

Courageous Lake Project

Exploration Work Plan

Prepared to Support One Type "A" Land Use Permit and Two Type "B" Water Licence Applications

September 2019

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SEABRIDGE GOLD

REVISION TABLE

Version	Date of Revision	Summary of Changes	Date Approved by MVLWB
1	Sept 2019	New document submitted to support application for land use permit and two water licences.	

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ACRONYMS AND ABBREVIATIONS

AIMAIO	Akaitcho Interim Measures Agreement Implementation Office
Camp	Matthews Lake Camp
CARD	Contaminants and Remediation Directorate
CCME	Canadian Council of Ministers of the Environment
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
ENR	Department of Environment and Natural Resources
GNWT	Government of Northwest Territories
ITI	Department of Industry, Tourism and Investment
LKDFN	Lutselk'e Dene First Nation
MVLUR	Mackenzie Valley Land Use Regulations
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	Mackenzie Valley Resource Management Act (1998)
NI 43-101	National Instrument 43-101
NSMA	North Slave Métis Alliance
NWT	Northwest Territories
NWTMN	Northwest Territory Métis Nation
PWNHC	Prince of Wales Northern Heritage Centre
Seabridge	Seabridge Gold (NWT) Inc.
SARA	Species at Risk Act (2002)
TG	Tłįcho Government
UTM	Universal Transverse Mercator
WRRB	Wek'èezhìi Renewable Resources Board
YKDFN	Yellowknives Dene First Nation

1. INTRODUCTION

Seabridge Gold (NWT) Inc. (Seabridge) is a Canadian based resource exploration company conducting gold exploration in the Courageous Lake area, approximately 240 km northeast of Yellowknife, NWT. 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 continue to conduct the same exploration activities with a focus on growing the mineral resources, maintaining community relationships and expanding the geological, ecological and Traditional Knowledge of the area.

To authorize these proposed exploration activities Seabridge is submitting one Type A land use permit 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 m3/day allowed under regulations without a water licence. The total water use will not exceed 300 m3/day for all uses which will be allocated to two water licences. At Courageous Lake, two Type B water licences will be required because the proposed activities will occur on both Territorial lands and Federal lands which are authorized separately pursuant to the NWT Waters Regulations (R-19-2014) and the Mackenzie Valley Federal Areas Waters Regulations (SOR/93-303), respectively. This is different from land use permits which are authorized for both types of lands pursuant to the Mackenzie Valley Land Use Regulations (SOR/98-429).

1.1 Purpose of the Exploration Work Plan

This Exploration Work Plan (Work Plan or EWP) summarizes the proposed exploration activities during the next five to seven years, including potential effects on the environment/ecosystem and key mitigations that will be implemented to protect the environment/ecosystem. The Work Plan also summarizes the existing infrastructure and the environment/ecosystem conditions in the Courageous Lake area as well as other information requested on the application forms, that requires additional space.

In addition to this Work Plan, there are five stand-alone management plans that, if approved, will define how activities will be managed to mitigate potential minimal effects of the proposed exploration activities:

- Engagement Plan;
- Wildlife Management and Monitoring Plan;
- Waste Management Plan;
- Spill Contingency Plan; and
- Closure and Reclamation Plan.

A short summary of each plan is provided in Table 1.

Document Title	Relevance
Engagement Plan	Describes ongoing activities to inform, involve and engage Indigenous groups regarding Seabridge activities. It lists the potentially affected parties, triggers for engagement activities, methods of communication and engagement, record keeping that documents concerns and response by Seabridge. It includes contact information for affected parties.
Wildlife Management and Monitoring Plan	Identifies wildlife species in the project area and defines how Seabridge and its contractors will minimize potential effects of exploration activities on wildlife and wildlife habitat.
Waste Management Plan	Describes the collection, segregation, handling, treatment, storage, transport, and disposal of hazardous and non-hazardous waste.
Spill Contingency Plan	Identifies hazardous and other materials that are used/stored at the project, their quantities, storage locations and Safety Data Sheets. Defines the responsibilities of personnel and outlines procedures to effectively and efficiently contain and recover spills on land, water and ice, including reporting requirements.
Closure and Reclamation Plan	Defines the closure goal of returning areas affected by current exploration activities to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment. Outlines a program of activities that will facilitate Seabridge attaining their closure goal and includes cost estimates for two exploration scenarios (phase 1 and phase 2) for use by MVLWB to determine security deposit requirements under the land use permit and water licences.

Table 1: Summary of Management Plans

1.2 Company Overview

Seabridge is a company engaged in the acquisition and exploration of gold properties located in North America. The Company's objective is to provide its shareholders with exceptional leverage to a rising gold price. The Company's business plan is to increase its gold ounces in the ground but not to go into production on its own. The Company will either sell projects or participate in joint ventures towards production with major mining companies.

Seabridge has a head office in Toronto and its shares are listed on the Toronto Stock Exchange (Symbol SEA) and the New York Stock Exchange (Symbol SA) and is registered to do business in NWT as Seabridge Gold (NWT) Inc.

Seabridge's flagship project, KSM, has completed the environmental assessment process and received approval from the BC Provincial and Federal governments and the Company has been focused on expanding resources, obtaining permits and signing strategic partnerships.

At Courageous Lake, Seabridge's second largest asset, a Preliminary Feasibility Study (PFS) was completed in July 2012 which estimated proven and probable reserves of 6.5 million ounces of gold in a proposed open-pit mining scenario. Further exploration in 2012 and 2013 led to a new gold discovery at Walsh Lake that added additional higher grade inferred resources of 4.62 million tonnes grading 3.24 g/T.

After a few years of inactivity to focus on its KSM project, Seabridge resumed exploration activities at the Courageous Lake property with the focus of exploration work to improve project economics. In 2018, Seabridge undertook a winter drill program to outline more Walsh Lake-style targets. Seven separate targets were tested along the same geophysical and stratigraphic trend that hosts the Walsh Lake Deposit. Two new gold zones were discovered, Olsen and Marsh Pond, with widths and grades that could potentially contribute to project resources. Two other target zones also showed potential to replicate these results. It is with these results in mind that Seabridge proposes to undertake additional exploration drilling at the Courageous Lake property and seeks to obtain a new (renewal) land use permit and water licences.

1.2.1 Financial Capacity

Seabridge has the financial capacity to undertake the work described in this application package and to close/restore the site. Seabridge has conducted ten seasonal exploration programs at the Courageous Lake property since 2002, not including their annual camp maintenance and environmental monitoring efforts. This application package describes the fourth land use permit that Seabridge has sought and obtained. The company has a history of compliance with prior permits and currently has a \$45,000 security deposit posted under MV2012C0025.

2. LOCATION AND INTERESTS IN THE LAND

2.1 First Nations

Courageous Lake is located approximately 240 km northeast of Yellowknife (Figure 1) on lands within the Treaty 11 Claim, the Akaitcho Traditional Territory, the Wek'èezhìi Resource Management Area and the Monwhi Gogha De Nittaee Areas of the Tłįchǫ Land Claim Agreement, as well as the North Slave Métis traditional lands (Figure 2). The traditional lands of the NWT Métis Nation lie to the east of the property. As a result, the land use permit and water licence application should be considered transboundary applications pursuant to s.103 (1)(a) of the *Mackenzie Valley Resource Management Act* (MVRMA; 1998).

Seabridge has actively engaged with Tłįchǫ Government, the Yellowknives Dene First Nation (YKDFN), Lutselk'e Dene First Nation (LKDFN), North Slave Métis Alliance (NSMA) and NWT Metis Nation (NWTMN) since acquiring the property. Seabridge has and continues to conduct engagement initiatives with the intention of continuing to build and maintain constructive relationships with these potentially affected parties as outlined in our Engagement Plan.

The YKDFN maintain a camp on the western shore of MacKay Lake which is located within the area defined by the coordinates for land use permit MV2012C0046. The nearest exploration activities consist of winter ice road construction on MacKay Lake approximately 12 km east of the YKDFN camp.

Prior to submission of the land use permit and water licence applications, Seabridge undertook fourteen months (June 2018 to August 2019) of assorted engagement activities that focused on discussion about the proposed exploration activities planned for the site and content of these applications and management plans.

Impacts to Indigenous traditional land users of the Courageous Lake area have been, and are expected to continue to be, minimal during exploration activities.

2.2 Federal Land Reserves

There are both Territorial and Federal lands within the Courageous Lake area where Seabridge proposes to undertake exploration activities.

The term "Territorial land" refers to lands where the administration and control of public lands were transferred to the Government of the Northwest Territories (GNWT) as defined Chapter 3 (section 3.1) of the Devolution Final Agreement. Lands listed in Schedule 7 of the Devolution Final Agreement were excluded. The term "Federal land" refers to two Federal land reserves that remain under the administration and control of the Government of Canada in the Courageous Lake area, as shown on Figure 2. The former Tundra Mine site and associated airstrip are on lands held by the Federal government to facilitate past and ongoing remedial activities. The second reserve is located on the east side of the north arm of Courageous Lake where abandoned, historic exploration camps and fuel caches date back to the 1960s to 1990s.

The existence of this split estate requires separate applications to use water on Territorial land and to use water on Federal land pursuant to the Northwest Territories Waters Regulations and the Mackenzie Valley Federal Areas Waters Regulations, respectively.

In contrast, only one land use permit application is required activities that occur on both Territorial and Federal land because land use permits can be issued pursuant to the Mackenzie Valley Land Use Regulations (MVLUR) for both types of land.



Figure 1: Regional Map of the Courageous Lake Property

Throughout this Work Plan and associated management plans, Seabridge has indicated how exploration activities will impact both Territorial and Federal lands, including land use disturbances, water volumes and liability estimates (security).

2.3 Subsurface Tenure

The Courageous Lake property consists of 79 mineral leases and 10 mineral claims which are wholly owned by Seabridge Gold (NWT) Inc., a company registered to do business in NWT. A valid certificate of registration from NWT Corporate Registry is included in Appendix A for Seabridge Gold (NWT) Inc.

The subsurface tenure provides eligibility for a land use permit, pursuant to section 18(a)(i) of the MVLUR.

The Seabridge mineral leases and claims span Territorial and Federal lands and are managed by either the Territorial or Federal Government, as applicable. A table showing the status of the mineral tenure is provided in Appendix B. The leases and claims are situated on NTS sheets 75M/14, 76D/03 and 76D/06.

The mineral tenure comprises 50,238 ha that coincide with approximately 53 km of the Matthews Lake Greenstone Belt (MLGB) within the Slave Geological Province. The extent of the mineral tenure is shown on Figures 2 through 6 as the property boundary.

2.4 Surface Tenure

2.4.1 Matthews Lake Camp

In addition to the subsurface mineral tenure, Seabridge holds surface lease 76D/3-6-6 which authorizes the use of 3.89 ha of land for commercial camp purposes (Figures 3 and 4). Most of the buildings and associated facilities at the Matthews Lake Camp (camp) were originally constructed and operated by Noranda Exploration in the 1980-90s. The camp was subsequently purchased by Bathurst Inlet Developments who operated a commercial camp and tourist facility under the name Treeline Lodge. Seabridge purchased the surface lease and facilities from Bathurst Inlet Development in 2010. The lease is valid until April 30, 2025. The lease conveys the right to operate a commercial camp, including the right to maintain improvements on the land, dispose/discharge wastes and store fuel among others.

The surface lease was originally issued in 1994 pursuant to the *Territorial Lands Act* (1985) and predates the *Mackenzie Valley Resource Management Act* (1998). The pre-existing right to operate a commercial camp is grandfathered by s.152 of the MVRMA.

The surface lease is regulated by the GNWT and has been inspected regularly since the time Seabridge purchased the property. There are no issues regarding compliance. Seabridge does not contemplate any changes to lease operations at this time. The GNWT and Seabridge are currently engaged in discussions regarding the amount of security for the surface lease. As such, all descriptions of camp activities, operations, and equipment in this document related to the camp are provided for information purposes only and are not part of the land use permit application to authorize exploration activities.

During the term of the proposed land use permit and water licence, Seabridge will continue to maintain and use the Matthews Lake Camp within the boundaries of the lease area to support their exploration activities.

2.4.2 Sand and Gravel Borrow Pit

Seabridge holds Quarrying Permit 2019QP0036 (Appendix G) which grants the non-exclusive right to extract sand and gravel from the Treeline Borrow Pit, a well-established borrow pit that is located about 200 m southeast of the surface lease (Figures 3 and 4).







2.4.3 Other Surface Rights Holders

Seabridge contacted GNWT Department of Lands regarding other surface lease holders in the area. There is one surface lease for a fishing and hunting camp located on the north shore of the east arm of Courageous Lake. The camp has not been active for several years and the lease holder has previously approached Seabridge to purchase the lease and associated facilities and equipment.

Seabridge queried the MVLWB interactive map to identify active land and water users in the area. Crown-Indigenous Relations and Northern Affairs Canada, Contaminants and Remediation Directorate (CIRNAC-CARD) has two active authorizations, land use permit MV2016X0011 and water licence MV2016L8-0003. Both authorizations are for post-closure monitoring activities by CIRNAC-CARD associated with the remediation at the former Tundra Mine. Seabridge engages regularly with CIRNAC-CARD in regard to technical and logistical matters related to activities in the area.

2.5 Land Use Plan Conformity

There are no approved land use plans for Courageous Lake area. A Tłicho Land Use Plan was completed in 2012 for the core Tłicho lands located about 50 km to the west of the property; however, no land use plan exists for the Wek'èezhìi Management Area or the North Slave area outside of Wek'èezhìi where the land use permit is located.

3. EXISTING SITE CONDITIONS

3.1 Land Use Permits

Since 2003, Seabridge has undertaken the same exploration activities at the Courageous Lake property under three consecutive Class A land use permits as summarized in the Table 2.

Land Use Permit	Issued	Expired	Final Clearance Issued	Scope of Activities
MV2003C0050	Feb. 25, 2004	Feb. 25, 2011	Apr. 28, 2011	Mineral exploration including drilling
MV2010C0046	Feb. 25, 2011	Dec. 27, 2012	Feb. 14, 2013	winter road construction/maintenance,
MV2012C0025	Dec. 27, 2012	Dec 17, 2019	not yet submitted	fuel storage, and quarrying

 Table 2: Summary of Seabridge's Recent Land Use Permits

Prior to Seabridge activities a network of existing infrastructure, consisting of roads, airstrip, gravel pads and camp facilities, was established by previous owners/operators in the central portion of the Courageous Lake property (Figure 3). Seabridge continues to utilize this existing infrastructure to support their activities. To date, Seabridge has drilled a total of 345 holes at 338 unique drill sites around the property, as shown on Figure 4.

The scope of activities as defined in Seabridge's current (expiring) Land Use Permit MV2012C0025 is:

- Mineral exploration including diamond drilling;
- Fuel storage;
- Winter road construction/maintenance; and
- Quarrying.

The scope of activities has remained largely unchanged since 2003. Activities are permitted to take place within 63°50' N and 111°00' W by 64°20' N and 111°30' W.

3.2 Access to the Property

Access to the Courageous Lake property may be gained by wheeled aircraft to the 1,100 m long gravel Tundra/Salmita airstrip, located approximately 5 km southeast of the Matthews Lake Camp. Float equipped aircraft can land on several large lakes in the area. During winter, construction of an ice strip on Matthews Lake makes it possible to accommodate larger cargo aircraft such as Boeing 737s (Figure 4).

There is no permanent road access to the area; however, from approximately late January to early April, seasonal access to the Courageous Lake area may be gained by constructing a 36 km spur road from the Tibbitt to Contwoyto Winter Road. The Tibbitt to Contwoyto Winter Road connects to the Ingraham Trail at Tibbitt Lake, 70 km east of Yellowknife.

Once at the property, transportation is accomplished year-round by helicopter. Vehicular access is possible on approximately 19 km of local gravel roads that were constructed to support historic mining and exploration activities in the 1970-80s.

3.3 Existing Infrastructure

From north to south, the following infrastructure and land use disturbances exist (Figure 3) within the central portion of the Courageous Lake property:

- The area of the FAT Deposit includes a gravel laydown area, approximately 440 m by 120 m footprint, including a concrete pad that caps a former underground shaft and a concrete foundation for a former building. The area was reclaimed in the 1990s by the former property owners (Appendix C, Photo 1).
- The Red-24 Pit is a small bulk sample pit and access ramp that was cut into a high bedrock outcrop, it is approximately 90 m by 40 m, and situated 350 m northwest of Matthews Lake. The pit was allowed to fill with water (Appendix C, Photo 2).
- Historic drill core from former operators is neatly stacked and stored in an area comprising approximately 2,300 m² and located immediately northwest of the Camp. There are two towers (60 m and 10 m tall) that contain meteorological devices to monitor and record local climatic conditions (Appendix C, Photo 3).
- Matthews Lake Camp and surface lease 76D/3-6-6: the Camp facilities include accommodation for up to 49 people, equipment storage, fuel storage, maintenance shops, laydown areas and a helicopter pad; a potable water intake, storage and distribution system; greywater collection from kitchen, showers, and laundry is discharge to a septic field; toilet wastes are managed with waterless Pacto toilets; incinerator for combustible wastes; and a temporary storage/handling area for non-combustible materials that must be backhauled on the winter road for disposal offsite at authorized facilities. There is no landfill on the lease. There are two double-walled and bermed fuel storage tanks: 70,000 L diesel and 65,000 L Jet A/B fuel and a bermed/lined area for drummed fuel (gasoline and heating oil). Assorted mobile and non-mobile equipment are available to maintain and operate the Camp. Seabridge continues to utilize and maintain these facilities pursuant to the terms of its lease (Appendix C, Photo 4).
- The Treeline Quarry is an established sand and gravel borrow pit, with an active footprint of approximately 200 m by 100 m. Seabridge continues to use this borrow pit and was recently issued Quarrying Permit 2019QP0036 by GNWT to authorize removal of up to 300 m³ of sand and gravel over a three-year period, expiring August 2022 (Appendix C, Photo 5).
- Former Salmita mine: this site is a large gravel laydown area with a total footprint of approximately 70,000 m². The area was reclaimed in the 1990s and historic drill core and two metal buildings were left at the site at that time. Seabridge continues to use the area and refers to the site as Coreland. At present, Seabridge uses this site for logistical activities including as a staging area for winter road mobilization and demobilization of supplies and as a laydown for fuel, drill equipment and drill supplies. Seabridge established five temporary tent structures to support core logging, handling and sampling. The structures range in size from 12 m × 24 m to 3 m x 4 m. Power is provided to these structures by an 18 kilowatt (kw) diesel generator with a 454 L capacity day tank. Three of the tents are heated by diesel heaters using 454 L double-walled steel day tanks. There is a 70,000 L double-walled fuel tank for diesel within a lined, bermed area. A second lined and bermed area is designed for approximately 120 drums of fuel such as gasoline or Jet A/B fuel (Appendix C, Photo 6).
- Tundra/Salmita Airstrip is a 1,100 m long, unmaintained gravel airstrip situated on one of the two Federal land reserves. The southeast portion of the airstrip was recently excavated by CIRNAC-CARD to provide clean aggregate to cap waste materials at the former Tundra Mine reducing the overall length of the strip from 1,500 m. Seabridge uses the airstrip for mobilization as required to support its exploration activities. Seabridge also maintains a small laydown area that is approximately 100 m x 20 m in size near the midpoint of the strip along the south side. A small fuel cache, typically <5 drums may be maintained here during active field programs (Appendix C, Photo 7).</p>
- The former Tundra Mine site, which was recently remediated by CIRNAC-CARD under Land Use Permit MV2016X0011 and Water Licence MV2016L8-0003: Seabridge does not utilize the Tundra Mine area but may access the roads for occasional travel through or to stage equipment or supplies for brief periods of time (Appendix C, Photo 8).

Approximately 19 km of gravel roads and pull-outs exist in the central portion of the Courageous Lake property (Appendix C, Photos 9a, 9b). The roads were constructed in the 1970s and 1980s to support historic exploration and mining activities. They extend from the FAT deposit near the south shore of Courageous Lake southward past the Camp and borrow pit, to the former Salmita Mine, the airstrip and the former Tundra Mine. There are two single-lane wood and steel bridges that are maintained by Seabridge: over Matthews Creek just northwest of the Camp (Appendix C, Photo 10) and over Sandy Creek west of the airstrip (Appendix C, Photo 11). A third bridge is located south of the airstrip and is maintained as part of the Tundra Mine remediation program under their land use permit. Seabridge continues to use the roads throughout the property to support their exploration activities.

4. ACTIVITIES PROPOSED IN NEW APPLICATIONS

Seabridge seeks a Class A land use permit from the MVLWB to authorize the same land use activities as previously permitted, for the next five to seven years:

- Mineral exploration including drilling;
- Storage of fuels;
- Winter road construction, maintenance and use; and
- Quarrying.

The use of three or more drills at one time may result in daily water usage that exceeds the 100 m³/day allowed under regulations without a water licence. As such, the activities also require two Class B water licences; one to authorize use of water on Territorial land and one to authorize use of water on Federal land. Collectively, the water use will not exceed 299 m³/day from lakes identified in this application.

Other related activities that will be undertaken include:

- Use and maintenance, as required, of existing gravel roads, airstrip and laydown areas for equipment laydown, equipment maintenance and storage of consumable supplies;
- Use of existing buildings at Coreland (former Salmita site) for core storage, core logging, and office space;
- Discharge of wastes associated with drilling and core saw-cuttings to land-based sumps;
- Other exploration related activities such as geological mapping, prospecting, rock and soil sampling, geophysical surveys, ecological/environmental monitoring or surveys including the installation/modification of scientific data collecting instruments;
- Use of motorized vehicles on roads, in the quarry and at the airstrip;
- Use of equipment to mobilize drills and supplies overland, when there is sufficient snow;
- Use of snowmaking equipment, as a contingency measure, during low snow years;
- Use of helicopter and fixed wing aircraft;
- Construction of temporary buildings that are <100 m² and <5 m high;
- Continued use and operation of the commercial camp located on Surface Lease 76D/3-6-6 and grandfathered by s.152 of the MVRMA;
- Progressive reclamation activities; and
- Seasonal site closures.

4.1 Comparison of Current Permit Scope and New Application Scope

The scope of the proposed land use activities is the same as the scope of the existing Land Use Permit MV2012C0025.

The existing land use permit MV2012C0025 authorized up to five drills, however Seabridge did not actually operate that many drills simultaneously because it did not have a water licence. If all five drills were to be operated at the same time, along with other water uses, the total water volume would have exceeded the 100 m³/day limit allowed by regulations without a licence.

During the upcoming permit term, Seabridge proposes to continue to use water for drilling, winter road construction, and potable water at camp however seeks authorization to exceed the 100 m³ of water use allowed under regulations without a water licence.

Thus, the key difference between the previous permit term and the proposed permit term is that Seabridge seeks two Type B water licence(s) to authorize the use of water that is required to operate up to five drills at the same time. The total anticipated volume for all water uses will be <299 m³/day which is the upper limit for a Type B licence.

The other differences do not change the scope of the permit, but relate to the requirement for incremental fuel storage and additional equipment. Both are already described in the scope of the existing permit and the only change will be additional storage volume and equipment to support five drills.

5. EXPLORATION WORK PLAN

5.1 Area of Exploration

The Courageous Lake project is currently in the early exploration phase. Drilling, which has been the main activity at the site to date by Seabridge, has consisted of NQ diameter core drilling with typically less than 100 holes drilled per year.

Seabridge will continue to use drilling methods to test new and known exploration targets within the mineral tenure area along the 53 km Matthews Lake Greenstone Belt. To date, Seabridge has focused its drilling programs in the area known as the FAT-Salmita-Tundra area which occurs between Courageous Lake and MacKay Lake. Over the next five to seven years, Seabridge anticipates additional drilling along FAT-Salmita-Tundra trend as well as in other prospective target areas that have been identified in the North Courageous Lake area and the Mackay South area (Figure 2).

In addition to drilling, Seabridge also intends to undertake other exploration activities over the entire property, including but not limited to geological mapping, sampling, geophysical and environmental surveys.

With the exception of the initial portion of the winter road across Mackay Lake, all exploration activities will be conducted within the boundary of the land use permit shown on Figure 2.

There are no advanced exploration, mining or mine development activities planned during the term of the proposed permit and licences.

5.2 Exploration Drilling

5.2.1 Program Size (Typical versus Large Drill Program)

The proposed exploration program at the Courageous Lake property over the next five to seven years anticipates two types of drill programs: Typical Drill Program(s) which may occur seasonally for several years and may eventually, if results warrant, be followed by a Large Drill Program.

Typical Drill Programs test targets to obtain 3-dimensional information in order to develop a basic understanding of the distribution of gold in the rock and potential for resource delineation. A Large Drill Program is the process of obtaining adequate 3-dimensional information so that the distribution of gold in rocks can be modelled statistically with confidence to determine a mineral resource (or reserve estimate).

Target drill testing is considered early exploration and generally consists of a limited number of drill holes in a target. The decision whether to progress to a larger definition phase program is determined entirely based on results during the target drilling phase. If the results during the target testing phase are positive, a more extensive definition drilling phase may be warranted to collect information on a systematic grid pattern. If the results from the target testing phase are marginal, another target will be tested with a typical program.

Target drill programs typically use 1-3 drills, while definition drilling programs utilize 4-5 drills in order to collect the required amount of geological data in a reasonable time frame. This progression from a typical-sized exploration program to a larger program is a normal step in the progression of mineral exploration.

Land Use Permit MV2012C0025, issued in 2012, authorized up to 700 drill holes and the use of up to five drills. Seabridge did not conduct any programs using this many drills during the term of permit MV2012C0025 because they did not obtain a water licence to authorize use of water over 100 m³/day.

Seabridge wishes to re-permit the same activities in the new land use application. Over the next five to seven year permit term Seabridge anticipates that most of its drill programs will be Typical Drill Programs,

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using 1-3 drill rigs over a 2-3 month period. If results are positive following a few Typical Drill Programs in the early part of the permit term, a Large Drill Program may be warranted later in the permit term.

Seabridge has differentiated these two types of drill program scenarios for the following reasons:

- 1. Existing facilities, such as fuel storage and mobile equipment, are currently available on site to support Typical Drill Programs for up to three drills over 2-3 months.
- 2. Increasing to a Large Drill Program will require additional infrastructure (fuel storage, core handling facilities, etc.) and additional mobile equipment to support the program.
- 3. Seabridge has used these two programs to develop a phased approach for posting security. The phased approach will ensure that the amount of security to be posted is appropriate for the type of work being undertaken and the amount of equipment at site. (Refer to the Closure and Reclamation Plan, section 9)

Table 3 compares and contrasts some of the key resources that are required for a Typical Drill Program and a Large Drill Program. It is clear from this table that fuel storage capacity and mobile equipment requirements will increase significantly if Seabridge progresses from a Typical Drill Program to a Large Drill Program.

Item	Typical (target) Drill Program	Large (definition) Drill Program	Comment
Number of diesel-powered drills and associated pumps	2 - 3	4 - 5	
Estimated number of drill holes per season	20 – 60	100 – 300	
Estimated duration of a seasonal drill program	2 - 3 months	3 - 6 months	
Estimated diesel consumption for drilling only (does not include mobile equipment, generators, heat, etc.)	43,200 – 97,200 L	130,000 – 324,000 L	Assumes 360 L diesel per day per rig. Current bulk diesel storage capacity at Coreland is 80,000 L
Helicopter – A-Star or equivalent	1	2	Drill moves and crew and consumables transport
Estimated Jet A/B consumption	43,000 – 65,000 L	130,000 – 260,000 L	Assumes 4 hr/day at 180 L/hr per helicopter. Current Jet A/B storage capacity is 65,000 L
Snow cats or similar	1 - 2	2 - 3	Diesel operated used for building winter roads, mobilizing and moving drilling equipment in winter time

Table 3: Comparison of Typical and Large Drill Programs

During the five to seven year term of the land use permit and water licences, Seabridge wishes to have the logistical flexibility to construct and install additional fuel capacity and bring additional equipment to site if exploration results warrant the progression to a Large Drill program. However, if results do not warrant the progression to a Large Drill Program, the existing facilities and infrastructure at the Courageous Lake property should remain adequate and Seabridge would not require the additional equipment.

These two drill scenarios are referenced throughout the application supporting documents because they will influence the volume of potential water use, the equipment requirements, fuel storage capacity, and reclamation security estimates.

5.2.2 Drilling Methods

Drilling methods will comply with all applicable regulations, the land use permit, and best practices. Seabridge and their contractors will be guided by the philosophy of minimizing impact to the environment in all drilling activities.

Seabridge expects to drill approximately 700 holes over the term of the land use permit and water licences, which will be located within the boundary of the land use permit (Figure 1).

Drill rigs will be diesel-powered and capable of drilling NQ size core (47 mm diameter), HQ core (64 mm diameter) or PQ core (85 mm diameter). Typically, the same drill rig can be used for different size core with a corresponding increase in the rate of use of water and consumables. The type or size of drills, including reverse circulation or percussion may change as technology changes or if different contractors are engaged; however, the land use and potential impacts are similar regardless of the type of drill. All drill fluids and additives will be biodegradable and non-toxic.

Fuel to support drilling and water pumps will be transported to the drill site in 265 L single walled tanks with integrated secondary containment or in double walled tanks. Fuel will not be stored within 100 m of water unless authorized by an inspector. Drill equipment, pumps and all fuel transfer activities will be situated within secondary containment to prevent leaks or spills during operation and fuel transfer. All leaks, spills, and contaminated soil, snow/ice will be removed immediately. Where possible, the power pack and all ancillary equipment at the drill and pump shack will be operated within secondary containment or lined areas.

During summer (snow/ice free) conditions, drilling activities will be fully helicopter supported. Equipment and materials will be lifted to each site; hand tools may be used to provide the necessary site preparation work to conduct drilling operations. Drill sites and sumps will not be located within 100 m of any waterbody unless authorized in writing by an Inspector. Care will be taken to ensure that drill fluids do not discharge directly into waterbodies. This may necessitate the construction of hand-built retaining structures, the use of natural depressions (sumps), or tanks to capture/redirect drilling fluids and cuttings.

During winter conditions, drilling activities will utilize snow cats and snowmobiles for drill mobilization and support provided there is enough snow cover to do so. If there is insufficient snow for overland movement then these activities will be supported by helicopter. Seabridge will also consider the use of snowmaking equipment as a contingency measure to supplement natural snow. Drilling methods will be the same as during the summer conditions. Drill sites and sumps will not be located within 100 m of any frozen waterbody unless authorized in writing by an Inspector. When drilling within 100 m of a waterbody during winter, and when drilling on ice, drill fluids and cuttings will be collected and managed in a manner that satisfies the permit requirements for disposal into a land-based sump or natural depression that is more than 100 m from a water body.

Water will be supplied to each drill(s) using a diesel-powered Bean Triplex pump powered by Kubota 12 hp, or equivalent. The pump will be located within a secondary containment tray to capture leaks or drips. Fuel will be provided from a double-walled tank and only a sufficient quantity of fuel required for 12 hours of operation will be located near a water source or on ice. Coil stoves, if required during winter, will be situated within a secondary container/liner to capture potential leaks.

Water pumps will be equipped with screens on the intake that will prevent the entrainment of fish at all times, as defined in the Freshwater Intake End-of-Pipe Fish Screen Guidelines (DFO 1995).

Solid waste at the drill sites is collected and transported to Camp for incineration or consolidation for disposal offsite at an approved facility. Refer to the Waste Management Plan for a complete description of waste handling procedures.

The total footprint required for each drill hole ranges up to 20 X 20 m (400 m²) as shown in Figure 5.



Figure 5: Sketch Map of Typical Drill Set Up

5.2.3 Drilling Consumables

Water usage for drilling is estimated to be 45 to 55 m³/day depending on the size of core (NQ and HQ respectively). Drilling PQ size core is estimated use about 60 m³/day. These volumes represent maximum water use per drill if the pumps are operating at full capacity for 24 hours per day. Actual water usage is expected to be about 70-80% of this volume to reflect periods of time where water is not used because the drill is not operating due to pulling rods, maintenance, drill moves, crew changes, etc. The water use estimate (section 5.8) applies a conservative factor to reduce the maximum pump rates by 20% to account for the 80% drill operating efficiency rate. The actual usage may be even lower than this conservative estimate.

The same drill rig is expected to be used for all drilling; however, an increase in the diameter of the core results in a larger volume of hole, which requires more water volume to circulate and remove the cuttings. When the 80% drill efficiency rate is applied, aTypical Drill Program with three drills (NQ core) may require about 108 m³ of water per day, while a Large Drill Program (3 NQ and 2 HQ rigs) is expected to use approximately 196 m³ of water per day. Drilling of PQ core may occur but would be less common and, therefore, it is not considered as part of the two scenarios. An estimate of the daily and seasonal water use is provided in Section 5.8.1.

Diesel consumption typically averages 360 L/day for a single drill and water pump, regardless of the size of the core.

In addition to water and diesel, the following consumables are typically used. Safety Data Sheets (SDS) are listed in the Spill Contingency Plan. Other specialty items may be required from time to time depending on ground conditions, Seabridge will provide any other SDS to the Inspector for approval prior to use.

- AMC Pure-Vis polymer
- AMC CR 650 polymer
- Dicorp 550X polymer
- AMC Extra Tacky rod grease
- Dicorp Big Bear rod grease
- Calcium Chloride

5.2.4 Core Handling and Sampling

Drill core is transported from the drills to Coreland where it is labelled, logged and portions of the core are sampled for shipment offsite for analysis. Diamond-bladed rock saws are used to cut samples from the drill core. Approximately 1 m³ of water is required per day to lubricate and cool a rock saw. The amount of water used depends on the number of saws and number of samples being collected, which is related to the number of drills in use. Water use is expected to range from 1 m³/day or less to 5m³/day depending on the size of the program. An estimate of the total amount of daily and seasonal water use for all water uses, including winter roads, is provided in Section 5.8.1.

Fine rock cuttings and water from the saws are discharged to an existing 5 m by 5 m sump located on the gravel pad, along the north side of the Core Handling Area (Figure 4, inset map).

Drill core boxes are labelled, stacked and stored in racks on the gravel pad at Coreland for future reference.

5.2.5 **Progressive Reclamation of Drill Sites**

Seabridge reclaims each site as soon as practically possible after completing a drill hole. Reclamation is completed using hand tools and in accordance with land use permits and regulatory requirements. The typical reclamation protocol for a drill site includes:

- Removal of all equipment, materials and disposal of waste from the site;
- Plugging the drill hole to prevent inflow of surface water or discharge of artesian waters;
- Removal of drill casing from the hole or cutting off of drill casing below ground level;
- Backfilling the drill hole and any hand excavation required for the site. Re-contouring the drill site to match as closely as possible the original site;
- Re-contouring of drill cutting discharge sites and stabilization of any wet drill cuttings; and
- Inspection of sites by Seabridge and contractors to verify compliance with reclamation standards and if warranted creation of a remediation action plan for sites that require additional action.

A record of actions on each site is maintained onsite to ensure that all necessary reclamation actions have been successfully completed. Following a winter drill program, a return to the site during summer snow-free conditions is usually warranted to complete remediation that may not have been possible during the winter.

Drilling equipment belongs to contractors and all equipment, pumps, rods, etc. are demobilized at the conclusion of each drill program. Wooden drill shacks, pump shacks, emergency shelters and unused consumables typically remain in the laydown area at Coreland for use during subsequent drill campaigns.

Seabridge has prepared a stand-alone Closure and Reclamation Plan that describes all reclamation activities and includes two security estimates that can be used for determining the amount of security to be posted during the term of the permit and licences.

5.3 Fuel Storage

Diesel fuel is currently stored in one 75,000 L double-walled storage tank located within a lined, berm at Coreland. A separate lined, bermed storage area also exists at Coreland with capacity for approximately 120 drums (205 L) of Jet A/B fuel.

Two bulk fuel tanks (diesel and Jet A/B) as well as a small lined, drummed storage area are located within Surface Lease 76D/3-6-6. These fuel storage areas are authorized and grandfathered under the terms of the surface lease and are listed for information purposes only, and are not included in the maximum fuel capacity (Table 4) calculated for the land use permit.

ltem	Maximum Volume of Fuel Stored on Site during a Typical Drill Program	Maximum Volume of Fuel Stored on Site during a Large Drill Program	Comment
Diesel	80,000 L	310,000 L	Does not include fuel storage at
Jet A/B	25,000 L	130,000 L	Matthews Lake Camp, authorized under Surface Lease 76D/3-6
Gasoline	2,000 L	3,000 L	

Table 4: Maximum Volume of Fuel Stored on

In the event that Seabridge proceeds to a Large Drill Program, additional fuel storage may be required to sustain activities beyond the period when fuel can be replenished during the winter road operating window. An additional three bulk diesel fuel storage tanks (each 75,000 L capacity) and two bulk Jet A/B tanks (each 65,000 L capacity) may be required. It is assumed that all of this capacity would be constructed at Coreland and will be designed to meet the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, which is currently applicable on both Federal and Territorial lands. These regulations require storage and transfer areas to be lined and bermed.

Table 4 lists the maximum volume of fuel stored on site for a Typical Drill Program, and the predicted maximum volume of fuel that may be required for a Large Drill Program.

Seabridge has prepared a Spill Contingency Plan that describes fuel and hazardous materials storage, transfer and handling procedures, as well as contingency measures to avoid spills and to respond to potential spill incidents.

5.4 Winter Road and Ice Strip Access

The current Land Use Permit MV2012C0025 authorizes the construction of a 36 km winter spur road across MacKay Lake from the main Tibbitt to Contwoyto Winter Road. Seabridge wishes to re-permit the construction and use of this spur road within the new land use application.

The first 25 km of the winter road are on McKay Lake, while the last 11 km of the route are over land and small lakes between McKay Lake and Matthews Lake. The overland footprint is approximately 3 hectares. The overland portion occurs within the boundary of the land use permit, on both Territorial and Federal lands, as shown on Figure 2.

The overland portion of the route is well-established and has been used from the mid-1950's to the present; first by exploration companies, and later to supply the operating Tundra and Salmita mines and FAT development. Aggregate has been placed along the route in local sections by previous operators (Appendix C, Photos 12a, 12b). Due to the number of years the route has been used, there is minor, local disturbance to the natural surface and vegetation; however, this is very limited and there is no evidence of erosion.

The winter road will be constructed and maintained by a contractor using conventional winter road construction techniques that are used throughout the NWT. The route will be approximately 20 m wide on ice and 10 m wide on land. Overland portions (portages) will be built with a minimum of 10 cm snow cover or will be flooded with water to create an ice layer, whichever is appropriate for the conditions. Seabridge may place aggregate along portions of portage to build up areas that are susceptible to drifting snow. Seabridge will discuss any plans with the Inspector and will not place fill in water bodies or imped the natural drainage along the route.

In years when the winter road is required, construction is anticipated to begin in early February, once the main Tibbitt to Contwoyto Winter Road is open. The route will be maintained until early April or as long as required depending on weather conditions. Equipment used during winter road construction belongs to contractors and will be demobilized at the conclusion of the winter road season.

An ice strip may be constructed on Matthews Lake to support cargo aircraft, such as Boeing 737. The strip is typically 60 m wide by 1,500 m long and located at the north end of Matthews Lake. The location varies year to year depending on local ice conditions.

Approximately 85 m³ of water per day is required for winter road construction over an initial 2-week construction phase – approximately 1,150 m³ in total. Thereafter winter road maintenance typically requires about 40 m³/month or about 1.3 m³/day. An estimate of the total amount of daily and seasonal water use for all water uses, including winter roads, is provided in Section 5.8.1.

Seabridge will follow the GNWT Northern Land Use Guidelines for Roads and Trails (2015) during construction and operation of winter roads and airstrips.

5.5 All-weather Road Access and Water Course Crossings

There are approximately 19 km of local gravel roads within the central portion of the Courageous Lake property that were constructed to support historic mining activities between the FAT-Salmita-Tundra mines and the gravel airstrip. There are two single-lane wood and steel bridges that are maintained by Seabridge: over Matthews Creek just northwest of the Camp and over Sandy Creek west of the airstrip. Both bridges are on Territorial lands. A third bridge is located south of the airstrip, on Federal land, and is maintained as part of the Tundra Mine remediation program under their land use permit (MV2016X0011). There are three culverts located between Camp and Coreland, on Territorial land, that were established by previous operators.

Seabridge will continue to use and maintain the roads, bridges and culverts that are located west and north of the airstrip, on Territorial lands, during the proposed exploration program. Seabridge will source gravel from the Treeline borrow pit to maintain the roads, if required. Additional mobile equipment has been included to maintain the gravel roads, should it be required.

5.6 Equipment

Due to the nature of exploration activities, the amount of mobile equipment utilized onsite is relatively small. Equipment primarily consists of drill rigs and miscellaneous equipment to support the drill rigs and overall exploratory effort.

A list of equipment that will be used for the exploration program provided in Table 5 and distinguishes between the equipment that is required for a Typical Drill Program and a Large Drill Program. The equipment listed in grey-shaded cells was previously approved in Land Use Permit MV20012C0025 and will continue to be used. Equipment that is deemed to have been previously approved because it has been in place and used under MV2012C0025 for the past seven years, even though it was not explicitly listed in the permit application is highlighted in lighter grey. In order to allow flexibility in on-site equipment choices, specific makes and models of equipment are not identified, and as such all weights should be considered approximate.

Туре				Proposed Use
	Required for a Typical Drill Program	Required for a Large Drill Program	Approximate Weight (dry) Each	
Tech 5000 Diamond Fly Drill or equivalent	1 - 3	4 - 5	6,000 kg	Drilling; equipment includes all associated components, pumps, fuel tanks, mud tanks, tools, HQ and NQ rods, etc.
F350, F450 crew cab trucks, or equivalent	3	4-6	2,000 kg	Transportation on existing gravel roads
Small E350 bus or equivalent	1	1	4,000 kg	Crew transportation on existing gravel roads
AS350 helicopter or equivalent	1-2	2	1,200 kg	Drill moves, crew and supply transport

Table 5: Equipment List

Туре				Proposed Use
	Required for a Typical Drill Program	Required for a Large Drill Program	Approximate Weight (dry) Each	
Snow cats BR2000 or similar	1 - 2	2	6,400 kg	Building winter roads, ice strips, mobilizing and moving drills, other equipment and supplies during winter
Kubota M108S wheeled Tractor (forks, bucket, backhoe)	1	1	3,900 kg	Maintenance and moving equipment and supplies, excavating quarry material; travels on existing roads in summer or snow roads in winter
Skid steer, Bobcat 208 or equivalent	1	1-3	900 kg	Maintenance and moving equipment and supplies; travels on existing roads in summer or snow roads in winter
ATVs	2 - 3	4 - 6	300 kg	Transportation around site on existing gravel roads or snow roads in winter; most will be contractor-owned equipment and demobilized at end of work
Snowmobiles	1 - 15	20-30	200 kg	Winter transportation, most will be contractor-owned equipment and demobilized at end of winter season
Wheeled Loader, IT28 or equivalent	1	1	12,700 kg	Construction and maintenance of winter roads, ice strips; movement of equipment and supplies, Maintenance of existing gravel roads in summer
Small dump truck (or dump trailer)	0	1	5,000 kg	Haul gravel for maintenance of existing gravel roads
Wheeled or ski equipped flat deck trailers	2	4	500 kg	Transport equipment and supplies on gravel or ice roads
18kW generator and spare	1	2	450 kg	Power generation at Coreland
4 Hp (2 inch) water pump or equivalent	2	2	25 kg	Pump water at Coreland, one is spare
Stihl gas auger	2	2	20 kg	Drill ice for water sources
D6 Dozer, or equivalent	1	1	23,000 kg	Winter road and ice strip construction. <i>Will not remain at property beyond ice road season</i>
Amphibious vehicle – Hagglund BV206 or equivalent	1	1	4,330 kg	Winter road and ice strip construction. <i>Will not remain at property beyond ice road season</i>
Oshkosh F2346 (or equivalent) water truck	1	1	33,000 kg	Winter road and ice strip construction. <i>Will not remain at property beyond ice road season</i>
Flood pumps, B55 (or equivalent)	6	6	30 kg	Winter road and ice strip construction. <i>Will not remain at property beyond ice road season</i>
Triaxle Plow truck	1	1		Winter road and ice strip construction. <i>Will not remain at property beyond ice road season</i>

Туре				Proposed Use
	Required for a Typical Drill Program	Required for a Large Drill Program	Approximate Weight (dry) Each	
Grader, 14E or equivalent	1	1	15,000 kg	Winter road and ice strip construction, and potentially for maintenance of existing gravel roads. Typically will not remain at property beyond ice road season
Snow making equipment and pumps	0	2	600 kg	Included as a contingency only for Ice road construction and maintenance and snow trails for overland transportation of drills. <i>Will not remain at</i> <i>property beyond ice road season</i>
Tractor-trailer transport combinations	As required	As required	various	Transport freight in/from the property along ice road. Will not remain at property beyond ice road season

Note: The above table includes (mobile) equipment that may be used in connection with travel between Coreland and Matthews Lake Camp. The table does not include incinerators, generators, boats, motor and equipment that remain at Camp and that are authorized under the grandfathered surface lease.

5.7 Proposed Land Use

All land use activities during the term of the land use permit will occur within the permit boundary shown on Figure 2. Most activities will occur within areas of existing disturbed areas such as Coreland, gravel roads, winter road portage, quarry, airstrip use and laydown areas. Exploration drill sites involve new land use, on tundra or on frozen waterbodies, away from existing footprint. Table 6 estimates the distribution of proposed land use activities between Territorial and Federal land.

