Original

CNSC Commission Member Document (CMD)

CMD: 22-H5.1

Date Submitted: 8 December 2021

Reference CMDs: N/A

Cameco Corporation

One-Part Public Hearing

Scheduled for:
March 23-24, 2022

Request for a Licensing Decision: Amend the Beaverlodge Waste Facility Operating Licence to allow removal of 18 properties from CNSC licensing

Submitted by:
Cameco Corporation

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Executive Summary

Following the implementation of the Province of Saskatchewan's Institutional Control (IC) Program, the Beaverlodge Management Framework (the Framework) was developed to provide a clear scope for the management of the decommissioned Beaverlodge properties and a systematic process for assessing potential site-specific risks to facilitate the transfer of Beaverlodge properties to the IC program. The Framework was developed cooperatively between Cameco Corporation (Cameco) and the Joint Regulatory Group (JRG) consisting of the Canadian Nuclear Safety Commission (CNSC), the Saskatchewan Ministry of Environment (SkMOE), Department of Fisheries and Oceans (DFO) and Environment and Climate Change Canada (ECCC). The Framework has also been reviewed with public stakeholders, including the Northern Saskatchewan Environmental Quality Committee (EQC), as well as residents and leaders of the Uranium City community.

During the 2013 CNSC licence renewal process for the Beaverlodge properties, Cameco presented the Framework to the Commission. The stages of the Framework included gathering detailed site information, assessing potential remedial options, selecting the final remedial options to be implemented, and determining how their performance would be evaluated.

In following the Framework, Cameco developed the *Beaverlodge Path Forward Report* (Path Forward) to establish an agreed upon remediation plan paired with evaluation criteria and the expected timeline for transferring properties into the IC program. The Path Forward confirmed that natural recovery paired with additional site-specific remedial options was the best long-term management scenario for the properties. The remedial options that were selected were considered to be good engineering practices and expected to result in localized improvements in water quality.

On May 27, 2013, the Commission accepted the proposed Path Forward and issued Cameco a 10-year licence to proceed with the selected remedial work and to continue management of the properties. The Framework and the Path Forward help form the objective of the licensing basis of the 10-year licence granted by the Commission, with the goal of ensuring human health and ecological risk are managed to acceptable levels to facilitate release from CNSC licensing over the course of the licence term. As a condition for transferring properties to the IC program, the properties are required to meet established performance objectives, and obtain a release from CNSC licensing. Thus, once properties meet the conditions for release from CNSC licensing they will be considered for transfer to the Province of Saskatchewan's IC program.

The Path Forward included criteria to establish that risks have been managed and that the properties would be eligible for transfer to the IC program. The criteria consisted of the overall performance objectives of "safe, secure and stable/ improving". To facilitate release from licensing and transfer to the IC program, Cameco proposed advancing properties in a staged approach. In total, 25 properties have now been released from licensing and either transferred into the IC program or free released depending on the presence of historical mining/milling activities.

In accordance with the Path Forward and similar to previous applications, Cameco submitted an application on January 11, 2021, requesting that 18 decommissioned Beaverlodge properties be: (1) formally released from further decommissioning and reclamation activity by the SkMOE; (2) released from licensing by the CNSC; and (3) accepted into the provincial IC program by the Saskatchewan Ministry of Energy and Resources (SkMER). Cameco has verified that the properties meet the performance objectives and, as such, are eligible for release from CNSC licensing.

Following consultation with stakeholders and the submission of responses to SkMOE, CNSC and SkMER comments on the application, the Province issued a letter of intent on August 30, 2021 (G. Bihun to M. Webster) stating that Cameco had adequately addressed all comments and that Cameco has fulfilled the requirements and obligations described in the approved Path Forward for the 18 properties. This letter is intended to serve as notice to Cameco and the CNSC that SkMOE will grant a Release from Decommissioning and Reclamation under the condition that the properties are released from CNSC licensing. The issuance of the letter by SkMOE follows the same process undertaken in 2009 and 2019 for 25 former Beaverlodge properties that have been released from CNSC licensing and accepted by SkMER into the IC program or free released.

Given that Cameco has fulfilled the requirements and obligations described in the Path Forward for these properties and the Province has provided notice that it will grant a Release from Decommissioning and Reclamation under the condition that the properties are released from CNSC licensing, Cameco is therefore requesting that the CNSC release the 18 properties from CNSC licensing, making them eligible for transfer to the Province of Saskatchewan for long-term environmental stewardship under the IC program or free-released depending on the presence of historical mining/milling activities.

1.0 Introduction

1.1 Background

1.1.1 Location

The decommissioned Beaverlodge uranium mine/mill site and associated properties are located in the northwest corner of Saskatchewan approximately 840 km north of Saskatoon (Figure 1.1-1). The current licensed Beaverlodge properties are divided into five main areas: the Hab Area; the Dubyna Area; the Bolger/Verna Area; the Lower Ace Creek Area; and the Tailings Management Area. Each of these main areas are made up of a number of smaller decommissioned properties.

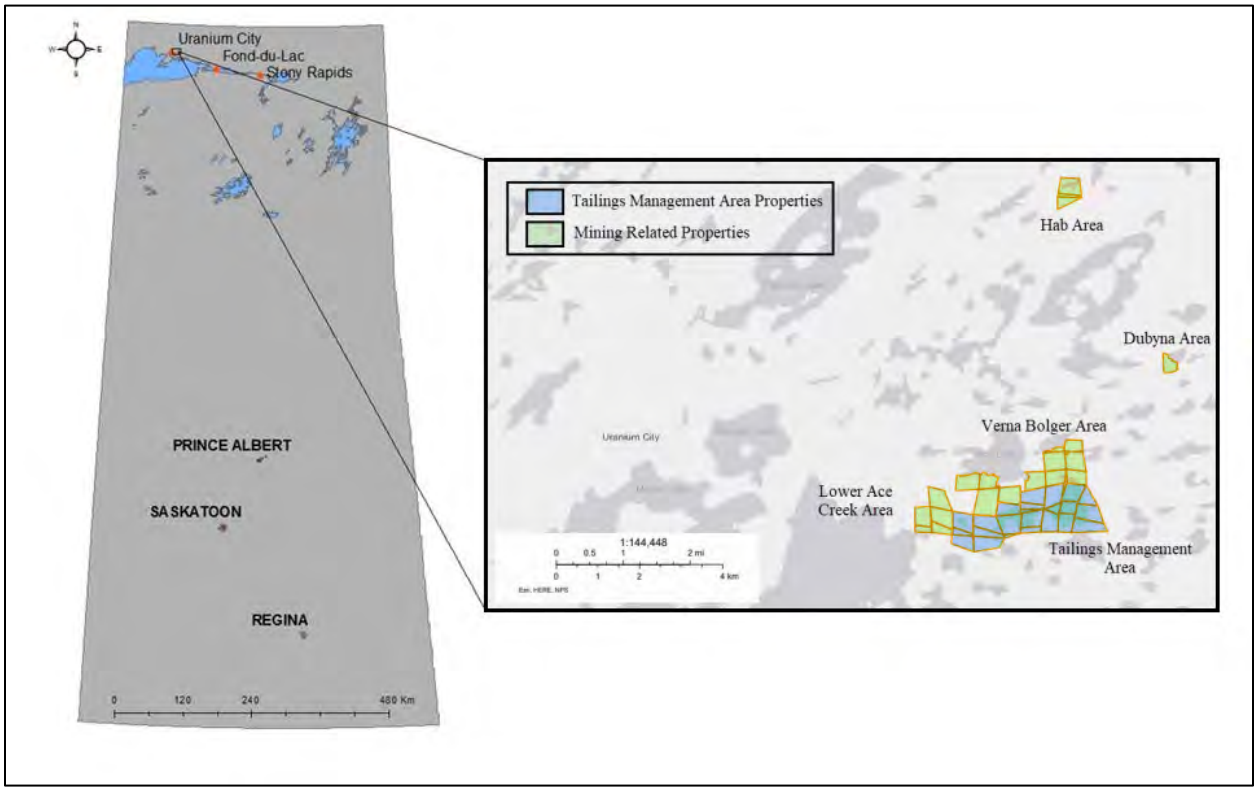

Figure 1.1-1: Location of the licensed decommissioned Beaverlodge mine and mill site

Uranium City, with a population of 73[1], is the only community with year-round access to the decommissioned properties and is located approximately 8 km to the west. External access to Uranium City is primarily via aircraft, although a winter ice road is established and maintained by the provincial Department of Highways. Ice conditions permitting, the road is typically open for a period of two to five weeks in February and March.

[1] Based on the 2016 Census, although the actual number of year-round residents is estimated to be closer to 60.

1.1.2 History

The decommissioned Beaverlodge uranium mine/mill site and associated properties were operated by Eldorado Mining and Refining Limited (Eldorado) between 1952 and 1982. During active mining, the primary focus of activity was on an area northeast of Beaverlodge Lake where the Fay, Ace and Verna shafts were developed to access the underground ore body. Over the 30-year production period, most of the ore used to feed the mill came from these areas. A smaller portion of ore (about 5%) was mined from satellite mines mostly located within the Ace Creek watershed that were developed and operated for shorter periods of time.

Production from these areas continued until 1982 when the operation was shut down in preparation for decommissioning and Eldorado developed a decommissioning plan. Following approval of the plan by the provincial and federal regulators, decommissioning activities were initiated in 1982 and completed in 1985.

As part of this plan to meet the accepted decommissioning objective (i.e., safe, and stable condition, with activities based on good engineering practice of the day), buildings and structures were removed or dismantled, and all mine openings were permanently sealed. Eldorado left the decommissioned Beaverlodge properties in a safe and secure condition with the expectation that environmental conditions on and downstream of the properties would naturally recover over an extended period. Since then, environmental monitoring has been ongoing to ensure the area remains safe and that environmental conditions continue to improve.

In 1988, Eldorado Nuclear Limited (the federal Crown Corporation formerly known as Eldorado Mining and Refining Ltd.) merged with the Saskatchewan Mining Development Corporation to form Cameco. At that time, the management of the decommissioned Beaverlodge properties became the responsibility of Cameco, while the Government of Canada, through CEI retained responsibility for the financial liabilities associated with the properties. Since 1988, Cameco has carried out routine environmental monitoring, targeted environmental investigations, maintenance work, targeted remediation and engagement activities.

1.1.3 Business Plan

Cameco's objective in managing the decommissioned Beaverlodge properties is to protect the health and safety of the public and environment, and to meet the requirements for transfer of the remaining properties to the Province of Saskatchewan's Institutional Control (IC) Program. Thus far, twenty-four decommissioned Beaverlodge properties have been transferred into the IC program and one property, as well as portions of others that were undisturbed by mining activities, have been free released. It is anticipated that all remaining Beaverlodge properties (i.e., 45 including the 18 that are the subject of this request) will be transferred to the IC program or free released, as soon as feasible. A short licence extension (approximately 24 months) may be required to finalize path forward implementation and accommodate the regulatory process associated with the release of the remaining decommissioned properties.

Saskatchewan Institutional Control program

As part of the promulgation of the *Reclaimed Industrial Sites Act* (RISA) and the *Reclaimed Industrial Sites Regulations* (RISR) in 2007, the Government of Saskatchewan implemented the *IC Program for the Post Closure Management of Decommissioned Mine/Mill Properties Located on Crown Land in Saskatchewan* (SkMER 2009). The intention of the Act was to set out the conditions by which the Government of Saskatchewan would accept responsibility for lands that;

as a consequence of development and use, require long-term monitoring and, in certain circumstances, maintenance.

In Saskatchewan, the responsible custodian under the IC program is the Ministry or Ministries assigned responsibility for implementing and managing the IC program. The legislative authority to implement and enforce the IC program is the RISA and RISR. To date, the Saskatchewan Ministry of Energy and Resources is the provincial Ministry that has been assigned the responsibility for managing the IC program (i.e., the Custodian).

Activities undertaken by the Custodian under the IC program can range from permanently recording the location of a remediated site to conducting regular inspections, sampling, and maintaining the property. The Custodian also has the authority to address unforeseen events that could potentially arise at a particular site.

The Saskatchewan IC program addresses all aspects of conventional closed mines as well as the uranium-specific issues of radioactive waste management. This includes those defined in the articles of the International Atomic Energy Agency's (IAEA) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, all applicable provincial acts and regulations, and the federal *Nuclear Safety and Control Act* (NSCA). The program includes a formal, publicly accessible registry and document repository.

A site cannot be accepted into the IC program until remediation activities have been completed and the relevant regulatory authorities have issued a release.

Beaverlodge Management Framework

In response to the implementation of the IC program, the Beaverlodge Management Framework (Cameco 2009) was developed cooperatively between Cameco and the Joint Regulatory Group (JRG).

The Framework provides a clear scope for the management of the decommissioned Beaverlodge properties and a systematic process for assessing potential residual site-specific risks to allow decisions to be made regarding the transfer of properties to the IC program. The accepted Framework has been reviewed by public stakeholders, including the Northern Saskatchewan Environmental Quality Committee (including representatives of the Athabasca Basin communities), as well as residents and leaders of Uranium City. Using the Framework, the following five general stages (Figure 1.1-2**)** are applied to each property:

- Establish a comprehensive foundation of information upon which residual risks can be assessed.
- Assess the residual risk posed by the properties.
- If necessary, develop and assess reasonable remedial options that could mitigate residual risk on or immediately downstream the properties.
- Implement selected remedial option(s) and monitor results.
- If implemented options are successful in achieving the expected benefit or if it is determined that nothing more could reasonably be done to mitigate the residual risk(s) beyond natural recovery, then an application will be made to transfer the property to the IC program.

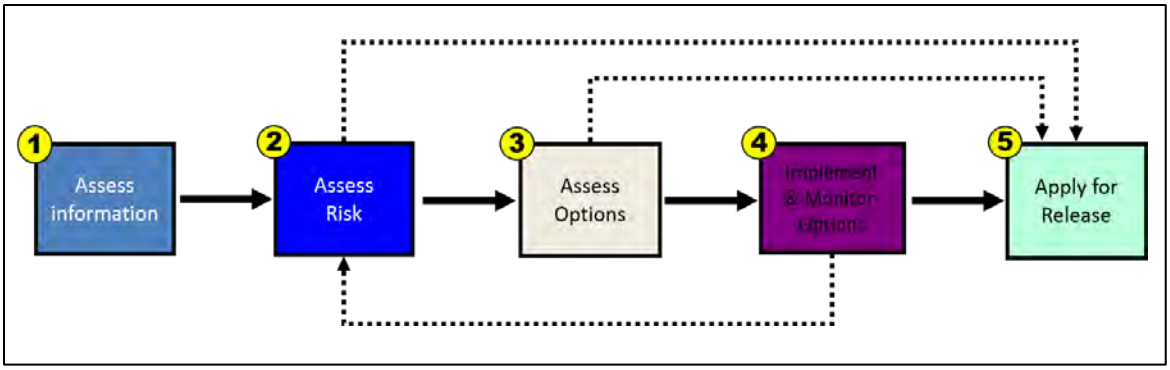

Figure 1.1-2: Simplified Beaverlodge Management Framework.

In progressing through the Framework, Cameco has gathered extensive information regarding environmental conditions and land use on the decommissioned properties through a combination of routine monitoring and special investigative studies. Results from routine monitoring and 20 special investigative studies completed between 2009 and 2012, combined with historical information, were used to develop the Beaverlodge Quantitative Site Model (QSM; Cameco 2012a).

The QSM was built as a tool to assess the effectiveness of potential remediation options for the decommissioned Beaverlodge properties and to predict the natural recovery in Beaverlodge area water bodies based on information gathered in the first phase of the Framework. Once the QSM was developed, a Remedial Options Workshop was conducted in 2012, which included participants from Uranium City, including elders, youth and local leadership, as well as representatives of the Northern Saskatchewan Environmental Quality Committee (Athabasca Sub-committee) representing six Athabasca communities. Also in attendance at this workshop were representatives from the JRG, Cameco, and a variety of third-party subject matter experts. This workshop presented various remedial options, their implementation costs, as well as their expected environmental benefits as evaluated in the QSM. Workshop results informed the assessment of potential remedial options and were instrumental in development of the Beaverlodge Path Forward Report (Cameco 2012).

Beaverlodge Path Forward Report

The Path Forward Report provides a checklist and schedule of additional remedial activities to be implemented on the decommissioned Beaverlodge properties to address residual risk on the properties and prepare them for release from CNSC licensing and transfer to the IC program. In addition, the Path Forward Report also describes the performance objectives by which to assess the effectiveness of the implemented remedial activities.

