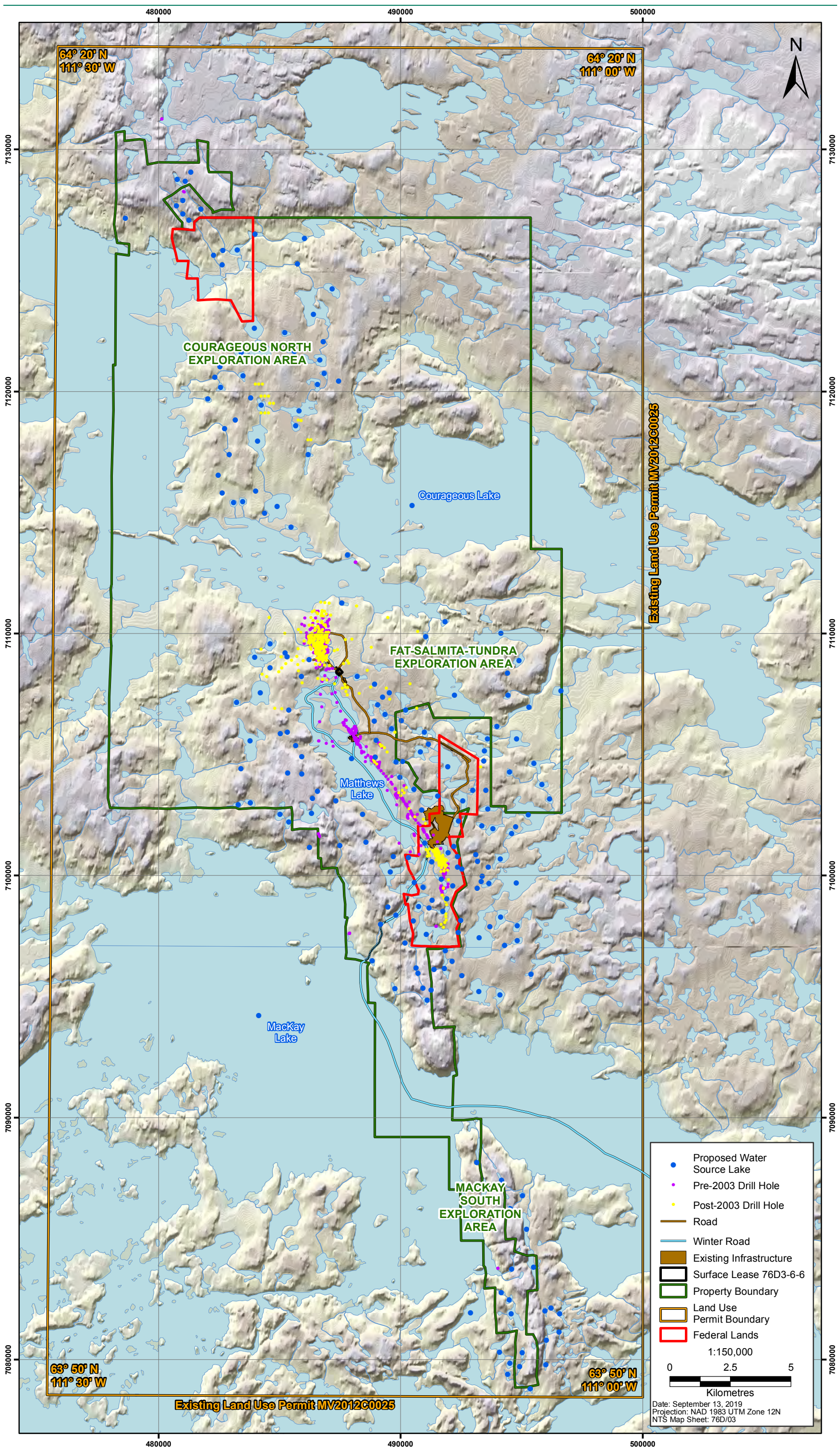
- *Guidelines for Developing a Waste Management Plan* (MVLWB 2011)
- *Guideline for Hazardous Waste Management* (GNWT 2017)
- *Canadian Environmental Protection Act, 1999* (CEPA 1999) and applicable Regulations
- *Canadian Environmental Protection Act Registry – Substance Lists*
- *Interprovincial Movement of Hazardous Waste Regulations* (SOR/2002-301)





**Figure 1: Regional Map of the Courageous Lake Property**





**Figure 2: Courageous Lake Property - Proposed Exploration Land Use and Water Use**



- *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Products* PN1326
- *Transportation of Dangerous Goods Act 1992* (1992,C.34) and applicable Regulations and Notices

It is intended that this Plan will apply to exploration activities authorized under a new land use permit that will be issued by MVLWB subsequent to the expiration of the current permit (MV2012C0025).