Land use fees are not payable on Territorial land. Land use fees are \$50 /ha for Federal land.

Proposed Land Use	Number	Size of footprint (ha)	Total footprint (ha)	Territorial Land (ha)	Federal Land (ha)	Assumptions / Notes
Exploration drill holes *	700	0.04	28	21	7	Assumes up to 20 x 20 m footprint, and 75% of holes will be on Territorial land and 25% of holes will be on Federal land.
Existing Winter Road Portages	6	various	3	2	1	Existing established portages
Existing Airstrip and laydown	1		5.2		0.2	Airstrip and laydown are on Federal land. Airstrip is 5 ha, laydown is 0.2 ha
Existing gravel Roads	19		0.19	0.10	0.09	Assume 10m wide, All roads west of airstrip are on Territorial land (approx. 10 km);
Existing borrow pit	1		0.2	0.2		Active area of borrow pit authorized under Quarry Permit 2019QP0036, on Territorial land

Table 6: Estimated Land Use

Proposed Land Use	Number	Size of footprint (ha)	Total footprint (ha)	Territorial Land (ha)	Federal Land (ha)	Assumptions / Notes
Existing Coreland laydown	1	1.9	1.9	1.9		On Territorial land
Total			38.5	25.2	8.3	Note: \$310 land use fees accompanied land use permit application for use of 8.3 ha Federal land. Land use fees are not payable for Territorial land or roads.

* Only drill holes represent new land use, all other land use is on existing disturbed areas.

5.8 Proposed Water Use

5.8.1 Quantity of Water

Seabridge is seeking authorization to use a maximum of 299 m³/day of water for all uses, to be split between one Federal and one Territorial water licence. Due to the nature of exploration activities and the fact that the exact location of the 700 drills holes cannot be determined at this time, both water licences should authorize a daily limit of 299 m³/day AND a project wide daily limit of 299m³/day. This will accommodate the potential situation where all five drills are operating on Territorial land, and the potential situation where all the drills are operating on Federal land, and only the Camp and Coreland drawing water from Territorial land.

The approximate distribution of water usage over the term of the licences is estimated as 75% Territorial and 25% Federal. This distribution was used to calculate fees payable for the first year of the water licences.

Table 7 lists the maximum daily and maximum annual volumes of water that Seabridge proposes to use during the term of the water licences and attempts to distribute these between Federal and Territorial land. These maximum values reflect the Large Drill Program Scenario described in Section 5.2.1. The daily and annual maximum water use will be considerably less for Typical Drill Programs.

The estimated "annual use" volumes in Table 7 assume activities will occur for 6 months during a typical year. However, water licence and usage fees were calculated and paid assuming the maximum usage of 299 m³/day for 365 days.

5.8.2 Proposed Water Sources – Lakes

Several of the water uses identified in Table 7 have fixed water sources, such as Camp and Coreland which will both withdraw water from Matthews Lake. Similarly, water used to construct the winter road will be drawn from six lakes along the route between Mackay Lake and Matthews Lake.

In contrast, exploration drilling is a transient and mobile activity and the sighting of drills is based on previous exploration results. The location of proposed drilling has been predicted to occur within a broad zone of interest over the entire property. Many potential waterbodies exist within this zone of interest. To support the application for a water licence and ensure that only waterbodies that contain a sufficient volume of water and satisfy certain depth requirements will be used, Seabridge developed a risk-based approach to assess and categorize waterbodies in the zone of interest.

Proposed Water Use	Maximum Estimated Daily Consumption (m³)	Maximum Estimated Annual Consumption (m³)	Water Source	Territorial Water	Federal Water	Assumptions / Notes
Matthews Lake Camp Potable	9	1,614	Matthews Lake	1,614	0	Assumes 180 L/day per person; 49 person camp for 6 months
Coreland Core Saws	5	915	Matthews Lake	915	0	Assumes 5 saws using 1m³/day per saw for 6 months
Winter Road and Ice Strip (during construction)	80 *	1,120	Mackay Lake, Matthews Lake and lakes #114, #9, #79, #330 along the winter road route	740	370	Assumes 80 m ³ /day is required over a 14-day winter road construction period. This will occur before drilling commences (and not simultaneously). Assumes water is drawn from 66% Territorial and 33% Federal lakes – based on location of portages.
Winter Road (during maintenance)	1.3	80	Mackay Lake, Matthews Lake and lakes #114, #9, #79, #330 along the winter road route	53	26	Assumes 40 m ³ /month for road maintenance for two months Assumes water is drawn from 66% Territorial and 33% Federal lakes – based on location of portages.
Exploration Drilling	245	35,868	Refer to water source list in Table 4 of Appendix E	26,901	8,967	5 drills (3 NQ and 2 HQ) require 245 m ³ /day (maximum intake rate) operating at 80% productivity for 6 months. Assumes water is drawn from 75% Territorial lakes and 25% Federal lakes.
Snow Making	30	900		675	225	Snowmaking is included as a contingency measure and is not expected to be a daily use for extended periods. Assume 30 days total use spread over 3 months. Assumes water is drawn from 75% Territorial lakes and 25% Federal lakes.
Total	290*	40,497				

Table 7:	Estimated	Water	Use for	Large	Drill	Program
	Lotinatoa	That's	000 101	Luigo		riogram

* Maximum daily total excludes the daily use for winter road construction, which is expected to occur before other activities such as drilling begin.

A desktop study was undertaken to develop a predictive model between lake surface area and volume for lakes in the North Slave region of NWT. The purpose of the study was to predict depth and volume of waterbodies throughout the property, where no data existed, to determine which sources would or would not satisfy the DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the NWT and Nunavut (DFO 2010). The lakes within the zone of interest were then categorized based on their known or predicted depth and volume and their ability to satisfy the DFO protocol. The methodology for this risk-based categorization is summarized in Section 7.2.2 and the complete desktop study is included in Appendix E of this report.

The study concluded that the categorization of lakes, as described in Table 8, based on their known or predicted depth, volume and ability to satisfy the DFO Protocol is a valid method to authorize water withdrawal volumes for the water licence. Figures 6a, 6b and 6c show the category (colour-based) of each lake. Shallow lakes (category 5) that do not satisfy the DFO protocol will not be used as a water source, while lakes that satisfy the protocol can be used as defined in Table 8.

Category	Descriptor	Proposed Water License Use	Number of Lakes in Zone of Interest ¹
1	Known, large, deep lake.	Approved for year-round withdrawal to maximum program withdrawal.	2 (Courageous Lake and MacKay Lake)
2	Large lake with known bathymetry or spot depths that exceed 3.5 m depth and/or a high probability/confidence level that predicted $Z_{max} > 3.5$ m based on regression analysis.	Approved for summer use to maximum of 10% lake volume. Approved for winter use to maximum 10% of under-ice lake volume.	11
3	Intermediate lake, with predicted Z_{max} greater than 3.5 m (and moderate confidence in predicted Z_{max}). Bathymetric or spot elevation survey required to confirm a location of a basin area that has $Z_{max} > 3.5$ m. If yes, reclassify as Category 2; if no, reclassify as Category 4.	Approved for summer use to maximum of 10% lake volume. Conditional approval for winter use to maximum of 10% under-ice volume, subject to verification of Z _{max} > 3.5m.	6
4	Intermediate/small lake, with predicted Z _{max} greater than 1.5 m and low probability/confidence level that Z _{max} is greater than 3.5 m.	Approved for summer use to maximum of 10% lake volume . No winter water withdrawal.	200
5	Small lake.	No water withdrawal.	99

Table 8: Proposed Water Licence Approval Status for Lakes in the Project Zone of Interest

¹ See Table 5 in Appendix E and Figures 6a–6c.

Seabridge seeks authorization to use water from 219 lakes located across the property that satisfy the DFO protocol as shown on Figure 6a, 6b, 6c and listed in Table 4 of Appendix E. Table 4 includes the lake ID (or name), coordinates, estimated surface area, estimated maximum depth, estimated total lake volume, estimated under ice volume, the calculated 10% allowable withdrawal volume under-ice and open water. The table also estimates the number of drill days that a drill rig could extract water – assuming 45 m³/day – and remain under the 10% threshold.

5.8.3 **Proposed Water Sources – Streams**

In addition to the proposed lakes, Seabridge may withdraw water during open water periods from streams that flow between lakes. It is not possible to show the location of potential source streams on the figures.

DFO established a Framework for Assessing the Ecological Flow Requirements to Support Fisheries in Canada (DFO 2013) and determined that a reduction of <10% in instantaneous flow in a river relative to its natural flow will have a low probability of detectable impacts to ecosystems that support commercial, recreational or Aboriginal fisheries. Should Seabridge use a stream as a water source, the instantaneous flow of the stream will be measured to determine the amount that can be withdrawn while remaining under this 10% threshold.

The maximum water consumption for NQ drilling is estimated to be 45 m³/day if the pump running at 100% capacity for 24 hours. This equals 1.875 m³/hr or 0.00052 m³/s. Thus, a stream with an instantaneous flow greater than 0.0052 m³/s would satisfy the water intake requirements for one drill and meet the DFO requirements for preserving instantaneous flow and protecting fish habitat.

Hydrologic baseline data collected from Matthews Creek between 2005 and 2011 (Section 7.2.1) suggest that the maximum recorded discharge was 1.36 m³/s during freshet and the lowest recorded discharge was 0.05 m³/s prior to freeze up. This confirms that Matthews Creek would be a viable stream source.

Other streams on the property are also expected to have sufficient flow to support a drill program. Prior to using any in-stream water source, Seabridge will collect hydrologic data to assess adequacy of flow. Seabridge will continue to monitor the instantaneous flow in the stream for the duration of withdrawal to ensure usage does not exceed 10% of the available flow and will cease water withdrawal if it exceeds 10% of the available flow and will cease water, Seabridge will discuss the plans and instantaneous flow measurements with the Federal or Territorial Inspector, as applicable, for approval.

5.8.4 Return of Water to Source

Exploration activities do not generally remove water from the watershed it is drawn from.

For drilling, other than negligible amounts retained in rock cuttings, the majority of water is returned to the source watershed, as runoff from the sumps where drilling fluids/cuttings are discharged. The methods of disposal are described in the drilling methods section (Section 5.2.2 of this document) and the Waste Management Plan. These methods are consistent with generally accepted practices for diamond drilling. Seabridge's previous drill programs have been inspected and found to be in compliance during previous land use inspections.

For winter road and ice strip construction, and snowmaking water will be returned to the watershed unaltered during spring freshet.

The bulk of water used for potable use at the Camp will be returned to the Matthews Lake watershed in the form of greywater following discharge and treatment through the approved septic field at the Camp.

5.9 Contractors and Subcontractors

Seabridge currently intends to utilize the following contractors to support exploration activities during the term of the proposed land use permit and water licences (Table 9). These contractors have been involved at the Courageous Lake project for many years and are well-experienced in Arctic operations. Seabridge reserves the right to change contractors. Other contractors or potential subcontractors will be identified as specific needs and schedules are determined.

Contractor	Services	Address
Metcor-Matrix JV, a joint venture between the business development corporation of NSMA and Matrix Aviation Solutions	Camp management, fuel operations, logistics and flight operations	98 Archibald Street Yellowknife, NT, X1A 0E6 867-766-4952
HyTech Drilling	Drilling	P.O. Box 3248 2715 Tatlow Road Smithers, BC, V0J 2N0 250-847-9301
ERM	Environmental monitoring	5120 49 th Street Yellowknife, NT, X1A 1P8 867-920-2090

Table 9: Contractors






5.10 Exploration Schedule

The land use permit is expected to commence in December 2019 and end in December 2024; it may be extended for an additional two years subject to MVLWB approval. A corresponding seven year term is requested for the two water licences.

Exploration activities are expected to occur seasonally, typically within the period from February to April and July through October, but will be highly dependent on a number of factors including:

- Exploration results;
- Exploration funding and timing of funding; and
- Weather conditions.

There will be periods of seasonal shut down, typically between November and January, and May to June.

6. REGIONAL AND LOCAL GEOLOGY

The Project is located within the Matthews Lake Greenstone Belt (MLGB), which is a steeply east dipping homoclinal sequence of metavolcanic and metasedimentary rocks of the Yellowknife Supergroup. The MLGB is bounded to the west by a sodic granite pluton, referred to as the Courageous Lake Batholith, and to the east by conformably overlying turbidite sequences. Regional metamorphism within the MLGB has created mineral assemblages indicative of lower to mid greenschist facies metamorphic grade. Lower amphibolite facies grade metamorphism has been identified north and south of the MLGB.

The volcanic material within the MLGB represents a tholeiitic to calc-alkaline suite of volcanic rocks common to many Archean greenstone belts. Felsic volcanic lithologies are the predominant host of the FAT-Salmita-Tundra deposits. Within the felsic volcanic rocks are abundant lens-shaped epiclastic intercalations that are thought to be derived from a tuffaceous source. These lithologies include tuffaceous greywacke, thinly laminated siltstone, and fine-grained arkosic sandstone.

Sulfide mineralogy observed at the FAT-Salmita-Tundra deposits is relatively simple and consists of pyrite, pyrrhotite, arsenopyrite, sphalerite, and chalcopyrite in decreasing order of abundance. While all of these minerals can be found in the mineralized zones, only arsenopyrite has a consistent correlative relationship to gold concentrations.

Other areas of the Courageous Lake property to the north and south of the known FAT-Salmita-Tundra deposits contain similar prospective geology and evidence of gold mineralization. Seabridge continues to evaluate these areas to identify and test analogous and other styles of gold mineralization.

7. EXISTING ENVIRONMENT

Over the past 30 years many environmental studies have been completed in the Courageous Lake area (Appendix D). The West Kitikmeot Slave Study (WKSS) collected extensive environmental information from 1996 to 2001. An update of the report was done in 2007. The WKSS investigated Traditional Knowledge and environmental issues in relation to proposed and existing developments in the Slave Geological province. In 2000 to 2002 a consortium of mining companies conducted a major environmental investigation of the Tibbitt to Contwoyto Winter Road alignment and surrounding area. In 2004, Seabridge began to collect environmental data including archaeology, aquatic resources, water quality, hydrology and wildlife. From 2010 the program was expanded and included: air quality, noise, meteorology, hydrology, hydrogeology, aquatic resources, fish and fish habitat, terrain and soils, vegetation and ecosystem mapping, wildlife, wetlands, and archeology. Studies that have continued since 2012 include archeology, hydrology, meteorology and a wildlife camera program.

7.1 Climate

The Courageous Lake project is located in northern Canada, approximately 240 km northeast of Yellowknife. Site elevation is 409 m above mean sea level. The meteorology station located next to Matthews Creek and data has been collected since 2007, which is summarized in Table 10.

Temperatures range from -44.4°C to 28.5°C, with an average daily mean temperature of -8.5°C. The annual average wind speed is 4.5 m/s with maximum gusts of 21.5 m/s. Average annual monthly precipitation is 18.5 mm, with an average daily total of 0.6 mm. Solar radiation ranges from 3 W/m² in December to 277 W/m² in May. Further details on baseline meteorological conditions can be found in Rescan (2011).

7.2 Aquatic Resources

7.2.1 Hydrology

Hydrometric data collected from Matthews Creek between 2005 and 2009 recorded a maximum discharge of 1.36 m³/s and the lowest recorded discharge of 0.08 m³/s. Given the timing of the annual equipment installation, higher discharges during freshet undoubtedly preceded the measurement each year (EBA et al. 2008). In 2005, the maximum recorded discharge (by datalogger) of 1.15 m³/s for Matthews Creek occurred on June 24. Generally, creek flows reduced in volume over the summer and fall. A minimum flow of 0.14 m³/s was recorded on September 22, just prior to the creek's freezing over. In 2006, the maximum recorded discharge (by datalogger) of 1.02 m³/s for Matthews Creek flows typically reduced in volume over the summer and fall, with a minimum flow of 0.23 m³/s recorded on October 6, just prior to freeze up (EBA et al. 2008).

Hydrometric measurements in 2010-2011 suggest the flow in Matthews Creek ranged from a high of 0.576 m³/s on July 14, 2010 to a low of 0.050 m³/s on September 8, 2010. In 2011, the discharge ranged from 0.457m³/s on June 4, 2011 to 0.073 m³/s on September 9, 2011. Creek flows decrease over summer months with minimum flows occurring prior to freeze up (Rescan 2012a).

Parameter	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Wind													
Average Wind Speed (m/s)	4.65	4.31	4.56	4.74	4.80	4.61	4.39	4.38	5.05	4.69	4.08	3.89	4.51
Average Daily Maximum Wind Gust (m/s)	9.79	9.39	9.15	9.40	9.93	10.22	10.22	9.62	10.86	9.51	8.79	7.94	9.57
Extreme Maximum Wind Gust (m/s)	20.74	22.91	22.83	26.24	22.05	17.99	21.23	22.50	23.40	18.62	21.21	17.84	21.46
Air Temperature													
Extreme Daily Maximum Temperature (°C)	-3.3	-3.7	1.4	6.5	21.1	27.9	28.5	28.3	20.5	10.4	1.5	0.0	11.6
Average Daily Maximum (°C)	-23.4	-22.4	-16.8	-9.9	2.9	14.2	19.0	16.5	8.4	-2.4	-14.0	-21.5	-4.1
Average Daily Mean (°C)	-27.5	-27.5	-23.1	-14.9	-2.4	9.6	14.1	12.0	4.8	-4.9	-17.2	-25.6	-8.6
Average Daily Minimum (°C)	-31.5	-31.3	-27.3	-21.1	-6.6	3.8	9.2	7.6	1.5	-7.8	-21.9	-28.9	-12.9
Extreme Daily Minimum Temperature (°C)	-43.4	-42.9	-44.4	-37.7	-25.8	-5.6	1.7	-2.2	-9.3	-25.0	-38.0	-42.3	-26.2
Relative Humidity													
Average Daily Maximum (%)	95.9	94.2	97.5	98.7	96.7	99.2	94.6	97.2	99.2	99.6	98.2	96.2	97.3
Average Daily Mean (%)	76.6	76.5	78.4	82.6	80.7	69.3	68.6	75.6	82.7	90.1	85.9	78.3	78.8
Average Daily Minimum (%)	61.6	62.1	60.7	68.2	42.6	39.5	45.6	50.9	62.3	71.1	70.6	54.0	57.4
Barometric Pressure													
Average Daily Maximum (hPa)	1,037	1,036	1,038	1,036	1,031	1,030	1,026	1,027	1,027	1,032	1,040	1,043	1,034
Average Daily Mean (hPa)	1,013	1,014	1,015	1,015	1,017	1,012	1,011	1,011	1,010	1,011	1,010	1,013	1,013
Average Daily Minimum (hPa)	981	985	981	982	998	991	996	993	988	985	979	979	987
Incident Solar Radiation													
Average Daily Total (W/m²)	8	35	112	226	277	260	232	168	90	37	12	4	122
Average Daily Maximum (W/m²)	40	113	215	322	397	378	372	295	193	108	49	15	208
Average Daily Minimum (W/m²)	1	7	23	107	75	59	32	25	10	8	2	1	29
Water-Equivalent Precipitation													
Average Monthly Total (mm)	3.2	5.7	12.3	11.3	12.6	26.2	35.0	46.5	37.8	29.5	0.5	0.9	18.5
Average Daily Total (mm)	0.1	0.2	0.4	0.4	0.4	0.9	1.1	1.5	1.3	1.0	0.0	0.0	0.6
Extreme Daily Maximum (mm)	7.7	10.4	58.5	47.3	19.5	30.6	15.0	26.7	62.7	25.5	1.0	1.9	24.9

Table 10. Summary of Matthews Creek Station Monthly Average Meteorological Observations

Note: Average values based on hourly and daily data from January 1, 2008 to June 30, 2019.

7.2.2 Lake Bathymetry

With the exception of a few lakes near the former Tundra Mine there is limited bathymetric data available for the Courageous Lake property. To support the application for a water licence and identify potential source water lakes for exploration drilling, a desktop study was undertaken to develop a predictive model between lake surface area and volume for lakes in the North Slave region of NWT (Appendix E). The purpose of the study was to predict depth and volume of waterbodies throughout the property, where no data existed, to determine which sources would or would not satisfy the DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the NWT and Nunavut (DFO 2010). This protocol is intended to protect aquatic populations and habitat by limiting water withdrawal to 10% of the available under-ice water. The protocol also defines lakes suitable for winter withdrawal as those with a minimum depth (Z_{max}) of 3.5 m; lakes with a Z_{max} less than or equal to the maximum expected ice thickness are exempt.

In the desktop study, historical lake morphometric data were curated from publicly available reports for the Ekati Diamond Mine, Diavik Diamond Mine, Gahcho Kué, former Tundra Mine, and Yellowknife City Gold mining projects. In addition, morphometric data collected as part of baseline investigations for the Courageous Lake area (Rescan 2012a) were included as part of the analysis. Morphometric data included measurements of lake volume, surface area, mean depth and maximum depth. In total, 42 lakes were used to create a model. Regression analyses were used to model summer and winter volumes, mean depth and Z_{max}. Lake volume and surface area were highly correlated in both conditions.

Lakes with unknown volume and depth were identified within a corridor of geologic interest within the property boundary, the Zone of Interest. For lakes within the Zone of Interest, the volume, mean and maximum depths were predicted using the developed model. Lakes were then categorized for water withdrawal limits based on predicted volume and Z_{max} in relation to DFO criteria for water withdrawal in addition to confidence rankings for both predicted volume and Z_{max} .

Field surveys of eight lakes that had low confidence rankings within the Zone of Interest were conducted to improve confidence in the Z_{max} and re-calculate lake volume and update the lake withdrawal category. Three lakes were confirmed as eligible for use in under-ice water withdrawal following the survey, and three lakes were re-categorized for only summer withdrawal up to 10% of the open water volume (i.e., did not meet DFO under-ice requirements but z_{max} was greater than 1.5 m). Although two of the field surveyed lakes were found to have a maximum depth less than 1.5 m, they both have large surface areas (i.e., greater than 800,000 m²) suggesting more than sufficient volume to accommodate the potential withdrawal volumes during the open-water season with minimal effect. Thus as an exception both lakes were re-categorized for summer only withdrawal up to 10% of the total volume.

The results of the study are shown in Figure 6a, 6b, 6c. These figures identify the lakes within the permit area that Seabridge may use to withdraw water for exploration activities such as drilling, winter road construction and potable water use. The lakes are categorized (coloured) based on their known or predicted depth and volume and ability to satisfy the DFO Protocol. Shallow lakes that do not satisfy the DFO protocol will not be used as a water source and are not shown on the maps. The complete study, including the predictive bathymetric data for all lakes in the Zone of Interest, is included in Appendix E.

7.2.3 Water Quality

Water quality has been collected in the project area beginning in 1983 in association with the Tundra and Salmita mines. Data collected by Kanik and Villamere in association with Salmita mine (1983, as cited in EBA 2003) indicated that the lakes in the area were characterized by clear, low conductivity water bodies, with low nutrients, and associated low productivity characteristic of the slave geological province. Arsenic concentrations were elevated in Russell Lake.

Water quality samples were collected by EBA for Seabridge in 2004 and 2005. Four water quality sampling stations were located on Matthews Lake, one station at Courageous Lake, and one on Matthews Creek. Samples were collected twice during the open water season in both 2004 and 2005. Samples were analyzed for total and dissolved ultra-low metals (both total and dissolved), low-level nutrients, routine water, and cyanide as well as temperature, conductivity and dissolved oxygen. Consistent with previous studies, the physical and chemical water quality parameters indicated that lakes in the Courageous Lake area are typical of waterbodies found within the geographical area.

Water quality monitoring was completed between June 2010 and September 2012 at both stream and lake sites in the Courageous Lake area (Rescan 2012b). Sampling effort varied between years ranging from 8 to 10 stream sites and 16 to 23 lake sites monitored between 2010 and 2012. Analysis of water samples collected from the lakes and streams in the Courageous Lake area suggested that the water is typically soft with low alkalinity and nutrients. Deeper lakes and streams with deep lake water source tended to have low levels of all water quality constituents. Streams containing higher level of organic sediments and shallow lakes tended to have higher concentrations of most water quality variables. Similar to earlier studies, the surface water quality results of the 2010 to 2012 program were consistent with waterbodies found within the geographical area.

The Courageous Lake property is in a zone of continuous permafrost, consequently groundwater is restricted to deeper parts of the stratigraphy, estimated to be greater than 300 m below surface. Groundwater monitoring was completed in 2011 indicating that water can be classified as brackish with total dissolved solid (TDS) values ranging from approximately 2,000 mg/L to 9,000 mg/L (Rescan 2012a). Calcium and chloride comprise about 80% of the TDS in the groundwater samples collected.

7.2.4 Fish and Fish Habitat

Fish and fish habitat assessments were described in relation to the Salmita Mine by Hatfield (1982, as cited in EBA 2003) and Kanik and Villamere (1983, as cited in EBA 2003). The reports found that the fish population in Matthews Lake includes lake trout (*Salvelinus namaycush*), lake whitefish (*Coregonous clupeaformis*), Arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius*), sticklebacks (*Pungitius pungitius*) and cisco (*Coregonus artedii*).

Kanik and Villamere (1983, as cited in EBA 2003) also report results from a series of smaller lakes to the east of Matthews Lake (Russell, Powder Mag, Trans-Saddle, Sandy Lakes and Unnamed Lake). Most of these lakes have a less diverse fish population than Matthews Lake with diversity increasing with the size of the lake. They noted that streams in the area generally did not support fish populations. Only one stream between Unnamed Lake 3 and Sandy Lake supported juvenile lake trout and Arctic grayling.

Monitoring of fish habitat compensation work was carried out at Matthews Lake and Sandy Lake between 2005 and 2008, and showed that six different species of fish were present in the area, including Arctic grayling, lake trout, burbot (*Lota lota*), brook stickleback (*Culaea inconstans*), longnose sucker (*Catostomus catostomus*), and spoonhead sculpin (*Cottus ricei*; Dillon 2009).

Additional fish and fish habitat baseline studies in the Courageous Lake area were conducted by Rescan in 2010, 2011, and 2012. Large lakes were the dominant form of fish habitat present; fish presence was confirmed only in lakes with deep water habitat or connection to larger fish-bearing lakes (approximately one quarter of sampled lakes). Fish presence (primarily juveniles) was confirmed in the majority of streams connected to fish-bearing lakes. Several additional drainages were identified; however, they were too poorly connected to lakes to have fish presence beyond ephemerally during very high water. The fish species assemblage in the Courageous Lake area was similar to that identified in earlier studies: Arctic grayling, lake trout, round whitefish (*Prosopium cylindraceum*), lake whitefish, northern pike, cisco, longnose sucker, burbot, ninespine stickleback, lake chub (*Couesius plumbeus*), and slimy sculpin (*Cottus cognatus*; Rescan 2012c).

Large lakes also had the most diverse and high quality fish habitat, in comparison to small and shallow lakes. Similarly, fish habitat in streams was generally of poor to fair quality, with the exception of Matthews Creek and a few larger reference streams (Rescan 2012c).

No general spatial trends were evident in the analysis of fish tissues, although there was some evidence of elevated mercury in lake trout captured in Matthews Lake, Undine Lake and Whale Tail Lake. Some of the fish captured in Matthews Lake also had enlarged livers, which can be a symptom of elevated metals or other pollutants (Rescan 2012c).

7.3 Soil and Vegetation

Vegetation baseline surveys were conducted in 2010 and 2011 (Rescan 2012d). A total of 134 common plant species and 13 vegetation associations were identified during the Terrestrial Ecosystem Mapping (TEM) surveys. The most common ecosystems identified were tundra and wetland fens. No invasive plants were identified during the TEM field surveys. A rare plant survey completed in 2011 identified 734 vascular plants, bryophyte, and lichen species in the central area of the property between Courageous Lake and Mackay Lake, including 58 considered to be sensitive or at risk. No identified species are listed by the Committee on the Status of the Endangered Wildlife in Canada (COSEWIC). This area is referred to as the local study area (LSA) below.

Terrestrial Ecosystem Mapping indicated that the most common ecosystem association was Scrub Birch – Labrador Tea Tundra (accounting for 30% or 7,831 ha of the 25,908 ha LSA), followed by Scrub Birch – Crowberry Tundra (18%, 4,765 ha) and Mixed Sedge – Sheathed Cottongrass Fen (5%, 1,341 ha). All other ecosystem associations accounted for less than five percent of the LSA. In total, vegetated ecosystem associations accounted for 72% (18,766 ha) of the LSA. The most common un-vegetated map unit found in the LSA was Lake, accounting for 23% (5,952 ha), followed by Rock Outcrop (2%, 553 ha) and Pond (2%, 451 ha). All other non-vegetated map units account for less than 0.4% of the LSA.

Over half of the surficial materials of the LSA are of the morainal origin (Rescan 2012e). Organic materials are also common, covering about one-third of the LSA. Post-glacial washing of surface deposits has resulted in indefinite boundaries between many of the surficial materials. Most soils in the LSA are moderately coarse textured (sandy loams and loams) and are mainly associated with morainal deposits found in all slope positions. Coarser textured glaciofluvial deposits are scattered over the higher relief areas. Organic materials have accumulated in valley bottoms and on plains in depressional areas.

Due to the low temperatures and the annual freeze-thaw cycles, the rates of soil development are very slow in the LSA. The harsh climate also inhibits the accumulation and decomposition of organic matter, especially in the drier upland soils. The low concentration of organic carbon in the top 10 cm of the soil profile is generally associated with a very shallow Ah horizon. Due to the ubiquitous presence of permafrost and cryoturbation, 89% of the soils were classified as Cryosols. The remaining 11% of the soils are Regosols and Brunisols.

The soils in the LSA have been classified into ten Soil Mapping Units (SMUs) based on several factors, such as parent surficial material, texture, and drainage. Most soils in the LSA do not show evidence of significant erosion when undisturbed. The LSA has about 29% of soils characterized by low erosion potential, 38% by moderate erosion potential, and 33% by high erosion potential.

7.4 Wildlife and Habitat

Wildlife surveys have included aerial surveys for caribou, carnivore dens, cliff-nesting raptors and waterbirds, DNA hair studies for wolverine and grizzly bear, ground surveys for waterbirds and upland breeding birds, radar surveys for migrating birds, small mammal trapping, and remote camera studies of caribou (EBA 2005, Kanik and Villamere 1983, Rescan 2012f). A total of 77 species have been observed,

11 mammals and 66 birds. The mammal species include caribou, grizzly bear, wolf, moose, muskox and wolverine as well as five other small or meso-mammals. The bird species include 10 raptors, 26 waterbirds, and 30 upland breeding birds. Nine of the species observed are considered species at risk (Table 11). This includes three mammals, two raptors, two waterbirds, and two upland breeding birds. Species at risk were those included on Schedule 1 of the federal *Species at Risk Act* (*SARA*; 2002), with a territorial status (*Species at Risk [NWT] Act 2009*), as assessed by COSEWIC or by the NWT Species at Risk Committee (SARC).

Common Name	Latin Name	Federal SARA Schedule 1 Status	SARA (NWT) Status	COSEWIC Assessment	NWT SARC Assessment
Barren-ground caribou	Rangifer tarandus groenlandicus	No Status	Threatened	Threatened	Threatened
Grizzly bear	Ursus arctos	Special Concern	No Status	Special Concern	Special Concern
Wolverine	Gulo gulo	Special Concern	No Status	Special Concern	Not at Risk
Peregrine falcon	Falco peregrinus	Special Concern	No Status	Not at Risk	Not assessed
Rusty blackbird	Euphagus carolinus	Special Concern	No Status	Special Concern	Not assessed
Short-eared owl	Asio flammeus	Special Concern	No Status	Special Concern	Not assessed
Red-necked phalarope	Phalaropus Iobatus	Special Concern	Not applicable	Special Concern	Not applicable
Horned grebe	Podiceps auritus	Special Concern	Not applicable	Special Concern	Not applicable
Harris's sparrow	Zonotrichia querula	No Status	Not applicable	Special Concern	Not applicable

Table 11: Wildlife Species at Risk Observed during Surveys

7.4.1 Caribou

The Bathurst caribou herd is one of six barren-ground caribou herds in the NWT and the only herd of caribou expected to interact with the Project on an annual basis. The Courageous Lake area is not within the calving grounds of the Bathurst Caribou herd, but the herd does pass through the area during both its spring and fall migrations (Gunn et al. 2002). Barren-ground caribou are currently assessed by COSEWIC as a threatened species in NWT.

Aerial surveys of the Bathurst caribou calving grounds indicate that the herd has declined from approximately 472,000 animals in 1986 to approximately 8,200 animals in 2018 (GNWT ENR 2018b). Both traditional and scientific knowledge indicate that barren-ground caribou herd sizes can cycle relatively regularly with climate patterns (ENR 2005; GNWT ENR 2006); however, the current Bathurst caribou population is low compared to its historic cyclic minimum size, which can make the herd vulnerable to weather and other factors (BCMPC 2004; GNWT ENR, pers. comm.).

Remote cameras were placed in the Courageous Lake area in 2010 with 2011 being the first full year of data collection. Analysis of the images collected annually since then indicates that nearly three quarters (73%) of the observations recorded by the cameras from 2011 to 2018 were recorded in 2011 and 2012, a period when the Bathurst herd had an estimated 34,000 animals. Over 2,000 animals were counted annually in the photographs from those years. The lowest number of observations were recorded in 2014 (41), 2015 (24), and a low of only nine observations in 2016.

Some seasonal patterns were consistent throughout the 2011 to 2018 period: during the calving and postcalving seasons caribou are well north of the Courageous Lake area, a fact which the cameras supported; there were only two observations of caribou on cameras during the calving and post-calving season in the entire 2011 to 2018 study period. During the nine years of monitoring, the seasons when caribou were observed changed. At the beginning of the study (2011 and 2012) the majority of caribou were observed in summer, late summer, and pre-rut periods (800 observations). However, after 2012, caribou were only recorded 23 times in those same seasons over the next six years.

In contrast, the number of caribou observations has increased between 2010 and 2018 during the winters; reaching a maximum of 72 observations during the winters of 2016-2017 and 2017-2018. This increase in winter observations is consistent with collar data that suggests that the Bathurst caribou wintered north of the tree line after 2017. During the early part of the study, the Bathurst caribou wintered to the south of the tree line and their northward spring migration passed through the Courageous Lake area. Cameras recorded caribou during spring migration between 2010 and 2017. However, after 2017 the Bathurst herd appear to have wintered north of the tree line (north of the Courageous Lake area). During 2018, no caribou were recorded during the northward spring migration, presumably because they were already north of Courageous Lake.

7.4.2 Carnivores

7.4.2.1 Grizzly Bear

The population of barren-ground grizzly bears in the Slave Geological Province was estimated at 800 (\pm 200 SE) individuals in 2003 (McLoughlin et al. 2003). Annual home ranges are the largest in North America for both females (2,100 km²) and males (7,200 km²; McLoughlin et al. 2003).

Eskers are important habitat for grizzly bears, as they are used for denning, travel, and hunting. Females, especially those with cubs, may select "non-typical" denning locations and avoid eskers to reduce risk of predation by male bears (Banci and Moore 1997). Dens have been found on heath tundra, heath tundra with more than 30% boulder content, spruce forest, tall shrub riparian areas, and birch seep areas. Although grizzly bear den sites are widely distributed throughout the Slave Geological Province (McLoughlin, Cluff, et al. 2003), the locations of dens tend to be clustered (Banci and Moore 1997). Grizzly bears tend to den in the same denning areas year after year (LeFranc et al. 1987).

Seven grizzly bears, two new dens, and three old bear dens were documented in 2004 during aerial and ground surveys (EBA 2005). Three separate observations of grizzly bears were recorded during aerial surveys, and included a single adult, one female with one cub, and one female with three cubs. Two new dens were documented as being used the previous winter and three old dens were also noted within the study area. Old and fresh grizzly bear sign were recorded and consisted of 21 bear diggings, bear tracks, and scat. In 2005, aerial surveys and ground checks were conducted as incidental wildlife work during other surveys. Five bears were observed and one old bear den that was not previously noted in 2004 was recorded. The five visual bear observations consisted of the following: one female with two cubs, one large adult male, and one adult of unknown sex. During 2010 aerial surveys, five grizzly bear dens were surveyed based on locations previously identified (EBA 2005), and were re-surveyed in 2011 along with an additional grizzly bear den location that was found. However, all dens were inactive (Rescan 2012f).

Grizzly bear hair sampling surveys indicated that in 2010 seven grizzly bears (as identified through DNA analyses), five female and two male, and in 2011 23 grizzly bears, 11 male and 12 female, were detected within the survey area. Six of the seven bears detected in 2010 were detected again in 2011 for a total of 24 grizzly bears between the two years (11 males and 13 females).

Grizzly bears continue to be observed in the area during recent summer field programs at the project.

7.4.2.2 Wolverine

Wolverine populations in the central Arctic appear to fluctuate, although for the most part they are believed to be stable or even increasing in some areas of NWT and Nunavut (COSEWIC 2014). The total population size of wolverines in Nunavut is estimated to be 2,000 to 2,500 individuals (Slough 2007; COSEWIC 2014). Due primarily to low reproductive rates and low population densities, wolverines are susceptible to population declines (Slough 2007; Inman et al. 2012). Food availability, especially during winter, is thought to be the main factor limiting reproduction and influencing the population dynamics of wolverines (Persson 2005).

DNA analyses of wolverine hair samples collected within a 1,000 km² area during the winter of 2011 indicated that eight individuals were detected, five males and three females (Rescan 2012f). This is within the predicted density range (between 5.7 and 10.8 per 1,000 km²) of wolverines in the North (Banci and Harestead 1990; Copeland and Whitman 2003).

7.4.2.3 Wolf

Wolves in the Courageous Lake area tend to be migratory. Den selection is dependent on factors such as a good place to dig and reasonable access to caribou, their main food source. Wolves take advantage of eskers, ridges of gravel and sand formed by melting glaciers, to dig dens or take over dens from other wildlife such as foxes or ground squirrels. Dens not associated with a prominent esker are located in a mound of glacial-fluvial sediment that facilitate digging. Although wolves show a preference for eskers for denning, they are not tied to specific vegetation types for feeding as prey may occur in varied types of vegetation.

In 2004, one active wolf den site and one inactive den site were documented during wildlife surveys in the Courageous Lake area. In 2005, the same active den site that was recorded in 2004 was being used again in 2005 (EBA 2005). In addition, two old wolf den sites were found in 2005. Two adult wolves were observed during other wildlife work and were recorded as incidental observations. Three active wolf dens were detected in 2011 and seven adults (Rescan 2012f).

7.5 Archaeological Resources

Archaeological Impact Assessments (AIAs) of the Courageous Lake property were initiated in 2003 and have continued until 2018. As a result of this work, a total of 175 archaeological sites have been documented in the area (Bussey 2003; Seip et al. 2011, 2012, Seip and Campbell 2013, Seip and Walker 2013, Le Beau and Walker 2019). Archaeological assessments have consisted of pedestrian survey and aerial reconnaissance in areas where ground disturbance is anticipated. This work has focused primarily on proposed development and infrastructure areas, including roads, camps, mineral deposits, mine site infrastructure areas, and mineral exploration areas.

Archaeological sites which have been documented in the area include: lithic scatters (evidence of prehistoric tool production), lithic quarries, prehistoric cairns and rock alignments, prehistoric campsites, and burials. Archaeological sites date from the Arctic Small Tool tradition (approximately 2,500 to 3,500 years before present (BP)) to 150 years BP. Traditional use and historic sites, such as cabins, temporary shelters, mineral claim cairns have also been documented in the Project area.

Through the archaeological investigations carried out, it has been determined that the Courageous Lake area contains many areas of high archaeological potential. Prehistoric, historic and traditional sites could occur throughout, but are most likely to be associated with slightly elevated terrain adjacent to medium and large lakes, on bedrock ridges, and knolls, and on eskers.

7.6 Traditional Land Use

Traditional Knowledge (TK) is unique to a people, and each Aboriginal group may have different objectives, and differing thoughts as to how to approach a TK study. Seabridge believes it is important that each community have control over their own TK research, including the funding, and who does the work.

Seabridge initiated discussions with Indigenous groups who traditionally used the Courageous Lake area in 2010 to discuss with each group how they would like their TK collected and used to support an environment assessment program that was proposed at the time. As part of the dialogue, elders from each group with knowledge of the Courageous Lake area were brought to site in 2010, 2011 and 2012 to spend time together on the land.

Caribou trails, travel corridors and crossing points were mapped by Seabridge through aerial surveys conducted in 2010 and reviewed with traditional land users. Input about how and where the caribou travel was used to design the remote camera monitoring program, which began in 2010 and continues to collect data today (Section 7.4.1).

Seabridge sought proposals for TK studies from each of the following groups: Yellowknives Dene First Nation (YKDFN), the Tłįchǫ Government, North Slave Metis Association and Lutselk'e Dene First Nation. Proposals were received from the Tłįchǫ and Yellowknives. The Tłįchǫ study proceeded during 2012, while the YKDFN study was put on hold in 2012.

The Tłįchǫ TK Study was undertaken with elders from May to December 2012 that included a two-week TK field camp near Courageous Lake. The report was published and is available online at the TG website (Jacobsen, 2012). The Tłįchǫ TK report is divided into three sections that summarize the cultural significance of the Courageous Lake area, the elders' environmental knowledge of the area and presents elders' concerns and recommendations regarding developments that Seabridge proposed at the time. While these developments are no longer proposed, the concerns and recommendations remain relevant. Traditionally, the Tłįchǫ people used the Courageous Lake area during fall and winter to hunt caribou, collect plants for traditional medicines, pick berries and to fish. Some people would overwinter and continue hunting and trapping then journey back to the treeline area in late winter. The report describes the elders' environmental knowledge of the larger region with a focus the fall caribou migration route from Lac de Gras through Mackay Lake towards Snare River, and the importance of water crossings to the migration. The elders are concerned with how the animals and the land will impacted by activities, with particular concern regarding the ability of caribou to migrate westward between Courageous Lake and Mackay Lake.

In 2018, the YKDFN submitted a new proposal for a TK study. The study is currently underway and only preliminary information is available at this time. The draft YKDFN TK Study describes the Courageous Lake area as an important place for traditional and contemporary uses that include: hunting, fishing, gathering and tool making. Several campsites, cabins and gravesites were used during historic and contemporary hunting and trapping activities and are connected by a dense network of trails. YKDFN hunted for caribou, moose, grizzly bear and trapped for white fox, wolverine and martin throughout the area. While the patterns and intensity of land use in the area have shifted over time, the area remains culturally important to the Yellowknives. The YKDFN continue to use two permanent camps for on-the-land experiences that foster intergenerational teaching and knowledge sharing.

Through these studies, Seabridge is able to understand the historic and contemporary land uses, including the cultural and historical context of TK. Conversations between Seabridge and the TK knowledge holders enable Seabridge to understand potential impacts of the proposed exploration activities on affected parties, and guide mitigation measures to avoid, reduce or manage effects.

7.7 Other Historic Land Use

As discussed in Section 3.3, there are several areas around the Courageous Lake property where there are existing disturbed lands associated with previous exploration and mining activities. Areas that have recently been reclaimed or are in the process of being reclaimed, such as the Tundra Mine site, have been identified through ongoing discussions with CIRNAC-CARD. Seabridge has identified reclaimed areas and established buffers where appropriate to avoid unintentional interaction with structures including engineered cover systems, monitoring wells, drainage systems, etc.

8. POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

To ensure that any potential environmental effects of the proposed exploration activities are minimized, Seabridge undertook a preliminary screening to first assess and then propose mitigations, if required.

The objective of the screening was to identify potential impacts from the exploration activities on the surrounding environment. The review was qualitative in nature and relied on professional judgement and experience from other exploration sites in the NWT. The screening was used to inform the five management plans that Seabridge has prepared in support of its MVLWB applications.

8.1 Noise Disturbance

Ambient noise levels associated with camp facilities, drilling activities, as well as fixed wing and helicopter operations will be expected to continue at minimal levels for this permit renewal period. Such noise levels are typically short in duration and limited to small areas of the Courageous Lake property.

Periods of exploration activities are anticipated to be from July to October and January to April. The level of activity may consist of up to five operating drills and a maximum of 49 persons on-site at any given time. Historic activities and on-going exploration in the area are not believed to have created an acoustic impact on wildlife. Continued exploration activities are not expected to significantly change the existing situation.

Seabridge has developed a Wildlife Management and Monitoring Plan which defines mitigations measures to reduce the potential effects of noise. These mitigations include, for example, education of pilots regarding maintaining appropriate setbacks from wildlife, when safe to do so, wherever large animals are observed.

Information shared during TK studies indicate that First Nations people continue to use the Courageous Lake area for contemporary activities. Seabridge will continue to engage with potentially affected parties, as defined in our Engagement Plan, to understand the potential effects of noise from exploration activities, if any, on contemporary activities near Courageous Lake.

8.2 Air Quality

Due to the small scale and short seasonal nature of exploration activities, it is not anticipated that air quality will be significantly impacted. Local air quality impacts will include minimal dust generation from road and airstrip use; particulates released from the incinerator and emissions from fuel combustion associated with drilling and transportation equipment.

8.3 Land Disturbance

8.3.1 Permafrost

No significant or long-term impact on permafrost is anticipated from the proposed drilling program. The standard practice is to complete all drilling on wooden platforms to distribute the weight over the permafrost area in order to better protect it. Drill holes penetrating the permafrost layer will degrade the layer in a local area. However, after abandonment of the site, all conditions that would inhibit the reversal of this degradation will be eliminated.