Once the remedial activities have been implemented, and the properties are shown to meet the site performance objectives set out in the Path Forward Report, an application can then be made for a Release from Decommissioning and Reclamation from SkMOE, release from CNSC licensing and, where applicable, transfer to the Province of Saskatchewan's IC program for long-term monitoring and stewardship or free release depending on the presence of historical mining/milling activities.

The Framework and the Path Forward Report were presented to the CNSC during the Beaverlodge re-licensing hearing in 2013 and help form the licensing basis.

Performance Objectives and Indicators

Criteria to determine the eligibility for release from CNSC licensing were presented to the Commission with the intent that each of the decommissioned Beaverlodge properties would be assessed through the Framework. The performance objectives for the decommissioned Beaverlodge properties of "safe, secure, and stable/improving" are defined as follows:

- Safe – The site is safe for unrestricted public access. This objective is to ensure that the long-term safety is maintained.
- Secure – There must be confidence that long-term risks to public health and safety have been assessed by a qualified person and are acceptable.
- Stable/Improving – Environmental conditions (e.g., water quality) on and downstream of the decommissioned properties are stable and continue to naturally recover as predicted.

To determine if a property is meeting the performance objectives, site specific performance indicators were established (Figure 1.1-3). Table 1-1 provides an overview of the performance indicators as presented to the Commission by CNSC staff during the 2014 update meeting. The applicable indicators vary depending on the nature of the property, but generally include ensuring that: risks associated with residual gamma radiation and crown pillars are acceptable; mine openings to surface are closed and stable; boreholes (if present) are plugged; and the property is free from historical mining debris. The stable/improving objective is also related to these performance indicators but is more relevant to monitoring water quality. To verify that conditions on and downstream of the properties are stable/improving, Cameco has continued to monitor the progress of natural recovery and the expected localized improvements from the additional remedial measures implemented at the properties. Meeting these objectives will ensure that residual human health and ecological risks are managed to acceptable levels to allow for a release from licensing.

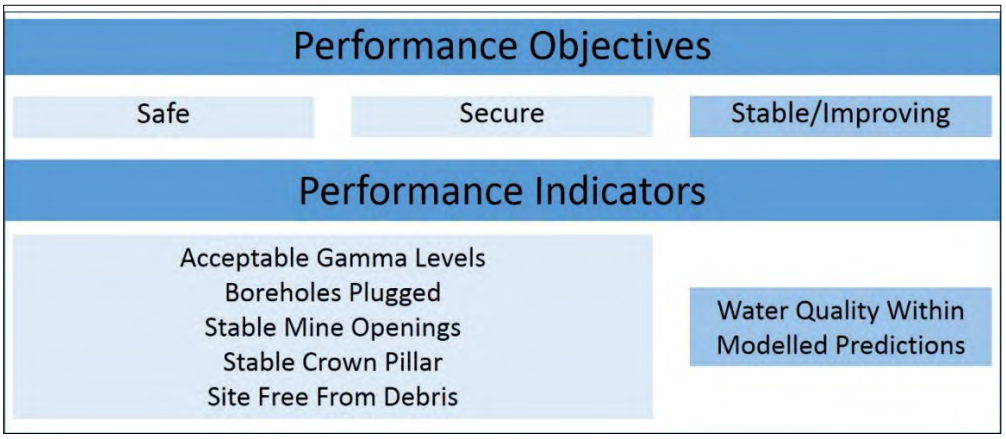

Figure 1.1-3: Performance objectives and underlying indicators.

Table 1-*1*: Description and acceptable criteria related to the Beaverlodge performance indicators.

Performance Indicators	Description	Acceptance Criteria
Acceptable Gamma Levels	Cameco will complete a site-wide gamma survey that will indicate where additional material may need to be applied to cover existing waste rock or tailings. Following the application of the cover material, a final survey will be completed of the remediated areas verifying that the cover was adequate.	Reasonable use scenario demonstrating gamma levels at the site are acceptable.
Boreholes Plugged	Cameco will plug all identified boreholes on the site to prevent groundwater outflow to the surface.	All boreholes have been sealed.
Stable Mine Openings*	The current concrete caps on the vertical mine openings will be replaced with new engineered caps with established designs to improve the long-term safety of the site, where applicable.	Mine openings have been secured and signed off by a qualified person, where applicable
Stable Crown Pillar	Based on the surface subsidence in the Lower Ace Creek area, a crown pillar assessment will be completed for the four areas that have mine workings close to surface, specifically Hab, Dubyna, Bolger/Verna, and Lower Ace Creek.	Crown pillar assessed, remediated (if required), and signed off by a qualified person.
Site Free From Debris	Inspection and removal of any residual debris will be completed prior to exempting the properties from CNSC licensing and accepting them into the provincial IC program.	Site free of former mining debris at the time of transfer to IC program.
Water Quality Within Modelled Predictions	Trends established from past and future water monitoring will be compared to modelled predictions to verify: 1. That remedial options expected to result in localized improvements are having the desired effects; and 2. That natural recovery on and downstream of the decommissioned properties is continuing as predicted.	Water quality data is stable/improving.

*Note: The performance indicator identified above as “Stable Mine Openings” was originally labelled as “Stable Caps on Vertical Mine Openings”. The scope of this performance indicator was expanded to include all mine openings.

1.2 Summary of Application

On behalf of Canada Eldor Inc. (CEI), Cameco Corporation (Cameco) holds the Beaverlodge Waste Facility Operating Licence (WFOL-W5-2120.0/2023), which expires May 31, 2023. The licence authorizes Cameco to possess, manage, and store the nuclear substances that are associated with the decommissioned Beaverlodge properties located in the Province of

Saskatchewan, as shown in Figure 1-1 contained in Appendix A of the licence. As detailed in the Beaverlodge Licence Conditions Handbook (CNSC 2020), the authorized activities include:

- Maintenance activities associated with the decommissioned facilities.
- Environmental monitoring.
- Implementation of the remedial options identified in the Path Forward Report (Cameco and SENES 2012).

In accordance with the Path Forward, Cameco submitted an application on January 11, 2021, requesting that 18 decommissioned Beaverlodge properties be: (1) formally released from further decommissioning and reclamation activity by the SkMOE; (2) released from licensing by the CNSC; and (3) accepted into the provincial IC program by the Saskatchewan Ministry of Energy and Resources (SkMER).

In accordance with the approved Beaverlodge Public Information Program (BVL-PIP), Cameco has engaged throughout the licence term with stakeholders regarding our activities as well as the current application. Following consultation with stakeholders and the submission of responses to SkMOE, CNSC and SkMER comments on the application, the Province issued a letter of intent on August 30, 2021 (G. Bihun to M. Webster) stating that Cameco had adequately addressed all comments and fulfilled the requirements and obligations described in the Path Forward for the 18 properties. This letter provided notice to Cameco and the CNSC that SkMOE will grant a Release from Decommissioning and Reclamation under the condition that the properties are released from CNSC licensing. The issuance of the letter by SkMOE follows the same process undertaken in 2009 and 2019 for 25 former Beaverlodge properties that were released from CNSC licensing and either accepted by SkMER to the Province of Saskatchewan's IC program or free released.

As such and as outlined in the hearing application sent to the CNSC Commission Secretariat on July 14, 2021, Cameco is requesting the release of these 18 decommissioned Beaverlodge properties (Figure 1.2-1) from licensing by the CNSC and to amend WFOL-W5-2120.1/2023 to reflect those changes. The proposed amendment does not affect the conditions or activities described in the current licence. Only Appendix A Figure 1 of the current licence will require updating as a result of this proposed amendment. This action would remove the Hab and Dubyna Areas in their entirety as well as parts of the Bolger/Verna and the Lower Ace Creek Areas. Coordinates were provided within the final closure report submission for these properties (Kingsmere 2021). Changes to supporting documents will be made in accordance with the LCH.

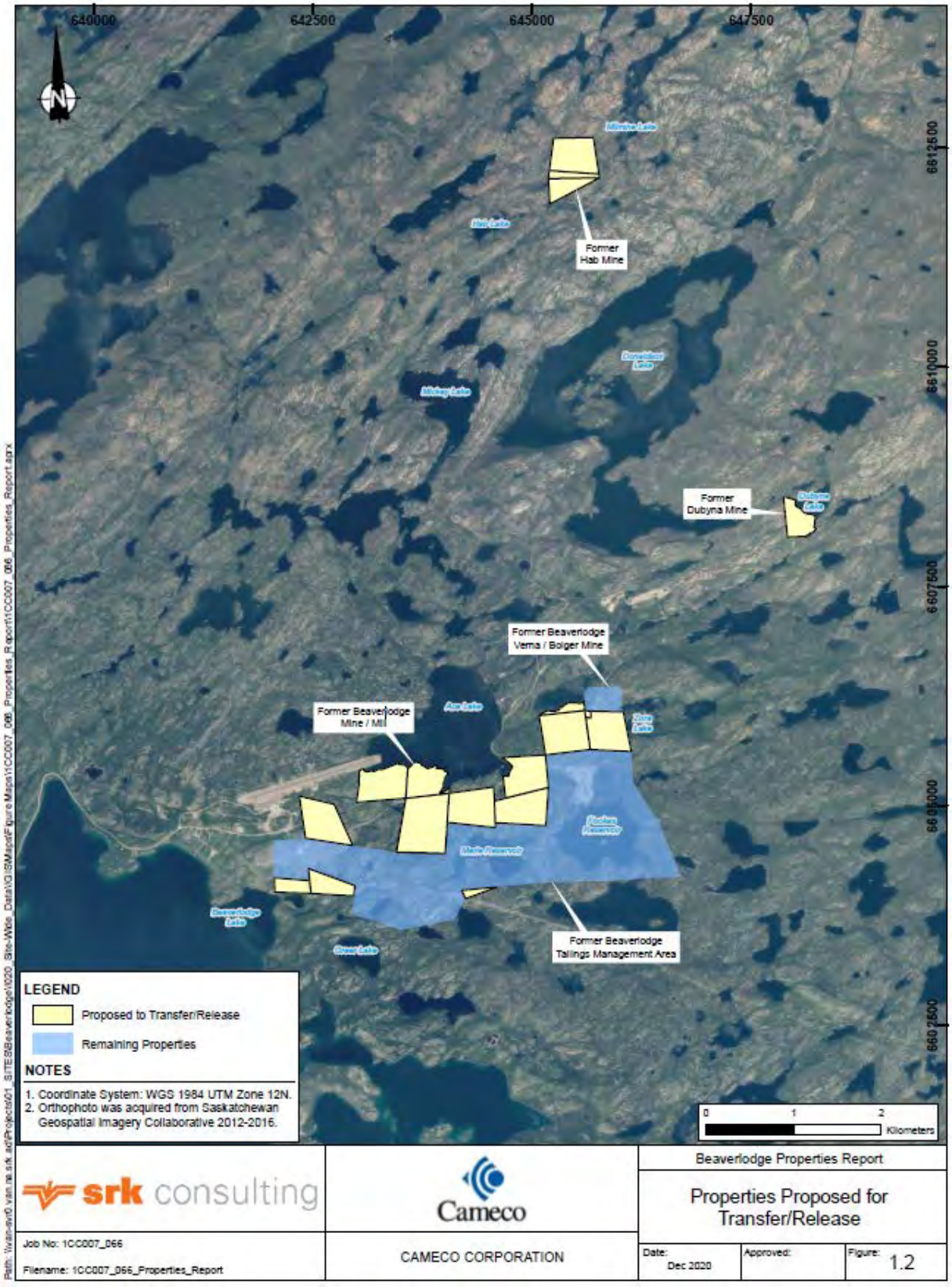

Figure 1.2-1: The 18 Beaverlodge properties proposed for CNSC licence release.

2.0 Performance Indicators and Evaluation

To demonstrate that the performance objectives of safe, secure and stable/improving have been met, a review of the performance indicators was conducted for each of the 18 decommissioned properties that are the subject of this application. A brief assessment is provided below and in Table 2.1. Section 3 provides a detailed discussion for each of the 18 properties.

The current condition of the 18 decommissioned properties demonstrates that the properties meet the established performance objectives of safe, secure, stable/improving and pose minimal risk to public safety or the environment. As such, it is anticipated that the properties will support traditional activities, such as hunting/gathering of country foods and collection of firewood. Cameco concludes that meeting these performance objectives, deemed acceptable by regulators, ensures residual risks are managed to acceptable levels, and the 18 properties should be considered for release from CNSC licensing and transfer into the provincial IC program.

2.1 Acceptable Gamma Levels

A gamma survey of reasonably accessible and disturbed areas of the decommissioned Beaverlodge properties was completed in 2014 (ARCADIS SENES 2014). The survey was completed on foot or utilizing all-terrain vehicles (ATV), depending on terrain and vegetative cover, using Global positioning system (GPS) based measurement equipment. Measurement data was averaged on a 10 m by 10 m grid, mapped and summarized to characterize residual gamma levels present on the properties.

Properties that were not disturbed by previous mining/milling activities were not included in the survey as existing gamma levels were considered to be at natural background, meeting the performance criteria. This includes the URA FR, EXC URA 7 and EXC ACE 15 properties that are subject to the current request.

Results of the survey were compared to the Saskatchewan *Guidelines for Northern Mine Decommissioning and Reclamation, EPB 381* (EPB-381; SkMOE 2008), which suggests that residual gamma levels on reclaimed sites should not be greater than 1 µSv/hr above background averaged over a 1 hectare (ha) area. Where measured gamma levels met those guidelines, those properties were considered to have met the performance indicator and to be acceptable for transfer to the IC program, from a gamma radiation perspective. Of the 18 decommissioned properties subject to this request, 14 were either undisturbed by previous mining activity or found to have residual gamma levels that met the EPB 381 guideline.

With respect to the four remaining decommissioned properties (ACE 14, ACE MC, ACE 9, ACE 1), all Beaverlodge properties with areas where residual gamma radiation measurements exceeded the EPB 381 guideline were subject to a regulatory approved risk-based assessment to determine the potential risks to the public. To complete this assessment, consultation with local community members regarding their current and expected land use activities was completed in 2015 (SENES and Kingsmere 2015). This risk-based approach involved assessing the gamma radiation levels using both realistic and conservative approaches taking into account the reported land use, to estimate the incremental doses to members of the public accessing the Beaverlodge properties.

The assessment found that the estimated realistic and conservative incremental doses associated with these four properties, as well as the estimated cumulative dose to an individual visiting all of the decommissioned Beaverlodge properties to be well below the public dose criterion of 1

mSv/yr (ARCADIS 2015). As a result, the 18 decommissioned properties meet the performance indicator associated with gamma radiation.

2.2 Boreholes Plugged

A total of 101 exploration boreholes have been identified on the 18 decommissioned properties and have been remediated following regulatory approved methods. An inflatable plug was lowered down each borehole to prevent the flow of water and then a 96% cement to 4% bentonite grout mixture was pumped into the borehole, filling it to surface level. Once complete, the standpipes were then cut off at ground level.

In response to a Commission question during the 2019 hearing, Cameco canvassed membership of the Saskatchewan Mining Association (SMA) regarding the effectiveness of this methodology. This method is commonly used and has proven to be robust with no degradation observed over time.

Six boreholes identified by Cameco to exhibit, or have potential to exhibit, artesian conditions have shown no evidence of flows since being plugged. Their locations have been provided as part of the Final Closure Report and, where accessible, are recommended for inclusion as part of future IC inspections.

As properties are transferred to the IC program, a permanent record of borehole locations associated with the Beaverlodge properties (e.g., GPS coordinates and closure methods) will be transferred to the Province of Saskatchewan.

2.3 Stable Mine Openings

Eleven of the decommissioned properties subject to this request (ACE 1, ACE 3, ACE 7, ACE 8, ACE MC, NW 3 Ext, NW 3, URA 4, EXC 1, HAB 1, and HAB 2) have mine openings to surface that have been sealed via regulatory approved methods. Where it was feasible, mine openings were sealed with Type 316 (UNS 31600) stainless steel caps, resulting in stainless steel caps being installed on 18 mine openings. Although the certifiable usable lifespan of the stainless steel cap is estimated to be in the order of 1,200 years, an inspection and maintenance schedule has been established as part of the long-term monitoring plan.

