BEAVERLODGE PROJECT

Cameco
Energizing the World

Beaverlodge Project 2023 Annual Report

Year 38 Transition Phase Monitoring

Prepared for:
Canadian Nuclear Safety Commission
Compliance Report for Licence: WFOL-W5-2120.0/2025
& Saskatchewan Ministry of Environment
Compliance Report: Beaverlodge Surface Lease

Prepared and Submitted by:
Cameco Corporation

March 2024

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SECTION 1.0

INTRODUCTION

1.0 INTRODUCTION

This report is submitted in compliance with Canadian Nuclear Safety Commission (CNSC) Waste Facility Operating Licence WFOL-W5-2120.0/2025 issued to Cameco Corporation (Cameco) for the decommissioned Beaverlodge properties.

The report is also submitted in compliance with the Beaverlodge Surface Lease Agreement between the Province of Saskatchewan and Cameco Corporation, dated December 24, 2006.

The report describes observations and activities on the decommissioned Beaverlodge properties between January 1, 2023 and December 31, 2023. Results of environmental monitoring programs conducted for the decommissioned Beaverlodge properties during this period are provided in the report. Where applicable, historical environmental data has been included and discussed as part of the overall assessment of the decommissioned properties. The status of current projects and activities conducted as of the end of December 2023 are provided, along with an overview of anticipated activities planned for 2024.

GENERAL INFORMATION

SECTION 2.0

2.0 GENERAL INFORMATION

2.1 Organizational Information

2.1.1 CNSC Licence/Provincial Surface Lease

The CNSC Waste Facility Operating Licence WFOL-W5-2120.0/2025 and the Province of Saskatchewan - Beaverlodge Surface Lease, December 24, 2006 are issued to:

Cameco Corporation
2121 - 11th Street West
Saskatoon, Saskatchewan S7M 1J3
Telephone: (306) 956-6200
Fax: (306) 956-6201

2.1.2 Officers and Directors

The officers and board of directors of Cameco as of December 31, 2023, are as follows:

Officers

Tim Gitzel	President and Chief Executive Officer
Brian Reilly	Senior Vice-President and Chief Operating Officer
Alice Wong	Senior Vice-President and Chief Corporate Officer
Grant Isaac	Senior Vice-President and Chief Financial Officer
Heidi Shockey	Senior Vice-President and Deputy Chief Financial Officer
Sean Quinn	Senior Vice-President, Chief Legal Officer, and Corporate Secretary

Board of Directors

Catherine Gignac, chair	Jim Gowans
Daniel Camus	Kathryn Jackson
Tammy Cook-Searson	Don Kayne
Donald Deranger	Dominique Minière
Tim Gitzel	Leontine van Leeuwen-Atkins

2.2 CNSC Licence

On May 27, 2013 the CNSC notified Cameco that the Commission had renewed the Waste Facility Operating Licence for a period of 10 years, from June 1, 2013 until May 31, 2023. The licence was revised in 2019 to accommodate the release of 20 properties from CNSC licensing. The licence was revised again in 2022 to accommodate the release of an additional 18 properties from CNSC licensing. 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, forty-three of the decommissioned Beaverlodge properties have been released from CNSC licensing to allow for IC transfer or free-release. It is anticipated that all remaining licensed properties will be transferred to the IC program or free released, as soon as feasible.

On August 10, 2022 an application was submitted by Cameco to the CNSC requesting a short licence renewal of 24 months to provide adequate time for regulatory processes, public and Indigenous engagement, and document preparation to support the final release of the decommissioned Beaverlodge properties and transfer to the IC program. Funding was made available by the CNSC through its Participant Funding Program to support Indigenous Nations and communities, members of the public and stakeholders in presenting their views to the Commission.

A decision to renew the Beaverlodge licence for 2 years was granted on May 10, 2023, with the new licence, WFOL-W5-2120.0/2025, expiring on May 31, 2025.

2.3 Provincial Surface Lease

The current provincial surface lease for the decommissioned Beaverlodge properties was issued to Cameco on December 24, 2006 with an expiry date of December 24, 2026. To date the Beaverlodge properties have been released from CNSC licensing and transferred to the IC Program following a staged approach. Prior to the properties being transferred to the IC Program Cameco must receive a Partial Surrender of the Surface Lease for those areas that will be transferred to the IC Program. Once the final set of properties are ready for transfer to the IC Program Cameco will surrender the Surface Lease, and the properties will be managed in the IC Program with a Crown Reserve established for the applicable areas.

2.4 Beaverlodge History

The decommissioned Beaverlodge properties are located north of Lake Athabasca, northeast of Beaverlodge Lake, in the northwest corner of Saskatchewan at approximately N59°33'15" and W108° 27'15" (**Figure 2.4**).

In 1950, Eldorado Mining and Refining Ltd. began development of the Ace Shaft followed by the Fay Shaft in 1951. In 1953, the carbonate-leach mill began production, and a small acid-leach circuit was added in 1957 to handle a small amount of ore containing sulphides. Non-sulphide ore was sent directly to the carbonate circuit, while the sulphide concentrate was treated in the acid-leach circuit.

During mining, the primary focus was on an underground area northeast of Beaverlodge Lake where the Ace, Fay and Verna shafts were located. Production from these areas continued until 1982. Over the entire 30-year production period (1952 to 1982) the majority of the ore used to feed the mill came from these areas; however, a number of satellite mines, primarily in the Ace Creek watershed, were also developed and operated for shorter periods of time. During the mill operating period, tailings were separated into fine and coarse fractions. The fine fractions (approximately 60% of the tailings) were placed into water bodies within the Fulton Creek watershed, and the course fractions (remaining 40% of the tailings) were deposited underground for use as backfill.

During the early years of operation, uranium mining and milling activities conducted at the decommissioned Beaverlodge properties were undertaken using what were considered acceptable practices at the time. These practices, however, did not have the same level of rigor for the protection of the environment as is currently expected. Although the Atomic Energy Control Board (AECB) licensed the Beaverlodge activities, environmental protection legislation and regulation existed neither federally nor provincially and therefore was not a consideration during the early operating period. It was not until the mid-1970s, more than 22 years after operations began, that effluent treatment processes were initiated at the Beaverlodge site in response to discussions with provincial and federal regulatory authorities.

On December 3, 1981 Eldorado Nuclear Limited (formerly Eldorado Mining and Refining Ltd.) announced that its operation at Beaverlodge would be shut down. Subsequently mining operations at the Beaverlodge site ceased on June 25, 1982 and the mill discontinued processing ores in mid-August 1982. The AECB issued a decommissioning approval in November 1983, after which Eldorado Resources Limited (formerly Eldorado Nuclear Limited) initiated site decommissioning. To meet the accepted objectives of the regulatory approved decommissioning plan (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 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.

The decommissioning and reclamation work was completed in 1985. Letters were issued by AECB indicating that the properties had been satisfactorily remediated (*Eldorado Nuclear Ltd. 1982*; *Eldorado Resources Ltd. 1983*; *MacLaren Plansearch 1987*). Transition-phase monitoring was then initiated to monitor the status of the remediation efforts.

On February 22, 1988 the Government of Canada and the Province of Saskatchewan publicly announced their intention to establish an integrated uranium company as the initial step in privatizing their respective uranium investments.

On October 5, 1988 Cameco, a Canadian Mining and Energy Corporation, was created from the merger of the assets of the Saskatchewan Mining Development Corporation and Eldorado Resources Ltd. Following the merger, management (monitoring and maintenance) of the decommissioned Beaverlodge properties became the responsibility of Cameco, while the Government of Canada, through Canada Eldor Inc. (CEI), retained responsibility for the financial liabilities associated with the properties.

In 1990, the corporate name was changed to Cameco, with shares of Cameco being traded on both the Toronto and New York stock exchanges.

The management of the Beaverlodge monitoring program and any special projects associated with the properties is the responsibility of the lead, reclamation specialist, Beaverlodge within the Safety, Health, Environment and Quality (SHEQ) - Compliance and Licensing group at Cameco.

2.5 The Path Forward Plan

2.5.1 Institutional Control Program

In 2007, after significant consultation with stakeholders, including the CNSC, the mining industry, Indigenous organizations and communities in the major mining regions of the province, the Government of Saskatchewan proclaimed *The Reclaimed Industrial Sites Act* and its associated regulations to establish and enforce the IC Program. The IC Program establishes a formal process for transferring decommissioned mining and milling properties to provincial responsibility. This transfer can occur once remediation has been completed and a period of monitoring has shown the properties to be safe, secure and stable/improving.

2.5.2 The Beaverlodge Management Framework

The Beaverlodge Management Framework and supporting documents were developed in 2009 by Cameco and the Joint Regulatory Group (JRG), which included the CNSC, Environment and Climate Change Canada (ECCC), the Department of Fisheries and

Oceans Canada (DFO), and the Saskatchewan Ministry of Environment (SkMOE). The intent of the Beaverlodge Management Framework is to provide a clear scope and objectives for the management of the decommissioned Beaverlodge properties along with a systematic process for assessing site-specific risks to allow decisions to be made regarding the transfer of decommissioned Beaverlodge properties to the IC Program. The framework has been reviewed by public stakeholders, including the Northern Saskatchewan Environmental Quality Committee (NSEQC), as well as residents and leaders of the Uranium City community. A simplified version is provided below in **Figure 2.5-1**.

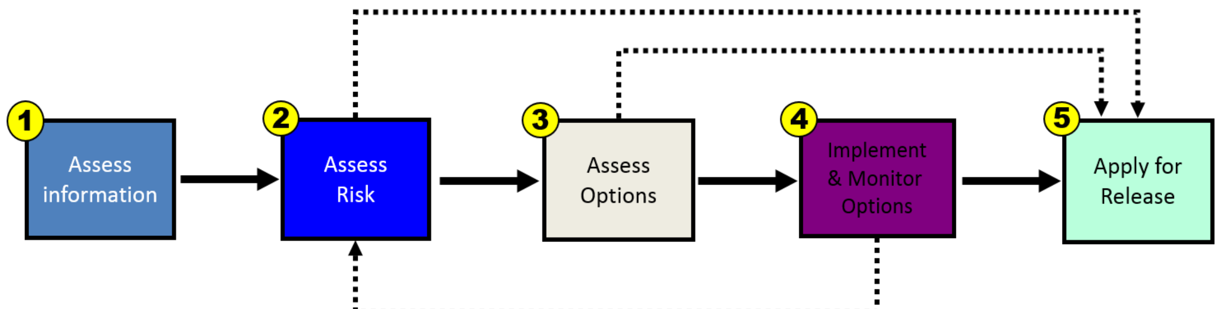


Figure 2.5-1 Simplified Beaverlodge Management Framework

The information gathered by Cameco and its consultants, combined with historical information, was used to develop the Beaverlodge Quantitative Site Model (QSM) in 2012.

The information gathered as part of Box 1 (of **Figure 2.5-1**) by Cameco and its consultants, combined with historical information, was used to develop the Beaverlodge Quantitative Site Model (QSM) in 2012 (Box 2 of **Figure 2.5-1**). The QSM was developed to assess ecological and human health risk from the 2012 baseline water and sediment quality established by information gathered in the first phase of the Management Framework. The QSM provides insight into the interactions between potential sources and transport in the Beaverlodge area watersheds, which established the predicted rates of natural recovery for the system. In addition, the QSM was developed with a feature that allows the simulation of potential remedial activities and compares results to the baseline option (natural recovery). This comparison allowed an assessment of the potential environmental benefits and other effects of implementing each remedial option alone or in combination with other options (Box 3 of **Figure 2.5-1**).

In 2020, the QSM was updated with the 2020 Beaverlodge Environmental Risk Assessment (ERA; *CanNorth 2020*). The performance indicators were updated alongside water quality predictions.

The Path Forward Report (*Cameco 2012*) describes specific remedial activities selected to improve local environmental conditions. In addition, the Path Forward Report also describes the monitoring expectations to assess the success of the implemented activities (Box 4 of **Figure 2.5-1**).

Once it has been shown that the selected remedial activities have been successfully implemented, and once properties are shown to meet the site performance objectives of safe, secure, and stable/improving, Cameco will initiate the process to transfer the eligible property to the IC Program for long-term monitoring and maintenance (Box 5 of **Figure 2.5-1**).

The licensed Beaverlodge properties have been managed in accordance with the Beaverlodge Management Framework described above. The remaining Beaverlodge properties meet the performance objectives and are now being proposed for Release from Decommissioning and Reclamation by SkMOE, released from CNSC licensing, and transferred to the IC Program for long-term monitoring and maintenance. The Beaverlodge Final Closure Report was submitted in November 2023 to the regulatory agencies in support this request.

2.5.3 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 properties associated with the decommissioned Beaverlodge properties will be assessed through the Beaverlodge Management Framework. The performance objectives for the decommissioned Beaverlodge properties were later defined and presented to the Commission by CNSC staff during the 2014 update meeting as safe, secure, and stable/improving.

- 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 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.

Site specific performance indicators were established as a measure to determine if a site is meeting the performance objectives. 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 secure, boreholes are sealed, and the site is free from historical mining debris. To ensure the performance objectives of safe and secure continue to be met, once the properties have been transferred to the IC Program, inspections will be scheduled as part of the IC monitoring and maintenance plan.

The stable/improving objective is also related to the performance indicators discussed in the previous paragraph; however, it is more relevant to monitoring water quality. In order to verify that conditions on and downstream of the properties are stable/improving, Cameco will continue to monitor the progress of natural recovery and the expected localized improvements from the additional remedial measures implemented at the properties until they are transferred to the IC Program. To ensure the performance objective of stable/improving continues to be met once properties have been transferred to the IC Program, a long-term monitoring program (LTMP) will be implemented at the time of transfer. **Figure 2.5-2** is an illustration of the performance objectives and associated performance indicators. Further explanation of the performance indicators and the criteria to satisfy them are provided in **Table 2.5-1**.

Figure 2.5-2 Beaverlodge Performance Objectives

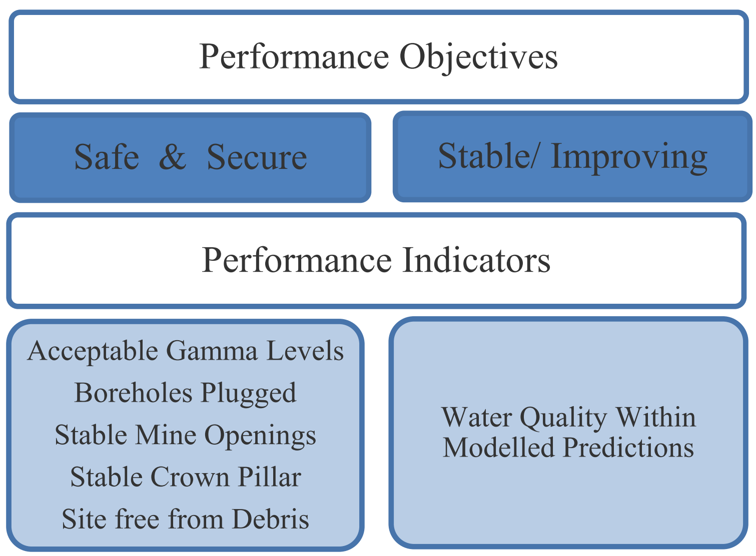


Table 2.5-1 Beaverlodge Performance Indicators

Performance Indicators	Description	Acceptance Criteria
Acceptable Gamma Levels	Cameco will complete a site wide gamma survey which 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 including 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 residual debris will be completed prior to releasing the properties from CNSC licensing and transferring them into the provincial Institutional Control Program.	Site free of former mining debris at the time of transfer to institutional control.
Water Quality Within Modelled Predictions	Water quality monitoring will be compared to model 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 and acceptable criteria for this performance indicator was expanded to include all mine openings.

2.5.4 Release of the Beaverlodge Properties to Institutional Control

Once a property has been appropriately remediated and meets the performance objectives of safe, secure and stable/improving, and the relevant performance indicators (discussed in **Table 2.5-1**), a request will be made by Cameco to obtain the regulatory releases required to facilitate transferring the properties to the IC Program.

To facilitate release from CNSC licensing and transfer to the IC Program, Cameco proposed advancing properties in a staged approach. In 2009, Cameco successfully transferred five Beaverlodge properties to the IC Program. This occurred following the release from Decommissioning and Reclamation requirements by SkMOE, release from CNSC licensing, and acceptance into the IC Program by the Saskatchewan Ministry of Energy and Resources (SkMER).

In 2019/2020, Cameco successfully transferred 19 properties to the IC Program, following release from decommissioning and reclamation by SkMOE, release from CNSC licensing and acceptance by the SkMER. One property and portions of some properties were free-released due to the absence of historical mining/milling activities and do not require any long-term monitoring or ongoing administrative controls.

On March 24, 2022, a CNSC public hearing regarding the transfer of an additional 18 properties to the IC Program was held and on September 7th 2022, the release from CNSC licensing was granted. The properties have now been removed from the Beaverlodge Surface Lease Agreement and transferred to the IC Program.

A summary of all properties transferred or free released to date, as well as those remaining is provided in **Appendix A.**

SECTION 3.0

SITE ACTIVITIES

3.0 SITE ACTIVITIES

The performance of the decommissioned Beaverlodge properties compared to the performance objectives is assessed through routine inspections conducted by Cameco personnel, third party consultants and/or members of the JRG. Additional studies and work are completed where required to gather information to support characterization of the properties, and aid in assessing the performance of specific components of the decommissioned properties. Results from the activities completed each year as well as updates on the status of the remediation projects at the decommissioned Beaverlodge properties are communicated through regular meetings with the public. The following section outlines activities related to the decommissioned Beaverlodge properties during the reporting period.

3.1 Routine Inspections and Engagement Activities

3.1.1 Joint Regulatory Group Inspections

The JRG is comprised of representatives from relevant federal and provincial regulatory agencies. The SkMOE represents the Province of Saskatchewan and is responsible for oversight of uranium mining and milling activities in the province, while the CNSC is responsible for regulating and licensing all uranium mining and milling operations in Canada and is the lead federal agency. The DFO and ECCC are additional federal regulators that provide oversight when requested or if necessary.

The JRG inspections are conducted to ensure conditions on the properties do not impact the health and safety of people; the continued protection of the environment; and that the requirements of the licence continue to be met. In 2023, one regulatory inspection was completed at the decommissioned Beaverlodge properties. The objective of the inspection was to complete a general assessment of the safety, security and stability of the decommissioned Beaverlodge properties, while focusing on the properties planned for transfer to the IC Program and to identify any remaining tasks to be completed prior to transferring properties. In addition, the inspection was completed to verify compliance with Cameco's approved licence documents, elements of *The Environmental Management and Protection Act, 2010,* and associated regulations.

The 2023 regulatory inspection occurred from September 11 to 13. Participants for the inspection included representatives from Cameco, the CNSC, SkMOE, and SkMER. Inspection reports were received from the CNSC and SkMOE on September 22 and November 29, respectively. In the CNSC inspection report there were no areas of non-compliance or recommendations. The SkMOE inspection report found no action items, no recommendations, and no new remediation items were identified.

3.1.2 Geotechnical Inspection

The 2023 geotechnical inspection was completed by Cameco personnel using the Geotechnical Inspection Checklist. A summary of the results is provided below for each of the inspected areas:

- The Fookes Delta.
  - There are no development of new tailings boils or exposures.
  - There are no signs of excessive erosions on the cover material.
  - Earthen berms and erosion protection are still in place and limiting vehicular traffic from accessing the delta.
- The two outlet spillways at Fookes and Marie Reservoirs.
  - Both spillways are performing as expected with no erosion occurring in the spillway or on the rip-rap embankments.
  - A beaver dam previously noted at the Marie spillway remains active. The crest of the beaver dam appears to be similar to previous years, although the water level behind the dam appears to be slightly lower.
- The Crown Pillar areas at Ace, Hab and Dubyna.
  - No evidence of subsidence and no signs of tension cracks in overlying material.
  - It was noted at Dubyna that recent beaver activity resulted in significant clearing along the crown pillar inspection area. As well, a beaver lodge was constructed along the shore of Dubyna Lake near furthest extent of the crown pillar. The lake level was noted to have risen due to a beaver dam constructed at the outlet of Dubyna Lake.
- The Zora Creek Reconstruction Area
  - Channel embankments remain stable with the vegetation on the downstream portion well established and thriving.
  - The beaver dam located at the outlet of Zora Lake appears stable and remains intact.

For detailed results, the full inspection report including a general map and photographic records is provided in **Appendix B.**

3.1.3 Community Engagement

Engagement activities are targeted towards rights bearing First Nation and Métis communities of the Athabasca Basin, which are located in the vicinity of the site. The closest community is the northern settlement of Uranium City (Uranium City). The community is located 8 km west of the former mine/mill site and is the only community with year-round road access to the former Beaverlodge properties. Cameco builds strong relationships in the north through its northern strategy and its commitments in maintaining open channels of communication. The Beaverlodge Public Information Program (PIP) was developed to assist in ensuring that Cameco's activities at the decommissioned properties are efficiently communicated to the public in a manner that complies with established regulations. The PIP was revised in 2021 to follow the format that was developed for Cameco's northern Saskatchewan operations that was accepted by the CNSC in the same year.

General updates on the decommissioned Beaverlodge properties are provided annually during a public meeting, normally held in Uranium City. Cameco engages directly with those interested and presents project plan updates in an effort to elicit feedback and provide meaningful response. The primary audience is the residents of Uranium City, and that includes the Uranium City Métis Local #50. The residents of this community have become well versed in the activities occurring at the Beaverlodge properties through participation in regular engagement. The discussions vary amongst participants but often focus on community benefits from the Cameco operating sites that pertain to employment opportunities.

In June 2016, Cameco and Orano Canada Inc (Orano) signed the Ya'thi Néné Collaboration Agreement with the three First Nation and four municipal communities in the Athabasca Basin. The agreement reflects the five pillars within Cameco's northern and Indigenous sustainability and stakeholder relations strategy, which is focused on workforce and business development, community engagement and investment as well as environmental stewardship.

The Athabasca Joint Engagement and Environment Subcommittee (AJES) – a joint committee of community and industry representatives that was established under the agreement meets regularly and discusses the northern Saskatchewan operations, company activities and environmental-related matters of importance to the Athabasca communities. AJES also provides a channel for the communities to share questions and concerns, in addition to traditional knowledge with the companies. Cameco continues to keep the subcommittee engaged regarding the Beaverlodge properties, which includes representation from Fond du Lac First Nation (Fond du Lac), Hatchet Lake First Nation (Hatchet Lake), Black Lake First Nation (Black Lake), a PRO (permanent resident organization) representing Uranium City, the northern hamlet of Stony Rapids (Stony Rapids), the northern settlement of Wollaston Lake (Wollaston Lake) and the northern settlement of Camsell Portage (Camsell Portage), and the executive director from the Ya'thi Néné Land and Resource Office (established to provide support to the AJES subcommittee).

In 2023, Cameco continued to provide an update presentation regarding the Beaverlodge properties during quarterly AJES meetings on February 6 in-person (Stony Rapids) and November 30 virtually. Discussions focused on the two-year licence extension, the request to release the remaining properties from CNSC licensing, with transfer to IC Program, and the development of a LTMP for the properties in IC.

Cameco provides information and responds to inquiries from the Northern Administration District communities, non-government organizations and other groups that may express interest in the decommissioned Beaverlodge properties through our websites and social media channels and direct engagement when appropriate. In addition, Cameco featured Beaverlodge in the Ya'thi Néné summer and winter newsletters in 2023. The Ya'thi Néné community newsletter was established in 2020 and is distributed in both print and online by subscribing with a focus on news and updates for the Athabasca Basin. Also, a feature has been added that allows subscribers to listen in Dene.

Cameco hosted an in-person workshop on June 19 in Saskatoon at the Saskatoon Inn, with various community and Indigenous representation, and included the regulatory agencies. As Cameco prepared the final set of properties for release from CNSC licensing and transfer to the IC Program, an essential part of that preparation was the development of a LTMP that will be implemented under the IC Program. The workshop was developed and executed to gain valuable insights from local land users to help shape the development of the IC monitoring program as well as initiate discuss regarding potential road closures, signage and fish advisory posting locations. The engagement workshop began with land acknowledgement, prayer and drumming. The activity was facilitated by CanNorth, a third-party consultant, where feedback into the development of the IC monitoring program for the decommissioned Beaverlodge properties was shared and captured through PowerPoint presentation and table discussions. Table facilitators were provided questions and representatives from the NSEQC, Fond du Lac Elders, youth and Chief and Council, Ya'thi Néné Lands and Resource Office, Ya'thi Néné Board, Cameco/Orano community relations liaisons, in addition to Cameco and CNSC, SkMOE and SkMER participated together in providing insights on the responses through mapping and lived experience.

Cameco also engaged the Métis Nation – Saskatchewan (MN-S) and the Athabasca Chipewyan First Nation (ACFN) in 2022 as they had expressed interest during the 2019 Commission hearing regarding release of properties from CNSC licensing.

On August 1, Cameco met with the MN-S Director of Environment and the Northern Region #1 Director in-person (Saskatoon) to provide history on the decommissioned properties, the plan to release the final set of 27 properties, and the development of a LTMP for the IC Program as representatives were unable to participate in the June workshop. Cameco and the Uranium City Métis Local #50 President met in-person (Saskatoon) on August 31 to receive insights from the Métis Local #50 related to monitoring the former Beaverlodge properties when transferred to IC Program. Discussions focused on the LTMP in addition to road closures, general information sign locations and fish advisory sign locations.

On August 31, Cameco hosted a virtual meeting with representatives from ACFN and its Dene Lands and Resource Management (DRM) to discuss the development of a LTMP. Cameco provided support to ACFN, as recommended by the community representatives, to lead community interviews with select members and provided insights to Cameco on program development in November.

Cameco hosted its annual public meeting in-person (Uranium City) in September to discuss the release of the final set of 27 properties. In an effort to promote more dialogue and discussion Cameco and the regulatory agencies provided information on their respective processes and eligibility for the properties to be released from CNSC licensing to the IC Program, and how community feedback is being incorporated into the design of a LTMP for the properties as part of the IC Program. SkMER provided a presentation that outlined the IC Program, why it was developed, how it works and why it is important. PowerPoint presentations, a summary document and maps were available to participants to assist Cameco and regulatory representatives share information.

Recognizing the limited in-community resources to host all those that had expressed interest, the annual public meeting was separated into two visits. An in-person meeting on September 11 in Uranium City that was both advertised and attended by local Uranium City community members, with representation from Fond du Lac and AJES representatives, the Community Liaison representing Fond du Lac, Camsell Portage and Uranium City, and both the Ya'thi Néné Executive Director and Uranium City Land and Resource Land Technician. In addition, the Uranium City Métis Local #50 President and local community leadership were also in attendance. Before starting the meeting, a land acknowledgement was provided to show respect and acknowledge the host community, its people, and its First Nation and Métis lands in addition to a drum ceremony. Discussions focused on the final release of the Beaverlodge properties, LTMP, fish and water advisory, and the IC Program. Cameco indicated that funds would be provided to the province to execute the LTMP when the final set of properties are transferred into the IC Program.

On September 12, 2023, Cameco hosted a second meeting that was also advertised and attended by local Uranium City community members and leadership, with representation from the NSEQC, Fond du Lac Chief, ACFN Elders/DRM, local community leadership, and the Uranium City Métis Local #50 President. The MN-S Northern Region #1 Director and Environment Director declined the visit. The discussions focused on the final release of the Beaverlodge properties, regional monitoring, the IC Program, Participant Funding Programs, and development of the LTMP.

Cameco met with the Ya'thi Néné Lands and Resource Office on October 13 in-person (Saskatoon) and on Teams, as follow-up from the September public meeting, to discuss the LTMP in further detail with the representatives.

Cameco provided updates to the Northern Saskatchewan Environmental Quality Committee (NSEQC) established in 1995, to bring northern residents together. The Minister's Order (Order) renewing the committee expired June 2022 and the committee was reestablished late 2023. The first general meeting in 2023 was hosted in-person (La Ronge) on November 14/15, Cameco presented an update on the Beaverlodge properties to the committee. Discussions with the NSEQC representatives focused on decommissioning, the IC Program and final release of the properties.

Cameco continues to build strong relationships in the north through its PIP and its commitments to meaningful engagement. Cameco provides information to those interested, on the Beaverlodge Sites website (www.beaverlodgesites.com), which also includes a virtual tour, of many areas of the properties.

3.2 2023 Remediation Activities to Prepare Sites for Transfer to IC Program

Cameco prepared a work plan and schedule, that was based on the Path Forward Report recommendations (Cameco 2012), which was presented to the CNSC at the 2013 re-licensing hearing. The Path Forward described remedial activities selected to improve local environmental conditions in order to meet performance objectives, and described the monitoring requirements to assess the success of implemented activities. The work plan described specific site activities required to address residual human health and ecological risk, while demonstrating conditions on the properties are stable and/or improving. The remediation activities implemented at the decommissioned Beaverlodge properties included:

- Rehabilitating historic mine openings.
- Re-establishment of the Zora Creek flow path.
- Final inspection and cleanup of properties.
- Decommission identified boreholes.
- Crown Pillar Remediation
- Site wide gamma assessment.

Ultimately, the decommissioned Beaverlodge properties are managed to ensure they meet the performance objectives of safe, secure and stable/improving. By meeting these objectives, the decommissioned properties will be eligible for acceptance into the IC Program or free-released. All work undertaken since the development of the work plan and schedule is intended to support the Management Framework established to move towards this goal. The following sections provide an overview of remedial activities completed to advance the properties towards transfer to the IC Program. Where work was done in 2023 it has been specifically noted in the text.

3.2.1 Rehabilitate Historic Mine Openings

While the original decommissioning of the mine site included sealing most historic vertical mine openings with concrete, final drawings detailing the closure methods were not created for each opening. To ensure Cameco meets the performance objectives of safe, secure and stable/improving, mine openings have since been verified to be secured and subsequently signed off by a qualified person, where applicable. All historic mine openings on the former Beaverlodge properties meet the performance objective for stable mine openings.

An overview of the remediation of mine openings is provided in **Table 3.2-1**.

Table 3.2-1 Mine Openings

Site	Opening	Property	Location		Status	Notes
Ace	Shaft	ACE MC	643697	6605390	Exposed	Stainless steel cover installed in 2016.
Ace	2157 Raise	ACE 1	643366	6605115	Exposed	Stainless steel cover installed in 2017.
Ace	2157 Finger Raise	ACE 1	643338	6605106	Exposed	Stainless steel cover installed in 2017.
Ace	130 Raise	ACE MC	643773	6605394	Exposed	Stainless steel cover installed in 2017.
Ace	195 Access Raise	ACE 1	643512	6605180	Buried	Leave “as-is”; Backfilled and buried by substantial waste rock below the Dorrclone.
Ace	195 Raise	ACE 1	643512	6605180	Buried	Leave “as-is”; Backfilled and buried by substantial waste rock below the Dorrclone.
Ace	105*2 Raise	ACE 1	643584	6605288	Buried	Engineered rock cover installed in 2018.
Ace	201 Raise	ACE MC	643615	6605277	Backfilled	Leave “as-is”. Removed concrete cap and excavated below, no indication of a raise opening. Raise area was backfilled, no further remediation planned at this location.
Dubyna	810394 Raise	JONES	647794	6608256	Exposed	Stainless steel cover installed in 2017.
Dubyna	820694 Raise	JONES	647820	6608451	Exposed	Stainless steel cover installed in 2017.
Dubyna	Dubyna Portal (Adit)	JONES	647806	6608229	Backfilled	Leave “as is”.
Eagle	Shaft	EAGLE 7	639549	6607252	Exposed	Concrete cap installed in 2001.
Eagle	Adit	EAGLE 1	640379	6607245	Submerged	Leave “as is”.
Fay	Shaft	URA 4	642668	6604711	Exposed	Stainless steel cover installed in 2020.
Fay	Custom Ore Raise	URA 4	642623	6604658	Buried	Engineered rock cover placed in 2020.
Fay	Custom Ore Bin	URA 4	642625	6604658	Buried	Engineered rock cover placed in 2020.
Fay	CB-1 Access Raise	URA 7	642558	6604563	Buried	Engineered closure design installed in 2021.
Fay	Surface Dump Raise	URA 4	642595	6604639	Exposed	Stainless steel cover installed in 2018.
Fay	Sorting Plant Raise	URA 7	642603	6604520	Backfilled	Located, Leave backfill as is.
Fay	Sorting Plant Bin	URA 7	642603	6604520	Backfilled	Beside the raise, Leave backfill as is.
Fay	Fine Ore Dump	URA 4	642682	6604715	Exposed	Stainless steel cover installed in 2020.
Fay	Pipe Drift Raise	URA 4			Buried	Leave “as-is”. Small diameter raise (borehole) for piping, backfilled in reservoir.
Fay	25373 Raise	URA 3	642253	6604665	Exposed	Stainless steel cover installed in 2017.
Fay	24094 Raise (Vent)	URA 4	642702	6604632	Exposed	Stainless steel cover installed in 2018.
Fay	Fay Ladder Access	URA 4	642606	6604655	Buried	Engineered rock cover placed in 2020.
Fay	Waste Haul Adit	URA 7	642638	6604450	Backfilled	Backfilled in 2017.
Hab	Vent Plant Raise	EXC 1	645542	6612182	Inaccessible	Leave “as-is”, Vent raise is in the adit (within mine workings).
Hab	13904 Raise	EXC 1	645229	6612203	Exposed	Stainless steel cover installed in 2017.
Hab	13905 Raise	EXC 1	645246	6612213	Exposed	Stainless steel cover installed in 2017.
Hab	13918 Raise	HAB 1	645292	6612236	Buried	No further remediation required- backfilled in Hab pit.
Hab	13927 Raise	HAB 1	645295	6612230	Exposed	Stainless steel cover installed in 2017.
Hab	13909 Raise	HAB 1	645308	6612255	Buried	No further remediation required- backfilled in Hab pit.
Hab	13929 Raise	HAB 1	645352	6612255	Buried	No further remediation required- backfilled in Hab pit.
Hab	13810 Raise	HAB 2A	645561	6611886	Exposed	Stainless steel cover installed in 2017.
Hab	Shaft	HAB 2	645568	6612133	Exposed	Stainless steel cover installed in 2018.
Hab	Heater Raise	EXC 1	645519	6612198	Exposed	Stainless steel cover installed in 2019
Hab	Haulage Adit (west)	EXC 1	645505	6612187	Backfilled	Leave “as is”.
Hab	Service Adit (east)	EXC 1	645519	6612200	Backfilled	Leave “as is”.
Martin	Adit (BVL)	RA 9	639081	6602968	Backfilled	Leave “as is”.
Martin	Adit (MRTN)	RA 6	638063	6602968	Backfilled	Leave “as is”.
Verna	Shaft	ACE 8	645470	6606022	Exposed	Stainless steel cover installed in 2018.
Verna	026594 Raise	NW 3 EX	645659	6606028	Exposed	Stainless steel cover installed in 2019.
Verna	026594 Finger Raise	NW 3 EX	645668	6606030	Exposed	Stainless steel cover installed in 2018.
Verna	Bored Raise	ACE 3	644806	6605250	Exposed	Stainless steel cover installed in 2017.
Verna	Verna Ladder Access	NW 3 EX	645669	6606035	Exposed	Stainless steel cover installed in 2018.
Verna	72 Zone Portal	NW 3	645836	6605771	Backfilled	Leave “as is”.
Verna	Shaft Adit	-	-	-	Backfilled	Leave “as is. Listed as sealed during operations (*Departure with Dignity 1987*)
Verna	46 Zone Portal	EMAR 21	645318	6607236	Backfilled	Leave “as is”.

3.2.2 Monitoring the Zora Creek Reconstruction

Final construction work on the Zora Creek Reconstruction was completed in 2016. A detailed description of the work conducted along with final As-built drawings was submitted to the CNSC and SkMOE in a report titled "*Bolger Flow Path Reconstruction: 2016 Final As-Built Report*" (*SRK 2017*) on March 10, 2017.

During the 2023 regulatory inspection, the Zora Creek flow path was inspected by Cameco and the regulatory agencies. No notable changes to the condition of the channel were observed. Visual inspections will continue to be performed annually by Cameco personnel until the associated property is transferred to the IC Program. At which point inspections will continue as part of the IC Program Monitoring and Maintenance Program.

Water quality monitoring upstream and downstream of the Zora Creek Reconstruction project continued in 2023. A description of the 2023 water quality results for sample stations ZOR-01, ZOR-02, AC-6A, and AC-8 are provided in **Section 4.3.1**. Water quality from this area will continue to be monitored in order to evaluate the success of implementing this remediation activity.

3.2.3 Final Inspection and Clean-up of the Properties

Prior to free-releasing or transferring properties to the IC Program, a final site inspection and clean-up must be conducted in order to identify and remove debris from the properties, and ensure the site is in a safe and stable condition.

A site wide inspection of all the decommissioned Beaverlodge properties was performed by Kingsmere Resources (Kingsmere) from 2015 to 2017, resulting in a significant amount of debris being removed from the properties (Kingsmere 2018). In addition, prior to properties being transferred to the IC Program, the regulatory agencies will typically conduct a final inspection of the property to ensure the clean-up and remediation is adequate. During this process, additional minor amounts of debris may be identified for clean-up. In 2023, approximately 3 m3 of debris was identified during the regulatory inspection that required removal as the properties were undergoing final inspection before being proposed for transfer to the IC Program. Debris was disposed of in Lower Fay Pit, in accordance with regulatory approved methods. The table below includes the volume of waste disposed of to date and includes Bolger Pit, which is no longer in use.

Table 3.2-2
Summary of the materials (m^3) deposited to Bolger and Fay Pits since 2015.

	Bolger	*Fay*	***Total***
Debris	82	810	**892**
Core	1303	126	**1429**
Concrete	0	647	**647**
Total	**1385**	**1583**	**2968**

3.2.4 Decommission Identified Boreholes

A search of drilling records on file with the Government of Saskatchewan, followed by field investigations was conducted in 2010 (SRK 2011). This investigation resulted in numerous historic boreholes dating from the Eldorado operation (exploration drill holes) being identified and sealed. Since 2013, additional non-flowing historic boreholes have been discovered during regulatory inspections as well as during the final property inspections and have since been sealed. The total number of boreholes is 238, this includes 229 remediated (all with an associated year), 6 that were not remediated due to being recent non-Cameco exploration (HB 20, Hab 21, Hab 22, HAB 24, HAB 25, and HAB 26), 2 were not located (DB 01 and DB 06), and 1 was covered with debris (BH-43). This was corrected from the previous identified number of 242, while reviewing the list of boreholes. No new boreholes were identified in 2023. All boreholes identified on the Beaverlodge properties have been sealed, and the performance indicator has been met.

As a permanent record of borehole locations associated with the decommissioned Beaverlodge properties, Cameco maintains a master list that includes the GPS locations for each borehole in the Annual Report (**Appendix C**). As properties are transferred to the IC Program, this permanent record will be transferred to the Province of Saskatchewan.

3.2.5 Crown Pillar Remediation

Cameco retained SRK to assess the potential risk associated with crown pillars across all Beaverlodge properties, and provide recommendations for long term remediation/inspection of potential areas of concern. Results of the Beaverlodge Property – Crown Pillar Assessment (SRK 2015) identified one area that warranted physical remediation and two additional areas for future monitoring (Hab and Dubyna). It was recommended that the crown pillar associated with the Ace Stope Area undergo remediation to limit risks from settling related to the crown pillar failure. The majority of remediation was undertaken in 2016 and completed in 2019 with the closure of the 105#2 Raise (SRK 2019).

The crown pillars associated with the Ace Stope area as well as the Hab and Dubyna crown pillar areas were inspected by Cameco in 2023 and there were no observable changes to the landforms in these areas. The results and photos are provided in the Geotechnical Inspection Report (**Appendix B**).

3.2.6 Follow-up to the Site Wide Gamma Assessment

Gamma surveys and risk assessments completed site wide and have shown that radiation exposure resulting from casual access on the decommissioned Beaverlodge properties is negligible and that the public dose limit would not be exceeded. There are no permanent workers associated with the Beaverlodge properties, and contractors performing remediation work on the properties typically spend limited time on the sites. Only one remediation project necessitated designation of the contractors as Nuclear Energy Workers

(NEWs) and the associated dose monitoring and reporting and that project was completed in 2016.

Prior to a property being proposed for transfer to the IC Program, if there has been any disturbance of the site since the site wide gamma survey was completed, the area will be rescanned to ensure the readings are representative of the original scanned results.

In 2023, no gamma surveys were completed, however some previously scanned areas located on the URA7 property were disturbed while performing remediation activities, therefore follow-up surveys will be required to confirm the gamma readings are similar to the original scanning results. As well, a gamma survey will be conducted on the Lower Fay Pit closure and other areas where there was disturbance to the ground.

A comprehensive, up-to-date gamma survey file and figures will be provided to the CNSC and the Province when all on-site work is completed.

3.3 Additional Studies/Work

3.3.1 Beaverlodge EPR

The Beaverlodge Environmental Performance Report (EPR) is a regulatory required report that is produced every five years summarizing the data collected since the previous EPR. In 2023 Cameco submitted the Beaverlodge EPR summarizing data collected from 2018 to 2022.

Monitoring data from 2018 to 2022 were analyzed for spatial and temporal trends compared to previous data guidelines, and water quality predictions made using the Beaverlodge QSM and predictions from environmental risk assessments when available. Evaluation focuses on data collected from the aquatic environment, although data related to waste rock, waste, meteorology, and radon levels were also considered. This report also provides a summary of activities that have been completed for the site over the reporting period. Overall, the surface water data collected from the current EPR period demonstrate that recovery in the immediate and downstream environments is occurring largely as predicted.

This EPR supported the conclusion that the risks on the Beaverlodge site have been managed in accordance with the Beaverlodge Management Framework. The findings from this summary document support Cameco's plans to obtain a release from CNSC licensing; a release from decommissioning and reclamation requirements, as well as a termination of the Surface Lease from the Ministry of Environment; and acceptance into the Province of Saskatchewan's IC Program.

Some of the key recommendations of the EPR were considered during the development of the Long-Term Monitoring Program to be proposed for implemented as part of the IC Program monitoring included;

- sediment sampling is not considered necessary at this time to monitor ongoing recovery of the immediate and downstream environments as the expectation is that, without the introduction of a significant new source of loading to the aquatic environment, sediment quality will continue to undergo slow natural recovery into the future.
- fish chemistry studies should be undertaken every 20 years in the future to confirm long-term recovery and to allow the healthy fish consumption guidelines to be updated as appropriate.

The CNSC reviewed the Beaverlodge EPR and provided comments to Cameco on November 14, 2023 and Cameco provided a response to the comments on November 24, 2023. Cameco received acceptance of the EPR from the CNSC on December 8, 2023.

3.3.2 Development of Monitoring For the IC Program

In preparation for the final release of the remaining properties, Cameco began development of a monitoring program to be implemented once all properties were in the IC Program. This included the development of a physical inspection program, as well as a fish and water monitoring program.

3.3.2.1 Physical Inpsection Program

The development of the Beaverlodge Institutional Control Inspection Field Guide (Beaverlodge - ICIFG) was required to ensure inspections of the physical aspects on the former Beaverlodge properties would be completed in a consistent manner once the properties have been transferred to the IC Program. Properties that have been previously transferred to the IC Program included accepted monitoring programs. The ICIFG was developed to evaluate all of the former Beaverlodge properties that will be managed as part of the IC Program, including all properties that have been released in the past as well as those planned for transfer in the future. To ensure that all physical aspects were captured in the ICIFG the development of the program included the following considerations:

- reviewing an example of a relevant inspection plan/checklist (provided by SkMOE) that has been proposed for the IC Program,
- past closure reports,
- commitments identified in the CNSC Commission Member Documents and Record of Decisions,
- previous IC inspection reports from 2014 and 2019, and
- current regulatory inspections.

The Beaverlodge ICIFG provides a description of the relevant areas and a summary of the key aspects of the decommissioned Beaverlodge properties that will require future inspection as part of the IC Program.

The field guide provides detailed information regarding the different types of inspection tasks and what is required when the field team is conducting the inspection. This guide was reviewed and accepted by the CNSC, SkMOE, and SkMER.

3.3.2.2 Long-Term Monitoring Program

In developing the LTMP in 2023, a technical evaluation was completed to support development of a program to monitor long-term trends in surface water and fish quality after all the Beaverlodge properties have been released to the IC Program. The objectives of the evaluation was to define monitoring that would confirm long-term water trends continue to recover as expected and provide information to support the eventual removal of the healthy fish consumption guideline and drinking water advisories.

In addition to the technical evaluation, various engagement activities were conducted to obtain input from members of rights-bearing First Nation and Métis communities in the Athabasca Basin, residents and/or former residents of Uranium City, northern stakeholder organizations, and provincial and federal regulatory agencies on what they view as a reasonable long-term monitoring program based on their personal experience with these areas and the IC Program. As discussed in Section 3.1.3.

The LTMP consists of two components: surface water and fish chemistry monitoring. The objective of the surface water monitoring component of the LTMP is to confirm the trends in water quality are recovering, consistent with predictions made in the 2020 ERA. In addition to water quality monitoring, fish chemistry monitoring will be completed to support the removal of the Healthy Fish Consumption Guideline. Sample locations and frequency are detailed in the LTMP and were informed by previous sampling campaigns completed in the region, as well as feedback received from rights-holders and other stakeholders gathered during targeted engagement activities.

3.3.3 Fish Chemistry Program

In September 2023, fish monitoring occurred in Cinch Lake, Martin Lake, and Beaverlodge Lake with a purpose to provide a baseline dataset for updating the Healthy Fish Consumption Guideline issued by the Saskatchewan Health Authority (SHA), for waterbodies near Uranium City, Saskatchewan. The design of the Fish Chemistry Program was discussed and reviewed by the SHA to prior to collecting fish samples to ensure it met their expectations and would provide value to their review of the Healthy Fish Consumption Guideline. Within each lake, ten fish of a desired species were collected, this included Northern Pike from Cinch Lake; Lake Trout, Whitefish and White Sucker from Martin Lake; and Lake Trout, Whitefish and White Sucker from Beaverlodge Lake. Analysis of the fish includes aging samples such as otoliths and scales for Lake Trout and Whitefish; cleithra and scales for Northern Pike; and fin rays and scales for White Suckers. Chemistry analysis includes metal and radionuclide analysis, with features such as fork length, body weight, sex, age, stomach contents and internal and external conditions being assessed. Fish were collected in the fall of 2023 and sent for analysis, and it is expected that the results will be provided to Cameco at the end of Q1 of 2024.

3.3.4 Culvert Removal and Restricted Vehicle Access

On September 22, 2023, Cameco requested approval to facilitate the removal of the culvert on the road to Meadow Fen outlet. The CNSC approval of the project on September 22, 2023 and SkMOE provided their approval of this activity on September 26, 2023. The culvert was removed on October 6, 2023, and the debris disposed of in Lower Fay Pit. Following removal, a level crossing was constructed to allow for water to continue to pass from the north side of the road to the south (see Photo below).

The road material removed was scanned in 2015 and the results were measured at 0.1 – 0.3 μSv/h, well below the EPB 381 guideline (Northern Mine Decommissioning and Reclamation Guidelines) of 1 μSv/hr. As per the approved plan the material from the south side of the road was incorporated into the level crossing. The material from the north side of the road had no contact with precipitate from the Meadow Fen settling pond that was used during active operation of the tailings management area. The material excavated from the north side of the roadbed was used to build berms to restrict vehicular access to Ace Uplands and Minewater Reservoir. All disturbed areas will be rescanned in 2024 and updated results will be provided to the regulatory agencies.

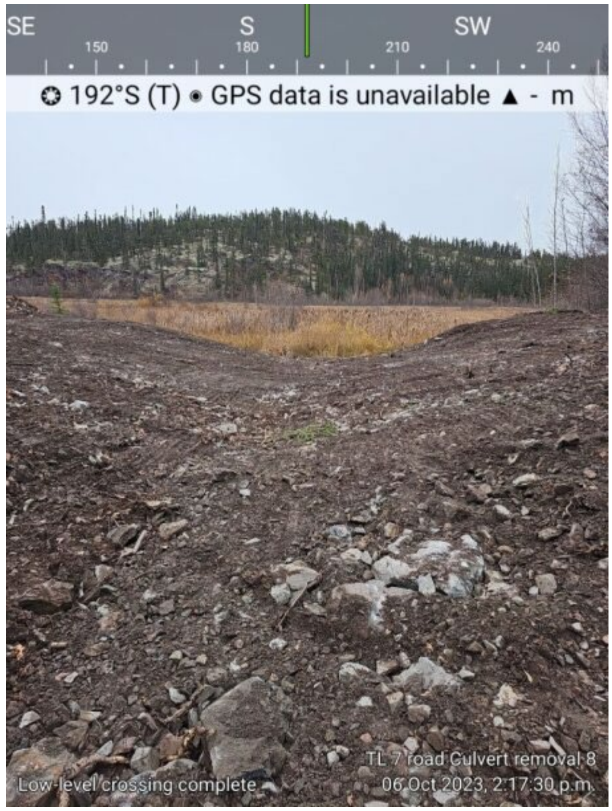


Photo 1 - Low level crossing at Meadow Fen

3.3.5 Lower Fay Pit Closure

On August 16, 2023, Cameco requested approval to cover the Lower Fay Pit to facilitate the transfer of the associated property to the IC Program. The Lower Fay Pit is a small open pit that is approximately 0.2 km northwest of Lower Ace Creek and 0.5 km northeast of Beaverlodge Lake. The Pit is roughly 0.2 hectares in area.