8.3.2 Groundwater

The Courageous Lake area is in a zone of continuous permafrost, consequently groundwater is restricted to deeper parts of the stratigraphy, typically below the level permafrost which is about 300 metres. Extensive drilling in the past has not identified any conflicts with groundwater.

Geologic units in the area are steeply dipping and this drilling program is designed to intersect these units at an acute angle. This should minimize the potential for artesian water escaping the drill holes. In the event that artesian waters are encountered in a drill hole, abandonment procedures will include plugging off the groundwater course to eliminate the discharge of groundwater from the drill hole collar.

8.3.3 Vegetation

Exploration drilling in the Courageous Lake area are not anticipated to create significant long term impacts on vegetation. During periods of operation in the summer months, some disturbance to the natural vegetation will occur in the areas surrounding the drill exploration sites. After abandoning a site, clean-up work will be designed to promote the restoration of the site compatible with the original undisturbed conditions. Re-vegetation will be conducted at drill sites that require this type of mitigation.

8.4 Aquatic Resources

8.4.1 Water Quality

To protect water quality, property-specific best management practices will be utilized for the duration of exploration activities. Water used during exploration drilling is collected and discharged along with drill cuttings in a sump or natural depression that is located 100 m or more from lakes and watercourses. Drill cuttings from core saws are discharged in a land-based sump at Coreland which is situated on gravel fill. Camp greywater is discharged to a septic field within Surface Lease 76D/3-6-6.

With the location and nature of discharges associated with exploration drilling and camp use, the proposed program is not anticipated to negatively impact water quality in Courageous Lake area waterbodies.

8.4.2 Water Quantity

Seabridge undertook a desktop study that used a risk-based approach to identify and categorize lakes that satisfy DFO criteria for water withdrawal to ensure the protection of fish habitat (Appendix E). Shallow lakes not meeting DFO (2010) protocols will not be used a water source for the drilling program. It is anticipated that with risk-based limits imposed on water withdrawal, there will be no residual effects to water quantity of the lakes in the Zone of Interest used for the purpose of drilling activities.

8.4.3 Fish and Fish Habitat

With the application of both general and property-specific best management practices, the proposed program is not anticipated to negatively impact fish or fish habitat.

Drilling operations will not use toxic additives and drill fluids will not be discharged directly into lakes or watercourses. Careful selection of drill sites, placement of petroleum products on sites, use of double-walled portable fuel tanks, and the storage of limited supplies at drill sites, in conjunction with an effective Spill Contingency Plan and an active training program, will minimize the potential for contamination.

To minimize the potential for impacts to fish related to water withdrawal (e.g., loss of littoral habitat, loss of overwintering habitat, oxygen depletion), the proposed drilling program will adhere to DFO's Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in the Northwest Territories and Nunavut (2010). Water will only be withdrawn from lakes that meet the DFO (2010) criteria (Section 7.2.1), no more than 10% of under-ice water volume will be withdrawn from any lake and water intakes will be situated in deepwater locations. Water intakes will be screened and have moderate water velocities to avoid entrainment of fish, as per the Freshwater Intake End-of-Pipe Fish Screen Guideline (DFO 1995).

DFO has not established protocols that limit the withdrawal of water from lakes during open water period. Using the same risk-based approach that was used to define lakes that are applicable for under ice

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withdrawal Seabridge determined that lakes that are less than 1.5m depth will not be used during open water season. The exception is two lakes north of the east arm of Courageous Lake (Figure 6a, lakes #12 and #13) which have a maximum depth between 1,0 and 1.5 m based on field measurements, which when combined with the large surface area could still be used as a water source, while being sufficiently protecting fish and fish habitat by withdrawing less than 10% of total volume.

DFO has determined that the withdrawal of <10% of instantaneous flow from streams has a low probability of resulting in detectable impacts to ecosystems. Seabridge will assess streams prior to use to assess with natural discharge volume and will continue to monitor flow during use to ensure 10% threshold is not exceeded.

8.5 Wildlife

A Wildlife Protection Plan was developed in 2010 and updated in 2012 with First Nations input. The plan has been revised and expanded considerably in 2019 to take into consideration new wildlife management guidelines. The new Wildlife Management and Monitoring Plan identifies a variety of measures that must be adhered to during the exploration program to mitigate the potential effects of direct habitat loss, sensory disturbance, wildlife attraction, wildlife-human conflicts and human access and harvesting opportunities. Information gathered during pre-submission engagement and from traditional knowledge studies has supported the selection of species of concern and the establishment of mitigations to protect these species.

8.6 Archaeology

TK studies confirm that the Courageous Lake area was used extensive by local First Nations people, who feel strongly about the cultural and spiritual preservation of archaeological sites. They recommend that these sites be avoided. Seabridge will work with traditional knowledge holders to identify areas that are prospective for archaeological sites that should be further evaluated.

Archaeological sites are also protected by legislation. Of the archaeological sites documented since 2003, six sites are located within 30 m of existing infrastructure, such as gravel roads, and another 17 sites are located within 150 m of existing infrastructure. Seabridge has no current plans to change the existing infrastructure footprint and, therefore, no impacts to these archaeological sites are anticipated.

Seabridge has established an archaeological "no-go zone" constraints map which defines areas where land use activities, such as drilling, are to be avoided and these are communicated and understood by personnel working on site.

Seabridge will continue to conduct pre-clearance surveys prior to drilling, or activities that may cause surface or subsurface disturbance. If there is potential to impact archaeology sites, drill sites will be relocated. To date there are no archaeological sites found to be in conflict with proposed drill pad locations.

Despite pre-clearance efforts, if an unknown site is encountered during exploration Seabridge will follow its Chance Find Procedure (Appendix F) and will notify the Prince of Wales Northern Heritage Centre (PWNHC).

9. GOVERNMENT ENGAGEMENT

Seabridge met with relevant Federal and Territorial government institutions regarding various aspects of the project. Institutions included: the Mackenzie Valley Land and Water Board, Government of the Northwest Territories, Department of Industry, Tourism and Investment, Department of Lands, Department of Environment and Natural Resources and Operations; Crown-Indigenous Relations and Northern Affairs Canada, Fisheries and Oceans Canada, and Prince of Wales Northern Heritage Centre.

Engagement activities with the Tłįchǫ Government are considered in the context of engagement with Indigenous groups (Section 10).

Meetings were held to discuss technical application requirements and to clarify regulatory review processes. Example of topics discussed include:

- Data requirements for potential water source lakes where no bathymetry is available;
- Methodology for security calculation and phasing of security for two drilling scenarios;
- Distribution of security between Territorial and Federal jurisdictions,
- Allocation of security between Land Use Permit and Water Licence;
- Location of reclamation works and ongoing monitoring activities associated with Tundra Mine site; and
- Changes to legislation, such as Fisheries Act.

A detailed log of discussions with government agencies was maintained and can be provided upon request.

9.1 Other Permits

Seabridge recently acquired three permits to authorize certain aspects of their exploration activities. Prior to submitting each permit application to the regulators, Seabridge sent a copy of the draft permit application to Indigenous groups to provide a 10-14 day opportunity to raise questions or suggest changes. Additionally, each of these permit applications included a regulatory consultation phase that was coordinated by the respective permitting organization. These permits include:

- Archaeological Permit (renewed annually) issued to Seabridge's archaeological consultant each year, so that field work, such as pre-clearance surveys, can be undertaken.
- Wildlife Research Permit (renewed annually) issued to Seabridge's wildlife consultant each year, so that field work, such wildlife camera monitoring, can be undertaken.
- Quarrying Permit (valid until August 2022) issued to Seabridge in August 2019 to authorize the removal of up to 300 m³ of sand and gravel from the borrow pit located on the northeast side of Matthews Lake, just southeast of the camp.

Copies of the issued permits are contained in Appendix G.

10. COMMUNITY ENGAGEMENT

10.1 Planning and Preparation

Seabridge is committed to engaging with local Indigenous groups in an open and honest manner.

While the responsibility to consult with the Indigenous groups in the NWT lies with the Crown, the MVLWB has published *Engagement Guidelines for Applications and Holders of Water Licences and Land Use Permits* (MVLWB 2014) to provide guidance and outline expectations for applicants.

As required by current Land Use Permit MV2012C0025, Seabridge had previously developed an Engagement Plan for Land Use Permit MV2012C0025, which was approved January 30, 2014. The Engagemnet Plan formed the basis for the pre-submission engagement that is expected by MVLWB.

As part of our pre-submission planning preparations Seabridge contacted the MVLWB and the Federal government in the form of the CIRNAC in June 2018 to re-affirm the communities/Indigenous organizations that should be engaged. An extensive list was initially identified; however, based on results of previous permitting activities the following groups were re-affirmed:

- Yellowknives Dene First Nation (Dettah and N'dilo) (YKDFN);
- Lutsel K'e Dene First Nation (LKDFN);
- Tłįchǫ Government (TG);
- North Slave Métis Alliance (NSMA);
- Northwest Territory Métis Nation (NWTMN); and
- Akaitcho Pre-screening Board Akaitcho Interim Measures Agreement Implementation Office (AIMAIO).

10.2 Pre-submission Engagement

Seabridge initiated pre-submission engagement activities on June 27, 2018 and during the ensuing fourteen months prior to submitting the land use permit and two water licence applications, Seabridge conducted a variety of engagement activities with affected Indigenous groups. A summary of these engagement activities is provided in Table 12. The issues/concerns that were identified during these engagement activities, and Seabridge's responses, are described in Table 13.

A detailed chronological log of engagement activities for the period of June 2018 to September 2019 is included in Appendix H.

Month	Purpose of Engagement						
		Ъ	YKDFN	LKDFN	AIMAIO	NWTMN	NSMA
June 2018	Seabridge distributed a letter informing parties that Seabridge would be applying for permits in fall 2019 and wanted to initiate discussions and seek input on opportunities to engage	~	~	~	~	~	~
	Seabridge received response to letter regarding permit application				~	~	
	Seabridge notified groups that it was seeking an archaeology technician and a bear monitor to support 2018 field work	~	~				
July 2018	Seabridge contacted parties by telephone and with follow-up emails to request initial face to face (F2F) meetings to introduce the Courageous Lake project, permitting timeline and discuss concerns and how/when to engage	~	~	~	\checkmark	~	~
	Seabridge distributed factsheets regarding the history of the Courageous Lake property	~	~	~	~	✓	✓
	Seabridge met F2F to introduce project, permitting timeline and discuss concerns and how/when to engage (PowerPoint [PPT] presentation was used). Possible opportunities were identified.	~	~	~	~	~	~
	Seabridge contacted parties that were unable to meet F2F by telephone to introduce project, permitting timeline and enquire if any concerns and how/when they would like to engage. Provided PPT. Possible opportunities were identified.			~	~	~	
August 2018	No engagement activities or communications						
September 2018	Seabridge contacted parties by telephone and follow-up emails to see if parties had identified any additional ideas or preferences for pre-submissions engagement, methods. Discussed potential specific opportunities/times such as TK Studies, meeting with leadership.	~	~	~	~	~	~
October	Seabridge received TK Study Proposal		~				
2018	Seabridge continued attempts to arrange F2F meetings or seek forms of engagement activities.			\checkmark	~	~	
	Meeting with leadership confirmed for mid-January			~			

Table 12: Summary of Pre-submission Engagement Activities

Month	Purpose of Engagement						
		TG	YKDFN	LKDFN	AIMAIO	NWTWN	NSMA
November	TK Study Proposal discussions and revisions.		\checkmark				
2018	Seabridge continued efforts to enquire about opportunities for F2F meetings; Requested input on existing Engagement Plan to determine if there are other preferred methods				~	~	
	Seabridge responded to request for IBA					~	
	Seabridge sent emails to inform affected parties that Seabridge personnel would be making presentations at the Yellowknife Geoscience Forum, on (1) Sustainable Resource Development, and (2) Exploration Results, and invited groups to meet the team	~	~	~	~	~	~
December 2018	Seabridge presented 2 talks at Yellowknife Geoscience Forum – (1) Sustainable Resource Development and (2) Recent Exploration Results						
	TK Study Proposal discussions and revisions ongoing		✓				
	Seabridge arranged meetings with leadership for mid-January	~	✓				~
January	Seabridge contacted groups to request and/or re-confirm F2F meeting logistics with leadership	~	✓	~		~	~
2019	Seabridge met F2F with staff leadership and staff; Provided a project update, and discussed 2019 activities, and upcoming submission of Land Use Permit applications, future engagement and opportunities to provide input on content. Meeting notes prepared and distributed for comment.	~	~			~	~
	Seabridge met F2F with staff and leadership to discuss the 2019 activities and upcoming submission of Land Use Permit application, as well as future engagement approach. Interest in employment opportunities was discussed. Meeting postponed due to other activities in community; Seabridge sent copy of presentation (PPT) was made and shared with affected parties after the meeting along with request to reschedule meeting.			~			~
	Seabridge met with CEO/leadership of economic development corporations affiliated with First Nations to discuss project and status		~	~			
	Seabridge received funding request to support development of Indigenous Protected Area strategy and NSMA Land Use Plan submitted to Seabridge						~
	Seabridge committed to provide funding for study						~
	Seabridge continued efforts to enquire about opportunities for F2F meetings						~
	Seabridge met briefly with leadership during conference in Vancouver – requested opportunity to meet and talk about Seabridge and project					~	

Month	Purpose of Engagement						
		TG	YKDFN	LKDFN	AIMAIO	NWTMN	NSMA
February	Seabridge continued efforts to contacted groups to request and/or re-confirm F2F meetings			~		~	
2019	Seabridge met F2F with staff and leadership and provided project update, regarding Seabridge Gold, Courageous Lake project update, and discussed about proposed TK Study and other 2019 permitting. PPT presentation made to group. Meeting notes prepared and distributed for comment.		~				
	TK Study Proposal approved by Chief & Council		✓				
	Seabridge sent draft Archaeology permit for review/feedback	~	~	~		~	~
	Comments received by Seabridge (none)						
March 2019	Seabridge distributed 2018 Archaeology Report	~	~	~	~	~	~
	Discussions related to TK Study and funding agreement - ongoing		~				
April 2019	TK Study Funding Agreement executed and study initiated		~				
	Seabridge sent draft Wildlife permit for review/feedback	~	~	~		~	~
	Comments received by Seabridge	~					~
May 2019	Seabridge continued efforts to request F2F meetings			~		~	
	Community meeting tentatively set for mid-July.			~			
	Seabridge sent Engagement Plan for review/feedback	~	✓	~	~	~	~
June 2019	Seabridge received comments	verbal	verbal				~
	Seabridge met F2F with staff to provide update on 2019 activities and permitting; high level overview of proposed exploration and water use for next 5 years, talk about mitigations and management plans. Meeting notes prepared and distributed.	~	~				~
	Seabridge was informed that funding for Land Use and Indigenous Protected Area study would not be required						~
	Seabridge sent distributed proposed Table of Contents for Wildlife Management Plan for review/questions/feedback	~	~	~		~	~
	Comments received by Seabridge (none)						
	Seabridge distributed employment opportunities for 2019 field program at Courageous Lake	~	~				~

Month	Purpose of Engagement	ö	'KDFN	KDFN	VIMAIO	WTMN	ISMA
June 2019	Seabridge sent draft Quarry permit for review/questions/feedback		✓ ✓	−	1	✓	<u>∠</u>
(cont'd)	Comments received by Seabridge (none)						
	Community meeting confirmed for mid-July.			~			
July 2019	Seabridge distributed 2011-2018 Caribou Camera Summary Report for information	~	✓	~	~	~	✓
	Site Visit to Courageous Lake		\checkmark				
	Community Meeting - Open-house drop-in style session followed by a presentation to Council and Wildlife Committee members about project activities, permitting and proposed work. Meeting notes prepared and distributed for comment			~			
	Seabridge requested confirmation of contact information to update Engagement Plan			~	✓		
August	Draft TK Study provided for review.		\checkmark				
2019	Seabridge informed groups that applications will be submitted in about 2 weeks and offered to meet with staff to review draft documents that we have prepared. Seabridge distributed summary of engagement activities and asked for comments.	~	~	~	~	~	~
September 2019	Seabridge met with TK Study team to discuss and identify mitigations related to exploration activities that could be incorporated into management plans		~				

Note: Cells in italics indicate responses from affected parties in response to engagement with Seabridge.

Issue / Topic	U	KDFN	KDFN	Oľ	WTMN	SMA	Seabridge Response
Request that Seabridge follow Akaitcho Exploration Guidelines	F	~	□ ✓	▼	2	2	Seabridge is following the Akaitcho Exploration Guidelines in its efforts to meet and engage with LKDFN. This includes efforts to schedule meetings according to LKDFN's availability. A meeting proposed in January 2019 with Chief and Council was rescheduled as a community meeting on July 17, 2019. As needed, Seabridge informs the AIO regarding developments with LKDFN and/or YKDFN.
Request that Seabridge enter into an Environmental Agreement with Akaitcho Dene First Nations			~	~			Initially requested in June 2018, but this matter was not discussed during recent Lutsel K'e community meeting.
Request that Seabridge enter into an Impact Benefit Agreement (IBA)			~		~		Seabridge responded by letter to NWTMN on (November 2, 2018) and during community meeting in Lutsel K'e on July 17, 2019 that the Project is at an early exploration stage exploration site and the activities proposed in the land use permit are unlikely have impact on the environment or communities. As such, Seabridge indicated that it does not intend to initiate Impact and Benefit Agreement (IBA) discussions at this time.
Request to support proposal for TK study to understand potential effects of exploration activities		~					Seabridge agreed to fund TK Study proposal in 2019. Note: Seabridge engaged NSMA and LKDFN during summer/fall 2018 regarding their interest in undertaking a TK Study; neither group requested to undertake a study. Seabridge previously supported TG in developing a TK Study, which was completed in 2013.
Request that Seabridge support grant for land use planning study						~	Seabridge agreed to fund a land use planning study in 2019. The land use planning study was subsequently cancelled by participant.
Request that Seabridge and contractors provide employment opportunities	~	~	~			~	Seabridge emailed employment opportunities in June 2018 and June 2019 to Yellowknife based communities (TG, YKDFN and NSMA). Archaeology advisors and camp workers were hired in both 2018, 2019. One contractor operates a joint venture with NSMA for the delivery of services to Seabridge.

Table 13: Summary of Issues raised during Engagement Activities and Seabridge's Response

COURAGEOUS LAKE PROJECT Exploration Work Plan

laous / Tania							Cashridas Beenenes
Issue / Topic	TG	YKDFN	LKDFN	AIO	NMTWN	AMSN	Seabridge Kesponse
Request that Seabridge talk to development corporations about potential business opportunities		~	~			~	Seabridge met with three (3) development corporations associated with Indigenous groups in January 2019 to introduce the Project. One of Seabridge's key contractors has met with development corporations to discuss training opportunities. Another contractor has developed a joint venture with NSMA for the delivery of services to Seabridge.
Concerns about effects of exploration activities on wildlife, land and water.	~	~	~			~	Seabridge has developed several management plans that adopt best practices to mitigate potential impacts of mineral exploration activities. In response to a specific concern about potential for an effect on bears, such as attraction to the camp Seabridge explained that a bear fence exists and wastes are managed, a bear monitor was hired to support field work in June 2018.
Concerns about effects of exploration activities on wildlife, land and water. Particularly caribou	~	~	~			~	Seabridge has developed management plans that adopt best practices for mineral exploration activities which include active and passive monitoring for caribou with well-defined mitigations to reduce potential impacts from exploration activities.
Concerns about effects of exploration activities on archaeology sites.		~					Seabridge continues to conduct pre-clearance archaeology surveys before new land disturbances. Seabridge employs Indigenous archaeology technicians to support every archaeology field survey.
Request that Seabridge engage in a meeting with community, including elders and the chief and council.			~				Seabridge met with members of LKDFN community and leadership on July 17, 2019
Concerns about limited capacity (time, resources, technical expertise) to participate in pre- submission engagement including confirming meeting logistics, reviewing draft application documents and management plans and providing feedback in a timely manner.	~	~	~		~	~	Seabridge engaged with affected parties in the development and review of materials. On several occasions Seabridge offered to establish capacity funding or paid for capacity funding as invoiced.

11. **REFERENCES**

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APPENDIX A VALID REGISTRATION FROM NWT CORPORATE REGISTRIES FOR SEABRIDGE GOLD (NWT) INC.





BUSINESS CORPORATIONS ACT CERTIFICATE OF COMPLIANCE

LOI SUR LES SOCIÉTÉS ACTIONS **CERTIFICAT DE CONFORMITÉ**

I HEREBY CERTIFY THAT

JE CERTIFIE PAR LA PRÉSENTE QUE

SEABRIDGE GOLD (NWT) INC.

Incorporated under the **Business Corporations Act of** the Northwest Territories has filed with the Registrar of Corporations the required annual returns and is, with respect to the filing of annual returns, in good standing on the records of the Registrar.

Consituée en vertu de la Loi sur les sociétés par actions des Territoires du Nord-Ouest, a déposé auprès du registraire des sociétés par actions le rapport annuel exigé et renconte les exigences du registraire relatives au dépôt des rapports annuels.



Dated Fait le

2019-03-07

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REGISTRAR OF CORPORATIONS REGISTRAIRE DES SOCIÉTÉS PAR ACTIONS

APPENDIX B STATUS OF CLAIMS AND LEASES OWNED BY SEABRIDGE GOLD (NWT) INC. IN THE COURAGEOUS LAKE AREA, NWT

Appendix B: Status of Claims and Leases Owned by Seabridge Gold (NWT) Inc. in the Courageous Lake Area, NWT

Lease	#	Owner	Jurisdiction	<u>NTS 1</u>	<u>NTS 2</u>	Issued	Expiry	Hectares	<u>Status</u>
ML	3016	Seabridge Gold (NWT) Inc.	Territorial	076D03	075M14	23-Oct-80	23-Oct-22	284.09	ACTIVE
ML	3158	Seabridge Gold (NWT) Inc.	Territorial	076D03		25-Jul-84	25-Jul-26	556.85	ACTIVE
ML	3159	Seabridge Gold (NWT) Inc.	Territorial	076D03		25-Jul-84	25-Jul-26	216.10	ACTIVE
ML	3160	Seabridge Gold (NWT) Inc.	Territorial	076D03		25-Jul-84	25-Jul-26	760.00	ACTIVE
ML	3161	Seabridge Gold (NWT) Inc.	Territorial	076D03		25-Jul-84	25-Jul-26	459.32	ACTIVE
ML	3219	Seabridge Gold (NWT) Inc.	Territorial	076D03		9-Jul-86	9-Jul-28	68.03	ACTIVE
ML	3221	Seabridge Gold (NWT) Inc.	Territorial	075M14		16-Jun-86	16-Jun-28	236.34	ACTIVE
ML	3222	Seabridge Gold (NWT) Inc.	Territorial	076D03		24-Jun-87	24-Jun-29	367.05	ACTIVE
ML	3223	Seabridge Gold (NWT) Inc.	Territorial	076D03		23-Jun-87	23-Jun-29	491.29	ACTIVE
ML	3228	Seabridge Gold (NWT) Inc.	Territorial	075M14		30-Jun-87	30-Jun-29	953.85	ACTIVE
ML	3229	Seabridge Gold (NWT) Inc.	Territorial	076D03		30-Jun-87	30-Jun-29	641.43	ACTIVE
ML	3230	Seabridge Gold (NWT) Inc.	Territorial	076D03		30-Jun-87	30-Jun-29	209.63	ACTIVE
ML	3251	Seabridge Gold (NWT) Inc.	Territorial	076D06		30-Jun-87	30-Jun-29	469.03	ACTIVE
ML	3357	Seabridge Gold (NWT) Inc.	Territorial	075M14		26-Apr-90	26-Apr-32	764.86	ACTIVE
ML	3361	Seabridge Gold (NWT) Inc.	Territorial	075M14		26-Apr-90	26-Apr-32	823.13	ACTIVE
ML	3791	Seabridge Gold (NWT) Inc.	Territorial	075M14		9-Sep-98	9-Sep-19	32.46	ACTIVE
ML	3792	Seabridge Gold (NWT) Inc.	Territorial	075M14		9-Sep-98	9-Sep-19	23.07	ACTIVE
ML	5059	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	23.39	ACTIVE
ML	5060	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	116.95	ACTIVE
ML	5061	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	774.57	ACTIVE
ML	5062	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	12.26	ACTIVE
ML	5063	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	925.92	ACTIVE
ML	5064	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	885.46	ACTIVE
ML	5065	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	883.43	ACTIVE
ML	5066	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	597.72	ACTIVE
ML	5067	Seabridge Gold (NWT) Inc.	Territorial	075M14		14-Sep-09	14-Sep-30	110.48	ACTIVE
ML	5068	Seabridge Gold (NWT) Inc.	Territorial	075M14		14-Sep-09	14-Sep-30	241.60	ACTIVE
ML	5069	Seabridge Gold (NWT) Inc.	Territorial	075M14		14-Sep-09	14-Sep-30	532.57	ACTIVE
ML	5070	Seabridge Gold (NWT) Inc.	Territorial	075M14		14-Sep-09	14-Sep-30	219.34	ACTIVE
ML	5071	Seabridge Gold (NWT) Inc.	Territorial	076D06		14-Sep-09	14-Sep-30	283.28	ACTIVE
ML	5072	Seabridge Gold (NWT) Inc.	Territorial	076D06		14-Sep-09	14-Sep-30	258.19	ACTIVE
ML	5073	Seabridge Gold (NWT) Inc.	Territorial	076D03	076D06	14-Sep-09	14-Sep-30	1073.23	ACTIVE
ML	5074	Seabridge Gold (NWT) Inc.	Territorial	076D03	076D06	14-Sep-09	14-Sep-30	531.35	ACTIVE
ML	5075	Seabridge Gold (NWT) Inc.	Territorial	076D06		14-Sep-09	14-Sep-30	94.29	ACTIVE
ML	5076	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	639.81	ACTIVE
ML	5077	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	1065.95	ACTIVE
ML	5078	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	1050.16	ACTIVE
ML	5079	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	1055.42	ACTIVE
ML	5080	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	1034.38	ACTIVE
ML	5081	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	1039.64	ACTIVE
ML	5082	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	1037.21	ACTIVE
ML	5083	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	713.06	ACTIVE
ML	5084	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	437.87	ACTIVE
ML	5085	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	471.46	ACTIVE
ML	5086	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	1045.31	ACTIVE
ML	5087	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	910.14	ACTIVE
ML	5088	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	135.97	ACTIVE
ML	5089	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	78.03	ACTIVE
ML	5090	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	206.39	ACTIVE
ML	5091	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	19.63	ACTIVE
ML	5092	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	61.92	ACTIVE
ML	5093	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	45.32	ACTIVE
ML	5094	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	24.28	ACTIVE
ML	5095	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	24.36	ACTIVE
MI	5096	Seabridge Gold (NWT) Inc	Federal	076D03		14-Sep-09	14-Sep-30	732.89	ACTIVE
MI	5097	Seabridge Gold (NWT) Inc	Territorial	076D03		14-Sep-09	14-Sep-30	258 19	ACTIVE
MI	5098	Seabridge Gold (NWT) Inc	Territorial	076D03		14-Sen-09	14-Sen-30	61 92	ACTIVE
MI	5099	Seabridge Gold (NWT) Inc.	Territorial	076D03		14-Sep-09	14-Sep-30	110.07	ACTIVE
MI	5100	Seabridge Gold (NWT) Inc	Territorial	076D03		14-Sen-09	14-Sen-30	117.36	ACTIVE
MI	5218	Seabridge Gold (NWT) Inc	Territorial	076D03		4lul-12	4-Jul-33	21.61	ACTIVE
ML	5227	Seabridge Gold (NWT) Inc.	Federal	076D03		24-Mav-11	24-May-32	61.51	ACTIVE
MI	5228	Seabridge Gold (NWT) Inc.	Federal	076D03		24-May-11	24-May-32	194 65	
MI	5578	Seabridge Gold (NWT) Inc.	Territorial	076D03		19-May-19	18-May-40	1057.00	
MI	5579	Seabridge Gold (NWT) Inc.	Territorial	076D03		19-May-19	18-May-40	1043 00	
MI	5580	Seabridge Gold (NWT) Inc.	Territorial	076003		19-May-19	18-May-40	1039.00	
MI	5581	Seabridge Gold (NWT) Inc.	Territorial	076D03		19-Mav-19	18-May-40	1027.00	ACTIVE
MI	5582	Seabridge Gold (NWT) Inc.	Territorial	076003		19-May-19	18-May-40	917.00	
MI	5583	Seabridge Gold (NWT) Inc.	Territorial	076003		19-May-10	18-May-40	1036.00	
MI	5584	Seabridge Gold (NWT) Inc.	Territorial	076003		19-May-19	18-May-40	1044 00	
MI	5585	Seabridge Gold (NWT) Inc.	Territorial	076003		19-May-10	18-May-40	1050.00	
MI	5586	Seabridge Gold (NWT) Inc.	Territorial	076003		19-May-10	18-May-40	1033.00	
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Appendix B: Status of Claims and Leases Owned by Seabridge Gold (NWT) Inc. in the Courageous Lake Area, NWT

Leas	se #	<u>Owner</u>	Jurisdiction	<u>NTS 1</u>	<u>NTS 2</u>	Issued	Expiry	Hectares	<u>Status</u>
ML	5587	Seabridge Gold (NWT) Inc.	Territorial	076D03		19-May-19	18-May-40	1004.00	ACTIVE
ML	5588	Seabridge Gold (NWT) Inc.	Territorial	076D03	076D06	19-May-19	18-May-40	1058.00	ACTIVE
ML	5589	Seabridge Gold (NWT) Inc.	Territorial	076D03	076D06	19-May-19	18-May-40	1053.00	ACTIVE
ML	5590	Seabridge Gold (NWT) Inc.	Territorial	076D03	076D06	19-May-19	18-May-40	1080.00	ACTIVE
ML	5591	Seabridge Gold (NWT) Inc.	Territorial	076D03	076D06	19-May-19	18-May-40	1035.00	ACTIVE
ML	5592	Seabridge Gold (NWT) Inc.	Territorial	076D03	076D06	19-May-19	18-May-40	1056.00	ACTIVE
ML	5593	Seabridge Gold (NWT) Inc.	Territorial	076D06		19-May-19	18-May-40	79.40	ACTIVE
ML	5594	Seabridge Gold (NWT) Inc.	Territorial	076D06		19-May-19	18-May-40	174.00	ACTIVE
<u>Claim #</u>	<u>Name</u>	<u>Owner</u>	<u>Govt.</u>	<u>NTS 1</u>	<u>NTS 2</u>	Issued	<u>Anniversary</u>	Hectares	<u>Status</u>
<u>Claim #</u> K14251	<u>Name</u> GAVIN	<u>Owner</u> Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial	<u>NTS 1</u> 076D03	<u>NTS 2</u>	<u>Issued</u> 16-Aug-10	<u>Anniversary</u> 16-Aug-20	<u>Hectares</u> 522.55	<u>Status</u> ACTIVE
<u>Claim #</u> K14251 K14252	<u>Name</u> GAVIN DUNCAN	<u>Owner</u> Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial Territorial	<u>NTS 1</u> 076D03 076D03	<u>NTS 2</u>	<u>Issued</u> 16-Aug-10 16-Aug-10	Anniversary 16-Aug-20 16-Aug-20	<u>Hectares</u> 522.55 940.59	<u>Status</u> ACTIVE ACTIVE
<u>Claim #</u> K14251 K14252 K14253	<u>Name</u> GAVIN DUNCAN LUCAS	<u>Owner</u> Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial Territorial Territorial	<u>NTS 1</u> 076D03 076D03 076D03	<u>NTS 2</u>	<u>Issued</u> 16-Aug-10 16-Aug-10 16-Aug-10	<u>Anniversary</u> 16-Aug-20 16-Aug-20 16-Aug-20	<u>Hectares</u> 522.55 940.59 1045.10	<u>Status</u> ACTIVE ACTIVE ACTIVE
<u>Claim #</u> K14251 K14252 K14253 K14254	<u>Name</u> GAVIN DUNCAN LUCAS ETHAN	<u>Owner</u> Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial Territorial Territorial Territorial	<u>NTS 1</u> 076D03 076D03 076D03 076D03	<u>NTS 2</u>	<u>Issued</u> 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10	Anniversary 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20	<u>Hectares</u> 522.55 940.59 1045.10 1045.10	<u>Status</u> ACTIVE ACTIVE ACTIVE ACTIVE
Claim # K14251 K14252 K14253 K14254 K14255	Name GAVIN DUNCAN LUCAS ETHAN AYDEN	<u>Owner</u> Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial Territorial Territorial Territorial Territorial	NTS 1 076D03 076D03 076D03 076D03 076D03	<u>NTS 2</u>	<u>Issued</u> 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10	Anniversary 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20	Hectares 522.55 940.59 1045.10 1045.10 1045.10	Status ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE
Claim # K14251 K14252 K14253 K14254 K14255 K14255	Name GAVIN DUNCAN LUCAS ETHAN AYDEN ANGIE	<u>Owner</u> Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial Territorial Territorial Territorial Territorial Territorial	NTS 1 076D03 076D03 076D03 076D03 076D03 076D03	<u>NTS 2</u>	Issued 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10	Anniversary 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20	Hectares 522.55 940.59 1045.10 1045.10 1045.10 501.65	Status ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE
Claim # K14251 K14252 K14253 K14254 K14255 K14256 K14257	Name GAVIN DUNCAN LUCAS ETHAN AYDEN ANGIE RUDI 1	Owner Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial Territorial Territorial Territorial Territorial Territorial Territorial	NTS 1 076D03 076D03 076D03 076D03 076D03 076D03 076D03	<u>NTS 2</u>	Issued 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10	Anniversary 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20	Hectares 522.55 940.59 1045.10 1045.10 1045.10 501.65 564.36	Status ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE
Claim # K14251 K14252 K14253 K14254 K14255 K14255 K14256 K14257 K14258	Name GAVIN DUNCAN LUCAS ETHAN AYDEN ANGIE RUDI 1 RUDI 2	Owner Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial Territorial Territorial Territorial Territorial Territorial Territorial Territorial	NTS 1 076D03 076D03 076D03 076D03 076D03 076D03 076D03	<u>NTS 2</u>	Issued 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10	Anniversary 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20	Hectares 522.55 940.59 1045.10 1045.10 1045.10 501.65 564.36 229.92	Status ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE
Claim # K14251 K14252 K14253 K14254 K14255 K14255 K14256 K14257 K14258 K16216	Name GAVIN DUNCAN LUCAS ETHAN AYDEN ANGIE RUDI 1 RUDI 2 CL 16	<u>Owner</u> Seabridge Gold (NWT) Inc. Seabridge Gold (NWT) Inc.	<u>Govt.</u> Territorial Territorial Territorial Territorial Territorial Territorial Territorial Federal	NTS 1 076D03 076D03 076D03 076D03 076D03 076D03 076D03 076D03 076D03	<u>NTS 2</u> 076D06	Issued 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 16-Aug-10 18-Aug-10	Anniversary 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 16-Aug-20 18-May-19	Hectares 522.55 940.59 1045.10 1045.10 1045.10 501.65 564.36 229.92 982.40	Status ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE ACTIVE PENDING LEASE

APPENDIX C PHOTOGRAPHS OF EXISTING INFRASTRUCTURE IN THE COURAGEOUS LAKE AREA

Appendix C: Photographs of Existing Infrastructure in the Courageous Lake Area



Photo 1: Former Fat Deposit and Laydown – view looking northwest to Courageous Lake.



Photo 2: Former Red-24 Pit – view looking south.



Photo 3: Core Storage – view looking westward.



Photo 4: Matthews Lake Camp – view looking north.



Photo 5: Treeline Sand and Gravel Borrow Pit – looking northeast.



Photo 6: Former Salmita Minesite, referred to as Coreland.



Photo 7: Tundra/Salmita Airstrip – view looking northwest.



Photo 8: Former Tundra Mine – view looking northeast toward the airstrip.


Photo 9a: Gravel Roads – typical views between Sandy Creek and Coreland.



Photo 9b: Gravel Roads – typical views just east of the former Fat Mine site.



Photo 10: Bridge over Matthews Creek.



Photo 11: Bridge over Sandy Creek – view looking northeast.



Photo 12a: Winter Road – typical overland portage route.



Photo 12b: Winter Road – typical overland portage route.

APPENDIX D LIST OF PREVIOUS ENVIRONMENTAL STUDIES/REPORTS IN THE COURAGEOUS LAKE AREA

Appendix D: List of Previous Environmental Studies/Reports in the Courageous Lake Area

Report	Submitted to Regulator	Publicly Available
Bussey, J. 2003. Archaeological Investigations For Seabridge Gold Inc. at the Courageous Lake Property (NWT Archaeologists Permit 2003-943). Prepared for EBA Engineering Consultants Ltd., Yellowknife, NWT, and Seabridge Gold Inc., Toronto, ON.	PWNHC	
Dillon. 2009. <i>Matthews Lake and Area Fish Habitat</i> <i>Restoration Project. 2008 Post-Construction</i> <i>Monitoring Report.</i> Prepared for: Fisheries and Oceans Canada by Dillon Consulting Ltd.	MVLWB	https://tinyurl.com/yxrzdtr7
Dillon-Leitch, H. 1981. Volcanic stratigraphy, structure, and metamorphism in the Courageous-MacKay Lake greenstone belt, Slave Province, Northwest Territories. Unpublished M.Sc. Thesis, University of Ottawa.	MVLWB	https://tinyurl.com/y55s927y
EBA. 2003. Project Description of Proposed Exploration Drilling Program Courageous Lake, NT. Prepared for Seabridge Gold Inc. by EBA Engineering Consultants Ltd.	MVLWB	https://tinyurl.com/y2taoqak
EBA. 2004. Progress Report for the Courageous Lake Gold Project. Prepared for: Seabridge Gold Inc. by EBA Engineering Consultants Ltd.		
EBA. 2005. 2004 and 2005 Baseline Wildlife Surveys, Courageous Lake Gold Project, Northwest Territories. Prepared for Seabridge Gold Inc. by EBA Engineering Consultants Ltd.		
EBA. 2005. Courageous Lake Project Preliminary Assessment. Prepared for Seabridge Gold Inc. by EBA Engineering Consultants Ltd.		
EBA, Resource Modeling, Snowden Mining, TJS Mining-Met Services, Wardrop Engineering, and W.N. Brazier & Associates. 2008. <i>Courageous Lake Preliminary</i> <i>Economic Assessment-2008.</i> Report prepared for Seabridge Gold Inc. by EBA Engineering Consultants Ltd., Resource Modelling Inc., Snowden Mining Consultants, TJS Mining-Met Services Inc., Wardrop Engineering Inc. and W.N. Brazier & Associates Inc.		
ERM. 2015. Courageous Lake Project: Wildlife Baseline Program - Wildlife Research Permit Number WL500269. Prepared by ERM Rescan: Yellowknife, NWT.	NWT Environment and Natural Resources	

Report	Submitted to Regulator	Publicly Available
ERM. 2016. Courageous Lake Project: Wildlife Baseline Program - Wildlife Research Permit Number WL500320. Prepared by ERM Rescan: Yellowknife, NWT.	NWT Environment and Natural Resources	
ERM. 2017. Courageous Lake Project: Wildlife Baseline Program - Wildlife Research Permit Number WL500452. Prepared by ERM Canada Consultants Ltd.: Yellowknife, NWT.	NWT Environment and Natural Resources	
ERM. 2018. Courageous Lake Project: Caribou Camera Report, 2011 to 2017. Prepared for Seabridge Gold Inc. by ERM Consultants Canada Ltd. Vancouver, BC.	MVLWB	https://tinyurl.com/yxc9sowg
ERM. 2019. Courageous Lake Project: Final Report on Northwest Territories Act Class 2 Archaeologist's Permit #2018-004. Prepared for Seabridge Gold Inc. by ERM Consultants Canada Ltd. Vancouver, BC.	PWNHC MVLWB (excerpt only)	https://tinyurl.com/y69dvqem
ERM. 2019. Courageous Lake Project: Wildlife Baseline Program - Wildlife Research Permit Number WL500627. Prepared by ERM Canada Consultants Ltd.: Yellowknife, NWT.	NWT Environment and Natural Resources	
 Galloway, J.M., Palmer, M., Jamieson, H.E., Patterson, R.T., Nasser, N., Falck, H., Macumber, A.L., Goldsmith, S.A., Sanei, H., Normandeau, P., Hadlari, T., Roe, H.M., Neville, L.A., and Lemay, D. 2015. <i>Geochemistry of Lakes across Ecozones in the</i> <i>Northwest Territories and Implications for the</i> <i>Distribution of Arsenic in the Yellowknife Region.</i> <i>Part 1: Sediments</i>. Geological Survey of Canada, Open File 7908. 		https://doi.org/10.4095/296954
Gunn, A., Dragon, J., and J. Boulanger. 2002. Seasonal movements of satellite-collared caribou from the Bathurst herd. Final report to the West Kitikmeot Slave Study Society.		https://tinyurl.com/y5v7sx3f
Hatfield. 1982. Environmental Baseline Study Interim Data Report, Salmita Mine Project. Prepared for: Giant Yellowknife Mines Ltd. by: Hatfield Consultants Ltd.		
Kanik, B., and J. Villamere. 1983. <i>Salmita Mine Project</i> <i>Environmental Baseline Data Report</i> . Prepared for: Giant Yellowknife Mines Ltd. by EBA Engineering Consultants Ltd.		
Kemp, R. 1987. <i>Report on Exploration Work, Tundra Gold</i> <i>Venture 1986-87.</i> May 1987. Noranda Exploration Company Limited Internal Report. 34p.		
Jacobsen, P.2016. <i>Cumulative Impacts Study on the Bathurst Caribou</i> . February 2016.	Tlicho Nation	https://tinyurl.com/y4pa2eld

Report	Submitted to Regulator	Publicly Available
Lau, S. 1990. The structural geology of the Noranda-Total Energold Tundra gold deposit, Courageous-MacKay Lake, N.W.T. Internal report for Noranda Exploration Company Limited.		
Matthews, S. Epp, H. and G. Smith. 2001. <i>Vegetation</i> <i>Classification for the West Kitikmeot/Slave Study</i> <i>Region</i> . Final Report to the West Kitikmeot/Slave Study Society.		
Moore J. W. 1978. <i>Biological and Water Quality Surveys at</i> <i>Potential Mines the Northwest Territories III.</i> Giant Salmita Gold Property at Matthews Lake. Prepared for: Environment Canada, Environmental Protection Service, Northwest Region. Manuscript Report NW- 78-7.		
Moore, J. C. G. 1956. <i>Courageous-Matthews Lakes Area, District of Mackenzie, Northwest Territories.</i> Geological Survey of Canada, Memoir 283.		https://tinyurl.com/y6cgf2rb
Rescan. 2011. <i>Courageous Lake Project: Air Quality Baseline</i> <i>Report</i> . Prepared for Seabridge Gold Inc. By Rescan Environmental Services Ltd: Yellowknife, NWT	MVLWB	https://tinyurl.com/yyc7k5gs
Rescan. 2011. Courageous Lake Project: Wildlife Baseline Summary Report 2010 – Wildlife Research Permit Number WL-005697. Prepared by Rescan Environmental Services Ltd.: Yellowknife, NWT.	NWT Environment and Natural Resources	
Rescan. 2012. Courageous Lake Project: Aquatic Resources: Aquatic Biology Baseline Study. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd. Yellowknife, NWT.	MVLWB	https://tinyurl.com/yyjtyhmx
Rescan. 2012. Courageous Lake Project: Aquatic Resources: Surface Water and Sediment Quantity Baseline Study. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y5z4oh2j
Rescan. 2012. Courageous Lake Project: Archaeology Baseline Report. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y6jy6zfo
Rescan. 2012. Courageous Lake Project: Caribou Monitoring Report: June 10 - September 11, 2012. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, Northwest Territories.		
Rescan. 2012. Courageous Lake Project: Caribou Monitoring Report: March 22 - August 29, 2011. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, Northwest Territories.		