The remaining mine openings were backfilled during decommissioning and have shown no sign of degradation and subsidence. Property specific details regarding mine openings can be found in Section 3.

Periodic assessments of stable mine openings are expected to be completed under the IC program's management framework and has been accounted for in the required provision of long-term monitoring and maintenance funds (see Section 4.9 for more details).

2.4 Stable Crown Pillar

A site wide geotechnical assessment of crown pillar stability on the decommissioned Beaverlodge properties has been completed by a third-party subject matter expert (SRK 2015). The goal of this work was to assess the potential for long term ground surface subsidence above the crown pillars and to investigate potential associated safety risks.

The initial phase of this work involved a desktop assessment which considered open voids below the ground surface, including raises/shafts, declines/adits, and stopes. This desktop assessment was completed primarily from review of available historic plans, sections, and geological information related to each mining area. No additional investigations or remediation activities were recommended for properties where the likelihood of surface subsidence was low due to the thickness of the crown pillar and the depth to the underground workings.

Following the desktop assessment, properties located in the former Hab, Dubyna, and Ace mining areas were the subject of further geophysical assessment utilizing ground penetrating radar and targeted diamond drilling field work. Periodic monitoring was recommended for Hab and Dubyna properties where the residual safety consequence of potential surface subsidence was low due to their remote location and the presence of existing waste rock covers.

Remediation actions followed by monitoring were recommended for locations in the Ace mining area that had been subject to previous surface subsidence. Affected areas were backfilled with approximately two metres of sorted waste rock and broken concrete and then capped with a cover of clean waste rock. An as-built report was submitted to and accepted by the regulatory agencies in 2017 (SRK 2016).

As per recommendations from SRK, inspections of the former Hab, Dubyna and Ace mining areas have been completed by Cameco personnel using an engineer developed geotechnical inspection checklist since 2016 as well as by a third-party expert in 2015 (SRK 2015) and 2020 (SRK 2021) with no observable changes to the landform and no concerns identified.

2.5 Site Free From Debris

All properties historically disturbed by mining or milling activities have been inspected to locate historic debris not removed during decommissioning. GPS tracking was utilized to ensure adequate coverage of the properties. Where safe and feasible, debris was removed from the properties and disposed of in the Bolger pit, which had been used by Eldorado during decommissioning as a disposal location, or in the Lower Fay Pit, which is still being used as an active disposal location for residual debris in accordance with regulatory approval. Members of the JRG have conducted follow-up inspections of each of the properties to confirm the property meets the relevant performance indicators.

2.6 Water Quality within Modelled Predictions

A performance indicator with respect to water quality conditions at ten monitoring stations (Figures 3.1-1, 3.2-1, and 3.3-1) in the Beaverlodge area was incorporated into the path forward plan to verify that implemented remedial options were having the desired effect in assisting the continued natural recovery on and downstream of the decommissioned properties. This performance indictor only applies to properties that have aspects or features (e.g., artesian boreholes, tailings, waste rock) that have the potential to influence downstream water quality (Table 2-1).

The QSM was used to predict long-term water quality trends for radium-226, uranium and selenium, to establish the performance indicators at each of these monitoring stations. If existing water quality conditions are shown to be within the range predicted by the model, then the performance indicator is met for that station and for the associated decommissioned properties.

In 2020, Cameco submitted an updated environmental risk assessment (ERA) which utilized a probabilistic modelling approach that included updated environmental monitoring data and allowed for inclusion of a wider range of environmental variability, such as that created by climate change (CanNorth 2020a). The model was used to update the performance indicator at each of the water quality monitoring stations. The model and the updated performance indicators have been accepted by the regulatory agencies.

As detailed in Section 3, ongoing water quality monitoring at Beaverlodge has confirmed that water quality at the monitoring stations associated with the applicable 18 decommissioned properties remain within the range predicted.

Table 2-1: Beaverlodge performance indicator summary evaluation.

	PERFORMANCE INDICATORS[2]					
	Acceptable Gamma Levels	**Boreholes Plugged[1]**	**Stable Mine Openings[2]**	**Stable Crown Pillar**	**Site Free From Debris**	**Water Quality Within Modelled Predictions**
	Reasonable use scenario demonstrating gamma levels at the site are acceptable.	All boreholes have been sealed.	Mine openings have been secured and signed off by a qualified person, where applicable.	Crown pillar assessed, remediated (if required), and signed off by a qualified person.	Site free of former mining debris at the time of transfer to institutional control.	Water quality data is stable/ improving.
ACE MC	✓	✓	✓	✓	✓	N/A
URA FR	✓	✓	N/A	✓	✓	✓
URA 4	✓	✓	✓	✓	✓	N/A
ACE 7	✓	N/A	✓	✓	✓	N/A
ACE 8	✓	✓	✓	✓	✓	N/A
ACE 1	✓	✓	✓	✓	✓	N/A
ACE 3	✓	✓	✓	✓	✓	N/A
ACE 9	✓	✓	N/A	✓	✓	N/A
EXC URA 7	✓	N/A	N/A	✓	✓	✓
GC 2	✓	N/A	N/A	N/A	✓	N/A
NW 3 Ext	✓	N/A	✓	✓	✓	N/A
NW 3	✓	✓	✓	✓	✓	N/A
ACE 14	✓	N/A	N/A	✓	✓	N/A
EXC ACE 15	✓	N/A	N/A	N/A	✓	N/A
EMAR 1	✓	✓	N/A	✓	✓	✓
HAB 1	✓	✓	✓	✓	✓	✓
EXC 1	✓	✓	✓	✓	✓	✓
HAB 2	✓	✓	✓	✓	✓	✓

[1]Performance indicator applicability has been updated based on improved site knowledge over the years resulting in differences with the 2014 CNSC staff's CMD table (e.g., if no boreholes were found on the property). More details are provided in Section 3.
[2]The performance indicator identified above as "Stable Mine Openings" was originally labelled as "Stable Caps on Vertical Mine Openings". The scope and acceptable criteria for this performance indicator was expanded to include all mine openings.

3.0 Matter for Consideration

As required by Section 6 of the *General Nuclear Safety and Control Regulations*, the following section provides a description of the nuclear substances, land, areas, buildings, structures, components, equipment and systems that will be affected by the requested licence amendment and the manner in which they will be affected. Further detail regarding these decommissioned properties is provided in the following document:

- Final Closure Report Beaverlodge Properties ACE 1, ACE 3, ACE 7, ACE 8, ACE 9, ACE 14, ACE MC, EXC ACE 15, EXC URA 7, GC 2, NW 3 Ext, NW 3, URA 4, URA FR, EMAR 1, EXC 1, HAB 1, and HAB 2 (Kingsmere 2021).

3.1 Hab Mining Area

The decommissioned Hab mining area is accessible by road and located approximately 8 km northeast of the former decommissioned Beaverlodge mine and mill. The Hab area currently consists of three licensed properties (HAB 1, HAB 2, EXC 1), all of which are proposed for release from the licence (Figure 3.1-1).

Underground mine operations at the Hab area started in 1968 with the first ore shipped to the mill for processing in 1970. The Hab mine workings (which accessed the 038 and 039 Zone ore bodies) were shut down in 1973 and the mine was allowed to naturally fill with water. A small open pit in the 039 Zone, predominantly located on the HAB 1 property, was subsequently operated from 1975 to 1980.

The Hab mine produced a total of 225,000 tonnes of waste rock, covering an area of approximately 3.5 ha. Waste rock characterization completed by Eldorado in 1982 and more recently by Cameco in 2012 to support development of the QSM indicate that the site waste rock has a low potential for acid generation. In addition, visual observation and monitoring has not indicated any conditions or impacts that would be attributed to acid generation.

During decommissioning, all structures at the Hab mine site were demolished, and non-salvageable items were placed in the 039 Zone Hab pit and covered with waste rock. A stability assessment of the waste rock pile and residual pit wall was completed at the Hab site and concluded that there was no indication of tension cracks or other signs of instability and that the remaining pit wall presented no greater hazard than natural topographic features in the area (SRK 2010a; 2010b).

The remaining Hab properties include portions of Beatrice and Pistol lakes. Both are small lakes and studies completed on both lakes have found no evidence of fish (CanNorth 2012). Flow from the east arm of Beatrice to Pistol Lake typically occurs through a defined channel then flows through the Hab waste rock pile. However, during periods with high water levels, flow can also occur directly overland to Pistol Lake from the west arm of Beatrice Lake.

A water quality performance indicator measured at the outflow of Pistol Lake (Station AN-5) applies to all three of the remaining Hab properties. To avoid duplication, performance with respect to this indicator will only be discussed for the HAB 2 property.

At the October 2019 Commission hearing regarding the release of 20 decommissioned Beaverlodge properties, an intervenor expressed concerns with respect to future land use on the

decommissioned Hab mining area. The gamma survey completed by Cameco indicates that gamma levels on the four decommissioned Hab properties subject to the 2019 request and the three decommissioned Hab properties subject to the current request all meet the criteria specified in the EPB 381 guideline and are therefore suitable for traditional and recreational use. However, to further address the concern that was raised, Cameco completed an assessment of potential exposure to visitors (toddler, child and adult) visiting the Hab area for an extended period of time (CanNorth 2021). This study concluded that there would likely be no risk to a visitor using the Hab area and that living a traditional lifestyle and consuming country foods from the Hab area, as assessed, can continue to be done safely.

3.1.1 HAB 1

Description

The HAB 1 property is a 19.9 ha parcel of land that encompasses Beatrice Lake. During operations, the property hosted four mine raise openings to the surface. During development of the 039 Zone open pit, three of these raise openings were backfilled with waste rock. The remaining raise was backfilled with waste rock and capped with concrete during decommissioning in 1982.

A portion of the Hab waste rock pile is located on the southern portion of HAB 1. Waste rock was also used to construct the access trail to Milmine Lake, which supplied freshwater during mining operations.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that HAB 1 meets the criteria identified in the *Saskatchewan Guidelines for Northern Mine Decommissioning and Reclamation, EPB-381* (EPB-381).

Surface inspections identified 22 exploration drill holes located on or adjacent to the HAB 1 property that have been sealed with grout following approved methods. The drill holes were found to be dry with no evidence of past flow.

The three backfilled mine raises located in the 039 Zone open pit were covered with waste rock during decommissioning of the pit. This area has been regularly inspected since decommissioning and has shown no evidence of degradation or subsidence. The concrete cap on the remaining mine opening was replaced with an engineered stainless steel cap in 2017.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the residual safety consequence for a crown pillar failure at HAB 1 was low due to its remote location and that the pit has been backfilled with waste rock. Inspections have been completed by Cameco personnel using an engineer developed geotechnical inspection checklist since 2016 as well as by a third-party expert in 2015 (SRK 2015) and 2020 (SRK 2021) with no observable changes to the landform and no concerns identified.

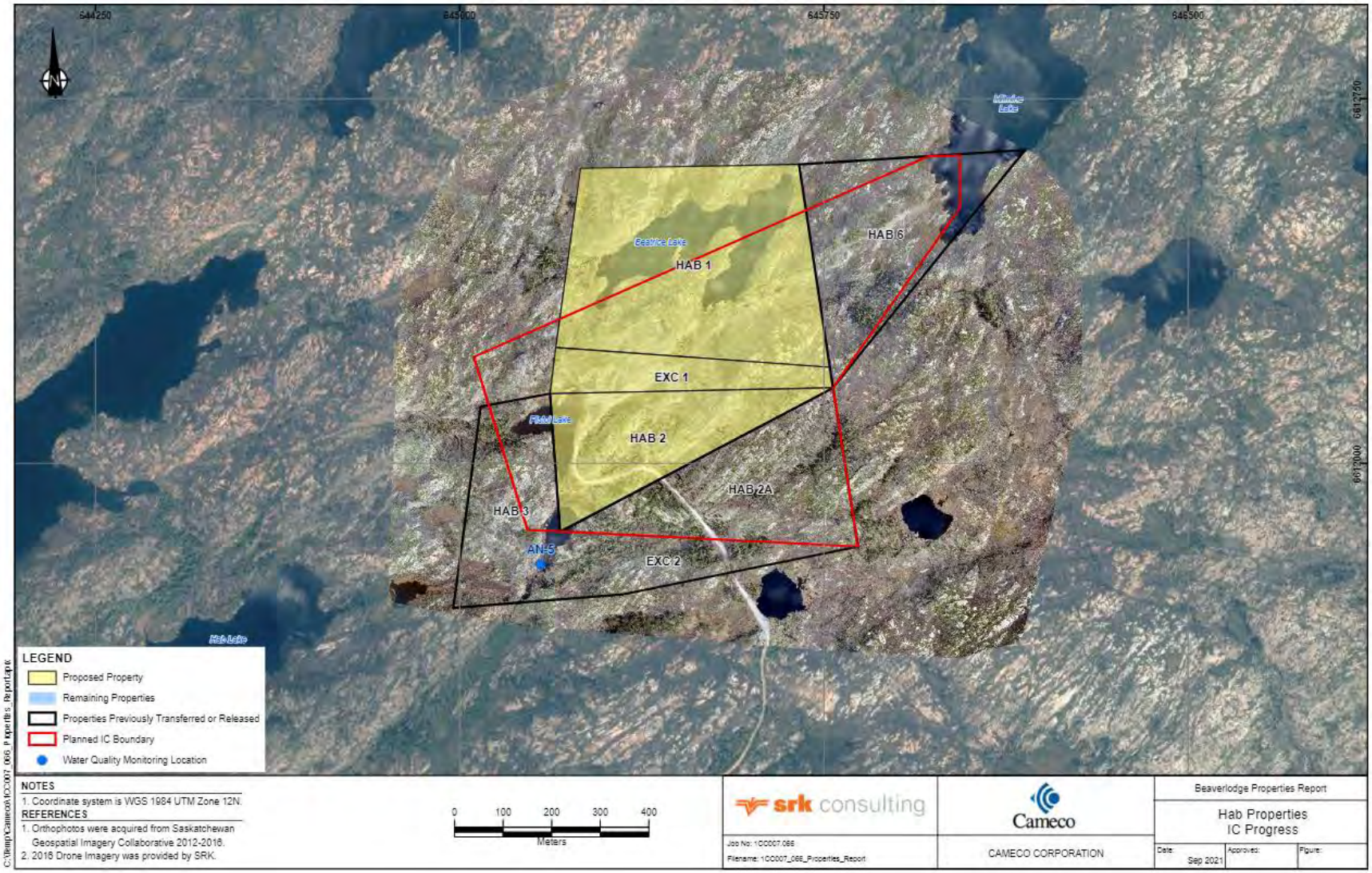

Figure 3.1-1: Hab Area property boundaries.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned HAB 1 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

Based on historical mining and milling activities, only a portion of the decommissioned HAB 1 property is proposed for transfer into the IC program, with the remaining area proposed to be free released (Figure 3.1-1). Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of vegetation
- Condition of the waste rock
- Evidence of crown pillar subsidence
- Condition of the beaver dam at the outlet of Beatrice Lake and evidence of flow from the southwest arm of Beatrice Lake
- Condition of the backfilled and stainless steel capped raises
- Water quality monitoring at the outlet of Pistol Lake (AN-5)

3.1.2 EXC 1

Description

The EXC 1 property is a 3.9 ha parcel of land located between Beatrice and Pistol Lakes. During operations, the property hosted six mine openings (3 raises, 2 adits and 1 vent raise within an adit accessway) to surface and a small portion of the 039 Zone open pit mine. During decommissioning, the mine raises were covered with concrete caps and the adits and open pit mine were backfilled with waste rock. The property hosts a portion of the Hab waste rock pile and provides access to the Milmine Lake trail.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that EXC 1 meets the criteria identified in EPB-381 guideline.

Inspections have identified seven exploration drill holes on the EXC 1 property that have been sealed with grout following approved methods. The drill holes were found to be dry with no evidence of flow.

The sealed adits have been inspected on a regular basis since being decommissioned in 1982 and have shown no evidence of degradation or subsidence. The raise opening located within the adit accessway was covered with a concrete cap prior to sealing the adit during decommissioning and

is inaccessible. The concrete caps on the three mine raises were replaced with engineered stainless steel caps in 2017 and 2019.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated the residual safety consequence for a crown pillar failure at EXC 1 to be low due to its remote location and that the pit has been backfilled with waste rock. Inspections have been completed by Cameco personnel using an engineer developed geotechnical inspection checklist since 2016 as well as by a third-party expert in 2015 (SRK 2015) and 2020 (SRK 2021) with no observable changes to the landform and no concerns identified.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned EXC 1 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned EXC 1 property is proposed for transfer into the provincial IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of vegetation
- Condition of waste rock
- Evidence of crown pillar subsidence
- Condition of the three stainless steel capped raises and two sealed adits
- Water quality monitoring at the outlet of Pistol Lake (AN 5).