On September 27, 2023, SkMOE provided a letter approving the application of a 0.9m thick cover consisting of a layer of sorted waste rock (SWR) to cover the entire landfill, followed by a layer of clean waste rock.

The closure of the pit was completed in October 2023 (see Photo below). The SWR and clean waste rock was placed onto the compacted debris using load, haul, dump equipment and then spread with the use of a tracked bulldozer and/or backhoe. The driving of equipment on the material further compacted the debris and incorporated the SWR into the matrix of the debris, reducing the risk of settling in the future. Cameco will conduct a gamma scan of Lower Fay Pit and the SWR pile in 2024.

Photo 2- Lower Fay Pit being covered with waste rock

3.3.6 Environmental Contingency Plan

The Beaverlodge Surface Lease stipulates that the site is to maintain an Environmental Contingency Plan and provide annual updates. An Environmental Contingency Plan is intended to provide information regarding the storage and use of Hazardous Substances and Waste Dangerous Goods (HSWDG) on a site. As the decommissioned Beaverlodge properties do not have any HSWDG located on site, an Environmental Contingency Plan is not applicable.

At the request of SkMOE Cameco prepared a Wildfire Prevention and Preparedness Plan for the decommissioned Beaverlodge properties. The plan was developed using the ministry's plan template provided on the Wildfire Prevention and Preparedness Plans webpage. Additional information was included with respect to Sections 5, 7, 10 and 11 of the templates; and included site maps showing the locations of notable site features, such as access roads, locked gates and bodies of water. The Beaverlodge 2023 Wildfire Prevention and Preparedness Plan was submitted to SkMOE on March 13, 2023.

The SkMOE maintains a checklist of compliance for industrial sites and compares it with various provincial requirements. The most recent SkMOE issued Environmental Compliance Management System (ECMS) for the Beaverlodge Project was for 2021 – 2022 and was received on March 28, 2022. The Beaverlodge ECMS confirms that the Beaverlodge properties are meeting all the relevant provincial requirements identified in the ECMS.

SECTION 4.0

ENVIRONMENTAL MONITORING

4.0 ENVIRONMENTAL MONITORING PROGRAMS

Cameco retains a local contractor (Uranium City Bulk Fuel Ltd..) to conduct the required water quality and radon in air sampling at various established station locations throughout the year. While collecting samples, employees from Uranium City Bulk Fuel Ltd., also perform cursory inspections and report any unusual conditions to Cameco.

Saskatchewan Research Council (SRC) and Bureau Veritas Labs (BV Labs) are used to analyze water samples. SRC is also used to analyze radon in air through track etch cup monitoring. SRC holds the Canadian Association for Laboratory Accreditation (CALA) and BV Labs Quality Program holds several accreditations granted by Canadian and United States regulatory organizations. Additional information on SRC and BV Labs QAQC programs can be found in **Appendix D**.

4.1 Site Specific Objectives

The performance objectives of safe, secure and stable/improving have been established as benchmarks for entering the provincial IC Program. Performance indicators consisting of modelled water quality for several stations were developed to assess when the performance objective has been met for the associated properties. The predictions provide an expected range to which water quality trends will be compared when defining whether the station is stable or improving.

These predicted water quality concentrations were originally modelled as part of the development of the QSM and provided the foundation for assessing the outcome of remedial options presented in the Path Forward Report (Cameco 2012). With the path forward strategy accepted by the regulatory agencies, the water quality performance indicators were updated and incorporated in the 2013 Status of the Environment (SOE) report (SENES 2013). A revised SOE was submitted in October 2018 (relabeled as an Environmental Performance Report (EPR)) that included updates to the model based on data gathered since 2013 (CanNorth 2018). In 2020, the Beaverlodge ERA model and performance indicators were updated (CanNorth 2020). The current model utilizes an updated format with the ability to better assess a wide range of environmental variability. The model assumptions are based on the current understanding of environmental conditions informed by 40 years of monitoring.

Note that as the performance indicators reflect mean annual values, it is not the expectation that all individual water quality results will be within the predicted maximum and minimum bounds every year. The 2023 water quality and corresponding trends are evaluated and discussed below.

Table 4.1-1 Comparison of Key Parameter Annual Averages to Modelled Predictions/Performance Indicators

Station	Water Quality Meets SEQG or is Within or Below Modelled Predictions			Comments
	Uranium	Radium-226	Selenium	
Ace Lake (AC-8)	✓	✓	✓	-.
Beaverlodge Lake (BL-5)	✓	✓	✓	-
Dubyna Lake (DB-6)	✓	✓	✓	-
Fookes Reservoir (TL-3)	✓		✓	Ra-226 was above the upper bound prediction in 2023
Greer Lake (TL-9)	✓	✓	✓	-
Lower Ace (AC-14)	✓	✓	✓	
Marie Reservoir (TL-4)	✓	✓	✓	-
Meadow Fen (TL-7)	✓	✓	✓	-
Pistol Lake (AN-5)	✓	✓	✓	-
Verna Lake (AC-6A)		✓	✓	U was above the upper bound prediction in 2023

4.2 Water Quality Monitoring Program

This section provides a summary of water quality trends at each of the licensed monitoring stations at the decommissioned Beaverlodge properties. An initial comparison to the Saskatchewan Environmental Quality Guidelines (SEQG; Government of Saskatchewan 2024) will be made and if the data shows a stable trend below the SEQG, no detailed discussion will be provided. If the data is above the SEQG, a comparison to the modelled predictions will be made. As surface water quality guidelines are not intended to be applied within tailings management areas, discussion regarding water quality within the TMA is focused on the comparisons to the modelled predictions for stations TL-3, TL-4, TL-6, or TL-7.

The water quality summary in this section focuses on three main constituents of potential concern identified for the decommissioned Beaverlodge properties: Se, U and Ra-226. Total dissolved solids (TDS) is also included as a general indicator of water quality.

The two watersheds influenced by historic mining activities are Ace Creek and Fulton Creek. **Figure 4.2** provides an overview of the various stations at which water quality is monitored. Within the Ace Creek watershed, the routine sampling stations (from upstream to downstream) include:

AN-5 Pistol Creek downstream of the decommissioned Hab mine site and upstream of the first confluence. This system flows through Mickey Lake into Ace Lake.

DB-6 Dubyna Creek downstream of the decommissioned Dubyna mine site and before the creek enters Ace Creek upstream of Ace Lake.

AC-6A Verna Lake outlet to Ace Lake.

AC-8 Ace Lake outlet to Lower Ace Creek.

AC-14 Lower Ace Creek at the outlet into Beaverlodge Lake.

The Fulton Creek watershed contains the bulk of the decommissioned tailings deposited during operations. Within the Fulton Creek watershed, the regulatory approved sampling stations (from upstream to downstream) include:

AN-3 Fulton Lake at outlet into Fookes Reservoir (represents un-impacted or background condition).

TL-3 Outlet of Fookes Reservoir.

TL-4 Outlet of Marie Reservoir (which flows into Meadow Fen).

TL-6 Outlet of Minewater Reservoir (which flows into Meadow Fen).

TL-7 Outlet of Meadow Fen upstream of Greer Lake.

TL-9 Fulton Creek downstream of Greer Lake and before it enters Beaverlodge Lake.

Additional sampling stations located downstream of the Beaverlodge site include:

BL-3 Located in Fulton Bay, Beaverlodge Lake immediately opposite the Fulton Creek outlet.

BL-4 Beaverlodge Lake (central location).

BL-5 Outlet of Beaverlodge Lake.

ML-1 Outlet of Martin Lake.

CS-1 Crackingstone River at bridge.

CS-2 Crackingstone Bay of Lake Athabasca.

Figures 4.2.1-1 to 4.3-8 are graphical representations of the historical annual average concentrations of U, Ra-226, Se, and TDS at each station with comparisons to their respective SEQG values where applicable, as well as comparisons to the performance indicators that were presented in the ERA (CanNorth 2020). It should be noted that Se monitoring began at selected water stations in 1996, and that the lab detection limit for selenium changed in 2003. In addition, the SEQG value for Se was increased from 0.001µg/L to 0.002mg/L in April 2023.

Tables 4.2.1-1 to **4.3.1-2** show summary statistics and comparisons to historical results (previous 4 years) of parameters monitored at Beaverlodge water sampling stations.

Sections 4.2.1 and **4.2.2** provide the water quality results and trends at the water quality stations located within each watershed. **Section 4.2.3** provides the water quality results and trends at the water quality locations in Beaverlodge Lake and downstream. Trends are identified through visual interpretation of the graphs and include the short-term (less than five years) and long-term trends.

The detailed water quality results for the current reporting period, January 2023 to December 2023, are provided in **Appendix E.**

4.2.1 Ace Creek Watershed

During operations several satellite mines operated within the Ace Creek watershed. Water quality is monitored at stations within the Ace Creek watershed as part of the Beaverlodge Environmental Monitoring Program (EMP). The results of the 2020 Beaverlodge ERA show that immediate and downstream environments associated with the Ace Creek watershed will continue to naturally recover over time. The water quality predictions for the various waterbodies within the Ace Creek watershed are based on aquatic and sediment studies and 40 years of water quality monitoring.

AN-5 Pistol Lake

Station AN-5 is located in Pistol Creek downstream of the decommissioned Hab satellite mine (Figure 4.2). Pistol Lake is a small non-fish bearing waterbody which typically exhibits higher variability in measured data than other areas within the Ace Creek Watershed. Due to the small size and depth of Pistol Lake, and the hydraulic connection between the flooded Hab underground workings and the surface water, measured data exhibits high variability correlated to seasonality and fluctuations in annual precipitation rates. All four scheduled samples were collected at AN-5 in 2023. The March sample was collected in April due to high snowpack preventing access to the sample location.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at AN-5 along with the predicted recovery are presented in **Figures 4.2.1-1** to **4.2.1-4**. The annual averages from 2019 to 2023 for the COPC are presented in **Table 4.2.1-1**.

The annual average U concentration was 157.0 µg/l, which is an increase relative to 2022. As discussed in previous annual reports, U concentrations have shown a distinct seasonal fluctuation, with the highest concentrations occurring in the winter months, which decrease throughout the spring and summer months, followed by an increase again in fall. Uranium concentrations measured throughout the year ranged from 80.0 µg/L to 277.0 µg/L. Overall, the long-term trend for U at AN-5 has shown a decrease in annual average concentrations post-decommissioning (**Figure 4.2.1-1**). The annual average U concentration is above the SEQG (15 µg/L) but within modelled predictions.

The long-term trend for Ra-226 at AN-5 is predicted to remain relatively constant into the future, however seasonal fluctuations have occurred in the past and can influence annual average results. As shown in **Appendix E**, results in 2023 were consistent with previous results and ranged between 0.39 Bq/L and 0.68 Bq/L. The annual average Ra-226 concentration in 2023 at AN-5 was 0.58 Bq/L. This is above the SEQG (0.11 Bq/L) but is within modelled predictions.

Selenium values at AN-5 remained at or below detection limits throughout 2023 and remain below the SEQG of (0.002 mg/L).

TDS concentrations exhibit a seasonal fluctuation that affects the annual average. This is because of the contribution of U to overall TDS concentrations.

DB-6 Dubyna Lake

Station DB-6 is located in Dubyna Creek, downstream of Dubyna Lake and the decommissioned Dubyna satellite mine, before the creek enters Ace Creek, and upstream of Ace Lake (**Figure 4.2**). All four scheduled samples at DB-6 were collected in 2023. The March sample was collected in April due to high snowpack preventing access to the sample location.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at DB-6 along with the predicted recovery are presented in **Figures 4.2.1-5** to **4.2.1-8**. The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.1-2**.

The average U concentrations at DB-6 in 2023 was 86.3 µg/L and is within modelled predictions.

The long-term trend for Ra-226 at DB-6 has been relatively consistent and has remained below the SEQG since decommissioning. Values remain within modelled predictions.

Selenium has remained relatively stable over the past decade. The water quality trend for Se has also remained below the SEQG since the analytical laboratory detection limit for Se was lowered in 2003, and is within modelled predictions.

The TDS trend has been relatively consistent since decommissioning, and no notable changes were observed in 2023.

AC-6A Verna Lake

Water quality monitoring at this station began in May 2010, and is located at a road crossing between Verna Lake and Ace Lake (**Figure 4.2**). Flows from Verna Lake are largely dependent on spring snow melt and precipitation events, and as such, not all scheduled samples can be collected during low precipitation years. This station is downstream of the Zora Creek Reconstruction project and as such continued recovery is expected following project completion in 2016. Water quality from this area is monitored as part of the Beaverlodge EMP, scheduled for March and June each year. In addition, a project specific monitoring program is in place to evaluate the success of implementing the Zora Creek Reconstruction project. The project specific monitoring program builds on the EMP so that water samples are scheduled monthly from March to October.

In 2023, samples were only able to be collected in May and June at AC-6A. There was no flow from the outlet of Verna Lake during the other months in 2023. Additional information regarding the recovery of Verna Lake following the Zora Creek reconstruction project is discussed in **Section 4.3.1**.

A historical summary of annual average Ra-226, U, Se and TDS concentrations at AC-6A along with the predicted recovery are presented in **Figures 4.2.1-9** to **4.2.1-12.** The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.1-3**.

The average U concentration at AC-6A in 2023 was 252 µg/L. This is above the SEQG and the modelled predictions. Increased levels are due to the relatively low flow through the watershed, once flow returns to normal levels, it is expected that U concentrations will fall back into their modelled predictions. Moreso, the increased U concentrations at AC-6A are not having a measurable impact at AC-8, which continues to meet SEQG.

The annual average Ra-226 concentration at AC-6A in 2023 was 0.085 Bq/L. This is within modelled predictions and below the SEQG.

Se concentrations at station AC-6A observed no changes throughout 2023 and the annual average concentration was 0.0002 mg/l. Se continues to measure below the SEQG and is within modelled predictions.

TDS concentrations ranged from 178 mg/L to 188 mg/L in 2023 with an average of 183.0 mg/l.

AC-8 Ace Lake

Station AC-8 is located at the outlet of Ace Lake into Lower Ace Creek. Ace Lake is downstream of stations DB-6, AN-5, and AC-6A (**Figure 4.2**). Sample collection is scheduled once per year at AC-8 as part of the approved Beaverlodge EMP. As such, results discussed within the below text are of a single sample collected in 2023.

A historical summary of Ra-226, U, Se, and TDS concentrations at AC-8 along with the predicted recovery are presented in **Figures 4.2.1-13** to **4.2.1-16**. The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.1-4**.

The U concentration recorded at AC-8 in 2023 was 8.1 µg/l. This is below the SEQG and below modelled predictions. Overall, U at AC-8 has been trending downward since decommissioning and has been consistently meeting SEQG since 2012.

The Ra-226 concentration recorded at AC-8 in 2023 was 0.010 Bq/L. This is below the SEQG and within modelled predictions. The Se concentration recorded at AC-8 in 2023 was <0.0001 mg/l which is the lab detection limit and below the SEQG.

The TDS concentration recorded in 2023 was 79.0 mg/l. TDS concentrations have remained relatively stable at this station since decommissioning.

AC-14 Lower Ace Creek

Station AC-14 is located in Lower Ace Creek at the outlet into Beaverlodge Lake (**Figure 4.2**). All four scheduled samples were collected; however, the December sample was delayed until January 2024 due to unsafe ice conditions on Beaverlodge Lake preventing access to the sample location in December. The discussion and average calculations that follow, regarding 2023 water quality results, includes the water sample collected in January 2024.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at AC-14 along with the predicted recovery are presented in **Figures 4.2.1-17** to **4.2.1-20.** The annual averages from 2019 to 2023 (scheduled) for all parameters are presented in **Table 4.2.1-5**.

Uranium concentrations at station AC-14 have been generally following an overall downward trend since decommissioning. Annual average U levels are currently above SEQG, however they are predicted to continue to improve in the future. In 2023, the average U concentrations at AC-14 was 36.0 µg/L which is an increase relative to 2022 (28 µg/L). In 2020 and 2021, increased flows were observed resulting in U values to be at the lower bound of their predictions and lowest seen since decommissioning. Due to lower flows observed in the region in 2022 and 2023, an increase in U concentration was anticipated. Uranium concentrations in 2023 are similar to values seen before 2020 when similar flows were observed and are within modelled predictions.

The annual average Ra-226 concentration recorded in 2023 was 0.060 Bq/L. Annual average Ra-226 concentrations have been in a downward trend since decommissioning. Radium is slightly above the modelled predictions; however, it has remained below the SEQG since 1990.

The annual average Se concentration recorded in 2023 was 0.0002 mg/l. This is below the SEQG and within modelled trends. Selenium concentrations have been below the SEQG since the inception of sampling at this station. In 2003, a laboratory detection limit change from 0.0010 mg/l to 0.0001 mg/l occurred, which is why values before 2003 appear much greater as opposed to what is observed to date.

TDS concentrations have remained relatively stable at this station since decommissioning, except for one outlier in 1991.

4.2.2 Fulton Creek Watershed

As previously discussed, surface water quality guidelines are not intended to be applied within tailings management areas, and thus they are not compared to water quality at stations TL-3, TL-4, TL-6, or TL-7. No predictions are provided for station AN-3 as this station is considered a reference area, un-impacted by historic mining activities.

The water quality predictions for the Tailings Management Area (TMA) are based on sediment studies and more than 40 years of water quality monitoring. The results of the 2020 ERA show that immediate and downstream environments will continue to naturally recover over time. Radium is anticipated to be steady or slightly increase in the Fulton Creek watershed until approximately 2150 and then decline gradually.

It is important to note that the predicted Ra-226 trends in the TMA do not result in a predicted increase of Ra-226 concentrations in Beaverlodge Lake, located immediately downstream of the TMA. As a result, Cameco does not anticipate that Ra-226 concentrations in the TMA will pose any risk to the natural recovery of the TMA and downstream environment in the future.

AN-3 Fulton Lake

Station AN-3 is located at the outflow of Fulton Lake prior to Fookes Reservoir and was not impacted by mining/milling activities in the area (**Figure 4.2**). Water quality at this station is typical of background water quality in the region. Since 1986, sampling has been conducted on an annual basis. The one scheduled sample for AN-3 was collected in 2023.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at AN-3 are presented in **Figures 4.2.2-1** to **4.2.2-4**. The concentrations from 2019 to 2023 for all parameters are presented in **Table 4.2.2-1**.

As expected with a reference location, the long-term trend for concentrations of U, Ra-226, recorded at AN-3 have remained relatively stable and below their respective SEQG concentrations. TDS concentrations have remained stable, and since Se monitoring began, concentrations at AN-3 have been at or below the detectable laboratory limits.

TL-3 Fookes Reservoir

Station TL-3 is located at the outlet of Fookes Reservoir, which received the majority of tailings during operation, and is the first sampling location within the recovering TMA (**Figure 4.2**). The two scheduled samples for TL-3 were collected in 2023.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at TL-3 along with the predicted recovery as outlined in the 2020 ERA, are presented in **Figures 4.2.2-5** to **4.2.2-10**. The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.2-2**.

Overall, the long-term trend for the mean concentration of U has shown a decrease since 1991. The average U concentration measured in 2023 was 191.0 µg/L, which is within the bounds of the modelled predictions.

The average annual Ra-226 concentration recorded in 2023 was 1.7 Bq/L. This is above the modelled predictions for Ra-226 at this station. It is suspected that the relatively low flows observed over the past two years, following a period of high flow have contributed to the measured results being above the modelled predictions. It is anticipated that once a more stable flow regime returns that Ra-226 concentrations will be within the expected upper bound. The downstream station TL-4 continues to be within the modelled bounds. The comparison between measured data and the performance indicator is conducted to evaluate observed surface water trends, as "based on the employed model assumptions, it is not the expectation that water quality results will be within the derived bounds every year rather that trends in surface water quality will fall within the derived bounds". Thus, it is not expected that every measured annual average will fall within the performance indicator bounds but that the performance indicator should be used to evaluate observed long-term trends (ERA 2020). The trend at TL-3 will continue to be monitored.

Selenium concentrations have been gradually decreasing since decommissioning. In 2023, the average Se concentration was 0.0026 mg/L, and continues to remain below the lower bounds of the modelled predictions at TL-3.

TDS concentrations continue to gradually decrease in the long-term.

TL-4 Marie Reservoir

Station TL-4 is located within the Fulton Creek drainage downstream of TL-3 and at the outlet of Marie Reservoir (**Figure 4.2**). The two scheduled TL-4 samples were collected in 2023.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at TL-4 along with the predicted recovery are presented in **Figures 4.2.2-11** to **4.2.2-16**. The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.2-3**.

Annual average concentration of U in 2023 was 175.0 µg/L and is within the model prediction.

The Ra-226concentration was 1.9 Bq/L. The increase in the Ra-226 measured over the last two years at TL-4 is likely attributable to the low flows and increased concentration measured at TL-3 over that same period, however Ra-226 remains within the modelled predictions at TL-4.

The annual average Se concentration recorded in 2023 was 0.0014 mg/l, which is slightly below the modelled predictions. Se concentrations have been in a long-term downward trend since decommissioning.

Annual average concentrations of TDS at TL-4 remain on an overall downward trend. The annual average concentration in 2023 was 182.0 mg/L.

TL-6 Minewater Reservoir

Station TL-6 is located at the outlet of Minewater Reservoir (**Figure 4.2**), which was used temporarily for tailings deposition in 1953, then as a settling pond for treated mine water during the last 10 years of Beaverlodge operations. During decommissioning activities, the water level in Minewater Reservoir was lowered and efforts were made to relocate settled precipitate sludge to the underground workings. Although a large volume of precipitate was relocated, these efforts were not successful in removing all sludge, which is reflected by the water quality and the variability of the results observed to date.

This water quality station represents the outflow of a small drainage area and generally exhibits ephemeral flows dependent on local precipitation. As a result, not all scheduled samples are typically collected. Of the two scheduled samples, one was collected in 2023 as no water was flowing during the other scheduled sample period.

The QSM showed that the contributions of loads from the Minewater Reservoir influencing the downstream Meadow Fen area are quite small, estimated at no more than 10%. As such, 2020 ERA model predictions were not generated for TL-6 (*CanNorth 2020*). Contributions from this station are incorporated in the model predictions at the downstream station (TL-7).

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at TL-6 is presented in **Figures 4.2.2-17** to **4.2.2-20**. The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.2-4**. Note, the 2022 average is absent from the tables and figures as no water was available for collection at TL-6 in 2022.

TL-7 Meadow Fen

Station TL-7 is located at the outlet of Meadow Fen (**Figure 4.2**) in the TMA. The four scheduled samples for the 2023 reporting period were collected. The scheduled March sample was collected in May 2023 as no water was available in March or April.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at TL-7 along with the predicted recovery are presented in **Figures 4.2.2-21** to **4.2.2-26**. The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.2-5**.

The annual average U concentration recorded at TL-7 in 2023 was 172.0 µg/L. Uranium concentrations have been in a long-term downward trend since decommissioning with values observed in recent years being significantly lower than those observed 40 years ago. The U concentrations at TL-7 are within modelled predictions.

The average Ra-226 concentration in 2023 was 1.9 Bq/L, which is slightly below the performance indicator derived from the ERA predictions. The 2020 ERA predicted that mean annual Ra-226 concentrations in the Fulton Creek watershed would continue to increase due to the release of historically precipitated Ra-226 from sediment, gradually declining in the future as the system continues to recover. The comparison between measured data and the performance indicator is conducted to evaluate observed surface water trends, as "based on the employed model assumptions, it is not the expectation that water quality results will be within the derived bounds every year rather that trends in surface water quality will fall within the derived bounds". Thus, it is not expected that every measured annual average will fall within the performance indicator bounds but that the performance indicator should be used to evaluate observed long-term trends (ERA 2020). This observed and predicted trend increase is due to submerged tailings in the watershed, increased solubility for the barium, Ra-226 sulfate co-precipitate as sulfate concentrations in the porewater and water column decline and increased solubility of calcium which is bound to Ra-226 in the sediments (ERA 2020).

The annual average Se concentration at TL-7 recorded in 2023 was 0.0014 mg/l. Se concentrations have been in a downward trend since decommissioning. The annual average Se concentration was below the modelled predictions and continues to remain on the expected downward trend.

The average annual TDS concentration recorded at TL-7 in 2023 was 191.0 mg/l, which is slightly higher compared to the 2022 average of 179 mg/l. TDS concentrations have been in a long-term downward trend since decommissioning with values observed in recent years being significantly lower than those observed 40 years ago.

TL-9 Greer Lake

Station TL-9 is located downstream of Greer Lake immediately before the water enters Beaverlodge Lake (**Figure 4.2)**. Sampling at this station began in 1981 and continued until 1985 at which time it was discontinued. Sampling resumed in 1990 in order to re-assess the water quality entering Beaverlodge Lake. All four scheduled samples were collected; however, the December sample was delayed until January 2024 due to unsafe ice conditions on Beaverlodge Lake preventing access to the sample location in December. The average calculations and discussion below, regarding 2023 water quality results, includes the water sample collected in January 2024.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at TL-9 along with the predicted recovery are presented in **Figures 4.2.2-27** to **4.2.2-32**. The annual averages from 2019 to 2023 for all parameters can be found in **Table 4.2.2-6**.

The annual average U concentration at TL-9 in 2023 was 126.5 µg/L which is a decrease from the 2022 average of 170 µg/L. Uranium at TL-9 has been in a downward trend since decommissioning and continues to be within modelled predictions.

The annual Ra-226 average was in 2023 was 2.0 Bq/L. Radium concentrations are in an upward trend at TL-9, as expected, but remain within modelled predictions.

The Se annual average at TL-9 in 2023 was 0.0021 mg/l and is within modelled predictions.

The TDS concentrations at TL-9 have been in a downward trend since decommissioning.

4.2.3 Downstream Monitoring Stations

While Beaverlodge Lake is the receiving environment for water from the decommissioned Beaverlodge properties, it is also the receiving environment for other, non-Eldorado, former uranium mine sites and one former uranium mill tailings area (Lorado Uranium Mining Ltd. Mill site) within the Beaverlodge Lake watershed. The results of the 2020 ERA show that downstream environments will continue to naturally recover over time. Model predictions to assess natural recovery of Beaverlodge Lake have been applied to Station BL-5, collected at the outlet of Beaverlodge Lake.

Predicted increases in Ra-226concentrations in the TMA are not expected to substantially change concentrations within Beaverlodge Lake due to the size of Beaverlodge Lake and the lake's ability to buffer those predicted increases in Ra-226 from the TMA.

BL-3 Fulton Bay

Station BL-3 is located in Fulton Bay of Beaverlodge Lake, approximately 100 metres from the Fulton Creek outlet (**Figure 4.2**). Sampling at this station was originally carried out during the operational mining and milling phase in order to monitor the near-field impacts of the operations on Beaverlodge Lake, however monitoring appears to have stopped following the shutdown of the mine/mill.

Sampling at this location re-commenced during the 1998-1999 reporting period and has continued since that time. Both scheduled samples were collected; however, the December sample was delayed until January 2024 due to unsafe ice conditions on Beaverlodge Lake preventing access to the sample location in December. The discussion and average calculations that follow, regarding 2023 water quality results, includes the water sample collected in January 2024.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at BL-3 are presented in **Figures 4.2.3-1** to **4.2.3-4**. The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.3-1**.

Uranium concentrations overall have been trending downward since sampling resumed post-decommissioning. The annual average U concentration recorded in 2023 was 114.0 µg/l. This is above the SEQG however is within historical trends and modelled predictions.

Selenium concentrations at BL-3 have overall been trending downward since sampling resumed post-decommissioning. The annual average Se concentration recorded in 2023 was 0.0019 mg/L, and is below the SEQG, remains within historical trends and is below modelled predictions.

Radium activity does not exhibit a clear trend however, all measured activity continues to remain below the SEQG.

The TDS annual average was 136.0 mg/l and remains on the relatively stable, long-term trend observed at this station.

BL-4 Beaverlodge Lake Centre

Station BL-4 is located in the approximate center of the north end of Beaverlodge Lake **(Figure 4.2**). The one scheduled 3-depth composite sample was collected in June 2023.

A historical summary of annual average Ra-226, U, TDS, and Se concentrations at BL-4 are presented in **Figures 4.2.3-5** to **4.2.3-8**. The annual averages from 2019 to 2023 are presented in **Table 4.2.3-2**.

The long-term trend for U at BL-4 has been an overall decrease since decommissioning. The U concentration recorded at BL-4 in 2023 was 107.0 µg/L. This is above the SEQG, however is within the historical trends and modelled predictions.

The Ra-226 concentration recorded in 2023 was 0.02 Bq/L and remains well below the SEQG. The annual average has ranged between 0.02 Bq/L and 0.04 Bq/L consistently since 2003.

The Se concentration recorded in 2023 was 0.0019 mg/l. The Se concentrations have been in a downward trend since 2008 at BL-4. The selenium concentration is below the SEQG and remains within the modelled predictions.

The TDS concentration was recorded at 137.0 mg/l and remains on the relatively stable, long-term trend observed at this station.

BL-5 Beaverlodge Lake Outlet

Station BL-5 is located at the outlet of Beaverlodge Lake and is a measure of the water quality leaving Beaverlodge Lake (**Figure 4.2**). The one scheduled sample was collected in June 2023.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at BL-5 along with the predicted recovery are presented in **Figures 4.2.3-9** to **4.2.3-12**. The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.2.3-3**.

The U concentration recorded in 2023 was 105.0 µg/l. This is above the SEQG but continues to follow the long-term downward trend and is within the modeled predictions.

The Se concentration recorded in 2023 was 0.018 mg/l. This is below the SEQG and within the modeled predictions.

The Ra-226 concentration recorded in 2023 was 0.02 Bq/L which is below the SEQG and slightly below the modeled predictions.

The TDS concentration recorded in 2023 was 134.0 mg/l. TDS concentrations continue to remain on the stable long-term trend observed at BL-5.

ML-1 Martin Lake

Station ML-1 is located at the outlet of Martin Lake (**Figure 4.2**). The two scheduled samples were collected; however, the December sample was delayed until January 2024 due to unsafe ice conditions on Martin Lake preventing access to the sample location in December. The discussion and average calculations that follow, regarding 2023 water quality results, includes the water sample collected in January 2024.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at ML-1 are presented in **Figures 4.2.3-13** to **4.2.3-16**. The annual averages from 2019 to 2023 for all parameters is presented in **Table 4.2.3-4**.

The average U concentration in 2023 was 62.5 µg/L. This is above the SEQG but is within the historic range and below modelled predictions.

The average Ra-226 concentration in 2023 was 0.0055 Bq/L. Radium remains on a relatively stable long-term trend and well below the SEQG.

The average Se concentration in 2023 was 0.001 mg/l. Se concentrations have remained relatively stable with concentrations below the SEQG.

The average TDS concentration in 2023 was 122.0 mg/l. TDS remains on the relatively stable long-term trend observed at this station.

CS-1 Crackingstone River

Station CS-1 is located near the bridge in Crackingstone River approximately half way between the outlet of Martin Lake and an inlet of Lake Athabasca (**Figure 4.2**). The one scheduled sample was collected in June 2023.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at CS-1 are presented in **Figures 4.2.3-17** to **4.2.3-20**. The annual averages from 2019 to 2023 for all parameters is presented in **Table 4.2.3-5**.

The U concentration recorded at CS-1 was 46.0 µg/L in 2023. The U concentration observed at CS-1 in 2023 is above the SEQG (15 µg/l) but is within the range of values previously observed at this station.

The Ra-226 concentration recorded at CS-1 in 2023 was 0.01 Bq/L. Radium at CS-1 remains below the SEQG (0.11 Bq/L) and on the relatively stable trend observed historically at this station.

The Se concentration recorded at CS-1 in 2023 was 0.0007 mg/L, is below the SEQG and remains on a relatively stable historical trend.

The TDS concentration recorded at CS-1 in 2023 was 112.0 mg/l. TDS concentrations remain on the relatively stable trend observed at this station.

CS-2 Crackingstone Bay

Station CS-2 is located in Crackingstone Bay on Lake Athabasca (**Figure 4.2**), approximately 1 km from the mouth of the Crackingstone River. The one scheduled sample was collected in June 2023.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at CS-2 are presented in **Figures 4.2.3-21** to **4.2.3-24**. The annual averages from 2019 to 2023 for all parameters is presented in **Table 4.2.3-6**.

The recorded U concentration at CS-2 in June 2023 was 17.0 µg/l. This is above the SEQG and remains elevated compared to historical values. However, it is a significant decrease relative to the value measured in 2022 (41.0 µg/l) when water levels in Lake Athabasca were at historical highs. The elevated water levels in Lake Athabasca appeared to be influencing the mixing regime in Crackingstone Bay, thereby limiting dispersion of the water flowing from the Crackingstone River. The water levels in Lake Athabasca are returning to more normal levels and we have seen U concentrations in Crackingstone Bay begin to improve.

In August 2022, Cameco performed an investigation in Crackingstone Bay to understand the spatial extent of the increased U concentrations. As U concentrations have not yet fully returned to historic levels Cameco duplicated the study in August 2023 to allow comparison to the 2022 data. Uranium concentrations have generally decreased since 2022 which suggests a return to the normal mixing regime in Lake Athabasca is occurring. It is expected once water have stabilized in Lake Athabasca, U concentrations at CS-2 will meet SEQG. For more information regarding the investigations completed in Crackingstone Bay please see **Section 4.3.3** Crackingstone Bay Investigation.

Both Se and Ra-226 concentrations recorded at CS-2 were below their respective SEQG values. Selenium, Ra-226 and TDS concentration have decreased relative to 2022 and are near historical normal levels.

4.3 Additional Water Quality Sampling

4.3.1 ZOR-01 and ZOR-02

The Beaverlodge Path Forward Report (*Cameco 2012*) describes the activities required to prepare the Beaverlodge properties for transfer to the IC Program. One of the potential remedial measures identified in the 2012 Path Forward Report was the flow path reconstruction of the Zora Lake outflow. This project was initiated in 2014 and completed in 2016. It involved relocating a portion of the Bolger waste rock pile that was placed in the valley separating Zora Lake from Verna Lake during mining operations. This project re-established the flow in Zora Creek which reduces the contact time between the remaining Bolger waste rock pile and the water flowing from Zora Creek into Verna Lake (**Figure 4.3**).

With the project plan to re-establish the Zora Creek flow path, monthly sampling to monitor water quality was implemented in August 2013 at the outlet from Zora Lake outflow (ZOR-01) and the outlet from the waste rock pile, which flowed into Verna Lake (ZOR-02). The ZOR-01 station represents the baseline for comparing water quality to ZOR-02, as ZOR-01 is upstream of the stream reconstruction.

In 2023, seven samples were collected at each station from April to October. No sampling occurred in March at ZOR-01 or ZOR-02 as snowpack prevented access to the area.

A historical summary of annual average Ra-226, U, Se, and TDS concentrations at ZOR-01 and ZOR-02 are presented in **Figures 4.3-1** to **4.3-8.** The annual averages from 2019 to 2023 for all parameters are presented in **Table 4.3.1-1** and **Table 4.3.1-2**.

Sampling completed at ZOR-02 prior to 2015 represents water quality as it flowed through the Bolger waste rock pile prior to entering Verna Lake. Sampling completed during 2015 at this station represents construction activities during relocation of the waste rock, and samples post-2016 represent water flowing through the newly created flow path.

Since sampling started in 2013, Ra-226, Se, and TDS concentrations at ZOR-01 have remained relatively constant. Radium and Se have both remained below their respective SEQG values. U concentrations have been below the SEQG for the past three years.

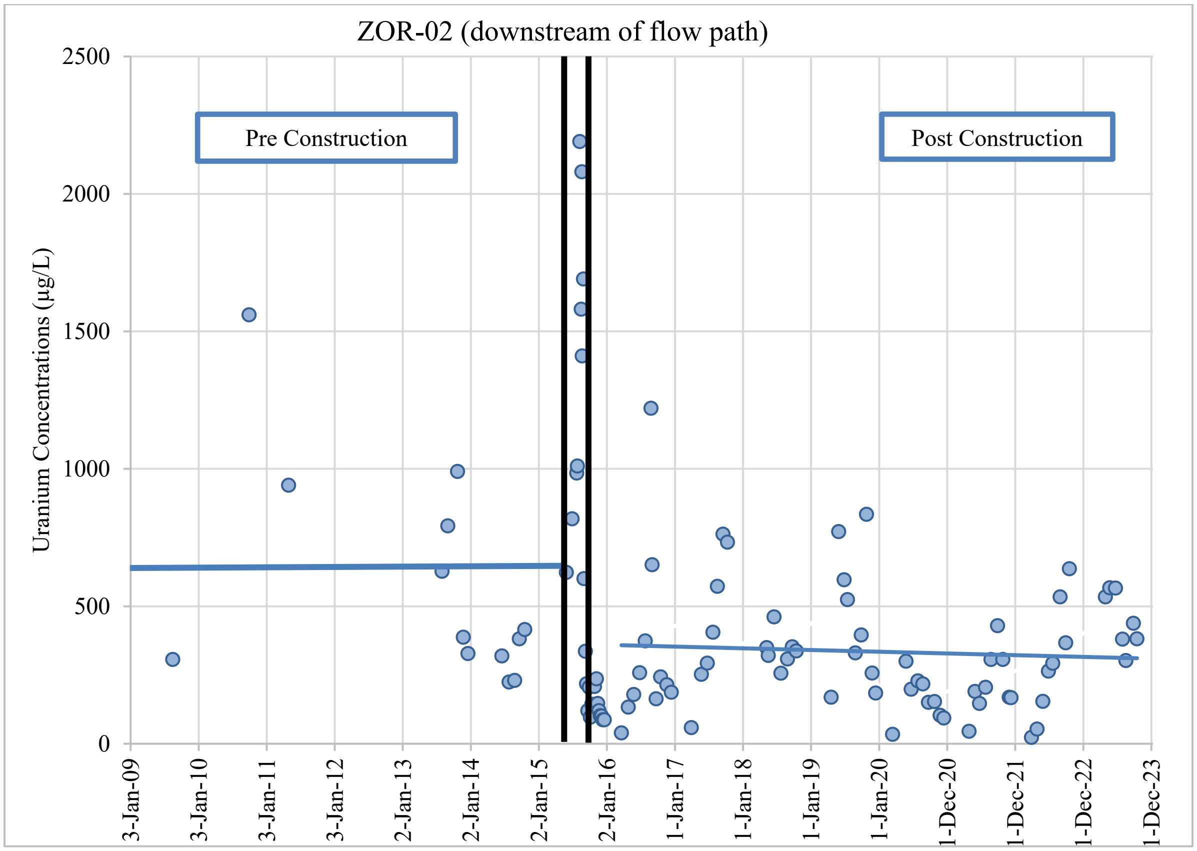
Selenium and TDS concentrations at ZOR-02 have also remained relatively stable, with Se remaining below the SEQG value.

The annual average U concentration at ZOR-02 was 453.0 µg/l which is an increase from the average concentration in 2022. This station exhibits some variability in average U concentration based on local precipitation as it is limited to a relatively small watershed. In 2023, little flow was observed in Zora Creek during inspections conducted by Cameco in May and September resulting in elevated U concentrations in 2023, due to increased contact time with waste rock in the constructed channel. Uranium concentrations at ZOR-02 also experience a seasonal trend where U concentrations are higher in the late summer and fall compared to those observed in the spring and early summer. This trend contributes to the increased averages observed at the station in 2023 as early spring samples were not able to be collected, likely artificially increasing the annual average value. Uranium concentrations at ZOR-02 ranged between 302 µg/l to 567 µg/l in 2023, as shown in **figures 4.3-5 and 4.3-9.** Although the average U values are higher than previous years the water quality has still shown improvement since the stream reconstruction project was completed and is following a downward trend.

The Ra-226 annual average at ZOR-02 was 0.23 Bq/L which is an increase relative to 2022. Radium is above the SEQG (0.11 Bq/L) however it remains on an overall downward trend since monitoring began.

Figure 4.3-9 shows the results of water sample data collected at ZOR-02 through the various phases of pre-construction, construction and post construction. Also provided are general trend lines showing the relative improvement in water quality post-construction. The Pre-Construction trend line is the overall average U concentration for that period, while the Post-Construction (starting in 2016) is a linear trend line created using the annual U concentration averages.

Figure 4.3-9 - ZOR-02 Uranium Concentrations Pre and Post Construction



The fluctuations in U concentrations observed through construction and following construction are reflected in the concentration of U measured at the outlet of Verna Lake (AC-6A) which increased, as expected, immediately following construction but has seen improvement in subsequent years. Uranium concentrations measured at the monitoring station AC-8 located in Ace Lake (immediately downstream) have remained below the SEQG since 2012. A summary of annual mean U and Ra-226 data from 2010 to 2023 at ZOR-02, AC-6A, and AC-8 is presented in **Table 4.3.1-3**. As AC-6A flows into Ace Lake, data from the outlet of Ace Lake (AC-8) is presented for context, as the downstream water quality monitoring station meets SEQG.

Monitoring data reflects the expected results following the remedial work and are expected to gradually improve in the future.

4.3.2 Compliance Water Sample

In 2023, regulatory agencies did not collect or request additional duplicate samples during the inspection. Duplicate samples were taken in accordance with the Beaverlodge EMP and these results are outlined in the QA/QC section.

4.3.3 Crackingstone Bay Investigation

For the past four years, U levels have been elevated relative to the stable trend previously observed at CS-2. An investigation was originally conducted in August 2022 and then again in August 2023 to understand the spatial extent of the elevated U concentrations at CS-2. Samples were collected at five locations on a linear transect starting at CS-2 and moving south towards Lake Athabasca at 250 m intervals out to 1000 m (stations CS-3, CS-4, CS-5, and CS-6). **Figure 4.3.10** provides the sample locations and geographic coordinates used to conduct the investigation.

Water samples collected in June were influenced by elevated flows during freshet, and with the mixing zone being affected over the previous years, by the high-water levels in Lake Athabasca, U concentrations were elevated.

Samples collected in August 2022 showed a lower U concentration at CS-2 than was observed in June of the same year, and there was a subsequent decrease at stations beyond CS-2. The concentrations recorded from CS-2 to CS-6 were 15 µg/l, 5.2 µg/l, 3.1 µg/l, 3.2 µg/l and 3.1 µg/l, respectively. All these values are at or below the SEQG (15 µg/l).

In August 2023, the same investigation was conducted at CS-2 and stations extending to CS-6, to compare to the study completed in August 2022. Of note is that U concentrations in 2023 were generally lower than measured in 2022 and met SEQG at every station monitored. The concentrations from CS-2 to CS-6 for 2023 were 5.9 µg/l, 6.1 µg/l, 5.2 µg/l, 4.6 µg/l, and 1.9 µg/l, respectively. These results may represent a return to a more normal mixing zone regime in Crackingstone Bay. It is expected that once Lake Athabasca returns to normal (or average) lake levels that the water quality will continue to improve.

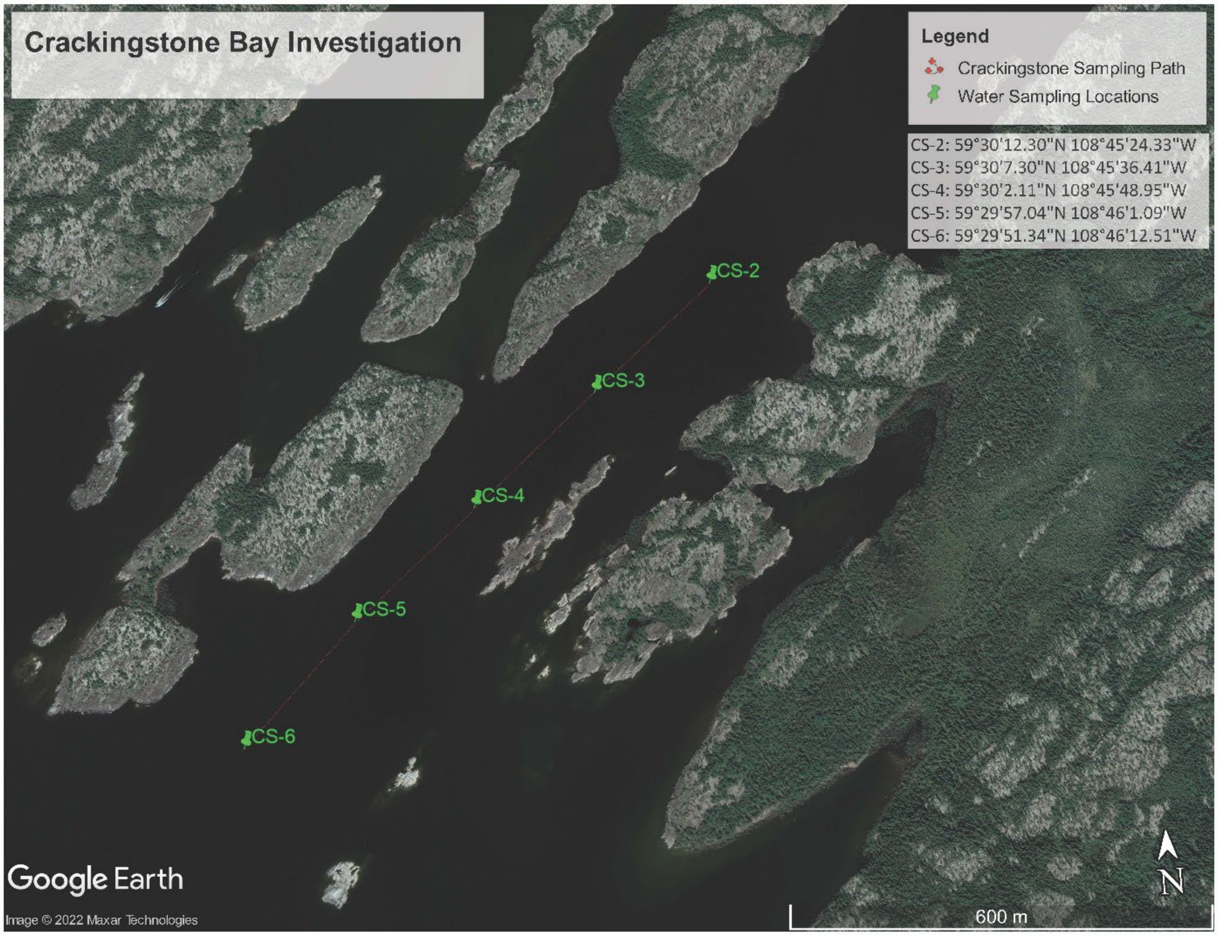


Figure 4.3.10 – Crackingstone Bay sample locations

4.4 QA/QC Analysis

As outlined in the Beaverlodge EMP, Cameco's QA/QC program involves the collection of field and trip blank, blind, and duplicate samples in order to assure that field sampling and laboratory analyses produce reliable and accurate results.

Field blanks are used to identify possible contamination arising from equipment, preservatives, sampling techniques, sample handling, and the general ambient conditions during sampling. Field blanks are collected by obtaining analyte-free water from the laboratory, transporting the water into the field, and taking it through all sample collection, handling and processing steps that the primary samples undergo. Field blanks are transported, stored and analyzed in the same manner as primary samples. Field blanks are compared to the trip blank to establish if contamination has occurred as a result of the field collection of samples.

Trip blanks are used to determine if any potential contamination is being introduced through transport, storage, sample bottles, preservatives or analysis. Samples of analyte-free water are sent from the laboratory to the field and then back to the laboratory along with primary samples. The trip blank sample seal remains unbroken in the field.

Blind replicate samples involve the collection of two homogenous samples of water from a single sampling location. The water samples are sent to the same analytical laboratory to test the lab's ability to duplicate results through their analytical methods. The blind samples are labelled differently, as a result the identity of the field blind replicate sample is known only to the submitter and not to the analyst. Blind samples test the labs ability to provide consistent results. In the Beaverlodge EMP, blind samples are conducted in September and December.

Duplicate samples involve collection of two homogeneous samples of water from a single sample location that are sent for analysis to two different labs to determine if the labs analyzing the samples obtain similar results. In the Beaverlodge EMP, duplicate samples are sent out in June to SRC and BV Labs.

In a case where results from the regular monitoring and results from the blind sample vary, SRC would be contacted to determine the source of inconsistency in the results. If there were discrepancies in the blank or duplicate laboratory results, it would be at the discretion of the lead, reclamation specialist, Beaverlodge to investigate the discrepancy and determine if corrective action is warranted.

Results with an absolute difference greater than 50% are subject to further investigation. If either value is greater than five times the entered detection limit and are outside their associated range of entered uncertainty (= Value +/- Entered Uncertainty) then samples are considered noncompliant and additional investigation is required.

Blank Samples

Station DB-6 trip and laboratory blank samples were prepared, collected, and analyzed in September 2023. When results from DB-6 TB (trip blank) and DB-6 FB (field blank) were compared, there were no absolute differences above 50% recorded (**Appendix F**). DB-6 trip blank and field blank in 2023 showed that there was no external contamination introduced in the sampling process.

Blind Replicate Samples (Split samples)

A blind replicate sample was collected in September 2023 at station TL-7 (Blind-6). When results from Blind-6 were compared with the sample results for TL-7, five parameters were recorded that were equal to or exceeded an absolute difference of 50%, these parameters included arsenic, iron, lead, total suspended solids (TSS) and zinc. For lead, TSS and zinc, the measured or calculated values were less than or equal to five times the detection limit, therefore were within acceptable uncertainty. Arsenic and iron were five times over the detection limit but within the range of analytical uncertainty. SRC reanalyzed for metals at

TL-7 and TSS at Blind-6 independently of being requested and reanalysis confirmed the original reported results are within expected measurement of uncertainty when compared to reanalyzed results. A second blind replicate sample was collected in January 2024 at AC-14 (Blind-1). The blind replicate sample was originally scheduled to be sampled in December 2023, however, due to unsafe ice conditions, the sample collection was rescheduled to January 2024. When results from AC-14 were compared to Blind-1, there were no absolute differences above 50% recorded.