Report	Submitted to Regulator	Publicly Available
Rescan. 2012. Courageous Lake Project: Fish and Fish Habitat Baseline Report. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y6a22jb7
Rescan. 2012. Courageous Lake Project: Meteorology Baseline Report. Prepared for Seabridge Gold Inc. By Rescan Environmental Services Ltd: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y2jonsbe
Rescan. 2012. <i>Courageous Lake Project: Noise Baseline</i> <i>Report.</i> Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y6pgaru7
Rescan. 2012. Courageous Lake Project: Surface Water Hydrology Baseline Report. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y2ev4gz4
Rescan. 2012. Courageous Lake Project: Terrain and Soils Baseline Report. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y22z3rne
Rescan. 2012. Courageous Lake Project: Vegetation Baseline Report. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y2tnw2mb
Rescan. 2012. Courageous Lake Project: Visual Quality Baseline Report. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y3dbmefb
Rescan. 2012. <i>Courageous Lake Project: Wetland Baseline</i> <i>Report.</i> Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/y5xcukrr
Rescan. 2012. Courageous Lake Project: Wildlife Baseline Report. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd.: Yellowknife, NWT.	MVLWB	https://tinyurl.com/yylwgcsb
Rescan. 2012. Courageous Lake Project: Wildlife Baseline Summary Report 2011 - Wildlife Research Permit Number WL-006885. Prepared by Rescan Environmental Services Ltd.: Yellowknife, NWT.	NWT Environment and Natural Resources	
Rescan. 2012. Courageous Lake Project: Wildlife Baseline Summary Report 2012 - Wildlife Research Permit Number WL-2012-049. Prepared by Rescan Environmental Services Ltd.: Yellowknife, NWT.	NWT Environment and Natural Resources	
Rescan. 2013. Courageous Lake Project: Aquatic Resources: Aquatic Biology Baseline Study. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd. Yellowknife, NWT.	MVLWB	https://tinyurl.com/yymsgl6r

Report	Submitted to Regulator	Publicly Available
Rescan. 2013. Courageous Lake Project: Cumulative Archaeology Baseline Report 2003 to 2013. Prepared for Seabridge Gold Inc. by Rescan Environmental Services Ltd. Yellowknife, NWT.	MVLWB	https://tinyurl.com/y3ssowdp
Rescan. 2014. Courageous Lake Project: Wildlife Baseline Summary Report 2013 - Wildlife Research Permit Number WL-5000134. Prepared by Rescan Environmental Services Ltd.: Yellowknife, NWT.	NWT Environment and Natural Resources	
Seabridge Gold, 2012. <i>Courageous Lake Wildlife Protection</i> <i>Plan</i> . Toronto, ON.	MVLWB	Appendix within 2012 land use permit application package
Seabridge Gold. 2019. <i>Courageous Lake Caribou Camera</i> <i>Monitoring: Program Summary, 2011 to 2018.</i> Toronto, ON.	MVLWB	https://tinyurl.com/y6p9rsm4
SENES Consultants Limited 2008. West Kitikmeot Slave Study State of Knowledge Report – 2007 Update. Prepared for West Kitikmeot Slave Study Society.	MVLWB	https://tinyurl.com/y53jhjqx
SENES Consultants Limited. 2010. Development of Tundra Mine construction monitoring, long-term monitoring, and status of the environment programs. Prepared for: Indian and Northern Affairs Canada, Contaminant and Remediation Directorate. 78 pp.	MVLWB	https://tinyurl.com/y5h6y7h4
Silke, R. 2009. The Operational History of Mines in the Northwest Territories, Canada	Mining North	https://tinyurl.com/y66eu2s3
Taiga Environmental Laboratory. 2001. Certificate of Analysis of Wastewater Samples collected from Tundra Mine tailings Pond for DIAND (sample ID: 211283).		

APPENDIX E WATER SOURCE CANDIDATE LAKES STUDY - COURAGEOUS LAKE AREA

ERM

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Memo

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То	Jane Howe, Seabridge Gold Inc.
From	ERM Consultants Canada Ltd.
Date	13 September 2019
Reference	0297956-0009
Subject	Identification of Candidate Lakes for Water Withdrawal

1. INTRODUCTION

Seabridge Gold (NWT) Inc. (Seabridge) is applying for two Type B water licences for the Courageous Lake Project (the Project) from the Mackenzie Valley Land and Water Board (MVLWB) to authorize the withdrawal of up to 299 m³ of lake water per day for exploration activities.

Seabridge proposes to conduct exploration activities within a corridor of geological interest (herein referred to as the Zone of Interest, ZOI). Exploration activities include drilling, winter road construction, and camp use. Seabridge has identified three drilling scenarios that conservatively predict the total volume of water required to support exploration activity within the ZOI (Table 1).

Sce	enario Name	Type of Exploration Program	Potential Water Volume to be Used ¹
A	Large Drill Program - Maximum Annual Water Use	5 drills operating during a period of 6 months (3 months in winter plus 3 months in summer)	39,000 m ³
В	Large Drill Program - Maximum Seasonal Water Use	5 drills operating during a period of 3 months (either summer or winter)	19,500 m ³
С	Typical Drill Program - Typical Seasonal Water Use	2 drills operating during a period of 2 months (either summer or winter)	5,200 m ³

Table 1: Seabridge Drilling Scenarios for Proposed Exploration Program

¹ Water volume assumes that drills will be operating 80% of the program duration (i.e., the remaining 20% is required for mobilization, demobilization, drill moves, and maintenance). The water volume also includes water for winter road use and camp use.

Seabridge engaged ERM Consultants Canada Ltd. (ERM) to complete a desktop analysis to identify lakes within the ZOI that are predicted to have sufficient volume to supply water for the drilling programs based on the three scenarios, while being protective of fish habitat. For winter water withdrawal, criteria are outlined by the *Fisheries and Oceans Canada (DFO) Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in Northwest Territories and Nunavut* (DFO 2010). There is no DFO protocol or constraint for summer water withdrawal; therefore, for this analysis, a criterion of maximum depth greater than or equal to 1.5 m was considered suitable for water withdrawal (of up to 10% of the total volume) during the open-water period.

Page 1

The analytical approach and results are presented in Section 2. A discussion of the key results including the identification of candidate lakes is provided in Section 3 and a summary and conclusion is provided in Section 4.

2. ANALYTICAL APPROACH AND RESULTS

The DFO protocol for winter water withdrawal from ice-covered lakes is intended to mitigate the impacts of water withdrawal on fish habitat and populations, and includes the following criteria for selecting appropriate lakes for water withdrawal:

- The limit for water withdrawal from a single waterbody in one ice-covered season cannot exceed 10% of the available under-ice water volume (regardless of the number of users withdrawing water).
- Only waterbodies with maximum depths of at least 3.5 m are suitable for water withdrawal. This assumes that the appropriate maximum expected ice thickness of each waterbody is 2 m as indicated for lakes above the tree line in DFO (2010; all ZOI lakes are above the tree line).
- Waterbodies with maximum depth less than or equal to the maximum expected ice thickness for the region are exempt from the 10% maximum withdrawal limit.

A stepwise approach was used to identify candidate lakes for under-ice water withdrawal that included developing predictive models for lake volume as a function of surface area followed by application of a risk-based approach to categorize water withdrawal limits for lakes within the ZOI. Lakes predicted to be shallow (or with field confirmed shallow depths) that do not meet DFO (2010) criteria will not be used as a winter water source for the drilling program. The same approach (except using maximum depth criterion of 1.5 m) was used for selecting lakes for summer water use.

A predictive approach to estimating lake volumes and depth was previously and successfully used by TerraX (2019) in an application for an MVLWB Type B water licence for the Yellowknife City Gold Project. The TerraX (2019) approach for predicting lake volumes from surface area relied on limited data (n = 5 lakes within TerraX's property) and used two separate 'trend analyses' (i.e., for deep and shallow lakes) with two data points in each trend line. The approach undertaken herein incorporates a greater number of data points (n = 42, including n = 12 that are within the ZOI) for the construction of predictive models for estimating open-water and under-ice volumes in ZOI lakes. The prediction models in support of the Type B water licence application is scientifically robust and offers a greater degree of certainty than the models developed by TerraX (2019).

Lake morphometric data used in the development of the predictive models was obtained from a literature search of publicly available reports. The literature search focused on lake morphometric data (i.e., volume, surface area, maximum depth, and mean depth) for lakes located within the North Slave Region of Northwest Territories, Canada (Section 2.1; Figure 1).

The morphometric data identified in the literature are herein referred to as the 'North Slave data set' (Attachment 1), and were used to develop regressions that describe the relationship between lake surface area and volume (Section 2.2).



With the exception of MacKay Lake and Courageous Lake, the lakes within the ZOI were assigned an identification number (Lake ID; Figure 2). Lakes were initially identified within and outside of Seabridge property/claim boundary and upon definition of the ZOI, a total of 318 lakes were selected for consideration in identification of candidate lakes for water withdrawal. The models developed from the regression analyses were used to predict the open-water and under-ice volumes for 316 lakes identified within the Courageous Lake Project ZOI (Figure 2; Attachment 2 and Attachment 3). The predicted (or field measured, where available) open-water and under-ice lake volume and maximum depth were used to identify candidate lakes for water withdrawal based on DFO criteria and anticipated water volume requirements for exploration drilling programs. Although located in the ZOI, MacKay Lake and Courageous Lake were excluded from the desktop prediction analysis and categorization methodology because both lakes were considered to have sufficient volume and depth for water withdrawal under a Large Drill Program (Scenario A as defined in Table 1).

2.1 North Slave Region Dataset

2.1.1 Lake Morphometric Data

Lake morphometric data was publicly available from studies conducted for nearby mining projects including the Ekati Diamond Mine, Diavik Diamond Mine, Gahcho Kué, the former Tundra Mine, and the Yellowknife City Gold Project (Attachment 1). In addition, morphometric data collected as part of baseline investigations for the Project (Rescan 2012) were included as part of the analysis.

In total, lake morphometric data were compiled for 42 lakes in the North Slave Region (Attachment 1; Figure 1). Values for surface area (m²), volume (m³), mean depth (m), and maximum depth (m) were available for 35 of the 42 lakes. Values for surface area and volume (but not mean or maximum depth) were available for four lakes (Walsh, Banting, Milner, and Daigle lakes). Finally, values for surface area, volume, and maximum depth (but not mean depth) were available for three lakes (Tess, Blitzen, and Sid Lakes). Morphometric data for eight lakes in the Courageous Lake area were obtained from bathymetric maps.

Where possible, three dimensional (3D) lake contour maps for lakes of the North Slave data set were used to estimate winter volumes under 2 m of ice (Attachment 1). These estimated under-ice volumes were used to develop predictive models for ZOI lakes.

2.1.2 Regression Analyses

Using the data set for lakes with available morphometric data in the North Slave Region (Attachment 1), regression analyses were performed to determine if lake volume is reasonably predicted from measured surface area. For all regression plots presented herein, data were graphed on a log-log scale (i.e., both the vertical and horizontal axes were set to a log₁₀ scale). Regression lines were fit to each plot in the form:

$$y = cx^b$$
 [Equation 1]

where:

- y = dependent variable (e.g., lake volume);
- x = independent variable (e.g., lake surface area);
- c = constant for the Y intercept; and
- b = constant for the slope value.



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Using regression analyses, the relationship between lake volume (V) in cubic metres (m^3) and the following variables were investigated: surface area (SA) in squared metres (m^2), maximum depth (Z_{max}) in metres (m), and the product of maximum depth and surface area (SA· Z_{max}) in cubic metres (m^3).

Separate plots were produced for open-water conditions and winter conditions (i.e., estimated lake volume under 2 m of ice). The plot for open-water conditions incorporated all lakes in the North Slave data set (n = 42). The plot for winter conditions (n = 38) excluded four lakes with depths less than 2 m (i.e., the total volume of water in these lakes was less than the volume of 2 m of ice). Under-ice volumes were calculated using 3D contour maps to subtract the volume of water in the top 2 m from the total volume of the lake. For lakes without available 3D contour maps, volume under 2 m of ice was conservatively calculated with the following equation:

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$$/_{\text{-ice}} = V_{\text{total}} - (SA \times Z_{\text{ice}})$$
 [Equation 2]

where:

 V_{-ice} = lake volume under-ice; V_{total} = total lake volume; SA = lake surface area (m²); and Z_{ice} = ice thickness (m).

All under-ice volumes for lakes comprising the North Slave data set are presented in Attachment 1.

2.1.3 Lake Surface Area and Volume

Across all lakes in the North Slave data set (n = 42), lake surface area and volume were strongly correlated (i.e., correlation coefficient is between 0.5 and 1.0), with a Pearson correlation coefficient of r = 0.995. The regression for open-water lake volume, as a function of surface area, fit the data with a coefficient of determination of $R^2 = 0.91$. The relationship between open-water volume (V_{open}) and surface area (SA) for lakes comprising the North Slave data set was determined to be:

$$V_{open} = 0.0687 \text{ x SA}^{1.2852}$$
 [Equation 3]

The regression analysis indicates that surface area is a strong predictor of lake volume and is, therefore, a useful tool for the identification of candidate lakes from known surface areas within the ZOI. Lake volume as a function of open-water surface area is graphically represented in Figure 3.

Across all lakes in the North Slave data set with estimated under-ice volumes (n = 38), lake surface area and under-ice volume were also highly correlated, with a Pearson correlation coefficient of r = 0.99. The regression for under-ice lake volume and surface area fit the data with a coefficient of determination of $R^2 = 0.82$. The relationship between under-ice volume (V_{ice}) and surface area (SA) for the lakes comprising the North Slave data set was determined to be:

$$V_{ice} = 0.0126 \text{ x SA}^{1.359}$$
 [Equation 4]

The regression analysis indicates that surface area can be considered a moderate predictor of under-ice volume and is therefore a useful tool for the identification of candidate lakes from known surface areas within the ZOI. Under-ice volume as a function of surface area during winter conditions is graphically represented in Figure 4.

ERM



Figure 3: Relationship of Surface Area and Open-Water Lake

Volume for North Slave Lakes



Notes:

Notes:

Interest.

The vertical and horizontal axes are set to a log₁₀ scale.

Red data points represent

Courageous Lake Zone of

waterbodies within the

The vertical and horizontal axes are set to a log₁₀ scale. Red data points represent waterbodies within the Courageous Lake Zone of Interest.

Under-ice volume assumes an ice thickness of 2 m.



2.1.4 Incorporating Maximum Depth Measurements to Improve Volume Predictions

Predicting lake volume as a function of measured surface area and maximum depth was investigated as a potential approach for improving confidence in the identification of candidate lakes for water withdrawal. Lake water volume was plotted against the product of surface area and maximum depth (i.e., Lake SA·Z_{max}) using morphometric data for lakes in the North Slave data set (Attachment 1). The regression for open-water lake volume as a function of SA·Z_{max} fit the data with a coefficient of determination of $R^2 = 0.98$. The regression shows an improved fit to the data compared to the regression developed for volume and measured surface area ($R^2 = 0.92$; Section 2.1.3). The relationship between V_{open} and SA·Z_{max} for the lakes comprising the North Slave data set was determined to be:

$$V_{open} = 0.9891 x (SA \cdot Z_{max})^{0.9227}$$
 [Equation 5]

Lake volume as a function of $SA \cdot Z_{max}$ under open-water conditions is graphically represented in Figure 5.



Notes:

The vertical and horizontal axes are set to a log₁₀ scale.

Red data points represent waterbodies within the Courageous Lake Zone of Interest.

 $SA \cdot Z_{max}$ = the product of surface area (SA) and maximum depth (Z_{max}).

Figure 5: Volume vs. Surface Area x Maximum Depth – Open Water

The regression for winter (i.e., under 2 m of ice) lake volume as a function of $SA \cdot Z_{max}$ fit the data with a coefficient of determination of $R^2 = 0.94$. The regression shows an improved fit to the data compared to the under-ice regression developed for volume and measured surface aree ($R^2 = 0.82$; Section 2.1.3). The relationship between under-ice volume (V_w) and SA \cdot Z_{max} for the lakes comprising the North Slave data set was determined to be:

$$V_w = 0.0317 \text{ x} (\text{SA} \cdot Z_{max})^{1.08}$$
 [Equation 6]

Under-ice volume as a function of SA·Z_{max} is graphically represented in Figure 6.



Notes:

The vertical and horizontal axes are set to a log_{10} scale. Red data points represent waterbodies within the Courageous Lake Zone of Interest. Under-ice volume assumes an ice thickness of 2 m. SA· Z_{max} = the product of surface area (SA) and maximum depth (Z_{max}).

Figure 6: Under-Ice Volume vs. Surface Area x Maximum Depth

2.2 Zone of Interest Lakes

2.2.1 Predicted Volumes of Lakes within the Zone of Interest

The ZOI includes a total of 318 lakes (including MacKay Lake and Courageous Lake) ranging in surface area from 412 to 970,442,500 m² (Figure 2). The bathymetry and volumes of the ZOI lakes are currently unknown, with the exception of North Matthews Lake, and Headwater Lakes A and B, as well as the eight lakes associated with the former Tundra Mine (Attachment 1).

The volume of 316 lakes within the ZOI (all lakes except for MacKay Lake and Courageous Lake) was predicted using the developed relationships of lake volume and surface area in open-water (Equation 3) and under-ice (Equation 4) conditions from the North Slave data set.

2.2.2 Predicted Depths within the Zone of Interest

Estimated mean depths (Z_{mean}) for lakes within the North Slave data set were calculated by dividing the lake volume by the surface area. There was a strong correlation between Z_{mean} and measured maximum depth (Z_{max}) across all lakes in the North Slave data set (r = 0.95). The linear regression for predicted Z_{mean} vs. Z_{max} fit the data with a coefficient of determination of $R^2 = 0.88$. The relationship between Z_{mean} vs. Z_{max} (with the y-intercept forced to 0) for the lakes comprising the North Slave data set was determined to be:

A moderately strong relationship was observed between predicted Z_{mean} and Z_{max} in the North Slave data set; therefore, the Z_{mean} was predicted for all lakes within the ZOI as a function of each lake's measured surface area and predicted volume. Equation 7 was used to estimate Z_{max} as a function of predicted Z_{mean} for 316 lakes within the ZOI that were included in the desktop analysis.

The volume estimations for lakes within the ZOI (except for MacKay Lake and Courageous Lake) with predicted maximum depths greater than or equal to 1.5 m are presented in Attachment 2. The volume estimations for lakes within the ZOI (except for MacKay Lake and Courageous Lake) with predicted maximum depths less than 1.5 m are presented in Attachment 3.

3. DISCUSSION

3.1 Water Withdrawal Categories for Lakes within the Zone of Interest

3.1.1 Predicted Volume and Maximum Depth

Given inherent natural variability in lake morphometry, there is uncertainty in the regression models used to predict lake metrics. To address this, predicted lake metrics were ranked for relative confidence (high, moderate, or low) in having adequate under-ice withdrawal volumes (i.e., no more than 10% of the under-ice water volume), and adequate Z_{max} (i.e., at least 3.5 m). The criteria for ranking confidence in each candidate lake is described below and summarized in Table 2.

Table 2: Criteria for Assigning Relative Confidence in Candidate Lakes to MeetUnder-Ice Withdraw Requirements

Predicted Lake Metric	Relative Confidence Rankings							
	High	Moderate	Low					
Volume	> 10,400 m ³	> 7,800 – 10,400 m ³	5,200 – 7,800 m ³					
Z _{max}	> 7 m	> 5.25 – 7 m	3.5 – 5.25 m					

Notes:

Volume criteria are based on a Typical Drill Program (Scenario C) maximum seasonal withdraw volume of 5,200 m³ multiplied by 2 (high confidence), 1.5 (moderate confidence), and 1 (low confidence).

Maximum depth (i.e., *Z_{max}*) criteria are based on multiplying the minimum allowable lake depth of 3.5 m multiplied by 2 (high confidence), 1.5 (moderate confidence), and 1 (low confidence).

Candidate lakes with predicted 10% under-ice volumes greater than twice maximum withdraw volume for a typical drill program scenario (i.e., $2 \times 5,200 \text{ m}^3 = 10,400 \text{ m}^3$) were assigned high confidence for having an adequate lake volume for water withdraw. Candidate lakes with predicted 10% under-ice volumes between 7,800 m³ and 10,400 m³ (i.e., between 1.5 x 5,200 m³ and 2 x 5,200 m³) were assigned moderate confidence. Candidate lakes with predicted 10% under-ice volumes greater than 5,200 m³ but lower than 7,800 m³ were assigned low confidence (Table 2).

Candidate lakes with predicted Z_{max} of at least twice the minimum allowable depth (i.e., 7 m) were assigned high confidence for having an adequate maximum depth to meet DFO criteria for underice water withdrawal. Candidate lakes with predicted Z_{max} greater than 1.5 times the minimum allowable depth (i.e., 5.25 m) were assigned moderate confidence for lake Z_{max} . Candidate lakes with predicted Z_{max} between the minimum allowable depth (i.e., 3.5 m) and 5.25 m were assigned low confidence for lake Z_{max} (Table 2).

While there is no DFO protocol that restricts lake depth for water withdrawal during summer months, lakes with a predicted Z_{max} greater than or equal to 1.5 m were considered suitable for summer water withdrawal up to 10% of the total volume. Lakes with a predicted Z_{max} less than 1.5 m were considered unsuitable for any water withdrawal (but see exceptions indicated in Section 3.1.2).

Candidate lakes for water withdrawal in the winter or summer were categorized using a risk-based approach by applying one of the following definitions:

Category 1. (MacKay Lake and Courageous Lake) Large surface area and deep lakes that are sufficiently large and represent no risk of affecting fish habitat during water withdrawal under a Large Drill Program (Scenario A, Table 1).

Category 2. (green) Large surface area and deep lakes with sufficient volume to support withdrawal of up to 10% of lake volume during either the summer (open-water) or winter (under-ice) seasons. These lakes have a known bathymetry or estimated field maximum depth that indicates a Z_{max} greater than 3.5 m (the DFO minimum allowable depth) and/or a high confidence ranking that Z_{max} is greater than 3.5 m.

Category 3. (blue) Lakes that are of an 'intermediate-size' based on the predicted volume and depth. Lakes in this category have a predicted Z_{max} greater than the minimum allowable depth (3.5 m) for under-ice withdrawal; however, there is a moderate confidence in the predicted Z_{max} . Prior to winter (under-ice) use for drilling activity, a bathymetric survey or field estimation of maximum depth should be completed to identify a basin area with a depth greater than 3.5 m. Lakes in this category can support up to 10% water withdrawal during summer (openwater) without further data collection.

Category 4. (orange) Lakes that are of an 'intermediate/small size' based on the predicted volume and depth; however, the confidence in the predicted Z_{max} is low. Bathymetric surveys should be completed for lakes in this category to determine if the predicted Z_{max} is valid and the lake could support winter water withdrawal. While there is no DFO constraint for summer (open-water) withdrawal, lakes with a predicted Z_{max} (greater than or equal to 1.5 m) can be considered to support up to 10% water withdrawal during open-water season from a conservative, risk-based perspective without further data collection.

Category 5. (red) Lakes that are too small or shallow based on the predicted volume and depth in addition to low confidence in the predicted volume and depth. Lakes in this category are expected to have Z_{max} less than 1.5 m. There is no DFO constraint or protocol for water withdrawal during summer (open-water) and the designation of 1.5 m as the minimum depth requirement for summer (open-water) withdrawal is a conservative approach to avoid affecting fish habitat. Lakes in this category will not be used for summer (open-water) or winter (under-ice) water withdrawal.

3.1.2 2019 Field Measurements of Maximum Depth

The SA·Z_{max} regression illustrates the value of having site-specific maximum depth data in addition to mapped surface area to more accurately predict total volume. Based on the water withdrawal categories identified, the Category 3 and 4 lakes were identified as benefitting most from site-specific depth information. To this end, eight lakes in the Zone of Interest were visited to obtain a field estimate of the maximum depth during a recent field monitoring program (July 5, 8, and 9, 2019). To estimate the maximum depth, lakes were first visually surveyed from the helicopter to identify deeper zones within the lake. The deep locations were accessed in a zodiac and a handheld digital sonar (HawkEye H22PX) was used to measure depth. Sonar measurements were verified with a measured weighted line. Depending on shape and size of the identified deeper zones, sampling proceeded as transects (e.g., long narrow areas) or concentric circles beginning in the middle (e.g., circular bays). Shorelines were scanned and sampling locations were given preference based on shoreline topography (closer rocky outcroppings, followed by the middle of the channel/bay where the shoreline had a shallow slope).

For these eight lakes, lake volume was calculated based on the field measured Z_{max} , in addition to the volume of water under 2 m of ice (Table 3) by applying the SA· Z_{max} regression. The lakes were then re-categorized on the basis of higher confidence. This information allowed three lakes to be re-categorized to Category 2, and two lakes were re-categorized from Category 3 to Category 4.

Two lakes (ID #12 and #13) have field measured maximum depths of 1.2 and 1.1 m respectively. Based on the 1.5 m depth criteria for summer water withdrawal, these lakes would be re-categorized as Category 5; however, both of these lakes have large surface areas (i.e., greater than 800,000 m²) suggesting more than sufficient volume to accommodate the potential withdrawal volumes during the open-water season with minimal effect. Thus as an exception both lakes were re-categorized to Category 4 (and not Category 5).

3.2 Categorized Lakes within the Zone of Interest

Table 4 and Figures 7a, 7b, and 7c show the lakes within the ZOI categorized for water withdrawal. The anticipated number of drilling days for water withdrawal was also calculated assuming that 45 m³ of water is consumed per day of drilling by one drill rig. Where available the morphometry obtained from available bathymetric data (i.e., the former Tundra Mine area lakes) and the lakes with field estimated maximum depth were used to categorize the lake (Table 4; Figures 7a, 7b, and 7c).

MacKay Lake and Courageous Lake are considered Category 1 lakes with anticipated water licence approval for maximum withdrawal during the winter and summer months during exploration activity (Table 4).

In total, 11 lakes were identified in the ZOI as Category 2 lakes (Table 4; Figures 7b, and 7c) with high confidence that the predicted maximum depth or the field measured maximum depth meets DFO criteria for under-ice water withdrawal. These large lakes could be considered for approval of water withdrawal of up to 10% of the total open-water volume during the summer months and/or 10% of the under-ice volume during the winter months.

There are six intermediate size lakes in the water withdrawal Category 3 (Table 4; Figure 7). The confidence in the predicted volumes of Category 3 lakes is considered high; however, the moderate confidence ranking in the predicted maximum depth suggested that prior to under-ice water withdrawal field surveys should be conducted to identify a basin area with a depth greater than 3.5 m (Table 3; Figure 7). Lakes in Category 3 could be considered for conditional approval of water withdrawal of up to 10% of the under-ice volume in the winter and up to 10% of the open-water volume during the summer. Upon confirmation of maximum depth greater than 3.5 m through field measures, a lake in this category could be re-categorized as a Category 2 lake (with approval for summer and winter use).

Within the Project ZOI there were 200 lakes identified as Category 4 with a low confidence ranking in the predicted maximum depth (or field measure depths were less than 3.5 m but greater than or equal to 1.5 m; Table 4). The maximum depth (either predicted or field measured) that is greater than or equal to 1.5 m for lakes in this category suggests that summer water withdrawal could occur (up to 10% of the total volume) without affecting fish habitat. Lakes in Category 4 could be approved for up to 10% of open-water volume during summer. Upon confirmation of a maximum depth greater than 3.5 m through field measures, a lake in this category could be re-categorized as a Category 2 lake (with approval for summer and winter use).

Water withdrawal is not recommended from 99 lakes in the Project ZOI identified as Category 5. These lakes have either a predicted small volume and/or predicted or field measured maximum depth that is less 1.5 m (Figure 7a, 7b, and 7c; Table 4 and Attachment 3). Lakes in Category 5 are not recommended for approval for water withdrawal use in the water licence.

Lake ID	Easting	Northing	Measured Surface Area (m²)	Field Measure Z _{max} (m)	Estimated Total Volume (V _{open} ; m ³)	Estimated Volume Under 2 m Ice (V~ice; m ³)	Estimated Open Water Withdraw Limit (10% of total lake volume; m ³)	Estimated Under-Ice Withdraw Limit (10% of the under- ice lake volume; m ³)	Initial Water Withdrawal Category ¹	Updated Water Withdrawal Category ²
5	491060	7097556	884,720	17.7	15,659,545	13,890,105	1,565,955	1,389,010	Category 3	Category 2
12	484907	7115226	829,488	1.2	995,386	-	99,539	-	Category 3	Category 4
13	484091	7117935	820,622	1.1	902,685	-	90,268	-	Category 3	Category 4
9	490356	7099385	785,860	5.5	4,322,227	2,750,508	432,223	275,051	Category 4	Category 2
60	488744	7106747	166,493	1.8	299,687	-	29,969	-	Category 4	Category 4
7	491681	7099842	112,987	2.6	293,765	67,792	29,377	6,779	Category 4	Category 4
176	489972	7104047	98,419	1.5	147,629	-	14,763	-	Category 4	Category 4
8	491892	7098615	66,766	4.8	320,476	186,944	32,048	18,694	Category 4	Category 2

Table 3: Lakes with Field Z_{max} Within the Courageous Lake Project Zone of Interest Categorized for Water Withdrawal

Notes:

¹ Water withdrawal category based on predicted values (See Section 2.2 and Attachment 1).

² See Section 3.1-2 for explanation of updated water withdrawal category.

 Z_{max} = maximum depth (m)

V_{open} = Surface Area x Zmax

V_{~ice} = V_{open} - (2 * Surface Area)

Table 4: Lakes Within the Courageous Lake Project Zone of Interest Categorized for Water Withdrawal

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
MacKay Lake*	499179	7088512	970,442,500	-	-	-	-	-	-	Territorial
Courageous Lake*	490864	7115533	227,859,600	-	-	-	-	-	-	Territorial/Federal
1 (Matthews Lake)	487977	7104831	10,427,794	33,499,452	10.89	3,349,945	903,914	74,443	20,087	Territorial
3	493253	7097419	1,596,469	3,003,024	6.38	300,302	70,550	6,673	1,568	Territorial
5***	491060	7097556	884,720	15,659,545	17.70	1,565,955	1,389,010	34,799	30,867	Territorial/Federal
6 (Sandy Lake)**	491951	7104484	1,283,051	2,222,306	5.00	222,231	57,039	4,938	1,268	Territorial/Federal
7***	491681	7099842	112,987	293,765	2.60	29,377	-	653	-	Federal
8***	491892	7098615	66,766	320,476	4.80	32,048	18,694	712	415	Federal
9***	490356	7099385	785,860	4,322,227	5.50	432,223	275,051	9,605	6,112	Territorial/Federal
10	493232	7095182	600,828	855,277	4.83	85,528	18,695	1,901	ł	Territorial
12***	484907	7115226	829,488	995,386	1.20	99,539	-	2,212	-	Territorial
13***	484092	7117935	820,622	902,685	1.10	90,268	-	2,006	-	Territorial
14	483422	7121594	344,291	418,132	4.12	41,813	8,772	929	ł	Territorial
15	483962	7122602	444,549	580,715	4.43	58,071	12,414	1,290	ł	Territorial
16	484216	7121734	447,920	586,380	4.44	58,638	12,543	1,303	ł	Territorial
19	481005	7127328	15,110	7,524	1.69	752	-	17	-	Territorial
20	480737	7127664	63,243	47,371	2.54	4,737	-	105	-	Territorial
21	481752	7127532	43,729	29,483	2.29	2,948	-	66	-	Territorial
27	483491	7120630	65,546	49,600	2.57	4,960	-	110	-	Territorial
28	483249	7125830	237,091	258,880	3.70	25,888	5,283	575	ł	Federal

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m ²)	Predicted Total Volume (m ³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit	Predicted Withdraw Under-Ice Limit	Maximum Open Water Drilling Days	Maximum Under-Ice Drilling Days	Jurisdiction
						(10% of total lake volume; m ³)	(10% of volume under 2 m ice; m ³)	(at 45 m³ water use per day)	(at 45 m³ water use per day)	
29	480783	7128748	89,908	74,453	2.81	7,445	-	165	-	Territorial
30	485035	7105861	20,945	11,448	1.85	1,145	-	25	-	Territorial
31	491911	7099027	10,095	4,480	1.50	448	-	10	-	
33	489477	7098688	14,247	6,976	1.66	698	-	16	-	Territorial
34 (Mill Pond)**	491868	7101054	100,482	333,393	12.00	33,339	17,852	741	397	Federal
36	491100	7094826	58,695	43,039	2.49	4,304	-	96	-	Territorial
37	488924	7106375	21,838	12,078	1.88	1,208	-	27	-	Territorial
38	484022	7115870	43,950	29,675	2.29	2,967	-	66	-	Territorial
47	493378	7099965	33,662	21,064	2.12	2,106	-	47	-	Territorial
52	493180	7100567	20,764	11,320	1.85	1,132	-	25	-	Territorial
53	489709	7100770	22,299	12,407	1.89	1,241	-	28	-	Territorial
55	485907	7108231	30,423	18,495	2.06	1,850	-	41	-	Territorial
59	490943	7099508	43,962	29,685	2.29	2,969	-	66	-	Federal
60***	488744	7106747	166,493	299,687	1.80	29,969	-	666	-	Territorial
61	484243	7119428	131,985	121,942	3.13	12,194	-	271	-	Territorial
62	485920	7104903	26,671	15,617	1.99	1,562	-	35	-	Territorial
68	490873	7102688	17,933	9,376	1.77	938	-	21	-	Territorial
69	484617	7109570	173,124	172,820	3.38	17,282	-	384	-	Territorial
70	493655	7099672	108,601	94,909	2.96	9,491	-	211	-	Territorial
71	483098	7115388	83,325	67,521	2.75	6,752	-	150	-	Territorial
72	485388	7106823	46,500	31,906	2.33	3,191	-	71	-	Territorial
73	492365	7100327	30,106	18,248	2.05	1,825	-	41	-	Federal

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
74	489362	7106645	84,819	69,081	2.76	6,908	-	154	-	Territorial
76	485316	7109015	32,346	20,011	2.10	2,001	-	44	-	Territorial
77	490192	7097189	31,435	19,290	2.08	1,929	-	43	-	Territorial
79	490062	7098598	320,350	381,141	4.03	38,114	7,953	847	ł	Territorial
80	492535	7100250	14,950	7,422	1.68	742	-	16	-	Territorial
84	491853	7096876	110,445	96,986	2.98	9,699	-	216	-	Territorial
85	492132	7096440	14,620	7,212	1.67	721	-	16	-	Territorial
87	482565	7120159	65,873	49,918	2.57	4,992	-	111	-	Territorial
93	482653	7125802	32,557	20,179	2.10	2,018	-	45	-	Federal
94	492159	7099568	9,983	4,417	1.50	442	-	10	-	
95	490090	7104705	10,383	4,646	1.52	465	-	10	-	Territorial
96	494133	7098268	251,217	278,868	3.76	27,887	5,716	620	ł	Territorial
97	488431	7102516	45,104	30,680	2.31	3,068	-	68	-	Territorial
98	485369	7105909	19,069	10,147	1.80	1,015	-	23	-	Territorial
99	484618	7108556	23,286	13,117	1.91	1,312	-	29	-	Territorial
101	484367	7114955	18,086	9,480	1.78	948	-	21	-	Territorial
102	492202	7101191	17,497	9,085	1.76	908	-	20	-	Territorial
106	482470	7116540	10,332	4,616	1.51	462	-	10	-	Territorial
109 (Trans Saddle Lake)**	491540	7103273	530,391	726,911	8.00	72,691	9,930	1,615	221	Territorial
114 (Bulldog Lake)**	491003	7101320	98,183	207,291	5.00	20,729	6,394	461	142	Federal
116	489824	7104693	51,584	36,457	2.40	3,646	-	81	-	Territorial
117	482734	7118458	32,450	20,094	2.10	2,009	-	45	-	Territorial

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
118	493167	7099473	17,339	8,980	1.76	898	-	20	-	Territorial
121	483808	7119726	20,634	11,229	1.84	1,123	-	25	-	Territorial
123	487336	7103069	24,858	14,266	1.95	1,427	-	32	-	Territorial
124	493336	7099742	12,945	6,168	1.62	617	-	14	-	Territorial
125	485235	7109180	38,090	24,690	2.20	2,469	-	55	-	Territorial
126	486563	7103472	25,342	14,624	1.96	1,462	-	32	-	Territorial
127	488999	7105577	26,269	15,315	1.98	1,532	-	34	-	Territorial
130	492488	7098133	47,383	32,686	2.34	3,269	-	73	-	Territorial
132	490928	7095324	11,712	5,423	1.57	542	-	12	-	Territorial
135	494303	7097104	53,561	38,263	2.42	3,826	-	85	-	Territorial
136	485917	7104182	21,318	11,710	1.86	1,171	-	26	-	Territorial
137	482923	7117372	24,254	13,822	1.93	1,382	-	31	-	Territorial
138	491812	7096136	130,617	120,321	3.12	12,032	-	267	-	Territorial
139	482626	7125220	19,821	10,664	1.82	1,066	-	24	-	Federal
141	493688	7097873	24,643	14,108	1.94	1,411	-	31	-	Territorial
144	492543	7095855	18,663	9,870	1.79	987	-	22	-	Territorial
146	490562	7103546	18,614	9,837	1.79	984	-	22	-	Territorial
148	482280	7125610	11,797	5,474	1.57	547	-	12	-	Federal
151	483978	7109006	487,757	654,239	4.55	65,424	14,082	1,454	ł	Territorial
152	490730	7095927	25,505	14,745	1.96	1,474	-	33	-	Territorial
157	492383	7097636	21,111	11,564	1.86	1,156	-	26	-	Federal
161	481111	7128664	11,034	5,023	1.54	502	-	11	-	Territorial

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
164	482543	7121004	16,429	8,378	1.73	838	-	19	-	Territorial
166	488955	7104874	27,173	15,996	2.00	1,600	-	36	-	Territorial
169	481265	7127059	24,549	14,039	1.94	1,404	-	31	-	Territorial
173	482634	7115799	13,401	6,448	1.63	645	-	14	-	Territorial
174	491309	7098978	10,437	4,677	1.52	468	-	10	-	Federal
175	489634	7106062	52,725	37,497	2.41	3,750	-	83	-	Territorial
176***	489972	7104047	98,419	147,629	1.50	14,763	-	328	-	Territorial
177	485477	7114387	81,775	65,910	2.73	6,591	-	146	-	Territorial
179	486227	7108901	12,978	6,188	1.62	619	-	14	-	Territorial
183	484206	7107546	652,934	951,758	4.94	95,176	20,932	2,115	ł	Territorial
189	490641	7096178	17,257	8,925	1.75	893	-	20	-	Territorial
192	483479	7115444	98,500	83,719	2.88	8,372	-	186	-	Territorial
193	481333	7129063	14,462	7,112	1.67	711	-	16	-	Territorial
199	491202	7098619	30,942	18,902	2.07	1,890	-	42	-	Federal
201	491265	7095265	16,600	8,491	1.73	849	-	19	-	Territorial
202	483181	7118812	31,265	19,156	2.08	1,916	-	43	-	Territorial
203	490745	7098701	108,806	95,140	2.96	9,514	-	211	-	Federal
205	486120	7102438	507,821	689,027	4.60	68,903	14,875	1,531	ł	Territorial
210	490325	7100742	135,866	126,570	3.16	12,657	-	281	-	Territorial/Federal
211	490529	7098115	41,290	27,387	2.25	2,739	-	61	-	Federal
212	488581	7101363	22,459	12,521	1.89	1,252	-	28	-	Territorial
216	491336	7100510	17,323	8,969	1.76	897	-	20	-	Federal

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
218 (Hambone Lake)**	492311	7102184	114,965	81,772	1.50	8,177	-	182	-	Territorial/Federal
219	492355	7100770	21,663	11,954	1.87	1,195	-	27	-	Federal
222 (Russell Lake)**	491795	7102388	400,021	1,117,740	5.00	111,774	42,945	2,484	954	Federal
226	488208	7108213	86,544	70,891	2.78	7,089	-	158	-	Territorial
227	491377	7096108	21,550	11,874	1.87	1,187	-	26	-	Territorial
228	494109	7095049	207,639	218,304	3.56	21,830	4,412	485	ł	Territorial
230	485670	7105359	56,450	40,935	2.46	4,094	-	91	-	Territorial
231	481013	7127880	19,652	10,548	1.82	1,055	-	23	-	Territorial
232	493107	7100851	68,905	52,890	2.60	5,289	-	118	-	Territorial
233	489575	7100144	417,665	535,975	4.35	53,598	11,405	1,191	ł	Territorial
254	478634	7127143	26,402	15,415	1.98	1,542	-	34	-	Territorial
255	486181	7126672	907,886	1,453,847	5.43	145,385	32,762	3,231	728	Territorial
256	483971	7126445	106,114	92,125	2.94	9,213	-	205	-	Territorial
258	485738	7125260	35,670	22,692	2.16	2,269	-	50	-	Territorial
259	487203	7124187	220,439	235,749	3.63	23,575	4,786	524	ł	Territorial
260	486389	7123474	1,078,140	1,813,223	5.70	181,322	41,382	4,029	920	Territorial
261	485224	7122417	66,350	50,383	2.57	5,038	-	112	-	Territorial
262	486806	7122029	99,083	84,356	2.89	8,436	-	187	-	Territorial
264	485544	7121663	69,053	53,037	2.60	5,304	-	118	-	Territorial
265	486474	7121297	330,580	396,854	4.07	39,685	8,300	882	ł	Territorial
266	486869	7120705	62,248	46,416	2.53	4,642	-	103	-	Territorial
267	482323	7120569	32,705	20,297	2.10	2,030	-	45	-	Territorial

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
268	487444	7120421	30,605	18,638	2.06	1,864	-	41	-	Territorial
269	486479	7120323	160,061	156,244	3.31	15,624	-	347	-	Territorial
270	482039	7119671	52,422	37,220	2.41	3,722	-	83	-	Territorial
271	485922	7119262	529,754	727,507	4.66	72,751	15,755	1,617	ł	Territorial
272	485661	7118572	109,776	96,231	2.97	9,623	-	214	-	Territorial
273	486153	7117198	159,651	155,730	3.31	15,573	-	346	-	Territorial
276	487812	7113235	51,979	36,816	2.40	3,682	-	82	-	Territorial
277	487652	7111239	51,652	36,518	2.40	3,652	-	81	-	Territorial
278	491837	7110464	54,431	39,063	2.43	3,906	-	87	-	Territorial
279	491038	7109863	76,240	60,234	2.68	6,023	-	134	-	Territorial
280	494084	7109686	1,854,700	3,641,180	6.66	364,118	86,494	8,092	1,922	Territorial
282	494903	7108870	145,819	138,609	3.22	13,861	-	308	-	Territorial
285	494417	7108342	24,539	14,031	1.94	1,403	-	31	-	Territorial
286	488928	7107899	31,403	19,265	2.08	1,926	-	43	-	Territorial
287	496626	7107627	217,901	232,267	3.61	23,227	4,711	516	ł	Territorial
288	489492	7107550	25,249	14,556	1.95	1,456	-	32	-	Territorial
289	494446	7107447	59,826	44,108	2.50	4,411	-	98	-	Territorial
290	492233	7107426	2,570,648	5,539,155	7.30	553,915	134,788	12,309	2,995	Territorial
291	489262	7107368	24,735	14,176	1.94	1,418	-	32	-	Territorial
292	483234	7107147	69,277	53,258	2.61	5,326	-	118	-	Territorial
293	490208	7107124	301,115	351,984	3.96	35,198	7,311	782	ł	Territorial
294	495084	7106956	211,368	223,355	3.58	22,336	4,520	496	ł	Territorial

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
295	490031	7106393	49,416	34,499	2.37	3,450	-	77	-	Territorial
296	493983	7106149	50,931	35,865	2.39	3,587	-	80	-	Territorial
297	490988	7105900	210,203	221,774	3.58	22,177	4,486	493	ł	Territorial
298 (Control Lake)**	493566	7105673	255,044	438,346	3.00	43,835	6,469	974	ł	Territorial
299	494798	7105623	352,942	431,683	4.15	43,168	9,073	959	ł	Territorial
300	483787	7105553	799,805	1,235,299	5.24	123,530	27,578	2,745	ł	Territorial
301	491214	7105428	32,207	19,901	2.09	1,990	-	44	-	Territorial
302	493465	7105133	509,459	691,885	4.60	69,189	14,941	1,538	ł	Territorial
303	490827	7105101	233,654	254,067	3.69	25,407	5,180	565	ł	Territorial
304	493436	7104715	31,730	19,523	2.09	1,952	-	43	-	Territorial
305	495679	7104583	228,685	247,143	3.66	24,714	5,030	549	ł	Territorial
306	483405	7104411	35,873	22,858	2.16	2,286	-	51	-	Territorial
307	494506	7104255	47,646	32,920	2.34	3,292	-	73	-	Territorial
308	485342	7104227	39,429	25,811	2.22	2,581	-	57	-	Territorial
309	495838	7103744	109,747	96,199	2.97	9,620	-	214	-	Territorial
310	492977	7103519	66,220	50,256	2.57	5,026	-	112	-	Federal
311	493534	7103515	51,115	36,031	2.39	3,603	-	80	-	Territorial
312	486367	7103174	25,206	14,524	1.95	1,452	-	32	-	Territorial
313	496153	7103146	56,251	40,750	2.46	4,075	-	91	-	Territorial
314 (Powder Mag Lake)**	492575	7103080	282,336	371,815	3.00	37,182	-	826	-	Federal
315	483802	7102999	86,597	70,947	2.78	7,095	-	158	-	Territorial
316	483296	7102923	64,247	48,340	2.55	4,834	-	107	-	Territorial

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
317	493604	7102739	108,043	94,283	2.96	9,428	-	210	-	Territorial
318	485048	7102614	188,790	193,173	3.47	19,317	-	429	-	Territorial
319	495276	7102493	1,274,538	2,248,309	5.98	224,831	51,949	4,996	1,154	Territorial
320	485383	7102212	123,730	112,229	3.07	11,223	-	249	-	Territorial
321	493357	7102042	74,712	58,687	2.66	5,869	-	130	-	Territorial
322	494755	7102004	30,362	18,448	2.06	1,845	-	41	-	Territorial
323	493822	7101913	154,341	149,106	3.28	14,911	-	331	-	Territorial
324	494554	7101737	110,518	97,068	2.98	9,707	-	216	-	Territorial
325	486239	7101140	26,146	15,223	1.97	1,522	-	34	-	Territorial
326	487539	7101097	38,888	25,357	2.21	2,536	-	56	-	Territorial
327	494128	7100675	209,916	221,385	3.58	22,139	4,478	492	ł	Territorial
328	495872	7100535	4,135,114	10,203,906	8.37	1,020,391	257,164	22,675	5,715	Territorial
329	493629	7100339	31,947	19,695	2.09	1,969	-	44	-	Territorial
330	489172	7097976	32,063	19,787	2.09	1,979	-	44	-	Territorial
331	494826	7097923	101,018	86,478	2.90	8,648	-	192	-	Territorial
332	494829	7097306	66,900	50,921	2.58	5,092	-	113	-	Territorial
333	488832	7096454	41,119	27,241	2.25	2,724	-	61	-	Territorial
334	495345	7095931	51,778	36,633	2.40	3,663	-	81	-	Territorial
335	489768	7095318	57,390	41,813	2.47	4,181	-	93	-	Territorial
336	493215	7088518	175,672	176,096	3.40	17,610	-	391	-	Territorial
337	494148	7087460	58,504	42,859	2.48	4,286	-	95	-	Territorial
338	493446	7087034	96,606	81,656	2.87	8,166	-	181	-	Territorial

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
339	495039	7086759	44,059	29,769	2.29	2,977	-	66	-	Territorial
340	494534	7086230	29,573	17,834	2.04	1,783	-	40	-	Territorial
341	495199	7085381	225,113	242,193	3.65	24,219	4,924	538	ł	Territorial
342	495491	7083802	352,137	430,418	4.14	43,042	9,044	956	ł	Territorial
343	494600	7083738	29,068	17,444	2.03	1,744	-	39	-	Territorial
344	494166	7082757	45,170	30,738	2.31	3,074	-	68	-	Territorial
345	494499	7082453	56,797	41,259	2.46	4,126	-	92	-	Territorial
346	496226	7082115	31,193	19,100	2.08	1,910	-	42	-	Territorial
347	495970	7081987	33,856	21,220	2.12	2,122	-	47	-	Territorial
348	496704	7081962	133,409	123,636	3.14	12,364	-	275	-	Territorial
349	494730	7081717	294,239	341,688	3.94	34,169	7,085	759	ł	Territorial
350	492571	7081520	1,244,036	2,179,395	5.94	217,940	50,267	4,843	1,117	Territorial
351	496492	7081193	198,211	205,649	3.52	20,565	4,142	457	ł	Territorial
352	496026	7080798	37,309	24,041	2.18	2,404	-	53	-	Territorial
353	494094	7080387	332,719	400,158	4.08	40,016	8,374	889	ł	Territorial
354	495027	7080277	52,318	37,125	2.41	3,713	-	83	-	Territorial
355	495954	7079939	60,919	45,146	2.51	4,515	-	100	-	Territorial
356	494525	7079851	97,650	82,791	2.87	8,279	-	184	-	Territorial
357	494925	7079705	53,048	37,792	2.42	3,779	-	84	-	Territorial
358	494426	7079377	75,336	59,317	2.67	5,932	-	132	-	Territorial
359	495348	7078758	39,452	25,830	2.22	2,583	-	57	-	Territorial
360	484043	7125188	236,000	257,349	3.70	25,735	5,250	572	ł	Territorial/Federal

Lake ID and Category ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m³)	Predicted Z _{max} (m) ²	Predicted Open Water Withdraw Limit (10% of total lake volume; m ³)	Predicted Withdraw Under-Ice Limit (10% of volume under 2 m ice; m ³)	Maximum Open Water Drilling Days (at 45 m ³ water use per day)	Maximum Under-Ice Drilling Days (at 45 m ³ water use per day)	Jurisdiction
361	494640	7096484	20,800	11,346	1.85	1,135	-	25	-	Territorial

Category 1 Large Lake (MacKay Lake and Courageous Lake) - Maximum Summer and Winter Withdrawal

Category 2: Large Lake – 10% Summer and Winter Withdrawal

Category 3: Intermediate Lake – 10% Summer Withdrawal and Conditional Winter Withdrawal

Category 4: Intermediate/Small Lake – 10% Summer Withdrawal Only

² Field measure maximum depth is provided for lakes with available morphometric data or estimated field maximum depth.