3.1.3 HAB 2

Description

The HAB 2 property is an 8.3 ha parcel of land, which includes the western most portion of the Hab waste rock pile and encompasses a portion of Pistol Lake. The property hosted the mill access road and a mine shaft that was capped with concrete during decommissioning in 1982.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that HAB 2 meets the criteria identified in EPB-381 guideline.

Inspections have identified three exploration drill holes on the HAB 2 property that have been sealed with grout following approved methods. The drill holes were found to be dry with no evidence of flow.

The concrete cap on the Hab Shaft was replaced with an engineered stainless steel cap in 2018.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and the depths of the underground workings. Areas associated with the underground workings have shown no indication of instability or subsidence since decommissioning.

Water quality measured at the outflow of Pistol Lake (Station AN-5) compared to modelled predictions is a performance indicator associated with the decommissioned HAB 1, HAB 2 and EXC 1 properties. The relevant water quality constituents assessed as part of this performance indicator include, radium-226, uranium and selenium. As shown in Figures 3.1-2, 3.1-3 and 3.1-4, measured concentrations of these parameters fall within the range of modelled predictions for AN-5.

- Radium-226 concentrations are within the modelled range and are expected to gradually decrease over time
- Uranium concentrations are within the modelled range and are expected to continually decline over time
- Selenium concentrations are within the modelled range and are expected to remain low (e.g., below applicable surface water quality guidelines) over the long term

Water quality monitoring downstream of Pistol Lake at AN-5 will continue to be conducted until all decommissioned Hab properties are transferred to the IC registry, at which time monitoring has been recommended to continue as part of the IC program.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned HAB 2 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned HAB 2 property is proposed for transfer into the provincial IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of vegetation
- Condition of waste rock
- Condition of the stainless steel cap
- Water quality monitoring at the outlet of Pistol Lake (AN-5).

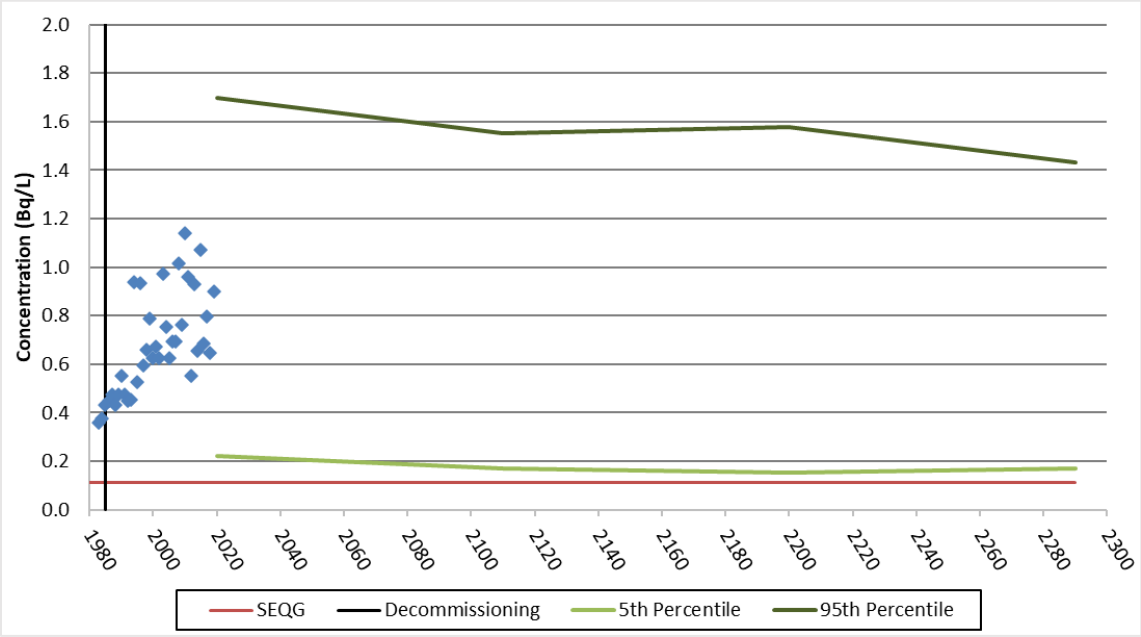

Figure 3.1-2: Radium-226 concentrations and predictions at station AN-5.

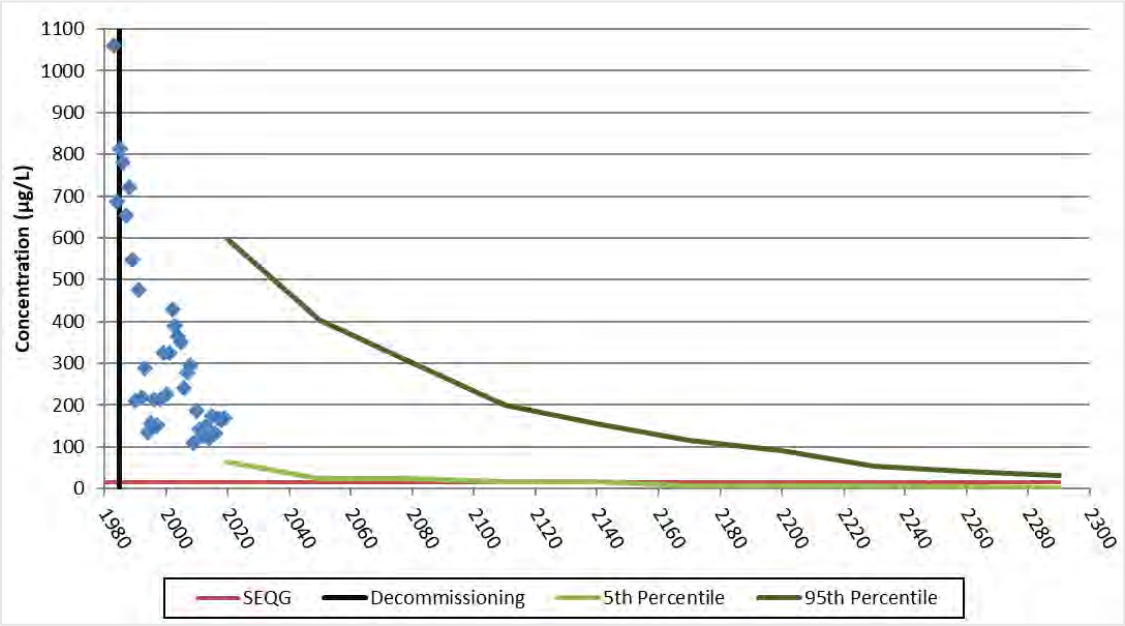

Figure 3.1-3: Uranium concentrations and predictions at station AN-5.

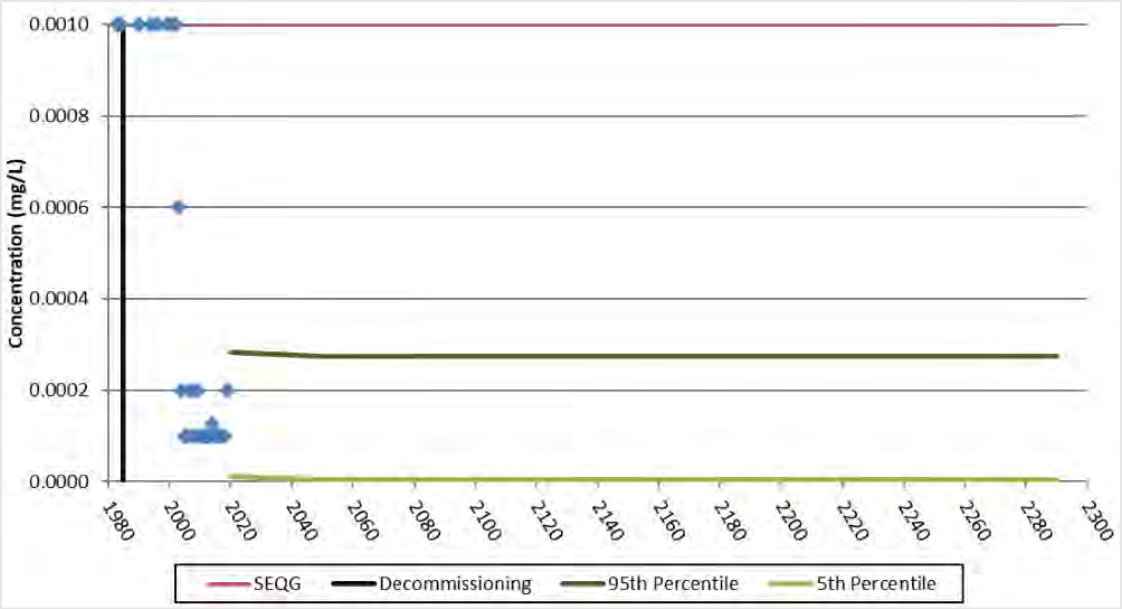

Figure 3.1-4: Selenium (Se) concentrations and predictions at station AN-5.
*Note: Prior to 2000, the detection limit for Se was 0.001 mg/L and post 2000 it has been 0.0001 mg/L.

3.2 Dubyna Mining Area

The decommissioned Dubyna mining area is accessible by road and is located approximately 6.4 km northeast of the former Beaverlodge mine and mill. This area currently consists of one licenced property (EMAR 1) that is proposed for release from the licence (Figure 3.2-1). The adjacent JO-NES property was released from CNSC licensing in 2019 and transferred into the IC program in 2020.

Operations occurred through both open pit mining (1977–1982) and underground mining, consisting of an adit with a decline ramp system from surface and two ventilation raises (1978–1981). Mine water was treated underground with effluent discharged to Dubyna Lake.

Over the operational life of the mine, approximately 359,172 tonnes of waste rock was generated and deposited on the JO-NES and EMAR 1 properties, covering an area of approximately 2.3 ha. Waste rock characterization completed by Eldorado in 1982 and, more recently, Cameco in 2012 to support development of the QSM indicate that the site waste rock has a low potential for acid generation. In addition, visual observation and monitoring has not indicated any conditions or impacts that would be attributed to acid generation.

During decommissioning in 1982, unsalvageable material from the Dubyna mine site was placed in the mine workings and the adit was sealed by backfilling with waste rock. General site clean-up and contouring of waste rock piles was completed in 1983. The ventilation raises, located on the released JO-NES property, were back filled and sealed with concrete caps. The concrete caps were replaced with engineered stainless steel caps in 2017.

The EMAR 1 property, identified in Figure 3.2-1 and discussed below, is proposed for release from the CNSC Waste Facility Operating Licence WFOL-W5-2120.0/2023.

3.2.1 EMAR 1

Description

The EMAR 1 property is a 10.1 ha parcel of land located on the western shore of Dubyna Lake. Historic mining operations consisted of a series of three small and shallow open pit mines and portions of the property overlay the Dubyna underground mine. A portion of the Dubyna waste rock pile is situated on the property.

During decommissioning, the open pits were backfilled with waste rock in 1982. General site clean up and contouring of the waste rock pile was completed in 1983.

An assessment of the pit wall was completed by a qualified engineer in 2003 (Clifton 2003). Based on the resulting recommendations, a small amount of trim blasting was completed in August 2004 to eliminate a small overhang in the pit wall. The Dubyna open pit was further assessed for potential hazards and long-term geotechnical stability in 2010 and it was concluded that slope instability over the long term is not expected (SRK 2010b).

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that EMAR 1 meets the criteria identified in the EPB-381 guideline.

Inspections have identified 18 exploration drill holes on or adjacent to the EMAR 1 property that have been sealed with grout following approved methods. Two of the drill holes that had been identified as exhibiting, or having the potential to exhibit, artesian conditions have shown no evidence of flows since being plugged.

The decommissioned EMAR 1 property does not host any mine openings to surface.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated the residual safety consequence for a crown pillar failure at EMAR 1 to be low due to its remote location and that the pits have been backfilled with waste rock. Inspections have been completed by Cameco personnel using an engineer developed geotechnical inspection checklist since 2016 as well as by a third-party expert in 2015 (SRK 2015) and 2020 (SRK 2021) with no observable changes to the landform and no concerns identified.

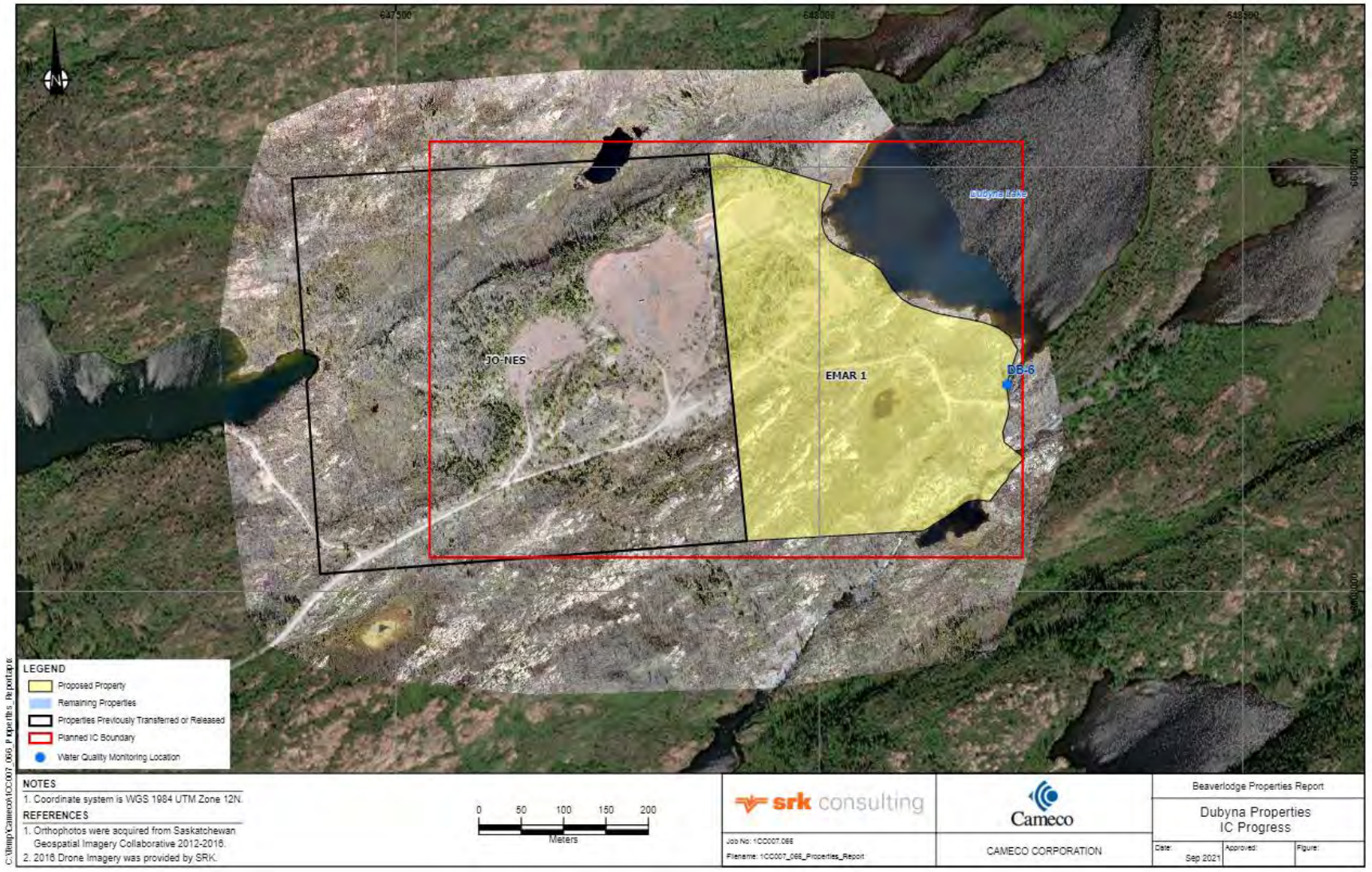

Figure 3.2-1: Dubyna Area property boundaries.