Duplicate Samples (Side by side samples)

Duplicate samples at station TL-4 were collected in June 2023. Results from June indicated that iron and zinc were found to have absolute differences greater than 50%. Iron and zinc had an absolute difference of 58%, and 143%, respectively. However, no discrepancies were found due to differing detection limits between SRC and BV Labs. Iron was recorded at detection limit 0.0005 mg/l by the SRC, whereas BV Labs recorded a detection limit as 0.006 mg/l for iron. For zinc, SRC recorded the detection limit at 0.0005 mg/l, whereas BV Labs recorded the detection limit as 0.003 mg/l. Measurements were within five times the detection limit, so the discrepancy did not require retesting from the labs.

4.5 Air Quality

This section presents a summary of the results of historic and on-going radon (Rn-222) monitoring at five separate locations in and around the decommissioned mill site and at Uranium City (**Figure 4.5.1-1**).

4.5.1 Ambient Radon Monitoring

As part of the transitional phase monitoring program, Rn-222 levels have been monitored on and around the decommissioned Beaverlodge properties and at other locations in the region since 1985. In 2021, Cameco utilized the RadTrak2 model, supplied by Radonova, to monitor radon in the Uranium City area. In 2022, Cameco switched to the alpha track detector model which is supplied and analyzed by SRC. This change to a local supplier was a corrective action implemented because of the loss of samples in transit during 2020 to the Radonova lab, which was discussed in the 2021 annual report.

During the collection of the Track Etch Cups (TEC) in December 2023, the trees where the Ace Creek TEC and Fookes Delta TEC were mounted had fallen, with the Fookes Delta TEC found buried in snow. New TECs have been installed on different trees in close proximity to the old sampling location. It is unclear how long the trees were fallen over for; however, it is expected that the Fookes Delta track etch cup was not covered for long due to sampling occurring in early December and lower than normal snowpack in October to November 2023. Despite the fallen tree, Rn-222 results are within values seen previously at each station in previous samples collected in December. The annual average of Rn-222 for Ace Creek and Fookes Delta is 290 Bq/m^3 and 150 Bq/m^3, respectively in 2023. This has increased compared to 2022 (270 Bq/m^3 for Ace Creek and 145 Bq/m^3 for Fookes Delta), however, the increase can be attributed to a higher June 2023 result compared to June 2022.

As per the Beaverlodge EMP, Rn-222 monitoring devices are collected and replaced semi-annually from five stations established throughout the area, illustrated in **Figure 4.5.1-1** and listed below:

Eldorado Town Site
Ace Creek
Fookes Delta
Marie Delta
Uranium City

Table 4.5.1 presents a summary of the radon monitoring conducted at the five sites for the 2022 monitoring period. Where applicable, stations monitored in 1982 have been included in the summary table for comparison.

Figure 4.5.1-2 compares the most recent five years of data to operational levels. Overall, measured radon levels have remained relatively constant in recent years and are much lower than during operation. The radon levels measured for the background stations display a rapid decrease to background levels as the distance from the former mine and mill site increases.

SECTION 5.0

OUTLOOK

5.0 OUTLOOK

This section of the report describes those tasks and activities planned for 2024.

5.1 Regular Scheduled Monitoring

Representatives of Cameco continue to implement the Beaverlodge EMP, assessing:

- Water,
- Radon in air,
- Formerly flowing boreholes, and
- Geotechnical stability of features, where required

Additional water samples will be collected at the sample locations ZOR-01, ZOR-02 and AC-6A to continue to monitor the Zora Creek Reconstruction project through the Bolger Waste Rock Pile. The flow path reconstruction is discussed in more detail in **Section 3.3.2**.

5.2 Planned Public Meetings

Cameco has developed a PIP for Beaverlodge that describes communication with rights bearing First Nation and Métis communities and other interested groups. The PIP formalizes the communication process, ensuring that Cameco's activities or plans at the decommissioned Beaverlodge properties are effectively communicated to the public in a manner that complies with established guidelines. It is based on the PLAN-DO-CHECK-ACT model outlined in internationally recognized management standards.

Cameco hosts an annual public meeting in Uranium City, typically with the CNSC, SkMOE, and SkMER in attendance, to review the results of any activities completed since the previous meeting and to preview the plans for the upcoming year, including any activities or planned studies that are to be completed. This meeting also provides an opportunity for Cameco to engage local residents and those that expressed interest regarding the plan and schedule for transferring properties to the Province of Saskatchewan's IC Program. This engagement opportunity allows local residents and other interested groups to provide feedback to Cameco and the JRG regarding potential concerns with the properties and their suitability for transfer to the IC Program.

In 2024, Cameco plans to host its annual public meeting in Uranium City and will continue to invite representatives from the NSEQC and the MN-S, both with local community representatives and including the Uranium City Métis Local #50 President. In addition, Cameco plans to invite members of the AJES as defined under the Yá'thi Néné Collaboration Agreement and the ACFN with added representation through the DRM. The annual public meeting will also look to include a 'boots on the ground' tour of the properties (weather permitting). The meeting and tour will focus on providing information regarding the LTMP as follow-up from the 2023 annual meetings, as well as a summary of the upcoming plans as the remaining properties are being readied for release from CNSC licensing for transfer to the Province of Saskatchewan's IC Program. The meeting and tour provide an opportunity for local land-users to continue to be engaged by Cameco and reconnect with Beaverlodge lands and enhance Cameco's understanding of the land in which it has been used by Indigenous Peoples through time.

In addition, Cameco will continue to provide opportunities for engagement with those that expressed interest and provide status updates at quarterly AJES meetings as well as scheduled NSEQC meetings. In 2024, Cameco will continue collecting information from land users regarding their use of access roads to determine if there are any roads associated with the former Beaverlodge mine/mill and satellite properties that people want to remain open.

5.3 Planned Regulatory Inspections

The JRG conducts an annual inspection of the decommissioned Beaverlodge properties, often in conjunction with the annual Uranium City public meeting. The regulatory inspection involves travelling to the decommissioned Beaverlodge properties and ensuring that site conditions remain safe, stable, and secure. In addition, activities to address previous inspection recommendations are assessed to confirm that the activity or action was completed to the satisfaction of the regulatory agencies. As Cameco continues the process of transferring properties to the Province of Saskatchewan IC Program, inspections will focus on the properties being requested for release.

5.4 2024 Work Plan

The physical work required to prepare the Beaverlodge properties for transfer to the IC Program is nearing completion. As a result, there are a limited number of activities planned for 2024. The sections below describe the activities planned for completion in 2024.

5.4.1 Beaverlodge EMP

Environmental monitoring will continue to be conducted in accordance with the regulatory approved Beaverlodge Environmental Monitoring Program in 2024.

5.4.2 Gamma Assessment of recently disturbed areas

The site wide gamma scanning program and assessment was completed in 2014 and 2015. As minor reclamation and site clean-up activities are completed as part of preparing the sites for transfer to the IC Program, some areas previously scanned may be disturbed. The disturbed areas will be re-scanned once all work in the area is complete, and the results will be compared to the 2014 site wide surficial gamma survey to ensure the performance objectives continue to be met.

It is anticipated that additional gamma scanning will be required in 2024 in the following areas:

- Former mill area following the application of additional cover material in 2022.
- Lower Fay Pit waste disposal site that was covered in 2023.
- The sorted waste rock pile located approximately 200 m south of the former mill site, as this material was used as coarse fill for the mill cover and the closure of the Lower Fay Pit waste disposal site.
- Culvert removal near Meadow Fen Outlet and restricted vehicle access berms near Ace Uplands and Minewater Reservoir.
- Other smaller areas where waste rock has been disturbed during remediation activities.

Final gamma survey results will be provided to the regulatory agencies once completed and records will be maintained by the Province of Saskatchewan once the property is accepted into the IC Program.

5.4.3 Road Closure

Cameco met with land users in 2023 to discuss the existing road network that provided access to the former Beaverlodge mining properties. Roads that are actively being used for traditional activities (hunting, gathering, firewood collection) by land users will not be closed, however access to roadways that are not used for traditional activities may be restricted to limit the type of vehicle access to certain areas. Cameco will continue the discussion of road access in 2024 to ensure land users are provided opportunity to continue accessing land for traditional activities.

5.4.4 Commision Member Documents

Cameco submitted the final closure documents on November 22, 2023 to support the release of the final set of Beaverlodge properties from CNSC licensing; release from decommissioning and reclamation requirements from SkMOE; and transfer to the IC Program managed by SkMER.

Following this submission, Cameco is preparing a hearing request for the final set of Beaverlodge properties to be released from CNSC licencing and for the licence to be revoked. Also in 2024, Cameco will be preparing a Commision Member Document (CMD) and additional supporting information that will be summited to the CNSC in advance of a hearing. This process is required in order to transfer the properties to the IC Program managed by SkMER.

SECTION 6.0

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6.0 REFERENCES

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TABLES

TABLES

Table 4.2.1-1 Station AN-5 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.3	0.3	0.2	0.3	0.4	4	0	0.1	0.3	0.5
	Ba (mg/l)	0.15	0.10	0.10	0.12	0.12	4	0	0.025	0.097	0.15
	Cu (mg/l)	0.00087	0.0014	0.0017	0.00050	0.0010	4	0	0.00056	0.00040	0.0017
	Fe (mg/l)	0.361	0.205	0.178	0.183	0.349	4	0	0.482	0.0750	1.07
	Mo (mg/l)	0.0027	0.0027	0.0028	0.0020	0.0033	4	0	0.00081	0.0026	0.0044
	Ni (mg/l)	0.0005	0.0007	0.0008	0.0006	0.0006	4	0	0.0001	0.0005	0.0008
	Pb (mg/l)	0.00017	0.00013	0.00038	<0.00010	0.00015	4	3	0.00010	<0.00010	0.00030
	Se (mg/l)	0.0002	0.0001	0.0001	0.0001	0.0001	4	3	0	<0.0001	0.0001
	U (µg/l)	170	78.0	125	99.3	157	4	0	87.1	80.0	277
	Zn (mg/l)	0.0019	0.0020	0.00078	0.00070	0.00085	4	0	0.00024	0.00070	0.0012
Major Ions	Alk (mg/l)	125	71.7	88.0	95.7	94	4	0	23.3	75.0	125
	Ca (mg/l)	37	24	26	28	30	4	0	6.5	24	38
	Cl (mg/l)	1.0	0.47	0.50	0.50	0.63	4	0	0.22	0.40	0.90
	CO3 (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	HCO3 (mg/l)	153	87.3	107	117	115	4	0	28.1	92.0	152
	Cond-L (µS/cm)	255	168	186	198	207	4	0	45.5	168	267
	K (mg/l)	1.6	0.93	1.1	1.0	1.3	4	0	0.29	0.90	1.6
	Hardness (mg/l)	130	82.0	90.0	96.0	102	4	0	21.1	83.0	130
	Na (mg/l)	4.6	2.5	2.7	2.9	3.4	4	0	0.61	2.8	4.2
	OH (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	SO4 (mg/l)	16	14	13	11	14	4	0	3.0	11	18
	Sum of Ions (mg/l)	222	135	157	166	170	4	0	39.9	138	224
Nutrients	C-(org) (mg/l)	11	13	12	9.5	12	1	0		12	12
	P-(TP) (mg/l)	0.02	0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.087	<0.040	0.17	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.10	0.060	0.080	<0.020	0.090	1	0		0.090	0.090
	Po210 (Bq/L)	0.04	0.03	0.03	0.04	0.03	1	0		0.03	0.03
	Ra226 (Bq/L)	0.90	0.50	0.48	0.67	0.58	4	0	0.13	0.39	0.68
Physical Parameters	pH-L (pH Unit)	7.63	7.67	7.67	7.54	7.56	4	0	0.41	6.7	7.69
	TDS (mg/l)	174	112	124	137	145	4	0	24.8	127	180
	TSS (mg/l)	1.0	<1.0	2.0	1.0	5.7	4	1	5.5	<1.0	12
	Temp. (°C)	10.7	17.3	8.78	11.4	10.3	4	0	6.21	3.70	17.2

Table 4.2.1-2 Station DB-6 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	**2020**	**2021**	**2022**	**Average**	**Count**	**Count <DL**	**Std Dev**	**Min**	**Max**
Metals	As (µg/l)	0.1	0.1	0.1	0.1	0.1	4	0	0	0.1	0.1
	Ba (mg/l)	0.045	0.041	0.036	0.032	0.040	4	0	0.0088	0.030	0.051
	Cu (mg/l)	0.00067	0.00068	0.0011	0.00048	0.0010	4	0	0.00032	0.00060	0.0013
	Fe (mg/l)	0.028	0.025	0.032	0.087	0.065	4	0	0.038	0.037	0.12
	Mo (mg/l)	0.0021	0.0020	0.0018	0.0013	0.0013	4	0	0.00019	0.0010	0.0014
	Ni (mg/l)	0.0002	0.0002	0.0002	0.0002	0.0002	4	0	0.00005	0.0002	0.0003
	Pb (mg/l)	0.0001	<0.0001	0.0001	<0.0001	0.0001	4	3	0	<0.0001	0.0001
	Se (mg/l)	0.0001	0.0001	0.0001	0.0001	0.0001	4	1	0	<0.0001	0.0001
	U (µg/l)	178	119	101	85.2	86.3	4	0	43.0	52.0	144
	Zn (mg/l)	0.00098	0.00078	0.00075	0.00054	0.0017	4	0	0.00090	0.0010	0.0029
Major Ions	Alk (mg/l)	91.7	84.8	77.5	65.2	77.3	4	0	19.5	53.0	100
	Ca (mg/l)	36	33	29	24	29	4	0	6.8	20	36
	Cl (mg/l)	0.7	0.6	0.5	0.4	0.5	4	0	0.1	0.3	0.5
	CO3 (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	HCO3 (mg/l)	112	103	94.8	79.4	94.3	4	0	23.6	65.0	122
	Cond-L (µS/cm)	217	203	185	154	182.3	4	0	40.5	127	222
	K (mg/l)	0.92	0.83	0.78	0.72	1.0	4	0	0.14	0.90	1.2
	Hardness (mg/l)	112	101	88.5	76.0	91.5	4	0	21.6	62.0	113
	Na (mg/l)	2.1	1.9	1.7	1.4	1.7	4	0	0.34	1.2	2.0
	OH (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	SO4 (mg/l)	22	19	18	14	16	4	0	4.0	9.9	19
	Sum of Ions (mg/l)	179	163	148	124	148	4	0	35.3	102	187
Nutrients	C-(org) (mg/l)	8.9	9.8	10	9.3	10	1	0		10	10
	P-(TP) (mg/l)	0.01	<0.01	<0.01	0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.14	<0.040	0.21	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.17	0.10	0.11	<0.020	0.21	1	0		0.21	0.21
	Po210 (Bq/L)	<0.005	0.006	0.008	0.01	<0.005	1	1	-	<0.005	<0.005
	Ra226 (Bq/L)	0.03	0.03	0.03	0.03	0.03	4	0	0.006	0.02	0.03
Physical Parameters	pH-L (pH Unit)	7.88	7.74	7.74	7.27	7.48	4	0	0.18	7.24	7.66
	TDS (mg/l)	155	134	137	111	128.8	4	0	24.4	96.0	155
	TSS (mg/l)	1	2	2	1	<1	4	4	-	<1	<1
	Temp. (°C)	10.2	13.5	7.43	9.60	10.5	4	0	5.96	3.70	16.8

Table 4.2.1-3 Station AC-6A Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.2	0.2	0.2	0.2	0.2	2	0	0	0.2	0.2
	Ba (mg/l)	0.021	0.022	0.022	0.021	0.020	2	0	0.0	0.020	0.020
	Cu (mg/l)	0.0005	0.0005	0.0006	0.0004	0.0006	2	0	0.0002	0.0004	0.0007
	Fe (mg/l)	0.014	0.0077	0.0094	0.011	0.0096	2	0	0.00049	0.0093	0.010
	Mo (mg/l)	0.0011	0.0012	0.0011	0.00097	0.0012	2	0	0.00021	0.0010	0.0013
	Ni (mg/l)	<0.0001	0.0001	0.0001	0.0001	0.0001	2	1	0	<0.0001	0.0001
	Pb (mg/l)	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	2	2	-	<0.0001	<0.0001
	Se (mg/l)	0.0002	0.0002	0.0002	0.0002	0.0002	2	0	0	0.0002	0.0002
	U (µg/l)	272	292	248	204	252	2	0	12.7	243	261
	Zn (mg/l)	0.0014	0.00074	0.00072	<0.00050	<0.00050	2	2	-	<0.00050	<0.00050
Major Ions	Alk (mg/l)	95.5	108	104	94.0	95.5	2	0	0.707	95.0	96.0
	Ca (mg/l)	42	43	41	38	40	2	0	0.71	39	40
	Cl (mg/l)	0.5	0.5	0.7	0.4	0.5	2	0	0.07	0.4	0.5
	CO3 (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	HCO3 (mg/l)	117	131	127	115	117	2	0	0.707	116	117
	Cond-L (µS/cm)	272	282	282	251	261	2	0	0.707	260	261
	K (mg/l)	0.90	0.96	0.87	0.77	0.80	2	0	0.14	0.70	0.90
	Hardness (mg/l)	142	144	139	125	132	2	0	3.54	129	134
	Na (mg/l)	2.4	2.4	2.2	2.0	2.1	2	0	0.071	2.0	2.1
	OH (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	SO4 (mg/l)	47	46	41	34	39	2	0	0.71	38	39
	Sum of Ions (mg/l)	219	233	221	197	206	2	0	1.41	205	207
Nutrients	C-(org) (mg/l)		8.0	9.5	7.4	9.0	1	0		9.0	9.0
	P-(TP) (mg/l)		<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.050	<0.040	0.14	<0.040	<0.040	2	2	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)		0.18	0.070	<0.020	0.13	1	0		0.13	0.13
	Po210 (Bq/L)		0.01	0.007	0.01	0.005	1	0		0.005	0.005
	Ra226 (Bq/L)	0.090	0.099	0.097	0.087	0.085	2	0	0.0071	0.080	0.090
Physical Parameters	pH-L (pH Unit)	7.97	7.86	7.91	7.80	7.97	2	0	0.198	7.83	8.11
	TDS (mg/l)	228	193	185	172	183	2	0	7.07	178	188
	TSS (mg/l)	2	2	1	<1	<1	2	2	-	<1	<1
	Temp. (°C)	22.7	12.5	10.6	16.2	16.7	2	0	0.566	16.3	17.1

Table 4.2.1-4 Station AC-8 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.1	0.1	0.1	0.1	<0.1	1	1	-	<0.1	<0.1
	Ba (mg/l)	0.024	0.021	0.019	0.021	0.020	1	0		0.020	0.020
	Cu (mg/l)	0.0005	0.0005	0.0006	0.0004	0.0004	1	0		0.0004	0.0004
	Fe (mg/l)	0.016	0.030	0.043	0.027	0.019	1	0		0.019	0.019
	Mo (mg/l)	0.001	0.0008	0.0008	0.0008	0.0008	1	0		0.0008	0.0008
	Ni (mg/l)	0.0002	0.0002	0.0002	<0.0001	0.0002	1	0		0.0002	0.0002
	Pb (mg/l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	1	1	-	<0.0001	<0.0001
	Se (mg/l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	1	1	-	<0.0001	<0.0001
	U (µg/l)	13	12	8.9	8.6	8.1	1	0		8.1	8.1
	Zn (mg/l)	0.00060	0.0014	0.0015	<0.00050	<0.00050	1	1	-	<0.00050	<0.00050
Major Ions	Alk (mg/l)	52	44	41	41	42	1	0		42	42
	Ca (mg/l)	17	14	12	13	14	1	0		14	14
	Cl (mg/l)	1.1	0.80	0.60	0.60	1.0	1	0		1.0	1.0
	CO3 (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	HCO3 (mg/l)	63	54	50	50	51	1	0		51	51
	Cond-L (µS/cm)	112	98.0	94.0	81.0	94.0	1	0		94.0	94.0
	K (mg/l)	0.9	0.7	0.7	0.7	0.7	1	0		0.7	0.7
	Hardness (mg/l)	56	46	38	43	46	1	0		46	46
	Na (mg/l)	1.6	1.4	1.3	1.2	1.4	1	0		1.4	1.4
	OH (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	SO4 (mg/l)	6.3	5.6	5.8	4.7	5.0	1	0		5.0	5.0
	Sum of Ions (mg/l)	94	79	73	73	76	1	0		76	76
Nutrients	C-(org) (mg/l)	6.2	8.8	9.0	7.5	7.2	1	0		7.2	7.2
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.085	<0.040	0.12	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	<0.02	<0.02	<0.02	<0.02	<0.02	1	1	-	<0.02	<0.02
	Po210 (Bq/L)	<0.005	0.005	<0.005	<0.005	0.006	1	0		0.006	0.006
	Ra226 (Bq/L)	0.03	<0.005	0.01	0.01	0.01	1	0		0.01	0.01
Physical Parameters	pH-L (pH Unit)	7.58	7.63	7.67	7.62	7.48	1	0		7.48	7.48
	TDS (mg/l)	85.0	57.0	63.0	62.0	79	1	0		79.0	79.0
	TSS (mg/l)	<1	<1	2	<1	<1	1	1	-	<1	<1
	Temp. (°C)	7.45	18.4	15.9	18.1	16.4	1	0		16.4	16.4

Table 4.2.1-5 Station AC-14 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.1	0.2	0.2	0.1	0.2	4	0	0.1	0.1	0.3
	Ba (mg/l)	0.025	0.023	0.022	0.024	0.03	4	0	0.006	0.021	0.034
	Cu (mg/l)	0.0007	0.0006	0.0006	0.0007	0.00073	4	0	0.00019	0.0006	0.001
	Fe (mg/l)	0.046	0.045	0.060	0.061	0.055	4	0	0.014	0.035	0.065
	Mo (mg/l)	0.001	0.0009	0.0009	0.0009	0.001	4	0	0.00022	0.0008	0.0013
	Ni (mg/l)	0.0002	0.0002	0.0002	0.0002	0.00023	4	0	0.00005	0.0002	0.0003
	Pb (mg/l)	0.00045	0.00023	0.00037	0.00015	0.00015	4	2	0.00006	<0.00010	0.00020
	Se (mg/l)	0.0002	0.0001	0.0001	0.0001	0.0002	4	0	0	0.0002	0.0002
	U (µg/l)	34	19	18	28	36	4	0	12	23	52
	Zn (mg/l)	0.0011	0.0018	0.0012	0.00053	0.0009	4	3	0.00085	<0.00050	0.0022
Major Ions	Alk (mg/l)	53	49	48	48	52	4	0	8.5	46	64
	Ca (mg/l)	17	16	15	16	18	4	0	3.1	15	22
	Cl (mg/l)	1.3	0.93	0.90	1.1	1.5	4	0	0.48	1.0	2
	CO3 (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	HCO3 (mg/l)	64	60	59	59	63	4	0	10.4	56	78
	Cond-L (µS/cm)	119	109	111	112	126	4	0	17	104	146
	K (mg/l)	0.9	0.8	0.8	0.8	0.9	4	0	0.29	0.6	1.3
	Hardness (mg/l)	57	52	49	51	58	4	0	11	49	73
	Na (mg/l)	2.0	1.7	1.6	1.9	2.3	4	0	0.59	1.7	2.9
	OH (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	SO4 (mg/l)	8.6	6.7	6.8	7.6	8.6	4	0	2.3	6.2	11
	Sum of Ions (mg/l)	97.7	89.3	87.0	88.8	98	4	0	18.9	84.0	125
Nutrients	C-(org) (mg/l)	6.7	9.0	9.0	7.6	7.5	1	0		7.5	7.5
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.11	<0.040	0.15	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.04	<0.02	<0.02	<0.02	0.03	1	0		0.03	0.03
	Po210 (Bq/L)	0.008	0.01	0.02	0.01	0.008	1	0		0.008	0.008
	Ra226 (Bq/L)	0.061	0.030	0.033	0.060	0.6	4	0	0.04	0.030	0.11
Physical Parameters	pH-L (pH Unit)	7.82	7.72	7.68	7.69	7.46	4	0	0.41	6.95	7.94
	TDS (mg/l)	81.6	79.0	81.3	76.8	96	4	0	11.7	84	112
	TSS (mg/l)	1	<1	2	1	1.3	4	1	0.6	<1	2
	Temp. (°C)	10.3	12.3	11.3	8.60	11.8	4	0	6.95	1.4	15.7

Table 4.2.2-1 Station AN-3 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.1	0.1	0.1	0.1	0.1	1	0		0.1	0.1
	Ba (mg/l)	0.017	0.017	0.016	0.017	0.015	1	0		0.015	0.015
	Cu (mg/l)	0.0005	0.0006	0.0008	0.0006	0.0007	1	0		0.0007	0.0007
	Fe (mg/l)	0.0063	0.015	0.028	0.017	0.011	1	0		0.011	0.011
	Mo (mg/l)	0.0018	0.0017	0.0018	0.0018	0.0020	1	0		0.0020	0.0020
	Ni (mg/l)	0.0002	0.0002	0.0003	0.0002	0.0003	1	0		0.0003	0.0003
	Pb (mg/l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	1	1	-	<0.0001	<0.0001
	Se (mg/l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	1	1	-	<0.0001	<0.0001
	U (µg/l)	1.6	1.9	1.6	1.6	1.6	1	0		1.6	1.6
	Zn (mg/l)	0.00060	0.0019	0.0021	<0.00050	0.00080	1	0		0.00080	0.00080
Major Ions	Alk (mg/l)	73	69	62	64	64	1	0		64	64
	Ca (mg/l)	21	20	18	18	20	1	0		20	20
	Cl (mg/l)	0.8	0.6	0.5	0.5	0.6	1	0		0.6	0.6
	CO3 (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	HCO3 (mg/l)	89	84	76	78	78	1	0		78	78
	Cond-L (µS/cm)	140	138	125	122	129	1	0		129	129
	K (mg/l)	0.8	0.7	0.7	0.7	0.7	1	0		0.7	0.7
	Hardness (mg/l)	72	68	60	62	68	1	0		68	68
	Na (mg/l)	1.9	1.9	1.8	1.7	1.8	1	0		1.8	1.8
	OH (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	SO4 (mg/l)	4.2	4.1	4.3	3.9	4.0	1	0		4.0	4.0
	Sum of Ions (mg/l)	122	116	105	107	110	1	0		110	110
Nutrients	C-(org) (mg/l)	7.2	8.4	10	9.1	9.4	1	0		9.4	9.4
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	<0.04	<0.04	0.08	<0.04	<0.04	1	1	-	<0.04	<0.04
Radionuclide	Pb210 (Bq/L)	<0.02	<0.02	<0.02	<0.02	<0.02	1	1	-	<0.02	<0.02
	Po210 (Bq/L)	<0.005	<0.005	0.006	<0.005	0.006	1	0		0.006	0.006
	Ra226 (Bq/L)	0.01	0.006	0.008	<0.005	<0.005	1	1	-	<0.005	<0.005
Physical Parameters	pH-L (pH Unit)	8.02	7.87	7.83	7.88	7.78	1	0		7.78	7.78
	TDS (mg/l)	84.0	81.0	109	90.0	113	1	0		113	113
	TSS (mg/l)	<1	<1	3	2	2	1	0		2	2
	Temp. (°C)	10.4	23.0	16.3	19.6	18.0	1	0		18.0	18.0

Table 4.2.2-2 Station TL-3 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.7	0.5	0.5	0.8	0.6	2	0	0.07	0.6	0.7
	Ba (mg/l)	0.041	0.037	0.038	0.045	0.043	2	0	0.0028	0.041	0.045
	Cu (mg/l)	0.0012	0.0017	0.0014	0.0016	0.0015	2	0	0.000071	0.0014	0.0015
	Fe (mg/l)	0.015	0.017	0.026	0.050	0.032	2	0	0.032	0.0094	0.055
	Mo (mg/l)	0.011	0.0075	0.0081	0.0096	0.0096	2	0	0.00049	0.0092	0.0099
	Ni (mg/l)	0.0003	0.0004	0.0004	0.0005	0.0005	2	0	0.00007	0.0004	0.0005
	Pb (mg/l)	0.00070	0.00050	0.00060	0.00025	0.0013	2	0	0.0016	0.00010	0.0024
	Se (mg/l)	0.0024	0.0016	0.0020	0.0026	0.0026	2	0	0.00014	0.0025	0.0027
	U (µg/l)	233	147	175	194	191	2	0	16.3	179	202
	Zn (mg/l)	0.0011	0.0019	<0.00050	0.00085	<0.00050	2	2	-	<0.00050	<0.00050
Major Ions	Alk (mg/l)	133	114	115	124	125	2	0	14.2	115	135
	Ca (mg/l)	30	29	29	31	32	2	0	2.1	30	33
	Cl (mg/l)	2.5	1.8	1.9	1.8	1.8	2	0	0.071	1.7	1.8
	CO3 (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	HCO3 (mg/l)	162	139	140	151	153	2	0	17.7	140	165
	Cond-L (µS/cm)	302	252	258	273	271	2	0	22.6	255	287
	K (mg/l)	1.2	1.1	1.0	1.1	1.1	2	0	0.14	1.0	1.2
	Hardness (mg/l)	99.3	94.0	92.0	99.0	101	2	0	7.1	96.0	106
	Na (mg/l)	29	18	20	21	21	2	0	1.4	20	22
	OH (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	SO4 (mg/l)	26	17	21	21	20	2	0	2.1	18	21
	Sum of Ions (mg/l)	257	211	217	235	237	2	0	29.7	216	258
Nutrients	C-(org) (mg/l)	7.1	8.4	9.3	7.9	8.1	1	0		8.1	8.1
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.2	<0.04	0.09	<0.04	<0.04	1	1	-	<0.04	<0.04
Radionuclide	Pb210 (Bq/L)	0.18	0.13	0.080	0.35	0.18	1	0		0.18	0.18
	Po210 (Bq/L)	0.06	0.06	0.06	0.07	0.1	1	0		0.1	0.1
	Ra226 (Bq/L)	1.4	0.90	1.2	1.7	1.7	2	0	0.0	1.7	1.7
Physical Parameters	pH-L (pH Unit)	8.15	8.01	8.01	8.08	8.1	2	0	0.13	8.03	8.22
	TDS (mg/l)	189	158	160	176	177	2	0	11.3	169	185
	TSS (mg/l)	1	<1	1	1	1.5	2	0	0.71	1	2
	Temp. (°C)	9.27	16.7	9.50	13.1	11.7	2	0	10.1	4.50	18.8

Table 4.2.2-3 Station TL-4 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	1.0	0.85	0.70	0.80	0.80	2	0	0.14	0.70	0.90
	Ba (mg/l)	0.087	0.075	0.073	0.087	0.090	2	0	0.015	0.079	0.10
	Cu (mg/l)	0.00043	0.00085	0.00085	0.00070	0.00085	2	0	0.000071	0.00080	0.00090
	Fe (mg/l)	0.052	0.038	0.040	0.047	0.034	2	0	0.0014	0.033	0.035
	Mo (mg/l)	0.0083	0.0087	0.0076	0.0077	0.0078	2	0	0.00092	0.0072	0.0085
	Ni (mg/l)	0.0005	0.0005	0.0006	0.0005	0.0006	2	0	0	0.0006	0.0006
	Pb (mg/l)	0.0002	0.0004	0.0003	<0.0001	0.00015	2	1	0.00007	<0.0001	0.0002
	Se (mg/l)	0.0012	0.0017	0.0014	0.0014	0.0014	2	0	0.0	0.0014	0.0014
	U (µg/l)	187	198	169	166	175	2	0	23.3	158	191
	Zn (mg/l)	0.00078	0.0012	0.0011	0.00055	0.00060	2	0	0.00014	0.00050	0.00070
Major Ions	Alk (mg/l)	131	132	129	132	131	2	0	20.5	116	145
	Ca (mg/l)	24	29	31	32	32	2	0	3.5	29	34
	Cl (mg/l)	2.7	2.1	1.9	1.8	1.8	2	0	0.14	1.7	1.9
	CO3 (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	HCO3 (mg/l)	160	161	157	161	160	2	0	24	142	177
	Cond-L (µS/cm)	289	289	273	277	274	2	0	33	250	297
	K (mg/l)	1.4	1.2	1.1	1.2	1.3	2	0	0.21	1.1	1.4
	Hardness (mg/l)	83.5	94.0	98.5	101	101	2	0	11	93.0	109
	Na (mg/l)	33	26	21	22	22	2	0	2.8	20	24
	OH (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	SO4 (mg/l)	22	21	18	17	17	2	0	1.4	16	18
	Sum of Ions (mg/l)	249	245	235	239	244	2	0	40.3	215	272
Nutrients	C-(org) (mg/l)	8.6	12	9.9	9.3	9.8	1	0		9.8	9.8
	P-(TP) (mg/l)	<0.01	0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.05	<0.04	0.09	<0.04	<0.04	1	1	-	<0.04	<0.04
Radionuclide	Pb210 (Bq/L)	0.10	0.040	0.10	0.050	0.14	1	0		0.14	0.14
	Po210 (Bq/L)	0.03	0.03	0.02	0.02	0.05	1	0		0.05	0.05
	Ra226 (Bq/L)	1.8	1.6	1.6	1.9	1.9	2	0	0.21	1.7	2.0
Physical Parameters	pH-L (pH Unit)	8.10	8.07	7.98	8.06	8.1	2	0	0.17	7.97	8.21
	TDS (mg/l)	195	171	173	175	182	2	0	26	163	200
	TSS (mg/l)	<1	<1	3	<1	2	2	0		2	2
	Temp. (°C)	8.55	16.5	9.80	10.4	8.80	2	0	9.19	2.30	15.3

Table 4.2.2-4 Station TL-6 Statistical and 5-Year Mean Analysis

		Previous Period			2023 Statistics					
		2019	2020	2021	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	2.1	1.6	1.3	1.5	1	0		1.5	1.5
	Ba (mg/l)	1.05	1.27	0.880	1.03	1	0		1.03	1.03
	Cu (mg/l)	0.00033	0.00070	0.0012	0.0011	1	0		0.0011	0.0011
	Fe (mg/l)	1.24	0.430	0.630	0.350	1	0		0.350	0.350
	Mo (mg/l)	0.00080	0.0020	0.0050	0.0022	1	0		0.0022	0.0022
	Ni (mg/l)	0.0003	0.0005	0.0007	0.0006	1	0		0.0006	0.0006
	Pb (mg/l)	0.00020	0.00030	0.00070	0.0016	1	0		0.0016	0.0016
	Se (mg/l)	0.0021	0.0038	0.0033	0.0025	1	0		0.0025	0.0025
	U (µg/l)	123	241	276	244	1	0		244	244
	Zn (mg/l)	0.0016	0.0020	0.00090	0.0012	1	0		0.0012	0.0012
Major Ions	Alk (mg/l)	300	277	204	226	1	0		226	226
	Ca (mg/l)	39	54	60	35	1	0		35	35
	Cl (mg/l)	45	34	12	25	1	0		25	25
	CO3 (mg/l)	<1	<1	<1	<1	1	1	-	<1	<1
	HCO3 (mg/l)	367	338	249	276	1	0		276	276
	Cond-L (µS/cm)	741	743	512	580	1	0		580	580
	K (mg/l)	3.3	2.4	1.2	2.2	1	0		2.2	2.2
	Hardness (mg/l)	148	184	189	137	1	0		137	137
	Na (mg/l)	117	94.0	42.0	85.0	1	0		85.0	85.0
	OH (mg/l)	<1	<1	<1	<1	1	1	-	<1	<1
	SO4 (mg/l)	33	71	56	43	1	0		43	43
	Sum of Ions (mg/l)	615	605	431	478	1	0		478	478
Nutrients	C-(org) (mg/l)	39	38	39	33	1	0		33	33
	P-(TP) (mg/l)	0.02	0.02	0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	<0.040	<0.040	0.12	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.20	0.070	<0.020	0.25	1	0		0.25	0.25
	Po210 (Bq/L)	0.04	0.05	0.05	0.09	1	0		0.09	0.09
	Ra226 (Bq/L)	5.1	7.7	6.3	6.0	1	0		6.0	6.0
Physical Parameters	pH-L (pH Unit)	7.91	7.80	7.85	8.13	1	0		8.13	8.13
	TDS (mg/l)	518	521	367	412	1	0		412	412
	TSS (mg/l)	2	<1	2	<1	1	1	-	<1	<1
	Temp. (°C)	14.0	20.4	15.2	14.3	1	0		14.3	14.3

Table 4.2.2-5 Station TL-7 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.90	0.83	0.70	0.80	0.85	4	0	0.26	0.60	1.2
	Ba (mg/l)	0.44	0.16	0.24	0.51	0.39	4	0	0.12	0.23	0.53
	Cu (mg/l)	0.00053	0.00070	0.00085	0.00060	0.00078	4	0	0.00015	0.00060	0.00090
	Fe (mg/l)	0.064	0.028	0.036	0.084	0.12	4	0	0.15	0.029	0.35
	Mo (mg/l)	0.0062	0.0091	0.0073	0.0071	0.0074	4	0	0.0011	0.0065	0.0090
	Ni (mg/l)	0.0004	0.0004	0.0005	0.0005	0.0005	4	0	0.00006	0.0005	0.0006
	Pb (mg/l)	0.0002	0.0002	0.0002	<0.0001	0.0001	4	2	0.00005	<0.0001	0.0002
	Se (mg/l)	0.0014	0.0017	0.0011	0.0012	0.0014	4	0	0.00024	0.0011	0.0016
	U (µg/l)	149	201	165	161	172	4	0	36.4	149	226
	Zn (mg/l)	0.0012	<0.00050	<0.00050	0.00057	0.00078	4	1	0.00022	<0.00050	0.0010
Major Ions	Alk (mg/l)	127	132	120	135	125	4	0	16	116	150
	Ca (mg/l)	25	30	29	32	31	4	0	2.5	28	34
	Cl (mg/l)	6.2	3.1	2.3	1.9	3.0	4	0	0.73	2.0	3.6
	CO3 (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	HCO3 (mg/l)	155	162	147	165	153	4	0	20	142	183
	Cond-L (µS/cm)	287	294	266	288	275	4	0	25	262	312
	K (mg/l)	1.2	1.2	1.1	1.3	1.2	4	0	0.26	1.0	1.5
	Hardness (mg/l)	86.5	97.7	94.5	103	99	4	0	8.2	92.0	111
	Na (mg/l)	32	27	21	22	22	4	0	1.9	21	25
	OH (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	SO4 (mg/l)	20	21	18	17	17	4	0	1.3	15	18
	Sum of Ions (mg/l)	246	249	223	245	232	4	0	25.2	218	270
Nutrients	C-(org) (mg/l)	8.9	10	9.9	8.6	10	1	0		10	10
	P-(TP) (mg/l)	<0.01	<0.01	0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.083	<0.040	0.080	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.16	0.060	0.11	<0.020	0.070	1	0		0.070	0.070
	Po210 (Bq/L)	0.008	0.02	0.01	0.01	0.01	1	0		0.01	0.01
	Ra226 (Bq/L)	1.6	1.7	1.5	2.0	1.9	4	0	0.50	1.2	2.4
Physical Parameters	pH-L (pH Unit)	7.91	7.94	8.17	7.84	7.9	4	0	0.21	7.67	8.16
	TDS (mg/l)	188	188	165	179	191	4	0	15	171	204
	TSS (mg/l)	1	<1	2	1	2	4	1	0.58	<1	2
	Temp. (°C)	12.8	15.2	15.0	11.9	12.7	4	0	7.80	1.30	18.7

Table 4.2.2-6 Station TL-9 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	1.2	0.97	0.93	1.2	1	4	0	0.08	0.90	1.1
	Ba (mg/l)	0.62	0.43	0.44	0.64	0.6	4	0	0.10	0.48	0.68
	Cu (mg/l)	0.0006	0.0006	0.0007	0.0008	0.0007	4	0	0.0002	0.0006	0.001
	Fe (mg/l)	0.052	0.038	0.052	0.041	0.041	4	0	0.021	0.014	0.066
	Mo (mg/l)	0.0066	0.0083	0.0081	0.0076	0.0062	4	0	0.0007	0.0056	0.0071
	Ni (mg/l)	0.0003	0.0004	0.0005	0.0005	0.0004	4	0	0.0001	0.0003	0.0004
	Pb (mg/l)	0.0011	0.00053	0.00053	0.00018	0.0003	4	1	0.0003	<0.0001	0.00070
	Se (mg/l)	0.0023	0.0017	0.0016	0.0023	0.0021	4	0	0.0004	0.0016	0.0026
	U (µg/l)	133	187	181	170	126.5	4	0	22	101	151
	Zn (mg/l)	0.0012	0.0013	0.0011	0.0012	0.0008	4	0	0.0001	0.00070	0.00090
Major Ions	Alk (mg/l)	109	138	137	137	105	4	0	16	82.0	117
	Ca (mg/l)	18	29	33	32	23	4	0	5.6	15	28
	Cl (mg/l)	4.0	3.2	2.5	2.1	2.9	4	0	0.33	2.6	3.3
	CO3 (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	HCO3 (mg/l)	133	169	167	167	128	4	0	20	100	143
	Cond-L (µS/cm)	245	286	297	285	235	4	0	29	194	258
	K (mg/l)	1.2	1.2	1.3	1.1	1.1	4	0	0.17	0.90	1.2
	Hardness (mg/l)	67.7	97.3	108	105	82	4	0	15	60.0	93.0
	Na (mg/l)	30	25	23	21	21	4	0	3.2	19	26
	OH (mg/l)	<1	<1	<1	<1	<1	4	4	-	<1	<1
	SO4 (mg/l)	18	19	18	16	15	4	0	1.5	14	17
	Sum of Ions (mg/l)	210	253	251	247	197	4	0	27	158	218
Nutrients	C-(org) (mg/l)	8.7	11	11	9.4	11	1	0		11	11
	P-(TP) (mg/l)	0.01	0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.36	0.16	0.15	0.27	0.17	1	0		0.17	0.17
Radionuclide	Pb210 (Bq/L)	0.17	0.070	0.090	0.10	0.050	1	0		0.050	0.050
	Po210 (Bq/L)	0.05	0.08	0.03	0.06	0.08	1	0		0.08	0.08
	Ra226 (Bq/L)	2.0	1.7	2.1	2.3	2	4	0	0.38	1.6	2.5
Physical Parameters	pH-L (pH Unit)	8.05	8.07	8.15	8.07	8.03	4	0	0.21	7.80	8.29
	TDS (mg/l)	162	176	172	183	153	4	0	14	133	165
	TSS (mg/l)	2	<1	3	1	2	4	0	0.6	1	2
	Temp. (°C)	12.7	13.3	11.2	9.38	11.4	4	0	7.4	0.4	15.9

Table 4.2.3-1 Station BL-3 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.3	0.2	0.3	0.2	0.3	2	0	0.071	0.2	0.3
	Ba (mg/l)	0.045	0.039	0.038	0.038	0.041	2	0	0.005	0.037	0.044
	Cu (mg/l)	0.0014	0.0012	0.0030	0.0021	0.0011	2	0	0.00021	0.0009	0.0012
	Fe (mg/l)	0.0066	0.0040	0.0091	0.0052	0.0041	2	0	0.0014	0.0031	0.0051
	Mo (mg/l)	0.0037	0.0034	0.0032	0.0032	0.0032	2	0	0.00021	0.003	0.0033
	Ni (mg/l)	0.0014	0.0018	0.0038	0.0029	0.0016	2	0	0.001	0.0009	0.0023
	Pb (mg/l)	0.0002	<0.0001	0.0002	0.0002	0.0001	2	0		0.0001	0.0001
	Se (mg/l)	0.0023	0.0022	0.0019	0.0021	0.0019	2	0	0.00014	0.0018	0.002
	U (µg/l)	132	124	116	115	114	2	0	11	106	122
	Zn (mg/l)	0.0035	0.0017	0.0098	0.0058	0.0023	2	0	0.00042	0.002	0.0026
Major Ions	Alk (mg/l)	73	69	68	70	68	2	0	2.1	66	69
	Ca (mg/l)	21	21	19	21	21	2	0	0.71	20	21
	Cl (mg/l)	13	12	10	11	11	2	0	0	11	11
	CO3 (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	HCO3 (mg/l)	89	84	83	85	82	2	0	2.8	80	84
	Cond-L (µS/cm)	237	228	220	223	222	2	0	5.7	218	226
	K (mg/l)	1.2	1.1	1.0	1.2	1.2	2	0	0.071	1.1	1.2
	Hardness (mg/l)	75	74	66	74	74	2	0	2.1	72	75
	Na (mg/l)	19	17	17	17	18	2	0	0.071	17	18
	OH (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	SO4 (mg/l)	29	28	28	27	28	2	0	0.71	27	28
	Sum of Ions (mg/l)	177	168	162	167	168	2	0	9.9	161	175
Nutrients	C-(org) (mg/l)	3.0	3.7	3.6	3.5	3.5	1	0		3.5	3.5
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	<0.04	<0.04	0.09	0.5	<0.04	1	1	-	<0.04	<0.04
Radionuclide	Pb210 (Bq/L)	0.10	0.020	0.22	<0.020	0.090	1	0		0.090	0.090
	Po210 (Bq/L)	<0.005	<0.005	<0.005	<0.005	<0.005	1	1	-	<0.005	<0.005
	Ra226 (Bq/L)	0.053	0.050	0.070	0.050	0.055	2	0	0.0071	0.05	0.060
Physical Parameters	pH-L (pH Unit)	8.04	7.90	7.88	7.94	7.51	2	0	0.4	7.24	7.78
	TDS (mg/l)	153	121	143	141	136	2	0	5.7	132	140
	TSS (mg/l)	<1	<1	2	<1	<1	2	2	-	<1	<1
	Temp. (°C)	7.93	15.9	9.90	7.35	12.3	2	0	1.3	11.4	13.2

Table 4.2.3-2 Station BL-4 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.2	0.2	0.2	0.2	0.2	1	0		0.2	0.2
	Ba (mg/l)	0.035	0.036	0.033	0.036	0.032	1	0		0.032	0.032
	Cu (mg/l)	0.0012	0.00060	0.0015	0.0010	0.00070	1	0		0.00070	0.00070
	Fe (mg/l)	0.0074	0.0031	0.0058	0.0042	0.0050	1	0		0.0050	0.0050
	Mo (mg/l)	0.0036	0.0033	0.0031	0.0033	0.0030	1	0		0.0030	0.0030
	Ni (mg/l)	0.0012	0.00080	0.0032	0.0017	0.0013	1	0		0.0013	0.0013
	Pb (mg/l)	0.0002	<0.0001	0.0001	0.0001	<0.0001	1	1	-	<0.0001	<0.0001
	Se (mg/l)	0.0023	0.0021	0.0019	0.0021	0.0019	1	0		0.0019	0.0019
	U (µg/l)	126	121	116	120	107	1	0		107	107
	Zn (mg/l)	0.0036	0.0018	0.0052	0.0032	0.0018	1	0		0.0018	0.0018
Major Ions	Alk (mg/l)	70	67	66	67	66	1	0		66	66
	Ca (mg/l)	21	20	19	20	20	1	0		20	20
	Cl (mg/l)	13	12	10	10	11	1	0		11	11
	CO3 (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	HCO3 (mg/l)	86	82	80	82	80	1	0		80	80
	Cond-L (µS/cm)	235	224	217	211	219	1	0		219	219
	K (mg/l)	1.1	1.0	1.1	1.1	1.1	1	0		1.1	1.1
	Hardness (mg/l)	74	70	65	70	72	1	0		72	72
	Na (mg/l)	19	17	17	16	17	1	0		17	17
	OH (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	SO4 (mg/l)	29	27	28	26	27	1	0		27	27
	Sum of Ions (mg/l)	173	164	160	160	161	1	0		161	161
Nutrients	C-(org) (mg/l)	3.3	3.5	3.3	3.6	3.4	1	0		3.4	3.4
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	<0.040	<0.040	0.12	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.065	0.080	0.12	<0.020	0.070	1	0		0.070	0.070
	Po210 (Bq/L)	<0.005	<0.005	<0.005	<0.005	<0.005	1	1	-	<0.005	<0.005
	Ra226 (Bq/L)	0.03	0.03	0.03	0.02	0.02	1	0		0.02	0.02
Physical Parameters	pH-L (pH Unit)	8.02	7.82	7.84	7.83	7.73	1	0		7.73	7.73
	TDS (mg/l)	156	116	137	142	137	1	0		137	137
	TSS (mg/l)	<1	<1	1	<1	<1	1	1	-	<1	<1
	Temp. (°C)	10.3	14.4	7.90	9.90	12.4	1	0		12.4	12.4