* MacKay Lake and Courageous Lake are Category 1 and not part of the desktop study because both lakes were considered to have sufficient volume and depth for water withdrawal. The lakes are included in this table for the purpose of identifying all proposed water sources within the ZOI to support exploration activity.

** Morphometric data estimated based on available bathymetric map (i.e., the former Tundra Mine area lakes) and used for categorization.

*** Estimated field maximum depth available for estimated volume and used for categorization. Lake ID #12 and #13 have a $Z_{max} < 1.5$ m however were categorized as Category 4 because both of these lakes have large surface areas suggesting more than sufficient volume to accommodate the potential withdrawal volumes during the open-water season with minimal effect.

 Z_{max} = maximum depth (m).

Dashes (-) indicates field measure or predicted Z_{max} is less than 3.5 m and, therefore, does not meet criteria for under-ice water withdrawal. t indicate the field measure or predicted Z_{max} is greater than 3.5 m but less than 5.25 m.



Figure 7a: Lakes Within the Courageous Lake Project Zone of Interest Categorized for Water Withdrawal






Lakes Within the Courageous Lake Project Zone of Interest Categorized for Water Withdrawal Figure 7c:

4. CONCLUSION

Using available lake morphometric data for lakes in the North Slave Region, the relationships between lake surface area, depth and volume were investigated using regression analyses. The relationship between surface area and volume was used to predict open-water and under-ice volume as a function of measured surface area for 316 lakes within the Project ZOI (Figure 2; Attachment 2 and 3). The Z_{mean} and Z_{max} were predicted to provide an estimate of lake bathymetry and identify lakes that potentially satisfy under-ice withdrawal criteria of the DFO Protocol for Winter Water Withdrawal from Ice-covered Waterbodies in Northwest Territories and Nunavut (DFO 2010) (i.e., a minimum depth of 3.5 m with expected ice thickness of 2 m). Confidence rankings for both predicted volume and Z_{max} were generated based on a typical drilling scenario (i.e., maximum seasonal lake volume use is 5,200 m^3) and minimum Z_{max} of 3.5 m for under-ice water withdrawal. Using the predicted volume and maximum depths, the Project ZOI lakes were categorized for water withdrawal using a risk-based approach. Lakes with a maximum depth (either predicted or field measured) that is greater than or equal to 1.5 m for lakes were categorized for summer (open-water) water withdrawal (up to 10% of the total volume). For eight lakes in the ZOI that had low confidence rankings a field measure Z_{max} was collected and used in the calculation of lake volume to improve confidence and categorization.

MacKay Lake and Courageous Lake are large, deep lakes and, therefore, categorized for approval of year-round withdrawal for a Large Drilling Program - Maximum Annual Water Use (Category 1). Eleven lakes with high confidence in predicted Z_{max} (or Z_{max} was a field measure) were identified as candidates for water withdrawal in winter (under-ice) and summer months during a Typical Drilling Program (Category 2). The remaining lakes in the ZOI were categorized using a risk-based approach with conditional or no under-ice water withdrawal for lakes with moderate to low confidence in the predicted maximum depth (Table 4; Figure 7a, 7b, and 7c). In conclusion, the results of this desktop analysis and identified categories presented in Table 5 can be utilized during the water licence review and approval process.

Table 5: Proposed Water Licence Approval Status for Lakes in the ProjectZone of Interest

Category	Descriptor	Proposed Water License Use	Number of Lakes in Zone of Interest ¹
1	Known, large, deep lake.	Approved for year-round withdrawal to maximum program withdrawal.	2 (MacKay Lake and Courageous Lake)
2	Large lake with known bathymetry or spot depths that exceed 3.5 m depth and/or a high probability/ confidence level that predicted Z _{max} > 3.5 m based on regression analysis.	Approved for summer use to maximum of 10% lake volume. Approved for winter use to maximum of 10% under-ice lake volume.	11
3	Intermediate lake, with predicted Z _{max} > 3.5 m (and moderate confidence in predicted Z _{max}). Bathymetric or spot elevation survey required to confirm a location of a basin area exceeds 3.5 m depth. If yes, reclassify as Category 2; if no, reclassify as Category 4.	Approved for summer use to maximum of 10% lake volume. Conditional approval for winter use to maximum 10% under-ice volume withdrawal, subject to verification of Z _{max} > 3.5m.	6
4	Intermediate/small lake, with predicted Z_{max} > or = 1.5 m and low probability/confidence level that Z_{max} > 3.5 m.	Approved for summer use to maximum of 10% lake volume. No winter water withdrawal.	200
5	Small lake.	No water withdrawal.	99

¹ See Table 4 and Figure 7a, 7b, and 7c.

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Personal Correspondence

Somers, M. July 2, 2019. Email correspondence RE: Mill Pond Bathymetry. Project Officer, NWT Region, INAC/Government of Canada.

ATTACHMENT 1 IDENTIFIED NORTH SLAVE REGION LAKES WITH AVAILABLE MORPHOMETRIC DATA (RANKED BY SURFACE AREA)

Attachment 1: Identified North Slave Region Lakes with Available Morphometric Data (Ranked by Surface Area)

Lake	Surface Area (m²)	Volume (m³)	Volume (m ³) under 2 m Ice	Mean Depth (m)	Max Depth (m)	Reference (Source)
Lac De Gras	572,000,000	6,700,000,000	5,556,000,000ª	12	56.0	Diavik (DDMI 2017)
Desteffany Lake	43,900,000	612,100,000	524,300,000ª	13.9	64.4	Ekati (DDEC 2016)
Prosperous Lake	33,484,700	1,025,100,000	958,130,600ª	30.6	88.0	YCGP (TerraX 2019)
Courageous Lake Central Basin*	29,972,459	123,886,806	72,548,977	3.7	28.0	Courageous (Rescan 2012)
Walsh Lake	8,769,900	77,367,000	59,827,200ª	-	-	YCGP (TerraX 2019)
Kennady Lake	8,150,000	38,100,000	21,800,000ª	5.0	18.0	Gahcho Kué (DeBeers 2010)
Banting Lake	3,694,500	45,002,000	37,613,000ª	-	-	YCGP (TerraX 2019)
North Matthews Lake	3,335,730	6,174,713	1,613,106	1.86	12.0	Courageous (Rescan 2012)
Nanuq Lake	3,096,502	26,996,415	20,459,403	8.7	28.5	Ekati (ERM 2019)
Upper Exeter Lake*	2,386,187	11,921,257	7,761,056	5	15.0	Ekati (ERM 2019)
HWL2	2,185,447	10,284,575	6,480,053	4.7	18.5	Ekati (ERM 2019)
Slipper Lake	1,894,891	6,083,299	3,055,897	3.2	16.0	Ekati (ERM 2019)
Vulture Lake	1,801,763	20,258,904	16,939,029	11.2	43.0	Ekati (ERM 2019)
Lac Du Sauvage*	1,319,375	6,313,670	4,467,574	4.7	20.0	Ekati (ERM 2019)
Sandy Lake**	1,283,051	2,222,306	570,385	1.7	5.0	Tundra Mine (Golder 2005)
Logan Lake	1,272,400	7,685,296	5,405,183	6	21.0	Ekati (ERM 2019)
Counts Lake	1,163,181	4,340,760	2,630,537	3.7	15.5	Ekati (ERM 2019)
Kodiak Lake	907,213	1,938,277	695,339	2.1	13.0	Ekati (ERM 2019)
Nema Lake	775,136	1,465,474	525,544	1.9	9.0	Ekati (ERM 2019)

Lake	Surface Area (m²)	Volume (m³)	Volume (m ³) under 2 m Ice	Mean Depth (m)	Max Depth (m)	Reference (Source)
Horseshoe Lake	747,117	1,494,234	549,562	2	9.6	Ekati (ERM 2019)
Leslie Lake	619,002	1,134,386	554,720	1.8	13.0	Ekati (ERM 2019)
Grizzly Lake	589,628	8,578,943	7,568,684	14.5	43.6	Ekati (ERM 2019)
Ross Lake	544,896	1,896,238	1,060,250	3.5	14.0	Ekati (ERM 2019)
Trans Saddle Lake**	530,391	726,911	99,300	1.4	8.0	Tundra Mine (Golder 2005)
Fay Bay	458,278	1,142,399	504,074	2.5	12.0	Ekati (ERM 2019)
Cujo Lake	442,965	965,089	372,987	2.2	9.8	Ekati (ERM 2019)
Moose Lake	436,265	656,900	166,040	1.5	9.9	Ekati (ERM 2019)
Milner Lake	408,100	2,515,000	1,698,800ª	-	-	YCGP (TerraX 2019)
Russell Lake**	400,021	1,117,740	429,453	2.8	5.0	Tundra Mine (Golder 2005)
Northeast Lake	354,627	1,484,330	892,825	4	14.5	Ekati (ERM 2019)
Sid Lake	300,000	538,300	-	-	6.8	(Cott 2008)
Ulu Lake	287,415	776,021	296,906	2.7	6.0	Ekati (ERM 2019)
Powder Mag Lake**	282,336	371,815	12,827	1.3	3.0	Tundra Mine (Golder 2005)
Control Lake**	255,044	438,346	64,690	1.7	3.0	Tundra Mine (Golder 2005)
Tees Lake	161,000	879,200	557,200ª	-	7.3	(Cott 2008)
Blitzen Lake	161,000	542,700	220,700ª	-	7.0	(Cott 2008)
Daigle Lake	130,200	1,518,000	1,257,600ª	-	-	YCGP (TerraX 2019)
Hambone Lake**	114,965	81,772	-	0.7	1.5	Tundra Mine (Golder 2005)
Headwater Lake A (Wetland Creek Basin)	108,009	66,577	-	0.6	1.4	Courageous (Rescan 2012)

Lake	Surface Area (m²)	Volume (m³)	Volume (m ³) under 2 m Ice	Mean Depth (m)	Max Depth (m)	Reference (Source)
Headwater Lake B (Wetland Creek Basin)	106,730	66,574	-	0.5	1.0	Courageous (Rescan 2012)
Mill Pond**	100,482	333,393	178,525	3.3	12	Tundra Mine (M. Somers per comm.)
Bulldog Lake**	98,183	207,291	63,942	2.1	5	Tundra Mine (Golder 2005)

Notes:

Courageous = Courageous Lake Project; Diavik = Diavik Diamond Mine; Ekati = the Ekati Diamond Mine; YCGP = Yellowknife City Gold Project.

Dashes indicate data not available.

* Morphometric data is for a partial area of the overall lake.

** Morphometric data estimated based on available bathymetric map.

^a A three-dimensional (3D) contour maps map is not available for calculation of under-ice volume; thus, volume under 2 m ice was conservatively estimated by subtracting the volume of water in 2 m of ice (lake surface area x 2 m) from the total volume.

ATTACHMENT 2 MEASURED SURFACE AREA AND PREDICTED METRICS FOR LAKES IN THE ZONE OF INTEREST (WITH PREDICTED DEPTHS GREATER THAN OR EQUAL TO 1.5 METRES)

Attachment 2: Measured Surface Area and Predicted Metrics for Lakes in the Zone of Interest (with Predicted Depths Greater Than or Equal to 1.5 metres)

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
1	487977	7104831	10,427,794	33,499,452	3.21	10.89	9,039,139	High	High
328	495872	7100535	4,135,114	10,203,906	2.47	8.37	2,571,639	High	High
290	492233	7107426	2,570,648	5,539,155	2.15	7.30	1,347,881	High	High
280	494084	7109686	1,854,700	3,641,180	1.96	6.66	864,943	High	Moderate
3	493253	7097419	1,596,469	3,003,024	1.88	6.38	705,503	High	Moderate
6	491951	7104484	1,283,051	2,267,628	1.77	5.99	524,212	High	Moderate
319	495276	7102493	1,274,538	2,248,309	1.76	5.98	519,491	High	Moderate
350	492571	7081520	1,244,036	2,179,395	1.75	5.94	502,668	High	Moderate
260	486389	7123474	1,078,140	1,813,223	1.68	5.70	413,818	High	Moderate
255	486181	7126672	907,886	1,453,847	1.60	5.43	327,618	High	Moderate
5	491060	7097556	884,720	1,406,344	1.59	5.39	316,310	High	Moderate
12	484907	7115226	829,488	1,294,529	1.56	5.29	289,779	High	Moderate
13	484092	7117935	820,622	1,276,774	1.56	5.27	285,578	High	Moderate
300	483787	7105553	799,805	1,235,299	1.54	5.24	275,778	High	Low
9	490356	7099385	785,860	1,207,686	1.54	5.21	269,263	High	Low
183	484206	7107546	652,934	951,758	1.46	4.94	209,320	High	Low
10	493232	7095182	600,828	855,277	1.42	4.83	186,950	High	Low
109	491540	7103273	530,391	728,631	1.37	4.66	157,808	High	Low
271	485922	7119262	529,754	727,507	1.37	4.66	157,551	High	Low
302	493465	7105133	509,459	691,885	1.36	4.60	149,405	High	Low
205	486120	7102438	507,821	689,027	1.36	4.60	148,753	High	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
151	483978	7109006	487,757	654,239	1.34	4.55	140,823	High	Low
16	484216	7121734	447,920	586,380	1.31	4.44	125,425	High	Low
15	483962	7122602	444,549	580,715	1.31	4.43	124,144	High	Low
233	489575	7100144	417,665	535,975	1.28	4.35	114,054	High	Low
222	491795	7102388	400,021	507,053	1.27	4.30	107,556	High	Low
299	494798	7105623	352,942	431,683	1.22	4.15	90,726	Moderate	Low
342	495491	7083802	352,137	430,418	1.22	4.14	90,445	Moderate	Low
14	483422	7121594	344,291	418,132	1.21	4.12	87,717	Moderate	Low
353	494094	7080387	332,719	400,158	1.20	4.08	83,735	Moderate	Low
265	486474	7121297	330,580	396,854	1.20	4.07	83,004	Moderate	Low
79	490062	7098598	320,350	381,141	1.19	4.03	79,533	Moderate	Low
293	490208	7107124	301,115	351,984	1.17	3.96	73,114	Low	Low
349	494730	7081717	294,239	341,688	1.16	3.94	70,854	Low	Low
314	492575	7103080	282,336	324,027	1.15	3.89	66,988	Low	Low
298	493566	7105673	255,044	284,340	1.11	3.78	58,344	Low	Low
96	494133	7098268	251,217	278,868	1.11	3.76	57,157	Low	Low
28	483249	7125830	237,091	258,880	1.09	3.70	52,834	Low	Low
360	484043	7125188	236,000	257,349	1.09	3.70	52,504	Low	Low
303	490827	7105101	233,654	254,067	1.09	3.69	51,796	Low	Low
305	495679	7104583	228,685	247,143	1.08	3.66	50,305	Low	Low
341	495199	7085381	225,113	242,193	1.08	3.65	49,240	Low	Low
259	487203	7124187	220,439	235,749	1.07	3.63	47,855	Low	Low
287	496626	7107627	217,901	232,267	1.07	3.61	47,108	Low	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
294	495084	7106956	211,368	223,355	1.06	3.58	45,199	Low	Low
297	490988	7105900	210,203	221,774	1.06	3.58	44,861	Low	Low
327	494128	7100675	209,916	221,385	1.05	3.58	44,778	Low	Low
228	494109	7095049	207,639	218,304	1.05	3.56	44,119	Low	Low
351	496492	7081193	198,211	205,649	1.04	3.52	41,419	Low	Low
318	485048	7102614	188,790	193,173	1.02	3.47	38,767	Low	Low
336	493215	7088518	175,672	176,096	1.00	3.40	35,152	Low	Low
69	484617	7109570	173,124	172,820	1.00	3.38	34,461	Low	Low
60	488744	7106747	166,493	164,359	0.99	3.35	32,680	Low	Low
269	486479	7120323	160,061	156,244	0.98	3.31	30,976	Low	Low
273	486153	7117198	159,651	155,730	0.98	3.31	30,868	Low	Low
323	493822	7101913	154,341	149,106	0.97	3.28	29,482	Low	Low
282	494903	7108870	145,819	138,609	0.95	3.22	27,292	Low	Low
210	490325	7100742	135,866	126,570	0.93	3.16	24,791	Low	Low
348	496704	7081962	133,409	123,636	0.93	3.14	24,184	Low	Low
61	484243	7119428	131,985	121,942	0.92	3.13	23,834	Low	Low
138	491812	7096136	130,617	120,321	0.92	3.12	23,499	Low	Low
320	485383	7102212	123,730	112,229	0.91	3.07	21,831	Low	Low
218	492311	7102184	114,965	102,116	0.89	3.01	19,757	Low	Low
7	491681	7099842	112,987	99,864	0.88	3.00	19,296	Low	Low
324	494554	7101737	110,518	97,068	0.88	2.98	18,725	Low	Low
84	491853	7096876	110,445	96,986	0.88	2.98	18,709	Low	Low
272	485661	7118572	109,776	96,231	0.88	2.97	18,555	Low	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
309	495838	7103744	109,747	96,199	0.88	2.97	18,548	Low	Low
203	490745	7098701	108,806	95,140	0.87	2.96	18,332	Low	Low
70	493655	7099672	108,601	94,909	0.87	2.96	18,285	Low	Low
317	493604	7102739	108,043	94,283	0.87	2.96	18,158	Low	Low
256	483971	7126445	106,114	92,125	0.87	2.94	17,718	Low	Low
331	494826	7097923	101,018	86,478	0.86	2.90	16,572	Low	Low
34	491868	7101054	100,482	85,890	0.85	2.90	16,453	Low	Low
262	486806	7122029	99,083	84,356	0.85	2.89	16,142	Low	Low
192	483479	7115444	98,500	83,719	0.85	2.88	16,014	Low	Low
176	489972	7104047	98,419	83,630	0.85	2.88	15,996	Low	Low
114	491003	7101320	98,183	83,372	0.85	2.88	15,943	Low	Low
356	494525	7079851	97,650	82,791	0.85	2.87	15,826	Low	Low
338	493446	7087034	96,606	81,656	0.85	2.87	15,596	Low	Low
29	480783	7128748	89,908	74,453	0.83	2.81	14,145	Low	Low
315	483802	7102999	86,597	70,947	0.82	2.78	13,442	Low	Low
226	488208	7108213	86,544	70,891	0.82	2.78	13,431	Low	Low
74	489362	7106645	84,819	69,081	0.81	2.76	13,069	Low	Low
71	483098	7115388	83,325	67,521	0.81	2.75	12,757	Low	Low
177	485477	7114387	81,775	65,910	0.81	2.73	12,435	Low	Low
279	491038	7109863	76,240	60,234	0.79	2.68	11,306	Low	Low
358	494426	7079377	75,336	59,317	0.79	2.67	11,124	Low	Low
321	493357	7102042	74,712	58,687	0.79	2.66	10,999	Low	Low
292	483234	7107147	69,277	53,258	0.77	2.61	9,926	Low	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
264	485544	7121663	69,053	53,037	0.77	2.60	9,882	Low	Low
232	493107	7100851	68,905	52,890	0.77	2.60	9,853	Low	Low
332	494829	7097306	66,900	50,921	0.76	2.58	9,466	Low	Low
8	491892	7098615	66,766	50,789	0.76	2.58	9,440	Low	Low
261	485224	7122417	66,350	50,383	0.76	2.57	9,360	Low	Low
310	492977	7103519	66,220	50,256	0.76	2.57	9,335	Low	Low
87	482565	7120159	65,873	49,918	0.76	2.57	9,269	Low	Low
27	483491	7120630	65,546	49,600	0.76	2.57	9,206	Low	Low
316	483296	7102923	64,247	48,340	0.75	2.55	8,959	Low	Low
20	480737	7127664	63,243	47,371	0.75	2.54	8,770	Low	Low
266	486869	7120705	62,248	46,416	0.75	2.53	8,583	Low	Low
355	495954	7079939	60,919	45,146	0.74	2.51	8,335	Low	Low
289	494446	7107447	59,826	44,108	0.74	2.50	8,132	Low	Low
36	491100	7094826	58,695	43,039	0.73	2.49	7,924	Low	Low
337	494148	7087460	58,504	42,859	0.73	2.48	7,889	Low	Low
335	489768	7095318	57,390	41,813	0.73	2.47	7,685	Low	Low
345	494499	7082453	56,797	41,259	0.73	2.46	7,578	Low	Low
230	485670	7105359	56,450	40,935	0.73	2.46	7,515	Low	Low
313	496153	7103146	56,251	40,750	0.72	2.46	7,479	Low	Low
278	491837	7110464	54,431	39,063	0.72	2.43	7,152	Low	Low
135	494303	7097104	53,561	38,263	0.71	2.42	6,997	Low	Low
357	494925	7079705	53,048	37,792	0.71	2.42	6,906	Low	Low
175	489634	7106062	52,725	37,497	0.71	2.41	6,849	Low	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
270	482039	7119671	52,422	37,220	0.71	2.41	6,795	Low	Low
354	495027	7080277	52,318	37,125	0.71	2.41	6,777	Low	Low
276	487812	7113235	51,979	36,816	0.71	2.40	6,718	Low	Low
334	495345	7095931	51,778	36,633	0.71	2.40	6,682	Low	Low
277	487652	7111239	51,652	36,518	0.71	2.40	6,660	Low	Low
116	489824	7104693	51,584	36,457	0.71	2.40	6,648	Low	Low
311	493534	7103515	51,115	36,031	0.70	2.39	6,566	Low	Low
296	493983	7106149	50,931	35,865	0.70	2.39	6,534	Low	Low
295	490031	7106393	49,416	34,499	0.70	2.37	6,271	Low	Low
307	494506	7104255	47,646	32,920	0.69	2.34	5,968	Low	Low
130	492488	7098133	47,383	32,686	0.69	2.34	5,923	Low	Low
72	485388	7106823	46,500	31,906	0.69	2.33	5,774	Low	Low
344	494166	7082757	45,170	30,738	0.68	2.31	5,551	Low	Low
97	488431	7102516	45,104	30,680	0.68	2.31	5,540	Low	Low
339	495039	7086759	44,059	29,769	0.68	2.29	5,366	Low	Low
59	490943	7099508	43,962	29,685	0.68	2.29	5,350	Low	Low
38	484022	7115870	43,950	29,675	0.68	2.29	5,348	Low	Low
21	481752	7127532	43,729	29,483	0.67	2.29	5,311	Low	Low
211	490529	7098115	41,290	27,387	0.66	2.25	4,913	Low	Low
333	488832	7096454	41,119	27,241	0.66	2.25	4,885	Low	Low
359	495348	7078758	39,452	25,830	0.65	2.22	4,618	Low	Low
308	485342	7104227	39,429	25,811	0.65	2.22	4,614	Low	Low
326	487539	7101097	38,888	25,357	0.65	2.21	4,529	Low	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
125	485235	7109180	38,090	24,690	0.65	2.20	4,403	Low	Low
352	496026	7080798	37,309	24,041	0.64	2.18	4,281	Low	Low
306	483405	7104411	35,873	22,858	0.64	2.16	4,058	Low	Low
258	485738	7125260	35,670	22,692	0.64	2.16	4,027	Low	Low
347	495970	7081987	33,856	21,220	0.63	2.12	3,751	Low	Low
47	493378	7099965	33,662	21,064	0.63	2.12	3,722	Low	Low
267	482323	7120569	32,705	20,297	0.62	2.10	3,579	Low	Low
93	482653	7125802	32,557	20,179	0.62	2.10	3,557	Low	Low
117	482734	7118458	32,450	20,094	0.62	2.10	3,541	Low	Low
76	485316	7109015	32,346	20,011	0.62	2.10	3,526	Low	Low
301	491214	7105428	32,207	19,901	0.62	2.09	3,505	Low	Low
330	489172	7097976	32,063	19,787	0.62	2.09	3,484	Low	Low
329	493629	7100339	31,947	19,695	0.62	2.09	3,467	Low	Low
304	493436	7104715	31,730	19,523	0.62	2.09	3,435	Low	Low
77	490192	7097189	31,435	19,290	0.61	2.08	3,391	Low	Low
286	488928	7107899	31,403	19,265	0.61	2.08	3,387	Low	Low
202	483181	7118812	31,265	19,156	0.61	2.08	3,367	Low	Low
346	496226	7082115	31,193	19,100	0.61	2.08	3,356	Low	Low
199	491202	7098619	30,942	18,902	0.61	2.07	3,319	Low	Low
268	487444	7120421	30,605	18,638	0.61	2.06	3,270	Low	Low
55	485907	7108231	30,423	18,495	0.61	2.06	3,244	Low	Low
322	494755	7102004	30,362	18,448	0.61	2.06	3,235	Low	Low
73	492365	7100327	30,106	18,248	0.61	2.05	3,198	Low	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
340	494534	7086230	29,573	17,834	0.60	2.04	3,121	Low	Low
343	494600	7083738	29,068	17,444	0.60	2.03	3,049	Low	Low
166	488955	7104874	27,173	15,996	0.59	2.00	2,782	Low	Low
62	485920	7104903	26,671	15,617	0.59	1.99	2,713	Low	Low
254	478634	7127143	26,402	15,415	0.58	1.98	2,676	Low	Low
127	488999	7105577	26,269	15,315	0.58	1.98	2,657	Low	Low
325	486239	7101140	26,146	15,223	0.58	1.97	2,640	Low	Low
152	490730	7095927	25,505	14,745	0.58	1.96	2,553	Low	Low
126	486563	7103472	25,342	14,624	0.58	1.96	2,531	Low	Low
288	489492	7107550	25,249	14,556	0.58	1.95	2,518	Low	Low
312	486367	7103174	25,206	14,524	0.58	1.95	2,512	Low	Low
123	487336	7103069	24,858	14,266	0.57	1.95	2,465	Low	Low
291	489262	7107368	24,735	14,176	0.57	1.94	2,449	Low	Low
141	493688	7097873	24,643	14,108	0.57	1.94	2,436	Low	Low
169	481265	7127059	24,549	14,039	0.57	1.94	2,424	Low	Low
285	494417	7108342	24,539	14,031	0.57	1.94	2,422	Low	Low
137	482923	7117372	24,254	13,822	0.57	1.93	2,384	Low	Low
99	484618	7108556	23,286	13,117	0.56	1.91	2,256	Low	Low
212	488581	7101363	22,459	12,521	0.56	1.89	2,147	Low	Low
53	489709	7100770	22,299	12,407	0.56	1.89	2,127	Low	Low
37	488924	7106375	21,838	12,078	0.55	1.88	2,067	Low	Low
219	492355	7100770	21,663	11,954	0.55	1.87	2,045	Low	Low
227	491377	7096108	21,550	11,874	0.55	1.87	2,030	Low	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
136	485917	7104182	21,318	11,710	0.55	1.86	2,001	Low	Low
157	492383	7097636	21,111	11,564	0.55	1.86	1,974	Low	Low
30	485035	7105861	20,945	11,448	0.55	1.85	1,953	Low	Low
361	494640	7096484	20,800	11,346	0.55	1.85	1,935	Low	Low
52	493180	7100567	20,764	11,320	0.55	1.85	1,930	Low	Low
121	483808	7119726	20,634	11,229	0.54	1.84	1,914	Low	Low
139	482626	7125220	19,821	10,664	0.54	1.82	1,812	Low	Low
231	481013	7127880	19,652	10,548	0.54	1.82	1,791	Low	Low
98	485369	7105909	19,069	10,147	0.53	1.80	1,719	Low	Low
144	492543	7095855	18,663	9,870	0.53	1.79	1,670	Low	Low
146	490562	7103546	18,614	9,837	0.53	1.79	1,664	Low	Low
101	484367	7114955	18,086	9,480	0.52	1.78	1,600	Low	Low
68	490873	7102688	17,933	9,376	0.52	1.77	1,582	Low	Low
102	492202	7101191	17,497	9,085	0.52	1.76	1,530	Low	Low
118	493167	7099473	17,339	8,980	0.52	1.76	1,511	Low	Low
216	491336	7100510	17,323	8,969	0.52	1.76	1,509	Low	Low
189	490641	7096178	17,257	8,925	0.52	1.75	1,501	Low	Low
201	491265	7095265	16,600	8,491	0.51	1.73	1,424	Low	Low
164	482543	7121004	16,429	8,378	0.51	1.73	1,404	Low	Low
19	481005	7127328	15,110	7,524	0.50	1.69	1,253	Low	Low
80	492535	7100250	14,950	7,422	0.50	1.68	1,235	Low	Low
85	492132	7096440	14,620	7,212	0.49	1.67	1,198	Low	Low
193	481333	7129063	14,462	7,112	0.49	1.67	1,181	Low	Low

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)	Predicted Volume under 2 m Ice (m ³)	Confidence Ranking - Volume	Confidence Ranking - Z _{max}
33	489477	7098688	14,247	6,976	0.49	1.66	1,157	Low	Low
173	482634	7115799	13,401	6,448	0.48	1.63	1,065	Low	Low
179	486227	7108901	12,978	6,188	0.48	1.62	1,019	Low	Low
124	493336	7099742	12,945	6,168	0.48	1.62	1,016	Low	Low
148	482280	7125610	11,797	5,474	0.46	1.57	895	Low	Low
132	490928	7095324	11,712	5,423	0.46	1.57	886	Low	Low
161	481111	7128664	11,034	5,023	0.46	1.54	817	Low	Low
174	491309	7098978	10,437	4,677	0.45	1.52	758	Low	Low
95	490090	7104705	10,383	4,646	0.45	1.52	753	Low	Low
106	482470	7116540	10,332	4,616	0.45	1.51	748	Low	Low
31	491911	7099027	10,095	4,480	0.44	1.50	724	Low	Low
94	492159	7099568	9,983	4,417	0.44	1.50	714	Low	Low

¹ Category 2: Large Lake – 10 % Summer and Winter Withdrawal.

Category 3: Intermediate Lake – 10 % Summer Withdrawal and Conditional Winter Withdrawal.

Category 4: Intermediate/Small Lake – 10 % Summer Withdrawal Only.

Z_{mean} = mean depth (m); *Z_{max}* = maximum depth (m)

Lakes with predicted or with morphometric data indicating a maximum depth less than 1.5 m are provided in Attachment 3. MacKay Lake and Courageous Lake are considered Category 1 and have been excluded from this list.

ERM

ATTACHMENT 3 MEASURED SURFACE AREA AND PREDICTED METRICS FOR LAKES IN THE ZONE OF INTEREST (WITH PREDICTED OR MORPHOMETRIC DATA INDICATING MAXIMUM DEPTH LESS THAN 1.5 METRES)

Attachment 3: Measured Surface Area and Predicted Metrics for Lakes in the Zone of Interest (with Predicted or Morphometric Data indicating Maximum Depth Less Than 1.5 Metres)

Lake ID ¹	Easting	Northing	Measured Surface Area (m ²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)
194	483610	7120136	9,770	4,296	0.44	1.49
155	485192	7105655	9,725	4,270	0.44	1.49
122	482402	7115799	9,211	3,983	0.43	1.47
204	488653	7101060	8,893	3,807	0.43	1.45
172	483575	7119759	8,690	3,695	0.43	1.44
108	486052	7104672	8,441	3,560	0.42	1.43
182	483158	7124715	8,252	3,458	0.42	1.42
154	490108	7097594	8,084	3,368	0.42	1.41
65	487338	7102281	7,893	3,266	0.41	1.40
283 (Headwater Lake A)*	489182	7108621	109,009	95,368	0.87	1.40
88	479085	7128350	7,839	3,237	0.41	1.40
48	492781	7100334	7,761	3,196	0.41	1.40
207	482986	7117803	7,593	3,107	0.41	1.39
90	489061	7100771	7,586	3,103	0.41	1.39
162	491690	7099032	7,013	2,805	0.40	1.36
215	486695	7109715	7,000	2,799	0.40	1.36
58	491302	7096697	6,880	2,737	0.40	1.35
89	489995	7100886	6,830	2,712	0.40	1.35
129	488110	7100758	6,737	2,664	0.40	1.34
153	485165	7105563	6,464	2,527	0.39	1.33
208	491100	7096703	6,450	2,520	0.39	1.32
191	484040	7115623	6,167	2,378	0.39	1.31
145	483626	7120900	6,065	2,328	0.38	1.30
54	489448	7105647	5,936	2,264	0.38	1.29
83	482629	7115960	5,800	2,198	0.38	1.28
134	491429	7094333	5,589	2,095	0.37	1.27

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)
46	492549	7099529	5,523	2,064	0.37	1.27
105	488322	7108457	5,481	2,044	0.37	1.26
111	491961	7098249	5,116	1,871	0.37	1.24
195	485365	7105267	5,003	1,818	0.36	1.23
184	480145	7128353	4,985	1,809	0.36	1.23
140	487643	7108063	4,815	1,730	0.36	1.22
78	492307	7097147	4,793	1,720	0.36	1.22
103	487090	7109713	4,724	1,688	0.36	1.21
213	488556	7107268	4,560	1,614	0.35	1.20
86	487766	7101932	4,498	1,585	0.35	1.19
198	484210	7120524	4,390	1,537	0.35	1.19
143	491662	7094353	4,357	1,522	0.35	1.18
225	487932	7109694	4,159	1,434	0.34	1.17
50	486448	7103727	4,090	1,403	0.34	1.16
158	491492	7093617	4,068	1,393	0.34	1.16
170	488095	7107467	4,024	1,374	0.34	1.16
171	491624	7099447	3,940	1,337	0.34	1.15
66	494148	7096838	3,754	1,257	0.33	1.13
185	491537	7094696	3,699	1,233	0.33	1.13
42	484351	7114762	3,543	1,167	0.33	1.12
81	484893	7106116	3,527	1,160	0.33	1.11
41	484515	7109203	3,469	1,135	0.33	1.11
49	494064	7097427	3,386	1,101	0.33	1.10
165	488338	7107090	3,272	1,053	0.32	1.09
63	479319	7127835	3,107	985	0.32	1.08
35	480702	7127930	3,082	975	0.32	1.07
142	490397	7096582	3,063	967	0.32	1.07
56	490748	7103514	2,965	928	0.31	1.06
159	484315	7120061	2,946	920	0.31	1.06

Lake ID ¹	Easting	Northing	Measured Surface Area (m²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)
32	490393	7098602	2,935	916	0.31	1.06
209	492456	7101727	2,907	905	0.31	1.05
149	483467	7122579	2,620	791	0.30	1.02
128	489075	7099352	2,566	771	0.30	1.02
180	492973	7100142	2,462	731	0.30	1.01
91	492483	7094893	2,448	725	0.30	1.00
214	485536	7109096	2,442	723	0.30	1.00
284 (Headwater Lake B)*	490034	7108424	106,730	92,813	0.87	1.00
120	490343	7102451	2,336	683	0.29	0.99
133	491462	7093836	2,101	596	0.28	0.96
131	482532	7120411	2,033	571	0.28	0.95
82	486547	7109830	2,019	566	0.28	0.95
206	492682	7099864	1,891	521	0.28	0.93
223	494096	7096927	1,746	470	0.27	0.91
40	490221	7096792	1,733	465	0.27	0.91
45	491146	7097983	1,628	429	0.26	0.89
75	482862	7117937	1,625	428	0.26	0.89
196	487945	7109405	1,557	406	0.26	0.88
181	482927	7117883	1,453	371	0.26	0.87
229	488464	7107007	1,368	343	0.25	0.85
197	484203	7109289	1,314	326	0.25	0.84
168	489616	7103996	1,242	303	0.24	0.83
57	487993	7108226	1,191	287	0.24	0.82
178	486773	7108989	1,183	285	0.24	0.82
190	483936	7120294	1,178	283	0.24	0.82
113	484390	7110276	1,133	269	0.24	0.81
147	489223	7105390	1,042	242	0.23	0.79
104	488626	7107220	1,025	237	0.23	0.78

Lake ID ¹	Easting	Northing	Measured Surface Area (m ²)	Predicted Total Volume (m ³)	Predicted Z _{mean} (m)	Predicted Z _{max} (m)
112	484506	7121449	1,017	235	0.23	0.78
44	486268	7104128	1,016	234	0.23	0.78
163	481440	7126990	989	226	0.23	0.78
150	487773	7108138	858	189	0.22	0.74
224	485299	7105688	856	188	0.22	0.74
234	491427	7093565	786	168	0.21	0.73
167	482866	7117991	768	164	0.21	0.72
115	491390	7100348	718	150	0.21	0.71
64	481445	7128649	688	142	0.21	0.70
188	485354	7105496	668	137	0.20	0.69
200	483364	7122607	627	126	0.20	0.68
107	485721	7109748	616	123	0.20	0.68
51	492294	7097827	578	114	0.20	0.67
43	487798	7108233	540	104	0.19	0.65
39	484378	7110419	518	99	0.19	0.64
186	491392	7097018	412	73	0.18	0.60

¹Category 5: No Water Withdrawal.
* Morphometric data estimated based on available bathymetric map and used for categorization.
Lakes with predicted maximum depth greater than or equal to 1.5 m are provided in Attachment 2.

APPENDIX F ARCHAEOLOGICAL CHANCE FIND PROCEDURE

SEABRIDGE GOLD

Courageous Lake Project Archaeological Chance Find Procedure

There are more than 5,000 archaeological sites currently recorded in the North West Territories with many more being added to the territorial inventory every year. It is estimated that these represent only a small portion of the total number of sites that exist. For this reason, it is very likely that you will encounter an archaeological site during your lifetime either knowingly or unknowingly. This protocol has been established to increase awareness of this important resource and to assist in planning future developments.

The remnants of NWT's earliest cultures are represented in today's landscape by a wide variety of site types, most of which are related to art, habitations, resource gathering and production, tool making, and traditional ceremonial or ritual activities. Some sites that may be immediately visible to a non-archaeologist include:

- Rock cairns (inukshuks) and rock piles.
- Surface features such as camp sites, fish traps, stone circles, caches and burned rock.
- Artifacts that have become visible on the land surface owing to erosion or recent land altering activity. These may be produced in a variety of materials such as stone, bone, antler, wood, or shell. Buried cultural remains that may be sighted in a cut-bank, excavation, eroded shoreline, or other exposed deposit.

If you discover a site in the course of your work that you suspect may be a possible archaeological site;

- Stop all work in the area to avoid damaging the site.
- Do not disturb any archaeological remains that you may encounter.
- Report your discovery to your supervisor or if they are unavailable, Seabridge Gold will provide further instructions 867-445-5553.
- Isolate and protect the area.
- Note the location and leave all discoveries in place.
- Prepare an initial Chance Find Form.
- Seabridge Gold will contact the Project Archaeologist and the Mackenzie Valley Land and Water Board.
- The Project Archaeologist will assess the potential significance of the find. If it is determined to be archaeological in nature they will contact the Prince of Wales Northern Heritage Centre.
- The archaeologist, in consultation with the Prince of Wales Northern Heritage Centre, will conduct an investigation consistent with the Archeology Permit.

- The archaeologist will work Seabridge Gold and the Mine Site Manager to prepare a Site Instruction to recommence work in the area.
- A site report will be submitted to Seabridge Gold, First Nations and the Prince of Wales Northern Heritage Centre.

If you discover what you suspect may be a possible human remains in the course of your work;

- Stop all work in the area to avoid damaging the site.
- <u>Do not disturb any possible human remains that you may encounter.</u>
- Report your discovery to your supervisor or if they are unavailable, the Company who will provide further instructions.
- If you are unable to contact a Company representative, and the suspected human remains appear to be current, contact the RCMP.
- If you are unable to contact a Company representative, please contact the Prince of Wales Northern Heritage Centre by telephone at (867) 873-7551 and the Mackenzie Valley Land and Water Board at (867) 669-0506.

The following steps will generally be followed

- The Coroner's Office and local policing authority are notified and the Coroner's Office determines whether the matter is of contemporary forensic concern.
- If the remains are not of forensic concern, the Prince of Wales Northern Heritage Centre will attempt to facilitate disposition of the remains.
- If a cultural affiliation for the remains can be determined, the branch will contact an organization representing that cultural group. If the remains are of aboriginal ancestry, attempts to contact the relevant First Nation(s) will be made.
- Generally, if remains are still buried and are under no immediate threat of further disturbance, they will not be excavated or removed. If the remains have been partially or completely removed, the Prince of Wales Northern Heritage Centre will facilitate disposition.

Archaeological Chance Find Report Form

Recorder's N	ame/Affiliation	1:			
Date:					
Location of c	hance find (Loo	cation description,	UTM coordinat	es, depth below surface):	
Description o	f find:				
Method used	to mark and pr	otect find:			
Distribution	:				
Mine Site	Seabridge	Site	Prince of		
Manager	Gold	Archaeologist	Wales Heritage		
			Centre		
ketch Map			Photo		

APPENDIX G OTHER VALID PERMITS ISSUED FOR COURAGEOUS LAKE ACTIVITIES

Archaeologist Permit #2019-002

Wildlife Research Permit #WL500736

Quarry Permit #2019QP0036



NORTHWEST TERRITORIES

CLASS 2 ARCHAEOLOGIST PERMIT # 2019-002

Under the authority of the Northwest Territories Act and the NWT Archaeological Sites Regulations, authorization is granted

To: Kay Jollymore Affiliation: ERM Consultants Ltd. Name of Project: Courageous Lake Project

Location: Courageous Lake

For the Purpose of: The permit holder will conduct an archaeological impact assessment in advance of Seabridge Gold Inc.'s mineral exploration activities to ensure archaeological sites are not impacted by exploration drilling.

Conditions: None

The permittee shall abide by the attached Permit Requirements The permit is valid until December 31, 2019 The permit was issued in the City of Yellowknife, Northwest Territories on APR 1 8 2019

Distribution of documentation: The permittee shall distribute the listed materials to the agencies below according to this schedule.