Water quality measured at Dubyna Creek (Station DB-6), located immediately downstream of Dubyna Lake, compared to modelled predictions is a performance indicator associated with the decommissioned EMAR 1 property. The relevant water quality constituents assessed as part of this performance indicator include, radium-226, uranium and selenium. As shown in Figures 3.2-2, 3.2-3 and 3.2-4, measured concentrations of these parameters fall within the range of modelled predictions for DB-6.

- Radium-226 concentrations are within the modelled range and are expected to remain low (e.g., below surface water quality guideline levels) over the long term
- Uranium concentrations are within the modelled range and are expected to continually decline over time
- Selenium concentrations are within the modelled range and are expected to remain low (e.g., below applicable surface water guideline levels) over the long term

Water quality monitoring downstream of Dubyna Lake at DB-6 will continue to be conducted until all decommissioned Dubyna properties are transferred to the IC registry, at which time monitoring has been recommended to continue as part of the IC program.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned EMAR 1 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program

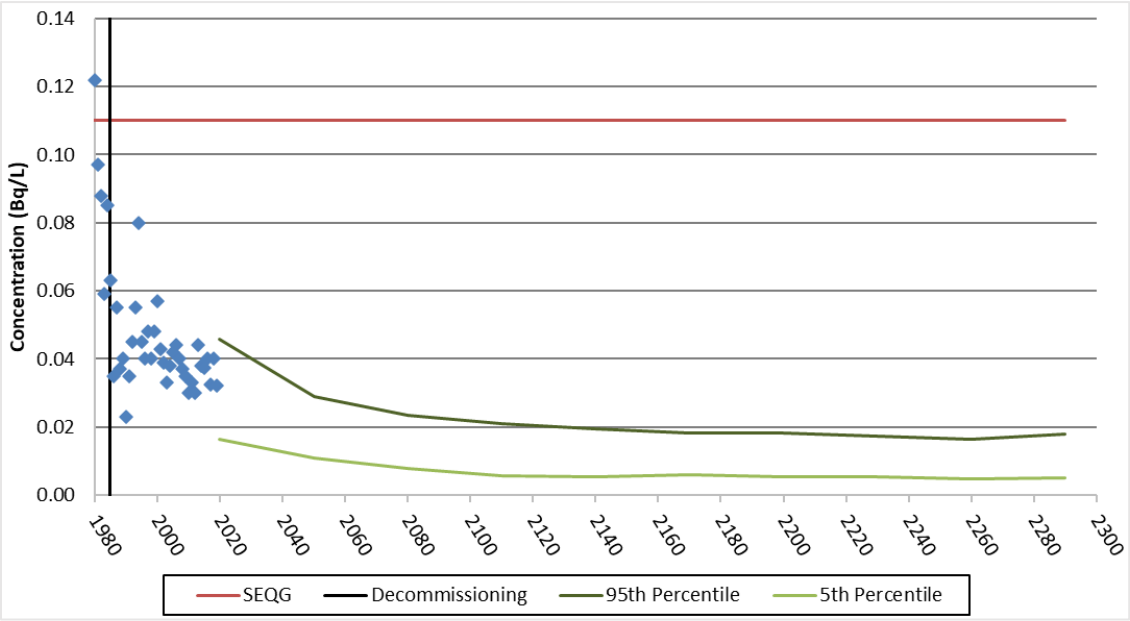

Figure 3.2-2: Radium-226 concentrations and predictions at station DB-6.

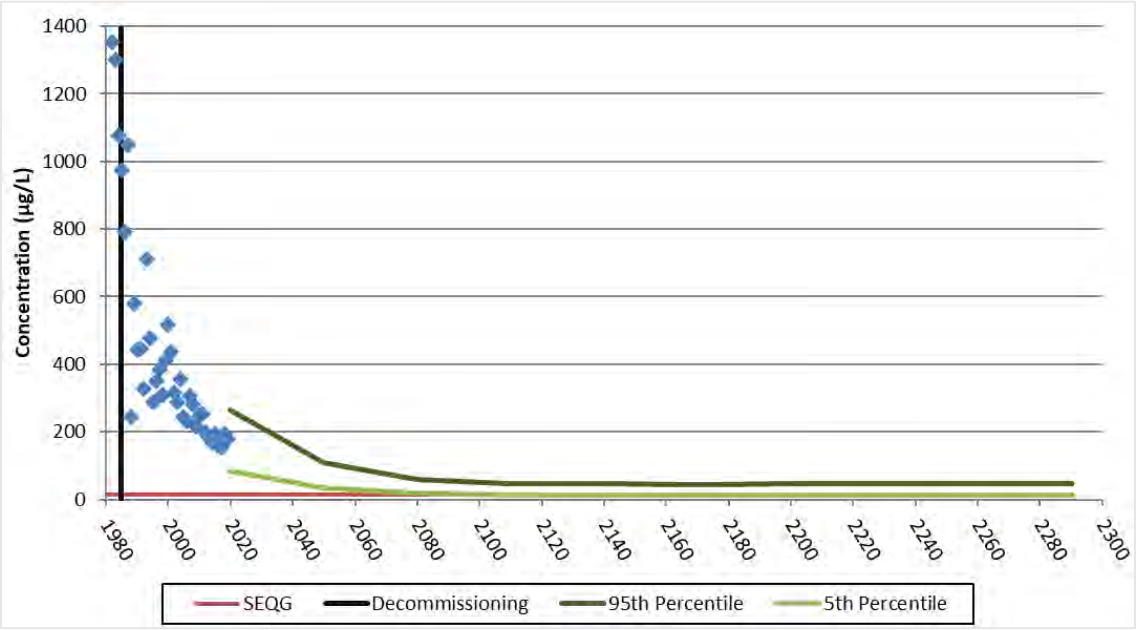

Figure 3.2-3: Uranium concentrations and predictions at station DB-6.

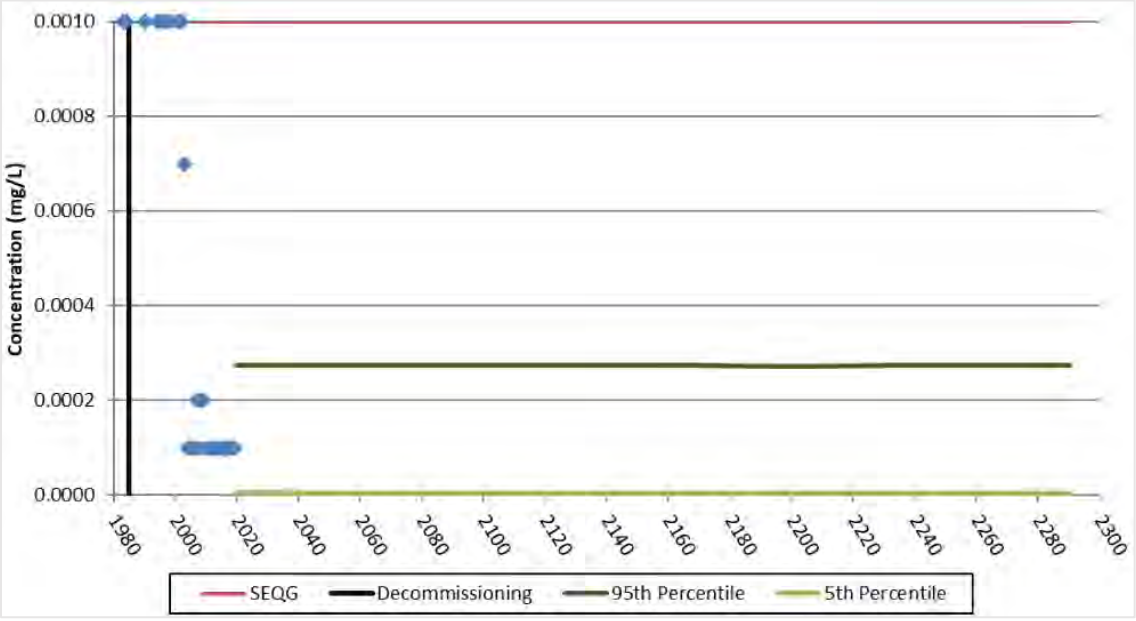

Figure 3.2-4: Selenium (Se) concentrations and predictions at station DB-6.
*Note: Prior to 2000, the detection limit for Se was 0.001 mg/L and post 2000 it has been 0.0001 mg/L.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned EMAR 1 property is proposed for transfer into the IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects

expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of vegetation
- Condition of pit wall
- Condition of waste rock
- Evidence of crown pillar subsidence
- Water quality monitoring downstream of Dubyna Lake (DB-6).

3.3 Lower Ace Creek Area

The decommissioned Lower Ace Creek area is largely accessible by road from Uranium City and is located immediately to the south and southeast of the Uranium City airstrip. The Lower Ace Creek area currently consists of ten licensed properties, eight of which (ACE 1, ACE 3, ACE 9, ACE 14, ACE MC, EXC URA 7, URA FR, and URA 4) are proposed for release from the licence (Figure 3.3-1).

In addition to the mill and mine access points (Fay and Ace shafts), infrastructure included: the office complex; a large fuel storage area; freshwater pipelines and storage tank; tailings lines from the mill to a cyclonic separator (Dorrclone); a warehouse; a laydown area; and an industrial waste disposal site.

The Fay mine produced a total of 3,030,000 tonnes of waste rock, covering an area of approximately 33.0 ha, the majority of which was deposited on areas south and southwest of the former mine and not on the properties subject to this request. The Ace Shaft produced approximately 228,600 tonnes of waste rock, covering an area of approximately 2.0 ha in close proximity to and along the shoreline of Ace Lake. Waste rock characterization completed by Eldorado in 1982 and more recently by Cameco in 2012 to support development of the QSM indicate that the site waste rock has a low potential for acid generation. In addition, visual observation and monitoring has not indicated any conditions or impacts that would be attributed to acid generation. A waste rock pile stability assessment concluded that there was no indication of tension cracks or other signs of instability and that the waste rock slope presents no greater hazard than the surrounding natural topographic features in the area (SRK 2010a).

During decommissioning, between 1982 and 1985, existing structures in the area were demolished and tailings lines were dismantled. The mill structures were partially demolished, voids were filled with waste rock to the extent practical, and then the entire mill facility was covered with waste rock. A total of approximately 259,100 m^3 of waste rock was hauled to the mill complex for this purpose. Similarly, the former fuel farm and waste dump were decommissioned by covering with waste rock.

Residual tailings from spills that occurred during operations along the pipelines running from the mill and the Dorclone separator to the tailings management area were assessed and remediated in accordance with the approved decommissioning plan (Eldor 1987). Accessible tailings were either relocated to the underground mine workings or covered with 0.6 m of waste rock. Locations with residual tailings that were inaccessible, either due to topography or naturally established vegetative cover, were assessed on an individual basis, with the participation of

regulatory personnel, to determine whether they should be left as is or remediated. If a decision was made to leave the residual tailings *in situ,* it was because the disturbance associated with removal or covering the of the tailings would have resulted in greater environmental damage.

One of the Lower Ace Creek properties subject to this request (ACE 14) hosts Watson Lake, which was not identified as a significant source of constituents of potential concern during QSM development (SENES 2012a; 2012b). However, a water quality investigation was completed (CanNorth 2020b) to assess potential risk to occasional visitors and concluded that the short-term consumption of drinking water from the lake is unlikely to pose a risk to human health, considering both the chemical toxicity of uranium and radiological aspects. In addition, a fisheries investigation conducted on the lake did not result in the capture of any large-bodied fish (CanNorth 2020c).

A water quality performance indicator measured at the outlet of Lower Ace Creek (Station AC-14) applies to two of the Lower Ace Creek properties (EXC URA 7 and URA FR). To avoid duplication, performance with respect to this indicator will only be discussed for the EXC URA 7 property.

Another water quality station located in the Lower Ace Creek area at the outlet of Ace Lake (Station AC-8) was established to monitor the influence of properties located on and upstream of Ace Lake. While not associated with a performance indictor, it should be noted that water quality measured at AC-8 meets Saskatchewan Environment Quality Guidelines (SEQG) values for surface waters.

3.3.1 ACE 1

Description

The ACE 1 property is a 19.5 ha parcel of land on the southern shore of Ace Lake southwest of the Ace Shaft. During operations, the ACE 1 property hosted five mine raise openings to surface, the Dorrclone facility, the backfill concrete plant, piping to the Fay freshwater reservoir, and a portion of the tailings line that went between the Fay mill and the Dorrclone as well as from the Dorrclone to Fookes Reservoir. The property also hosted telecommunications and electrical power infrastructure and a portion of the main haul road between the Fay, Ace and Verna mine sites and the access road from the main haul road to the former Dorrclone facility.

During decommissioning, three of the mine raises were covered with concrete caps and the remaining two raises were backfilled and then buried with waste rock.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that the majority of ACE 1 meets the criteria identified in EPB-381 guideline. An area of the ACE 1 property that contained residual spilled tailings exceeded the guideline and required further risk evaluation. The evaluation concluded incremental dose associated with the ACE 1 property based on the measured gamma results and a reasonable land use scenario are well below the public dose criterion of 1 mSv/yr (ARCADIS 2015).

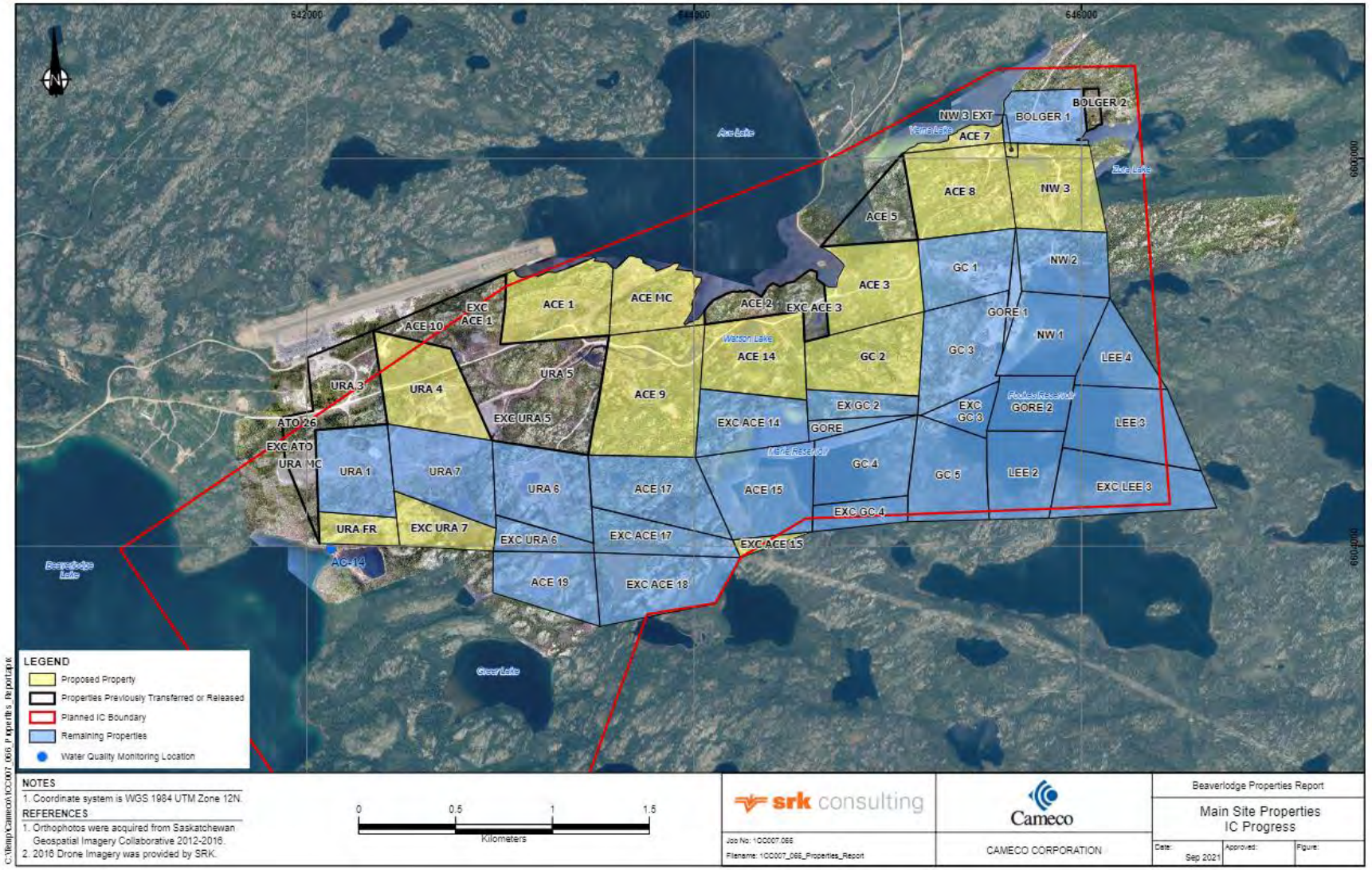

Figure 3.3-1: Main Area property boundaries, which includes the Lower Ace Creek, Verna/Bolger and Tailings Management areas.