Table 4.2.3-3 Station BL-5 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.2	0.2	0.2	0.3	0.2	1	0		0.2	0.2
	Ba (mg/l)	0.029	0.036	0.032	0.036	0.032	1	0		0.032	0.032
	Cu (mg/l)	0.0004	0.0003	0.0003	0.0003	0.0006	1	0		0.0006	0.0006
	Fe (mg/l)	0.0095	0.0030	0.0092	0.0032	0.0046	1	0		0.0046	0.0046
	Mo (mg/l)	0.0030	0.0033	0.0031	0.0031	0.0030	1	0		0.0030	0.0030
	Ni (mg/l)	0.0002	0.0002	0.0002	0.0002	0.0002	1	0		0.0002	0.0002
	Pb (mg/l)	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	1	1	-	<0.0001	<0.0001
	Se (mg/l)	0.0019	0.0021	0.0019	0.0021	0.0018	1	0		0.0018	0.0018
	U (µg/l)	104	120	115	114	105	1	0		105	105
	Zn (mg/l)	0.00077	<0.00050	0.0023	<0.00050	0.0014	1	0		0.0014	0.0014
Major Ions	Alk (mg/l)	61	66	71	66	66	1	0		66	66
	Ca (mg/l)	19	20	19	20	20	1	0		20	20
	Cl (mg/l)	11	11	10	11	10	1	0		10	10
	CO3 (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	HCO3 (mg/l)	75	80	87	80	80	1	0		80	80
	Cond-L (µS/cm)	202	221	219	209	219	1	0		219	219
	K (mg/l)	1.0	1.0	1.1	1.1	1.1	1	0		1.1	1.1
	Hardness (mg/l)	66	70	66	70	72	1	0		72	72
	Na (mg/l)	16	17	17	16	16	1	0		16	16
	OH (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	SO4 (mg/l)	26	27	29	26	27	1	0		27	27
	Sum of Ions (mg/l)	152	161	168	159	159	1	0		159	159
Nutrients	C-(org) (mg/l)	3.0	3.6	3.3	3.3	3.5	1	0		3.5	3.5
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	<0.040	<0.040	0.48	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.11	0.080	0.040	<0.020	0.030	1	0		0.030	0.030
	Po210 (Bq/L)	<0.005	<0.005	<0.005	<0.005	<0.005	1	1	-	<0.005	<0.005
	Ra226 (Bq/L)	0.03	0.02	0.04	0.03	0.02	1	0		0.02	0.02
Physical Parameters	pH-L (pH Unit)	7.91	8.02	7.87	7.87	7.80	1	0		7.80	7.80
	TDS (mg/l)	126	128	142	144	134	1	0		134	134
	TSS (mg/l)	<1	<1	2	<1	<1	1	1	-	<1	<1
	Temp. (°C)	12.3	15.7	7.90	13.8	12.0	1	0		12.0	12.0

Table 4.2.3-4 Station ML-1 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.2	0.2	0.2	0.2	0.2	2	0		0.2	0.2
	Ba (mg/l)	0.044	0.037	0.036	0.043	0.04	2	0		0.04	0.04
	Cu (mg/l)	0.0011	0.00035	0.00040	0.00040	0.0014	2	0	0.0014	0.0004	0.0024
	Fe (mg/l)	0.011	0.021	0.023	0.0075	0.011	2	0	0.012	0.0028	0.019
	Mo (mg/l)	0.0019	0.0010	0.0015	0.0021	0.002	2	0	0.0003	0.0018	0.0022
	Ni (mg/l)	0.0002	0.0002	0.0001	0.0002	0.0002	2	0	0.0001	0.0001	0.0003
	Pb (mg/l)	0.0002	<0.0001	<0.0001	<0.0001	0.0001	2	1		<0.0001	0.0001
	Se (mg/l)	0.00093	0.00045	0.00080	0.0011	0.001	2	0	0.0001	0.00090	0.0011
	U (µg/l)	56	23	44	58	62.5	2	0	11	55	70
	Zn (mg/l)	0.0023	0.00090	0.0022	0.00060	0.0021	2	0	0.0014	0.0011	0.0031
Major Ions	Alk (mg/l)	68	55	54	65	64	2	0	5	60	67
	Ca (mg/l)	20	17	16	20	20	2	0	2.1	18	21
	Cl (mg/l)	7.1	3.5	5.4	7.7	7.5	2	0	0.71	7.0	8
	CO3 (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	HCO3 (mg/l)	83	67	66	80	78	2	0	6.4	73	82
	Cond-L (µS/cm)	182	135	151	186	185	2	0	15	174	195
	K (mg/l)	1.2	1.0	1.0	1.1	1.2	2	0	0.21	1.0	1.3
	Hardness (mg/l)	69	56	53	67	68	2	0	7.1	63	73
	Na (mg/l)	10	5.2	8.7	12	12	2	0	0.71	11	12
	OH (mg/l)	<1	<1	<1	<1	<1	2	2	-	<1	<1
	SO4 (mg/l)	16	8.9	15	18	19	2	0	2.1	17	20
	Sum of Ions (mg/l)	142	106	115	142	142	2	0	15	131	152
Nutrients	C-(org) (mg/l)	6.0	6.3	7.2	5.8	5.9	1	0		5.9	5.9
	P-(TP) (mg/l)	0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.073	<0.040	0.090	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.068	<0.020	<0.020	0.15	<0.020	1	1	-	<0.020	<0.020
	Po210 (Bq/L)	<0.005	<0.005	<0.005	<0.005	<0.005	1	1	-	<0.005	<0.005
	Ra226 (Bq/L)	0.007	0.005	0.005	0.006	0.006	2	1	-	<0.005	0.006
Physical Parameters	pH-L (pH Unit)	7.93	7.77	7.70	7.89	7.45	2	0	0.37	7.19	7.71
	TDS (mg/l)	127	100	105	118	122	2	0	11	114	130
	TSS (mg/l)	<1	<1	2	<1	<1	2	2	-	<1	<1
	Temp. (°C)	11.0	14.0	15.0	12.2	7.5	2	0	7.3	2.3	12.6

Table 4.2.3-5 Station CS-1 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.2	0.2	0.2	0.2	0.2	1	0		0.2	0.2
	Ba (mg/l)	0.043	0.042	0.038	0.042	0.038	1	0		0.038	0.038
	Cu (mg/l)	0.00030	0.0012	0.00040	0.00080	0.00050	1	0		0.00050	0.00050
	Fe (mg/l)	0.025	0.045	0.071	0.042	0.079	1	0		0.079	0.079
	Mo (mg/l)	0.0020	0.0017	0.0015	0.0019	0.0020	1	0		0.0020	0.0020
	Ni (mg/l)	0.0001	0.0002	0.0002	0.0003	0.0002	1	0		0.0002	0.0002
	Pb (mg/l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	1	1	-	<0.0001	<0.0001
	Se (mg/l)	0.0009	0.0008	0.0007	0.001	0.0007	1	0		0.0007	0.0007
	U (µg/l)	56	44	37	54	46	1	0		46	46
	Zn (mg/l)	<0.00050	0.0028	<0.00050	0.0013	0.00080	1	0		0.00080	0.00080
Major Ions	Alk (mg/l)	67	60	53	59	58	1	0		58	58
	Ca (mg/l)	20	18	16	18	18	1	0		18	18
	Cl (mg/l)	8.0	5.8	5.0	6.2	5.9	1	0		5.9	5.9
	CO3 (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	HCO3 (mg/l)	82	73	65	72	71	1	0		71	71
	Cond-L (µS/cm)	182	163	145	158	161	1	0		161	161
	K (mg/l)	1.1	1.0	0.90	1.0	0.80	1	0		0.80	0.80
	Hardness (mg/l)	68	61	53	61	62	1	0		62	62
	Na (mg/l)	11	8.7	7.9	9.5	8.9	1	0		8.9	8.9
	OH (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	SO4 (mg/l)	16	14	14	15	14	1	0		14	14
	Sum of Ions (mg/l)	143	124	112	126	123	1	0		123	123
Nutrients	C-(org) (mg/l)	5.6	6.4	7.8	5.9	8.3	1	0		8.3	8.3
	P-(TP) (mg/l)	<0.01	<0.01	0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	<0.04	<0.04	0.09	<0.04	<0.04	1	1	-	<0.04	<0.04
Radionuclide	Pb210 (Bq/L)	0.12	0.030	0.040	<0.020	<0.020	1	1	-	<0.020	<0.020
	Po210 (Bq/L)	<0.005	<0.005	<0.005	<0.005	<0.005	1	1	-	<0.005	<0.005
	Ra226 (Bq/L)	<0.005	<0.005	0.02	0.005	0.01	1	0		0.01	0.01
Physical Parameters	pH-L (pH Unit)	8.05	7.74	7.75	7.87	7.62	1	0		7.62	7.62
	TDS (mg/l)	100	118	101	110	112	1	0		112	112
	TSS (mg/l)	<1	1	7	2	5	1	0		5	5
	Temp. (°C)	10.8	16.4	15.4	13.2	14.7	1	0		14.7	14.7

Table 4.2.3-6 Station CS-2 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.2	0.2	0.2	0.2	0.1	1	0		0.1	0.1
	Ba (mg/l)	0.012	0.022	0.035	0.036	0.021	1	0		0.021	0.021
	Cu (mg/l)	0.0013	0.0014	0.0030	0.00030	0.0012	1	0		0.0012	0.0012
	Fe (mg/l)	0.010	0.032	0.083	0.062	0.047	1	0		0.047	0.047
	Mo (mg/l)	0.00030	0.00075	0.0014	0.0015	0.00090	1	0		0.00090	0.00090
	Ni (mg/l)	0.0012	0.0020	0.0040	0.00020	0.0020	1	0		0.0020	0.0020
	Pb (mg/l)	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	1	1	-	<0.0001	<0.0001
	Se (mg/l)	<0.0001	0.0003	0.0006	0.0008	0.0003	1	0		0.0003	0.0003
	U (µg/l)	1.4	16	32	41	17	1	0		17	17
	Zn (mg/l)	0.0034	0.0033	0.0061	<0.00050	0.0028	1	0		0.0028	0.0028
Major Ions	Alk (mg/l)	28	39	50	51	38	1	0		38	38
	Ca (mg/l)	7.3	11	14	15	11	1	0		11	11
	Cl (mg/l)	3.6	4.5	4.8	5.4	4.2	1	0		4.2	4.2
	CO3 (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	HCO3 (mg/l)	34	48	61	62	46	1	0		46	46
	Cond-L (µS/cm)	66.0	102	134	138	102	1	0		102	102
	K (mg/l)	0.8	1	1	1	0.8	1	0		0.8	0.8
	Hardness (mg/l)	27	39	47	52	40	1	0		40	40
	Na (mg/l)	2.9	5.1	7.2	8.1	5.0	1	0		5.0	5.0
	OH (mg/l)	<1	<1	<1	<1	<1	1	1	-	<1	<1
	SO4 (mg/l)	3.9	7.6	12	13	7.8	1	0		7.8	7.8
	Sum of Ions (mg/l)	55.0	79.5	103	108	78.0	1	0		78.0	78.0
Nutrients	C-(org) (mg/l)	3.0	4.4	7.6	5.6	6.2	1	0		6.2	6.2
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.080	<0.040	0.12	<0.040	0.10	1	0		0.10	0.10
Radionuclide	Pb210 (Bq/L)	<0.02	<0.02	0.02	<0.02	<0.02	1	1	-	<0.02	<0.02
	Po210 (Bq/L)	<0.005	<0.005	<0.005	<0.005	<0.005	1	1	-	<0.005	<0.005
	Ra226 (Bq/L)	0.007	0.006	0.01	0.007	<0.005	1	1	-	<0.005	<0.005
Physical Parameters	pH-L (pH Unit)	7.67	7.68	7.68	7.77	7.51	1	0		7.51	7.51
	TDS (mg/l)	34	82	85	95	76	1	0		76	76
	TSS (mg/l)	<1	<1	5	2	2	1	0		2	2
	Temp. (°C)	8.20	19.4	15.1	12.9	12.2	1	0		12.2	12.2

Table 4.3.1-1 Station ZOR-01 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.1	0.2	0.1	0.2	0.13	7	0	0.05	0.1	0.2
	Ba (mg/l)	0.021	0.023	0.022	0.023	0.02	7	0	0.0041	0.011	0.023
	Cu (mg/l)	0.00081	0.0016	0.0015	0.0014	0.00060	7	0	0.00021	0.00040	0.0010
	Fe (mg/l)	0.0045	0.0092	0.016	0.095	0.017	7	0	0.0083	0.0049	0.032
	Mo (mg/l)	0.00082	0.00092	0.00082	0.00096	0.00077	7	0	0.00015	0.00050	0.00090
	Ni (mg/l)	0.00016	0.00023	0.00032	0.00030	0.00013	7	0	0.000049	0.00010	0.00020
	Pb (mg/l)	0.00016	0.00026	0.00024	0.00036	0.00011	7	5	0.000038	<0.00010	0.00020
	Se (mg/l)	0.0001	0.0001	0.0001	0.0002	0.0001	7	1	0	<0.0001	0.0001
	U (µg/l)	16	15	12	14	13	7	0	2.1	8.0	14
	Zn (mg/l)	0.0019	0.0031	0.0025	0.0029	0.00066	7	3	0.00026	<0.00050	0.0012
Major Ions	Alk (mg/l)	95.7	101	92.8	91.6	85.3	7	0	15.5	51.0	96.0
	Ca (mg/l)	31	32	30	30	28	7	0	5.1	17	32
	Cl (mg/l)	0.3	0.3	0.4	0.3	0.3	7	0	0.05	0.2	0.3
	CO3 (mg/l)	<1	<1	<1	<1	<1	7	7	-	<1	<1
	HCO3 (mg/l)	117	123	113	112	104	7	0	18.9	62.0	117
	Cond-L (µS/cm)	208	218	207	208	195	7	0	34.5	120	223
	K (mg/l)	0.8	0.8	0.7	0.7	0.6	7	0	0.1	0.4	0.7
	Hardness (mg/l)	109	112	103	105	98.6	7	0	18.6	58.0	112
	Na (mg/l)	1.8	1.8	1.7	1.8	1.5	7	0	0.29	0.90	1.7
	OH (mg/l)	<1	<1	<1	<1	<1	7	7	-	<1	<1
	SO4 (mg/l)	18	18	16	16	15	7	0	2.4	10	17
	Sum of Ions (mg/l)	176	184	169	169	157	7	0	27.6	96.0	176
Nutrients	C-(org) (mg/l)	7.9	9.2	11	8.8	8.1	1	0		8.1	8.1
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.10	<0.040	0.090	<0.040	<0.040	1	1	-	<0.040	<0.040
Radionuclide	Pb210 (Bq/L)	0.03	0.03	<0.02	<0.02	<0.02	1	1	-	<0.02	<0.02
	Po210 (Bq/L)	0.005	0.008	<0.005	<0.005	0.006	1	0		0.006	0.006
	Ra226 (Bq/L)	0.02	0.02	0.02	0.02	0.03	7	0	0.014	0.01	0.05
Physical Parameters	pH-L (pH Unit)	8.01	7.92	7.88	7.88	7.88	7	0	0.167	7.60	8.09
	TDS (mg/l)	136	148	136	135	129	7	0	23.2	80.0	149
	TSS (mg/l)	1.6	1.4	1.9	7.0	1.0	7	3	0.0	<1.0	1.0
	Temp. (°C)	10.5	10.8	10.6	12.3	14.6	7	0	5.94	5.00	21.1

Table 4.3.1-2 Station ZOR-02 Statistical and 5-Year Mean Analysis

		Previous Period Averages				2023 Statistics					
		2019	2020	2021	2022	Average	Count	Count <DL	Std Dev	Min	Max
Metals	As (µg/l)	0.2	0.2	0.2	0.2	0.2	7	0	0.04	0.1	0.2
	Ba (mg/l)	0.025	0.023	0.023	0.026	0.025	7	0	0.0035	0.020	0.031
	Cu (mg/l)	0.0017	0.0013	0.0018	0.0017	0.0020	7	0	0.00018	0.0017	0.0022
	Fe (mg/l)	0.384	0.0476	0.0669	0.0715	0.098	7	0	0.0372	0.0580	0.140
	Mo (mg/l)	0.0015	0.0012	0.0012	0.0012	0.0013	7	0	0.00011	0.0012	0.0015
	Ni (mg/l)	0.00037	0.00020	0.00024	0.00020	0.00024	7	0	0.000053	0.00020	0.00030
	Pb (mg/l)	0.00038	0.00011	0.00018	<0.00010	0.00011	7	5	0.000038	<0.00010	0.00020
	Se (mg/l)	0.0004	0.0002	0.0002	0.0002	0.0004	7	0	0.0002	0.0002	0.0008
	U (µg/l)	451	164	218	290	453	7	0	105	302	567
	Zn (mg/l)	0.0010	0.00062	0.0012	<0.00050	0.00051	7	5	0.000038	<0.00050	0.00060
Major Ions	Alk (mg/l)	101	103	102	103	98.7	7	0	9.96	80.0	109
	Ca (mg/l)	46	38	38	41	45	7	0	4.5	39	50
	Cl (mg/l)	0.7	0.4	0.4	0.5	0.6	7	3	0.3	0.3	<1
	CO3 (mg/l)	<1	<1	<1	<1	<1	7	7	-	<1	<1
	HCO3 (mg/l)	124	125	124	126	121	7	0	12.1	98.0	133
	Cond-L (µS/cm)	298	254	254	267	295	7	0	28.5	253	326
	K (mg/l)	0.9	0.8	0.7	0.8	0.8	7	0	0.08	0.8	1
	Hardness (mg/l)	153	130	128	135	147	7	0	15.7	123	164
	Na (mg/l)	2.1	1.9	1.9	2.1	2.0	7	0	0.29	1.4	2.3
	OH (mg/l)	<1	<1	<1	<1	<1	7	7	-	<1	<1
	SO4 (mg/l)	55	32	31	37	50	7	0	9.1	38	64
	Sum of Ions (mg/l)	238	207	205	216	229	7	0	21.5	192	252
Nutrients	C-(org) (mg/l)	6.2	8.3	10	7.3	7.1	1	0		7.1	7.1
	P-(TP) (mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	1	1	-	<0.01	<0.01
	NO3 (mg/l)	0.96	0.19	0.33	0.58	0.82	1	0		0.82	0.82
Radionuclide	Pb210 (Bq/L)	0.48	0.11	0.050	0.050	0.040	1	0		0.040	0.040
	Po210 (Bq/L)	0.01	0.02	0.03	0.05	0.05	1	0		0.05	0.05
	Ra226 (Bq/L)	0.23	0.14	0.15	0.17	0.23	7	0	0.027	0.18	0.26
Physical Parameters	pH-L (pH Unit)	7.92	7.92	7.94	7.93	8.00	7	0	0.069	7.9	8.1
	TDS (mg/l)	203	177	171	182	194	7	0	16.9	170	215
	TSS (mg/l)	1	1	2	1	1.3	7	4	0.4	<1	2
	Temp. (°C)	9.04	10.3	9.37	10.3	12	7	0	4.18	5.80	16.5

Table 4.3.1-3 Zora Creek - Downstream Water Quality

Year	Flow Path (ZOR-02)*		Verna Lake (AC-6A)		Ace Lake (AC-8)	
	U (µg/l)	Ra226 (Bq/L)	U (µg/l)	Ra226 (Bq/L)	U (µg/l)	Ra226 (Bq/L)
2010	1560.0	0.400	263.0	0.100	15.3	0.015
2011	940.0	1.200			16.5	0.015
2012			117.0	0.085	13.5	0.009
2013	624.8	0.368	201.0	0.140	11.5	0.020
2014	313.8	0.336	154.0	0.150	11.5	0.020
2015	595.2	0.667	389.3	0.109	13.5	0.030
2016	332.7	0.235	331.0	0.108	14.5	0.015
2017	424.5	0.311	279.3	0.115	12.5	0.025
2018	340.6	0.253	278.5	0.100	12.5	0.020
2019	451.1	0.232	271.5	0.090	12.5	0.025
2020	164.0	0.140	292.0	0.099	12.0	0.005
2021	218.1	0.154	248.3	0.097	8.9	0.010
2022	290.4	0.165	204.3	0.087	8.6	0.010
2023	452.6	0.231	252.0	0.085	8.1	0.010

Table 4.5.1 **Radon Track Etch Cup Summary**

		Annual Average (Bq/m3) and Sample Number (n)									
		2019		2020		2021		2022		2023	
	1982	Average	n	Average	n	Average	n	Average	n	Average	n
Ace Creek TEC	395.9	285.5	2	203	1	267	2	270	2	290	2
Eldorado TownsiteTEC	136.9	27	2	31	1	37.5	2	35	2	30	2
Fookes Delta TEC	217.8	126.5	2	101	1	104	2	145	2	150	2
Marie Delta TEC	144.5	96	2	59	1	98	2	115	2	105	2
Uranium City TownTEC		7	2	7	1	11.5	2	13.5	2	14	2

FIGURES

FIGURES

Figure 2.4 Beaverlodge Location Map

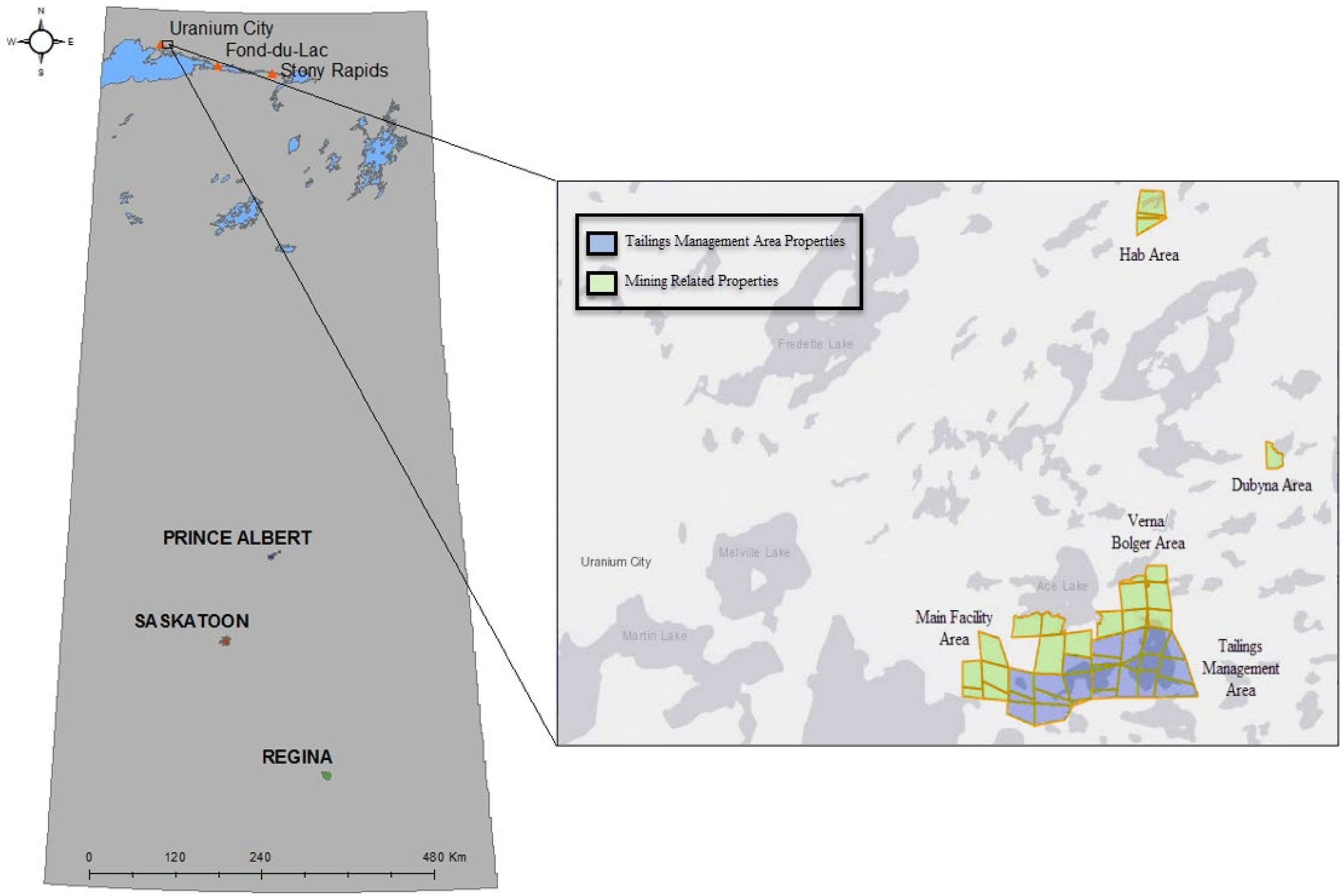


Figure 4.2 Regulatory Water Quality Monitoring Station Locations

Figure 4.2.1-1 AN-5 Pistol Creek below Hab Site

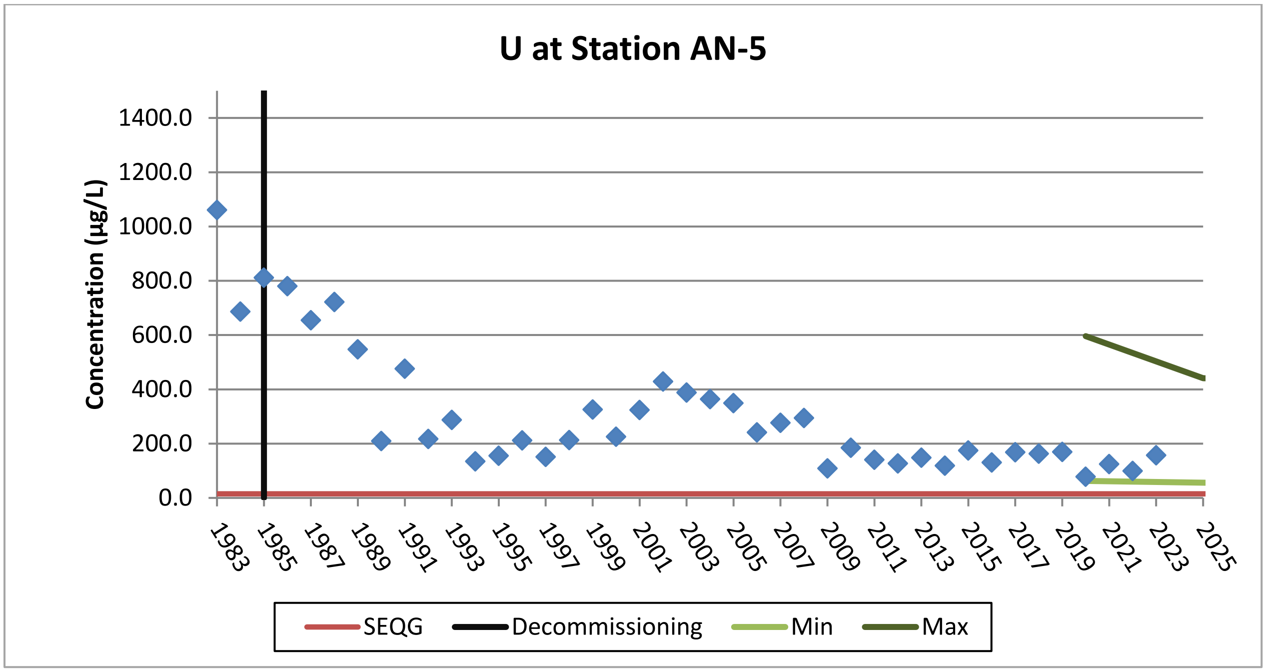


Figure 4.2.1-2 AN-5 Pistol Creek below Hab Site

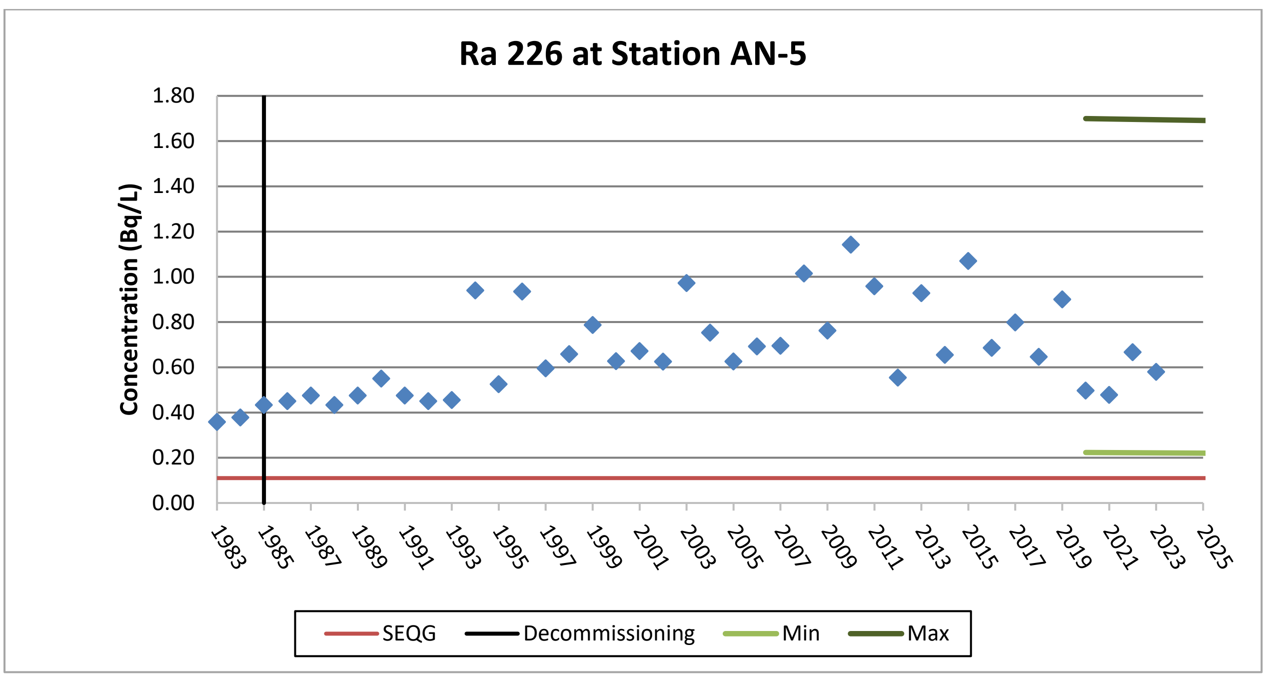
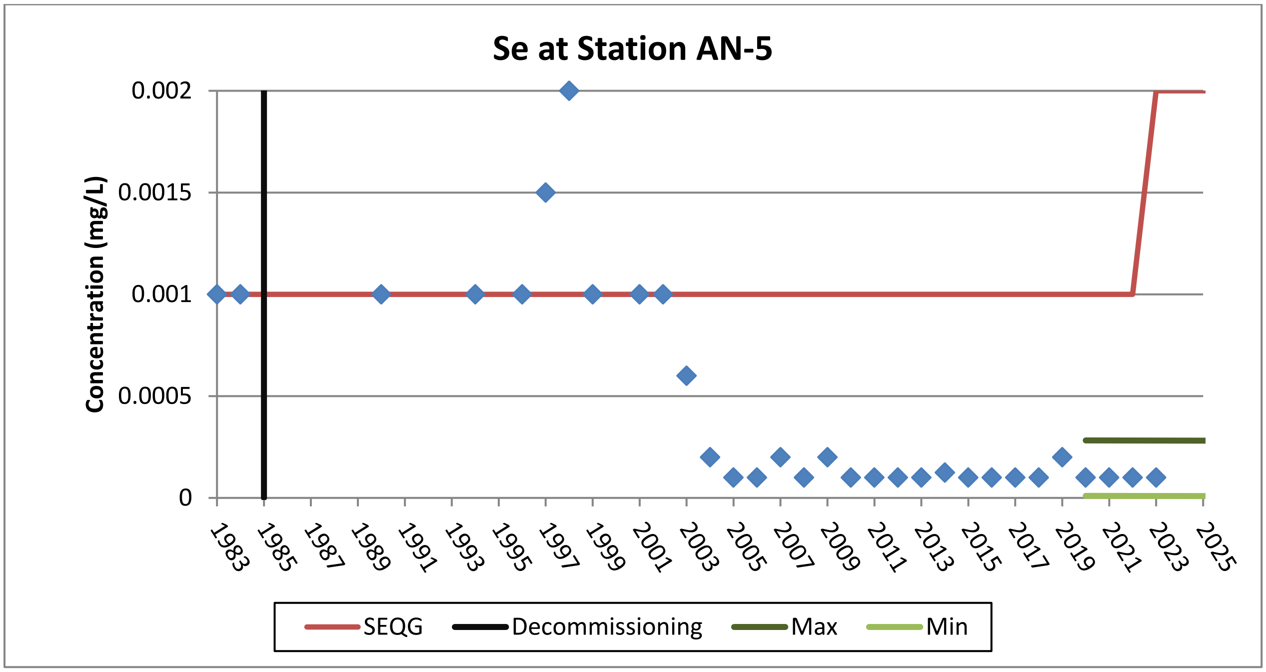


Figure 4.2.1-3 AN-5 Pistol Creek below Hab Site



Note: Method detection limit changed from 0.001 mg/L to 0.0001 mg/L in 2003.
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.1-4 AN-5 Pistol Creek below Hab Site

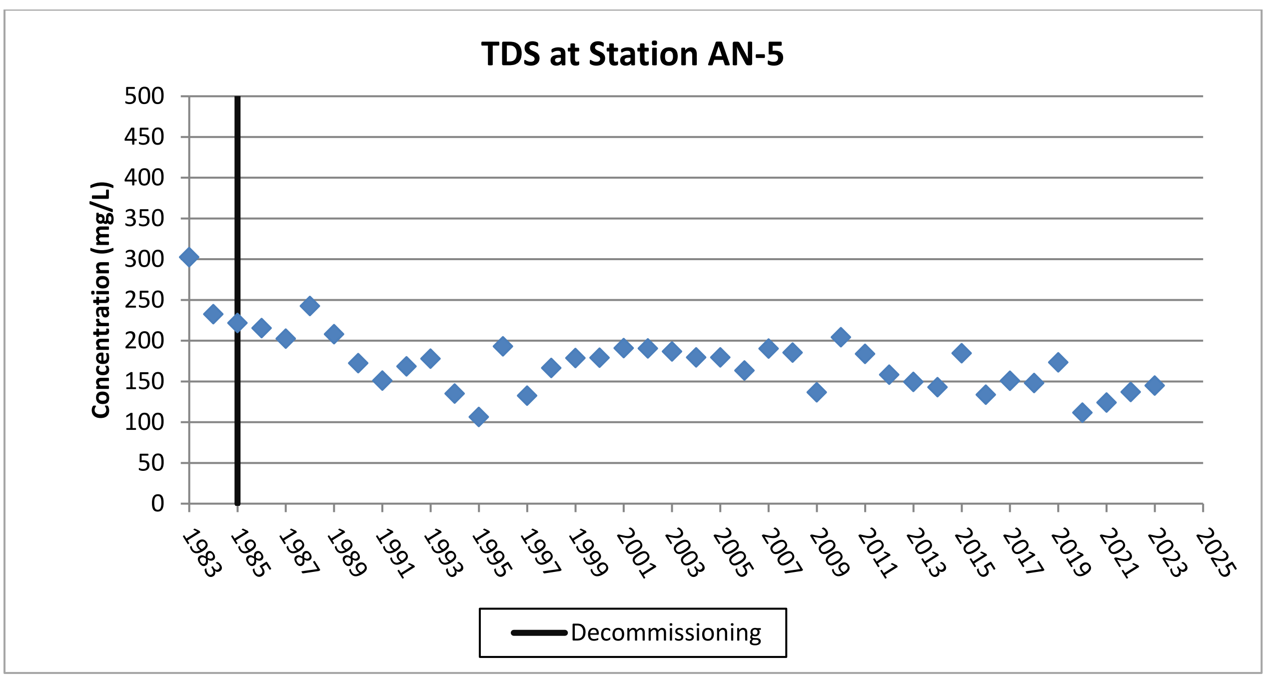


Figure 4.2.1-5 DB-6 Dubyna Creek

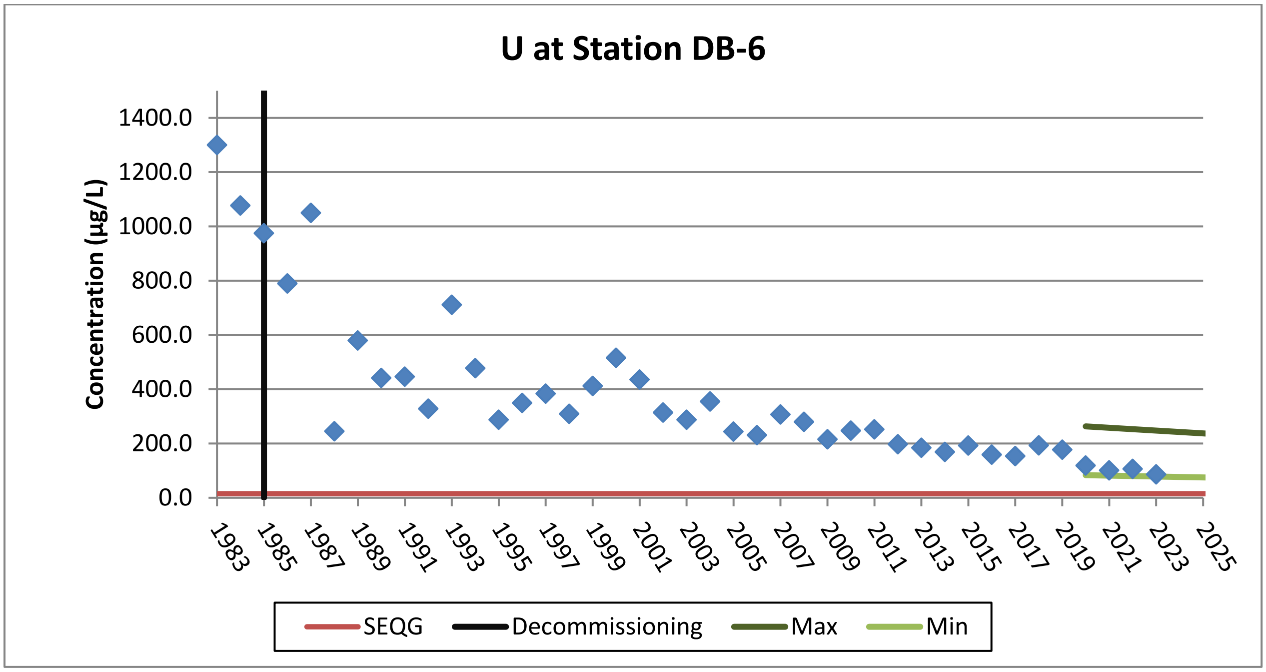


Figure 4.2.1-6 DB-6 Dubyna Creek

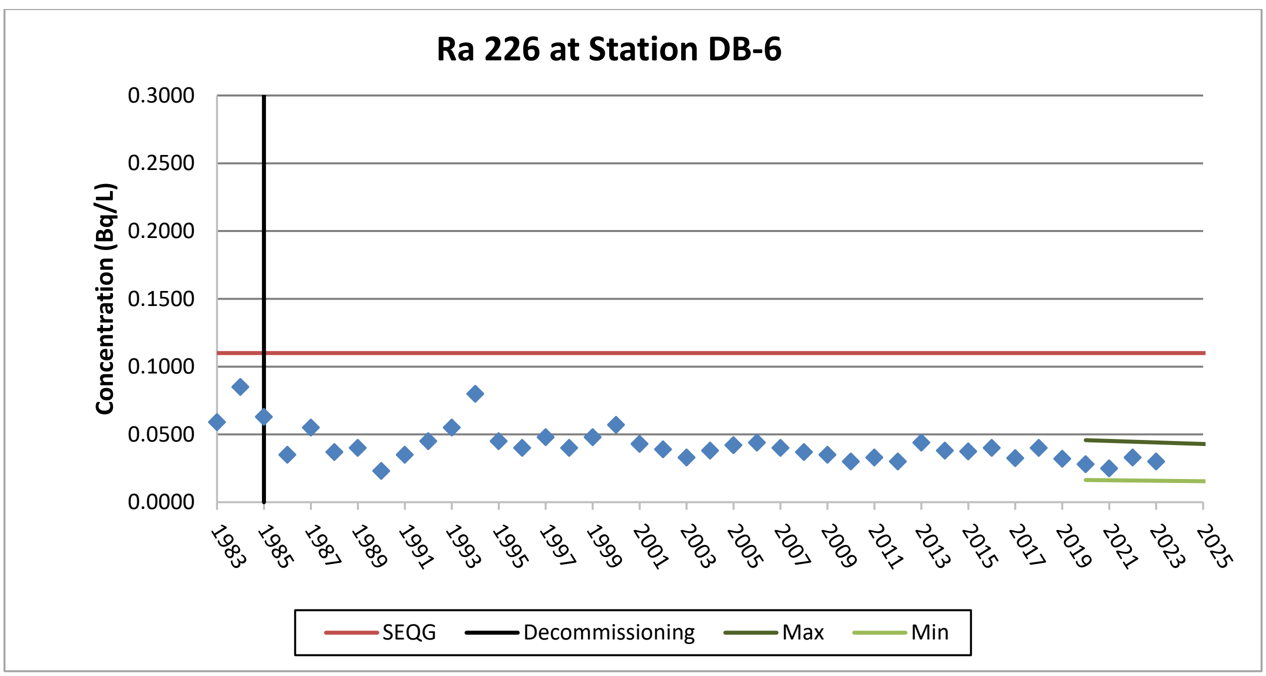
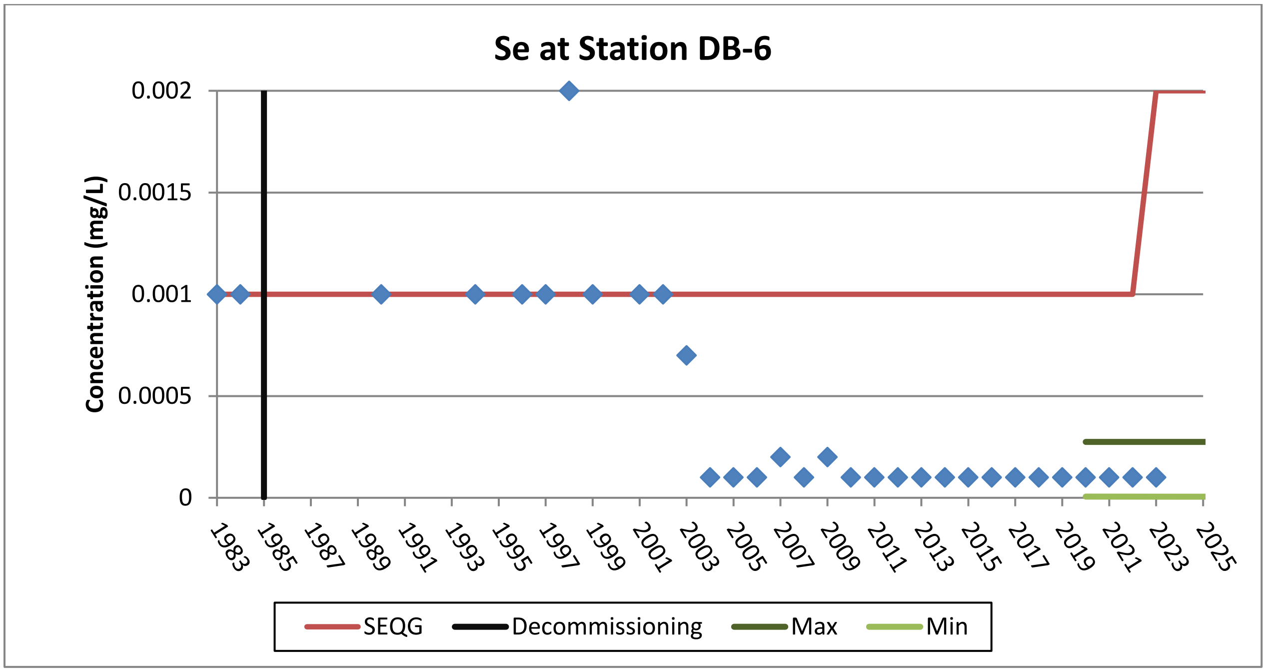


Figure 4.2.1-7 DB-6 Dubyna Creek



Note: Method detection limit changed from 0.001 mg/L to 0.0001 mg/L in 2003.
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.1-8 DB-6 Dubyna Creek