### 1.3 Revisions and Distribution of Plan

This plan will become effective once approved by MVLWB. The plan will be reviewed annually and any updates or changes will be resubmitted to the MVLWB for approval. The Plan Revision Table on Page i of this document provides a record of revisions to this plan.

Distribution of the Plan includes:

- Project Manager (Seabridge)
- On-site Camp Manager (Matrix Aviation)
- On-site Environmental Advisor
- Courageous Lake Camp Office (known as Matrix Office)
- Courageous Lake Exploration Office (known as Seabridge Office)
- Seabridge Head Office – Toronto
- MVLWB Public Registry – online



## 2. PROJECT ACTIVITIES

Seabridge operates an existing 49-person camp at Matthews Lake and an existing core handling facility at an area called Coreland, approximately 3 km to the south. The Matthews Lake Camp (Camp) and Coreland are connected by gravel road. An existing gravel airstrip is located approximately 4 km east of Coreland. Seabridge may construct a seasonal Winter Road spur to the project area during some winter seasons. Seabridge will be generating waste products associated with mineral exploration activities that include exploration drilling, core handling, environmental monitoring, maintenance of existing facilities, etc., over the next 5 to 7 years.

The proposed activities are described in the 2020-2025 Exploration Work Plan which accompanies the land use permit application. Exploration activities are proposed to occur in two potential scenarios: a Typical Drill Program with up to three drill rigs, a 25-person camp that operates seasonally for about two to three months, potentially progressing to a Large Drill Program that may involve up to five drill rigs, a full 49-person camp with a duration of up to six months. In the latter scenario, the volume of some waste materials generated may increase; however, this management plan considers waste volumes for a Typical Drill Program.

Seabridge will undertake camp activities, such as building maintenance, improvements, and disposal of associated camp wastes, activities which are authorized under Surface Lease 76D/3-6-6.

Surface lease 76D/3-6 was originally issued in 1994 pursuant to the *Territorial Lands Act* and predates the *Mackenzie Valley Resource Management Act* (MVRMA). Section 152 of the MVRMA grandfathers the pre-existing right to operate a commercial camp including the right to maintain improvements on the land, dispose/discharge wastes and store fuel. Details regarding the types of wastes and the disposal methods within the camp lease are included in this Plan to satisfy the requirements of the surface lease. It is not intended that the disposal of waste from the camp operations be included in the land use permit.

### 2.1 Site Description

The Courageous Lake property is located north of the tree line in the zone of continuous permafrost. The terrain is characterized by undulating hills of tundra vegetation and exposed bedrock. Lakes and wetlands are also scattered throughout the landscape.

The temperature range in the area is typical of Arctic Canada. During the winter period (October to March) the mean monthly temperatures range between -26°C and -16°C. During the summer period (June to September) the mean monthly temperatures range between 7°C and 15°C.