Inspections have identified three exploration drill holes on the ACE 1 property that have been sealed with grout following approved methods. Two of the drill holes that had been identified as exhibiting, or having the potential to exhibit, artesian conditions have shown no evidence of flows since being plugged.

Two of the backfilled mine raises located on the ACE 1 property were covered with waste rock during decommissioning. An investigation completed in 2019 indicated that the collars for these raises are most likely below the local groundwater level. As such, the area was backfilled and additional waste rock added to the cover. The area of the backfilled mine raises has shown no evidence of degradation or subsidence since decommissioning. In 2017, the concrete caps on two of the mine openings were covered with engineered stainless steel caps. The remaining mine opening was secured by the installation of an engineered rock cover during the ACE 1 crown pillar remediation activities in 2018.

Portions of the property overlay the underground mine workings. In 2013, a subsidence of the crown pillar occurred on the property (the ACE stope area). After evaluating remedial options in consultation with a third-party expert and regulatory agencies, the approved remediation plan was completed in 2016. The remediation work included the construction of two berms consisting of sorted waste rock and broken concrete to minimize any future potential surface subsidence in the area. Inspections have been completed by Cameco personnel using an engineer developed geotechnical inspection checklist since 2016 as well as by a third-party expert in 2015 (SRK 2015) and September 2020 (SRK 2021) with no observable changes to the landform.

No water quality performance indicator is associated with the decommissioned ACE 1 property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned ACE 1 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

Based on historical mining and milling activities, the majority of the decommissioned ACE 1 property is proposed for transfer into the provincial IC program with the remainder proposed for free release. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of human visitation
- Condition of vegetation
- Past tailings spill areas for evidence of disturbance
- Evidence of crown pillar subsidence
- Condition of the stainless steel caps and the covered raises.

3.3.2 ACE 3

Description

The ACE 3 property is a 20.9 ha parcel of land which straddles the main road at the Ace Lake junction of the access roads to the former Dubyna/Hab mining area and the Verna Shaft. Although the majority of the property was not disturbed during operations and remains in a natural state, the property did host a mine raise opening, as well as telecommunications and electrical power infrastructure. During decommissioning, the mine opening was covered with a concrete cap.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that ACE 3 meets the criteria identified in EPB-381 guideline.

Surface inspections identified one exploration drill hole located on the ACE 3 property that was sealed with grout following approved methods. The drill hole was found to be dry with no evidence of past flow.

The concrete cap on the single mine opening was covered with an engineered stainless steel cap in 2017.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and depth of the underground workings. Areas associated with underground workings have shown no indication of instability or subsidence since decommissioning.

No water quality performance indicator is associated with the decommissioned ACE 3 property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned ACE 3 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned ACE 3 property is proposed for transfer into the IC program. (Figure 3.3-1). Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of vegetation
- Condition of the stainless steel capped raise.

3.3.3 ACE 9

Description

The ACE 9 property is a 34 ha parcel of land that straddles the upper reaches of Ace Creek, immediately downstream of the Ace Lake discharge. During operations, the ACE 9 property hosted tailings lines, telecommunications and electrical power infrastructure between the Fay area and the Verna mine site, a portion of the main haul road between the former Fay, Ace and Verna mine sites and an access trail from that haul road to the Marie Reservoir and Minewater Reservoir.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that the majority of ACE 9 meets the criteria identified in EPB-381 guideline. A small, steeply sloped, and heavily vegetated area of the ACE 9 property that contained residual spilled tailings exceeded the guideline and required further risk evaluation. The evaluation concluded incremental dose associated with the ACE 1 property based on the measured gamma results and a reasonable land use scenario are well below the public dose criterion of 1 mSv/yr (ARCADIS 2015). A portion of the ACE 9 property located south of Ace Creek was rescanned in 2021 to verify that the tailings cover remained stable. The results from 2021 were consistent with the 2014 gamma scan results (i.e., below EPB-381 guideline).

Surface inspections identified one exploration drill hole located on the ACE 9 property that has been sealed with grout following approved methods. The drill hole was found to be dry with no evidence of past flow.

The decommissioned ACE 9 property does not host any mine openings to surface.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and depth of the underground workings. Areas associated with the underground workings have shown no indication of instability or subsidence since decommissioning.

No water quality performance indicator is associated with the decommissioned ACE 9 property. The property straddles the upper reaches of Ace Creek downstream of the Ace Lake discharge. A 2009 assessment of Lower Ace Creek demonstrated that the ACE 9 property is having little measurable impact on the water quality of Lower Ace Creek (Cameco 2009).

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned ACE 9 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned ACE 9 property is proposed for transfer into the IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan

developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Past tailings spill areas for evidence of disturbance
- Evidence of significant erosion along the creek channel, and
- Condition of vegetation

3.3.4 ACE 14

Description

The ACE 14 property is a 21 ha parcel of land located south of Ace Lake and encompasses Watson Lake, a small water body located adjacent to the main haul road between the Fay, Ace and Verna mine sites. During operations, the property hosted the main haul road between the former Fay and Verna mine sites and a portion of the former tailings line corridor. In addition, the access road to the former weir at the outlet of Ace Lake crosses the property as did a small portion of the communications infrastructure corridor between the former Fay and Verna mine sites.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that the majority of ACE 14 meets the criteria identified in EPB-381 guideline. Small portions along the former tailings line corridor on the ACE 14 property slightly exceeded the guideline and required further risk evaluation. The evaluation concluded incremental dose associated with the ACE 14 property based on the measured gamma results and the reasonable land use scenario are well below the public dose criterion of 1 mSv/yr (ARCADIS 2015).

Inspections have not identified any exploration drill holes on the ACE 14 property.

The decommissioned ACE 14 property does not host any mine openings to surface.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and depth of the underground workings. Areas associated with the underground workings have shown no indication of instability or subsidence since decommissioning.

No water quality performance indicator is associated with the decommissioned ACE 14 property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned ACE 14 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned ACE 14 property is proposed for transfer into the provincial IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Past tailings spill areas for evidence of disturbance
- Condition of vegetation.

3.3.5 ACE MC

Description

The ACE MC property is a 14.5 ha parcel of land on the southern shore of Ace Lake and includes the Ace Lake discharge to Ace Creek. During operations, the property hosted the Ace Shaft, two mine raise openings to surface, the Ace waste rock pile, the Ace heating building, an electrical substation, telecommunications and electrical power infrastructure, a freshwater pumphouse with related piping to the Fay freshwater reservoir, and a portion of the tailings line from the Dorrclone to the Fookes Reservoir. The property also hosted a portion of the access road from the main haul road to the Ace Shaft and to the Dorrclone. During decommissioning, the Ace Shaft and mine raises were covered with concrete caps.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that the majority of ACE MC meets the criteria identified in the EPB-381 guideline. A small, steeply sloped, and heavily vegetated area of the ACE MC property that contained residual spilled tailings exceeded the guideline and required further risk evaluation. The evaluation concluded incremental dose associated with the ACE MC property based on the measured gamma results and a reasonable land use scenario are well below the public dose criterion of 1 mSv/yr (ARCADIS 2015).

Surface inspections identified 18 exploration drill holes located on the ACE MC property that have been sealed with grout following approved methods. The drill holes were found to be dry with no evidence of past flow.

The concrete caps on the Ace Shaft and one of the mine raise openings were replaced with engineered stainless steel caps in 2016 and 2017, respectively. Through excavation in 2016 the remaining mine raise opening was found to have been backfilled and to not have a competent concrete collar. The excavation was backfilled and a cover of sorted waste rock placed over the area, with no subsequent evidence of degradation or subsidence.

Portions of the property overlay the underground mine workings. In 2013, a subsidence of the crown pillar occurred on the property (the ACE stope area). After evaluating remedial options in consultation with a third-party expert and regulatory agencies, the approved remediation plan was completed in 2016. The remediation work included the construction of two berms consisting of sorted waste rock and broken concrete to minimize any future potential surface subsidence in the area. Inspections have been completed by Cameco personnel using an engineer developed

geotechnical inspection checklist since 2016 as well as by a third-party expert in 2015 (SRK 2015) and September 2020 (SRK 2021) with no observable changes to the landform.

No water quality performance indicator is associated with the decommissioned ACE MC property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned ACE MC property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned ACE MC property is proposed for transfer into the IC program (Figure 3.1-1). Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Past tailings spill areas for evidence of disturbance
- Condition of vegetation
- Condition of the waste rock
- Condition of the backfilled and stainless steel capped raises.

3.3.6 EXC URA 7

Description

The EXC URA 7 property is a 10.1 ha parcel of land that straddles the lowest reaches of Ace Creek. A SaskPower transmission line corridor currently runs along the property. During operations, no surface mining, milling or related activities took place on the property. As such, no decommissioning or reclamation activities were carried out on the EXC URA 7.

Path Forward Implementation

As the EXC URA 7 property was not disturbed by any surface mining or milling activities, all gamma levels on the property are considered to be at natural background and meet the criteria identified in EPB-381 guideline.

Inspections have not identified any exploration drill holes on or adjacent to the EXC URA 7 property.

The decommissioned EXC URA 7 property does not host any mine openings to surface.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the

thickness of the crown pillar and depth of the underground workings. Areas associated with underground workings have shown no indication of instability or subsidence since decommissioning.

Seeps originating at the base on the Fay waste rock pile on the URA 7 property (not subject to this request) extend to EXC URA 7. Water quality measured at the outlet of Lower Ace Creek (station AC-14) compared to modelled predictions is a performance indicator associated with the decommissioned EXC URA 7 and URA FR properties. The relevant water quality constituents assessed as part of this performance indicator include, radium-226, uranium and selenium. As shown in Figures 3.3-2, 3.3-3 and 3.3-4, measured concentrations of these parameters fall within the range of modelled predictions for AC-14.

- Radium-226 and selenium levels in Lower Ace Creek are within the modelled range and are expected to remain low (e.g., below applicable surface water guideline levels) over the long-term
- Uranium concentrations in Lower Ace Creek are within the modelled range and are expected to continually decline over time

Water quality monitoring of Ace Creek and Beaverlodge Lake will continue to be conducted until all decommissioned Beaverlodge properties are transferred to the provincial IC registry, at which time monitoring has been recommended to continue as part of the IC program.

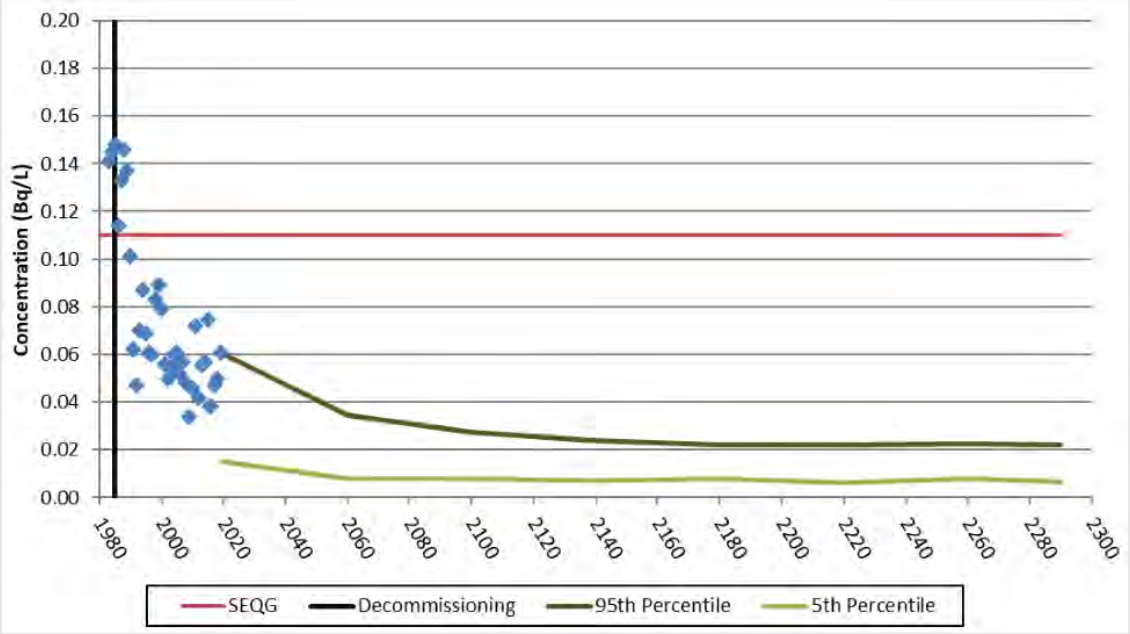

Figure 3.3-2: Radium concentrations and predictions at station AC-14.

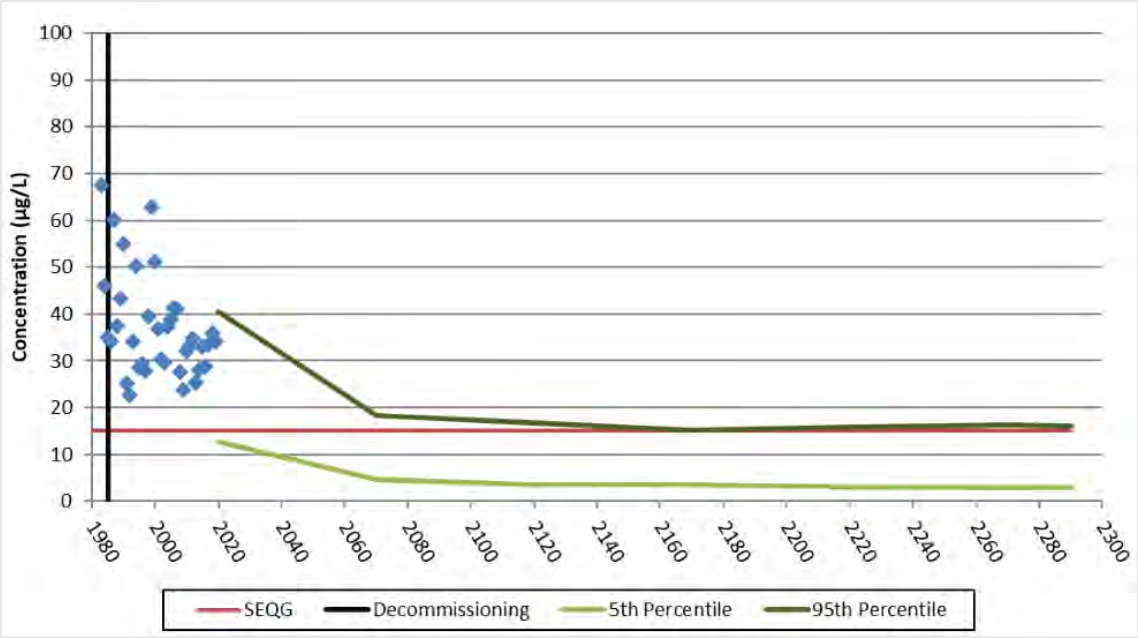

Figure 3.3-3: Uranium concentrations and predictions at station AC-14.