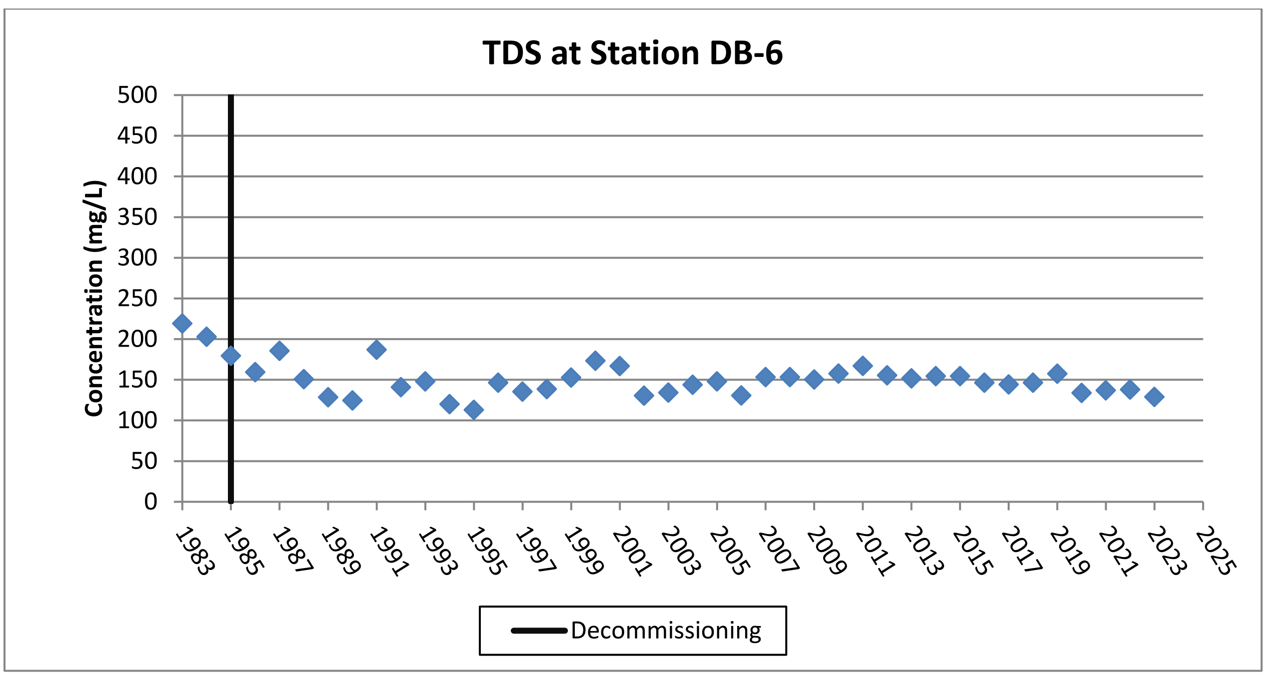


Figure 4.2.1-9 AC-6A Verna Lake Outlet to Ace Lake

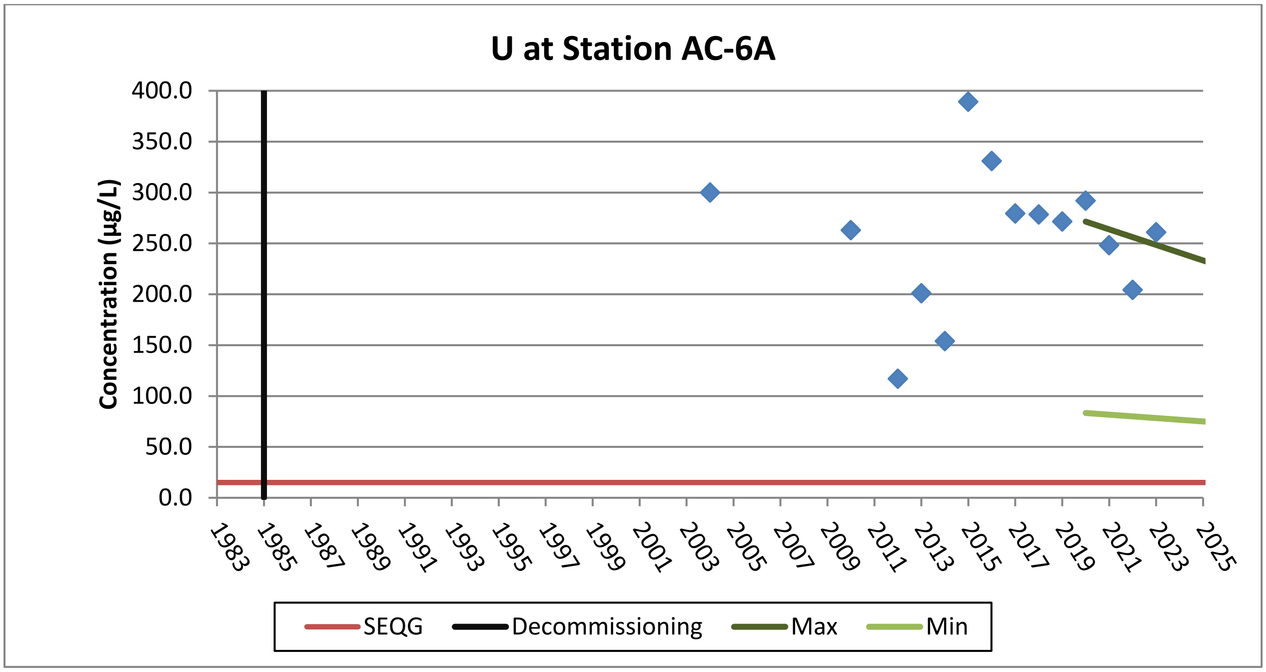


Figure 4.2.1-10 AC-6A Verna Lake Outlet to Ace Lake

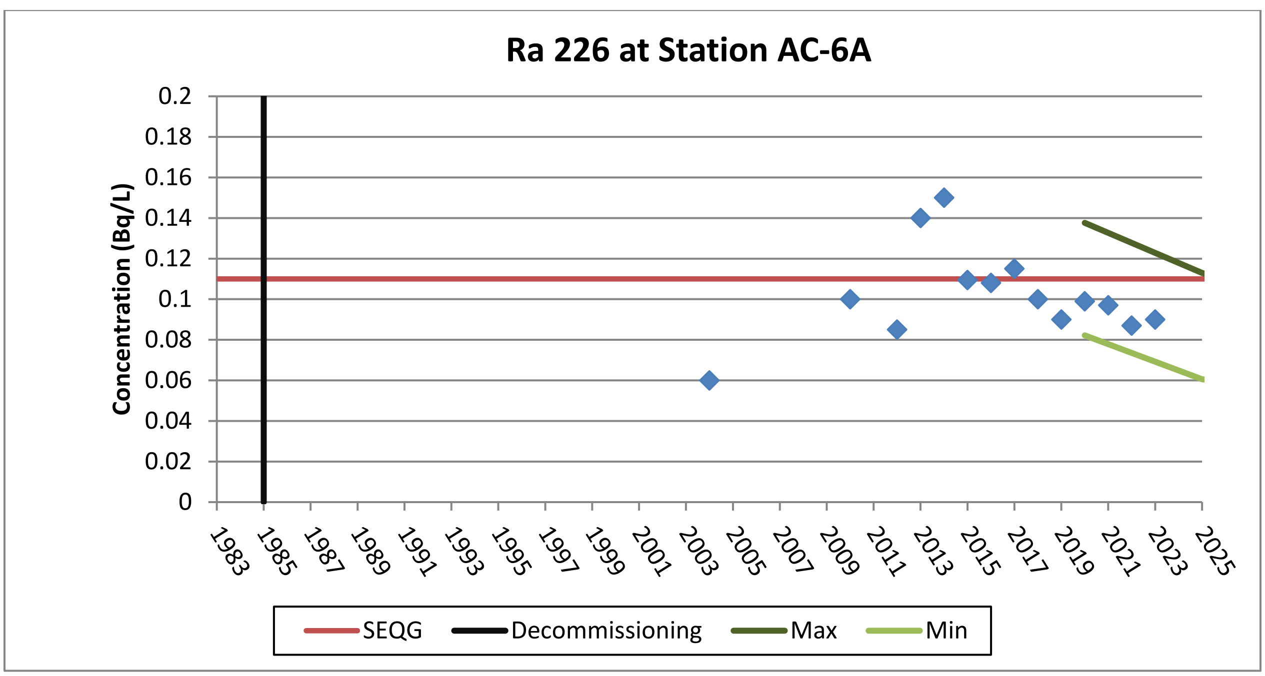
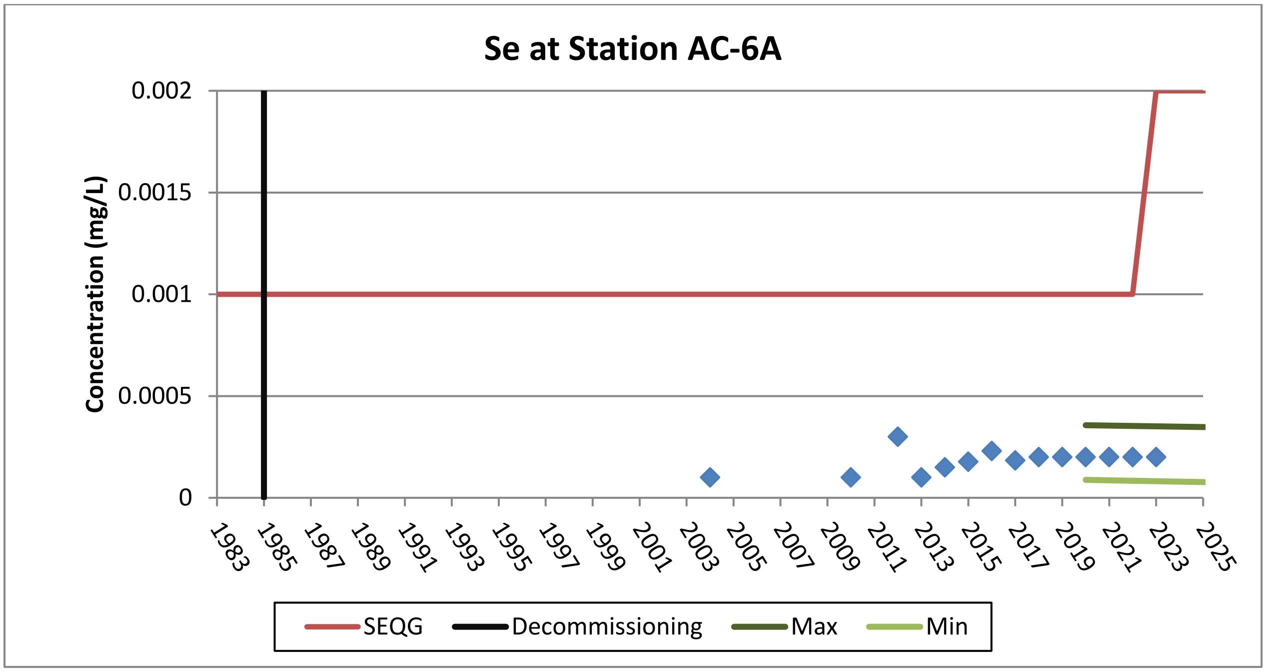


Figure 4.2.1-11 AC-6A Verna Lake Outlet to Ace Lake



Note: Method detection limit changed from 0.001 mg/L to 0.0001 mg/L in 2003.
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.1-12 AC-6A Verna Lake Outlet to Ace Lake

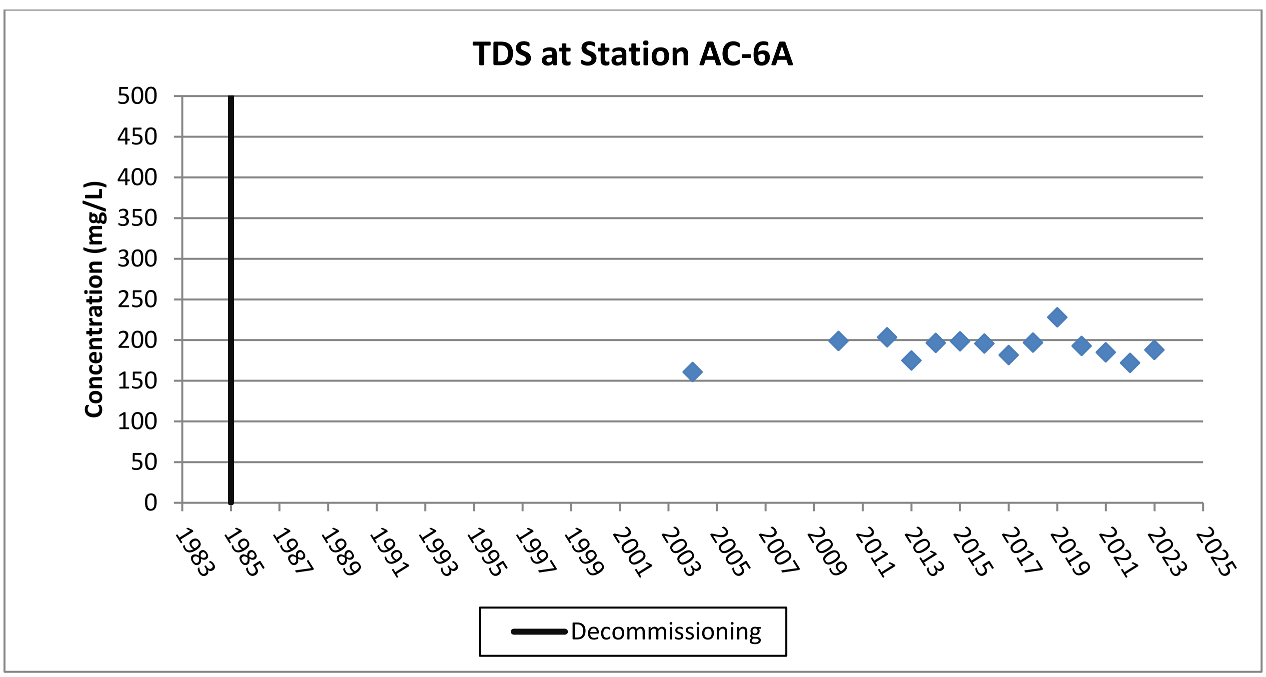


Figure 4.2.1-13 AC-8 Ace Lake Outlet to Ace Creek

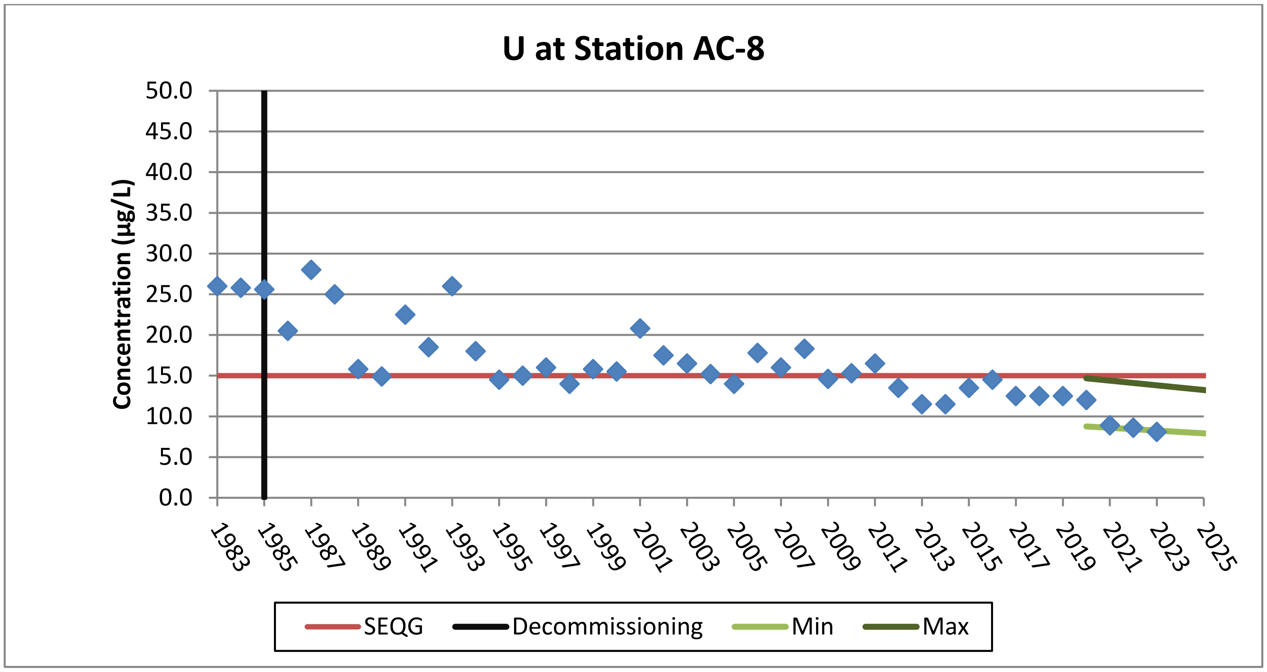


Figure 4.2.1-14 AC-8 Ace Lake Outlet to Ace Creek

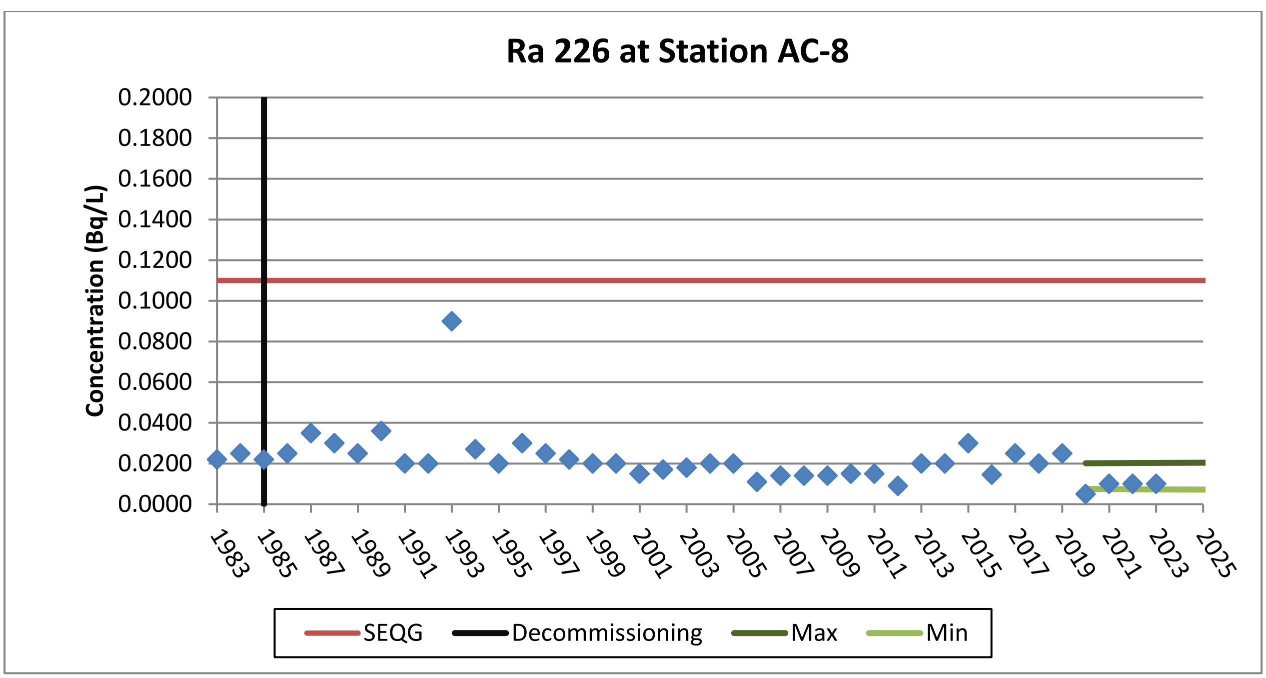
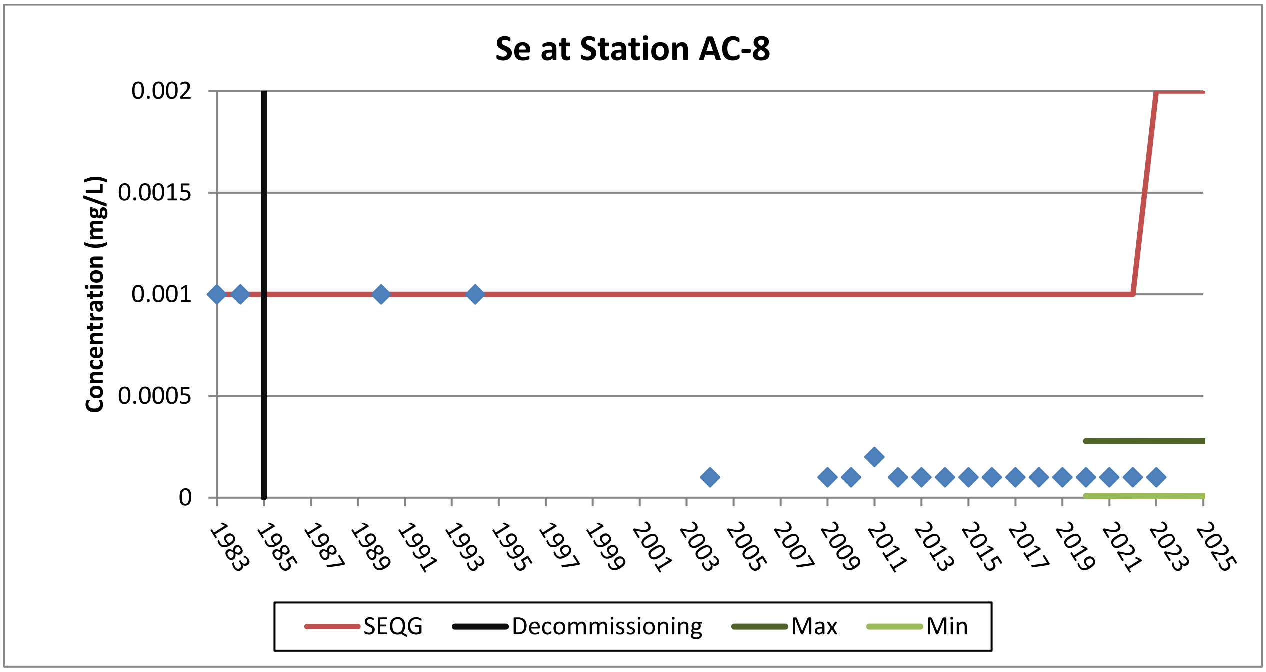


Figure 4.2.1-15 AC-8 Ace Lake Outlet to Ace Creek



Note: Method detection limit changed from 0.001 mg/L to 0.0001 mg/L in 2003.
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.1-16 AC-8 Ace Lake Outlet to Ace Creek

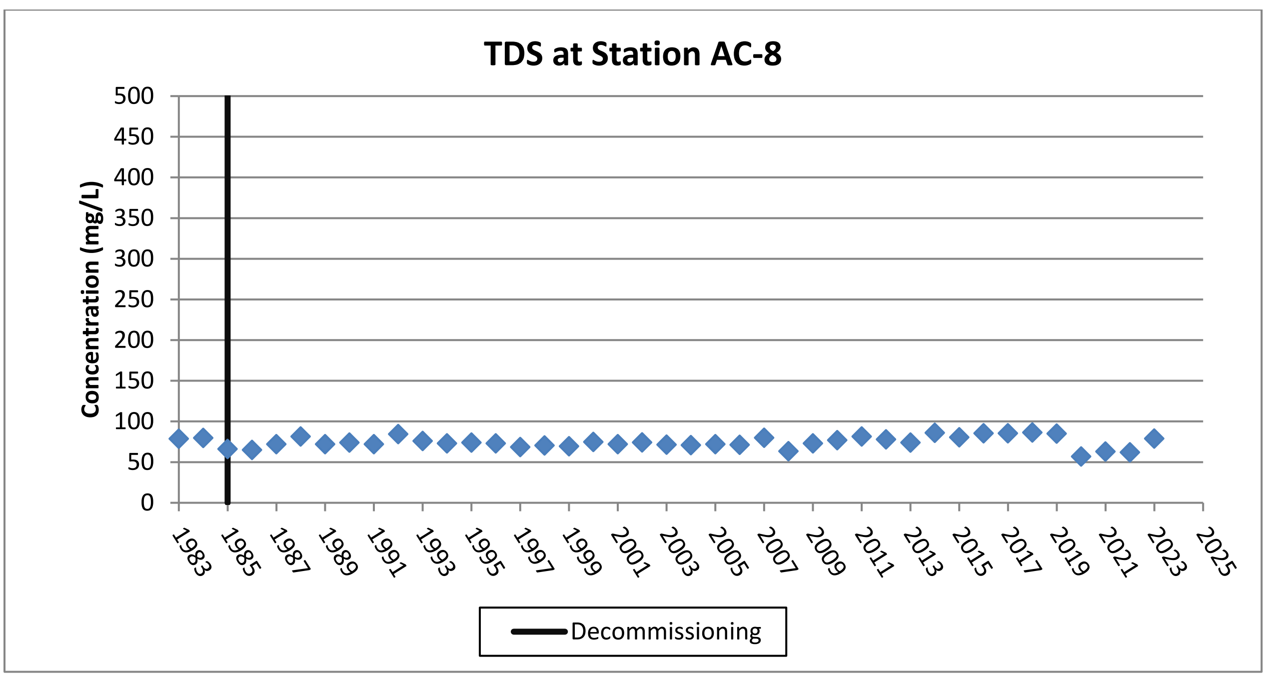


Figure 4.2.1-17 AC-14 - Ace Creek

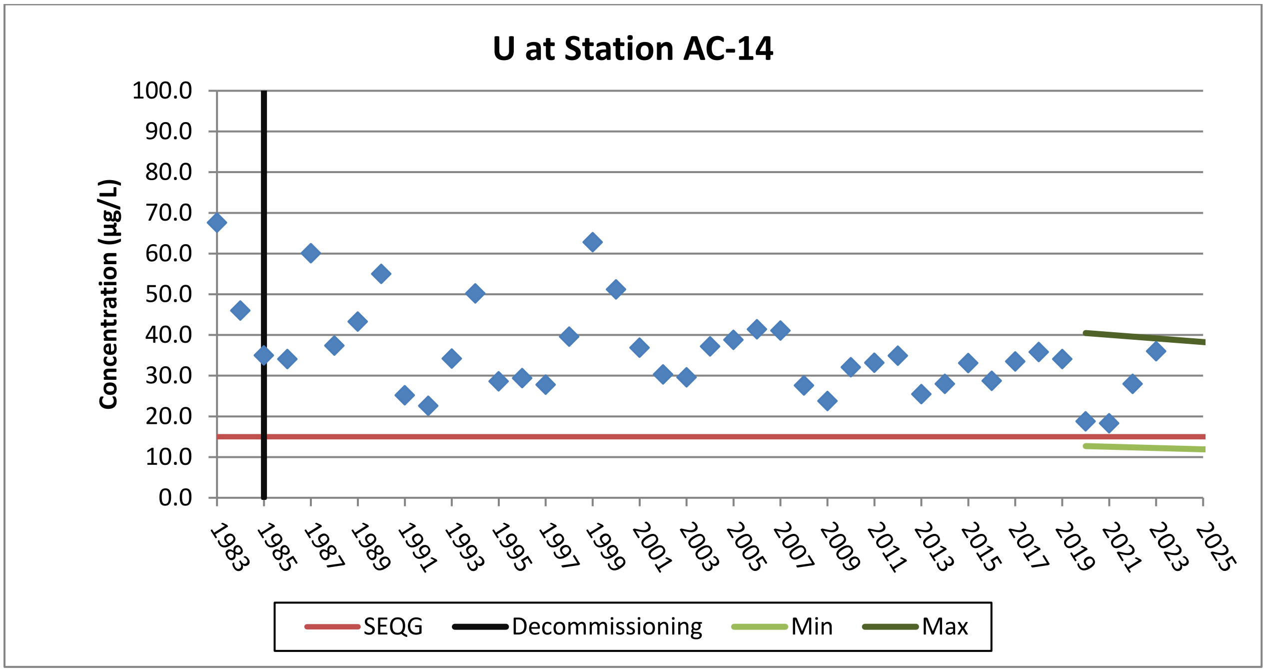


Figure 4.2.1-18 AC-14 - Ace Creek

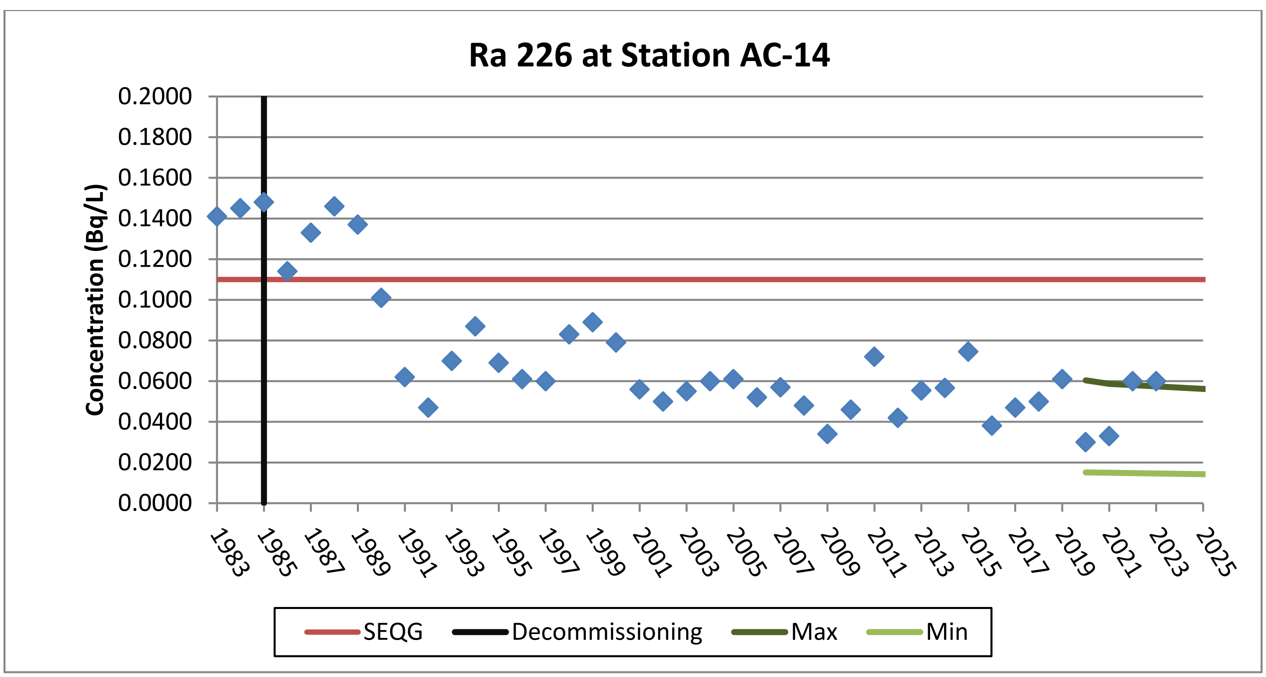
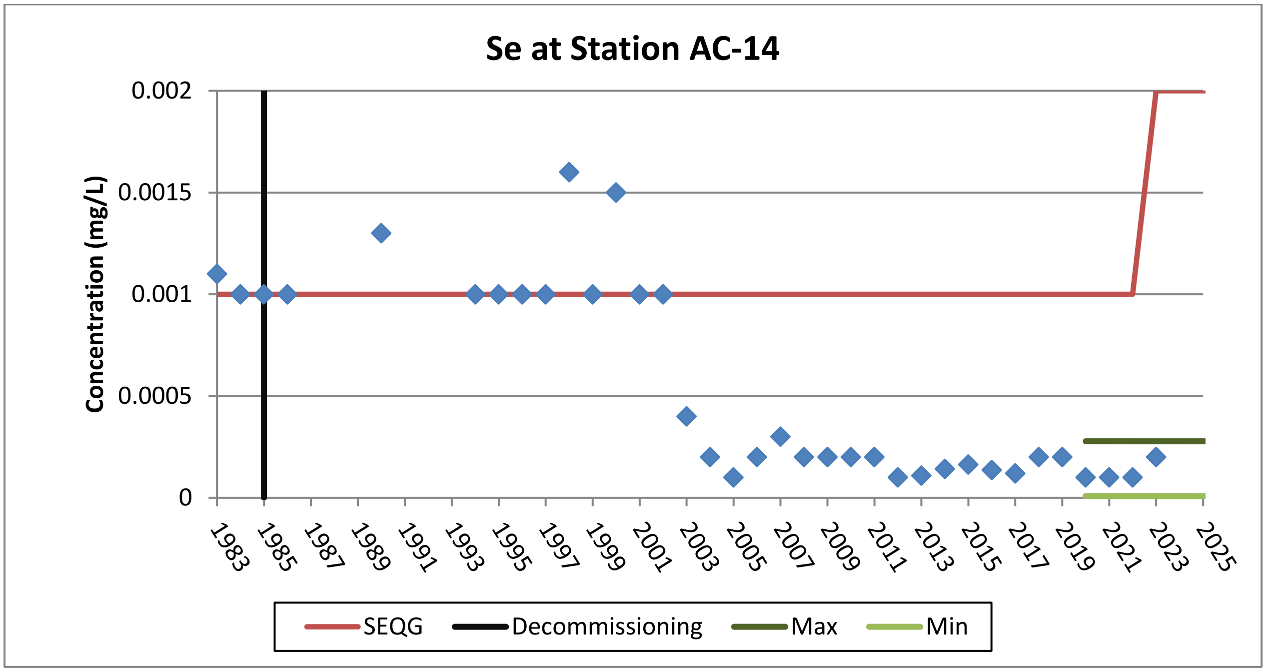


Figure 4.2.1-19 AC-14 - Ace Creek



Note: Method detection limit changed from 0.001 mg/L to 0.0001 mg/L in 2003.
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.1-20 AC-14 - Ace Creek

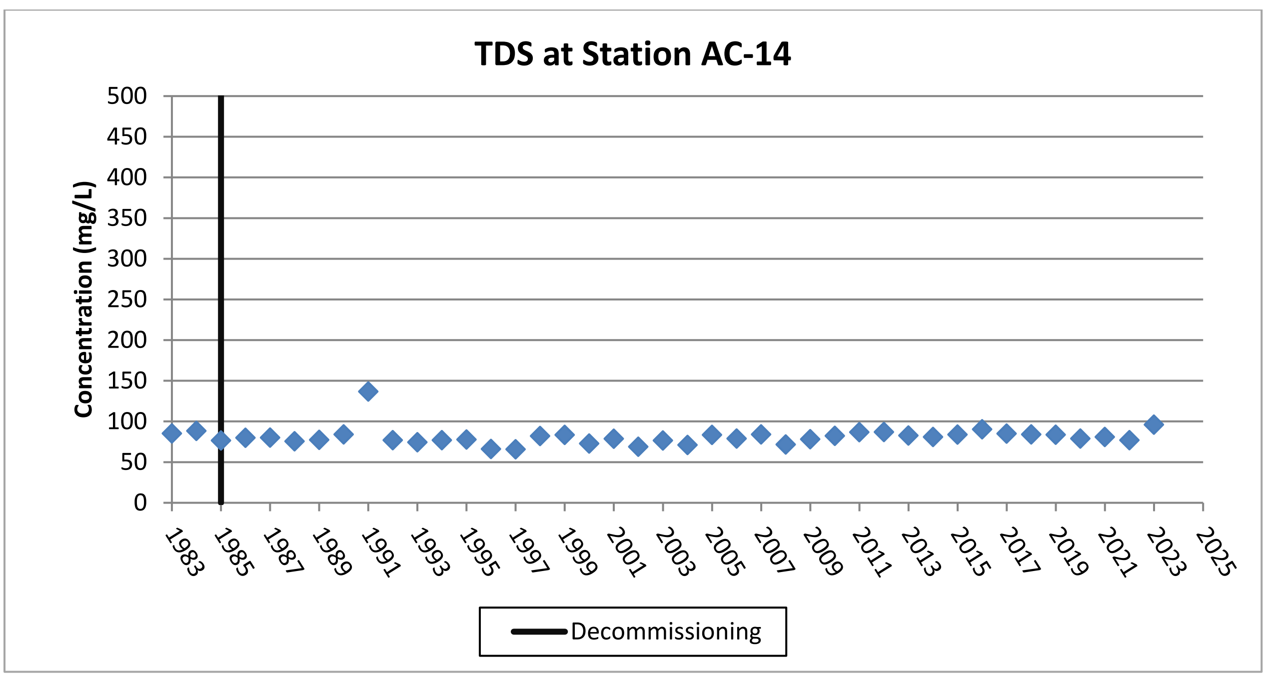
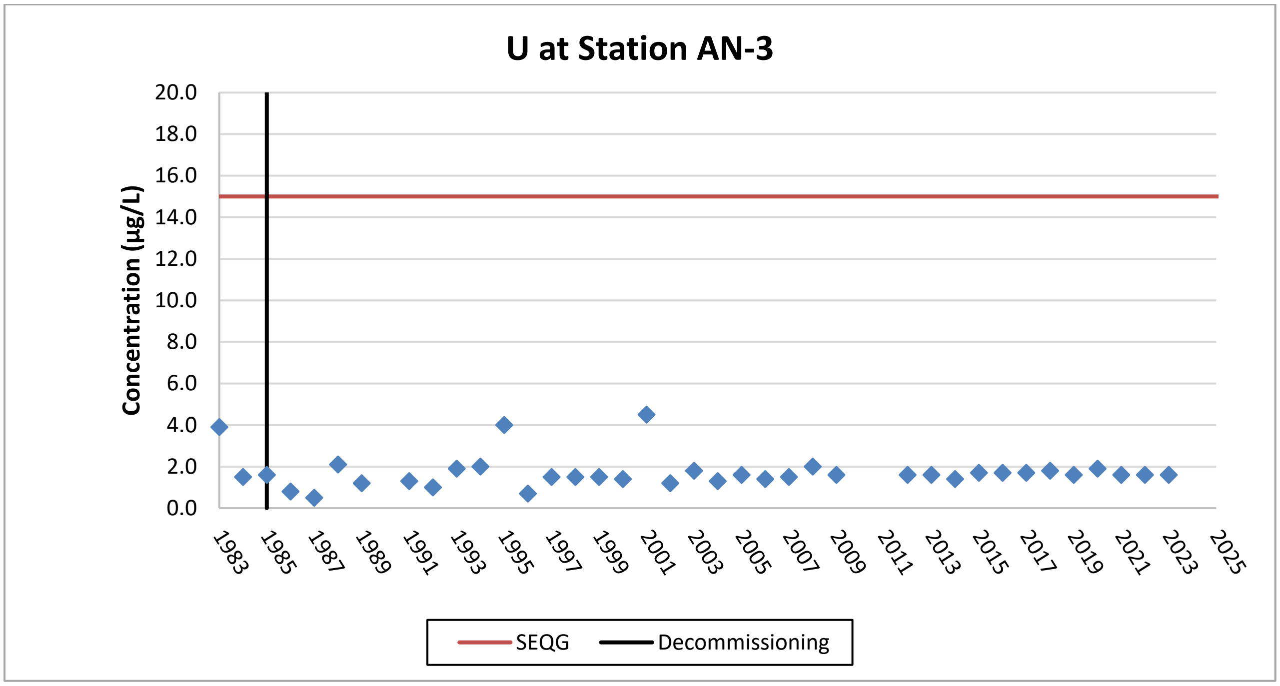
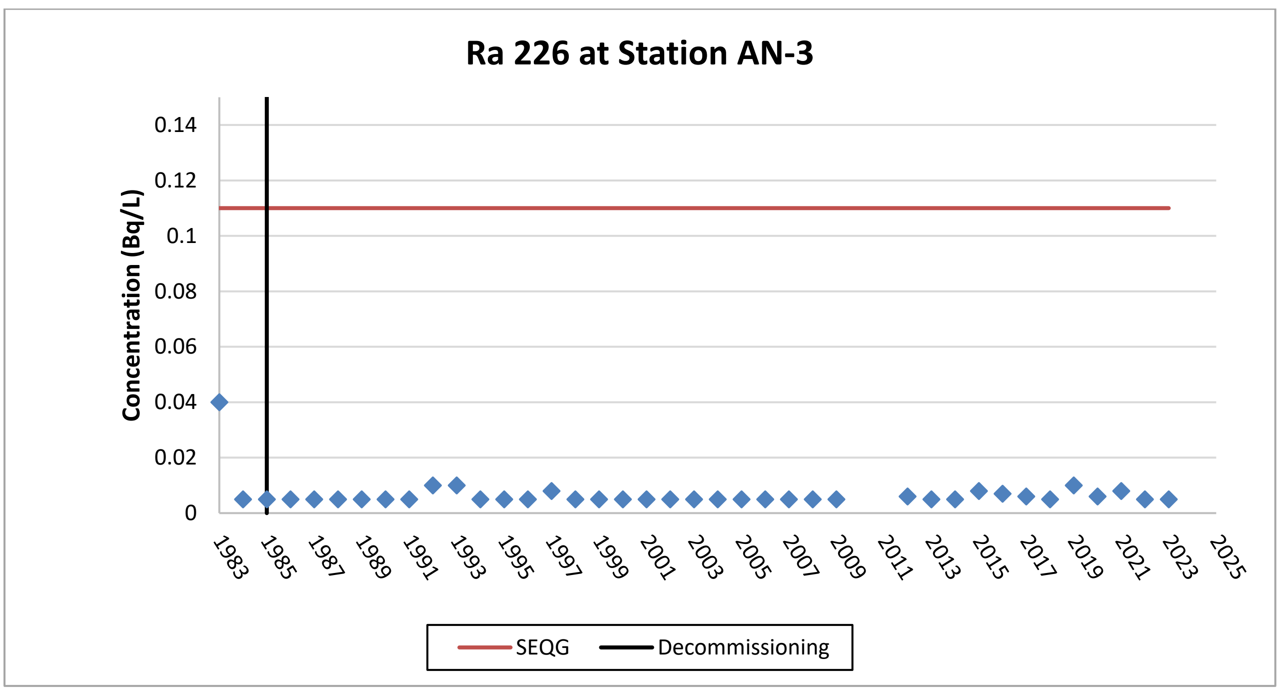


Figure 4.2.2-1 AN-3 Fulton Lake (Upstream of TL Stations)



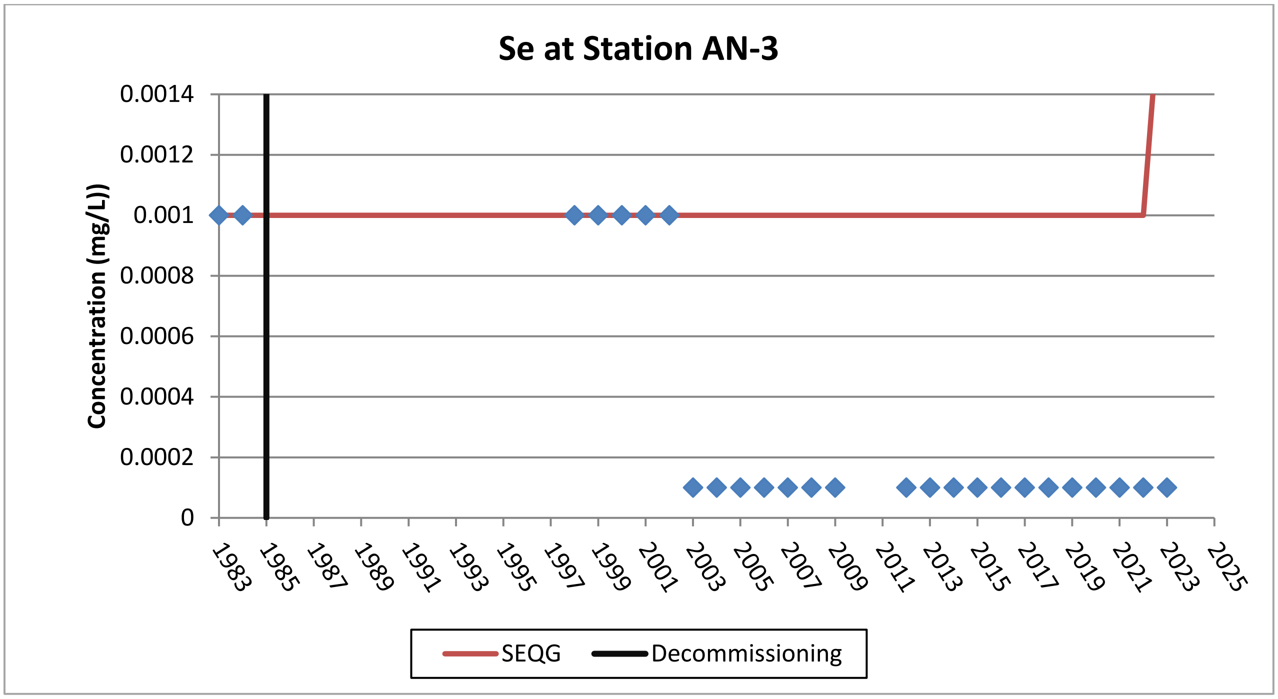
**The 2010 and 2011 scheduled sampling was not completed due to a lack of water flow.*

Figure 4.2.2-2 AN-3 Fulton Lake (Upstream of TL Stations)



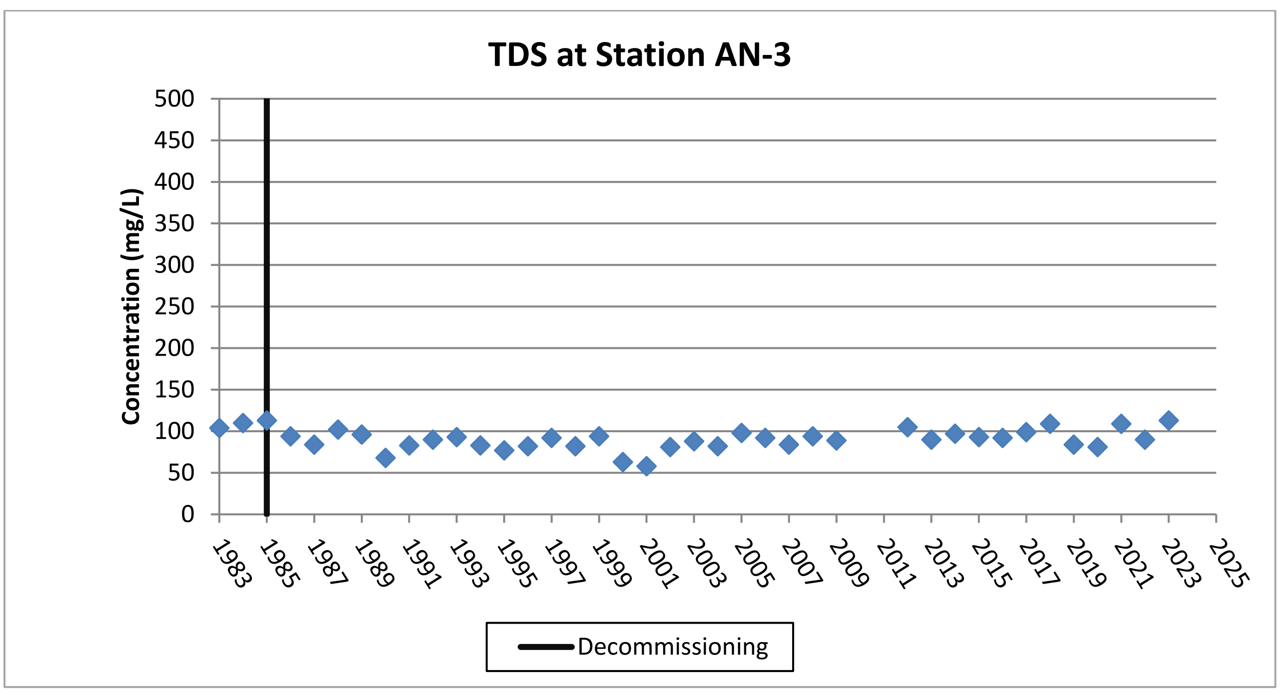
**The 2010 and 2011 scheduled sampling was not completed due to a lack of water flow.*

Figure 4.2.2-3 AN-3 Fulton Lake (Upstream of TL Stations)



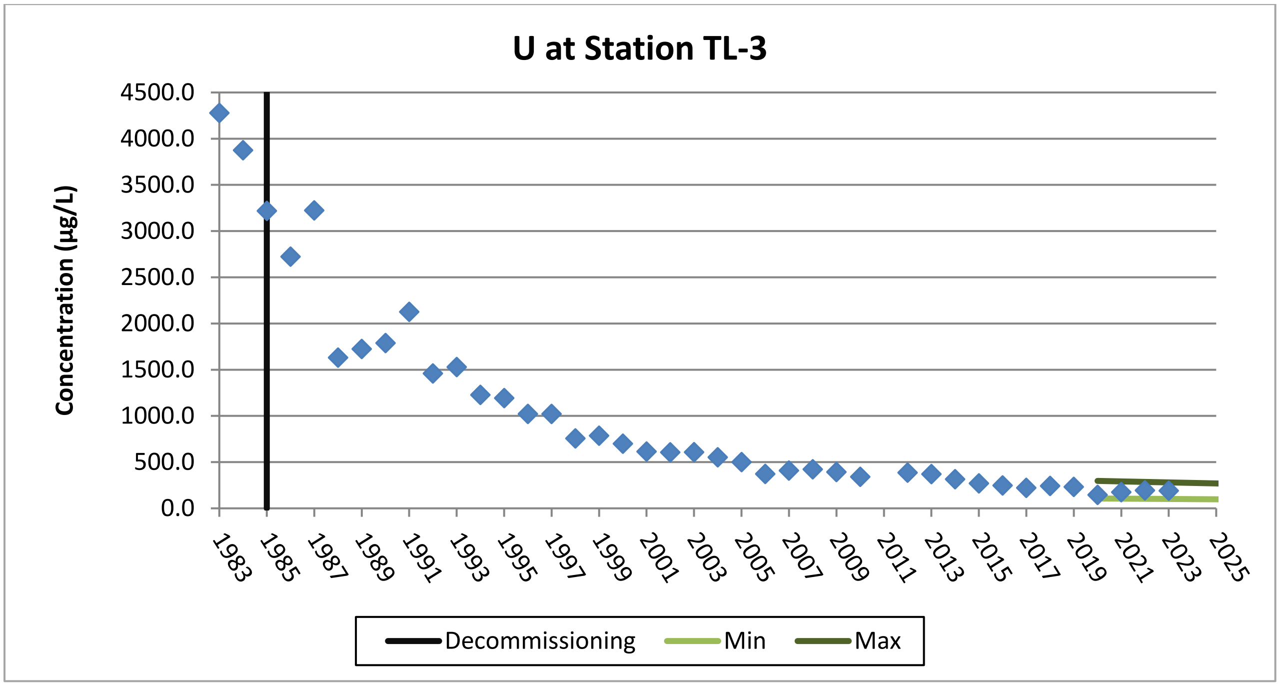
**The 2010 and 2011 scheduled sampling was not completed due to a lack of water flow.*
Note: Method detection limit changed from 0.001 mg/L to 0.0001 mg/L in 2003.
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.2-4 AN-3 Fulton Lake (Upstream of TL Stations)



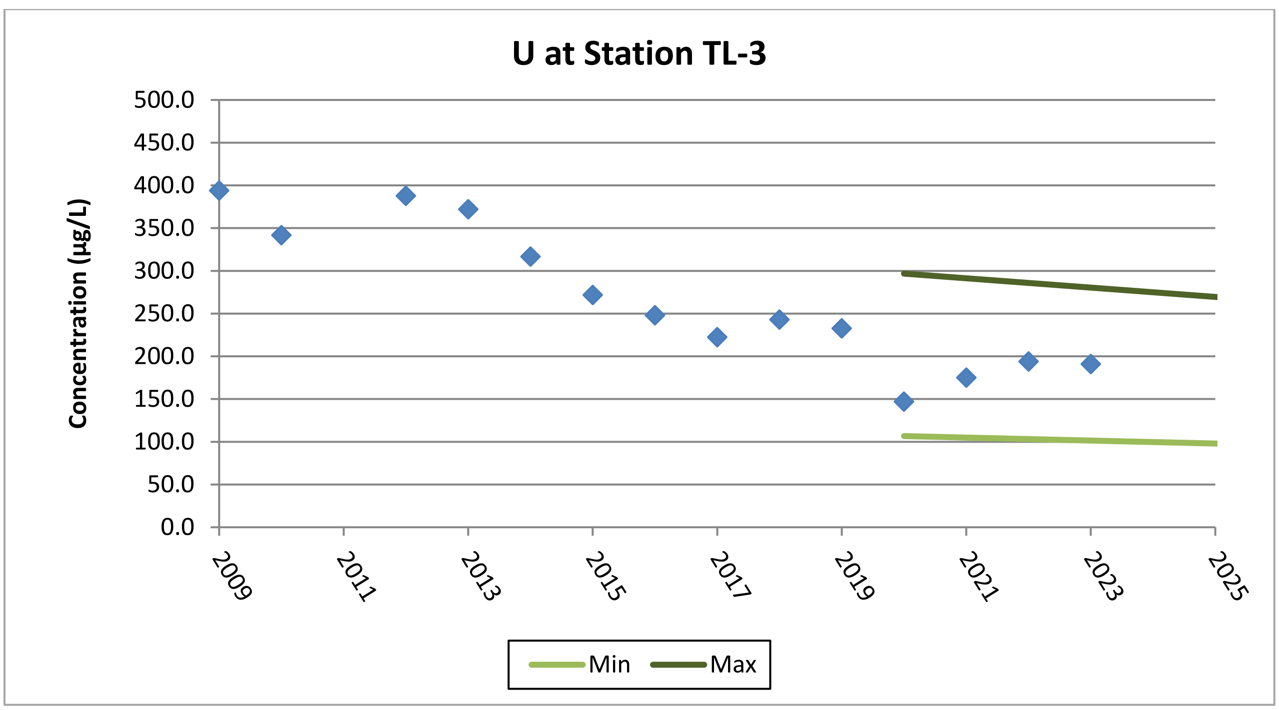
**The 2010 and 2011 scheduled sampling was not completed due to a lack of water flow.*