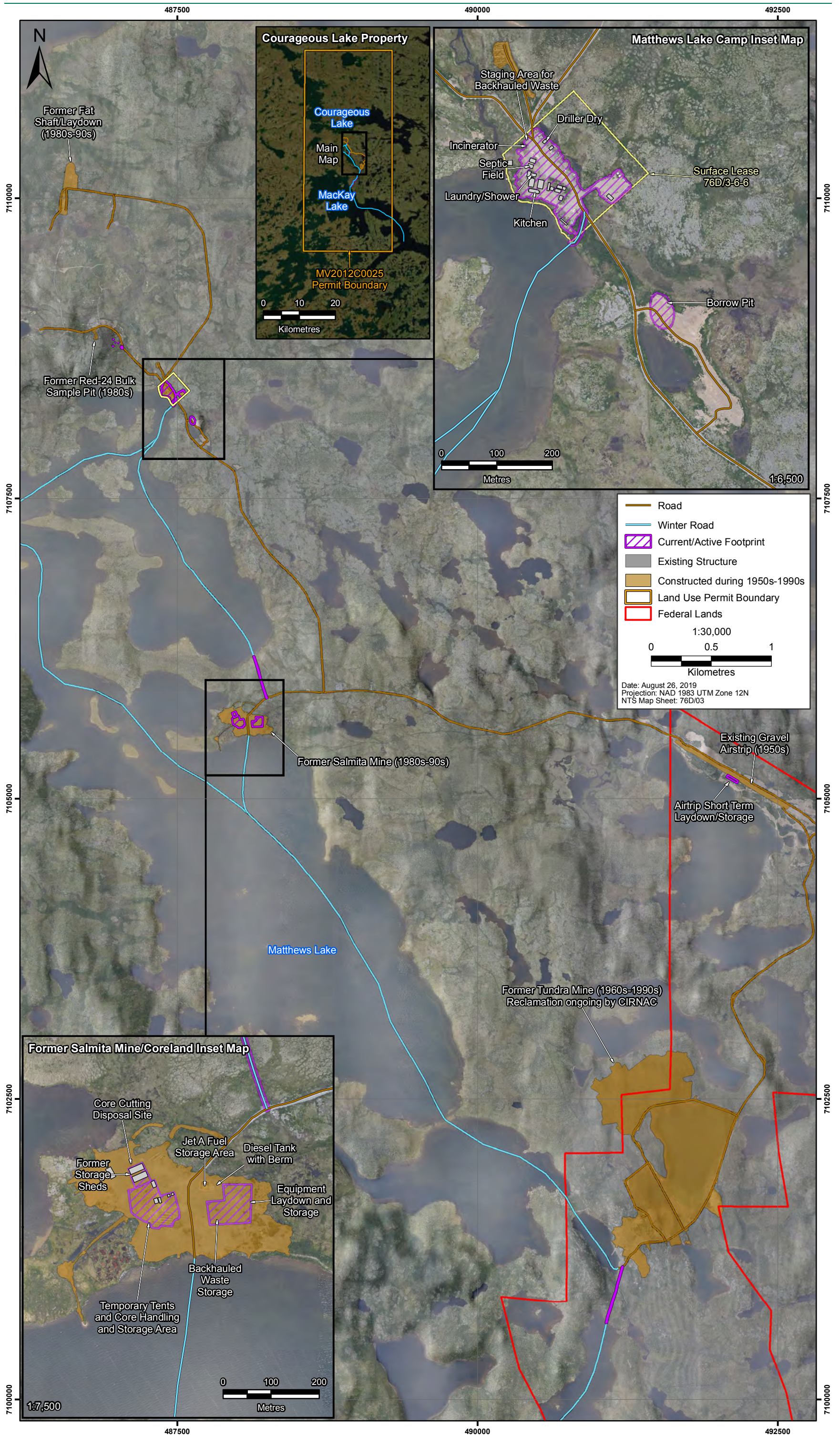
Existing infrastructure at Camp and Coreland is located on gravel pads with good drainage. Exploration drill sites may be located on rock outcrop, heath tundra, swampy/wetland areas or on lakes. Proposed drill hole locations are confirmed at the time of drill positioning on the ground to reduce environmental effects. Due to logistical challenges of drilling in wetlands and near lakes, these holes are typically drilled during winter conditions when the ground is frozen and capable of supporting equipment and activities.

### 2.2 Location of Waste Management Activities

The Plan covers the following areas within the Courageous Lake property where waste materials are generated: Matthews Lake Camp, Coreland (former Salmita Mine site), and exploration drill sites.

Figure 2 shows the area of permitted exploration activities and Figure 3 shows the location of waste-related facilities in the Camp and Coreland areas.





**Figure 3: Courageous Lake Property - Waste Disposal Areas**



### 3. WASTE MANAGEMENT HIERARCHY

Seabridge Gold will implement a waste management hierarchy in order to minimize the amount of waste being generated from exploration activities and released into the receiving environment. The preferred method in managing wastes is through material source reduction, followed by reuse, recycling and recovery of materials. Treatment of wastes prior to disposal is the least preferred method and will be avoided wherever possible. As there is considerable cost associated with transport of goods to the project site, critical review of materials (for example excess packaging) prior to transport to site will reduce potential for subsequent waste handling at the Courageous Lake property. The waste management hierarchy is as follows:

- Source reduction will eliminate or decrease the volume of wastes generated. It will be managed through inventory control, process modification and improved maintenance.
- Re-use and re-purposing will allow materials to be used more than once for the same or different applications.
- Recycling and recovery will allow used materials to be processed in bulk and remanufactured into the same or different products for use on site or off site.
- Treatment will be used to reduce the volume, mass and/or toxicity of materials before they are disposed.
- Disposal of wastes is considered the last resort in the waste management hierarchy. The volume, location and containment of the waste will all be considered prior to disposal.



## 4. IDENTIFICATION OF WASTE TYPES

Waste characterization is used in assessing the appropriate handling, treatment, transportation, and disposal of the waste. Characterization is the assessment of the physical, chemical and toxicological properties of the waste product. These properties are used to determine the dangers relating to handling, storage, and transportation of the waste on public roads, and to determine the environmental consequences of the waste so that appropriate transportation and disposal options are selected. Waste transportation and disposal is regulated by the Government of the Northwest Territories (GNWT) and Environment and Climate Change Canada (ECCC).

Regulated wastes include any waste material which is specifically regulated as hazardous, and dangerous for transport. Drilling wastes (drilling fluids and drill cuttings) are managed under the guidance of the GNWT Lands Inspector and the MVLWB.

All waste for this project are classified into three basic categories from which best management practices can be applied.