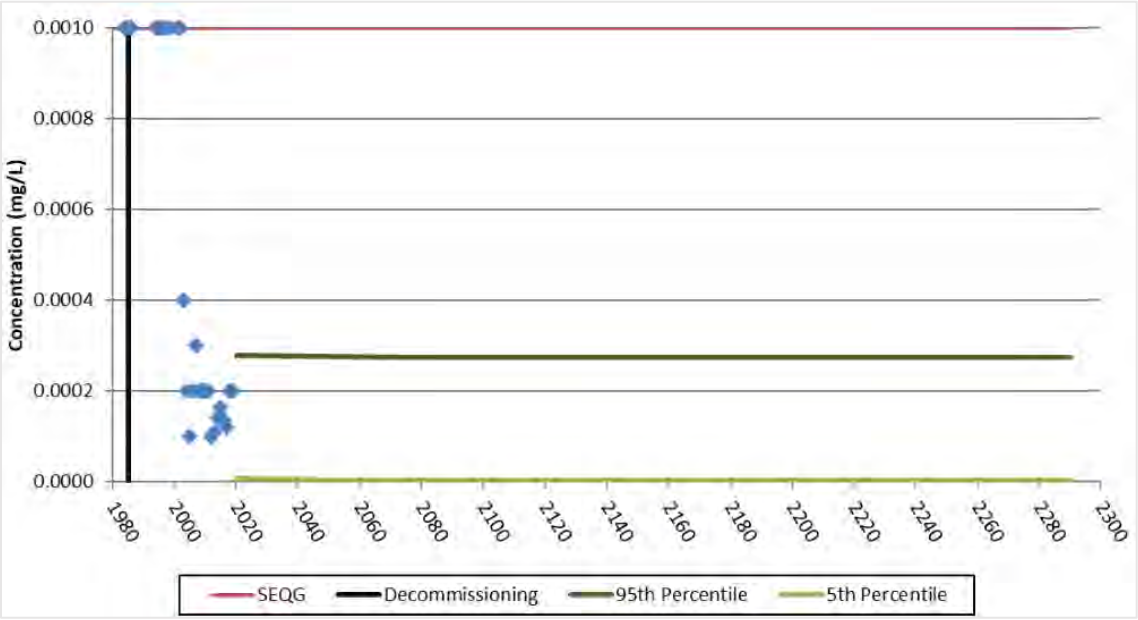

Figure 3.3-4: Selenium (Se) concentrations and predictions at station AC-14.
*Note: Prior to 2000, the detection limit for Se was 0.001 mg/L and post 2000 it has been 0.0001 mg/L.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned EXC URA 7 property is safe, secure and stable/improving. Human health and ecological risks

have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned EXC URA 7 property is proposed for transfer into the provincial IC program; however, following acceptance into the IC program, long-term monitoring and maintenance is not required as there was no historical mining or milling activity on the property.

3.3.7 URA 4

Description

The URA 4 property is a 21.2 ha parcel of land located northwest of Beaverlodge Lake. During operations, the property was known as the “Fay mine site” and hosted the Fay Shaft, seven additional mine raise openings, the main office building, headframe and associated support infrastructure, a main haul road between the former Fay, Ace and Verna mine sites and an access road to the explosive’s magazine building.

Decommissioning activities specific to this property included placing non-salvageable items in the underground, closing mine openings with either concrete caps or backfill, contouring of the waste rock, and breaching the sewage lagoon dams to allow contents to drain and revegetate naturally.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that URA 4 meets the criteria identified in EPB-381 guideline.

Inspections have identified four exploration drill holes on the URA 4 property that have been sealed with grout following approved methods. The drill holes were found to be dry with no evidence of flow.

The concrete caps on the Fay Shaft and three mine raise openings were replaced with engineered stainless steel caps during the 2017-2020 timeframe. Another three mine raise openings were backfilled and secured with an engineered rock cover in 2020. The one remaining opening, associated with the freshwater reservoir, was backfilled during decommissioning and the utilidor access to Fay Shaft was eliminated during the remediation of the Fay Shaft in 2020, therefore there is no connection to the underground provided by this opening.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and depth of the underground workings. Areas associated with underground workings have shown no indication of instability or subsidence since decommissioning.

No water quality performance indicator is associated with the decommissioned URA 4 property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned URA 4 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the IC program.

Institutional Control Monitoring and Maintenance

Based on historical mining and milling activities, a portion of the decommissioned URA 4 property is proposed for transfer into the IC program, with the remaining area proposed to be free released (Figure 3.3-1). Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of vegetation
- Condition of the waste rock
- Condition of the stainless steel capped mine openings and the engineered rock covered mine openings.

3.3.8 URA FR

Description

The URA FR property is a 6.3 ha parcel of land that straddles the lowest reaches of Ace Creek near the shores of Beaverlodge Lake. A SaskPower transmission line corridor currently runs along the northern extent of the property. During operations, no surface mining, milling or related activities took place on the property. As such, no decommissioning or reclamation activities were carried out on URA FR between 1982 and 1985.

Path Forward Implementation

As the URA FR property was not disturbed by any surface mining or milling activities, all gamma levels on the property are considered to be at natural background and meet the criteria identified in EPB-381 guideline.

Inspections have identified three exploration drill holes on the URA FR property that have been sealed with grout following approved methods. Two of the drill holes that had been identified as exhibiting, or having the potential to exhibit, artesian conditions have shown no evidence of flows since being plugged.

The decommissioned URA FR property does not host any mine openings to surface.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and depth of the underground workings. Areas associated with underground workings have shown no indication of instability or subsidence since decommissioning.

There are two seeps associated with this property, which likely originate from the base of the Fay waste rock pile. The water quality indicator measured at AC-14 is applicable to URA FR has been met. To avoid duplication, the discussion regarding AC-14 is included in the section on EXC URA 7 (Section 3.3.6).

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned URA FR property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned URA FR property is proposed for transfer into the IC program (Figure 3.3-1). Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Condition of vegetation
- Condition of the waste rock seeps
- Evidence of flow from previously flowing sealed boreholes.

3.4 Verna/Bolger Area

The decommissioned Verna/Bolger mining area is accessible by road and located approximately 3.5 km northeast of the former Beaverlodge mine and mill. The Verna/Bolger area currently consists of five licensed properties, four of which (ACE 7, ACE 8, NW 3 Ext, and NW 3) are proposed for release from the licence (Figure 3.3-1).

This area saw the development of the Verna Shaft and associated ventilation and access raises as part of the main Beaverlodge mine complex. The 72 Zone adit and Bolger Pit were developed to access nearby ore bodies.

The Bolger Pit was operated intermittently between 1959 and 1980. The mining of the Bolger Pit resulted in the generation of approximately 639,300 tonnes of waste rock. This waste rock was placed on the surface, covering an area of approximately 4.5 ha, filling a valley and interrupting the natural flow channel between Zora Lake and Verna Lake.

During operations, the Verna mine produced a total of 249,100 tonnes of waste rock, which covers an estimated 2.7 ha of area in close proximity to the shaft on the southern shore of Verna Lake. Waste rock characterization completed by Eldorado in 1982 and more recently by Cameco in 2012 to support development of the QSM indicate that the Verna/Bolger site waste rock has a low potential for acid generation. In addition, visual observation and monitoring has not indicated any conditions or impacts that would be attributed to acid generation. A stability assessment of the Verna waste rock pile was also completed and concluded that there was no indication of tension cracks or other signs of instability (SRK 2010a).

During decommissioning, all structures in the area were demolished, and non-salvageable items were placed in the Bolger pit and covered with waste rock. The former Bolger pit is not located on the properties subject to this request.

Two of the Verna/Bolger properties subject to this request host portions of Up and Zora lakes. Both waterbodies were not identified as significant sources of constituents of potential concern during QSM development (SENES 2012a; 2012b) and therefore do not have associated water quality performance indicators. However, a water quality investigation was completed to assess potential risk to occasional visitors and concluded that the short-term consumption of drinking water is unlikely to pose a risk to human health, considering both the chemical toxicity of uranium and radiological aspects (CanNorth 2020b). In addition, Up Lake is not expected to support a viable fishery due to its small size and isolated nature, therefore fish consumption from Up Lake is also not a concern (CanNorth 2020b). All levels of constituents of potential concern from Zora Lake were measured to be below Health Canada drinking water guidelines and therefore, sourcing drinking water from Zora Lake does not pose a risk to human health.

3.4.1 ACE 7

Description

The ACE 7 property is a 3.5 ha parcel of land located along the south shore of Verna Lake north of the former Verna Shaft location. During operations, the ACE 7 property hosted a portion of the Verna waste rock pile and an adit that was closed during operations, as well as a freshwater intake and related infrastructure installed along the shore of Verna Lake as well as a small section of the haul road from the Bolger pit area.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that ACE 7 meets the criteria identified in EPB-381 guideline.

Inspections have not identified any exploration drill holes on or adjacent to the ACE 7 property.

Records indicate that the adit was closed sometime during mine operations and is believed to have been buried by the Verna waste rock pile. No indication of instability or subsidence of the waste rock pile in that area has been observed since decommissioning. Further, in 2020, Cameco retained a 3rd party expert to evaluate and compare elevation data collected from a pre-mining (1948) aerial photograph and Lidar data gathered in 2010. Based on the thickness of waste rock and expected location of the adit, the assessment concluded that the mine opening is and will remain stable and secure in the long-term (Cameco 2020).

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and the depths of the underground workings. Areas associated with underground workings have shown no indication of instability or subsidence since decommissioning.

Although a portion of the waste rock pile on this property extends into Verna Lake, direct and upgradient water infiltration from the Verna waste rock pile is not considered a significant source of radium-226, selenium, uranium and TDS (SENES 2012a; 2012b). Therefore, there is no water quality performance indicator associated with the decommissioned ACE 7 property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned ACE 7 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned ACE 7 property is proposed for transfer into the IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of the waste rock
- Condition of vegetation.

3.4.2 ACE 8

Description

The ACE 8 property is a 23.2 ha parcel of land located on the south shore of Verna Lake. During operations, the ACE 8 property hosted the Verna Shaft, hoist house, two former explosive magazines, various service buildings, telecommunications and electrical power infrastructure, a portion of the Verna waste rock pile and a portion of the main haul road between the Fay, Ace and Verna mine sites.

The Verna Shaft was capped with concrete during decommissioning.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that ACE 8 meets the criteria identified in EPB-381 guideline.

Inspections have identified six exploration drill holes on the ACE 8 property that have been sealed with grout following approved methods. The drill holes were found to be dry with no evidence of flow.

In 2018, the concrete cap on the Verna Shaft was replaced with an engineered stainless steel cap.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and the depth of the underground workings. Areas associated with the underground workings have shown no indication of instability or subsidence since decommissioning.

No water quality performance indicator is associated with the decommissioned ACE 8 property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned ACE 8 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned ACE 8 property is proposed for transfer into the IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of the waste rock
- Condition of vegetation
- The condition of the stainless steel cap

3.4.3 NW 3 Ext

Description

The NW 3 Ext property is a 0.5 ha parcel of land located on the north shore of Up Lake approximately 190 m east of the Verna Shaft. During operations, the property hosted three mine raise openings to surface, fans, various service buildings, a small section of the haul road from the Bolger pit area and a small amount of waste rock used for construction purposes. The raises were capped with concrete during decommissioning between 1982 and 1985.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that NW 3 Ext meets the criteria identified in EPB-381 guideline.

Inspections have not identified any exploration drill holes on or adjacent to the NW 3 Ext property.

The concrete caps on the 3 mine raise openings were replaced or covered with an engineered stainless steel cap in 2018 and 2019.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and the depth of the underground workings. Areas associated with the underground workings have shown no indication of instability or subsidence since decommissioning.

No water quality performance indicator is associated with the NW 3 Ext property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned NW 3 Ext property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned NW 3 Ext property is proposed for transfer into the IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of vegetation
- The condition of stainless steel caps.

3.4.4 NW 3

Description

The NW 3 property is a 19.6 ha parcel of land located between the former Bolger pit area and the Fookes Reservoir in the tailings management area. The majority of Up Lake is included within the property boundaries as is a small portion of Zora Lake. During operations, the property hosted a small underground development accessed by the 72 Zone portal (adit), various support/services buildings and a small amount of waste rock, primarily used to construct roads in the area. The portal (adit) was backfilled during decommissioning between 1982 and 1985.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that NW 3 meets the criteria identified in EPB-381 guideline.

Surface inspections identified 15 exploration drill holes located on or adjacent to the NW 3 property that have been sealed with grout following approved methods. The drill holes were found to be dry with no evidence of past flow.

The portal and associated waste rock plug are secure and have shown no evidence of degradation or subsidence since decommissioning.

Portions of the property overlay the underground mine workings. The site wide crown pillar assessment indicated that the likelihood of surface subsidence on the property was low due to the thickness of the crown pillar and the depth of the underground workings. Areas associated with the underground workings have shown no indication of instability or subsidence since decommissioning.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned NW 3 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned NW 3 property is proposed for transfer into the IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of recent human visitation
- Condition of the waste rock
- Condition of vegetation
- The condition of the 72 Zone Portal plug.

3.5 Tailings Management Area

The decommissioned Tailings Management Area (TMA) is partially accessible by road and located approximately 2 km east of the former Beaverlodge mine and mill. The TMA currently consists of twenty-six individual properties, including GC 2 and EXC ACE 15 (Figure 3.3-1), which are proposed for release from the licence. These properties are on the edge of the TMA and were not used to store or manage tailings.

During operation, mill tailings were placed underground (40%) and into small lakes (60%) within the Fulton Creek watershed that make up the decommissioned TMA. The TMA converted three small lakes (Minewater, Marie, and Fookes) into impoundments to receive tailings from the operations, a typical practice for mining operations of that era. Effectively, Fookes and Marie became reservoirs where primary and secondary settling of tailings occurred, respectively. Fookes Reservoir flows into Marie Reservoir, which then flows through a meadow/marshy area, before entering Greer Lake, which reports to Fulton Bay of Beaverlodge Lake.

3.5.1 GC 2

Description

The GC 2 property is a 20.4 ha parcel of land located between the main access road to the Verna mine site and the Marie Reservoir. The property was largely undisturbed by mining/milling activities; however, it did host a portion of the tailings line and access road that extended to the Fookes Reservoir. During decommissioning, between 1982 and 1985, the tailings lines were dismantled and residual spilled tailings were covered where accessible. Locations with residual tailings that were inaccessible, either due to topography or naturally established vegetative cover, were assessed on an individual basis, with the participation of regulatory personnel, to determine whether they should be left as is or remediated.

Path Forward Implementation

Results of the surficial gamma survey conducted on the property demonstrate that GC 2 meets the criteria identified in EPB-381 guideline.

Inspections have not identified any exploration drill holes on or adjacent to the GC 2 property.

The decommissioned GC 2 property does not host any mine openings to surface.

The site wide crown pillar assessment indicated that the property does not overlay underground workings.

No water quality performance indicator is associated with the decommissioned GC 2 property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned GC 2 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the provincial IC program.

Institutional Control Monitoring and Maintenance

The entirety of the decommissioned GC 2 property is proposed for transfer into the IC program. Following acceptance into the IC program, a long-term monitoring and maintenance plan developed in consultation with the regulatory agencies will be implemented. Specific aspects expected to be monitored or maintained as part of the IC program are outlined by Kingsmere (2021) and expected to focus on:

- Evidence of human visitation
- Past tailings spill areas for evidence of disturbance
- Condition of vegetation.

3.5.2 EXC ACE 15

Description

The EXC ACE 15 property is a 2 ha parcel of land located south of the Marie Reservoir. During operations, no surface mining, milling or related activities took place on the property. As such, no decommissioning or reclamation activities were carried out on the property.

Path Forward Implementation

As the EXC ACE 15 property was not disturbed by any surface mining or milling activities, gamma levels on the property are considered to be at natural background and meet the criteria identified in EPB-381 guideline.

Inspections have not identified any exploration drill holes on or adjacent to the EXC ACE 15 property.

The decommissioned EXC ACE 15 property does not host any mine openings to surface.

The site wide crown pillar assessment indicated that the property does not overlay underground workings.

No water quality performance indicator is associated with the decommissioned EXC ACE 15 property.

A final inspection of the property has been completed and debris has been removed and disposed of at an approved location.

The applicable performance indicators have all been met, indicating that the decommissioned EXC ACE 15 property is safe, secure and stable/improving. Human health and ecological risks have been managed to acceptable levels and the property should be considered for release from CNSC licensing and transfer into the IC program.

Institutional Control Monitoring and Maintenance

Based on the lack of historical mining and milling activities, the majority of the EXC ACE 15 property is proposed for free release and not included in the IC Registry (Figure 3.3-1). The portion of the EXC ACE 15 property within the IC boundary, as defined in collaboration with the SkMOE and the Ministry of Economy (now SkMER), results from creating a simplified (geometrically) IC boundary and is not indicative of historic mining/milling activities.

4.0 Other Matters of Regulatory Interest

4.1 Environmental Assessment

The Beaverlodge properties were fully decommissioned, in accordance with a regulatory approval by the AECB, in 1985 and in accordance with the provincial and federal regulations. In the absence of an environmental assessment trigger under the *Impact Assessment Act* (IAA 2019), no environment assessment is required for the decommissioned Beaverlodge properties.