Figure 4.2.2-5 TL-3 Fookes Reservoir Outlet



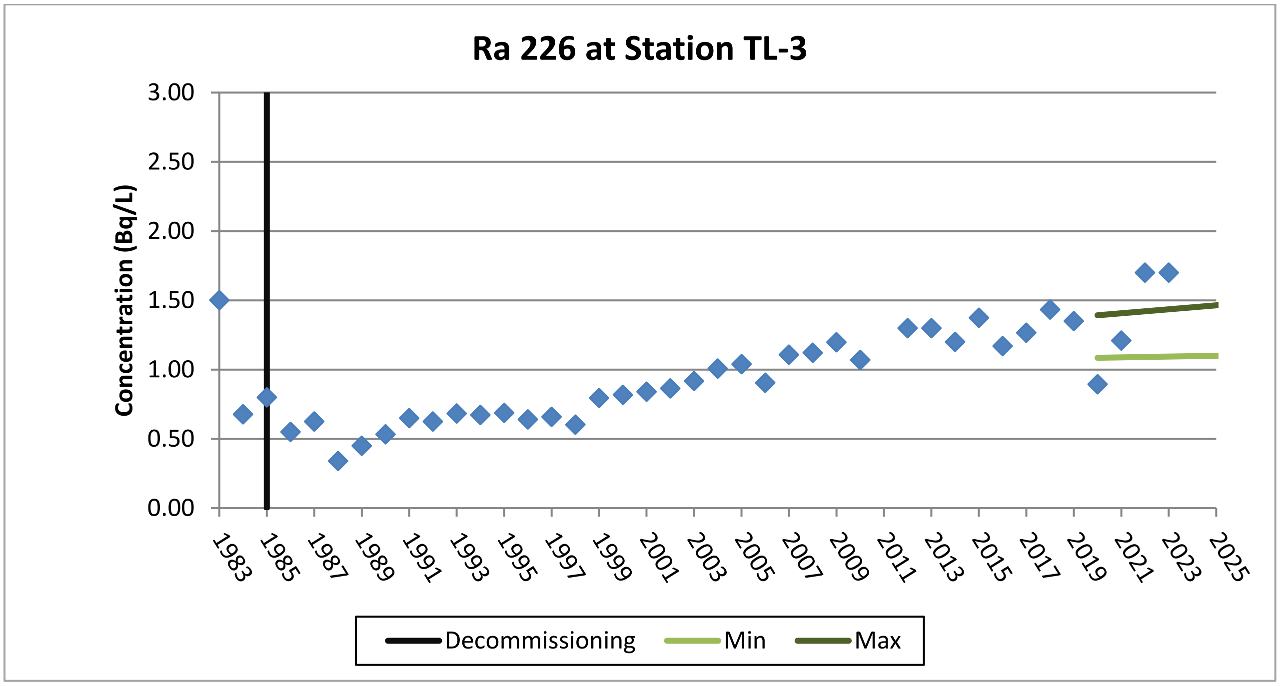
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-6 TL-3 Fookes Reservoir Outlet – Detailed Trend



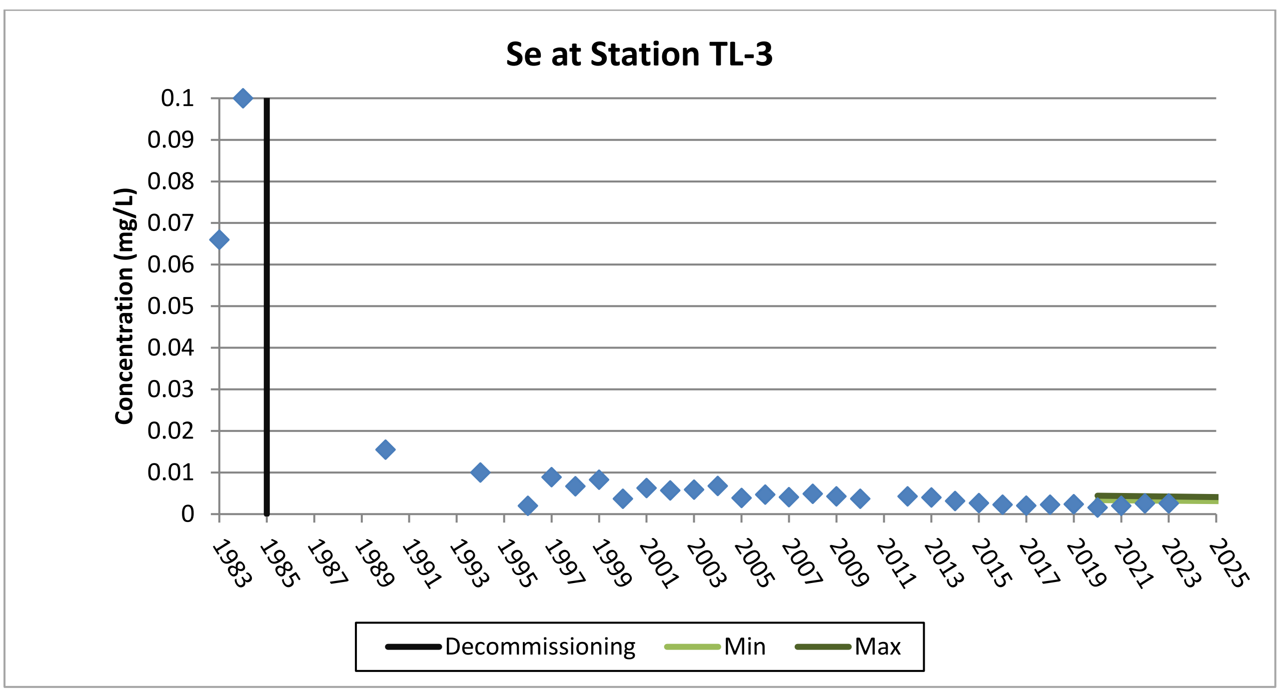
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-7 TL-3 Fookes Reservoir Outlet



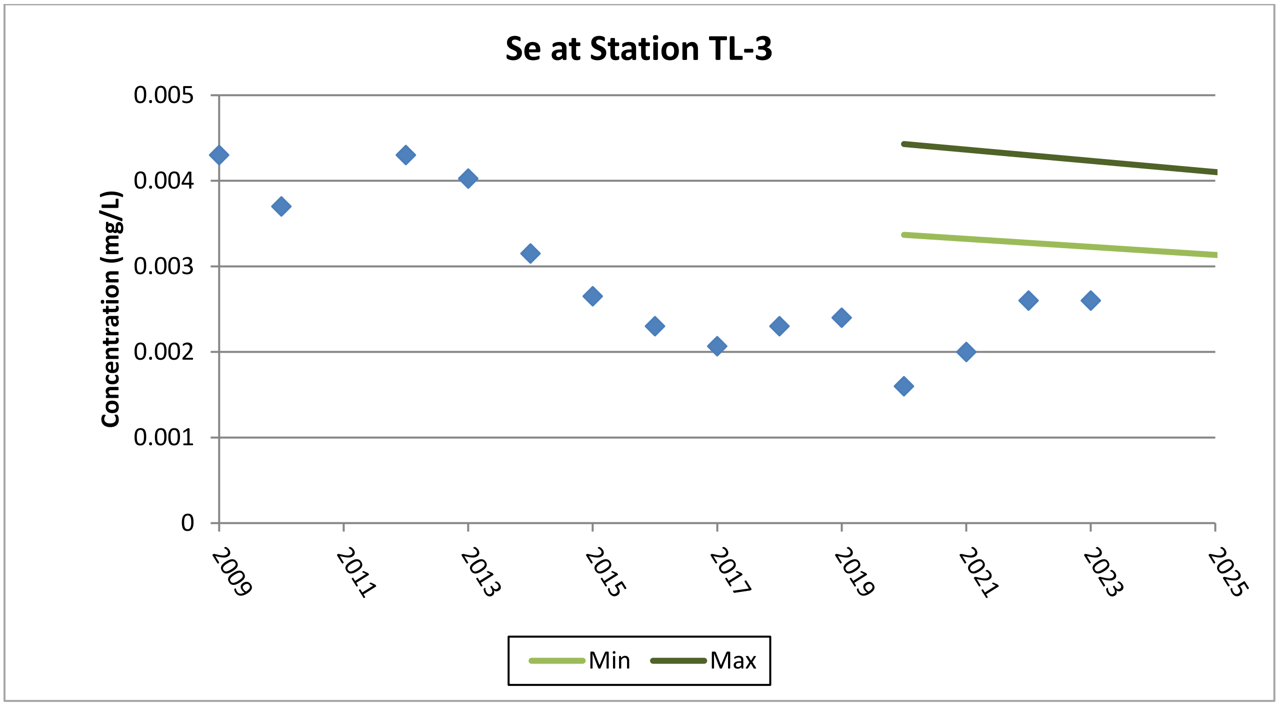
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-8 TL-3 Fookes Reservoir Outlet



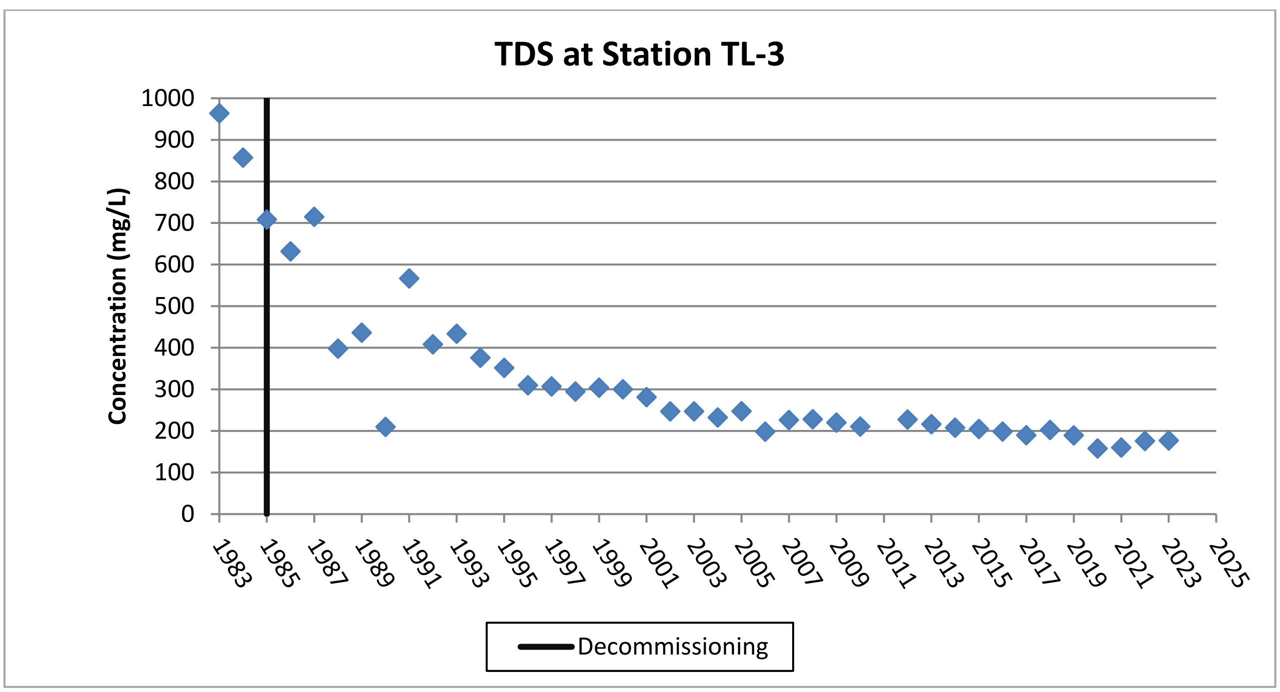
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-9 TL-3 Fookes Reservoir Outlet – Detailed Trend



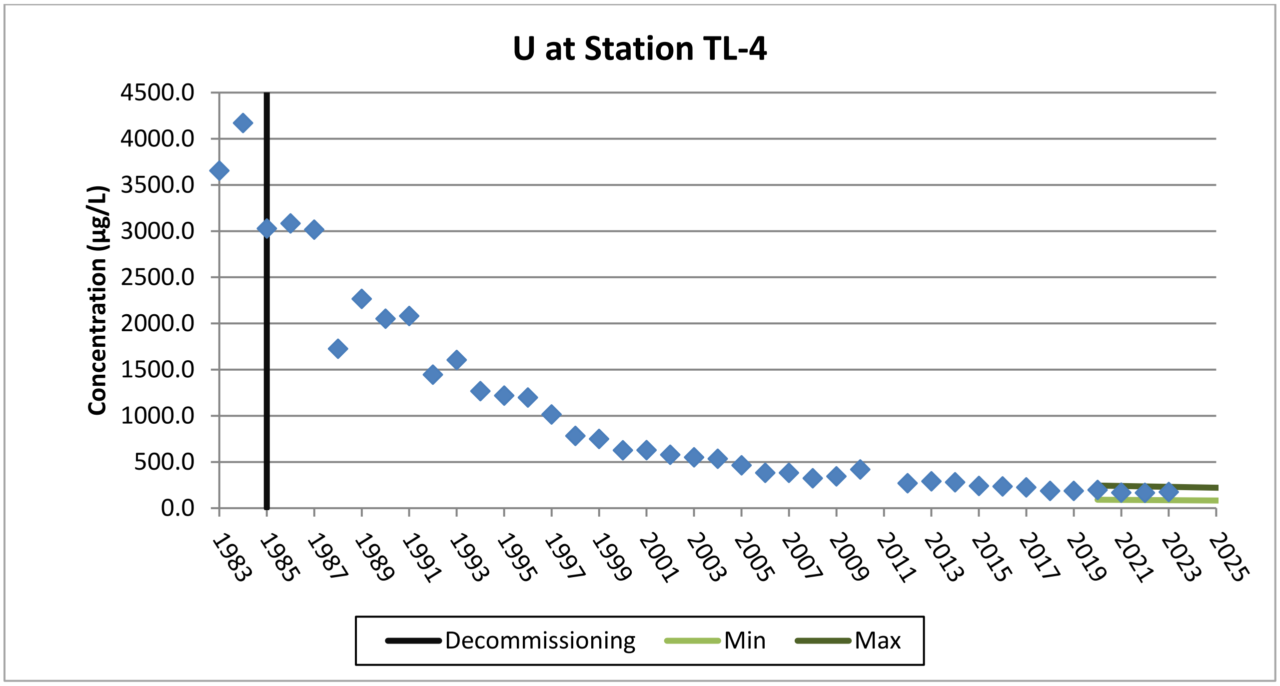
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-10 TL-3 Fookes Reservoir Outlet



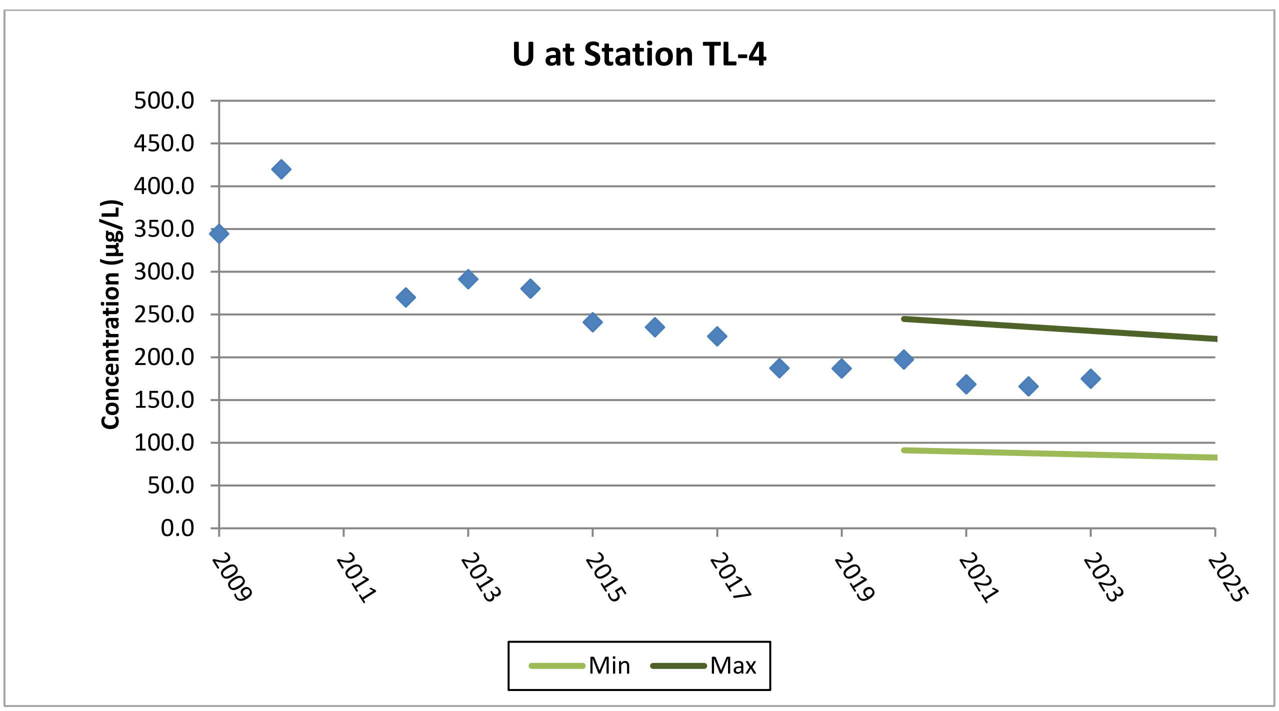
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-11 TL-4 Marie Reservoir Outlet



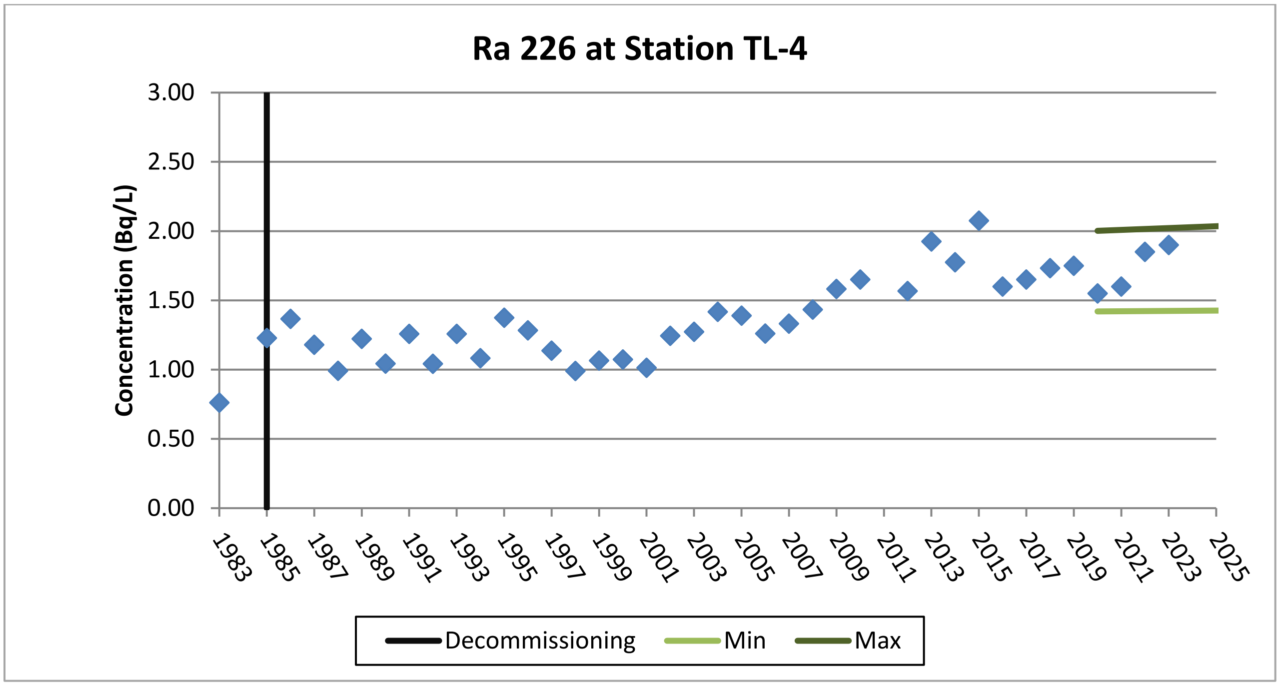
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-12 TL-4 Marie Reservoir Outlet – Detailed Trend



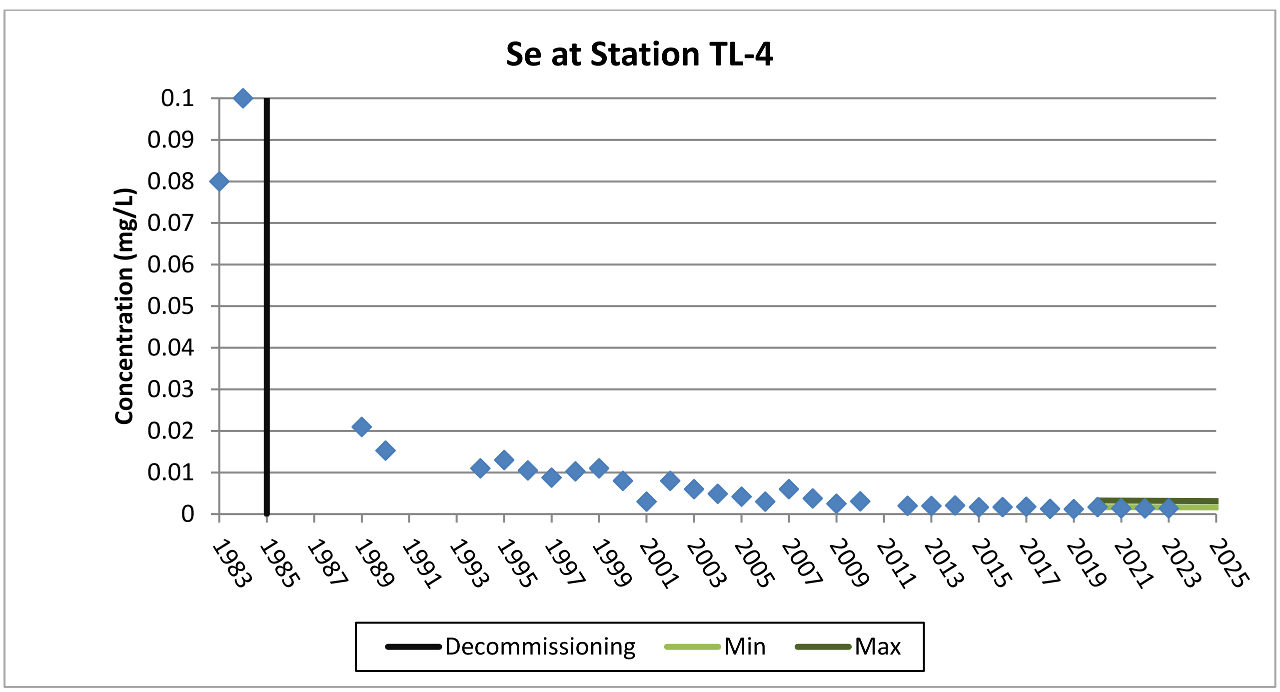
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-13 TL-4 Marie Reservoir Outlet



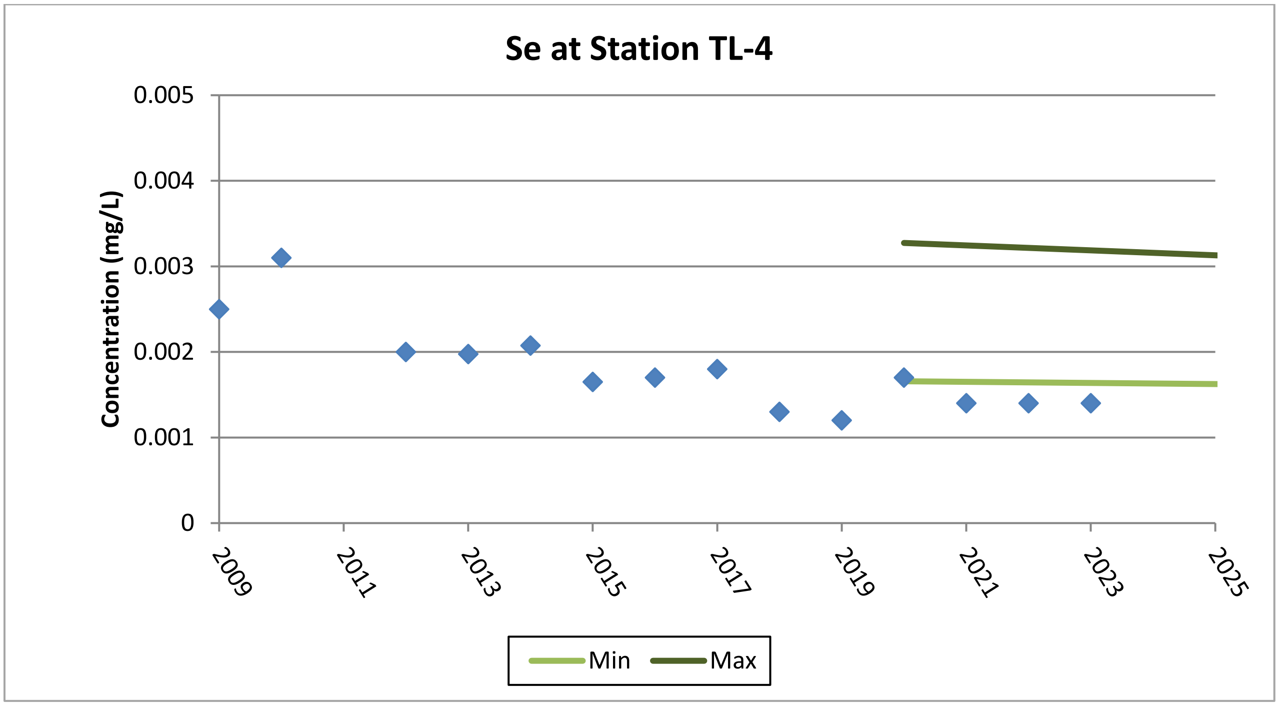
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-14 TL-4 Marie Reservoir Outlet



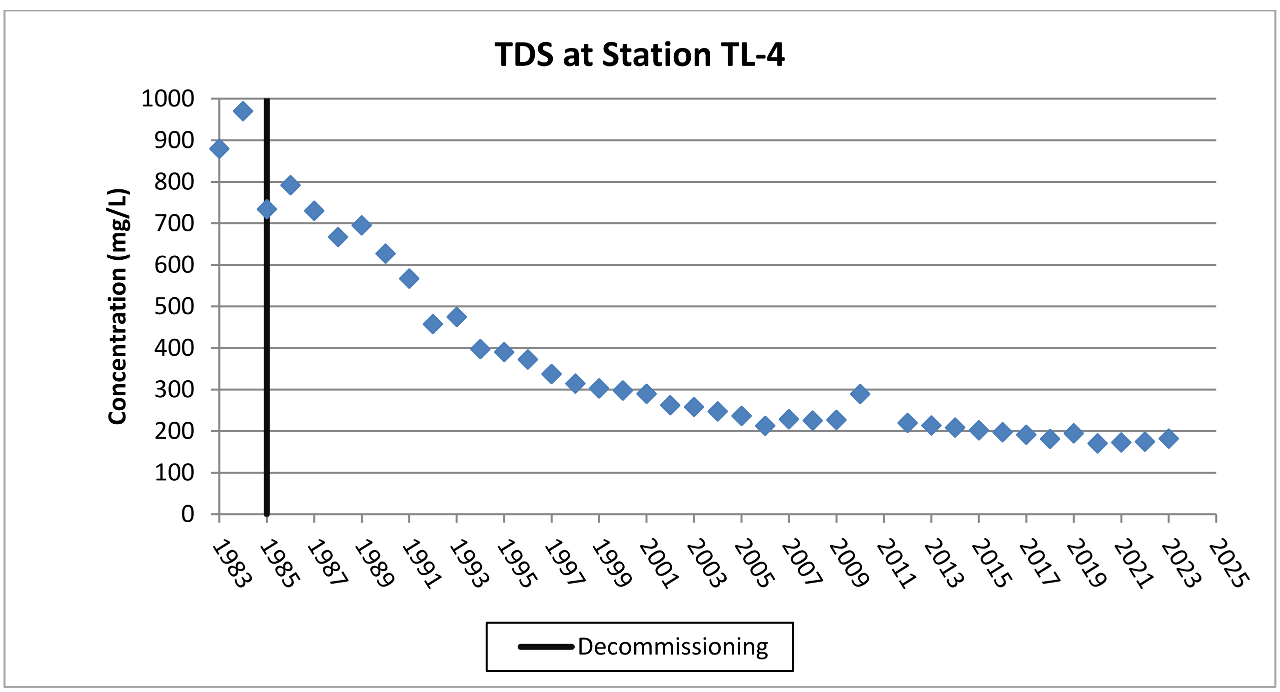
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-15 TL-4 Marie Reservoir Outlet – Detailed Trend



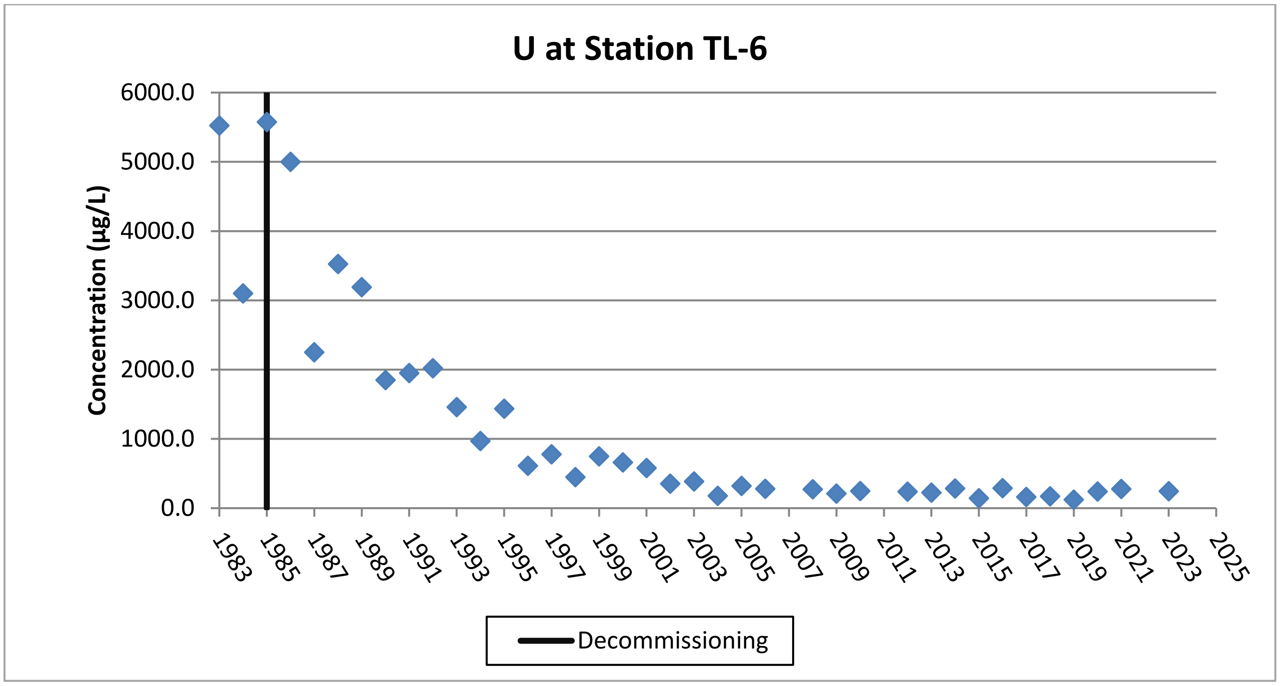
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-16 TL-4 Marie Reservoir Outlet



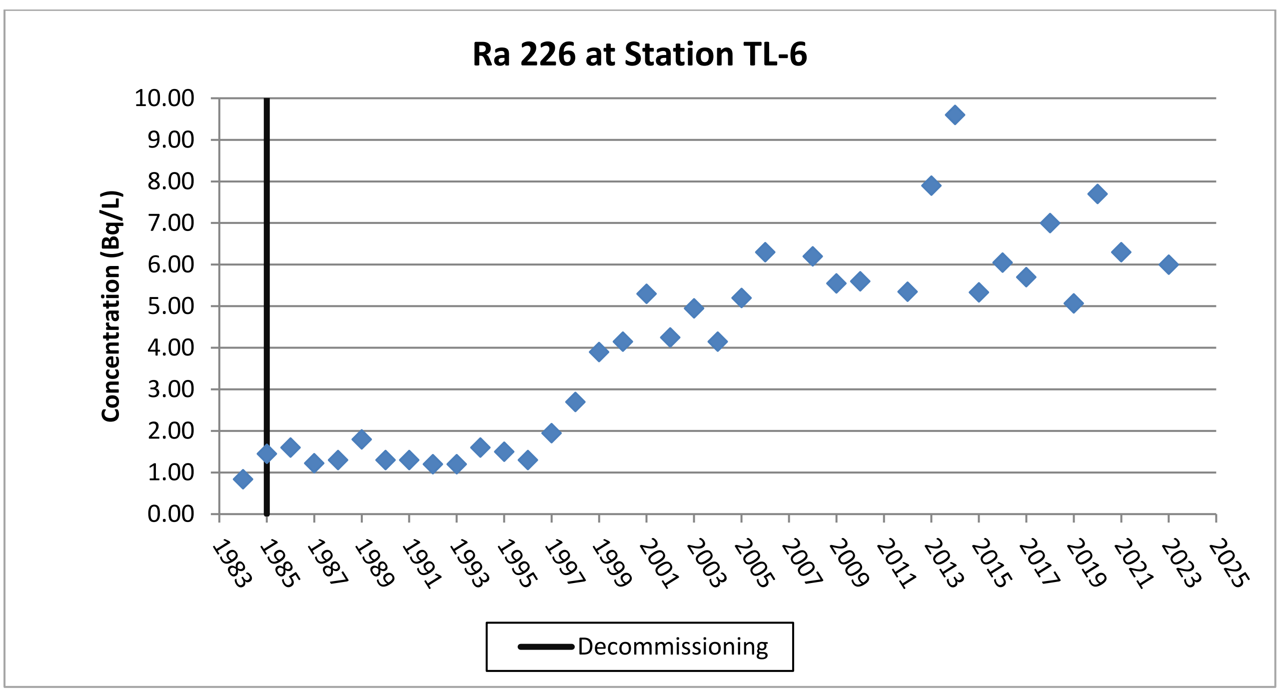
**No data available for 2011 due to a lack of water flow.*

Figure 4.2.2-17 TL-6 Minewater Reservoir Outlet



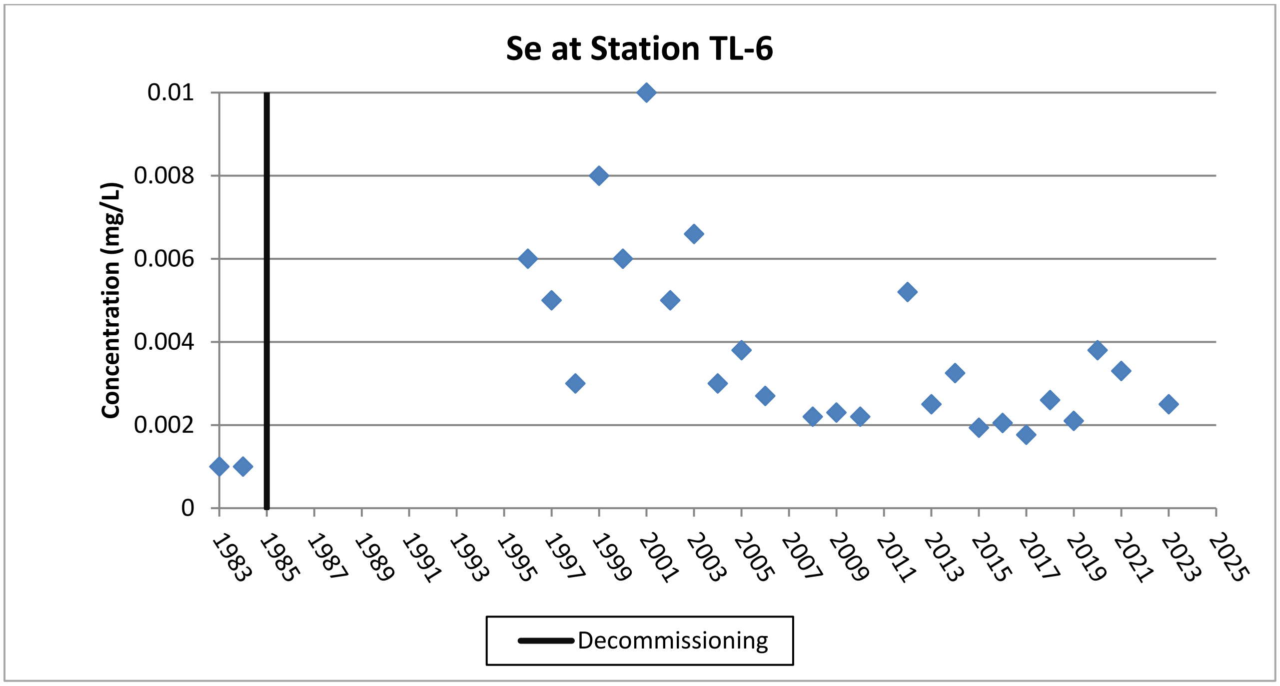
**No data available for 2007, 2011, and 2022 due to a lack of water flow.*

Figure 4.2.2-18 TL-6 Minewater Reservoir Outlet



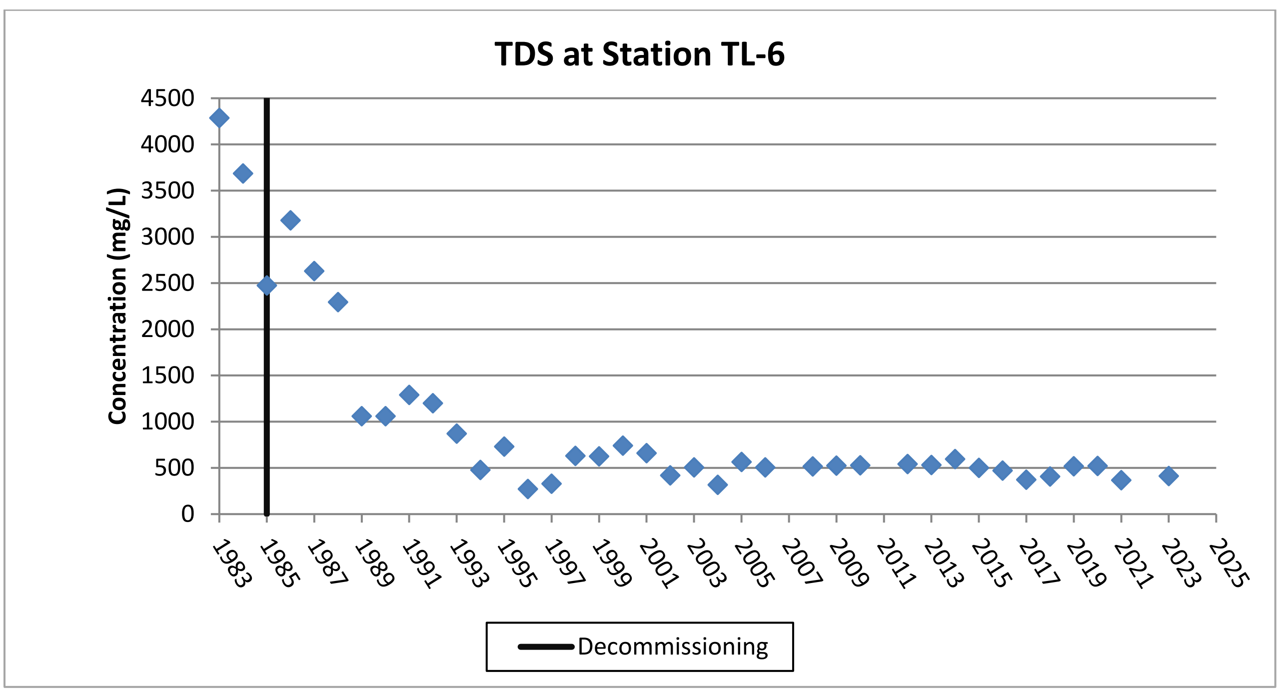
**No data available for 2007, 2011, and 2022 due to a lack of water flow.*