1. Hazardous or Potentially Hazardous Wastes (Table 1)
2. Non-Mineral Waste (Table 2)
3. Mineral Waste (Table 3)

Types of waste categories are listed in the tables below along with characteristics, source(s), and estimated volumes of each type generated on site.

**Table 1: Hazardous or Potentially Hazardous Wastes**

Waste	Characteristics	Source	Volume/Mass per Year (estimated)
Incinerator / ash residue	Ash	Camp Incinerator	Depends on camp size/duration; typically <10 m <sup>3</sup>
Lead acid batteries, lithium and alkaline batteries	Sealed batteries	Camp and equipment maintenance, vehicles and electronic equipment	Approximately 500 kg
Used oil, fuels, lubricants, greases, oil filters, and solvents	Fuel oils and additives	Mobile and non-mobile equipment, including drill, pumps generators, heavy equipment	Approximately 10,000 L
Chemical wastes – liquids or solids (e.g., paint, insect repellent, cleaner residues)	Camp cleaning and operation materials	Camp and equipment maintenance	500 L
Contaminated soils – hydrocarbon	Soil material with contamination from hydrocarbons or additives	Hydrocarbon spills associated with mobile and non-mobile equipment	Typically <3 m <sup>3</sup>

*Note: assumes Typical Drill Program that is active for 60 days/year.*

**Table 2: Non-Mineral Waste**

<b>Waste</b>	<b>Characteristics</b>	<b>Source</b>	<b>Volume/Mass per Year (estimated)</b>
Domestic refuse	Dry waste/garbage	Camp	60 kg/day 3,600 kg/year
Putrescible / food waste	Food waste	Camp (kitchen)	30 kg/day 1,800 kg/year
Construction materials	Wood and other solid materials; metal, piping or wiring scraps	Construction and maintenance activities	2,000 kg
Recyclables	Empty fuel containers, glass, plastic, aluminum cans, etc.	Camp and exploration activities	2,000 kg
Metal / inert wastes	Metal, plastics, etc.	Camp and maintenance	4,000 kg
White goods	Appliances	Camp maintenance	1 per yr
Sewage	Toilet wastes	Pacto toilets at Camp and Coreland	50 kg/day 3,000 kg/year
Office and miscellaneous	Paper, used electronics, printer cartridges	Office, Coreland	10 kg/year
Greywater	Shower, laundry and kitchen greywater	Camp (kitchen and dry)	4,500 L/day 27 m <sup>3</sup> /year

*Note: Assumes Typical Drill Program that is active for 60 days/year.*

**Table 3: Mineral Waste**

<b>Waste</b>	<b>Characteristics</b>	<b>Source</b>	<b>Volume/Mass Per Year (Estimated)</b>
Drill cuttings	Non-toxic solid waste; finely fragmented rock material and water	Drilling	Approximately 0.5 m <sup>3</sup> /hole
Core saw cuttings	Non-toxic solid waste; finely fragmented rock material and water	Core sampling	Approximately 0.5 m <sup>3</sup> /week

*Note: assumes Typical Drill Program that is active for 60 days/year.*

## 5. WASTE MANAGEMENT

As described in Section 4, various wastes are generated from daily activities associated with exploration activities on the Courageous Lake property, which must be handled, stored and/or treated effectively to minimize effects on the environment. The site is accessible by air during summer months, and via winter road in some years. Certain wastes will need to be transported off-site for proper disposal and will need to be managed and/or stored temporarily at site to make appropriate use of air and truck backhaul opportunities. The following section will describe waste management options that Seabridge will utilize for activities on the Courageous Lake property.

### 5.1 Hazardous or Potential Hazardous Wastes

All hazardous and potentially hazardous wastes are stored in sealed, wildlife-proof containers at Matthews Lake Camp or Coreland. Waste products will be stored in separate, marked containers for incinerator ash, lead acid batteries, lithium batteries, oil filters, waste oil and fuel, chemical wastes, and contaminated soils. The containers will be positioned on level ground gravel pad and/or on pallets, to avoid potential for tipping and container rupture or spillage. These materials can be safely stored on site and staged for backhaul on the next winter road and disposal at an approved facility. Any hazardous waste materials that cannot be safely stored on site until the next winter road season will be shipped to Yellowknife via fixed-wing aircraft for immediate disposal at an appropriate facility.

### 5.2 Non-mineral Wastes

Non-mineral waste materials will be sorted to remove reusable or recyclable materials and further separated into combustible and non-combustible waste. Combustible materials include domestic, putrescible, some construction material and all toilet wastes. Combustible materials will be stored separately at Camp until the material can be incinerated on site. Incineration will follow all Territorial and Federal incineration guidelines. Seabridge uses a high efficiency incinerator to ensure complete combustion and no residual potential for animal attractants in the residue ash as described in Section 6.2.