Sec. Sec.	Norti	Other		
Required by 30 November, 2019	Paper Copy	PDF Copy	Digital	Paper Copy
1. One-page non-technical summary & two photographs			1	
2. Site forms (including site maps)	10126		~	
Required by 31 March, 2020				State of the second second
1. Report (with photos, maps, artifact catalogue, site forms, & field notes)	~		2	-
2. Report (with photos, maps & artifact catalogue)	2	0.2413	-	See List on Reverse
3. Artifacts and Catalogue	~	1	~	Co

Minister, Education, Culture and Employment

Attachments: Archaeologist Permit Requirements

WL500736

Page 1 of 1



WILDLIFE RESEARCH PERMIT FAUNE – PERMIS DE RECHERCHE

Last Name - Nom de famille	First Name - Prénom	usuel	lnit.
ERM			
Residence Address - Adresse du domicil	le	1 Mailing Address (if different) - Adresse postale (si dif	férente)
5120 49th Street, Ground F			
Centre		1	
City/Town - Ville		Territory	Postal Code postal
Yellowknife		NT	X1A 1P8
Phone No N° de téléphone	Cell No No de cellulaire Email		······································
604-689-9460	Greg	g.Sharam@erm.com	

Date Issued	d-j	m-m	у-а	Vendor No. N° de l'agent	Issued at - Délivré à	Licence Fee - Permis frai	is GST - TPS	Fee - Frais	
Émis le	07	06	2019	228	ENR North Slave Regional Office	\$ 0.00	+\$ 0.00	= \$ 0.00	

Is hereby authorized to conduct Scientific Research as approved by the Superintendent of Wildlife. Est autorisé par le présent à mener une recherche scientifique telle qu'approuvée par le surintendant de la Faune.

Courageous Lake Project Wildlife Camera Program. Currently sixty five wildlife motion-triggered cameras are installed within the project area from a previous Project that began in 2010. This Project includes exchanging batteries and memory cards in the cameras to ensure continued function throughout the year. Temporal and spatial distribution data of caribou in the area will be recorded.

Conditions:

Must sign wildlife research permit in order to make it valid.

This permit does not authorize access to private lands, additional authorizations are required from the appropriate land owner. Must carry a copy of the signed wildlife research permit while conducting research in the field, as outlined in the application. Submit all wildlife observations and a detailed report to WMISTeam@gov.nt.ca for entry into WMIS.

Provide a brief, 1-2 page wildlife research summary report within 3 months of the expiry of this permit to the issuing office. Must make every effort to comply with recommended terms and conditions attached to recommendation forms from Boards, Renewable Resource Councils, Hunters and Trappers Committees, Community Governments.

This licence is valid	FROM	d-j	m -m	y-a	EXPIRES	ď-j	m-m	у-а	
Ce licence est valide	DU	07	06	2019	EXPIRE LE	01	05	2020	

I declare that the information provided on this form is correct. I understand that it is an offence to give false or misleading information. Information collected is protected under the Access of Information and Protection of Privacy Act. I am eligible to hold this licence/permit. J'atteste par la présente que les renseignements donnés ci-dessus sont vrais. Je comprends que faire une déclaration trompeuse constitue une infraction. Les renseignements recueillis sont protégés en vertu de la Loi sur l'accès à l'information et la participan de la une partice. L'ai le drait de tenit de

l'information et la protection de la vie privée. J'ai le droit de tenir ce permis. runo

NW13507/**X**411

Authorized Signature - Signataire autorisé

Government of Gouvernement des Northwest Territories Territoires du Nord-Ouest

June 7, 2019

Greg Sharam, M.Sc., Ph.D. Technical Director, Wildlife Department Manager, ERM 5120 49th Street, Ground Floor, Box 9 Yellowknife, NT X1A 1P8

Wildlife Research Permit - WL500736

This letter and Wildlife Research Permit authorizes you to continue the Courageous Lake Project Wildlife Camera Program in the vicinity of Seabridge's Courageous Lake property. This location is approximately 240 km northeast of Yellowknife, in the North Slave Region (NSR) of the Northwest Territories. This program is a continuation of an existing camera program that began in 2010, focusing mainly on caribou however, any observations of other species will be recorded as well. The Project includes exchanging batteries and memory cards at remote motion-triggered cameras currently located with and around the Courageous Lake Project area, to ensure continued function throughout the year. The objective of this study is to record the temporal and spatial distribution of caribou within the Courageous Lake area using motion-triggered cameras.

This permit expires May 1, 2020.

Please make every effort possible to acknowledge community concerns and requests, as outlined in the Wildlife Permit Recommendation Forms.

We require that you keep us informed with a brief one page summary report of your fieldwork within three months of the expiry date of your permit. Please submit a high quality digital image (.jpg > 1 MB). The summary report template can be found online at https://www.enr.gov.nt.ca/en/services/apply-research-observe-and-handle-wildlife-nwt

The Wildlife Management Information System (WMIS) provides a central repository to store standardized point feature data to support the conversation and management of the NWT's wildlife species and habitat. Researchers are encouraged to submit wildlife observations along with summary reports of studies conducted in the NWT. This spatial collection of data is an important contribution to the knowledge base for wildlife management. Please note that a; observations should be geo-referenced, along with the observation date. For more information on WMIS please contact <u>WMISTeam@gov.nt.ca</u>.

We would appreciate receiving any reports produced as a result of this study. Good luck with your research.

Sincerely,

for Brono Croft.

Bruno Croft Superintendent North Slave Region

www.gov.nt.ca

Government of Gouvernement des Northwest Territories Territoires du Nord-Ouest

August 12, 2019

Ms. Jane Howe Seabridge Gold (NWT) Inc. 106 Front Street East Suite 400 Toronto ON M5A 1E1

Dear Ms. Howe:

Quarry Permit No.:2019QP0036LUP No.:MV2012C0025Location:North end of Matthews Lake, Treeline borrow pit

Further to your application dated June 26, 2019, enclosed is Receipt No. 216418 and Quarry Permit No. 2019QP0036. This permit grants authorization to remove 300 cubic metres of sand from the location indicated in your application.

Please ensure that you comply with all conditions annexed to this quarry permit and Land Use Permit MV2012C0025.

Pursuant to Condition #11 of your permit, prior to the 10th day of each month the Permittee shall submit a Monthly and Final Quarry Pit Return to the Inspector indicating the quantity of material quarried. A blank copy of the form is included with this letter. This form will also be required when you have quarried all of the material authorized under this permit or when your permit has expired, whichever is the earlier. Please ensure that these forms are provided as required by your permit.

Prior to commencing your quarry operation, please contact our Inspector, Clint Ambrose, at (867) 767-9188.

Sincerely,

has there t

Scott Stewart Regional Superintendent North Slave Region

Enclosures (2)

c. North Slave Region (Yellowknife), Department of Lands, GNWT Mackenzie Valley Land and Water Board (MVLWB)

cml

Government of Gouvernement des Northwest Territories Territoires du Nord-Ouest

QUARRYING REGULATIONS

QUARRY PERMIT No. 2019QP0036

Permit Fee		\$	250.00	Permittee:	Seabridge Gold (NWT) Inc.
Royalty at \$3.00	per cu. metre	\$	900.00	Address:	106 Front Street East Suite 400 Toronto ON M5A 1E1
Receipt No. 216418	TOTAL	\$	1150.00	Phone:	(416)367-9292
Is hereby authorized to From the lands descrit	o take: 3 bed as follows: N	00 cu Iorth	bic metres of end of Matthe	sand ws Lake, Tree	line borrow pit

SUBJECT TO THE FOLLOWING CONDITIONS:

- 1. This permit shall expire when the quantity of material or substance mentioned in the permit has been quarried or removed, or on the expiry of three (3) years from the date of issue of the permit, whichever is the earlier.
- 2. This permit does not grant to the Permittee an exclusive right or leasehold interest in the land described herein.
- 3. This permit shall not be assigned.
- All quarrying under this permit shall be carried out in accordance with the approved Quarry Operations Plan, if applicable.
- The Permittee will identify the work area to the satisfaction of the Land Use Inspector prior to the removal of any material and any change in location will require prior approval of the Land Use Inspector.
- Pre- and post-surveys, if required, must be conducted by a certified Canada Land Surveyor or certified engineering technician or as approved by the Land Use Inspector.
- 7. Pre-surveys, if required, must be submitted to the Land Use Inspector 10 days prior to the commencement of operations for approval.
- 8. Post-surveys, if required, must be submitted to the Land Use Inspector within 60 days of completion of the operation.
- Quarry operations in all pits, including multi-user pits, must be coordinated by the Land Use Inspector and be conducted as per the quarry permit application and/or Quarry Operations Plan.
- 10. The Permittee will not work any area worked by any other permittee except as coordinated by the Land Use Inspector.
- 11. Prior to the tenth day of each month, the Permittee shall submit a report to the North Slave Region Yellowknife Land Use Inspector at fax number (867) 873-9754 indicating the quantity of material <u>guarried</u> and the quantity of material removed from the site. Failure to submit the monthly report within indicated time frames may result in cancellation of this permit as per Section 9(6) of the Quarrying Regulations.
- 12. Upon expiry of the permit, the Permittee must submit a Final Plan to the Land Use Inspector for reconciliation and approval. Failure to submit a Final Plan within 60 days of project completion may result in rejection of future Quarry Permit Applications until rectified.
- 13. A permittee who over-quarries may be ineligible for future quarry permits for a 12-month period and additional legal action may be taken by the Land Use Inspector under the Quarrying Regulations.
- 14. This permit is subject to the provisions of the Quarrying Regulations and the conditions set out herein. Failure to comply with the provisions of the Regulations and the conditions prescribed in this permit may result in cancellation of the permit in accordance with Section 9(6) of the Quarrying Regulations without prior notice to the Permittee.
- 15. Upon expiration of this Permit, as prescribed in Condition One, the Permittee shall carry out the reclamation activities within timelines as approved by the Inspector in the Quarry Operations Plan.
Definitions:

- Quarrying - The acts of blasting, ripping, excavating, and piling material

- Work area - That area designated in the quarry application to be used for the extraction of material or substance and for further processing through screening or crushing.

- Opening Up - The preparation of a pit or quarry site from an undisturbed condition for the working and extraction of

material and includes surface clearing and overburden removal and placement.

- Quarry Material - Material including limestone, granite, slate, marble, gypsum, loam, marl, gravel, sand, clay, stone, or volcanic ash.

- Quarry Operation - Means activities at a pit or quarry associated with the opening up of the site or any portion thereof or the extraction, processing, stockplling, or removal of materials from the site, or the restoration of the site, and includes any works, machinery, plant, buildings, and premises belonging to or used in connection with the pit or quarry.

Issued at Yellowknife, this 12th day of August, 2019

Commencing on the 12th day of August, 2019 Expiring on the 11 day of August, 2022

had Steven Land Agent



Government of Gouvernement des Northwest Territories Territoires du Nord-Ouest

Monthly and Final Quarry Pit Return

Land Use Permit Number:	Permittee Name:
MV2012C0025	Seabridge Gold (NWT) Inc.
Quarry Permit Number:	Amount Authorized:
2019QP0036	300m ³
Quarry Permit Date of Issue:	Expiry Date:
August 12, 2019	August 11, 2022

Pit Location(s) – Lat(s) and	Material : (Clay, loam, blast	Amount Quarried: (cubic metres)
Long(s)	rock, sand/gravel, other(s)	
North end of Matthews Lake	Sand	
Treeline Borrow Pit		

Monthly Quarry Reconciliation (monthly volumes must equal volumes reported above)

	Year 2019	Year 2020	Year 2021	Year 2022
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				
Total (m3)				

Permittee Signature	

Date

Inspector Verification

Date

NOTE: Until the final quarry plan is received, no new quarry permits will be issued.

	<u>For (</u>	Office Use Only
	_X	=
Total amount quarried	Rate/cubic meter	Total Royalties Due
		=
Total Royalties Paid	Total Royalties Due	Total Amount Refundable/Due

APPENDIX H DETAILED CHRONOLOGICAL LOG OF PRE-SUBMISSION ENGAGEMENT ACTIVITIES

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked				
Tlicho Government									
25-Jun-18	Letter	Clifford Daniels	Brent Murphy, Nicole Bishop (ERM)	Provided TG-Behchokǫ with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whatì)				
25-Jun-18	Letter	David Wedawin	Brent Murphy, Nicole Bishop (ERM)	Provided TG-Gameti with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)				
25-Jun-18	Letter	Charlie Football	Brent Murphy, Nicole Bishop (ERM)	Provided TG-Wekweeti with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)				
25-Jun-18	Letter	Alfonz Nitsiza	Brent Murphy, Nicole Bishop (ERM)	Provided TG-Whati with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)				
25-Jun-18	Letter	Zabey Nevitt	Brent Murphy, Nicole Bishop (ERM)	Seabridge provided TG with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)				

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
25-Jun-18	Letter	Henry Zoe	Brent Murphy, Nicole Bishop (ERM)	Provided Kwe Beh Working Group with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)
27-Jun-18	Email and Letter	Henry Zoe, Clifford Daniels, Alfonz Nitsiza	Brent Murphy, Jane Howe	Seabridge sent letter indicating that it will be submitting an LUP application in 2019 and wishes to seek input from community about preferred community engagement activities and schedule.	E-mail - LUP Pre-submission Engagement - TG KBWG - 20180627 1354, Newsletter - 2018-06-27 Community Engagement Workshop (TG Kwe Beh Working Group)
28-Jun-18	Email	Tyanna Steinwand	Jane Howe	Seabridge informed Tlicho of planned pre-disturbance archaeology impact assessment to be conducted July 2, 2018 to July 6, 2018 at the Courageous Lake site, and requested follow up call to discuss the proposed work, schedule and involvement of a Tlicho archaeological technician to support the work. (Call held with Tlicho June 28, 2018).	E-mail - Zoe_Mullard_20180629_204429UTC
28-Jun-18	Phone Call	Tyanna Steinwand	Jane Howe	Seabridge is looking for an Archaeology technician and wildlife monitor to support Courageous field program.	Meeting Minutes - June 2018 Communication Table
29-Jun-18	Email	Tyanna Steinwand	Jane Howe	Seabridge received Tlicho confirmation of available archaeological technician to support the pre- disturbance archaeological impact assessment field work, and indicated required logistics were being addressed.	E-mail - Nicole_Bishop_20180629_180421UTC
29-Jun-18	Email	Tyanna Steinwand	Jane Howe	Seabridge confirmed with Tlicho regarding involvement of an archaeology technician and associated logistics. Indicated that involvement of a wildlife monitor was still in review.	E-mail - Zoe Mullard 20180629 204458UTC
29-Jun-18	Email	Tyanna Steinwand	Jane Howe	Seabridge confirmed with Tlicho regarding involvement of archaeology technician in the pre-disturbance archaeological impact assessment field work from July 7, 2018 to July 14, 2018, and provided details and logistics for the field work program.	E-mail - Nicole_Bishop_20180629_203008UTC
3-Jul-18	Phone Call	Tyanna Steinwand	Jane Howe	Seabridge following to make arrangements for Archaeology technician and wildlife monitor.	
4-Jul-18	Email	Tyanna Steinwand, Adeline Football	Jane Howe	Seabridge received Tlicho confirmation of available bear monitors and field assistants. Tlicho requested info regarding field program logistics.	E-mail - Nicole_Bishop_20180704_180419UTC
4-Jul-18	Email	Tyanna Steinwand, Adeline Football	Jane Howe	Seabridge provided information regarding travel logistics for bear monitors and field assistant to support the pre-disturbance archaeological impact assessment.	E-mail - Zoe_Mullard_20180706_161504UTC
4-Jul-18	Email	Tyanna Steinwand	George Farrell (Matrix), Doug Poitras (Matrix)	Seabridge received confirmation from Tlicho regarding flight logistics for field assistants on July 7, 2018 from Wekweeti to Courageous Lake.	E-mail - Tlicho archaeology support- permit 2018-004
4-Jul-18	Phone Call	Tyanna Steinwand	Jane Howe	Seabridge left voice with TG regarding arrangements for Archaeology technician and wildlife monitor.	
6-Jul-18	Email	Tyanna Steinwand, Adeline Football	Jane Howe	Seabridge followed up with Tlicho regarding travel logistics for the bear monitors and archeological technician.	E-mail - Nicole_Bishop_20180706_145820UTC
6-Jul-18	Email	Tyanna Steinwand, Adeline Football	Jane Howe	Requested confirmation from Tlicho Government confirm participation in the archeology program, and reviewed logistics to arrive at Courageous Lake site.	E-mail - Tlicho archaeology support - permit 2018-004
6-Jul-18	Email	Tyanna Steinwand, Adeline Football	Jane Howe	Confirmed with Tlicho Government regarding travel arrangements for the archeological field assistant and bear monitor to arrive at the Courageous Lake Project site.	E-mail - Tlicho archaeology support - permit 2018-004-A
18-Jul-18	Phone Call	Henry Zoe	Jane Howe	Seabridge left voicemail with Tlicho Kwe Beh Working Group (H.Zoe) requesting a meeting to provide introduction to Seabridge and overview of recent exploration activities and plans for application for new land use permit in 2019.	
18-Sep-18	Phone Call	Grace Mackenzie	Jane Howe	Seabridge (J.Howe) called TG (G.Mackenzie) to discuss engagement with TG Kwe Beh working group. The G. Mackenze expressed interest in Seabridge presentation at a working group meeting in February or March 2019, and also indicated the possibility of meeting during the November 2018 Geoscience Forum in Yellowknife. Seabridge committed to sending information regarding the completed TG traditional knowledge (TK) study.	

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
19-Jul-18	Meeting - Yellowknife	Grace Mackenzie	Jane Howe	Seabridge (J.Howe) met with G.MacKenzie Tlicho Government/KweBeh Working Group in Yellowknife to introduce Seabridge, provide an overview of exploration work and Project details. G.MacKenzie explained role of Kwe Beh Working Group (name changed to)Resource Management Working Group (RMWG) with the Tlicho Government. Discussed the possibility of Seabridge attending a RMWG meeting to present information about the Project. Tlicho expressed interest in business partnership opportunities.	Fact Sheet - Courageous Lake_FactSheet_PRESS
21-Sep-18	Email	Grace Mackenzie	Jane Howe	Seabridge (J.Howe) sent follow up email to TG (G.Mackenzie) to recap phone call Sept 18, 2018. Seabridge would be interested in attending a Kwe Beh working group meeting in January 2019 or February 2019, to present about the Project. Seabridge provided update on the small drill program planned for February 2019 to March 2019, and plans to submit an application to the MVLWB for a new land use permit in September 2019 to replace existing permit. Also discussed Seabridge's possible participation and presentation at the Geoscience Forum 2018. Distributed cover page and executive summary of a complete TG traditional knowledge study report related to the Project.	E-mail - Seabridge Gold, Reports - 2018-09-21 Ewaanit'iiti TK Study Excerpt (TG)
24-Sep-18	Email	Grace Mackenzie, Henry Zoe	Jane Howe	Seabridge received confirmation from TG regarding possible meeting the with Tlicho Kwe Beh Working Group in January or February 2019.	E-mail - Seabridge Gold-A
9-Nov-18	Phone Call	Grace Mackenzie	Jane Howe	Seabridge discussed with TG a visit to Yellowknife between January 14, 2018 and January 18, 2018 and inquired about a January 16, 2019 meeting with the Kwe Beh Working Group. Discussed employment for field assistants, and TG's attendance at the January 2019 Round-Up conference in Vancouver.	
9-Nov-18	Email	Grace Mackenzie	Jane Howe	Seabridge sent a follow up email to recap discussion with TG (G.Mackenzie). Seabridge followed up phone call with an email. Seabridge proposes Jan 16 as date for meeting with KweBeh, Seabridge requested that G.Mackenzie confirm if she is the contact for employment opportunities. Enquired whether representatives of TG would be interested in attending the Seabridge Open House during Round Up conference in January.	E-mail - Project Update - TG - 20181109 1316
18-Nov-18	Email	Grace Mackenzie, Henry Zoe Tyanna Steinwand	Brent Murphy, Elizabeth Miller, Jane Howe, Marcus Adam	Seabridge sent notice of two upcoming presentations during at the Geoscience Forum in Yellowknife. (1) "Sustainably Advancing Resource Development Projects" which is about the successes and lessons learned as Seabridge works to build strong relationships with Indigenous groups and local communities at our KSM Project in BC. and (2) Exploration Highlights at our Courageous Lake Project.	E-mail - Project Update - All YK Stakeholders - 20181118 1014
10-Dec-18	Email	Grace Mackenzie, Henry Zoe	Jane Howe	Seabridge called TG to confirm proposed meeting in January, G.Mackenzie out of office. Seabridge sent email to requesting information about proposed meeting in January.	E-mail - Follow-up Nov 9 E-mail - TG - 20181210 1435
10-Dec-18	Email	Petter Jacobsen	Jane Howe	Seabridge resent previous message to P.Jaccobsen, requesting information whether the 2012 TliCho TK Study is considered confidential or if it can be shared with others.	E-mail - TliCho TK Study - TG - 20181210 1442
11-Dec-18	Email	Petter Jacobsen	Jane Howe	2012 TliCho TK Study.	E-mail - TliCho TK Study - TG - 20181211 1143
8-Jan-19	Phone Call	Grace Mackenzie	Jane Howe	Seabridge called TG and left message, wishing to confirm meeting logistics with KweBeh for week of Jan 14. TG called back same day. G.Mackenzie indicated that KweBeh Working Group is meeting in Behchoko on Jan 15 and agenda is full. In lieu of meeting with the entire working group, a meeting was scheduled on Jan 17 between Seabridge and TG, (G.Mackenzie, H. Zoe and G.Gibson from the Working Group)	
8-Jan-19	Email	Grace Mackenzie, Henry Zoe	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge sent meeting invitation to TG for Jan 17, 2019 at 1330. and requested that it be forwarded to others in the KweBeh Working Group who will attend.	E-mail - Request a Meeting - Invitation - TG - KBWG - 20190108 1427
17-Jan-19	Meeting - Yellowknife	Grace Mackenzie, Henry Zoe	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge personnel met with representatives of Tlicho government and KweBeh Working Group. Reviewed the project update presentation, discussed permitting plans and opportunities for engagement to obtain feedback on permit contents. Refer to meeting notes sent on Jan.28, 2019.	Presentations - Courageous Lake Update January 2019.pdf, Fact Sheet - CourLake_FactSheet_Jan2019_Press, Fact Sheet - KSM Project Overview Factsheet 2019_PRESS, Meeting Minutes - 190125_Meeting Notes-KweBehWG-Seabridge-Jan17- 2019.docx

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
18-Jan-19	Email	Grace Mackenzie, Henry Zoe	Brent Murphy, Jane Howe	Seabridge sent an email to TliCho/KBWG personnel to thank them for their time and input at the meeting this week. Seabridge provided a PDF copy of the presentation and other data requested during the meeting. Seabridge committed to prepare and send summary meeting notes.	E-mail - Project Update Meeting - TG - KBWG - 20190118 1517, Presentations - Courageous Lake Update January 2019.pdf
28-Jan-19	Email	Grace Mackenzie, Henry Zoe	Brent Murphy, Jane Howe	Seabridge sent summary meeting notes and action items for face-to-face meeting that was held Jan 17, 2019. Requested TG review the notes and provide any comments or corrections.	E-mail - Project Update - TG KBWG - 20190128 0728, Meeting Minutes - 190125_Meeting Notes-KweBehWG-Seabridge-Jan17- 2019.docx, Presentations - Courageous Lake Update January 2019.pdf
8-Feb-19	Email	Tyanna Steinwand, Grace Mackenzie	Jane Howe, Kay Jollymore (ERM)	Seabridge is providing a draft of our 2019 archaeology permit for review before we submit it to the PWNHC, please provide any comments by Feb 22. The 2018 Archaeology Report is being send to you separately by courier.	E-mail - Pre-submission Archaeology Permit - TG - 20190208 1529, Submissions - B.1 2019 Permit Application K.Jollymore January 2019_wMap.pdf (TG), Letter - Tlicho - 20190208_Letter-Draft- ArchaeologyPermitAppln.pdf
19-Feb-19	Email	Grace Mackenzie	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) sent Notice of Work Commencement for winter mobilization to Inspectors and MVLWB, and cc'd other stakeholders	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1454, Notifications - MV2012C0025- NoticeOfWork-2019WinterProgram- 19Feb2019.pdf (GNWT)
19-Feb-19	Email	Grace Mackenzie	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	CIRNAC Inspector acknowledged Seabridge's Notice of Work and requested information about winter road route.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1518
22-Feb-19	Email	Grace Mackenzie	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) responded to question from CIRNAC Inspector - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190222 1445
26-Feb-19	Email	Grace Mackenzie	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) provided a clarification regarding - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190226 1822
4-Mar-19	Letter	Tyanna Steinwand	Jane Howe	Seabridge distributed paper copy of the 2018 Archaeology Report.	Letter - 20190303_Letter- ArchaeologyReport (TG), Reports - 2018 Courageous Lake AIA Final Report
14-Apr-19	Email	Tyanna Steinwand, Grace Mackenzie	Greg Sharam (ERM), Jane Howe	Seabridge is sending a draft of our 2019 wildlife permit application for your review before we submit it to the GNWT please provide any comments by April 29. The 2018 Caribou Camera Report is being finalized and will be sent to you by courier.	E-mail - Wildlife Permit - TG - 20190414 2114, Submissions - 2019-CourageousLake- Wildlife Research Permit Application-for Review.pdf, Submissions - Research_Recommendation_Form_2019. docx
15-Apr-19	Email	Tyanna Steinwand	Jane Howe	Seabridge received signed recommendation form from TG, in support of the Wildlife Research Permit application.	E-mail - Wildlife Permit - TG - 20190415 1401, Submissions - 20190415 Wildlife Research Permit Appl - Tyanna Steinwand

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
24-May-19	Email	Grace Mackenzie, Henry Zoe	Jane Howe	Seabridge Gold request input from TG/KBWG on Engagement Plan. We will begin updating the plan in mid June and would like to receive suggestions by June 7.	E-mail - Engagement Plan - TG - 20190524 1114, Agreements - MV2012C0025 - Seabridge - Engagement Plan-v3- Nov15- 13
24-May-19	Email	Grace Mackenzie, Henry Zoe	Jane Howe	TG informed Seabridge that all regulatory/permitting is being handled by Lands Manager Violet Camsell- Blondin. G. Mackenzie will forward request to her.	E-mail - Engagement Plan - TG KBWG - 20190524 1319
24-May-19	Email	Grace Mackenzie	Jane Howe	Seabridge informed TG (G.Mackenzie) that there will be other draft documents to review in the coming weeks, should we continue to send these permitting/discussion requests to G.Mackenzie, or to Ms Camsell-Blondin?	E-mail - Engagement Plan - TG KBWG - 20190524 1458
24-May-19	Email	Grace Mackenzie	Jane Howe	TG responded that permit information/questions should be sent directly to V.Camsell-Blondin and cc sent to G.Mackenzie.	E-mail - Engagement Plan - TG KBWG - 20190524 1522
3-Jun-19	Email	Violet Camsell- Blondin	Jane Howe	Seabridge (J.Howe) spoke with TG (V.Camsell-Blondin), and follow-up up with email summary. Ms. Camsell-Blondin explained that the Lands Protection Dept is new department, last August, and they deal with all inquiries concerning Tłlcho Lands, including review of proposed activities and development. The department provides recommendations for decisions to the Tłlcho Government on proposed activities. Seabridge provided some brief background on the plan and Courageous Lake, Ms. Camsell-Blondin will review our plan and provide feedback. Agreed to meet next week on Wednesday for a coffee. Seabridge followed up with brief email about the project/plan background and coffee invite for Wednesday, Jun 12, 2019 at 11am.	E-mail - Request Review of Our Engagement Plan - TG - 20190603 1550, Fact Sheet - CourageousLake_FactSheet_Nov2018.pd f
10-Jun-19	Email	Violet Camsell- Blondin	Jane Howe	Seabridge (J.Howe) sent email to TG (V.Camsell-Blondin) to follow-up regarding possible meeting on Wed Jun 12, 2019 at 11am and whether she plans to provide comments on our Engagement Plan.	E-mail - Request review of our Engagement Plan - TG - 20190610 1720, Fact Sheet - CourageousLake_FactSheet_Nov2018.pd f
12-Jun-19	Email	Violet Camsell- Blondin	Jane Howe	TG (V.Camsell-Blondin) responded that she was trying to arrange to Yellowknife to meet with J.Howe/Seabridge. Subsequently, V. Camsell-Blondin called and a meeting time was confirmed at 3:45, June 12.	E-mail - Request review of our Engagement Plan - TG - 20190612 0004
12-Jun-19	Meeting- Yellowknife	Violet Camsell- Blondin	Jane Howe	Seabridge (J.Howe) met with V.Camsell-Blondin and J. Husky. Discussion included intro to Seabridge, Courageous Lake, our LUP/WL application plan, mgmt. plans. The Seabridge Engagement Plan was reviewed and Violet indicated that they will provide comments by email. Other topics such as Quarry permit, Wildlife Summary were also discussed, see summary notes from meeting.	
14-Jun-19	Email	Grace Mackenzie	Jane Howe, Mike Kenney (Matrix), Robyn Loudon (Matrix), Leslie Violette (Matrix)	Matrix sent email with two opportunities, Camp Construction and Geotechnical Assistant.	E-mail - Employment opportunities - TG - 20190614 1037, Job Posting - Camp Construction Crew Member - 2019.pdf, Job Posting - Geo Tech Field Assistant - 2019.pdf
14-Jun-19	Email	Grace Mackenzie, Violet Camsell- Blondin	Jane Howe	Seabridge (J.Howe) forwarded the Matrix employment opportunities email to regular contacts: Grace and Violet	E-mail - Employment opportunities - TG - 20190614 1450, Job Posting - Camp Construction Crew Member - 2019.pdf, Job Posting - Geo Tech Field Assistant - 2019.pdf
14-Jun-19	Email	Grace Mackenzie, Violet Camsell- Blondin	Jane Howe	Seabridge received response from Mackenzie indicating that she had forwarded the opportunities to be posted on their Facebook page.	E-mail - Employment opportunities - TG - 20190614 1459

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
19-Jun-19	Email	Violet Camsell- Blondin, Jolene Huskey	Jane Howe	Seabridge sent thank you for meeting, Summary notes refer to a meeting held on June 12, 2019.	E-mail - Thank you for meeting and recap of discussion - TG - 20190619 1403, Map - CL-14-002-RegionalLocation- Figure1.pdf, Map - CourageousLake- ClaimMap2012.pdf, Map - CL-15-136_T- Wekeezhii&AkaitchoAreas.pdf, Application - Draft-QuarryApplication-for review.pdf, Reports - 0.1 2019 Courageous Lake WMMP TOC.PDF, Reports - 2019 Caribou Camera Monitoring.pdf
27-Jun-19	Email	Violet Camsell- Blondin, Grace Mackenzie	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge sent Notice of Work, as required per Condition of LUP MV2012C0025; cc'd to MVLWB and First Nation community representatives.	E-mail - Notice of Work Commencement for summer program - GNWT-Inspector & CIRNAC Inspector - 20190627 1041, Notifications - 190627-MV2012C0025- NoticeOfWork-2019SummerProgram.pdf
2-Jul-19	Email	Violet Camsell- Blondin, Grace Mackenzie	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	T.Morton, CIRNAC acknowledged notification.	E-mail - Notice of Work Commencement for summer program - CIRNAC - 20190702 0754
3-Jul-19	Letter	Violet Camsell- Blondin	Jane Howe	Seabridge is distributing our 2019 Caribou Camera Monitoring Report which summarizes the results of the wildlife camera data collected in the Courageous Lake area from 2011 to 2018. The objective of this study is to monitor and record temporal and spatial distribution of caribou in the area using remote motion-triggered cameras.	Notifications - Cgs Lake Camera Report to TG_CanadaPostTracking 9228 5816 0355 7414.pdf, Letter - Letter-WildlifeReport-Tlicho_V Camsell-Blondin.pdf
30-Jul-19	Letter	Grace Mackenzie, Henry Zoe	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_TG_G.Mackenzie.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
30-Jul-19	Letter	Violet Camsell- Blondin	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_TG_V.Camsell-Blondin.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
30-Aug-19	Email and Letter	Grace Mackenzie, Henry Zoe Violet Camsell- Blondin	Jane Howe	Seabridge sent a letter summarizing the presubmission engagement activities that have occurred over the past fourteen months, the concerns/suggestions that we heard and how Seabridge has addressed them, and requested any comments be provided by September 5. Seabridge also offered to meet with any communities to answer questions about the applications package.	E-mail - Presubmission engagement - TG - 20190830 0715, Letter - 190830-Letter- PreSubmissionEngagement-Tlicho.pdf

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked			
Yellowknives Dene First Nation								
25-Jun-18	Letter	Edward Sangris	Brent Murphy, Nicole Bishop (ERM)	Provided YKDFN with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)			
25-Jun-18	Letter	Johanne Black	Brent Murphy, Nicole Bishop (ERM)	Seabridge provided YKDFN with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)			
25-Jun-18	Email and Letter	Ernest Betsina	Brent Murphy, Nicole Bishop (ERM)	Seabridge provided YKDFN with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224749UTC, Letter - 2017-06-25 Annual Report Highlights (YKDFN)			
27-Jun-18	Email and Letter	Edward Sangris, Melissa MacKenzie	Brent Murphy, Jane Howe	Seabridge sent letter indicating that it will be submitting an LUP application in 2019 and wishes to seek input from community about preferred community engagement activities and schedule.	Newsletter - 2018-06-27_Community Engagement Workshop (YKDFN), E-mail - LUP Pre-submission Engagement - YKDFN - Chief Betsina - 20180627 1354			
27-Jun-18	Email and Letter	Johanne Black	Jane Howe	Seabridge forwarded proposed engagement letter to Chief Sangris and Chief Betsina to YKDFN (J.Black), following email bounce back.	E-mail - Jane_Howe_20180628_010245UTC, Notifications - 2018-06-27 Community_Engagement_Workshop (YKDFN)			
29-Jun-18	Phone Call	Johanne Black	Jane Howe	Seabridge is looking for an Archaeology technician to support Courageous field program.				
29-Jun-18	Phone Call	Johanne Black	Jane Howe	Seabridge held call with YKDFN regarding provision for field assistance to support the Courageous Lake field program.	Meeting Minutes - June 2018 Communication Table			
29-Jun-18	Email	Johanne Black	Jane Howe	Seabridge provided logistics to YKDFN regarding the archaeological technician support for the July 2018 pre-disturbance archaeological impact assessment field work, and provided details associated with the field work opportunity.	E-mail - Nicole_Bishop_20180629_205323UTC			
4-Jul-18	Phone Call	Johanne Black	Jane Howe	Seabridge left voice mail regarding arrangements for Archaeology technician.				
6-Jul-18	Email	Johanne Black	Jane Howe	Seabridge provided YKDFN with travel logistics for archeological technician/field assistant.	E-mail - Nicole_Bishop_20180706_145808UTC			
6-Jul-18	Email	Johanne Black	Jane Howe	Received YKDFN confirmation of one field assistant to support the archaeology field work, and notification that a second field assistant would be confirmed.	E-mail - YKDFN archaeology support- permit 2018-004			
6-Jul-18	Email	Johanne Black	Jane Howe	Received YKDFN confirmation regarding logistics for the field assistant and bear monitor to support the archaeology program.	E-mail - YKDFN archaeology support - permit 2018-004-B			

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
17-Jul-18	Meeting- Ndilo	Johanne Black	Jane Howe	Seabridge attended YKDFN office in Yellowknife for scheduled meeting to discuss LUP pre-submission engagement; J.Black was not at office, meeting was rescheduled.	
17-Jul-18	Email	Johanne Black	Jane Howe	Seabridge sent request for a new date/time for the missed meeting this morning.	E-mail - LUP Pre-submission Engagement - YKDFN - 20180717 1116
17-Jul-18	Meeting- Ndilo	Johanne Black	Jane Howe	Seabridge (J.Howe) met with YKDFN (J.Black) to discuss recent exploration work, pre-submission permitting requirements, engagement opportunities during pre-submission period, and previous exploration agreement negotiations. YKDFN indicated interest in a TK study if supported by Seabridge.	Fact Sheet - Courageous Lake_FactSheet_PRESS
14-Sep-18	Phone Call	Johanne Black	Jane Howe	Seabridge attempted to contact YKDFN. Left message with YKDFN regarding traditional knowledge/ GIS proposal.	
17-Sep-18	Phone Call	Johanne Black	Jane Howe	Seabridge left a message with YKDFN, Seabridge interested in following up regarding TK Study.	
18-Sep-18	Phone Call	Johanne Black	Jane Howe	Seabridge attempted to call YKFDN to discuss proposal for TK Study. Left message.	
19-Sep-18	Phone Call	Johanne Black	Jane Howe	Seabridge called YKDFN to follow up previous conversation and whether YKDFN is still interested in undertaking a TK Study. J.Black indicated she lacks capacity to draft the TK study proposal. Seabridge asked her how can we help? J.Black said she would call me tomorrow to discuss.	
20-Sep-18	Email	Johanne Black	Jane Howe	Seabridge (J.Howe) sent email to request YKDFN (J.Black) phone to discuss options for how Seabridge can help progress the development of a TK Study.	E-mail - LUP Pre-submission - YKDFN - 20180920 1107
21-Sep-18	Phone Call	Johanne Black	Jane Howe	Seabridge had a conversation with J.Black about how Seabridge might help get the TK Study proposal started - perhaps do it in phases, perhaps Seabridge could fund the development of a proposal? J.Black agreed and offered to arrange a three-way conversation with TrailMark, who usually develop the TK proposals. Seabridge also asked for clarification about the requirement for Exploration Agreement, J.Black clarified that there is work that needs to be done before an Ex A, such as doing a TK study. The TK study will make recommendations, such as whether an ExA is required.	
21-Sep-18	Email	Johanne Black	Jane Howe	Seabridge proposed logistics for a conference call to discuss preparation of a proposal for TK Study.	E-mail - TK Study - YKDFN TK Study - 20180921 1340
21-Sep-18	Email	Johanne Black	Jane Howe	Logistics for meeting - timing	E-mail - TK Study - YKDFN TK Study - 20180921 1342
21-Sep-18	Email	Johanne Black	Jane Howe	Logistics for meeting - teleconference details	E-mail - TK Study - YKDFN TK Study - 20180921 1343
21-Sep-18	Email	Johanne Black	Jane Howe	Seabridge attempted to email J.Black to advise her that the conference call had started - would she be joining to discuss the proposal for TK Study.	E-mail - TK Study - YKDFN TK Study - 20180921 1358
21-Sep-18	Email	Johanne Black	Jane Howe	Seabridge sent follow up email to YKDFN/TrailMark after the September 21, 2018 teleconference regarding a proposal for TK study in the Courageous Lake area. Seabridge provided maps and Project fact sheet. Seabridge requested TK study proposal, cost estimate and timeframe to complete the study.	E-mail - Call me when you can - Seabridge gold-A, Map - 2018-09-21 Regional Location Map (YKDFN), Fact Sheet - 2018-09-21 FactSheet (YKDFN), Map - 2018-09-21 ClaimMap (YKDFN)
26-Sep-18	Email	Johanne Black	Jane Howe	Seabridge proposed a follow up discussion to discuss when the traditional study proposal can be prepared and submitted.	E-mail - TK Study - YKDFN & TrailMark - 20180926 1352
26-Sep-18	Email	Johanne Black	Jane Howe	TrailMark (P.Evans) responded that a draft proposal has been prepared and is undergoing review by YKDFN.	E-mail - TK Study - YKDFN & TrailMark - 20180926 1614
27-Sep-18	Email	Johanne Black	Jane Howe	YKDFN and TrailMark submitted a brief proposal - to draft the proposal for a TK Study.	E-mail - TK Study - YKDFN & TrailMark - 20180927 1306
27-Sep-18	Email	Johanne Black	Jane Howe	Seabridge thanked YKDFN and Trail mark for the proposal to prepare a TK study proposal. Seabridge agreed to pay Trail mark to prepare the proposal and requested Trailmark and YKDFN submit the proposal to Seabridge by Oct 10 to meet budget deadlines.	E-mail - TK Study - YKDFN & TrailMark - 20180927 1712
11-Oct-18	Email	Johanne Black	Jane Howe	Seabridge inquired to YKDFN/TrailMark about the status/timing of the traditional knowledge proposal submission.	E-mail - Proposal for TK Study - Seabridge gold
11-Oct-18	Email	Johanne Black	Jane Howe	Seabridge received an update from TrailMark/YKDFN that proposal was in preparation and then would be sent to YKDFN for review/approval.	E-mail - Proposal for TK Study - Seabridge gold-B
11-Oct-18	Email	Johanne Black	Jane Howe	Seabridge requested YKDFN/TrailMark submit the TK proposal by October 12, 2018, to meet Seabridge's internal budget review discussions.	E-mail - Proposal for TK Study - Seabridge gold-C

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
12-Oct-18	Email	Johanne Black	Jane Howe	YKDFN and Trailmark submitted draft TK Study proposal.	E-mail - TK Study - YKDFN & TrailMark - 20181012 1608, Letter - YKDFN Seabridge Gold TK study proposal draft 2018-10-09
19-Oct-18	Email	Johanne Black	Jane Howe	Seabridge provided YKDFN with questions on the draft traditional knowledge study proposal.	Reports - Revised TK Study Proposal with Comments (YKDFN)+jh, E-mail - TK Study - YKDFN & TrailMark - 20181019 1137
23-Oct-18	Phone Call	Johanne Black	Jane Howe	Seabridge attempted to call YKDFN to talk with J. Black about the draft TK Study proposal. Johanne is away this week at a conference. Left message	
23-Oct-18	Phone Call		Jane Howe	Seabridge held call with TrailMark regarding the traditional knowledge study proposal, and requested follow up meeting on October 31, 2018.	
24-Oct-18	Email	Johanne Black	Jane Howe	Seabridge sent reminder email, seeking responses from YKDFN and TrailMark to Seabridge questions on the draft TK Study proposal. Seabridge requested a meeting next week (Oct 31) to discuss the proposal.	E-mail - TK Study - TrailMark - 20181024 1528
25-Oct-18	Email	Johanne Black	Jane Howe	YKDFN/Trailmark provided responses to Seabridge's questions and a revised TK Study proposal.	E-mail - Proposal for TK Study - Seabridge gold-F
30-Oct-18	Email	Johanne Black	Jane Howe	Seabridge sent email to confirm YKDFN availability for proposed meeting today.	E-mail - Proposal for TK Study - Seabridge gold-G
31-Oct-18	Email	Johanne Black	Jane Howe	Seabridge provided conference call dial-in for the October 31, 2018 meeting on the draft TK study.	E-mail - TK Study - YKDFN & TrailMark - 20181031 1059
31-Oct-18	Phone Call	Johanne Black	Jane Howe	Seabridge held teleconference with YKDFN, Trailmark regarding the traditional knowledge proposal. Discussed next steps required to implement study, including finalizing proposal, draft funding agreement letter, draft a parallel process/ protocol to support development of a relationship, and encourage communications and capacity. Seabridge committed to provide an example communications protocol, the 2013 archaeological compilation report, and to enquire about sharing aspects of the Tlicho traditional knowledge study.	V.2 TK Study Proposal Draft (YKDFN), 0.1 Draft TK Study Proposal (YKDFN), TK Study Proposal with Comments Revised Draft (YKDFN)+jh
1-Nov-18	Email	Johanne Black	Jane Howe	Seabridge provided email to recap the agreed next steps that were discussed during the teleconference on Oct 31, 2018.	E-mail - TK Study Proposal - YKDFN & TrailMark - 20181101 1500
7-Nov-18	Email	Johanne Black	Jane Howe	Seabridge followed up on Oct 31, 2018 commitment, and sent an example of a Communication Agreement that Seabridge has executed with a First Nation with Traditional lands near one of our projects in BC.	E-mail - TK Study Proposal - YKDFN - 20181107 1609, Agreements - Communications Agreement Example (YKDFN)
7-Nov-18	Email	Johanne Black	Jane Howe	Seabridge follow up to Oct 31, 2018 meeting: Seabridge provided PDF of 2013 Archaeology Compilation Report that was requested by YKDFN.	E-mail - TK Study Proposal follow-up - YKDFN TK Study - 20181107 1637, Reports - 2013-Cumulative Archaeology Baseline report 2003 to 2013 - Jan10- 14.pdf
18-Nov-18	Email	Johanne Black	Brent Murphy, Elizabeth Miller, Jane Howe, Marcus Adam	Seabridge sent notice of two upcoming presentations during at the Geoscience Forum in Yellowknife. (1) "Sustainably Advancing Resource Development Projects" which is about the successes and lessons learned as Seabridge works to build strong relationships with Indigenous groups and local communities at our KSM Project in BC. and (2) Exploration Highlights at our Courageous Lake Project.	E-mail - Project Update - All YK Stakeholders - 20181118 1014
20-Nov-18	Email	Johanne Black	Jane Howe	Seabridge sent draft "contribution letter agreement" to YKDFN, and requested a meeting to discuss	E-mail - TK Study Proposal - YKDFN & TrailMark - 20181120 1246, Letter - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement.docx
21-Nov-18	Phone Call	Johanne Black	Jane Howe	Seabridge attempted to contact J.Black regarding the draft Contribution Agreement for the TK Study. Left voice message.	
29-Nov-18	Phone Call	Johanne Black	Jane Howe	Seabridge attempted to contact J.Black regarding the draft Contribution Agreement for the TK Study. Left message with reception.	
3-Dec-18	Phone Call	Johanne Black	Jane Howe	Seabridge attempted to contact J.Black regarding the draft Contribution Agreement for the TK Study. Left message.	