4.2 Indigenous and Community Engagement

Cameco recognizes the right of Indigenous groups to be consulted and, where applicable, to have their interests accommodated by the Crown with respect to activities associated with CNSC-licensed operations and projects that could potentially impact the exercise of Indigenous or treaty rights. Cameco assists the CNSC in the aggregate discharge of Indigenous consultation and accommodation obligations where they arise. The Crown's duty to consult and accommodate aligns with Cameco's corporate values, commitments, and measures of success, and as such constitutes sound business practice.

As the majority of northern Saskatchewan residents are of Indigenous origin, including First Nations and Métis, Cameco's public engagement activities relating to the decommissioned Beaverlodge properties provide opportunities for the CNSC and Cameco to effectively consult with Indigenous groups with an interest in the decommissioned Beaverlodge properties. Cameco's engagement process is described, in detail, within the approved Beaverlodge *Public Information Program* (BVL-PIP).

4.3 Public Information Program

Consistent with Cameco's vision, mission and values and measures of success, the objective of the BVL-PIP is to ensure target audiences with an interest in the decommissioned Beaverlodge properties are informed on a timely basis about activities and potential effects on the environment and the health and safety of persons, and thereby build the trust and support of stakeholders.

The focus of engagement is with the northern settlement of Uranium City (Uranium City), which includes the Uranium City Métis Local #50 President, as this community is the only community with year-road road access to the properties.

In June 2016, Cameco signed a confidential collaboration agreement with the seven Athabasca Basin communities known as the Ya' thi Néné Collaboration Agreement (CA). The CA sets out Cameco's obligations to the communities under four main pillars:

- workforce development
- business development
- community investment
- community engagement and environmental stewardship

The community engagement and environmental stewardship pillar of the CA defines Cameco's obligations in relation to engaging and informing the Athabasca Basin communities and provides

a structure for these communities to identify and bring forward issues related to activities at the decommissioned Beaverlodge properties.

Signatories to the Ya' thi Néné CA are:

- Uranium City
- Northern Settlement of Camsell Portage.
- Northern Hamlet of Stony Rapids.
- Northern Settlement of Wollaston Lake.
- Fond du Lac Denesuline First Nation (Fond du Lac).
- Black Lake Denesuline First Nation.
- Hatchet Lake Denesuline First Nation.

Engagement between Cameco and the communities under the CA occurs primarily through the Athabasca Joint Engagement and Environment Subcommittee (AJES), a joint committee of community and industry representatives that meets regularly to discuss matters of importance to the communities and provides a channel for the communities to share traditional knowledge. Under the agreement, the Ya' thi Néné Land and Resource office was established to provide support to the subcommittee and the executive director is an AJES member. In addition, the office has become a point of contact for the communities.

In addition to engaging with the MN-S Local #50 President and the Métis people in the vicinity of the decommissioned Beaverlodge properties, Cameco also engages directly with the Stony Rapids Métis Local #80 and #79 President.

While the rights-bearing First Nation and Métis communities of the Athabasca Basin are the primary audience for the BVL-PIP, Cameco considers the general public of the Northern Administrative District (NAD) and the province of Saskatchewan generally to be a secondary audience. The NAD is a large region with a dispersed population and many traditional and resource-based land users. The population of the NAD is approximately 36,500, including people of First Nation (Cree and Dene), Métis and non-Indigenous origin.

Cameco provides information and responds to inquiries from the NAD communities, the Métis Nation of Saskatchewan (MN-S), organizations such as the Prince Albert Grand Council, non-government organizations and other groups that may express interest in the decommissioned Beaverlodge properties, such as the Athabasca Chipewyan First Nation (ACFN) through our websites and social media channels and direct engagement when appropriate.

In addition, Cameco engages with the Northern Saskatchewan Environmental Quality Committee (NSEQC) which consists of representatives from 32 northern municipal and First Nations communities. Members of the NSEQC are appointed by the provincial government, based on recommendations from community leaders.

Face-to-face engagement is Cameco's preferred process for engagement, whenever possible, as it provides the best measure of the perceptions and opinions of the target audience. However, in response to the COVID-19 pandemic, Cameco has adapted our engagement strategy and continued to provide opportunities to share information and elicit feedback from interested groups.

In 2020 and 2021, Cameco hosted the annual public meeting, normally held in Uranium City, virtually. Invitees included participants from Uranium City and the other Athabasca Basin First Nations and communities. In addition, representation from ACFN and MN-S who had expressed interest during the 2019 commission hearing were also invited. Cameco's primary goal for the annual public meetings is to discuss completed and future activities as well as provide an opportunity to engage on the plan and schedule for transferring properties to the IC program. Regulators (i.e., CNSC staff, SkMOE and SkMER) also participate to present and discuss the regulatory process associated with the decommissioned Beaverlodge properties.

The 2020, discussion included the results of the 2020 ERA. Most importantly, it was communicated to interested groups that living a traditional lifestyle and consuming country foods from the area, while respecting the water and fish advisories, can continue to be done safely. Additionally, water quality predictions, measurements and risk assessments were presented and discussed to increase transparency and understanding of the status of Beaverlodge associated waterbodies.

In 2020 and 2021, virtual tours were created and shared with those interested to help people reconnect with the land around the decommissioned properties during the pandemic when 'boots on the ground' tours were not possible and see areas that are not easy to access. Drone footage of the properties was used and the 2021 video included perspectives from local community members.

The virtual public meetings and property tours have also been recorded and posted to the Beaverlodge website, with links provided to meeting participants and invitees.

In addition to these virtual community engagement efforts, a Cameco representative working in Uranium City in the fall of 2021 provided a 'boots on the ground' tour of the decommissioned Beaverlodge properties for local residents. The attendees of this tour included the MN-S Local #50 President and the local representative of the Ya' thi Néné Land and Resource office, as well as other interested community members. Due to the pandemic, participation was limited to the local community.

In November 2021, Cameco met with representatives from the Fond du Lac, which included leadership and community Elders to discuss the decommissioned Beaverlodge properties and the planned transfer of the 18 properties to the IC Program. Cameco is committed to its engagement and adaptive efforts to keep interested members informed, simultaneous translations of the meeting were provided as requested by the community. The community relations liaison, a Dene speaker from the First Nation facilitated the meeting in-community with support from Cameco representatives that joined remotely. Cameco provided an overview of the mining history of the Uranium City area, in addition to specific information regarding the Beaverlodge properties. Discussion with participants focussed on; the process of transferring properties to the IC program and the funding requirements that will be in place to ensure long-term stewardship of the land; as well as the importance of mining in the area; and protecting the waterways for current and future generations.

During Cameco's engagement activities in 2020 and 2021, specific to this licence amendment application, no concerns were expressed with regard to the 18 decommissioned properties. Cameco is committed to our engagement and keeping those interested informed. Cameco adapted our engagement approach, continued to provide opportunities for dialogue and discussion, and responded to questions and comments received.

Cameco also uses a range of communication tools to keep those interested on the decommissioned Beaverlodge properties informed including fact sheets, posters, newsletter/magazine content, virtual tour, presentations, and a specially-purposed website (www.beaverlodgesites.com) to engage and communicate information of interest to the public for routine and non-routine situations, events and activities. In an effort for continuous improvement, translations were added to the website in 2021. Since 2016, meeting summaries and/or presentations have been provided in the corresponding Annual Report.

4.4 Community Related Monitoring

4.4.1 Country Foods Assessment

In 2010, Cameco contracted Canada North Environmental Services (CanNorth) a third party First Nations-owned company to complete a two-year Country Foods assessment with a primary objective of determining whether there were any potential human health risks associated with the consumption of country foods gathered in the Uranium City area by local residents. Information regarding country food consumption habits and locations of country food harvesting were gathered during Year 1. The focus of the Year 2 study was to complete the gathering of samples to determine if locally harvested country foods were safe to consume. Vegetation and animal samples were collected over a two-year period from the Beaverlodge properties, Camsell Portage, and areas around Uranium City by researchers and local land users and sent to Saskatchewan Research Council laboratory for chemical analysis. Maps of the sampling locations were also provided at a public meeting to provide the attendees with a visual aid to see exactly what areas had been sampled. After the tissue sample results were provided by the lab, a risk assessment was conducted, and it was concluded that consumption of country foods does not present health risks to Uranium City residents provided the fish consumption advisories in place are followed (CanNorth and SENES 2012). This report has been submitted and accepted by regulators.

4.4.2 Eastern Athabasca Regional Monitoring Program

The Eastern Athabasca Regional Monitoring Program (EARMP) was established in 2011 under the Province of Saskatchewan's Boreal Watershed Initiative and is currently supported by funding contributions from SMOE, CNSC, Cameco and Orano. The EARMP was designed to identify potential cumulative effects downstream of uranium mining and milling operations in the Eastern Athabasca region of northern Saskatchewan. The community-based component of the program partners with communities annually to monitor the safety of traditionally harvested country foods by collecting and testing representative water, fish, berry, and mammal tissue samples from the seven communities located in the region. Harvesting and consuming traditional foods are an important part of the culture in northern Saskatchewan, which contributes to an overall healthy lifestyle through physical activity and healthy eating.

Community members collected and submitted samples of water, fish, berry, and mammals for testing. The 2021 program results continue to show that country foods are safe for consumption with chemical profiles for water, fish, berry, and mammal tissue samples similar to natural background. The reports and data from the program are publicly available at www.earmp.ca.

4.4.3 Community Based Environmental Monitoring Program

Building off eighteen years of data collected through the Athabasca Working Group (AWG) Environmental Monitoring Program (which was a product of the original Impact Management Agreement signed in 1999), the program was enhanced in 2018 to create a Community Based Environmental Monitoring Program (CBEMP) for the Athabasca region. The new CBEMP allows community members to become more involved and provide input to steer the direction of the program in their particular community. The program focuses on individual communities within the region on a rotating basis.

The overall study objective of the CBEMP is to gain an understanding of traditional food use by community members and to assess if these foods remained safe for consumption. The involvement of community members is one of the fundamental goals of the study. The study obtained information regarding the quantity, type, and harvest location of traditional foods through community interviews. To accomplish these objectives, a Traditional Food Frequency Questionnaire is developed in collaboration with community leadership and band members are hired and trained to conduct interviews with community residents.

To date, CBEMP studies have been completed in Black Lake Denesuline First Nation /Stony Rapids, Hatchet Lake Denesuline First Nation/Wollaston Lake, and Fond du Lac Denesuline First Nation. The results of the CBEMP studies have indicated that country foods identified and harvested by members of the communities remain safe and that regular consumption of locally collected fish, meat, berries and vegetation is encouraged. The results of these studies have been shared with local leadership and community members and a publicly available document summarizing the findings is posted on Cameco's northern website.

The 2021 CBEMP program will occur in Uranium City and Camsell Portage. The program is funded by Cameco and Orano through the Ya'thi Nènè Collaboration Agreement with support from CanNorth as the consultant. In an effort to build capacity and understanding, the 2021 program will involve the Ya' thi Néné Land and Resource Office taking an active role in the design and execution. The Ya' thi Néné Land and Resource Office Community Land Technicians and the Cameco/Orano Community Relations Liaison will conduct interviews of residents in Uranium City and Camsell Portage about the traditional foods that they harvest and eat. This information will then be used to determine which food and water samples to collect. The samples will be collected by community members and sent to an independent lab for analysis. The results from the study will be shared with community leaders and members in a report/brochure at a community meeting hosted by AJES – owners of CBEMP under the agreement.

4.5 Roads

No road closure or road decommissioning is planned for these 18 properties. Through discussion with local stakeholders, the road and trail system that exists in the Uranium City area provides access to areas when conducting traditional activities. Natural encroachment will eventually limit access to these roads.

4.6 Environmental Risk Assessment

In 2020, Cameco submitted an ERA for the decommissioned Beaverlodge properties (CanNorth 2020a) as an update to the previous QSM. This assessment was completed in accordance with the CSA N288.6 standard and consisted of watershed dispersion modelling, and a pathways

assessment to evaluate potential risks to ecological and human receptors on and downstream of the decommissioned properties. The model assumptions were revisited based on the current understanding of the environmental conditions informed by almost 40 years of monitoring results and the environmental performance indicators related to the assessment of water quality at various monitoring stations were also updated.

The ERA utilized an updated probabilistic modelling approach to account for the range of natural variability seen in model input parameters and more accurately represent expected water quality results. As part of the performance indicator update, a sensitivity analysis was completed by including a wider range of environmental variability, such as that expected from climate change, to assess the potential impact on the performance indicators. Overall, it was found that the climate change scenario did not have a significant effect on the expected recovery of the site and the updated performance indicators are applicable.

Consistent with previously accepted assessments, the 2020 ERA concluded that the immediate and downstream environments will continue to gradually recover over time. As shown previously, based on reported use of the land, there are not expected to be risks to humans residing near, or consuming food harvested from properties related to the decommissioned Beaverlodge properties. Therefore, living a traditional lifestyle and consuming country foods from the area, while respecting the water and fish advisories, can continue to be done safely (CanNorth 2020a).

4.7 Cost Recovery

Cameco is in good standing with the CNSC with respect to the payment of licensing fees for the Beaverlodge properties.

4.8 Financial Assurance

The financial liabilities associated with the management of the Beaverlodge properties are held by the Government of Canada and managed by Canada Eldor Inc. (CEI), a wholly owned subsidiary of the Canada Development Investment Corporation (CDEV). Both CEI and CDEV report to the federal Minister of Finance. The Ministry of Finance has confirmed via letter to the CNSC that:

Canada Eldor Inc. is an agent of the Crown in right of Canada for all purposes. It follows that any undischarged obligations and liabilities of Canada Eldor Inc. are the obligations and liabilities of the Crown in right of Canada. That will include Canada Eldor Inc.'s obligations and liabilities to decommission the Beaverlodge Site and the expenses associated with possession, management and control of nuclear substances at that site.

The CNSC has acknowledged receipt of the letter and accepted that the information fulfilled the requirements of condition 2.2 of Waste Facility Operating Licence WFOL-W5-2120.0/2007.

The Province of Saskatchewan's *Reclaimed Industrial Sites Act* and its Regulations require provision of a fund sufficient to pay for the long-term monitoring and maintenance of the site. In addition, depending on whether or not any engineered structures or tailings remain on the site, an additional contribution of between 10 - 20% of the monitoring and maintenance amount is made to an Unforeseen Events Fund. The IC program also requires that a financial assurance in the amount of the maximum potential failure event be carried until such time as the Unforeseen

Events Fund builds to a level that the Province of Saskatchewan is comfortable that there is sufficient money in the fund to cover any future unforeseen event.

As properties are transferred to the IC program, CEI will provide the required funds to the Province of Saskatchewan to meet the Monitoring and Maintenance requirements as well as the Unforeseen Events Fund. As the obligations and liabilities associated have been accepted by the Crown, there is no need to maintain a financial assurance for the maximum potential failure event for these properties until there is sufficient money in the fund to cover any future unforeseen event.

4.9 Other Regulatory Approvals

Cameco's objective in managing Beaverlodge is to protect the health and safety of the public and environment, and to meet the requirements for transfer of the decommissioned properties to the Saskatchewan IC program. The Saskatchewan Ministry of Environment has provided Cameco notice that upon receiving CNSC licence release, a Release from Decommissioning and Reclamation will be granted (August 30, 2021, G. Bihun to M. Webster). This follows the same process undertaken in 2009 and 2019-2020 when 5 and 20 former Beaverlodge properties, respectively, were released from CNSC licensing and accepted by SkMER into the IC program or free released. As proposed by SkMER, some portions of properties based on the absence of historic mining/milling activities may not be transferred into the IC program and are planned to be free released, based on the absence of historic mining/milling activities. In some situations, the proposed IC boundaries may also extend beyond the property boundaries that are the subject of this request to cover additional aspects that are anticipated to be monitored through the IC program.

5.0 Conclusions

The current condition of the 18 properties requested for licence release has met the established performance objectives of safe, secure, stable/improving and demonstrates that these properties pose minimal risk to public safety or to the local environment. As such, ACE 1, ACE 3, ACE 7, ACE 8, ACE 9, ACE 14, ACE MC, EXC ACE 15, EXC URA 7, GC 2, NW 3 Ext, NW 3, URA 4, URA FR, EMAR 1, EXC 1, HAB 1, and HAB 2 should be considered for release from the CNSC licence to allow the applicable portions to be transferred to the IC program or free released.

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