Domestic greywater is collected in sumps and conveyed to the septic system for treatment through the existing septic tank and drainfield for in-ground disposal on site. Toilet waste is managed as described in Section 6.1.

Recyclables, metals, empty fuel containers, inert non-combustibles and used white goods will be sorted and staged for backhaul to Yellowknife via winter road, where it will be transported to a suitable landfill or recycling facility, as appropriate. Materials will be staged for backhaul at Camp and in the laydown area at Coreland where there is sufficient space and the materials are readily accessible to the Winter Road. As exploration activities wind down at the end of each season, a final clean-up of the property will be undertaken to collect materials that may have been previously overlooked and can be recovered.

### 5.3 Mineral Wastes

Drill cuttings will be placed in a natural depression or sump at least 100 m from the ordinary High Water Mark of the nearest water course as required under conditions of the land use permit. These locations will be pre-marked when the holes are spotted prior to drilling to ensure approved locations are used. All on-ice drilling activities, including winter-drilling on/near swamps, wetlands will manage cutting wastes for disposal in an appropriate land based sump that is >100 m from water.

Rock cuttings from core sampling saws are disposed on land in a small sump on the north side of the buildings at Coreland. The sump is designed to restrict the discharge of cuttings.



## 6. WASTE MANAGEMENT INFRASTRUCTURE

The Camp Manager is responsible, in conjunction with the Seabridge Project Manager, to ensure that all wastes are managed appropriately.

A summary of each type of waste generated at the Courageous Lake property is listed in Appendix B to help field personnel determine how wastes are to be managed. The chart will be posted around Camp and Coreland facilities. Field personnel orientation training will occur.

The infrastructure and location of waste related facilities at Camp and Coreland are shown on Figure 3 and briefly described in the following sections.

### 6.1 On-site Storage

- Putrescible/food waste are removed from the kitchen several times daily, as required, for immediate incineration to prevent wildlife attraction. When immediate incineration is not available, putrescible waste will be double bagged with industrial grade garbage bags and stored in enclosed structures to restrict odors from escaping and attracting wildlife. As a contingency measure, certified “Animal Proof” containment will be used until incineration is resumed.
- Dry storage: dry odorless domestic refuse is collected from around Camp and Coreland as required in garbage bags and cardboard boxes for short-term storage in an enclosed box structure, prior to incineration. The storage area is located adjacent to the incinerator.
- Laydown areas at Camp and Coreland have been designated for the temporary storage/staging of materials prior to backhaul to Yellowknife for disposal or further treatment. The staging area typically contains drums of incinerator ash, metal debris, inert materials and recyclables, including empty fuel containers. Hazardous and potentially hazardous waste such as drums of contaminated soils or containers of waste oil products are stored temporarily in the same area, on level ground with good drainage and within secondary containment trays to capture potential leaks. Regular monitoring occurs.
- A small laydown/storage area exists along the south side of the Airstrip. This area typically used for short-term storage of materials that have been recently transported to site or are to be transported off site. A small fuel cache is maintained here, typically less than four drums. Empty drums are returned to camp for backhaul or reuse.
- Sumps/septic domestic greywater is collected in below ground sumps and conveyed to the septic building for treatment through the existing septic tank and drainfield. The septic system may include toilet wastes from time to time.
- Pacto toilets: toilet waste is collected several times daily, as required, from Pacto toilets at Camp and Coreland and incinerated immediately. Pacto toilets operate using a waterless system of sealed bags which prevent the release of odors and waste materials.

### 6.2 Incinerators

The incinerator is located in the northwest corner of Camp. It is a diesel-operated Fire Lake Model A400X and the specifications are included in Appendix C. The unit is equipped with a secondary burner/chamber and built-in timer which ensures high temperature burning and complete combustion and cooling. The incinerator is designed to meet or exceed guidelines outlined by Environment and Climate Change Canada for batch waste incineration under proper operation and maintenance.

Waste is placed into the incinerator prior to the initiation of the burn cycle and the door remains closed until the ash has cooled inside the primary chamber. Following a complete incineration cycle, ashes and non-burnable items are removed from the incinerator and placed in drums and labelled for backhaul and disposal at an approved site.

To manage combustible construction waste that does not readily fit in the incinerator, Seabridge may conduct small open burns as required. Typical materials include broken core boxes, broken pallets, dimensional lumber off-cuts and used/broken plywood. Treated lumber products are not burned.

If required, an open burn permit is obtained from GNWT. Burns are conducted away from buildings, fuel storage facilities and other waste products. Residual ash and metal, such as nails, are collected and containerized for backhaul for disposal at an approved site.