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
4-Dec-18	Email	Johanne Black	Jane Howe	Seabridge sent email to YKDFN (J.Black) to reiterate recent voice messages and request for J. Black to call Seabridge to discuss draft contribution agreement and finalizing the TK proposal.	E-mail - TK Study Proposal - YKDFN & TrailMark - 20181204 0814, Letter - YKDFN Seabridge Gold TK study proposal draft V.2_PCE.docx
4-Dec-18	Phone Call	Johanne Black	Jane Howe	Seabridge called YKDFN (J.Black). Seabridge was informed that she will be out of office all week.	
4-Dec-18	Email	Johanne Black	Jane Howe	Trailmark (P.Evans) responded, that TrailMark was reviewing and finalizing the TK Study Proposal and would return as soon as possible.	E-mail - TK Study Proposal - YKDFN & TrailMark - 20181204 1337, Letter - YKDFN Seabridge Gold TK study proposal draft V.2_PCE.docx
10-Dec-18	Phone Call	Johanne Black	Jane Howe	TK Study proposal.	
11-Dec-18	Email	Johanne Black	Jane Howe	TrailMark (P.Evans) sent a revised Version 3 of the TK Study Proposal. TrailMark will review the funding agreement and send comments to J.Black.	E-mail - TK Study Proposal - YKDFN & TrailMark - 20181211 1641, Letter - YKDFN Seabridge Gold TK study proposal draft V.3_PCE.docx, Letter - YKDFN Seabridge Gold TK study proposal draft V.3_PCE_tracked.docx
19-Dec-18	Email	Johanne Black	Jane Howe	Seabridge (J.Howe) sent email stating that the Dec 11 version 3 of the TK Study Proposal looks fine with two minor comments that require clarification. Seabridge is waiting for feedback on the draft Contribution Letter. Seabridge requested a short telephone call to discuss next steps.	E-mail - TK Study Proposal - YKDFN & TrailMark - 20181219 1046, Letter - YKDFN Seabridge Gold TKstudy proposal draftV.3_PCE_tracked+jh.docx
20-Dec-18	Phone Call	Johanne Black	Jane Howe	Seabridge called and left messages for J. Black on Dec 20 and again on Dec 21, Seabridge wishes to discuss the TK Study proposal and draft Contribution agreement letter, requested meeting the week of Jan 14.	
20-Dec-18	Email	Johanne Black	Jane Howe	Trailmark (P.Evans) responded with quick clarification fixes to TK Proposal and indicated that Trailmark had provided their comments to YKDFN (J.Black)	E-mail - TK Study Proposal - YKDFN & TrailMark - 20181220 1053, Letter - YKDFN Seabridge Gold TKstudy proposal draftV.3 PCE tracked+ih+PCE.docx
8-Jan-19	Phone Call	Johanne Black	Jane Howe	J.Howe attempted to call J. Black, left several message and sent emails indicating that Seabridge wishes to meet and discuss finalizing the TK Study/Funding. Seabridge also wishes to provide a Project Update. No response by end of day.	
9-Jan-19	Phone Call	Johanne Black	Jane Howe	TK Study & Request meeting for project update.	
10-Jan-19	Phone Call	Melissa MacKenzie	Jane Howe	Seabridge (J.Howe) called M.Mackenzie (YKDFN Executive Assistant) to enquire whether Seabridge could be added to the YKDFN Council meeting agenda to provide a Project Update and answer any questions about the proposed TK Study. Melissa indicated that she was doubtful because the next Council meeting is very full, she will contact J. Howe next week to confirm.	
10-Jan-19	Phone Call	Johanne Black	Jane Howe	Seabridge (J.Howe) spoke with YKDFN (J. Black), she hopes to present briefing note about the TK Study to Chief and Council next Thursday. J.Black suggested that Seabridge should contact M.Mackenzie (YKDFN Executive Assistant) to ask if Seabridge can be added to the Agenda (as public audience) to provide a Project Update and answer any questions about the proposed TK Study. Also agreed to meet with Johanne and Jason Snaggs, the new YKDFN CEO on Jan 15 - for introductions and a Project Update on Courageous Lake.	
10-Jan-19	Email	Melissa MacKenzie, Delores Lacorne, Johanne Black	Jane Howe	Seabridge sent meeting request to YKDFN Executive Admins following request from J.Black; Request to meet with Chief and Council during week of Jan 14 to provide a project update and answer any questions about the TK Study and funding agreement that are proposed.	E-mail - Project Update - YKDFN - 20190110 1445
10-Jan-19	Email	Jason Snaggs, Johanne Black	Brent Murphy, Jane Howe, Taryn Cutler	Request meeting for Jan 15, 2019 1030 to discuss project update and TK Study with J.Black	E-mail - Project Update - Meeting Invitation - YKDFN - 20190110 1532
10-Jan-19	Email	Johanne Black	Jane Howe	TK Study proposal.	E-mail - TK Study Proposal - YKDFN TK Study - 20190110 1630

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
15-Jan-19	Meeting- Ndilo	Jason Snaggs, Johanne Black	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge personnel met with senior staff of YKDFN, to review the project update presentation, discuss permitting plans, opportunities for ongoing communications and engagement, capacity issues, progressing the TK study proposal. Refer to meeting notes that were sent on Jan 28, 2019	Presentations - Courageous Lake Update January 2019.pdf, Meeting Minutes - 190125_Meeting Notes-YKDFN-Seabridge-Jan15- 2019.docx, Fact Sheet - CourLake_FactSheet_Jan2019_Press, Fact Sheet - KSM Project Overview Factsheet 2019_PRESS
18-Jan-19	Email	Johanne Black, Jason Snaggs	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge sent an email to YKDFN personnel to thank them for their time and input at the meeting this week. Seabridge provided a PDF copy of the presentation and other data requested during the meeting. Seabridge committed to prepare and send summary meeting notes.	E-mail - Project Update Meeting - YKDFN - 20190118 1510, Presentations - Courageous Lake Update January 2019.pdf
25-Jan-19	Email	Jason Snaggs	Jane Howe	Seabridge and YKDRN - series of emails to coordinate meeting logistics for meetings with Staff on Feb 6	E-mail - Council Meeting - Invitation -
25-Jan-19	Email	Jason Snaggs, Johanne Black	Brent Murphy, Jane Howe, Taryn Cutler	Meeting logistics, timing.	E-mail - Council Meeting - YKDFN - 20190125 1758
28-Jan-19	Email	Johanne Black, Jason Snaggs	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge sent summary meeting notes, action items and requested information for face-to-face meeting that was held Jan 15, 2019. Requested YKDFN review the notes and provide any comments, corrections or questions	E-mail - Project Update - YKDFN - 20190128 0739, Letter - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement.docx, Agreements - Communications Agt Form Nov 2018.docx, Meeting Minutes - 190125_Meeting Notes-YKDFN-Seabridge-Jan15- 2019.docx, Presentations - Courageous Lake Update January 2019.pdf
30-Jan-19	Email	Johanne Black, Jason Snaggs	Brent Murphy, Jane Howe, Taryn Cutler	YKDFN (J.Black) responded to Seabridge's Nov 20, 2018 email and draft Contribution Agreement. Indicated that TrailMark (B.Keats) would review the Draft Contribution agreement and provide comments, if necessary.	E-mail - TK Study Proposal - YKDFN - 20190130 1608
6-Feb-19	Meeting- Dettah	Jason Snaggs, Johanne Black	Jane Howe, Taryn Cutler	Seabridge personnel and YKDFN senior staff met for a pre-meeting to review the draft presentation prior to Chief and Council meeting tomorrow evening. Also discussed timing and next steps for TK Study. J. Snaggs suggested monthly check-in meetings to ensure the TK study progresses so that TK info is available to include in the LUP application. Seabridge agreed.	Presentations - Courageous Lake Update January 2019.pdf
6-Feb-19	Email	Jason Snaggs, Johanne Black, Melissa MacKenzie	Jane Howe	Meeting logistics, timing. Seabridge provided copy of the presentation that will be given during the meeting with YKDFN Chief and Council.	E-mail - Council Meeting - YKDFN - 20190206 1757, Presentations - Courageous Lake Update - YKDFN Feb-7-2019.pdf
7-Feb-19	Email	Melissa MacKenzie, Johanne Black, Jason Snaggs	Jane Howe	Meeting logistics, timing.	E-mail - Council Meeting - YKDFN - 20190207 0926
7-Feb-19	Meeting- Dettah	Edward Sangris, Ernest Betsina, Jason Snaggs, Johanne Black	Brent Murphy, Jane Howe, Taryn Cutler	Presentation to Chief and Council about Seabridge Gold, Courageous Lake project update, and discussion about proposed TK Study and other 2019 permitting activities. Council asked questions and made suggestions about future engagement with Seabridge as well as undertaking the TK study.	

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
8-Feb-19	Email	Johanne Black, Stephanie Poole	Jane Howe, Kay Jollymore (ERM)	Seabridge is providing a draft of our 2019 archaeology permit for review before we submit it to the PWNHC, please provide any comments by Feb 22. The 2018 Archaeology Report is being send to you separately by courier.	E-mail - Pre-submission Archaeology Permit - YKDFN - 20190208 1526, Submissions - B.1 2019 Permit Application KJollymore January 2019_wMap.pdf (YKDFN), Letter - Yellowknives - 20190208_Letter- Draft-ArchaeologyPermitAppIn.pdf (YKDFN)
14-Feb-19	Email	Johanne Black	Jane Howe	Trailmark provided comments (on behalf of J.Black) on the draft Contribution Agreement.	E-mail - TK Study Proposal & Funding Agreement - YKDFN TK Study & TrailMark - 20190214 1035, Agreements - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement_Commentssubmitted.docx
19-Feb-19	Email	Johanne Black	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) sent Notice of Work Commencement for winter mobilization to Inspectors and MVLWB, and cc'd other stakeholders	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1454, Notifications - MV2012C0025- NoticeOfWork-2019WinterProgram- 19Feb2019.pdf (GNWT)
19-Feb-19	Email	Johanne Black	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	CIRNAC Inspector acknowledged Seabridge's Notice of Work and requested information about winter road route.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1518
19-Feb-19	Email	Johanne Black	Jane Howe	Seabridge acknowledged the comments on the draft Funding Agreement and indicated that Seabridge would review and provide a revised agreement back to YKDFN shortly. Seabridge enquired whether dates for TK Study deliverables are still achievable.	E-mail - TK Study Proposal & Funding Agreement - YKDFN TK Study & TrailMark - 20190219 1552
26-Feb-19	Email	Johanne Black	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) provided a clarification regarding - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190226 1822
4-Mar-19	Letter	Johanne Black	Jane Howe	Seabridge distributed paper copy of the 2018 Archaeology Report.	Letter - Yellowknives Dene 20190304_Letter- ArchaeologyReport.docm, Reports - F.1_2018-004 Courageous Lake AIA Final Report.pdf
6-Mar-19	Email	Johanne Black	Jane Howe	TrailMark enquired about status of TK Proposal and Funding Agreement	E-mail - TK Study Proposal & Funding Agreement - YKDFN TK Study & TrailMark - 20190306 1347, Agreements - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement_tracked-March7.docx
7-Mar-19	Email	Johanne Black	Jane Howe	Seabridge apologized for delay and sent revised version of the draft Contribution Agreement that addressed comments provided by TrailMark on Feb 14. Requested TrailMark send a final clean copy of the TK Study proposal to attached to the Contribution Agreement.	E-mail - TK Study Proposal & Funding Agreement - YKDFN TK Study & TrailMark - 20190307 0850, Agreements - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement March7 - v2
12-Mar-19	Letter	Johanne Black	Jane Howe	Delivery confirmation of 2018 Archaeology Report letter.	Notifications - Delivery Confirmation - Yellowknives Dene - 20190312.pdf

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
22-Mar-19	Email	Johanne Black	Jane Howe	Seabridge enquired to YKDFN and TrailMark about status of revised funding agreement that was provided on March 7, 2019	E-mail - TK Study Proposal & Funding Agreement - YKDFN TK Study & TrailMark - 20190322 1346, Agreements - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement March7 - v2
26-Mar-19	Email	Johanne Black	Jane Howe	TrailMark responded that the revised Funding Agreement is fine from a project management perspective.	E-mail - TK Study Proposal & Funding Agreement - YKDFN TK Study & TrailMark - 20190326 1702, Agreements - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement March7 - v2
26-Mar-19	Email	Johanne Black, Jason Snaggs	Jane Howe	Seabridge emailed YKDFN to suggest next steps to finalize agreement and study.	E-mail - TK Study Proposal & Funding Agreement - YKDFN TK Study & TrailMark - 20190326 1815, Agreements - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement March7 - v2
3-Apr-19	Various	Johanne Black	Jane Howe	Seabridge (J.Howe) sent text message to YKDFN (J.Black) to enquire about status of funding agreement review.	
3-Apr-19	Phone Call	Johanne Black	Jane Howe	YKDFN (J.Black) called Seabridge (J.Howe) to explain that YKDFN (J.Snaggs and J. Sangris) must review the draft agreement. J.Black hopes to get feedback to me today or tomorrow.	
3-Apr-19	Email	Johanne Black	Jane Howe	Email from TrailMark to YKDFN and Seabridge to discuss timing and status of funding agreement and TK Study.	E-mail - TK Study Proposal & Funding Agreement - YKDFN TK Study & TrailMark - 20190403 1623, Letter - YKDFN Seabridge Gold TKstudy proposal draftV.3_PCE_tracked+jh+PCE.docx (FW: CA comments), Agreements - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement_tracked-March7.docx (FW: CA comments)
5-Apr-19	Phone Call	Johanne Black	Jane Howe	YKDFN (J.Black) called Seabridge (J.Howe) and indicated that YKDFN had completed their review. YKDFN requests the milestone/due dates for the draft and final reports be changed from May 15 and June 15 to June 15 and July 15, respectively. Seabridge agreed to the revised dates. The YKDFN had no other comments or changes. UKDFN personnel will be available to sign the agreement this afternoon if Seabridge can implement these changes.	
5-Apr-19	Email	Johanne Black, Jason Snaggs, Juanita Sangris	Jane Howe	Email from YKDFN (J.Black) requesting date changes for deliverables as discussed in phone call today.	E-mail - YKDFN TK Study - 20190405 1351, Letter - YKDFN Seabridge Gold TKstudy proposal draftV.3_PCE_tracked+jh+PCE.docx (FW: CA comments), Agreements - Draft Seabridge_YKDFN_Contribution_Letter_ Agreement_tracked-March7.docx (FW: CA comments)
5-Apr-19	Phone Call	Johanne Black, Jason Snaggs, Juanita Sangris	Jane Howe	Seabridge agreed to incorporate YKDFN requested changes to deliverable timeline and will send a partially executed Funding Agreement letter including the Dec 18, 2018 proposal (revised by TrailMark) to YKDFN for their execution.	
5-Apr-19	Email	Johanne Black, Juanita Sangris, Jason Snaggs	Brent Murphy, Jane Howe	Seabridge sent a partially executed Contribution Agreement to YKDFN.	E-mail - YKDFN TK Study - 20190405 1358, Letter - 180419 Cover Letter Initial Funding for TK Study.pdf

C	Date Met	hod	Contacts	Seabridge Team Members	Communication Summary	Documents linked
5-Apr-1	19 Email		Jason Snaggs, Johanne Black, Juanita Sangris	Brent Murphy, Jane Howe	YKDFN sent the fully executed TK Study Funding Agreement back to Seabridge.	E-mail - YKDFN TK Study - 20190405 1509, Agreements - Reviewed and Signed - Seabridge TK Agreement.pdf
5-Apr-1	19 Email		Johanne Black, Juanita Sangris, Jason Snaggs	Jane Howe	TrailMark provided the final, revised version of the TK proposal with revised dates.	E-mail - YKDFN TK Study - 20190405 1541, Letter - YKDFN Seabridge Gold TKstudy proposal draftV.4.docx (FW: FW: CA Comments)
8-Apr-1	19 Email		Jason Snaggs, Johanne Black	Jane Howe	Seabridge confirmed initiation of Funding Agreement, and requested copy of Band Council resolution as required in the Agreement.	E-mail - YKDFN TK Study - 20190408 1454
8-Apr-1	19 Email	! [Jason Snaggs, Johanne Black, Melissa MacKenzie, Delores Lacorne	Jane Howe	YKDFN (J.Snaggs) confirmed that the resolution would provided following the next Council meeting.	E-mail - YKDFN TK Study - 20190408 1502
16-Apr	-19 Email	ľ	Johanne Black, Machel Thomas	Jane Howe	J.Black (YKDFN) forwarded the draft wildlife permit application email to M.Thomas at YKDFN	E-mail - Wildlife Permit - YKDFN - 20190416 1227, Submissions - 2019-CourageousLake- Wildlife Research Permit Application-for Review.pdf, Submissions - Research_Recommendation_Form_2019. docx
18-Apr	-19 Letter		Jason Snaggs, Johanne Black	Brent Murphy	Courier - First installment payment.	
18-Apr	-19 Email		Jason Snaggs, Johanne Black	Brent Murphy, Gloria Trujillo, Jane Howe	Seabridge sent initial payment for TK Study funding.	Invoice - YK Dene Cheque \$40,000.pdf, E-mail - YKDFN TK Study - Initial Payment - 20190418 1528
25-Apr	-19 Email	 	Melissa MacKenzie, Jason Snaggs, Johanne Black, Delores Lacorne	Jane Howe	YKDFN provided Band Council Resolution approving the TK Study proposal.	E-mail - YKDFN TK Study - 20190425 1636, Agreements - 2019-04-17-0016 Seabridge Gold Contribution Agreement with YKDFN.pdf
29-Apr	-19 Email	1	Machel Thomas, Johanne Black	Jane Howe	Seabridge received an email from YKDFN (M.Thomas) stating that they are unable to submit recommendation form to GWNT today. Seabridge responded indicating that they could defer submission of the application a few days if YKDFN can provide recommendation by May 1.	E-mail - Wild ⁱ lfe Permit - YKDFN - 20190429 1904
30-Apr	-19 Email	1	Machel Thomas, Johanne Black	Jane Howe	YKDFN responded that they are unable to provide the recommendation letter until after the next Chiefs and Council meeting which is next week.	E-mail - Wildlife Permit - YKDFN - 20190430 1129
21-May	y-19 Email		Johanne Black	Jane Howe	Seabridge and TrailMark exchanged emails regarding TK Study progress.	E-mail - YKDFN TK Study - 20190521 1337
23-May	y-19 Email		Johanne Black	Jane Howe	TrailMark sent request to Seabridge for spatial files (lease and footprint) to use for the gap analysis and interviews.	E-mail - Shp or KML Files - YKDFN - 20190523 1205
24-May	y-19 Email		Johanne Black, Jason Snaggs	Jane Howe	Seabridge Gold request input from YKDFN on Engagement Plan. We will begin updating the plan in mid June and would like to receive suggestions by June 7.	E-mail - Engagement Plan - YKDFN - 20190524 1113, Agreements - MV2012C0025 - Seabridge - Engagement Plan-v3- Nov15- 13
24-May	y-19 Email		Johanne Black	Jane Howe	Seabridge responded to TrailMark information request. Provided shapefiles for mineral tenure, surface lease and land use permit boundary for the Courageous Lake Property. Seabridge indicated that other requested information is currently being updated and will be provided next week.	E-mail - Shp or KML Files - YKDFN - 20190524 1330, Map - seabridge_courageous_claims_apr2019.s hp, Map - courageous_leases.sbp, Map - aandc_claim.shp, Map - aandc_leases.shp,

	Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
24-	May-19	Email	Johanne Black	Jane Howe	TrailMark acknowledge shapefiles that were provided and requested a chat/meeting to discuss data that might be available from wildlife monitoring program.	E-mail - TrailMark Meeting Request - YKDFN - 20190524 1735
3-JI	un-19	Email	Johanne Black	Jane Howe	Seabridge (J.Howe) called YKDFN (J. Black) to touch base on the email request to review our Engagement Plan. J.Black was not in office and a message was left with reception requesting a quick chat about the Engagement Plan review and that J.Howe would be in Yellowknife next week and would like to meet to talk and exchange updates Courageous Lake and the TK Study.	E-mail - Request for Review of Our Engagement Plan - YKDFN - 20190603 1418
7-Ji	un-19	Email	Johanne Black	Jane Howe	Seabridge (J.Howe) sent the remainder of the spatial information requested Mar 24, 2019) to YKDFN and TrailMark. Information included shapefiles showing the historic and current land use footprints, roads, property/mineral tenure boundary and LUP boundary, and a reference to a NWT publication that provides a summary of the historical mining activities in the area.	E-mail - Information Request - YKDFN - 20190607 1522, Map - CourageousLake-ClaimMap2012, Map - Existing_Roads.shp, Notifications - 0-README-Layer List and Metadata.txt, Map - ExistingDisturbedAreas.shp, Map - LandUsePermit_Boundary_MV2012C002 5.shp, Map - MatthewsLakeCamp_SurfaceLease_76D 366.shp, Map - Tundra_Roads.shp,
7-Ji	un-19	Email	Johanne Black	Jane Howe	Seabridge sent follow-up email to YKDFN and Trailmark to provide information source for the mining history of the area.	E-mail - Information Request - YKDFN - 20190607 1844
10-,	Jun-19	Email	Johanne Black	Jane Howe	Seabridge received response from TrailMark (P.Evans) saying "thanks, this information would be hugely helpful"	E-mail - Information Request - YKDFN - 20190610 0735
11-	Jun-19	Meeting- Ndilo	Johanne Black, Jason Snaggs	Jane Howe	Seabridge met with YKDFN in N'dilo, J.Howe and J.Black in N'Dilo and J.Snaggs joined by teleconference. Seabridge discussed the content, timing of the LUP, 2WLs, potential review of 5 Management Plans and Exploration Work Plan; J.Black said M.Thomas would prepare comments on Engagement Plan and they would send by Jun 13. Quarry permit, TK Study and next steps were also discussed, see summary notes from meeting.	
13-	Jun-19	Email	Johanne Black, Jason Snaggs	Jane Howe	Seabridge sent thank you note for meeting, and provided meeting notes and other requested information.	E-mail - Thank you for meeting and recap of discussion - YKDFN - 20190613 1319, Application - Draft-QuarryApplication-for review.pdf, Reports - 0.1 2019 Courageous Lake WMMP TOC.PDF, Reports - 2019 Caribou Camera Monitoring.pdf
13-	Jun-19	Email	Johanne Black, Jason Snaggs, Machel Thomas	Jane Howe	J.Black replied "Thanks for the attachments and we will review and provide as much comment as possible. We will also begin working on a proposal for engagement."	E-mail - Thank you for meeting and recap of discussion - YKDFN - 20190613 1425
14-,	Jun-19	Email	YKDFN Human Resources	Jane Howe, Mike Kenney (Matrix), Robyn Loudon (Matrix), Leslie Violette (Matrix)	Matrix sent email with two opportunities, Camp Construction and Geotechnical Assistant.	E-mail - Employment opportunities - YKDFN - 20190614 1036, Job Posting - Camp Construction Crew Member - 2019.pdf, Job Posting - Geo Tech Field Assistant - 2019.pdf

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
14-Jun-19	Email	Johanne Black	Jane Howe	Seabridge (J.Howe) forwarded the Matrix employment opportunities email to regular contacts: J.Black.	E-mail - Employment opportunities - YKDFN - 20190614 1453, Job Posting - Camp Construction Crew Member - 2019.pdf, Job Posting - Geo Tech Field Assistant - 2019.pdf
17-Jun-19	Email	Johanne Black	Jane Howe	J.Black indicated she would ensure these are posted on their job board.	E-mail - Employment opportunities - YKDFN - 20190617 1021
18-Jun-19	Email	Johanne Black, Jason Snaggs	Jane Howe	Seabridge (J.Howe) provided an update on three items discussed last week: (1) Site Visit is possible on July 4 if YKDFN would like to send one person. (2) It will take a few weeks to prepare the archaeology map and table that you requested, but I hope to have something in early July. (3) When will YKDFN be submitting comments on the Engagement plan?	E-mail - Update - YKDFN - 20190618 1717
25-Jun-19	Email	Johanne Black, Jason Snaggs	Jane Howe	Seabridge (J.Howe) requested response from J.Black whether somebody from YKDFN wanted to go on site visit next week; and reminder about submitting any Engagement Plan comments.	E-mail - Site Visit and Engagement Plan comments - YKDFN - 20190625 1726
27-Jun-19	Email	Johanne Black	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge sent Notice of Work, as required per Condition of LUP MV2012C0025; cc'd to MVLWB and First Nation community representatives.	E-mail - Notice of Work Commencement for summer program - GNWT-Inspector & CIRNAC Inspector - 20190627 1041, Notifications - 190627-MV2012C0025- NoticeOfWork-2019SummerProgram.pdf
28-Jun-19	Email	Johanne Black, Jason Snaggs	Jane Howe	J.Black responded that YKDFN would provide name of somebody to attend site visit July 4.	E-mail - Site Visit and Engagement Plan comments? - YKDFN - 20190628 1346
1-Jul-19	Email	Machel Thomas, Johanne Black	Jane Howe	M. Thomas responded asking if it would be possible to have 2 people participate in the site visit.	E-mail - Logistics for Site Visit in July 2019 - YKDFN - 20190701 1216
2-Jul-19	Email	Johanne Black	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	T.Morton, CIRNAC acknowledged notification.	E-mail - Notice of Work Commencement for summer program - CIRNAC - 20190702 0754
2-Jul-19	Email	Machel Thomas, Johanne Black, Angus Charlo	Jane Howe	M.Thomas provided contact information, as requested.	E-mail - Logistics for Site Visit in July 2019 - 20190702 1350
3-Jul-19	Letter	Johanne Black	Jane Howe	Seabridge is distributing our 2019 Caribou Camera Monitoring Report which summarizes the results of the wildlife camera data collected in the Courageous Lake area from 2011 to 2018. The objective of this study is to monitor and record temporal and spatial distribution of caribou in the area using remote motion-triggered cameras.	Notifications - Cgs Lake Camera Report to YKDFN_CanadaPostTracking 9228 5816 0287 6417.pdf, Letter - Letter-WildlifeReport-YKDFN_J Black.pdf
4-Jul-19	Site Tour	Machel Thomas, Angus Charlo	Jane Howe	Angus Charlo and Machel Thomas attended a site visit at the Courageous Lake Project. Ground tour of airstrip, road to Camp and Coreland, overview of the area, then helicopter tour of area including historic mining activities, current exploration areas, archaeology site LbNw-3 at northeast Courageous Lake. Visited the YKDFN fish/hunt camp on the west side of MacKay Lake. Noted concerns that eskers may contain traditional use area, burial sites, Caribou use this area extensively including the west side of Matthews Lake. Angus told of a very large heard, possibly 500,000 that crossed at Nodinka Narrows in about 1982.	
8-Jul-19	Email	Machel Thomas, Johanne Black	Jane Howe	Seabridge (J.Howe) followed-up regarding two requests for information during YKDFN site visit. Orthophoto and the Borden number for the archaeological site at the north end of Courageous Lake.	E-mail - Site Trip follow-up - YKDFN - 20190708 2151, Photographs - CL-15-124-OrthoPhoto- Annotations-reduced off
10-Jul-19	Email	Machel Thomas, Johanne Black	Jane Howe	M.Thomas responded that those were the two items requested.	E-mail - Site Trip follow-up - YKDFN - 20190710 0012

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
25-Jul-19	Email	Johanne Black	Jane Howe	Seabridge (J.Howe) requested an update on the timing for the draft TK Study. P.Evans responded that was going through review and validation with YKDFN and should be available next week.	E-mail - Project Update - YKDFN - 20190725 1102
30-Jul-19	Letter	Johanne Black	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_YKDFN_J.Black.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
30-Jul-19	Letter	Jason Snaggs	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_YKDFN_J.Snaggs.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
6-Aug-19	Email	Johanne Black	Jane Howe	Seabridge (J.Howe) requested an update on the timing for the draft TK Study. P.Evans responded that review was complete and report should be provided today.	E-mail - Draft TK Study - YKDFN TK Study - 20190806 1122
6-Aug-19	Email	Johanne Black	Jane Howe	YKDFN and TrailMark (P.Evans) sent draft of the TK Study and indicated that a non-confidential summary is in preparation.	E-mail - Draft TK Study - YKDFN TK Study - 20190806 1136
7-Aug-19	Email	Johanne Black, Machel Thomas	Jane Howe	YKDFN and TrailMark (P.Evans) sent draft version of the TK Study and indicated that a non-confidential summary is in preparation.	E-mail - Draft TK Study - YKDFN TK Study - 20190807 1048, Draft - Courageouslake_seabridge_YKDFN TK Study DRAFT_PCEJuly19.pdf
8-Aug-19	Email	Johanne Black, Machel Thomas	Jane Howe	Seabridge (J.Howe) thanked TrailMark/YKDFN for the draft TK Study and indicated that Seabridge would review draft and provide any questions next week.	E-mail - Draft TK Study - YKDFN TK Study - 20190808 1519
20-Aug-19	Email	Machel Thomas, Johanne Black	Jane Howe	Seabridge (J.Howe) requested an opportunity to discuss the draft TK study and next steps.	E-mail - Draft TK Study - YKDFN TK Study - 20190820 0825
28-Aug-19	Email	Johanne Black, Machel Thomas	Jane Howe	Seabridge (J.Howe) sent another email requested an opportunity to discuss the draft TK study and next steps. We are trying to finalize application package and sent a short excerpt we propose to include in our supporting documents. Requested meeting to discuss mitigation recommendations	E-mail - Draft TK Study - YKDFN - 20190828 1125
28-Aug-19	Email	Johanne Black, Machel Thomas	Jane Howe	TrailMark (P.Evans) responded that the non-confidential summary is being prepared, and will need to be reviewed and approved by YKDFN. Indicated that he could meet on Friday afternoon.	E-mail - Draft TK Study - YKDFN - 20190828 1128
28-Aug-19	Email	Johanne Black, Machel Thomas	Jane Howe	Seabridge (J.Howe) responded that she was unable for part of Friday - do to other meetings. Options for later in day or the following week?	E-mail - Draft TK Study - YKDFN - 20190828 1431
28-Aug-19	Email	Johanne Black, Machel Thomas	Jane Howe	YKDFN (J.Black) responded that she could meet on Friday afternoon.	E-mail - Draft TK Study - YKDFN - 20190828 1520
29-Aug-19	Email	Johanne Black, Machel Thomas	Jane Howe	Agreed on meeting for Friday Sept 6.	E-mail - Draft TK Study - YKDFN - 20190829 1446
30-Aug-19	Email	Johanne Black, Jason Snaggs	Jane Howe	Seabridge sent a letter summarizing the presubmission engagement activities that have occurred over the past fourteen months, the concerns/suggestions that we heard and how Seabridge has addressed them, and requested any comments be provided by September 5. Seabridge also offered to meet with any communities to answer questions about the applications package.	E-mail - Presubmission engagement - YKDFN - 20190830 0714, Letter - 190830-Letter- PreSubmissionEngagement-YKDFN.pdf
30-Aug-19	Email	Johanne Black, Jason Snaggs, Machel Thomas	Jane Howe	Both J.Black and J.Snaggs responded acknowledging receipt.	E-mail - Presubmission engagement - YKDFN - 20190830 1039
6-Sep-19	Meeting- Ndilo	Johanne Black, Peter Evans, Randy Freeman	Jane Howe	Seabridge (J.Howe) met with YKDFN (J.Black) and consultants TrailMark (P.Evans) and DownNorth (R.Freeman) to review draft report and next steps. YKDFN feel that the TK/TLU Report is not the place to recommend mitigations, this is for separate discussions with YKDFN. Seabridge to resend the Communications Protocol, J.Black will work with team to move this forward. J.Howe agreed to provide specific comments about the draft report by email next week. The confidential summary is still in draft format; . Seabridge indicated that we are looking for a 1-2page summary only to share with employees, contractors, investors etc.	
0-265-18		Peter Evans, Randy Freeman		steps that were discussed. Attached copy of Seabridge's comments on the draft TK/TLU report and a Communications Agreement for consideration by YKDFN.	

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
Akaitcho Interi	m Measure	es Agreement I	mplementation Off	ice	
25-Jun-18	Letter	Stephanie Poole	Brent Murphy, Nicole Bishop (ERM)	Seabridge provided AIMAIO with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)
27-Jun-18	Email and Letter	Stephen Ellis	Brent Murphy, Jane Howe	Seabridge sent letter indicating that it will be submitting an LUP application in 2019 and wishes to seek input from community about preferred community engagement activities and schedule.	E-mail - LUP Pre-submission Engagement - ADFN IO- 20180627 1354, Newsletter - 2018-06-27 Community Engagement Workshop (AIMAIO)
27-Jun-18	Email	Stephanie Poole	Brent Murphy, Jane Howe	Seabridge received email from AIMAIO thanking Seabridge for letter about Pre-submission activities. AIMAIO provided Guidelines for Mineral Exploration in the Akaitcho Territory and the Akaitcho Exploration Agreement template for use in negotiating a potential agreement with the Akaitcho Dene First Nations regarding your proposed land use application within Akaitcho Territory. S.Poole clarified that the duty to consult and accommodate the Akaitcho Dene First Nations cannot be discharged by Akaitcho Dene staff - only with leadership. Staff can assist in developing pre-submission engagement activities, drafting engagement policy, drafting agreements, setting up meetings with leadership, etc.	E-mail - LUP Pre-submission Engagement - ADFN IO- 20180627 1508
27-Jun-18	Email	Stephanie Poole	Brent Murphy, Jane Howe	Seabridge received AIMAIO contact information and AIMAIO request that correspondence be in writing regarding inquiry of status of exploration agreements.	E-mail - Zoe_Mullard_20180629_204950UTC
27-Jun-18	Email	Stephanie Poole	Jane Howe	Seabridge informed AIMAIO that Seabridge does not have an Exploration Agreement with any Akaitcho Dene First Nations. Seabridge proposed a meeting the week of July 16, 2018 to discuss engagement opportunities related to the land use permit application and requirements for Exploration Agreements.	E-mail - Zoe_Mullard_20180629_205022UTC
27-Jun-18	Email	Stephanie Poole	Jane Howe	Seabridge received AIMAIO guidelines for mineral exploration in the Akaitcho Territory, and an Akaitcho Exploration Agreement template. These documents were provided to support the development of an agreement with the Akaitcho Dene First Nations regarding Seabridge's proposed land use application. AIMAIO indicated that consultation and accommodation must be undertaken directly with the Akaitcho Dene First Nations; AIMAIO and Akaitcho First Nation staff members are available to assist in developing pre-submission engagement activities, drafting an engagement policy, drafting agreements, and setting up meetings with leadership . Received AIMAIO confirmation that Seabridge's proposed engagement letter has been forwarded to appropriate staff within the Akaitcho First Nations.	E-mail - Zoe_Mullard_20180629_205037UTC, Agreements - 2018-06-27 Exploration Agreement Template (AIMAIO), Newsletter - 2018-06-27 Guidelines for Mineral Exploration (AIMAIO)
20-Sep-18	Email	Stephanie Poole	Jane Howe	Seabridge followed up voice message with email requesting to follow up with AIMAIO to discuss mineral exploration guidelines and Akaitcho exploration agreement template. Informed AIMAIO that Seabridge would contact October 2018.	E-mail - Letter from Seabridge Gold - Engagement Planning-A
20-Sep-18	Phone Call	Stephanie Poole	Jane Howe	Seabridge attempted call AIMAIO (S.Poole) but was informed that staff is away for several weeks. Seabridge left voice message request opportunity to discuss mineral exploration guidelines and Akaitcho exploration agreement template. Informed AIMAIO that Seabridge would contact October 2018. (Voicemail also left with AIMAIO on September 20, 2018).	
24-Oct-18	Phone Call	Stephanie Poole	Jane Howe	Seabridge attempted to call AIMAIO several times today to discuss opportunities for LUP pre-submission engagement.	
2-Nov-18	Phone Call	Stephanie Poole	Jane Howe	Seabridge attempted to call AIMAIO several times to follow up previous requests to discuss pre- submission engagement. Left voice message that Seabridge wishes to provide an update of our discussions with Akaitcho First Nations. Seabridge will send an email. We will also send a copy of current Engagement Plan and seek AIMAIO input on how to improve the plan	E-mail - Follow-up June 25 Letter - AKDFN - 20181102 1045, Agreements - MV2012C0025 - Seabridge - Engagement Plan-v3- Nov15- 13

	Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked		
				Members				
	2-Nov-18	Email	Stephanie Poole	Jane Howe	Seabridge sent email to follow up attempts to call S.Poole with AIMAIO to provide an update on our engagement activities with Akaitcho First Nations (YKDFN and LKDFN) - Seabridge advised AIMAIO that a meeting is scheduled with the LKDFN Chief and Council in LutselK'e for January 16 and Seabridge will present an overview of the Courageous Lake project. Seabridge is working with YKDFN regarding a TK Study for the Courageous Lake area. Seabridge sent a copy of Seabridge Engagement Plan, explained that Seabridge is required to update it and would appreciate any input or suggestions.	E-mail - LUP Pre-submission - LKDFN - 20181102 1144		
	26-Jul-19	Email	Stephanie Poole	Jane Howe	Seabridge (J.Howe) called and left voice message, saying that Seabridge is updating our Engagement Plan and we want to ensure that we have the correct contact information for Akaitcho Implementation Office.	E-mail - Revised Contact information - 20190726 1524		
	30-Jul-19	Letter	Stephanie Poole	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_AIMAIO_S.Poole.pdf, Reports - Seabridge Gold Annual Report 2018.pdf		
	8-Aug-19	Phone Call	Stephanie Poole	Jane Howe	Seabridge (J.Howe) called, but nobody in IMA office. They are all out at annual gathering in Fort Resolution, returning Saturday August 10.			
	14-Aug-19	Phone Call	Stephanie Poole	Jane Howe	Seabridge attempted to call the AIMAIO office at x.3217, S.Poole is not in and they don't know when she will return - maybe next week? Spoke w/ Lacy and asked if anybody else could confirm contact information because Seabridge is looking to revising our Engagement Plan and we want to ensure that we have the correct contact information for Akaitcho Implementation Office.			
	19-Aug-19	Phone Call	Stephanie Poole	Jane Howe	Seabridge called the AIMAIO office at x.3217, S.Poole was not in. Spoke with Ray Griffith who confirmed existing contact information for Akaitcho Implementation Office, Screening Officer has not changed.			
	30-Aug-19	Email	Stephanie Poole	Jane Howe	Seabridge sent a letter summarizing the presubmission engagement activities that have occurred over the past fourteen months, the concerns/suggestions that we heard and how Seabridge has addressed them, and requested any comments be provided by September 5. Seabridge also offered to meet with any communities to answer questions about the applications package.	E-mail - Presubmission engagement - AIMAIO - 20190830 0718, Letter - 190830-Letter- PreSubmissionEngagement-AIMAIO.pdf		
Ał	Akaitcho Territory Government							

Γ	4-Mar-19	Letter	Annie Boucher	Jane Howe	Seabridge distributed paper copy of the 2018 Archaeology Report.	Letter - 20190303_Letter-
						ArchaeologyReport (AKDFN),
						Reports - 2018 Courageous Lake AIA
						Final Report

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
Lutsel K'e Dene	e First Nati	ion			
25-Jun-18	Letter	Lauren King	Brent Murphy, Nicole Bishop (ERM)	Seabridge provided LKDFN with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)
25-Jun-18	Email	Darryl Boucher- Marlow	Brent Murphy, Nicole Bishop (ERM)	Seabridge provided LKDFN with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed LKDFN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224756UTC, Reports - 2017-06-25 Annual Report Highlights (LKDFN)
27-Jun-18	Email and Letter	Darryl Boucher- Marlow, Lauren King	Brent Murphy, Jane Howe	Seabridge sent letter indicating that it will be submitting an LUP application in 2019 and wishes to seek input from community about preferred community engagement activities and schedule.	E-mail - LUP Pre-submission Engagement - LKDFN- 20180627 1354, Newsletter - 2018-06-27 Community Engagement Workshop (LKDFN)
27-Jun-18	Email	Ray Griffith	Jane Howe	Seabridge received updated contact information from R. Griffith, LKDFN. Received confirmation that Seabridge's letter proposing community engagement in relation to the land use permit was forwarded to intended recipient.	E-mail - Zoe_Mullard_20180629_174456UTC
27-Jun-18	Email	Ray Griffith	Jane Howe	Seabridge acknowledged updated contact information for LKDFN and promised to follow up in July 2018.	E-mail - Jane Howe 20180628 210324UTC
17-Jul-18	Phone Call	Lauren King	Jane Howe	Seabridge called LKDFN (L.King) to follow up June 27 letter and to discuss possible engagement opportunities in advance of the permit preparation and submission. L.King enquired about project location, commodity, and project status (is it "advanced exploration"?). Seabridge provided general info and explained scope of work anticipated during next 5 year LUP term. L.King indicated that Chief & Council like to meet with companies, to hear presentation about project with maps etc. Usually Enviro Committee members are also invited. L.King indicated that she did not see the June 27 pre-submission letter, please resend. Seabridge follow-up up phone conversation with email to L.King LKDFN regarding the Project to summarize conversation and provide requested information.	E-mail - LUP Pre-submission Engagement - LKDFN - 20180717 1024, Letter - 2018-07-17 Community Engagement Planning (LDN)
17-Jul-18	Email	Lauren King	Jane Howe	Seabridge followed up July 17 phone call with an email seeking opportunity to meet to discuss the project and engagement opportunities with LutselKe. Re-sent June 27 letter regarding pre-submission engagement (originally provided to LKDFN on June 27, 2018).	E-mail - LUP Pre-submission Engagement - LKDFN - 20180717 1024, Letter - 2018-07-17 Community Engagement Planning (LDN)
17-Jul-18	Phone Call	Lauren King	Jane Howe	Follow-up June 27, 2018 letter. Duplicate entry	
10-364-10	n none Call		Sane Howe	for pre-submission engagement. L.King indicated that a meeting with Chief & Council is the typical way. She suggested Seabridge send possible dates and she will discuss with Exec Assistant who schedules meetings. J.Howe asked if LKDFN would be interested in doing a TK study - L. King said she was unsure and suggested this would be a good question for Chief and Council when we meet.	