Figure 4.2.2-19 TL-6 Minewater Reservoir Outlet



**No data available for 2007, 2011, and 2022 due to a lack of water flow.*

Figure 4.2.2-20 TL-6 Minewater Reservoir Outlet



**No data available for 2007, 2011, and 2022 due to a lack of water flow.*

Figure 4.2.2-21 TL-7 Meadow Fen Outlet

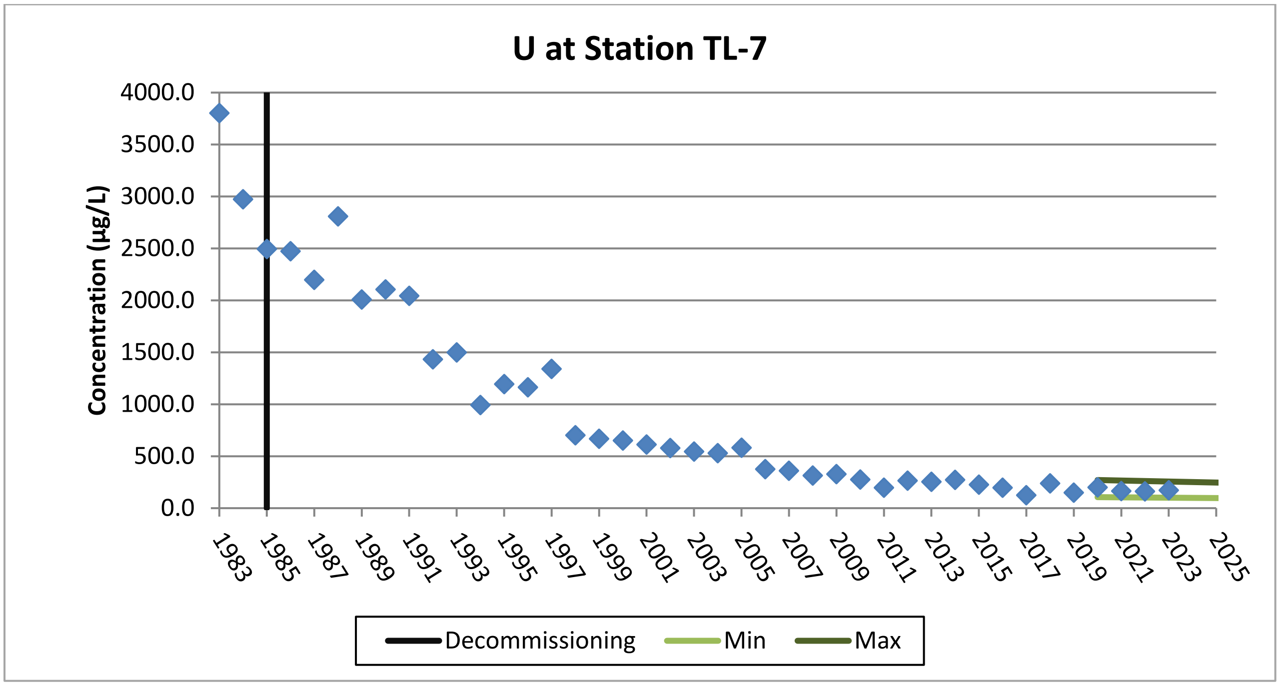


Figure 4.2.2-22 TL-7 Meadow Fen Outlet - Detailed Trend

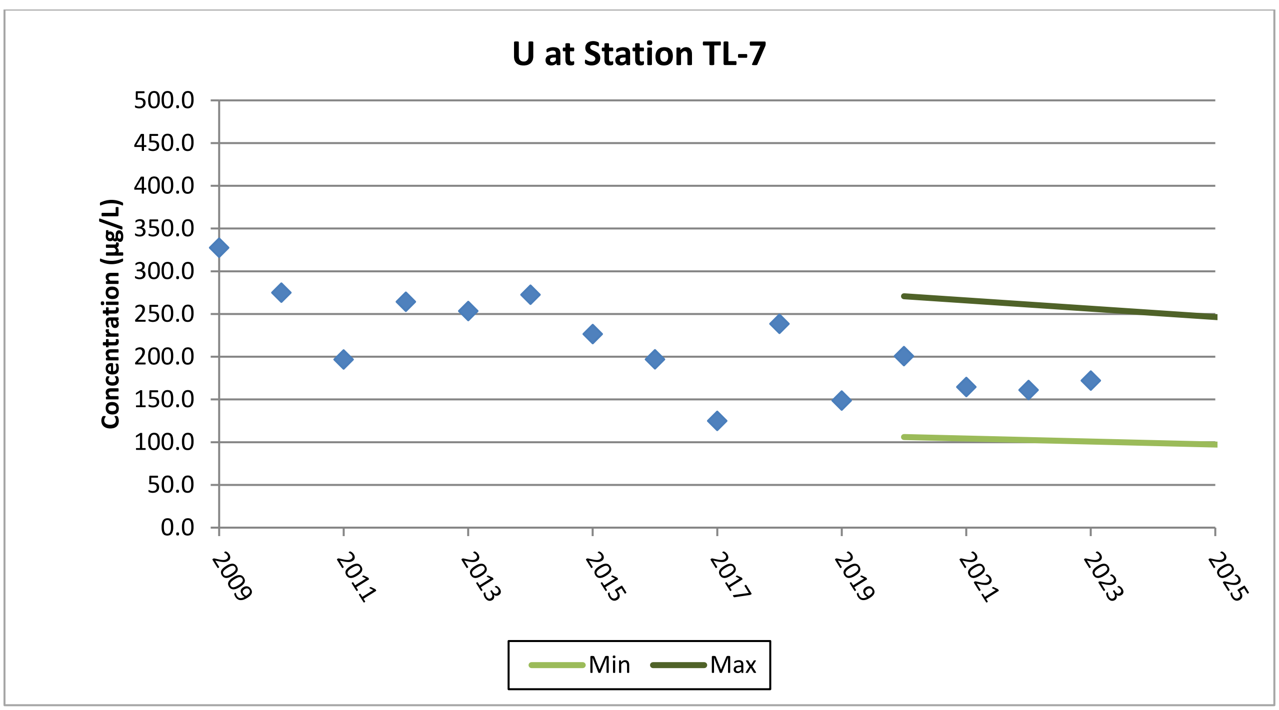


Figure 4.2.2-23 TL-7 Meadow Fen Outlet

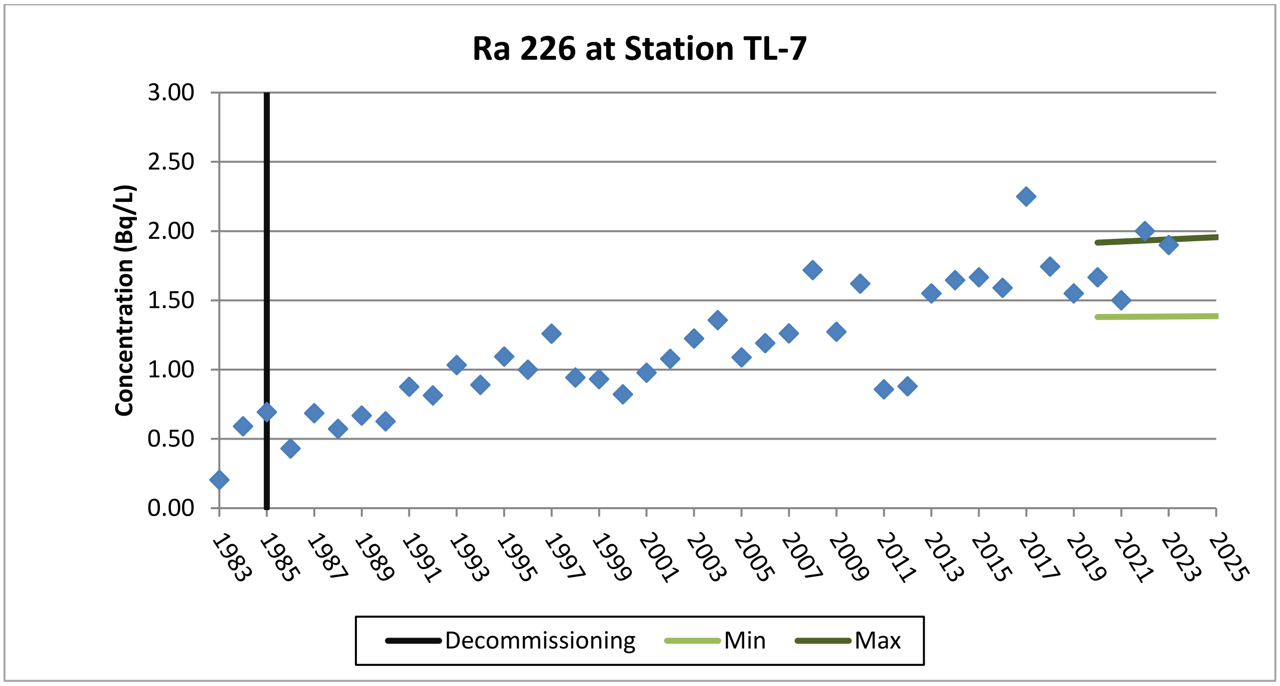


Figure 4.2.2-24 TL-7 Meadow Fen Outlet

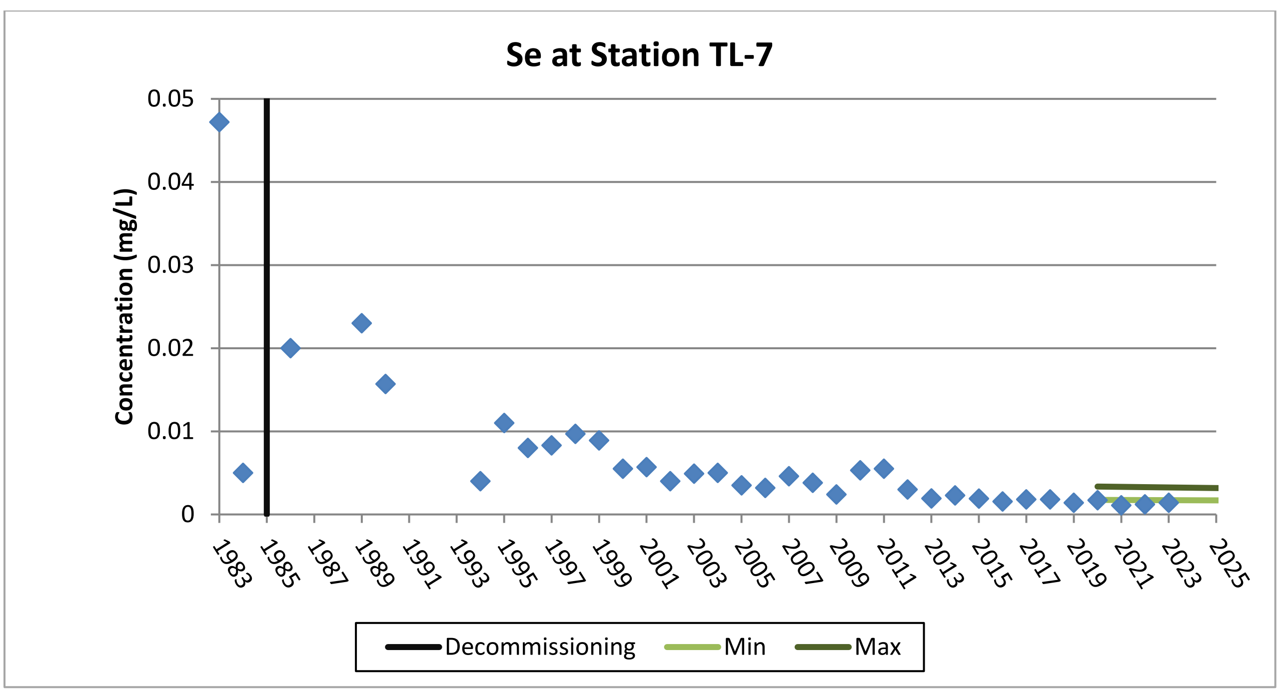


Figure 4.2.2-25 TL-7 Meadow Fen Outlet – Detailed Trend

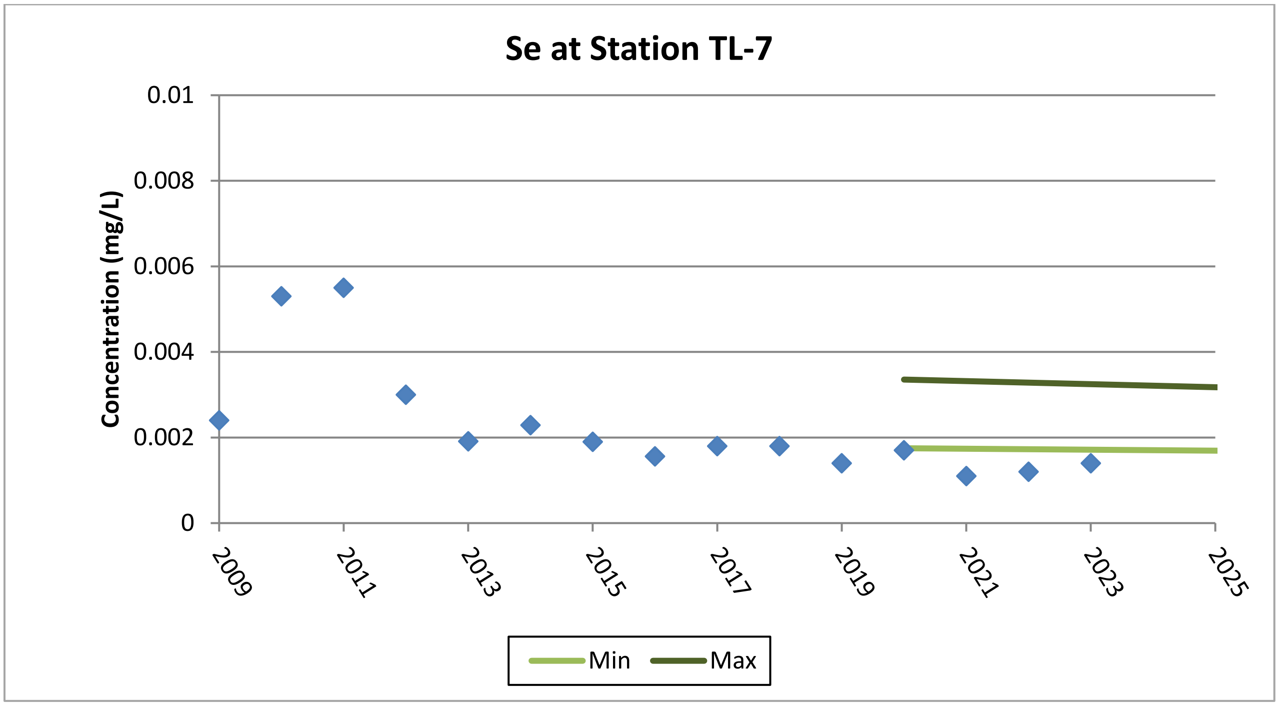


Figure 4.2.2-26 TL-7 Meadow Fen Outlet

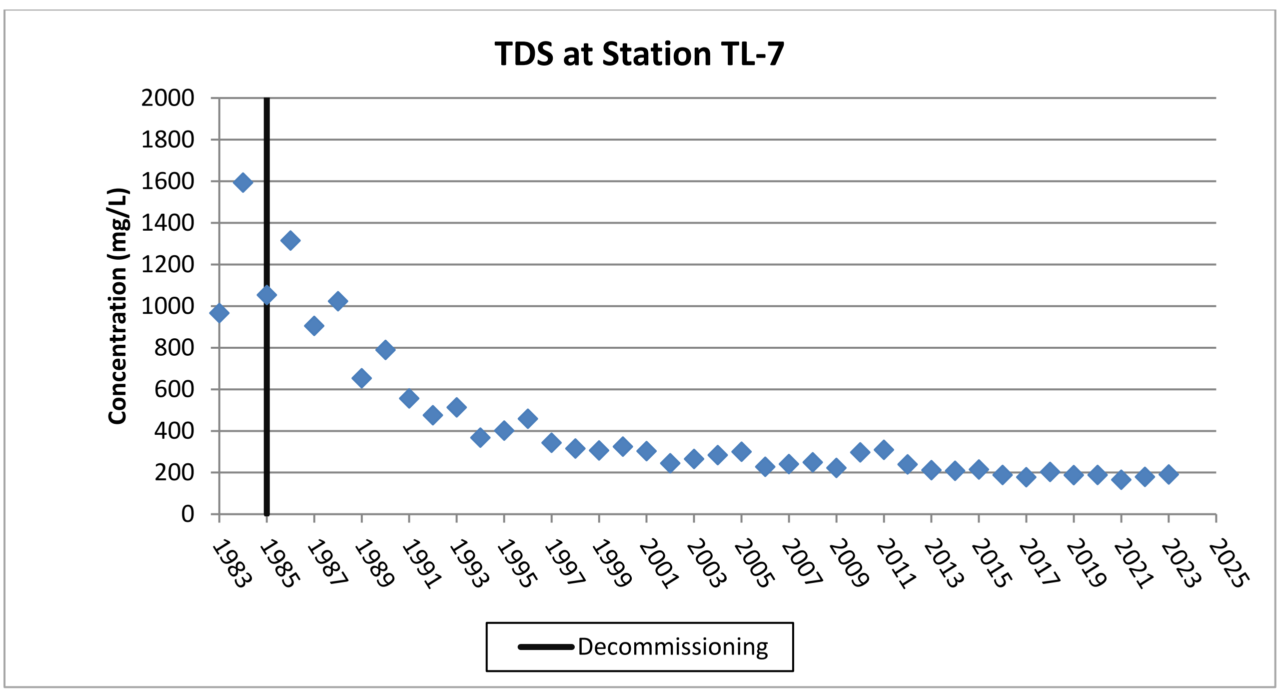
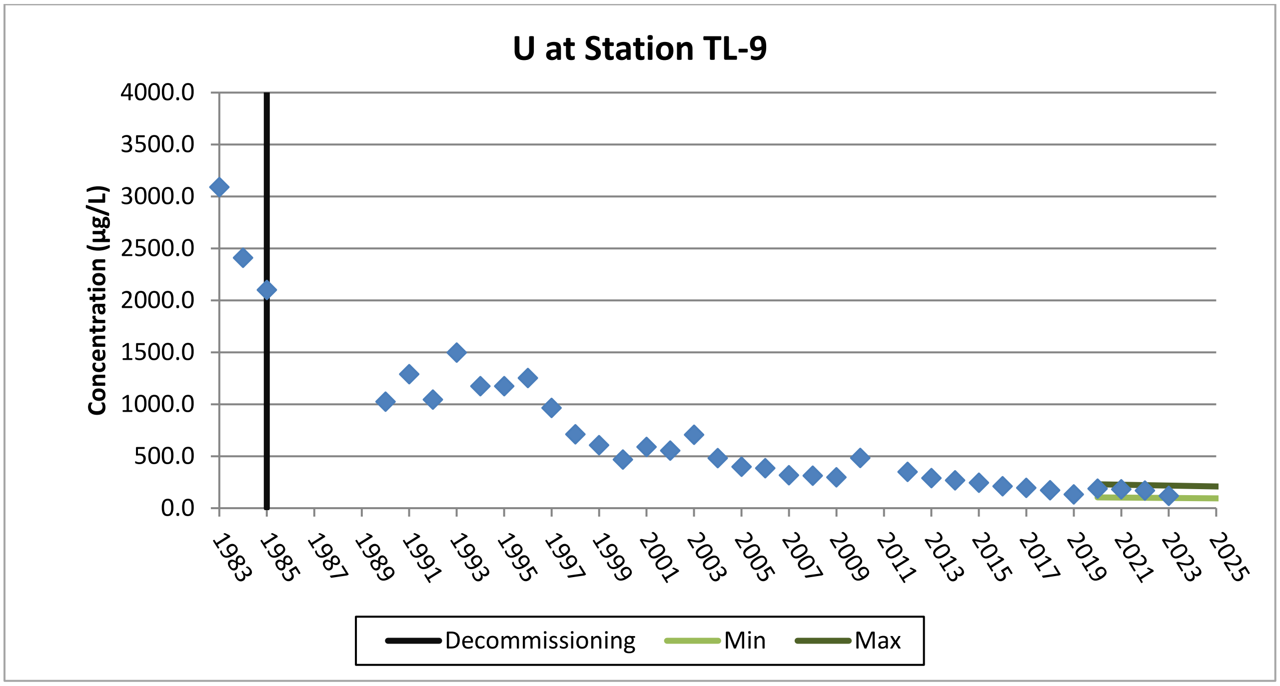
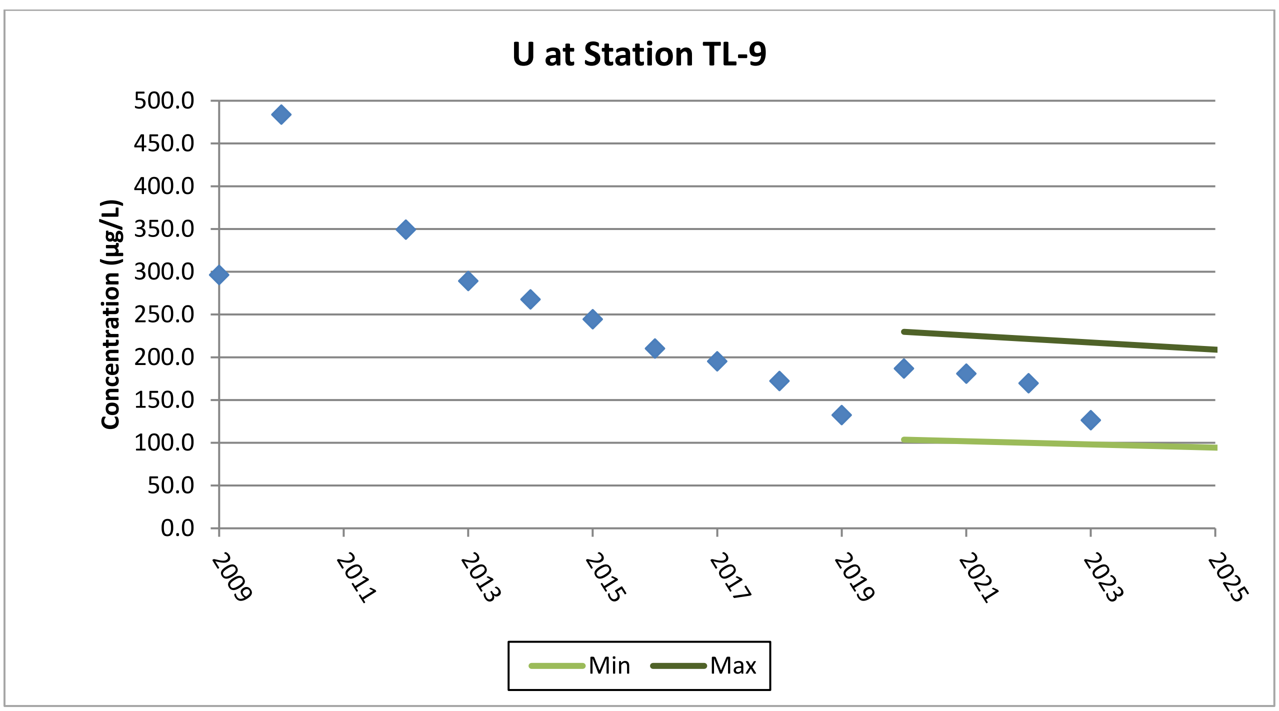


Figure 4.2.2-27 TL-9 Fulton Creek Downstream of Greer Lake



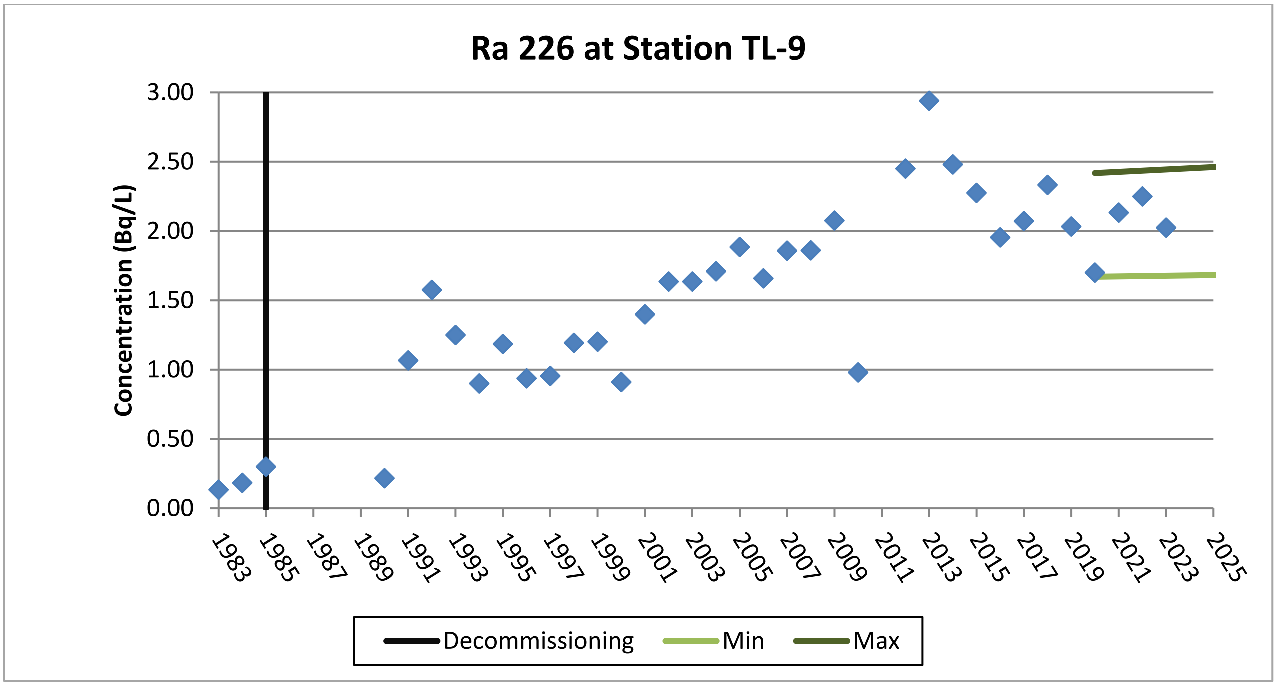
**There was no water flow at TL-9 in 2011.*

Figure 4.2.2-28 TL-9 Fulton Creek Downstream of Greer Lake – Detailed Trend



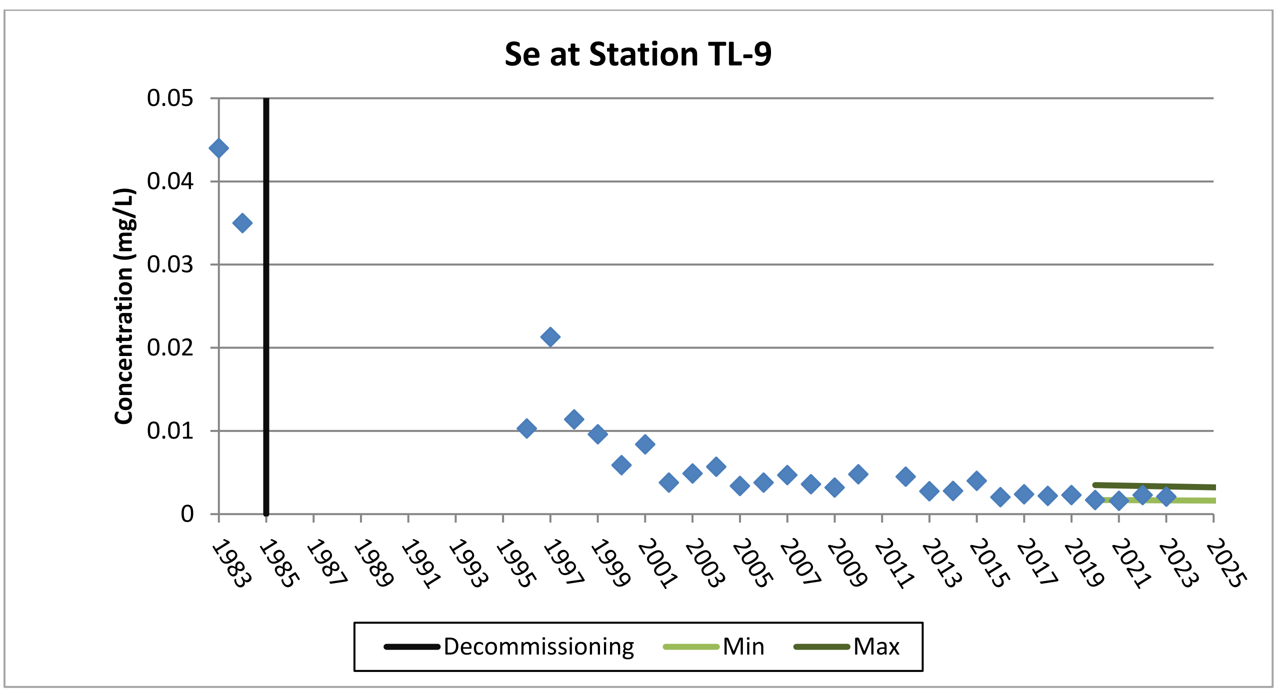
**There was no water flow at TL-9 in 2011.*

Figure 4.2.2-29 TL-9 Fulton Creek Downstream of Greer Lake



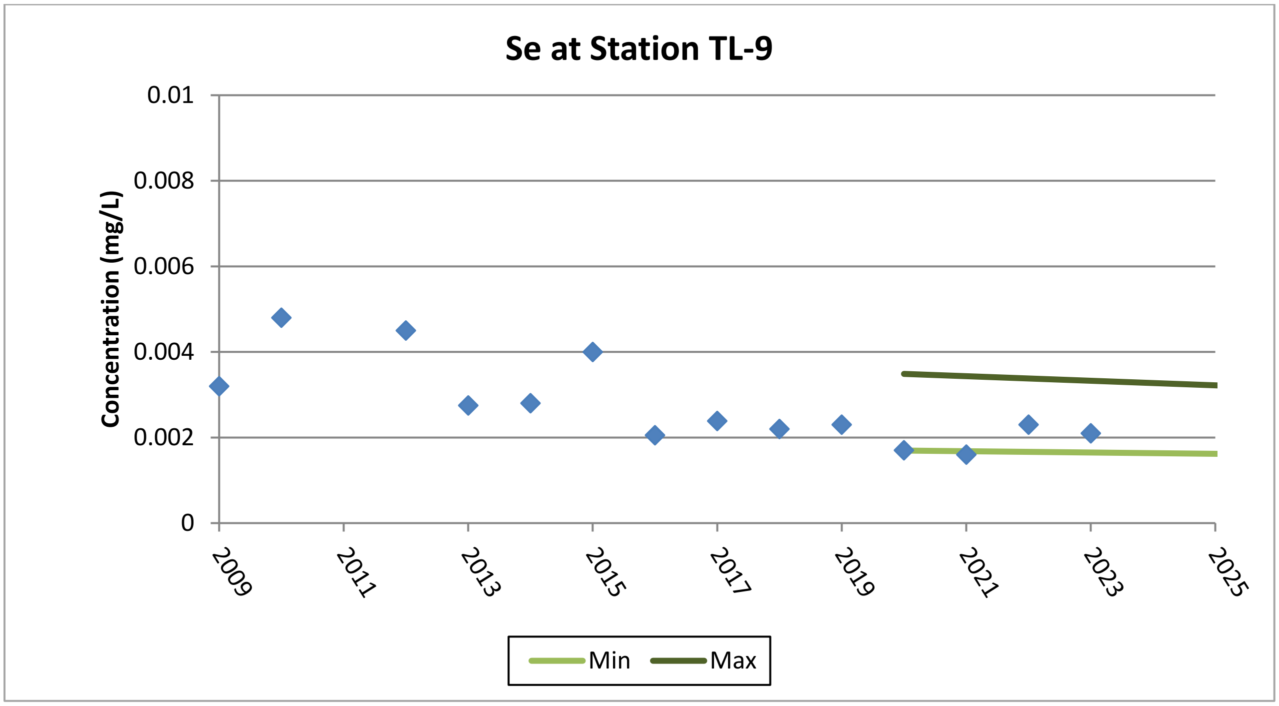
**There was no water flow at TL-9 in 2011.*

Figure 4.2.2-30 TL-9 - Fulton Creek Downstream of Greer Lake



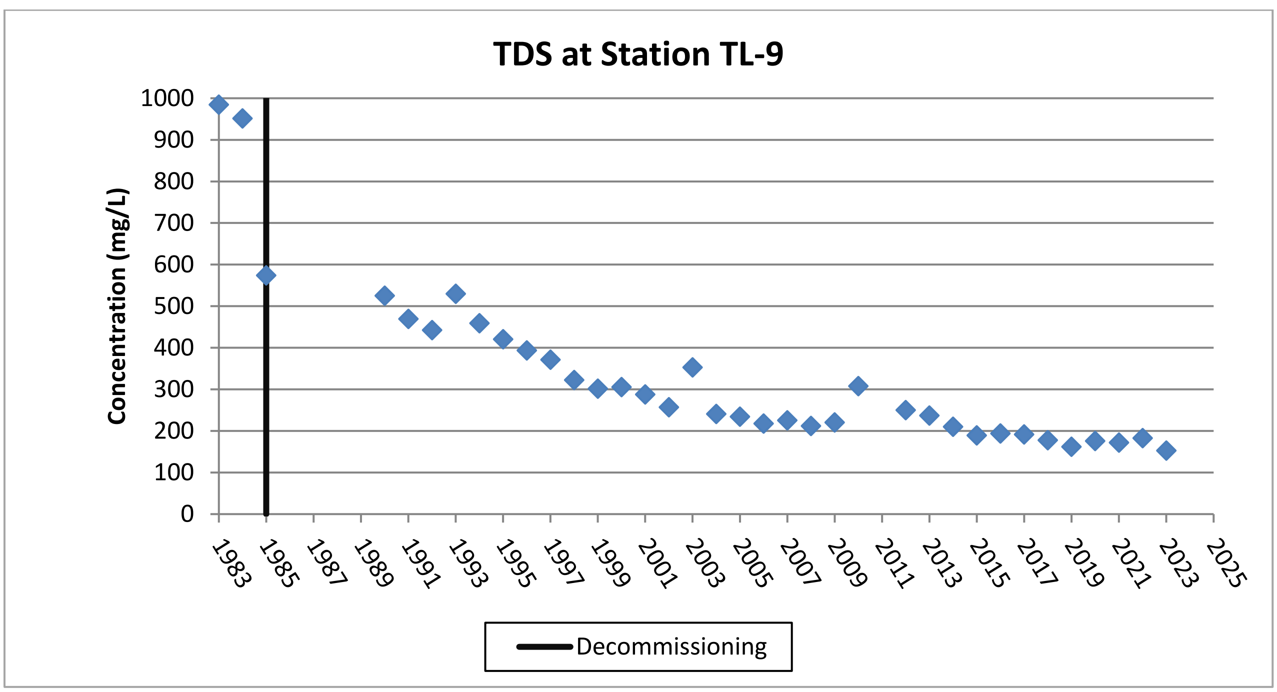
**There was no water flow at TL-9 in 2011.*

Figure 4.2.2-31 TL-9 - Fulton Creek Downstream of Greer Lake – Detailed Trend



**There was no water flow at TL-9 in 2011.*

Figure 4.2.2-32 TL-9 - Fulton Creek Downstream of Greer Lake



**There was no water flow at TL-9 in 2011.*

Figure 4.2.3-1 BL-3 - Beaverlodge Lake Opposite Fulton Creek Outlet

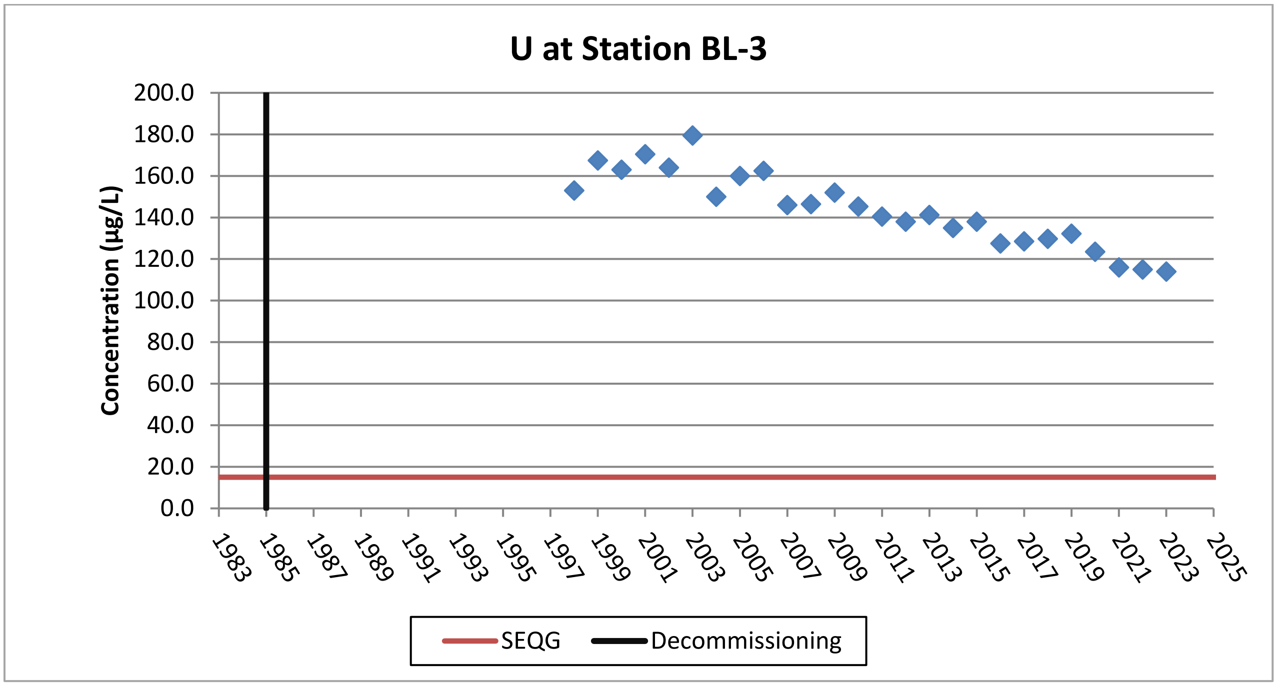


Figure 4.2.3-2 BL-3 - Beaverlodge Lake Opposite Fulton Creek Outlet

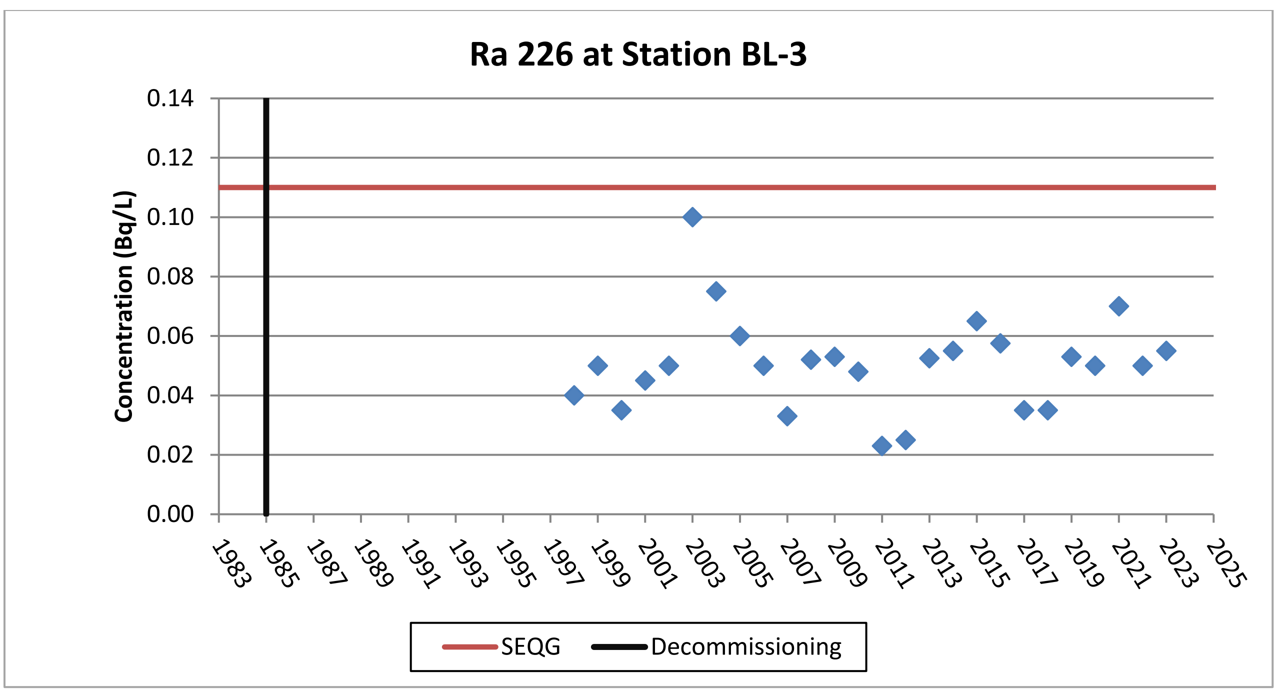
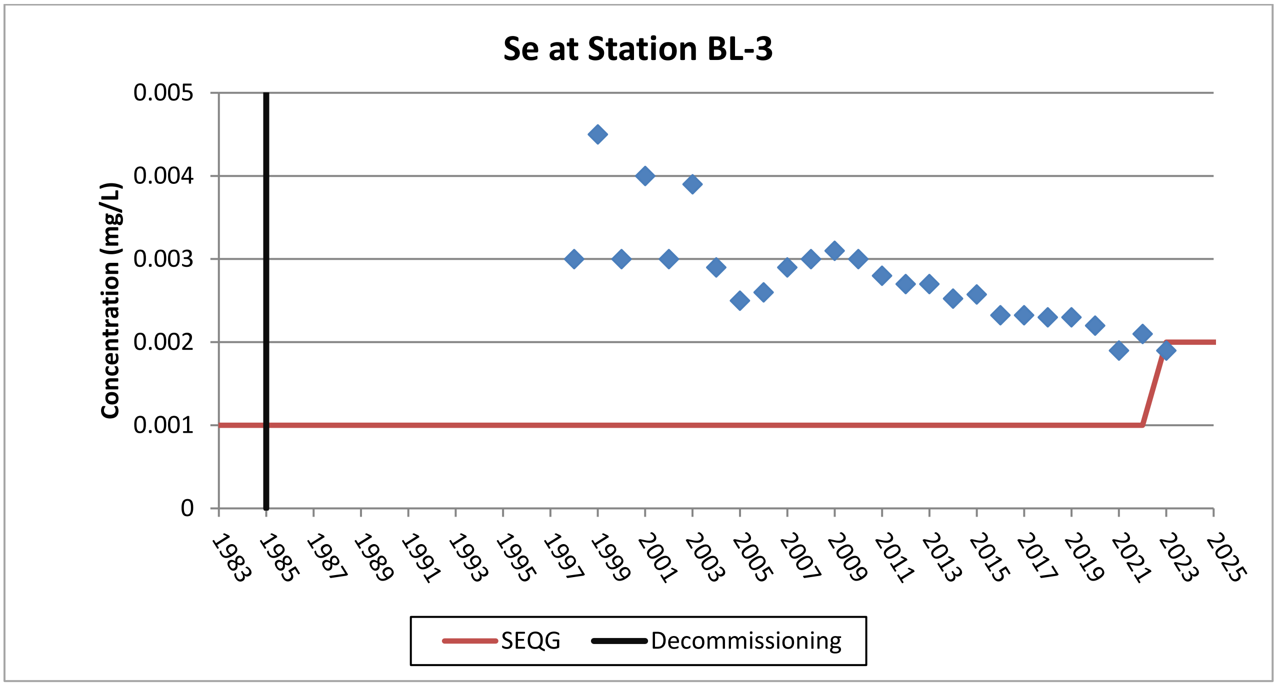


Figure 4.2.3-3 BL-3 - Beaverlodge Lake Opposite Fulton Creek Outlet



Note: Method detection limit changed from 0.001 mg/L to 0.0001 mg/L in 2003.
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.3-4 BL-3 - Beaverlodge Lake Opposite Fulton Creek Outlet

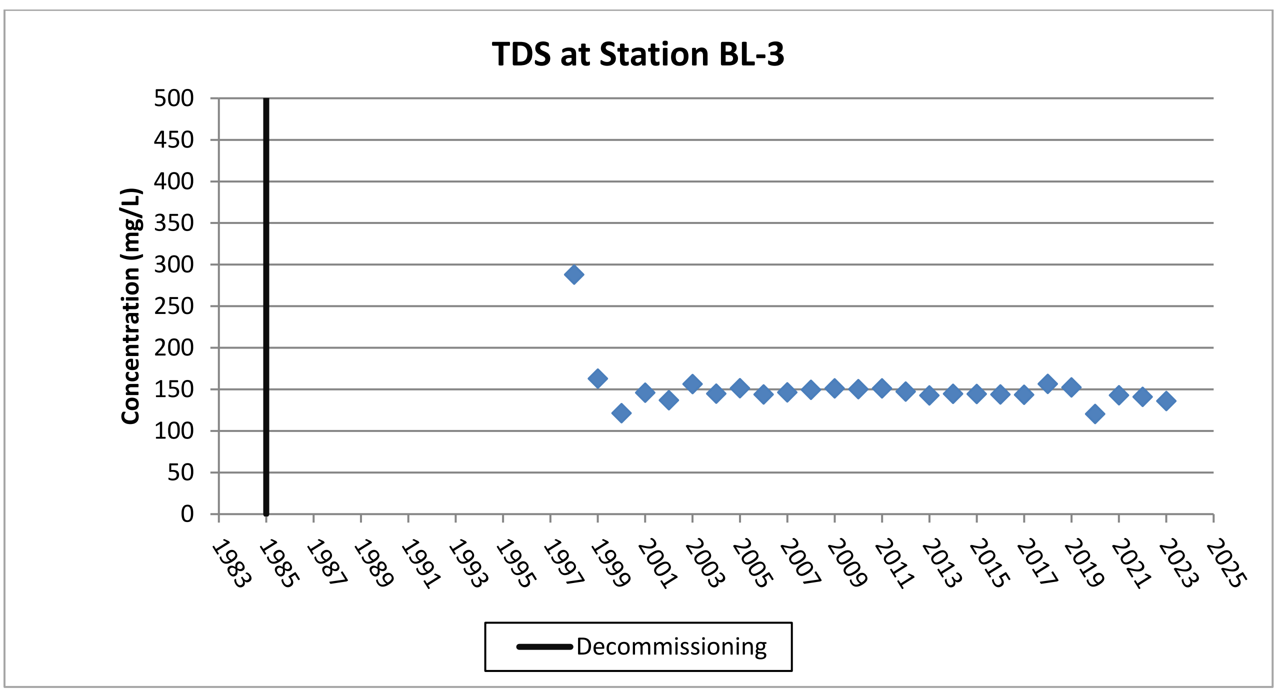


Figure 4.2.3-5 BL-4 Beaverlodge Lake Centre

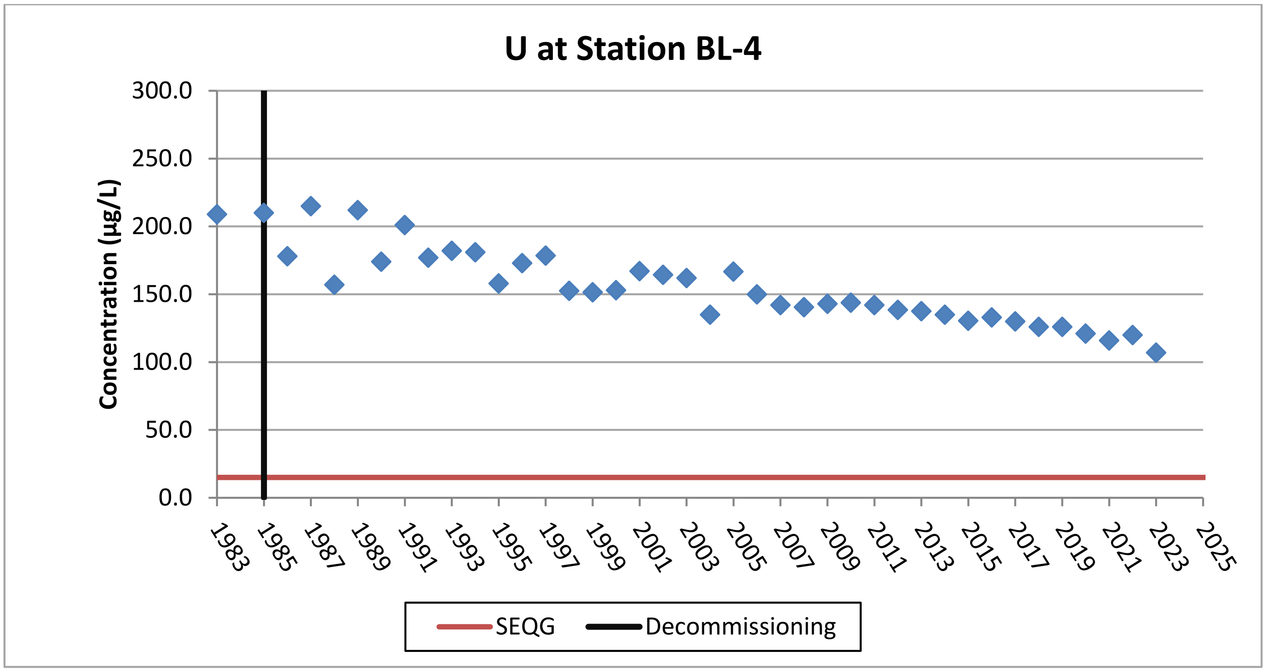


Figure 4.2.3-6 BL-4 Beaverlodge Lake Centre

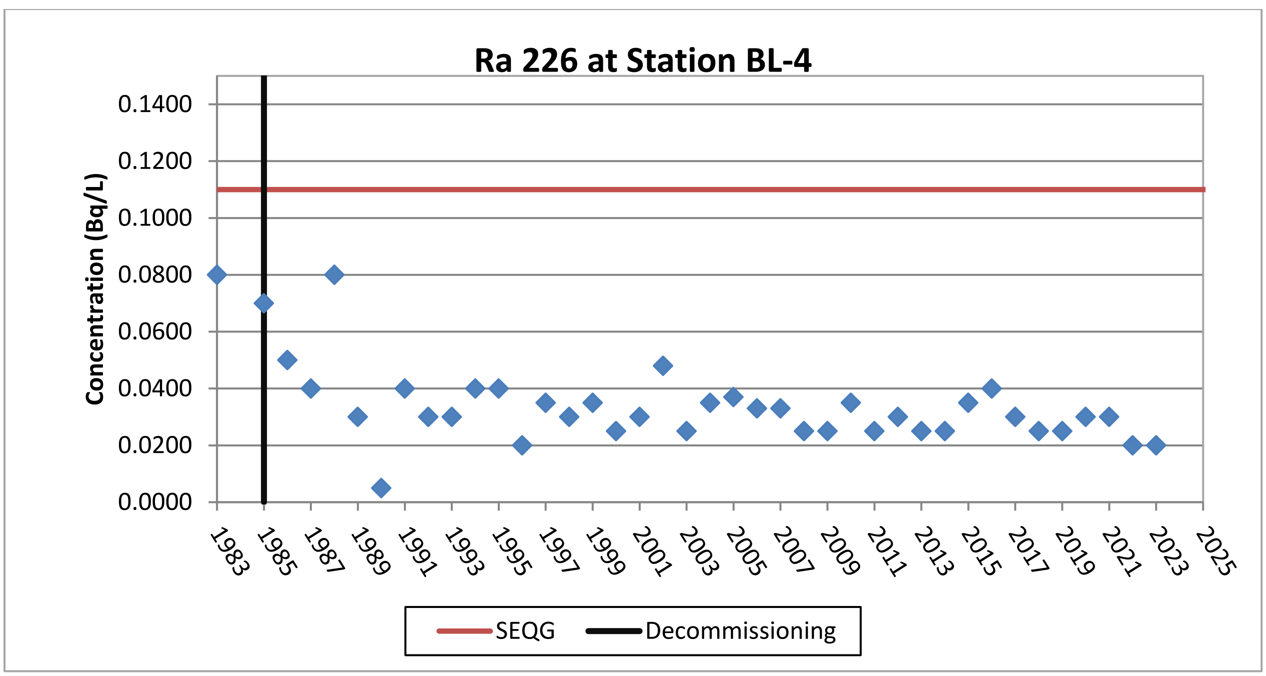
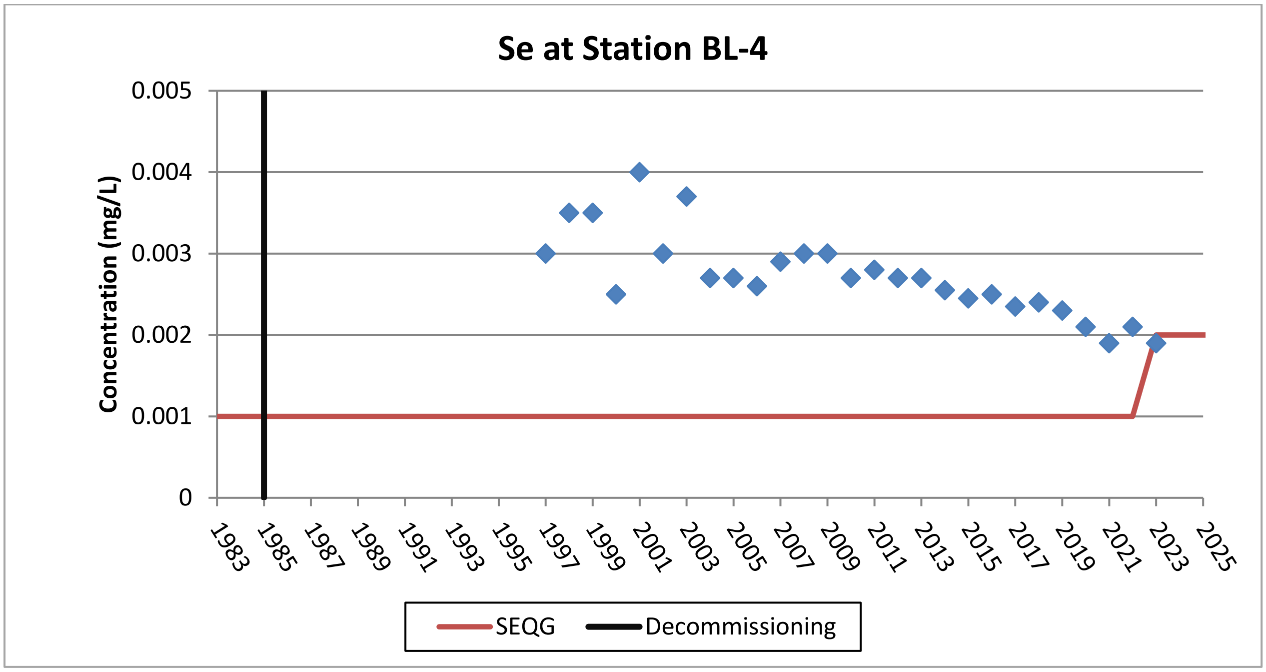


Figure 4.2.3-7 BL-4 Beaverlodge Lake Centre



Note: Method detection limit changed from 0.001 mg/L to 0.0001 mg/L in 2003.
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.3-8 BL-4 Beaverlodge Lake Centre