### **6.3 Off-site Disposal**

Hazardous and potentially hazardous waste materials will be transported to the KBL Environmental Hazardous Waste Facility in Yellowknife for testing, segregation and consolidation with approved waste streams for bulk transportation to specialized end receivers. The KBL facilities are designed, engineered, constructed and maintained to prevent environmental impact through the management of industrial waste. Inert material such as metal, ash and other materials acceptable for disposal will be directed to an approved landfill operated by the City of Yellowknife. Appendix D contains letters of acceptance from KBL and the City of Yellowknife.

## 7. REFERENCES

- MVLWB. 2011. *Guidelines for Developing a Waste Management Plan*. Mackenzie Valley Land and Water Board. Retrieved August 2, 2019 from [https://mvlwb.com/sites/default/files/documents/MVLWB-Guidelines-for-Developing-a-Waste-Management-Plan-Mar-31\\_11-JCWG.pdf](https://mvlwb.com/sites/default/files/documents/MVLWB-Guidelines-for-Developing-a-Waste-Management-Plan-Mar-31_11-JCWG.pdf)
- GNWT. 2017. *Guidelines for Hazardous Waste Management*. Government of Northwest Territories. Retrieved August 2, 2019 from [https://www.enr.gov.nt.ca/sites/enr/files/resources/128-hazardous\\_waste-interactive\\_web.pdf](https://www.enr.gov.nt.ca/sites/enr/files/resources/128-hazardous_waste-interactive_web.pdf)



## **APPENDIX A      SEABRIDGE ENVIRONMENTAL POLICY**

## ENVIRONMENTAL POLICY

The Company strives to be an exemplary leader in environmental management. We intend to meet or surpass existing regulatory standards and minimize undesirable impacts on the environment to the extent possible. To meet this objective we will:

- At a minimum, meet all regulatory requirements;
- Recognize environmental management as an important corporate priority and integrate environmental considerations into all mine exploration, development, operational and closure planning;
- Assess the potential environmental risks of project design so that effective preventive measures can be established;
- Use industry leading practices and technologies that are aimed to improve environmental performance intended to enhance quality of water, air, vegetation and wildlife;
- Continuously improve the efficient use of resources, processes and materials;
- Participate in recycling programs to the extent possible and commercially feasible;
- Optimize the use of resources to ensure the conservation of natural resources and consumer goods such as energy;
- Require contractors and suppliers to provide operational guidelines and procedures which meet their environmental responsibilities, as part of the bid and procurement process;
- Consider environmental guidelines when purchasing equipment and materials;
- Communicate environmental information to our employees including changes and potential changes to environmental regulations as well as technological developments that may mitigate impacts;
- Develop guidelines for training and education of employees;
- Work with government agencies, the public, Treaty Nations, First Nations and stakeholders to develop open communications for a shared understanding of the Company's environmental protection programs and responsibilities;
- To the extent that is practical and commercially reasonable, work to remediate disturbed ecosystems to enable them to revert to their original state or an alternative sustainable state which optimizes biodiversity and benefits to the wider community.

It is the responsibility of every employee of Seabridge to carry out their daily activities in accordance with this Environmental Policy.