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
21-Sep-18	Email	Lauren King	Jane Howe	Seabridge (J.Howe) sent follow-up email to LKDFN (L.King) regarding topics discussed in phone call Sept 18, requesting to meet with Chief and Council, and members of the Lands and Environment Committee, to present introductory information of the Courageous Lake Project. Seabridge suggested a meeting in January-February 2019 would work well and we could explain our upcoming permitting and proposed drill program.	E-mail - Seabridge Gold - request to meet
1-Oct-18	Email	Iris Catholique, Lauren King	Jane Howe	Seabridge received confirmation from L.King, LKDFN that the Executive Admin for Lutselke Chief & Council will review schedule and send possible meeting dates for January-February 2019. LKDFN requested that Seabridge include a map of the Project in relation to the Akaitcho asserted territory in the presentation provided in 2019.	E-mail - LUP Pre-submission - LKDFN - 20181001 1122
1-Oct-18	Email	Lauren King, Iris Catholique	Jane Howe	Seabridge acknowledged LKDFN's offer to arrange a meeting and presentation to Chief and Council in 2019.	E-mail - LUP Pre-submission - LKDFN - 20181001 1324
3-Oct-18	Email	Iris Catholique, Lauren King	Jane Howe	The Executive Admin for LKDFN advised Seabridge the company is invited to a meeting on January 15, 2019 with Lutselke Chief & Council	E-mail - LUP Pre-submission - LKDFN - 20181003 0820
3-Oct-18	Email	Iris Catholique, Lauren King	Jane Howe	Seabridge received information from LKDFN (L.King) regarding honoraria for Councillors, with respect to the January 15, 2019 meeting.	E-mail - LUP Pre-submission - LKDFN - 20181003 0830
3-Oct-18	Email	Iris Catholique, Lauren King	Jane Howe	Seabridge accepted meeting invitation, identified the two people who would attend on behalf of Seabridge and agreed to bring a presentation, maps and pay the honoraria.	E-mail - LUP Pre-submission - LKDFN - 20181003 1407
7-Jan-19	Email	Shonto Catholique, Stephanie Poole	Jane Howe	Seabridge received email from S. Catholique, LKDFN. He noticed that Seabridge is scheduled to meet with Chief and Council mtg next week and they have to postpone due to a meeting happening in the community all next week. LKDFN requested Seabridge contact him to discuss alternative dates.	E-mail - Meeting the Chief & Council in Lutsel Ke - LKDFN - 20190107 1509
8-Jan-19	Phone Call	Shonto Catholique	Jane Howe	Seabridge attempted to follow-up regarding the meeting postponement. Attempted to call Shonto Catholique, Lauren King, Iris Catholique (Exec Admin) and the general phone # at LKDFN; 830am, 930am, 1020am, 1:30pm, 2:30pm. Left multiple voice messages, sent follow up email indicating that Seabridge wished to reschedule meeting. No response by end of day.	
8-Jan-19	Email	Shonto Catholique, Stephanie Poole	Jane Howe	Seabridge sent follow up email indicating that Seabridge wished to reschedule meeting.	E-mail - Meeting the Chief & Council in Lutsel Ke - LKDFN - 20190108 0844
9-Jan-19	Phone Call	Shonto Catholique	Jane Howe	Seabridge called and spoke with S.Catholique, who indicated that it is not possible to reschedule for next week as all halls are booked next week for other meetings. We will need to postpone to another time but he is not able provide possible dates. It was confirmed that Lauren King is still the primary contact (but is currently away) and will be returning in a couple weeks. Seabridge should contact Lauren in a month or so to rearrange a date/meeting.	
9-Jan-19	Email	Shonto Catholique, Stephanie Poole, Lauren King	Jane Howe	Seabridge (J.Howe) sent email to confirm cancellation of meeting with Lutselk'e Chief and Council next week, due to other commitments within the community. Seabridge confirmed that they would contact L.King to discuss opportunities to reschedule the meeting.	E-mail - Meeting the Chief & Council in Lutsel Ke - LKDFN - 20190109 0959
1-Feb-19	Phone Call	Lauren King	Jane Howe	Seabridge attempted to call LKDFN to reschedule the Jan 15 meeting that was postponed. Unable to leave phone message. Followed up will email message.	
1-Feb-19	Email	Lauren King	Jane Howe	Seabridge (J.Howe) sent email to LKDFN (L.King) seeking to reschedule the January 15 meeting that was postponed, possibly in late May or June 2019? Seabridge sent the PDF version of the presentation that would have been given to Lutsel K'e Chief and Council. Please contact me to discuss.	E-mail - Reschedule Meeting with Chief & Council - LKDFN - 20190201 1427, Presentations - Courageous Lake Update January 2019.pdf
8-Feb-19	Email	Lauren King	Jane Howe	Seabridge is providing a draft of our 2019 archaeology permit for review before we submit it to the PWNHC, please provide any comments by Feb 22. The 2018 Archaeology Report is being send to you separately by courier.	E-mail - Pre-submission Archaeology Permit - LKDFN - 20190208 1528, Submissions - B.1 2019 Permit Application KJollymore January 2019_wMap.pdf (LKDFN), Letter - Lutsel Ke Dene - 20190208_Letter-Draft- ArchaeologyPermitAppln.pdf (LKDFN)
19-Feb-19	Email	Lauren King	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) sent Notice of Work Commencement for winter mobilization to Inspectors and MVLWB, and cc'd other stakeholders	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1454, Notifications - MV2012C0025- NoticeOfWork-2019WinterProgram- 19Feb2019.pdf (GNWT)

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
19-Feb-19	Email	Lauren King	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	CIRNAC Inspector acknowledged Seabridge's Notice of Work and requested information about winter road route.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1518
22-Feb-19	Email	Lauren King	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) responded to question from CIRNAC Inspector - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190222 1445
26-Feb-19	Email	Lauren King	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) provided a clarification regarding - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190226 1822
4-Mar-19	Letter	Lauren King	Jane Howe	Seabridge distributed paper copy of the 2018 Archaeology Report.	Letter - Lutsel K'e Dene 20190304_Letter- ArchaeologyReport.docm, Reports - F.1_2018-004 Courageous Lake AIA Final Report.pdf
20-Mar-19	Letter	Lauren King	Jane Howe	Delivery confirmation of 2018 Archaeology Report letter.	Notifications - Delivery Confirmation - Lutsel Ke - 20190320.pdf
15-Apr-19	Email	Lauren King	Jane Howe	Seabridge is providing a draft version of our 2019 wildlife permit for your review before we submit it to the GNWT. Please provide any comments by April 29. The 2018 Caribou Camera Report is being finalized and will be sent to you by courier.	E-mail - Wildlife Permit - LKDFN - 20190414 2114, Submissions - 2019-CourageousLake- Wildlife Research Permit Application-for Review.pdf, Submissions - Research_Recommendation_Form_2019. docx
24-May-19	Email	Shonto Catholique	Jane Howe	Seabridge (J.Howe) sent email to LKDFN (S.Catholique) requesting opportunity to meet, and reschedule the meeting that was postponed by LKDFN in January 2019.	E-mail - Meet with Chief & Council - LKDFN - 20190524 1055, Presentations - Courageous Lake Update January 2019.pdf
24-May-19	Email	Shonto Catholique	Jane Howe	Seabridge is required to update our Engagement Plan over the next few months in preparation for submitting new application to MVLWB in September. Seabridge requested input from LKDFN on Engagement Plan. We will begin updating the plan in mid June and would like to receive suggestions by June 7.	E-mail - Engagement Plan - LKDFN - 20190524 1115, Agreements - MV2012C0025 - Seabridge - Engagement Plan-v3- Nov15- 13
31-May-19	Email	Shonto Catholique	Jane Howe	Seabridge (J.Howe) spoke with S.Catholique by phone and then sent follow-up email to Mr. Catholique. During phone call Mr. Catholique indicated that talking on the phone and sending an Engagement Plan for review is not considered to be engagement, Seabridge agreed and explained that Seabridge is required by MVLWB to prepare an EP, and we are seeking input from all our stakeholders about how they want us to engage, and when. Mr Catholique indicated that LutselK'e had a preference for exploration companies to engage meaningfully in person with the entire community, Elders, Chief, Council and the Land and Wildlife Committee members. We agreed on a community meeting for Wed July 17, 4-6pm. Seabridge is required to pay costs for hall rental, translation services, Elder honoraria, refreshments etc. Mr Catholique agreed to provide a budget estimate for costs. He also indicated that he would review our Engagement Plan and provide suggestions next week. Email was sent as follow- up.	E-mail - Meet with Chief & Council - LKDFN - 20190531 1859
10-Jun-19	Email	Shonto Catholique	Jane Howe	Seabridge left msg and sent email to S.Catholique seeking response/follow-up to conversation and email May 31. Seeking confirmation of July 17 meeting and any comments on the Engagement Plan.	E-mail - Wish to confirm meeting - LKDFN - 20190610 1726
17-Jun-19	Phone Call	Shonto Catholique	Jane Howe	Seabridge (J.Howe) tried to call S.Catholique, but he was out of office for day. Left message with Lorna Jane that Seabridge wishes to confirm date, details for July 17 meeting as well as any comments on the Engagement Plan. Left phone #. Lorna Jane will pass on the message.	

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19-Jun-19	Phone Call	Shonto Catholique	Jane Howe	Seabridge (J.Howe) tried to call S.Catholique. Co-worker indicated that he has not returned to the office yet, perhaps Friday this week. Left message again with Lorna Jane (who works in same office).	
24-Jun-19	Email	Shonto Catholique	Jane Howe	Seabridge (J.Howe) sent email to S.Catholique seeking confirmation of July 17 meeting and any comments on the Engagement Plan.	E-mail - Wish to confirm meeting - LKDFN - 20190624 2116
24-Jun-19	Email	Shonto Catholique, Iris Catholique	Jane Howe	Seabridge received email response from S.Catholique that July 17 meeting was confirmed. No other information was provided	E-mail - Wish to confirm meeting - LKDFN - 20190624 2123
27-Jun-19	Email	Shonto Catholique	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge sent Notice of Work, as required per Condition of LUP MV2012C0025; cc'd to MVLWB and First Nation community representatives.	E-mail - Notice of Work Commencement for summer program - GNWT-Inspector & CIRNAC Inspector - 20190627 1041, Notifications - 190627-MV2012C0025- NoticeOfWork-2019SummerProgram.pdf
2-Jul-19	Email	Shonto Catholique	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	T.Morton, CIRNAC acknowledged notification.	E-mail - Notice of Work Commencement for summer program - CIRNAC - 20190702 0754
3-Jul-19	Letter	Shonto Catholique	Jane Howe	Seabridge is distributing our 2019 Caribou Camera Monitoring Report which summarizes the results of the wildlife camera data collected in the Courageous Lake area from 2011 to 2018. The objective of this study is to monitor and record temporal and spatial distribution of caribou in the area using remote motion-triggered cameras.	Cgs Lake Camera Report to LKDFN_CanadaPostTracking 9228 5816 0455 5419.pdf, Letter - Letter-WildlifeReport-LKDFN_S Catholique.pdf
3-Jul-19	Email	Shonto Catholique, Iris Catholique	Jane Howe	Seabridge wishes to confirm logistical details for July 17 meeting.	E-mail - Confirm meeting logistics - LKDFN - 20190703 1704
3-Jul-19	Email	Iris Catholique	Jane Howe	Iris Catholique (Executive Admin) for Chief and Council responded via with the cost details for the meeting, but did not answer all questions.	E-mail - Confirm meeting logistics - LKDFN - 20190703 1748
12-Jul-19	Phone Call	Iris Catholique, Shonto Catholique	Jane Howe	Seabridge (J.Howe) called and left voice messages at 9:44am and 11am for Executive Assistant (I. Catholique). Called Land Mgr. Lands & Wildlife (S.Catholique) not possible to leave voice message. Seabridge wishes to confirm certain details regarding meeting next week.	
15-Jul-19	Phone Call	Iris Catholique, Shonto Catholique	Jane Howe	Seabridge (J.Howe) called and left voice messages at 10:44am for Executive Assistant (I. Catholique). Called Land Mgr. Lands & Wildlife at 10:28am(S.Catholique) not possible to leave voice message. Left message with Band office reception; S.Catholique out for day; and informed that I.Catholique will be in after 1pm today. Called again at 245pm, left voice message for Exec Assistant.	
15-Jul-19	Phone Call	Iris Catholique	Jane Howe	LKDFN Exec Admin (I.Catholique) returned call; The meeting is still going as planned at 4-6pm; will be held in the Community Hall. She will check to see it has been advertised, She did not think that refreshments had been ordered and suggested that Seabridge should bring a few trays from YK; 40copies of printouts should be sufficient; She confirmed that LKDFN would provide a single invoice for all costs after the meeting.	
17-Jul-19	Phone Call	Iris Catholique	Jane Howe	LKDFN, I.Catholique called J.Howe to indicate that meeting had been advertised from 1-3pm today. Also asked if Seabridge would take three people from LutselK'e back to Yellowknife on our charter flight. J.Howe advised that Seabridge would try to change our charter flight to arrive earlier.	
17-Jul-19	Email	Iris Catholique	Jane Howe	Seabridge (J.Howe) called I.Catholique to confirm that we were able to change charter flight and will arrive in Lutsel K'e about 1pm. Also confirmed that Seabridge could not allow passengers on our charter flight back to Yellowknife, due to insurance/liability reasons. J.Howe followed up with email confirming that Seabridge could not take passengers.	E-mail - Meeting Logistics - LKDFN - 20190717 1145
17-Jul-19	Meeting- LutselK'e	Iris Catholique	Brent Murphy, Jane Howe, Jessy Chaplin	Seabridge held an open-house drop-in style session in the LutselK'e community hall between 130 and 4pm which provided an opportunity to talk one-on-one with several community members. At 4pm, Seabridge provided a presentation on Courageous Lake activities and permitting to members of Council, Wildlife Committee and community members. Meeting ended at 5:15pm. Approximately 30 people signed the attendance form, others came during drop in session and did not sign in.	

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
18-Jul-19	Email	Iris Catholique, Shonto Catholique	Jane Howe	Seabridge (J.Howe) sent thank you note for meeting and their support organizing, confirming that it did go ahead as planned between4 and 6pm. Informed that notes will be prepared and sent for their review next week.	E-mail - Thank you for meeting - LKDFN - 20190718 0952, Presentations - 20190715_Courageous Lake Update - LKDFN Jul-17-2019- Final.pdf
29-Jul-19	Email	Shonto Catholique	Brent Murphy, Jane Howe	Seabridge provided summary notes for the community meeting held July 17, including photos, attendance list and other information that was requested during the community meeting	E-mail - Meeting follow-up - LKDFN - 20190719 0947, Reports - 2018_Caribou Camera Report 2011-2017 - Courageous Lake Project - Feb21-18.pdf, Notifications - Meeting Notes-LKDFN- Seabridge-Jul17-2019.pdf, Reports - 2019 Caribou Camera Monitoring.pdf, Presentations - 20190715_Courageous Lake Update - LKDFN Jul-17-2019- Final.pdf
30-Jul-19	Letter	Darryl Boucher- Marlow	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_LKDFN_D.Marlowe.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
30-Jul-19	Letter	Robert Paishegwon	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_LKDFN_R.Paishegwon.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
30-Jul-19	Email	Robert Paishegwon	Jane Howe	Robert Paishegwon responded to Meeting notes to indicate that he is the new Manager, Wildlife, Lands and Environment for LKDFN. He will distribute the notes for review. Seabridge (J.Howe) acknowledge change of contact and request a short introductory chat.	E-mail - Revised Contact information - LKDFN - 20190730 1055
8-Aug-19	Phone Call	Robert Paishegwon	Jane Howe	Seabridge (J.Howe) called, not possible to leave voice message. R. Paishegwon also at annual gathering in Fort Resolution, returning Saturday August 10.	
12-Aug-19	Phone Call	Robert Paishegwon	Jane Howe	Seabridge (J.Howe) called LKDFN to provide an overview of Seabridge Gold and bring the new LKDFN Manager Lands and Wildlife up to speed on our current re-permitting efforts. Enquired whether he has any questions regarding the community meeting on July 17. Sent copy of Seabridge's draft Engagement Plan seeking any input/feedback that LKDFN wish to provide regarding the types of engagement activities or the frequency of meetings, as well as confirmation of the contact information in Appendix B and instructions regarding sending information directly to the LKDFN Chief. Also enquired with LKDFN Accounts Receivable - but they have not received payment for the hall rental, translators etc.	
12-Aug-19	Email	Robert Paishegwon	Jane Howe	Seabridge (J.Howe) sent email to follow-up telephone conversation earlier today. Seabridge forward copy of draft Engagement Plan as we are seeking input and feedback prior to submitting with our permit application. Requested comments on the meeting notes that were provided following the July 17, 2019 community meeting .	E-mail - Meeting follow-up - LKDFN - 20190812 1441, Draft Plan - B.1_Engagement Plan.pdf, Fact Sheet - CourLake_FactSheet_June2019_PRESS. pdf
2-Sep-19	Email	Robert Paishegwon	Jane Howe	Resent on Sept 2. Seabridge sent a letter summarizing the presubmission engagement activities that have occurred over the past fourteen months, the concerns/suggestions that we heard and how Seabridge has addressed them, and requested any comments be provided by September 5. Seabridge also offered to meet with any communities to answer questions about the applications package.	E-mail - Presubmission engagement - LKDFN - 20190902 1929, Letter - 190830-Letter- PreSubmissionEngagement-LKDFN.pdf

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
North Slave N	Netis Alliance	<u>e</u>			
25-Jun-18	Letter	Nicole Goodman	Brent Murphy, Nicole Bishop (ERM),	Seabridge provided NSMA with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed NSMA of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whatì)
27-Jun-18	Email	Sheryl Grieve, Nicole Goodman, Bill Enge	Brent Murphy, Jane Howe	Seabridge sent letter indicating that it will be submitting an LUP application in 2019 and wishes to seek input from community about preferred community engagement activities and schedule.	E-mail - LUP Pre-submission Engagement - NSMA - 20180627 1354, Newsletter - 2018-06-27 Community Engagement Workshop (NSMA)
29-Jun-18	Phone Call	Nicole Goodman	Jane Howe	Seabridge phoned to follow up on letter sent previously, J.Howe will be in town week of 16, established a tentative meeting with Nicole & Shin for Nov 18.	Meeting Minutes - June 2018 Communication Table
17-Jul-18	Phone Call	Shin Shiga	Jane Howe	Seabridge confirmed meeting logistics with NSMA, for meeting on July 18, 2018 to discuss exploration activities and pre-submission engagement.	
18-Jul-18	Meeting- Yellowknife	Shin Shiga, Nicole Goodman	Jane Howe	Seabridge (J.Howe) met with NSMA (S.Shiga, N.Goodman, and summer student) in Yellowknife to provide an introduction to Seabridge, overview of recent exploration work, and discuss engagement opportunities during the LUP pre-submission period. NSMA expressed interest in business opportunities. NSMA confirmed that it does not require an Exploration Agreement. Discuss Seabridge exploration activities and pre-submission engagement requirements.	Fact Sheet - Courageous Lake_FactSheet_PRESS
18-Sep-18	Phone Call	Shin Shiga	Jane Howe	Seabridge (J.Howe) called NSMA (S.Shiga) to discuss possible engagement opportunities for pre- submission, and proposed meeting in January, February, or March 2019. A short email was sent to recap discussion.	
21-Sep-18	Email	Shin Shiga	Jane Howe	Seabridge (J.Howe) sent email to NSMA (S.Shiga) to recap phone discussion and confirmed that Seabridge is interested in meeting with NSMA leadership to provide an introduction to the Project and discuss the proposed drill program in February 2019 to March 2019, and plans to submit an application to the MVLWB for a new land use permit in September 2019.	E-mail - Seabridge Gold_request to meet
8-Nov-18	Phone Call	Nicole Goodman, Shin Shiqa	Jane Howe	Seabridge (J.Howe) attempted to call NSMA (S.Shiga, N.Goodman) to enquire about possible meeting dates in January, . Left voice message.	
9-Nov-18	Email	Nicole Goodman, Jessica Hurtubise, Shin Shiga	Jane Howe	Seabridge sent email to NSMA (N.Goodman) to request meeting the week of Jan 14; Also requested a contact name to send employment opportunities, and possible invitation to attend Seabridge's Open House at Round Up in January.	E-mail - Project Update and Meeting Request - NSMA - 20181109 1335
18-Nov-18	Email	Shin Shiga, Nicole Goodman	Brent Murphy, Elizabeth Miller, Jane Howe, Marcus Adam	Seabridge sent notice of two upcoming presentations during at the Geoscience Forum in Yellowknife. (1) "Sustainably Advancing Resource Development Projects" which is about the successes and lessons learned as Seabridge works to build strong relationships with Indigenous groups and local communities at our KSM Project in BC. and (2) Exploration Highlights at our Courageous Lake Project.	E-mail - Project Update - All YK Stakeholders - 20181118 1014
10-Dec-18	Email	Shin Shiga	Jane Howe	Seabridge tried to call NSMA to follow-up Nov 9 email. Staff unavailable, so followed up with email. Seabridge would like to confirm proposed meeting with NSMA during the week of Jan 14. Seabridge requests a contact name at NSMA to send potential employment opportunities. Seabridge would like to invite NSMA to our open house.	E-mail - Follow-up Nov 9 E-mail - NSMA - 20181210 1507
11-Dec-18	Email	Shin Shiga	Jane Howe	NSMA provided contact email address for job opportunities and indicated they are discussing possible dates internally.	E-mail - Project Update - NSMA - 20181211 1638
11-Dec-18	Email	Shin Shiga	Jane Howe	Jane's auto reply while on vacation; Dec 13 - 16, 2018.	E-mail - Project Update - JH Auto Reply - NSMA - 20181211 1639
12-Dec-18	Email	Shin Shiga	Jane Howe	NSMA (S.Shiga) confirmed meeting with Seabridge for January 14, 2019 at 130pm at NSMA office	E-mail - Project Update - NSMA - 20181212 1545
8-Jan-19	Email	Shin Shiga	Jane Howe	Seabridge sent email to NSMA (S.Shiga) to confirm meeting logistics for Jan 14 meeting at 130pm.	E-mail - Project Update - NSMA - 20190108 1558

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
8-Jan-19	Email	Shin Shiga, Jessica Hurtubise	Jane Howe	NSMA confirmed meeting logistics.	E-mail - Project Update - NSMA - 20190108 1731
9-Jan-19	Email	Shin Shiga, Jessica Hurtubise	Jane Howe	Confirm meeting logistics.	E-mail - Project Update - NSMA - 20190109 0835
14-Jan-19	Meeting- Yellowknife	Marc Whitford, Alan Harman, Robert (Bob) Mercredi, Shin Shiga, Jessica Hurtubise, Melissa McLeland	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge personnel met with NSMA leadership and staff. Provided project update discussed opportunities to engage with NSMA to obtain feedback prior to submission of Land Use Permit application. Refer to summary meeting notes sent to NSMA on Jan 28, 2019.	Meeting Minutes - 190125_Meeting Notes-NSMA-Seabridge-Jan14- 2019.docx, Presentations - Courageous Lake Update January 2019.pdf, Fact Sheet - CourLake_FactSheet_Jan2019_Press, Fact Sheet - KSM Project Overview Factsheet 2019_PRESS
18-Jan-19	Email	Shin Shiga, Jessica Hurtubise	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge sent an email to NSMA personnel to thank them for their time and input at the meeting this week. Seabridge provided a PDF copy of the presentation and other data requested during the meeting. Seabridge committed to prepare and send summary meeting notes.	E-mail - Project Update Meeting - NSMA - 20190118 1505, Presentations - Courageous Lake Update January 2019.pdf
21-Jan-19	Email	Jessica Hurtubise, Marc Whitford, Shin Shiga	Brent Murphy, Jane Howe	NSMA sent a request to Seabridge to support NSMA participation in upcoming land use planning project.	E-mail - Funding Request - NSMA - 20190121 1630, Submissions - 2019_Jan_21_Lttr_NSMAtoSBG_Funding Request.pdf
23-Jan-19	Email	Jessica Hurtubise, Marc Whitford, Shin Shiga	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge sent response to NSMA agreeing to support NSMA's participation in upcoming land use planning project.	E-mail - Funding Request - NSMA - 20190123 1603, Agreements - 190123-ResponseNSMA- CNFCC-funding.pdf
23-Jan-19	Email	Jessica Hurtubise, Marc Whitford, Shin Shiga	Brent Murphy, Jane Howe, Taryn Cutler	NSMA acknowledged Seabridge's support for NSMA participation in upcoming land use planning project.	E-mail - Funding Request - NSMA - 20190123 1608
28-Jan-19	Email	Shin Shiga, Jessica Hurtubise	Brent Murphy, Jane Howe, Taryn Cutler	Seabridge sent summary meeting notes and action items for face-to-face meeting that was held Jan 14, 2019. Requested NSMA review the notes and provide any comments or corrections.	E-mail - Project Update - NSMA - 20190128 0749, Meeting Minutes - 190125_Meeting Notes-NSMA-Seabridge-Jan14- 2019.docx, Presentations - Courageous Lake Update January 2019.pdf
30-Jan-19	Email	Jessica Hurtubise	Jane Howe	NSMA acknowledged receipt of meeting notes for Jan 14 meeting, and indicated that they do not have any additional comments or edits.	E-mail - Project Update - NSMA - 20190130 1127
8-Feb-19	Email	Jessica Hurtubise, Shin Shiga	Jane Howe, Kay Jollymore (ERM)	Seabridge is providing a draft of our 2019 archaeology permit for review before we submit it to the PWNHC, please provide any comments by Feb 22. The 2018 Archaeology Report is being send to you separately by courier.	E-mail - Pre-submission Archaeology Permit - NSMA - 20190208 1529, Submissions - B.1 2019 Permit Application KJollymore January 2019_wMap.pdf (NSMA), Letter - North Slave - 20190208_Letter- Draft-ArchaeologyPermitAppIn.pdf
19-Feb-19	Email	Jessica Hurtubise	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) sent Notice of Work Commencement for winter mobilization to Inspectors and MVLWB, and cc'd other stakeholders	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1454, Notifications - MV2012C0025- NoticeOfWork-2019WinterProgram- 19Feb2019.pdf (GNWT)
19-Feb-19	Email	Jessica Hurtubise	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	CIRNAC Inspector acknowledged Seabridge's Notice of Work and requested information about winter road route.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1518

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
22-Feb-19	Email	Jessica Hurtubise	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) responded to question from CIRNAC Inspector - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190222 1445
26-Feb-19	Email	Jessica Hurtubise	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) provided a clarification regarding - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190226 1822
4-Mar-19	Letter	Shin Shiga, Jessica Hurtubise	Jane Howe	Seabridge distributed paper copy of the 2018 Archaeology Report.	Letter - North Slave 20190304_Letter- ArchaeologyReport.docm, Reports - F.1_2018-004 Courageous Lake AIA Final Report.pdf
12-Mar-19	Letter	Shin Shiga, Jessica Hurtubise	Jane Howe	Delivery confirmation of 2018 Archaeology Report letter.	Notifications - Delivery Confirmation - North Slave Metis - 20190312.pdf
14-Apr-19	Email	Jessica Hurtubise, Shin Shiga	Jane Howe, Greg Sharam (ERM),	Seabridge is sending a draft of our 2019 wildlife permit application for your review before we submit it to the GNWT please provide any comments by April 29. The 2018 Caribou Camera Report is being finalized and will be sent to you by courier.	E-mail - Courageous Lk - Draft Wildlife Research Permit (NSMA), Submissions - 2019-CourageousLake- Wildlife Research Permit Application-for Review.pdf, Submissions - Research_Recommendation_Form_2019. docx
8-May-19	Email	Jessica Hurtubise	Jane Howe, Greg Sharam (ERM),	Seabridge received signed recommendation form from NSMA, in support of the Wildlife Research Permit application.	E-mail - Wildlife Permit - NSMA - 20190508 1813, Agreements - May 8 2019_Wildlife Research Application_Seabridge_signed NSMA lttrpdf
24-May-19	Email	Jessica Hurtubise, Shin Shiga	Jane Howe	Seabridge Gold request input from NSMA on Engagement Plan. We will begin updating the plan in mid June and would like to receive suggestions by June 7.	E-mail - Engagement Plan - NSMA - 20190524 1114, Agreements - MV2012C0025 - Seabridge - Engagement Plan-v3- Nov15- 13
3-Jun-19	Phone Call	Jessica Hurtubise	Jane Howe	Seabridge (J. Howe) called NSMA (J. Hurtubise) to touch base on the email request to review our Engagement Plan. Jessica indicated that she will be reviewing it this week and sending comments. She appreciates that Seabridge has been proactive in seeking input prior to revising the plan. J. Howe said she'd be in Yellowknife next week and invited J. Hurtubise for coffee and short update.	
7-Jun-19	Email	Jessica Hurtubise	Jane Howe	Seabridge received NSMA response on request for input on Engagement Plan. J.Hurtubise provided new contact information and indicated that the engagement methods still suit the NSMA needs and requirements. Primary contact for email should be to J.Hurtubise with follow-up by phone. J.Hurtubise also indicated that Seabridge has been one of NSMA's leading partners in terms of early, frequent and respectful engagement – we are happy to continue as is. Seabridge was informed by J.Hurtubise that the land use project and grant funding which Seabridge agreed to support in January 2019 will not be proceeding.	E-mail - Request review of our Engagement Plan & Funding Proposal - NSMA - 20190607 1151
12-Jun-19	Meeting- Yellowknife	Jessica Hurtubise	Jane Howe	Seabridge (J.Howe) met with NSMA (J. Hurtubise) at NSMA office, Reviewed the content, timing of the LUP, 2WLs, potential review of 5 Management Plans and Exploration Work Plan; Quarry permit, Wildlife Summary, and employment opportunities were also discussed, see summary notes from meeting.	

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
14-Jun-19	Email	Jessica Hurtubise	Jane Howe	Seabridge sent thank you note for meeting, and provided meeting notes and other requested information. Summary notes refer to a meeting that was held on June 12, 2019.	E-mail - Thank you for meeting and recap of discussion - NSMA - 20190614 0950, Application - Draft-QuarryApplication-for review.pdf, Reports - 0.1 2019 Courageous Lake WMMP TOC.PDF, Reports - 2019 Caribou Camera Monitoring.pdf
14-Jun-19	Email	Jessica Hurtubise	Jane Howe	Seabridge (J.Howe) forwarded the Matrix employment opportunities email to regular contacts: J. Hurtubise	E-mail - Employment opportunities - NSMA - 20190614 1247, Job Posting - Camp Construction Crew Member - 2019.pdf, Job Posting - Geo Tech Field Assistant - 2019.pdf
14-Jun-19	Email	Jessica Hurtubise	Jane Howe	Seabridge received response from J.Hurtubise indicating she would forward opportunities within NSMA .	E-mail - Employment opportunities - NSMA - 20190614 1501
27-Jun-19	Email	Jessica Hurtubise	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge sent Notice of Work, as required per Condition of LUP MV2012C0025; cc'd to MVLWB and First Nation community representatives.	E-mail - Notice of Work Commencement for summer program - GNWT-Inspector & CIRNAC Inspector - 20190627 1041, Notifications - 190627-MV2012C0025- NoticeOfWork-2019SummerProgram.pdf
28-Jun-19	Email	Jessica Hurtubise	Jane Howe	J.Hurtubise, NSMA acknowledged notification.	E-mail - Notice of Work Commencement for summer program - NSMA - 20190628 1620
2-Jul-19	Email	Jessica Hurtubise	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	T.Morton, CIRNAC acknowledged notification.	E-mail - Notice of Work Commencement for summer program - CIRNAC - 20190702 0754
3-Jul-19	Letter	Jessica Hurtubise	Jane Howe	Seabridge is distributing our 2019 Caribou Camera Monitoring Report which summarizes the results of the wildlife camera data collected in the Courageous Lake area from 2011 to 2018. The objective of this study is to monitor and record temporal and spatial distribution of caribou in the area using remote motion-triggered cameras.	Notifications - Cgs Lake Camera Report to NSMA_CanadaPostTracking 9228 5816 0158 3415.pdf, Letter - Letter-WildlifeReport-NSMA_J Huturbise.pdf
30-Jul-19	Letter	Shin Shiga	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_NSMA_S.Shiga.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
30-Jul-19	Letter	Jessica Hurtubise	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Reports - Seabridge Gold Annual Report 2018.pdf, Letter - Ltr re 2018 Annual Report for Seabridge_NSMA_J.Hurtubise.pdf
30-Aug-19	Email	Shin Shiga, Jessica Hurtubise	Jane Howe	Seabridge sent a letter summarizing the presubmission engagement activities that have occurred over the past fourteen months, the concerns/suggestions that we heard and how Seabridge has addressed them, and requested any comments be provided by September 5. Seabridge also offered to meet with any communities to answer questions about the applications package.	E-mail - Presubmission engagement - NSMA - 20190830 0716, Letter - 190830-Letter- PreSubmissionEngagement-NSMA.pdf

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
Northwest Terr	itory Metis	Nation			
25-Jun-18	Letter	Tim Heron	Brent Murphy, Nicole Bishop (ERM)	Provided NWTMN with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed NWTMN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)
25-Jun-18	Letter	Garry Bailey	Brent Murphy, Nicole Bishop (ERM)	Provided NWTMN with the 2017 Seabridge Gold Annual Report, which included highlights of the KSM Project, Iskut Project, and Snowstorm Properties (recently acquired). With respect to the Courageous Lake Project, Seabridge informed NWTMN of activities which focused on camp maintenance in July 2017, and indicated that Seabridge had been granted a two year extension to existing land use permit for the Project. Indicated that an exploration drill program was conducted during February and March 2018. Also informed camp access in July 2018 for maintenance, mineral claim surveys and annual wildlife monitoring activities. Informed of upcoming discussions with local communities regarding 2019 land use permit renewal application. Informed of new NWT Permitting Manager.	E-mail - Zoe_Mullard_20180703_224625UTC, Reports - 2017 Annual Report Overview (TG-Whati)
27-Jun-18	Email	Tim Heron, Garry Bailey	Brent Murphy, Jane Howe	Seabridge sent letter indicating that it will be submitting an LUP application in 2019 and wishes to seek input from community about preferred community engagement activities and schedule.	E-mail - LUP Pre-submission Engagement - NWT MN - 20180627 1354, Newsletter - 2018-06-27 Community Engagement Workshop_(NWTMN)
27-Jun-18	Email	Tim Heron	Brent Murphy, Jane Howe	Seabridge sent letter indicating that it will be submitting an LUP application in 2019 and wishes to seek input from community about preferred community engagement activities and schedule.	E-mail - LUP Pre-submission Engagement - NWT MN IO - 20180627 1354, Newsletter - 2018-06-27 Community Engagement Workshop (NWTMN)
28-Jun-18	Email	Garry Bailey	Jane Howe	Seabridge received an email and letter thanking for our letter about Pre-submission LUP and informing Seabridge that the project is within traditional territory of the NWT Metis Nation and within an area subject to Land and Resources Final Agreement negotiations and subject to the MWTMN Interim Measures Agreement. NWTMN look forward to working on collaborative basis to maximize opportunities for members through an impact and benefit arrangements. NWTMN will require financial capacity to fully engage. NWTMN would like to meet with Seabridge as a step towards developing a process to address the interests of NWTMN.	E-mail - LUP Pre-submission Engagement - NWT MN - 20180628 1413, Letter - 2018-06-28 Engagement Workshop Reply (NWTMN)
24-Oct-18	Phone Call	Marilyn Mandeville	Jane Howe	Seabridge attempted to call NWT MN to discuss opportunities to meet with NWTMN to discuss the Project and land use permit (LUP). T.Heron is away this week. Left voice message. Spoke briefly with T.Heron's assistant.	
24-Oct-18	Email	Tim Heron, Marilyn Mandeville	Jane Howe	Seabridge sent email to NWTMN (T.Heron) to recap phone message. Seabridge previous sent you information about the Courageous Lake project and is seeking to set up a meeting with NWTMN to discuss the Project and land use permit (LUP).	E-mail - Seabridge Gold - Courageous Lake
2-Nov-18	Phone Call	Tim Heron	Jane Howe	Seabridge (J.Howe) spoke with NWTMN (T.Heron) by phone to discuss the Courageous Lake Project, previous correspondence at the end of June 2018, and opportunities to meet with NWTMN. T.Heron suggested that Seabridge follow up with C.Gillanders to arrange meeting. T.Heron explained the NWTMN revised land claim implementation map, and referred to the NWTMN engagement policy on their website.	
2-Nov-18	Email	Tim Heron	Jane Howe	Seabridge (J.Howe) sent an email to NWTMN (T.Heron) to recap phone call and discussions. Seabridge provided copy of the June 27 letter to NWTMN and response from C.Gillanders on behalf of President NWTMN. Seabridge promised to send a copy of our Engagement Plan to NWTMN (T.Heron) for his review and comment.	Letter - Engagement Process Opportunity (NWTMN), E-mail - Follow-up June 25 Letter - NWT MN - 20181102 1424

Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked
2-Nov-18	Email	Chaslynn Gillanders, Garry Bailey, Tim Heron	Jane Howe	Seabridge sent letter to NWTMN, President (cc C.Gillanders and T.Heron) indicating that Seabridge does not propose an IBA at this time given the early phase of exploration activities. Seabridge is interested in meeting with NWTMN in January and is willing to provide capacity funding if required for engagement activities.	E-mail - Follow-up June 25 Letter - NWT MN - 20181102 1516, Letter - 181102-NWTMN re-permit renewal
9-Nov-18	Email	Tim Heron	Jane Howe	Seabridge (J.Howe) followed up on conversation with T.Heron last week to provide the V.3 Engagement Plan to NWTMN and requested feedback, particularly regarding preferred methods of engagement. Provided update on revisions currently considered. Also provided a Courageous Lake Fact Sheet.	E-mail - Engagement Plan - NWT MN - 20181109 1222, Fact Sheet - CourageousLake_FactSheet_Nov2018.pd f, Agreements - MV2012C0025 - Seabridge - Engagement Plan-v3- Nov15- 13
18-Nov-18	Email	Tim Heron	Brent Murphy, Elizabeth Miller, Jane Howe, Marcus Adam	Seabridge sent notice of two upcoming presentations during at the Geoscience Forum in Yellowknife. (1) "Sustainably Advancing Resource Development Projects" which is about the successes and lessons learned as Seabridge works to build strong relationships with Indigenous groups and local communities at our KSM Project in BC. and (2) Exploration Highlights at our Courageous Lake Project.	E-mail - Project Update - All YK Stakeholders - 20181118 1014
9-Jan-19	Phone Call	Tim Heron	Jane Howe	Seabridge (J.Howe) called NWTMN (T.Heron) to follow up and enquire if NWTMN is interested/able to meet with Seabridge next week. T.Heron suggested Seabridge contact U.Vogt to arrange a meeting. J.Howe enquired if NWTMN had an opportunity to review the Engagement Plan that was sent on Nov 8 because Seabridge is interested in obtaining feedback from our stakeholders. T.Heron said he did not recall seeing it, and asked Seabridge to resend the Engagement Plan.	
9-Jan-19	Phone Call	Ursula Vogt	Jane Howe	Seabridge (J.Howe) called NWTMN (U.Vogt). Introduce Seabridge, recapped the previous correspondence between Seabridge and NWTMN regarding the IBA request, and requested a meeting with NWTMN leadership to talk about the Project. U.Vogt confirmed leadership was away next week and suggested there may be a opportunity to meet in April or May, but she has not started to schedule that far yet supported Seabridge call back in April (May.	
9-Jan-19	Email	Tim Heron	Jane Howe	Seabridge sent email to follow-up phone call. Seabridge indicated that would follow-up with U.Vogt to arrange a meeting, and resent the Engagement Plan - requesting NWTMN review and provide feedback.	E-mail - Project Update - NWT MN - 20190109 1454, Agreements - MV2012C0025 - Seabridge - Engagement Plan-v3- Nov15- 13
9-Jan-19	Email	Ursula Vogt, Garry Bailey, Tim Heron	Jane Howe	Seabridge (J.Howe) sent follow-up email to NWTMN (U.Vogt) requesting meeting with MWT MN and proposing possible dates. Email provided a summary of recent communications between NWTMN and Seabridge.	E-mail - Project Update - NWT MN - 20190109 1840, Fact Sheet - CourageousLake_FactSheet_Nov2018.pd f
30-Jan-19	Meeting - Vancouver	Garry Bailey, Jake Heron	Jane Howe	During a chance meeting during RoundUp Conference in Vancouver, Seabridge (J.Howe) introduced herself to NWTMN senior leadership (G.Bailey and J.Heron). In response to a request for how best to arrange a meet between NWT MN and Seabridge to talk about the Courageous Lake Project Mr. Bailey suggested that Seabridge contact Mr. J. Heron since he is based in Yellowknife and might be easier to meet. Also suggested Seabridge should continue to engage with Mr Tim Heron, in Fort Smith.	
5-Feb-19	Email	Jake Heron, Garry Bailey, Ursula Vogt, Tim Heron	Jane Howe	Seabridge sent meeting request to J.Heron (NWTMN) to request meeting - as suggested last week by Mr. Bailey. Purpose of meeting would be to introduce Seabridge Gold and our Courageous Lake Project.	E-mail - Introduce Seabridge - NWT MN - 20190205 2301, Fact Sheet - CourageousLake_FactSheet_Nov2018.pd f
5-Feb-19	Email	Garry Bailey, Allan Heron, Jake Heron, Ursula Vogt	Jane Howe	NWTMN declined meeting invitation, not available.	E-mail - Introduce Seabridge - NWT MN - 20190205 2305
6-Feb-19	Email	Garry Bailey, Jake Heron, Tim Heron, Ursula Vogt	Jane Howe	Seabridge (J.Howe) acknowledge declined meeting and promised to try again.	E-mail - Introduce Seabridge - NWT MN - 20190206 1212

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
8-Feb-19	Email	Tim Heron, Ursula Vogt	Jane Howe, Kay Jollymore (ERM)	Seabridge is providing a draft of our 2019 archaeology permit for review before we submit it to the PWNHC, please provide any comments by Feb 22. The 2018 Archaeology Report is being send to you separately by courier.	E-mail - Pre-submission Archaeology Permit - NWT MN - 20190208 1528, Submissions - B.1 2019 Permit Application KJollymore January 2019_wMap.pdf (NWTMN), Letter - NWT Metis Nation - 20190208_Letter-Draft- ArchaeologyPermitAppIn.pdf (NWTMN)
19-Feb-19	Email	Tim Heron	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) sent Notice of Work Commencement for winter mobilization to Inspectors and MVLWB, and cc'd other stakeholders	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1454, Notifications - MV2012C0025- NoticeOfWork-2019WinterProgram- 19Feb2019.pdf (GNWT)
19-Feb-19	Email	Tim Heron	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	CIRNAC Inspector acknowledged Seabridge's Notice of Work and requested information about winter road route.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190219 1518
22-Feb-19	Email	Tim Heron	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) responded to question from CIRNAC Inspector - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190222 1445
26-Feb-19	Email	Tim Heron	Brent Murphy, Jane Howe, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge (J.Howe) provided a clarification regarding - Notice of Work Commencement for winter mobilization.	E-mail - Notice of Work Commencement - GNWT Inspector; CIRNAC Inspector - 20190226 1822
4-Mar-19	Letter	Ursula Vogt	Jane Howe	Seabridge distributed paper copy of the 2018 Archaeology Report.	Letter - 20190303_Letter- ArchaeologyReport (NWTMN), Reports - 2018 Courageous Lake AIA Final Report
12-Mar-19	Letter	Ursula Vogt	Jane Howe	Delivery confirmation of 2018 Archaeology Report letter.	Notifications - Delivery Confirmation - NWT Metis Nation - 20190312.pdf
14-Apr-19	Email	Tim Heron, Ursula Vogt	Jane Howe, Greg Sharam (ERM)	Seabridge is providing a draft of our 2019 wildlife research permit for review before we submit it to GNWT, please provide any comments by April 28.	E-mail - Wildlife Permit - NWT MN - 20190414 2115, Submissions - 2019-CourageousLake- Wildlife Research Permit Application-for Review.pdf, Submissions - Research_Recommendation_Form_2019. docx
24-May-19	Email	Ursula Vogt, Tim Heron	Jane Howe	Seabridge Gold request input from MWT MN on Engagement Plan. We will begin updating the plan in mid June and would like to receive suggestions by June 7.	E-mail - Engagement Plan - NWT MN - 20190524 1119, Agreements - MV2012C0025 - Seabridge - Engagement Plan-v3- Nov15- 13
24-May-19	Email	Ursula Vogt	Jane Howe	Seabridge sent email to NWTMN (follow-up to phone message) would like to speak to schedule a meeting with NWTMN.	E-mail - Meet with Chief & Council - NWT MN - 20190524 1221
29-May-19	Email	Ursula Vogt	Jane Howe	NWTMN responded to Seabridge's email to say that J.Heron will contact Seabridge to set up a meeting in June.	E-mail - Engagement Plan - NWT MN - 20190529 1648

Date	Method	Contacts	Seabridge Team	Communication Summary	Documents linked
			Members		
7-Jun-19	Phone Call	Tim Heron	Jane Howe	Seabridge (J.Howe) called NWTMN to asked T.Heron if he had opportunity to review Seabridge's Engagement Plan; He indicated that he had read it and didn't see any issues/concerns. He has forwarded it to his three locals, but has not received any comments back yet. Rather than submit partial comments he intends to wait until he hears from the others before he responds to Seabridge. Potential opportunities for meetings with Metis Nation were discussed, Seabridge provided several date options, T.Heron indicated that he would discuss with others and get back to me.	
27-Jun-19	Email	Tim Heron	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	Seabridge sent Notice of Work, as required per Condition of LUP MV2012C0025; cc'd to MVLWB and First Nation community representatives.	E-mail - Notice of Work Commencement for summer program - GNWT-Inspector & CIRNAC Inspector - 20190627 1041, Notifications - 190627-MV2012C0025- NoticeOfWork-2019SummerProgram.pdf
2-Jul-19	Email	Tim Heron	Brent Murphy, Jane Howe, Marcus Adam, Mike Kenney (Matrix), Ron Corey (Matrix)	T.Morton, CIRNAC acknowledged notification.	E-mail - Notice of Work Commencement for summer program - CIRNAC - 20190702 0754
3-Jul-19	Letter	Tim Heron	Jane Howe	Seabridge is distributing our 2019 Caribou Camera Monitoring Report which summarizes the results of the wildlife camera data collected in the Courageous Lake area from 2011 to 2018. The objective of this study is to monitor and record temporal and spatial distribution of caribou in the area using remote motion-triggered cameras.	Notifications - Cgs Lake Camera Report to NWT MN_CanadaPostTracking 9228 5816 0455 4412.pdf, Letter - Letter-WildlifeReport-NWT Metis_T Heron.pdf
30-Jul-19	Letter	Tim Heron	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_NWT MN_T.Heron.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
30-Jul-19	Letter	Ursula Vogt	Brent Murphy	Seabridge distributed annual corporate reports to all stakeholders, addressed as per preference indicted in Engagement Plan.	Letter - Ltr re 2018 Annual Report for Seabridge_NWT MN_U.Vogt.pdf, Reports - Seabridge Gold Annual Report 2018.pdf
30-Aug-19	Email	Tim Heron, Garry Bailey	Jane Howe	Seabridge sent a letter summarizing the presubmission engagement activities that have occurred over the past fourteen months, the concerns/suggestions that we heard and how Seabridge has addressed them, and requested any comments be provided by September 5. Seabridge also offered to meet with any communities to answer questions about the applications package.	E-mail - Presubmission engagement - NWT MN - 20190830 0716, Letter - 190830-Letter- PreSubmissionEngagement-NWTMN.pdf

	Date	Method	Contacts	Seabridge Team Members	Communication Summary	Documents linked	
Mountain Island Metis							
	4-Mar-19	Letter	Clem Paul	Jane Howe	Seabridge distributed paper copy of the 2018 Archaeology Report. Mountain Metis were listed on the 2018 Archaeology Permit distribution list.	Letter - 20190303_Letter- ArchaeologyReport (MIM), Reports - 2018 Courageous Lake AIA Final Report	
	14-Mar-19	Letter	Clem Paul	Jane Howe	Delivery confirmation of 2018 Archaeology Report letter.	Notifications - Delivery Confirmation - Mnt Island Metis - 20190314.pdf	
Dehcho First Nations							
	4-Mar-19	Letter	Gladys Norwegian	Jane Howe	Seabridge distributed paper copy of the 2018 Archaeology Report. Dehcho was listed on the 2018 Archaeology Permit distribution list.	Letter - 20190303_Letter- ArchaeologyReport (DFN), Reports - 2018 Courageous Lake AIA Final Report	
	12-Mar-19	Letter	Gladys Norwegian	Jane Howe	Delivery confirmation of 2018 Archaeology Report letter.	Notifications - Delivery Confirmation - Dehcho FN - 20190312.pdf	