## **APPENDIX B      OVERVIEW OF WASTE HANDLING AND DISPOSAL METHODS AT COURAGEOUS LAKE**



Appendix B: Overview of Waste Handling and Disposal Methods at Courageous Lake

Waste Stream	Description	Handling Method	Management Method	Comments
Absorbents	Absorbent materials used for spill clean up	Store in drum with rags	Handled and stored by camp manager prior to transport to waste receiving facility	Camp Manager will coordinate shipment
Aerosols	Not empty	Bulk in a drum or pail	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Antifreeze I Glycol	From engines	Store in drum or lube cubes	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Batteries (acid)	Lead I acid batteries	Wear glove, handle carefully, store upright in battery bins or palletize	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Batteries (alkali)	Alkali batteries	Wear gloves, handle carefully, store upright in battery bins or palletize	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Batteries (gelcell)	No free liquid and unable to leak if battery were damaged	Bulk in a drum or pail	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Batteries (NiCd)	Rechargeable consumer batteries	Bulk in a drum or pail	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Beverages Cans and Plastics	Pop and juice containers	Bulk in a drum or pail	Ensure cans and bottles are cleaned and free of potential animal attractants, stored for transport to Yellowknife for recycling	Camp Manager will coordinate shipment
Construction waste	Leftover camp construction and operation materials	Sort and designate as reuseable, recyclable, burnable or to be removed from site	Store the separated material in their designated locations on site until they can be utilized or transported to an approved waste receiving facility	Camp Manager will coordinate shipment
Contaminated Soil	Soil contaminated with either diesel, oil, drilling fluid or other spill material	Consolidate contaminated soil and place in sealed drums or pails	Consolidate containers for shipment to an approved receiving facility	Camp Manager will coordinate shipment
Domestic Garbage	Camp waste, kitchen waste, debris wood burnable	Food waste must be stored in secure, animal proof containers	Dispose of all burnable waste in onsite incinerators, pull out plastic from the incinerator wastestream	
Drilling Waste cuttings	Drilling cuttings	Pump to natural depression	Placed in a natural depression or sump at least 100 metres from the ordinary High Water Mark of the nearest water course (stream or lake)	Inspect cuttings as they are being deposited for potential seepage into waterways
Filters	Process (glycol, dips, water)	Store in onsite used filter container	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Fuel Containers	Empty fuel drums	Store in secure area on sides, lids and bungs on	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Greywater	Kitchen food preparation and dishwashing water, camp washroom and shower wastewater (excluding sewage), laundry wastewater	Greywater is drained from camp buildings into sumps and conveyed for disposal into the constructed septic tank and drainfield	Disposal to ground on site	Camp Manager monitor effective performance of greywater capture and disposal system
Incinerator Ash	Feed source is generally burnable domestic waste and paper products	Transfer to drum when cool, for temporary storage	Transport to an approved waste receiving facility	Weigh material before shipment
Kitchen Grease	Kitchen Grease	Burn in an incinerator	Dispose of grease waste in onsite incinerators or transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Paint	In cans or pails	Package in a drum or pail	Transport to an approved waste receiving facility	Camp Manager will coordinate shipment
Sewage — Toilet Wastes	In pacto bags	Burn in an incinerator or discharge through septic system as operational requirements dictate	Dispose of sewage waste in onsite incinerators or via onsite septic tank and drainfield	Camp Manager monitor effective performance of septic system
Waste Oils	From oil changes	Bulk in sealed drums or lube cubes	Transport to an approved waste receiving facility or, if approved, used as an energy source in waste oil heaters	Camp Manager will coordinate shipment

## **APPENDIX C      INCINERATOR SPECIFICATIONS**



## Model A400X 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.

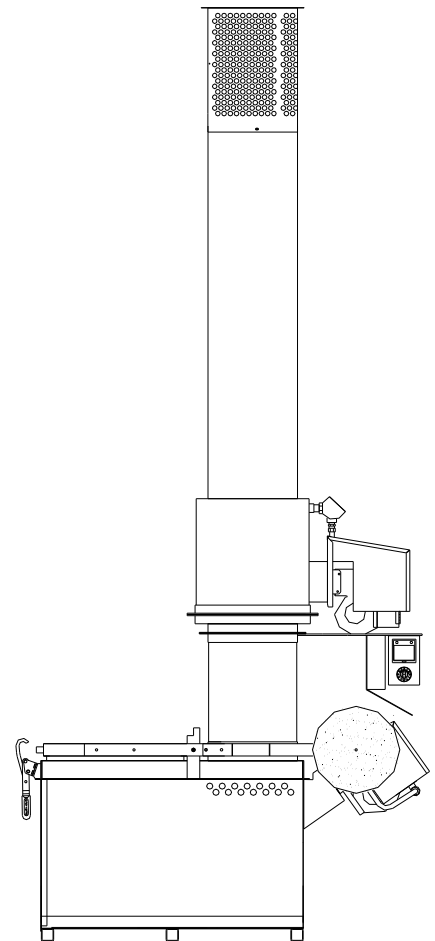
Includes many benefits of high-priced systems, yet within the budgets of small facilities.

400 pound rated load capacity.

Easy to use... Set timers and walk away.  
Thermocouple controls temperature.

Available with LP, Natural Gas, or Oil burners.  
Afterburner is standard.

**LOWEST OPERATING COST IN THE  
INDUSTRY!**



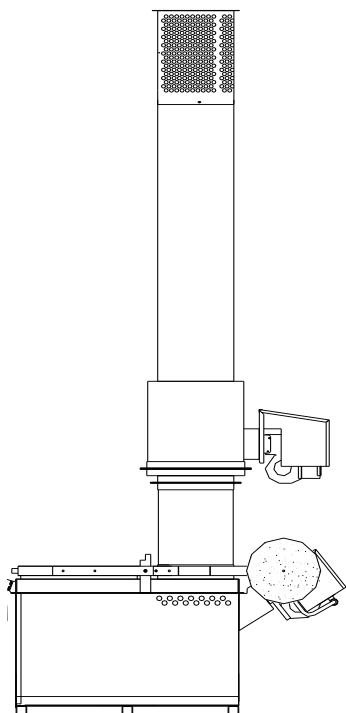
*One simple solution to solid/liquid waste disposal  
Immediately eliminates potential to spread diseases*

**Firelake Mfg. LLC**

919 Cottontail Trail, Mt. Crawford, VA 22841

**866-252-3757** [www.firelakeincinerators.com](http://www.firelakeincinerators.com)

# Benefits and Features of the A400X Series



- Concave refractory bottom specifically designed to insure burnout and total destruction of solid and liquid wastes.
- Secondary chamber with burner.
- 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

**A400X** Propane, Natural Gas, or Diesel Fired Incineration System complete with two burners, thermocouple and control, secondary burn chamber, stainless and / or refractory lined stack and chambers, and manual operating timer.

WASTE CHAMBER				<b>INSTALLATION</b>  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.	
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 dimensions 33" W x 13' H x 51" L				<b>GENERAL</b>  Electrical service  Standard – 115 volt, 60 HZ, 20 amp  Also available – 220 volt, 50 HZ, 10 amp  <b>BURNERS</b>  LP or Natural or Diesel burner(s) with spark ignition and flame safety shut-off.  <b>OPERATION</b>  Manual timer and temperature control  <b>TOTAL WEIGHT</b>  2400 lbs. (approximate)1000 kg	
Suggested min. slab size (l x w x thick)					
8' x 6' x 4"					
1.8 m x 2.4m x 10cm					
<b>STACK</b>					
Diameter	14"	35.5 cm			
Material	14 gauge (2 mm) lined Aluminized Steel and/or unlined stainless steel				
<b>REFRACTORY THICKNESS</b>					
Primary	3.0"(2800F)	7.6 cm			
Secondary	1.5"(2800F)	3.8 cm			
Stack	1.5"(2800F)	3.8 cm			
<b>APP. FUEL CONSUMPTION</b>				<b>A400 LP</b>	
Upper burner				0.83 GPH	
Lower burner				3.0 GPH	
				<b>A400 NATURAL GAS</b>	
				83 CFH	
				275 CFH	
				<b>A400 Diesel</b>	
				0.5 GPH	
				2.5 GPH	

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

**Firelake Mfg. LLC**

919 Cottontail Trail, Mt. Crawford, VA 22841

**866-252-3757**

[www.firelakeincinerators.com](http://www.firelakeincinerators.com)



## **APPENDIX D      WASTE ACCEPTANCE LETTERS**

#17 Cameron Road  
P.O. Box 1108  
Yellowknife, NT X1A 2N8

P 867.873.5263  
F 867.669.5555  
kblenvironmental.com

July 29<sup>th</sup>, 2019

Attention: Jane Howe  
**Seabridge Gold**  
1235 Main St.  
P.O. Box 2536  
Smithers, BC V0J 2N0

**Subject: Courageous Lake Property – Letter of Waste Acceptance**

---

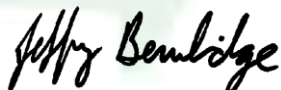
KBL Environmental Ltd. (KBL) owns and holds a regulatory approval to operate an Industrial Waste Transfer Facility located at #17 Cameron Road in Yellowknife, Northwest Territories. The facility is permitted and regulated through the jurisdiction of the Northwest Territories Department of Environmental and Natural Resources under approval number NT00123. Under this approval KBL is an end receiver of hazardous and non-hazardous wastes.

KBL has been contacted to provide services to manage acceptance of waste generated through exploration activities from Matrix/Seabridge Gold, from the Courageous Lake project in the Northwest Territories. More specifically waste material that we may receive at KBL's Yellowknife Industrial Waste Transfer Facility is as follows but not limited to:

- Metal drums
- Tank or barrel sludge and solids
- Batteries
- Gas cylinders
- Hazardous and non-hazardous liquid hydrocarbon or chemical waste
- Leachable and non-leachable soils impacted with: hydrocarbons and/or metals
- PCB Amended Paint (PAP) coated construction waste
- Lead Paint coated metal
- Non Hazardous and Non Regulated Solids.

If there are any questions regarding content included herein please contact our office as required.

Regards,



Jeffrey Bembridge  
KBL Environmental LTD.



CITY OF YELLOWKNIFE

August 16, 2019

**Letter of Waste Acceptance**  
**Acceptance of Non-Hazardous Commercial Waste from Seabridge Gold**

This letter is to attest that the City of Yellowknife's Solid Waste Facility has agreed to accept non-hazardous waste from the Seabridge Gold project situated at Courageous Lake, Northwest Territories. The project is expected to last for four months (i.e.; January-April 2020) and an estimated 95 tonnes has been approved for acceptance. The waste falls under the category of Commercial Waste from outside of City boundaries and thus will adhere to the corresponding tipping fee structure.

The City reserves the right to refuse waste from the project in question, at its sole discretion, at any time.

Sincerely,

Chris Vaughn  
Manager, Sustainability and Solid Waste  
Public Works and Engineering  
City of Yellowknife  
CV/cv

DM: 573214