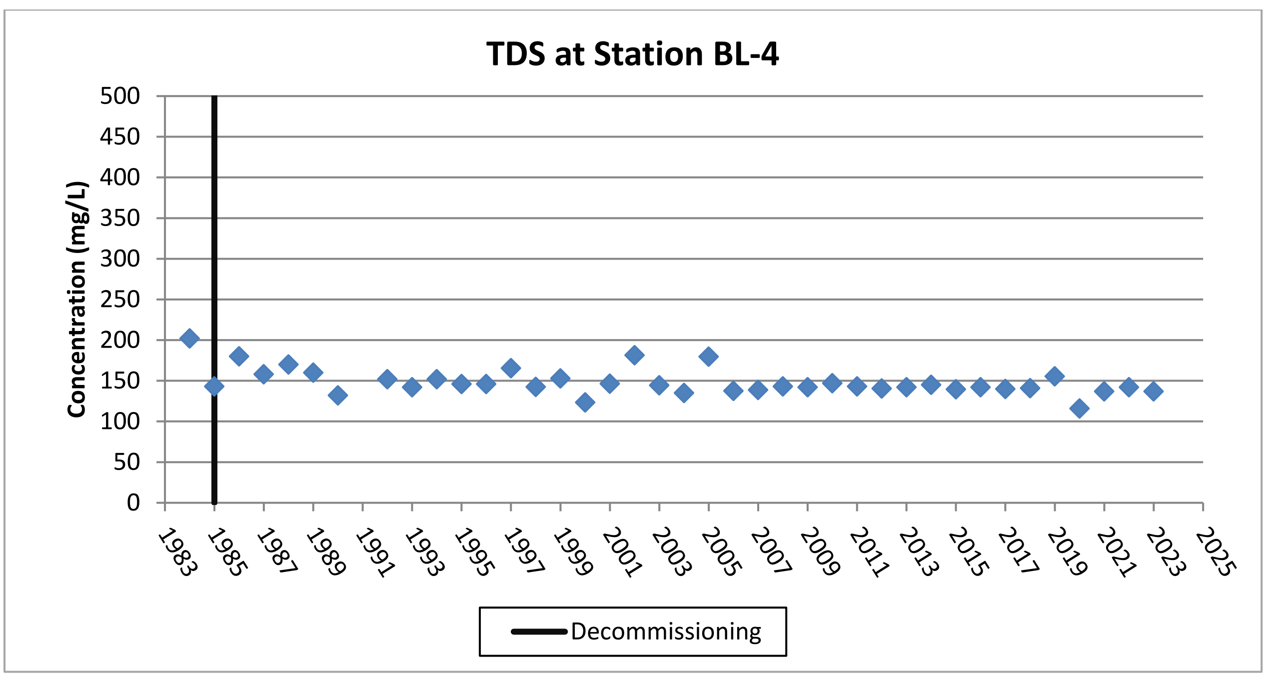
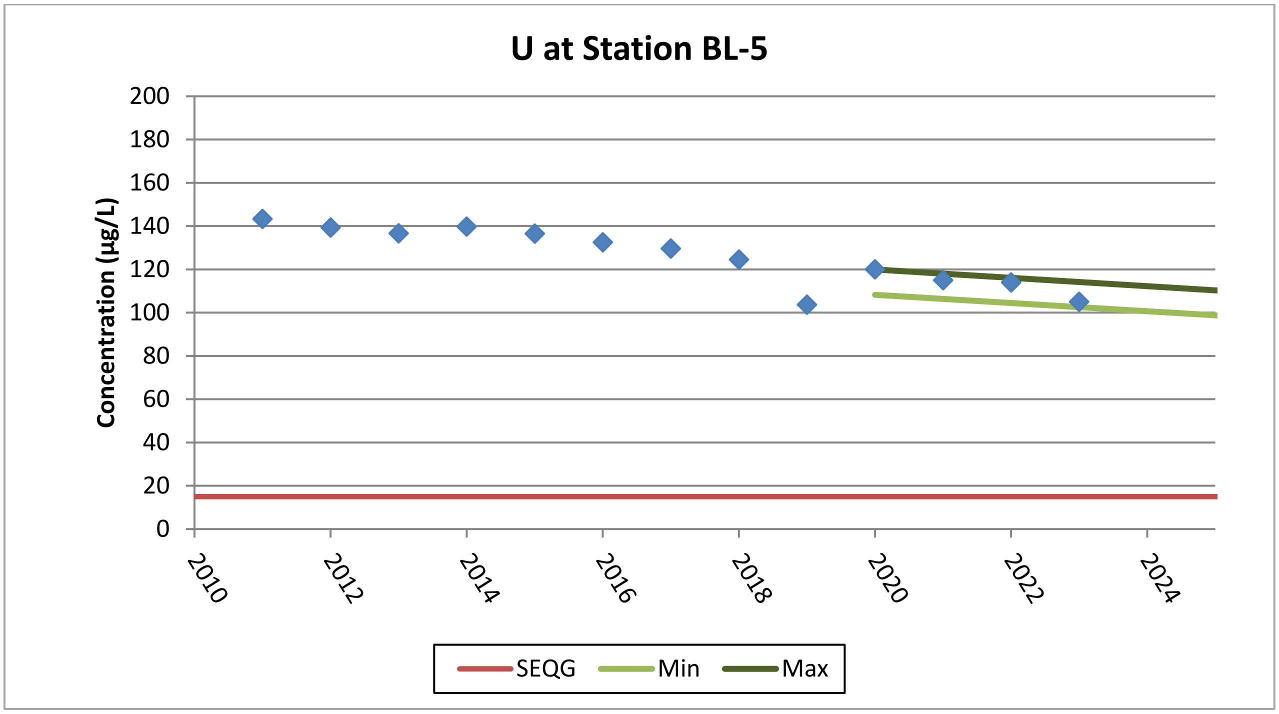
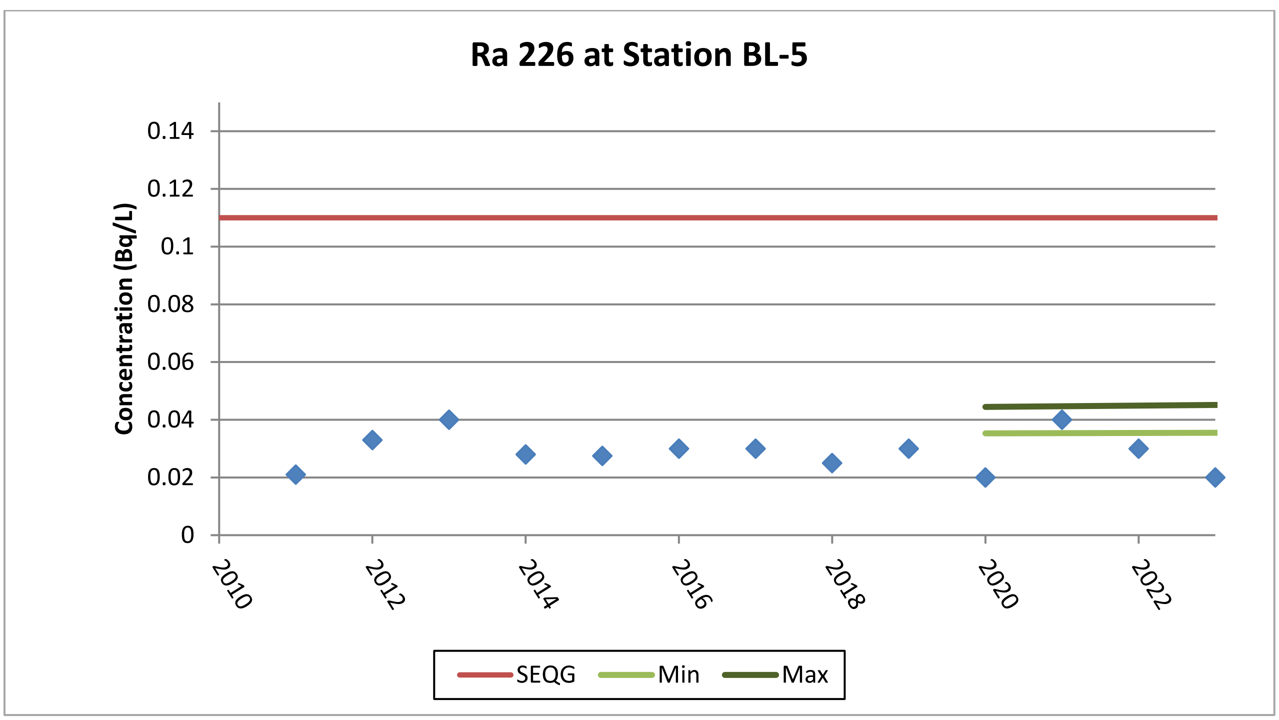


Figure 4.2.3-9 BL-5 Beaverlodge Lake Outlet



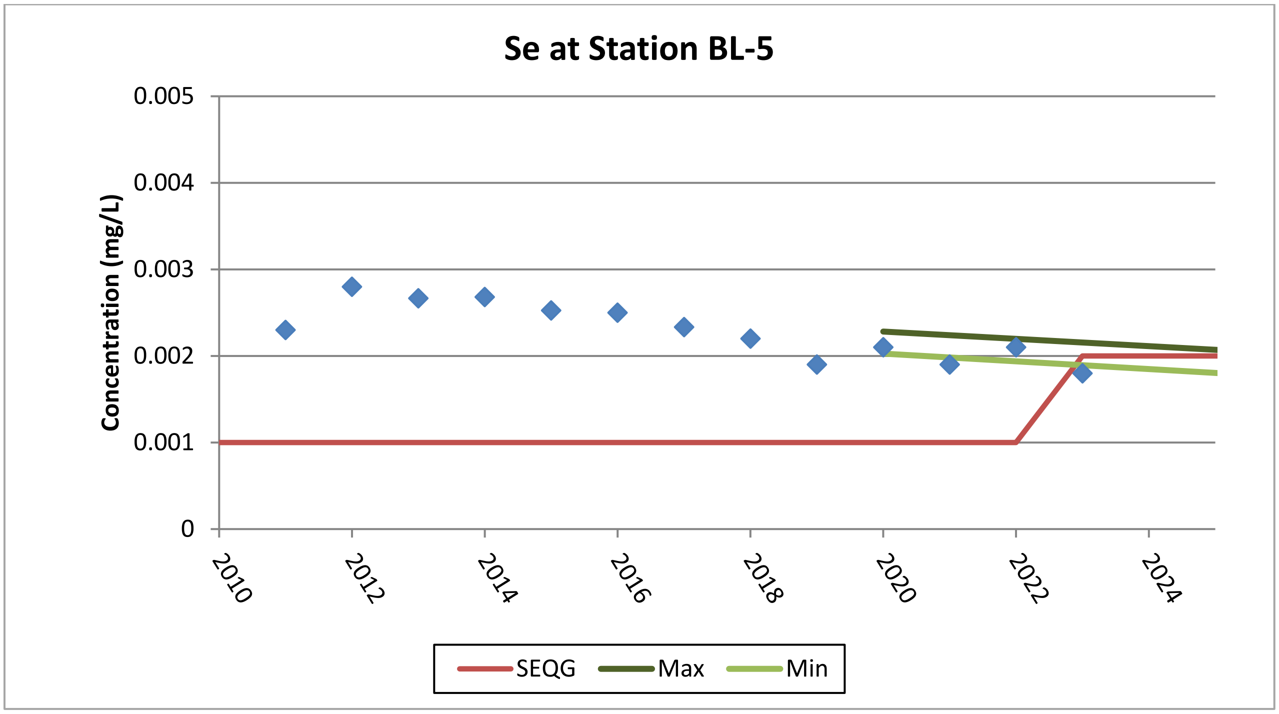
** Station implemented in water sampling program in 2011.*

Figure 4.2.3-10 BL-5 Beaverlodge Lake Outlet



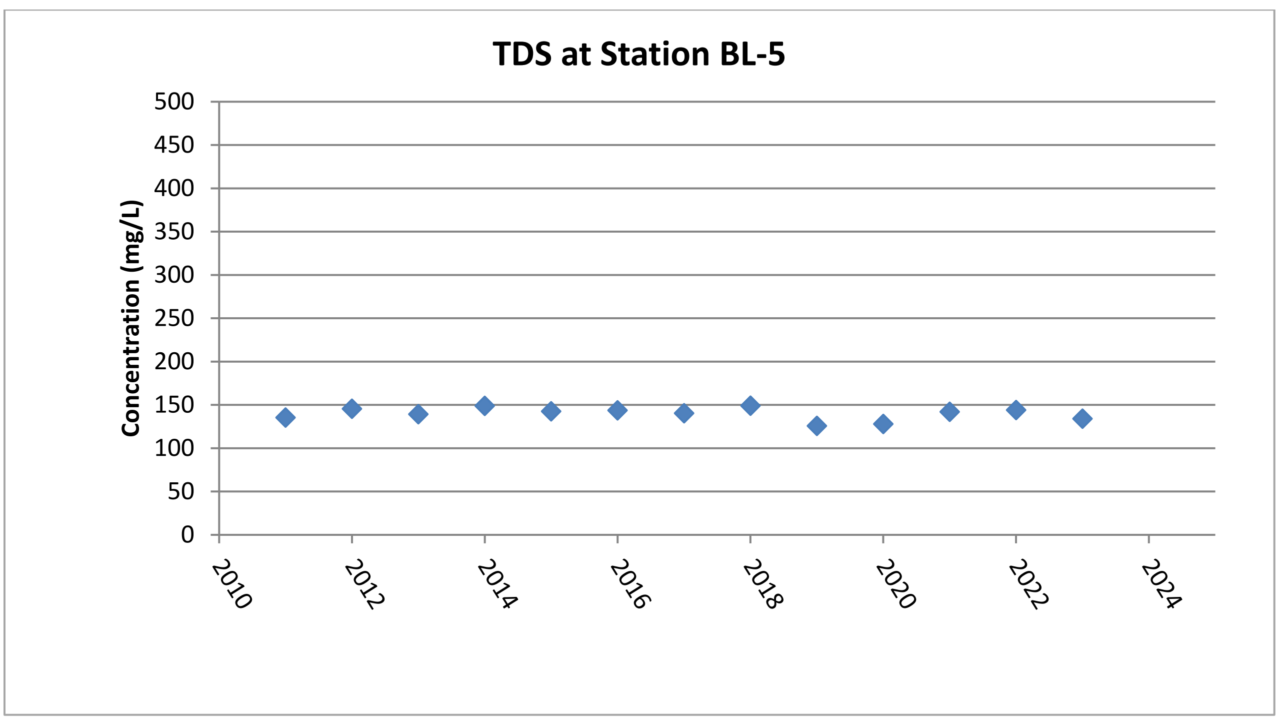
** Station implemented in water sampling program in 2011.*

Figure 4.2.3-11 BL-5 Beaverlodge Lake Outlet



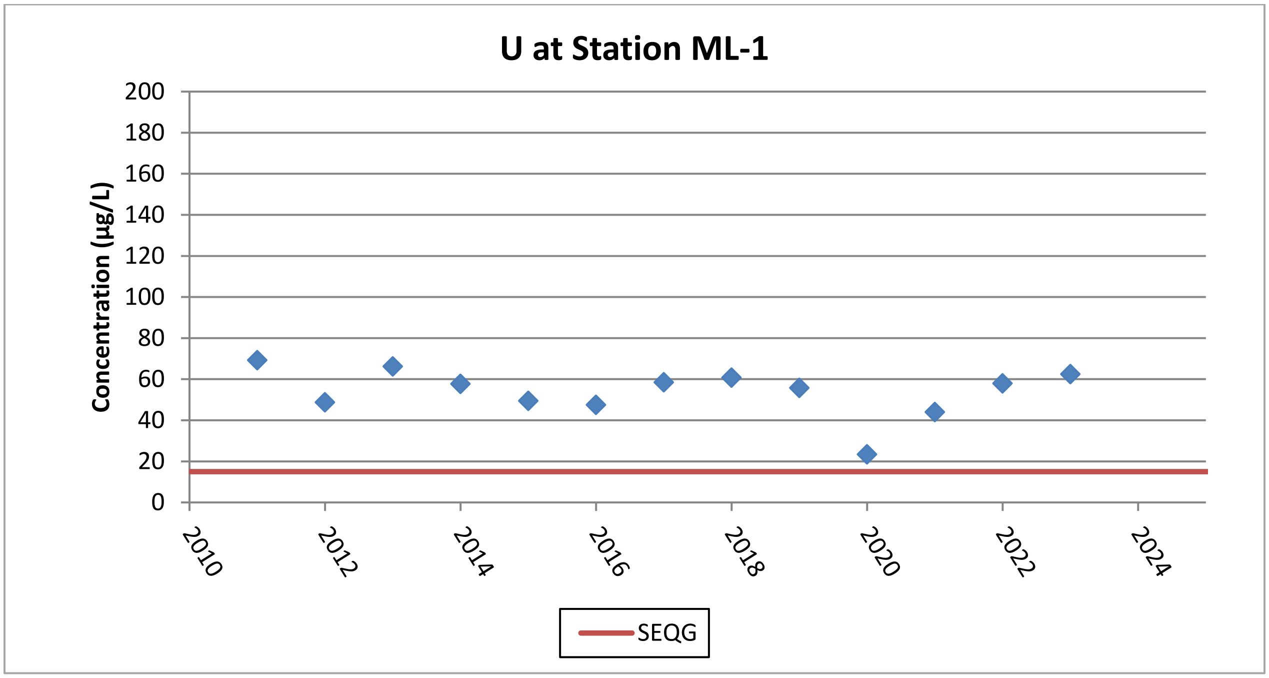
** Station implemented in water sampling program in 2011.*
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.3-12 BL-5 Beaverlodge Lake Outlet



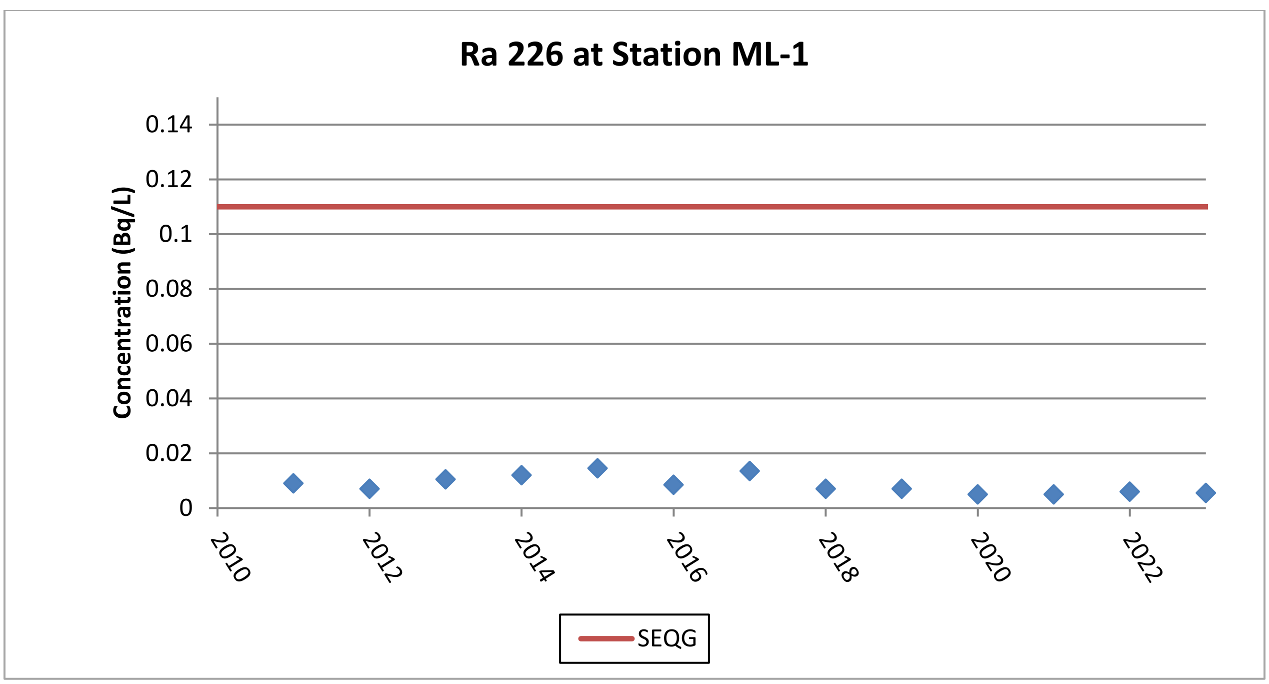
** Station implemented in water sampling program in 2011.*

Figure 4.2.3-13 ML-1 Outlet of Martin Lake



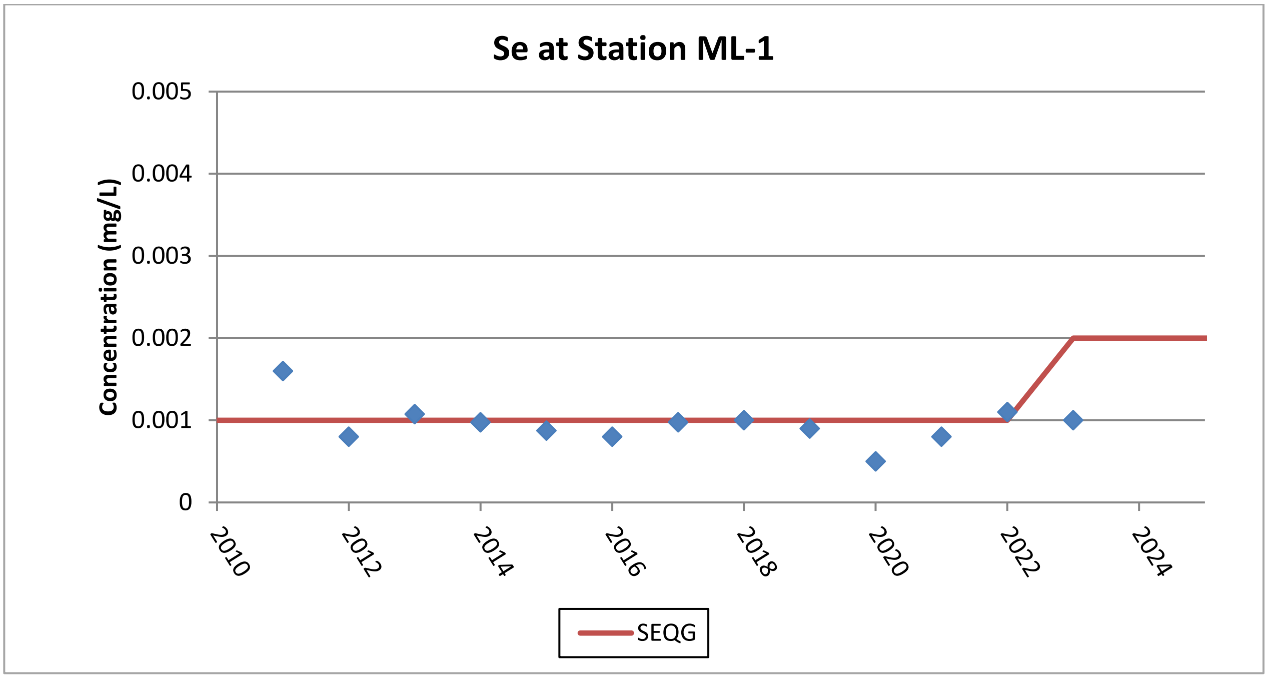
**Station implemented in water sampling program in 2011.*

Figure 4.2.3-14 ML-1 Outlet of Martin Lake



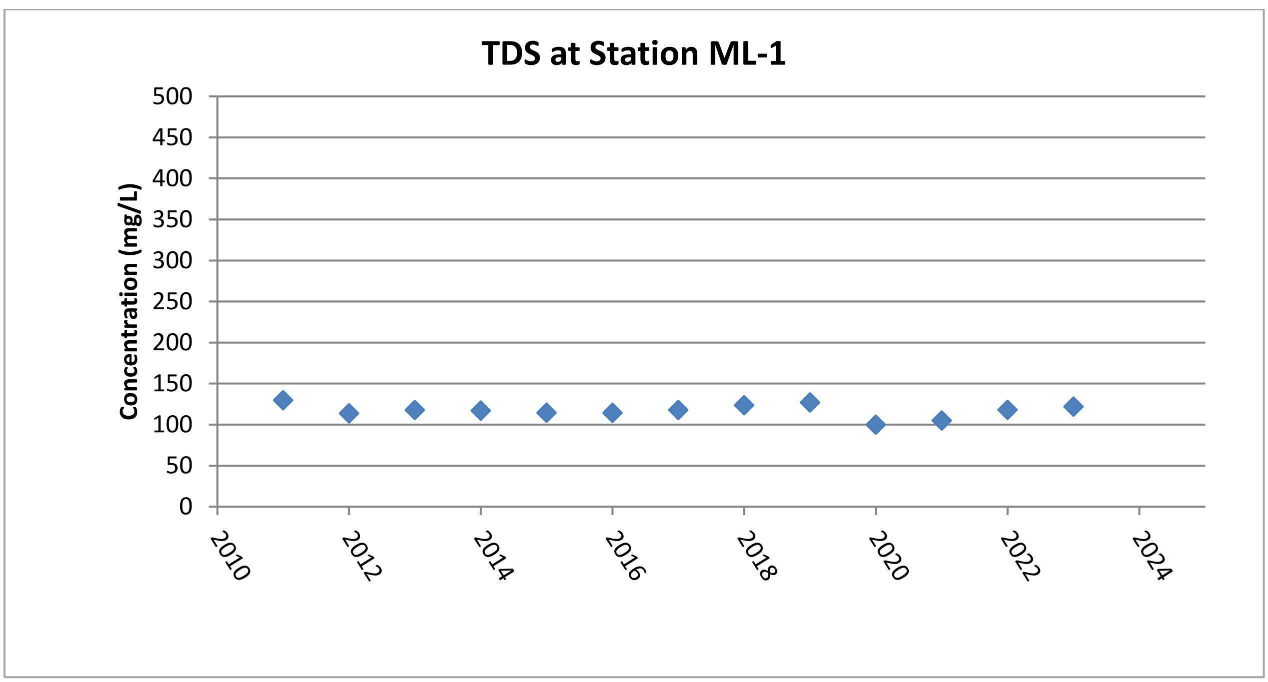
**Station implemented in water sampling program in 2011.*

Figure 4.2.3-15 ML-1 Outlet of Martin Lake



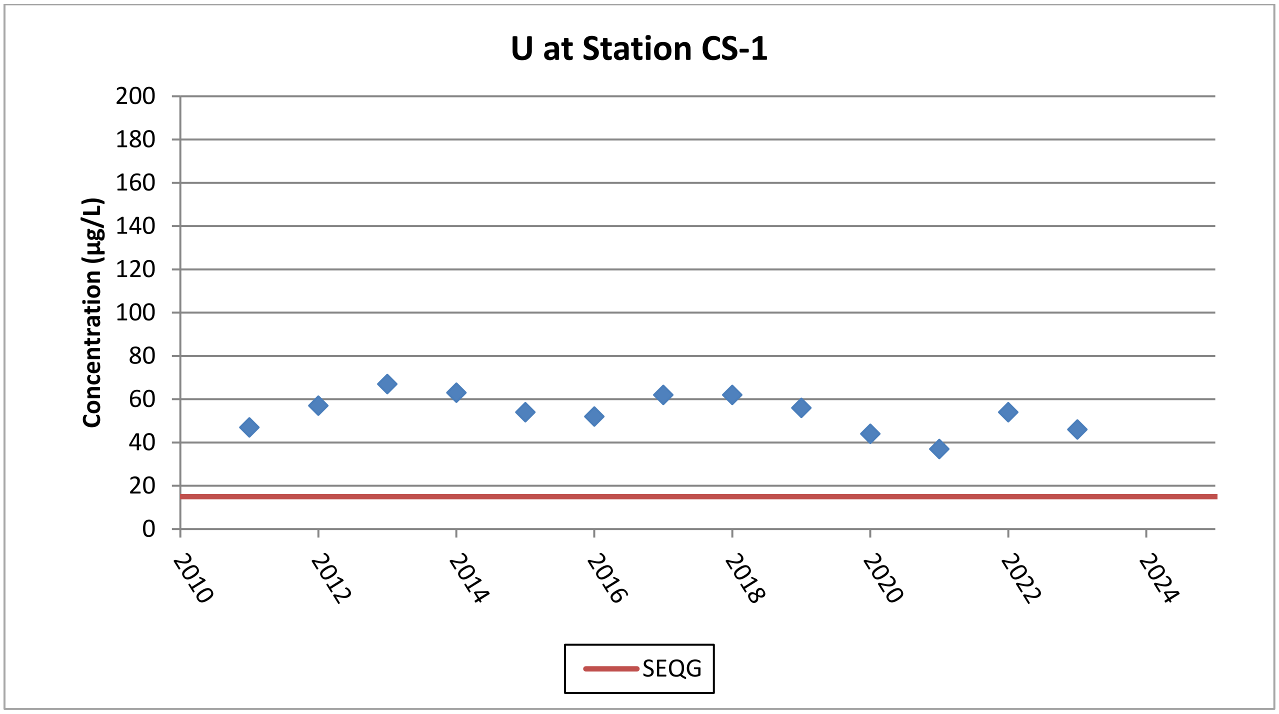
**Station implemented in water sampling program in 2011.*
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.3-16 ML-1 Outlet of Martin Lake



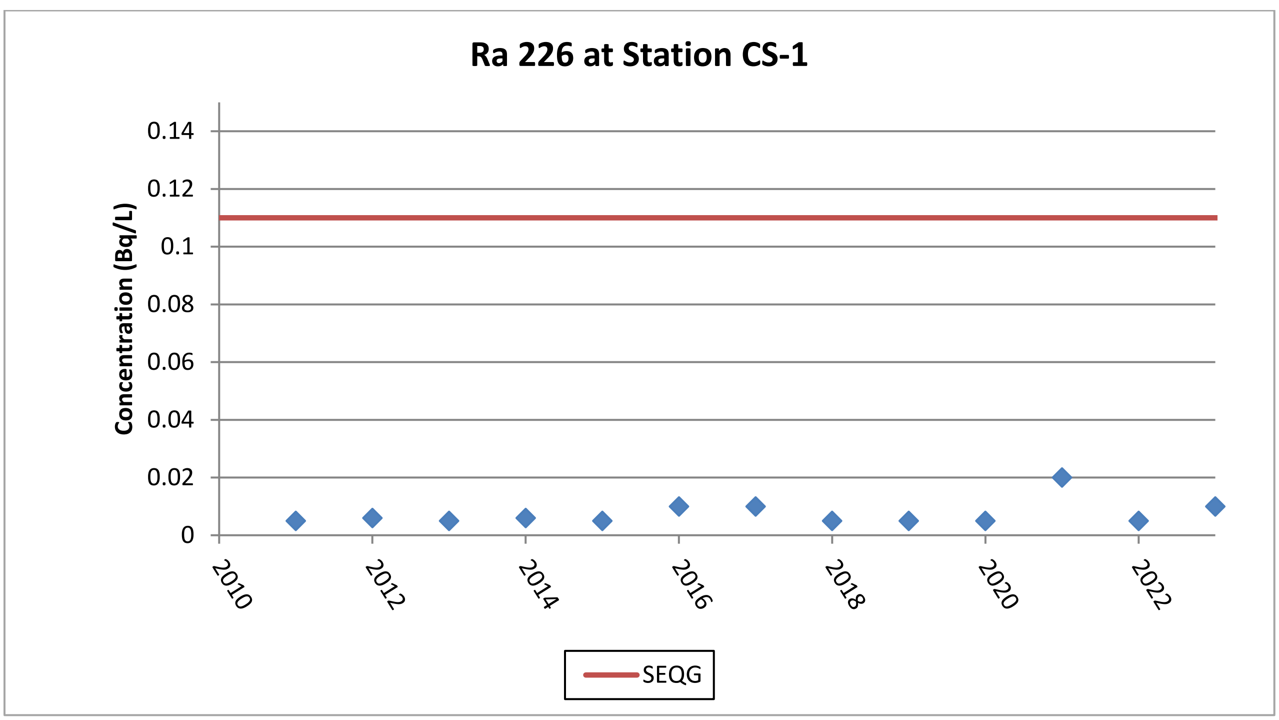
**Station implemented in water sampling program in 2011.*

Figure 4.2.3-17 CS-1 Crackingstone River at Bridge



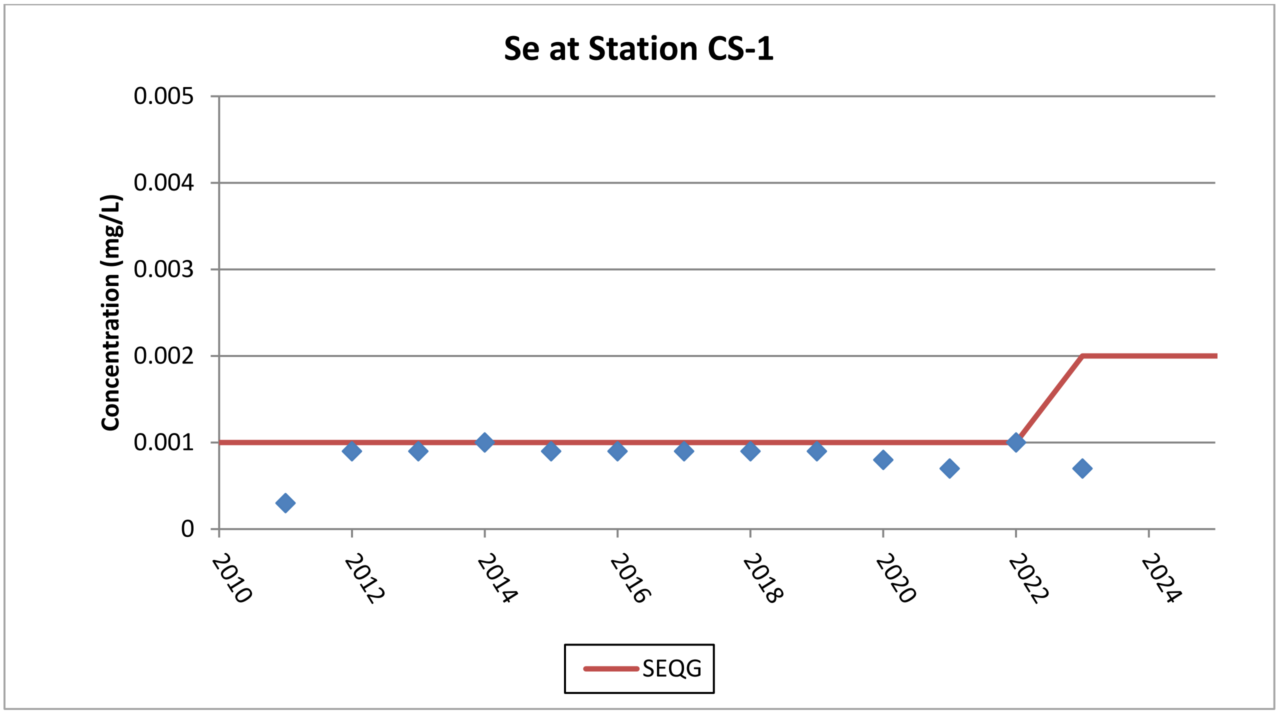
**Station implemented in water sampling program in 2011.*

Figure 4.2.3-18 CS-1 Crackingstone River at Bridge



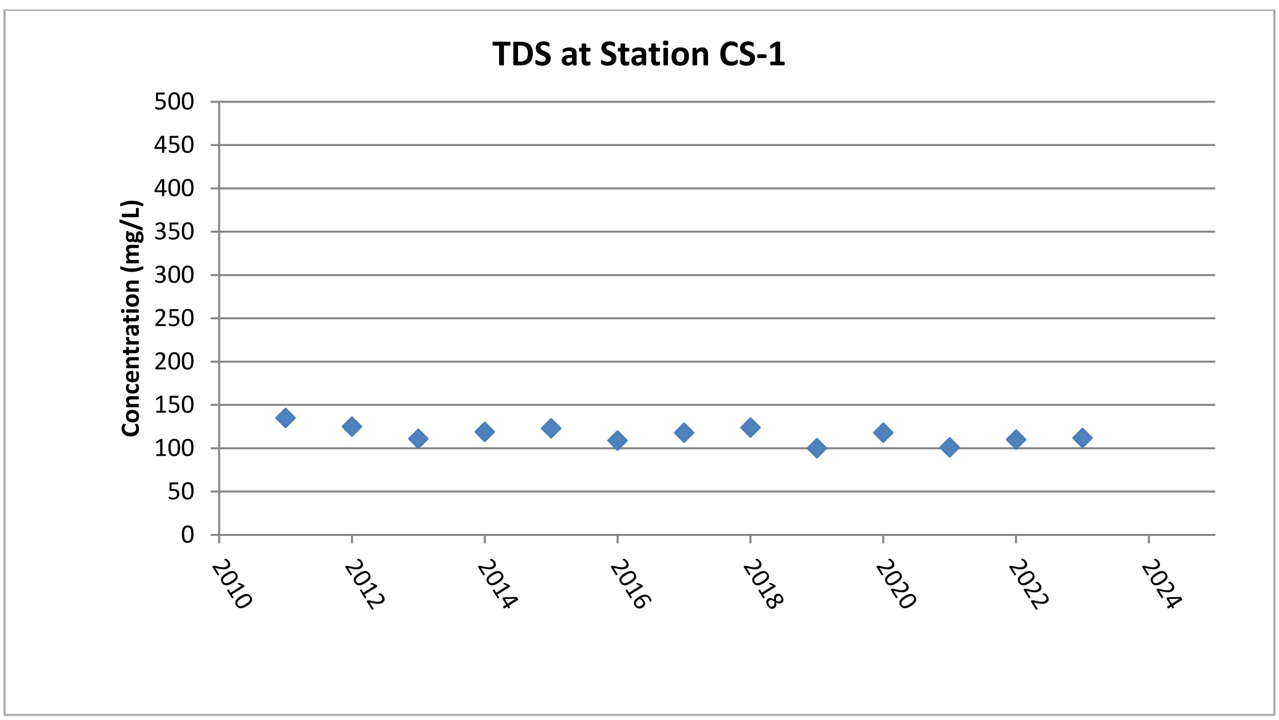
**Station implemented in water sampling program in 2011.*

Figure 4.2.3-19 CS-1 Crackingstone River at Bridge



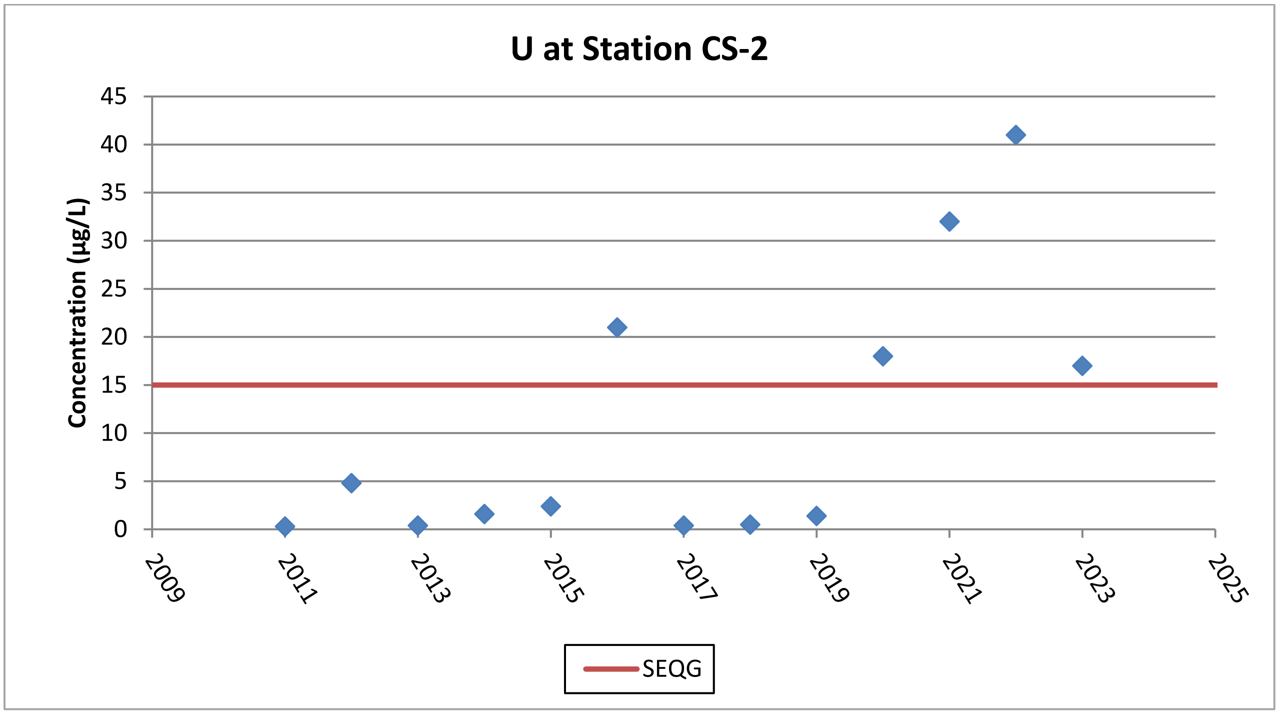
**Station implemented in water sampling program in 2011.*
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.2.3-20 CS-1 Crackingstone River at Bridge



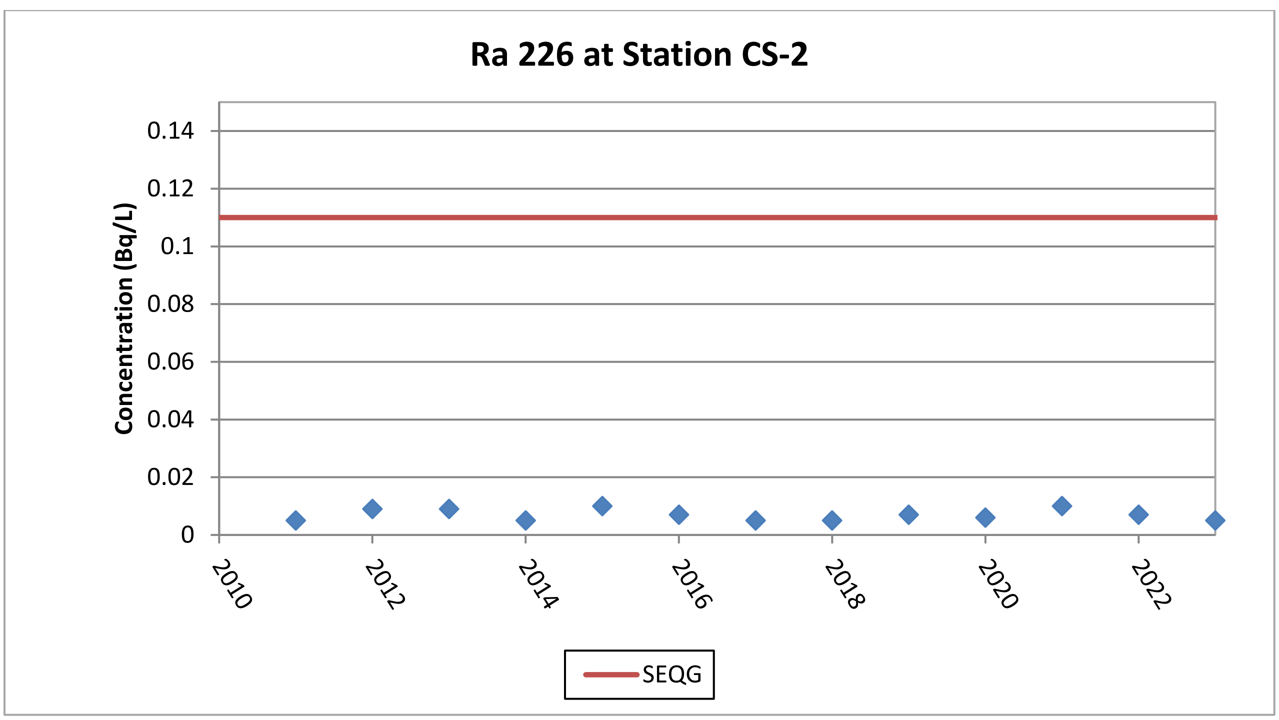
**Station implemented in water sampling program in 2011.*

Figure 4.2.3-21 CS-2 Crackingstone Bay



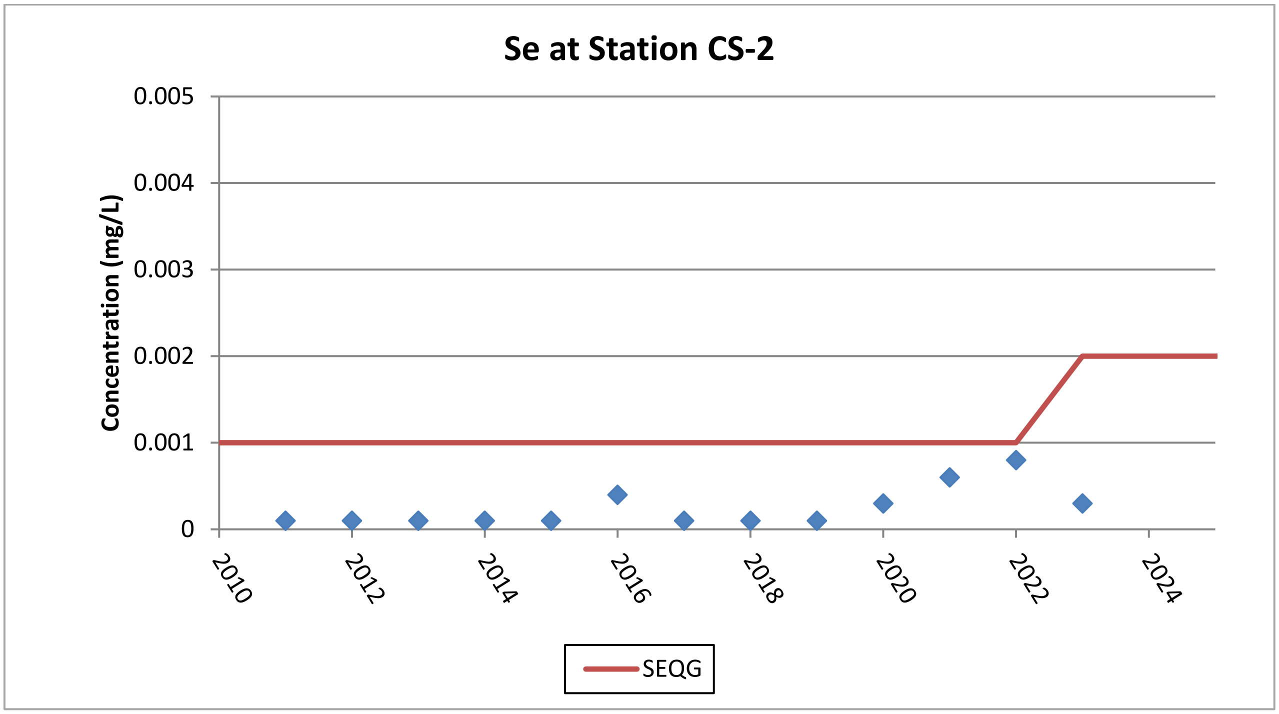
**Station implemented in water sampling program in 2011.*

Figure 4.2.3-22 CS-2 Crackingstone Bay



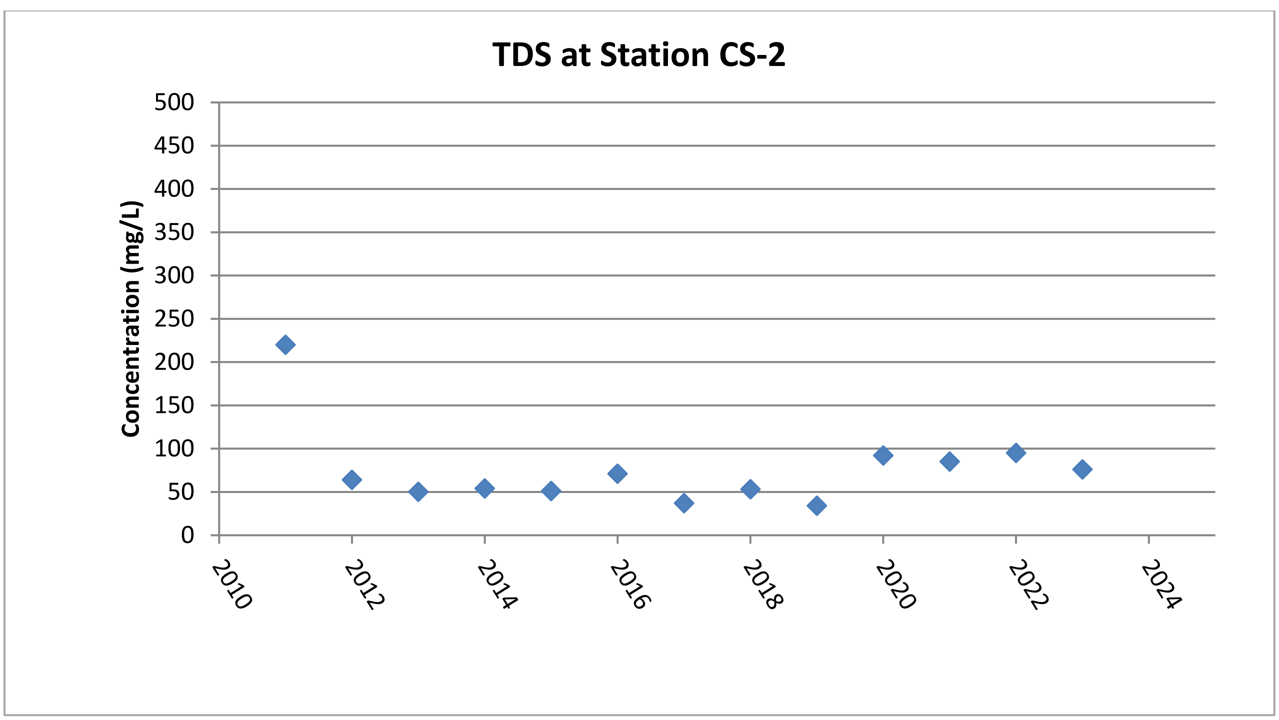
**Station implemented in water sampling program in 2011.*

Figure 4.2.3-23 CS-2 Crackingstone Bay



**Station implemented in water sampling program in 2011.*
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

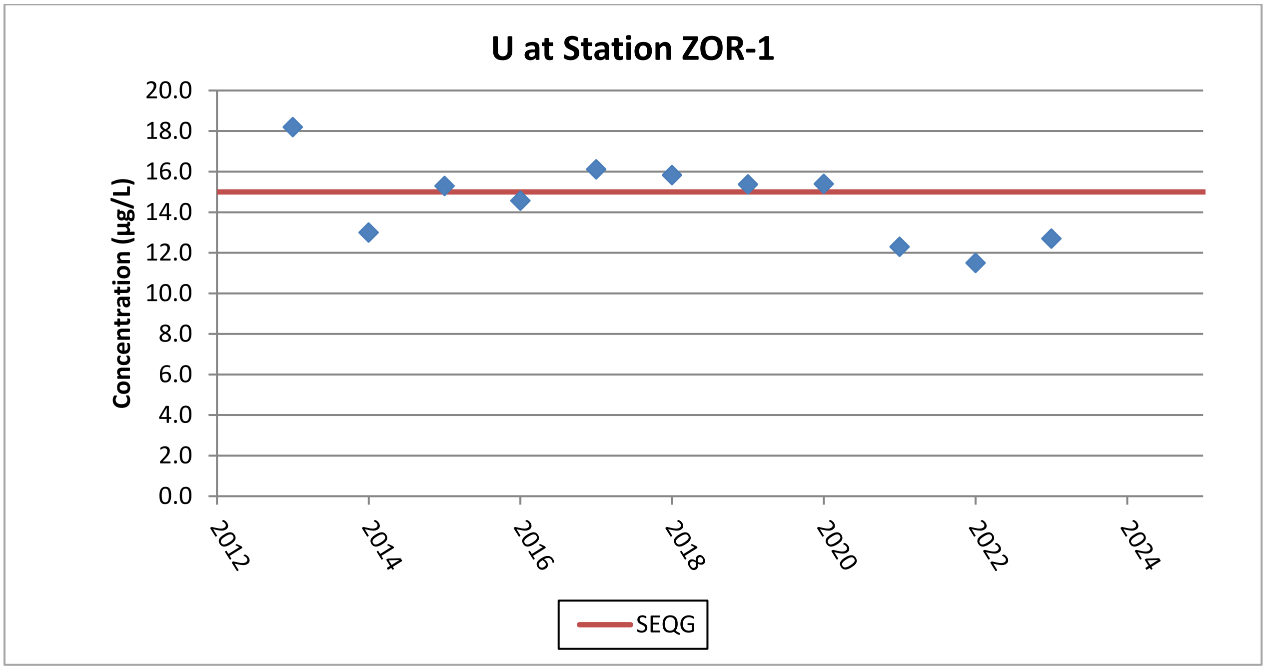
Figure 4.2.3-24 CS-2 Crackingstone Bay



**Station implemented in water sampling program in 2011.*

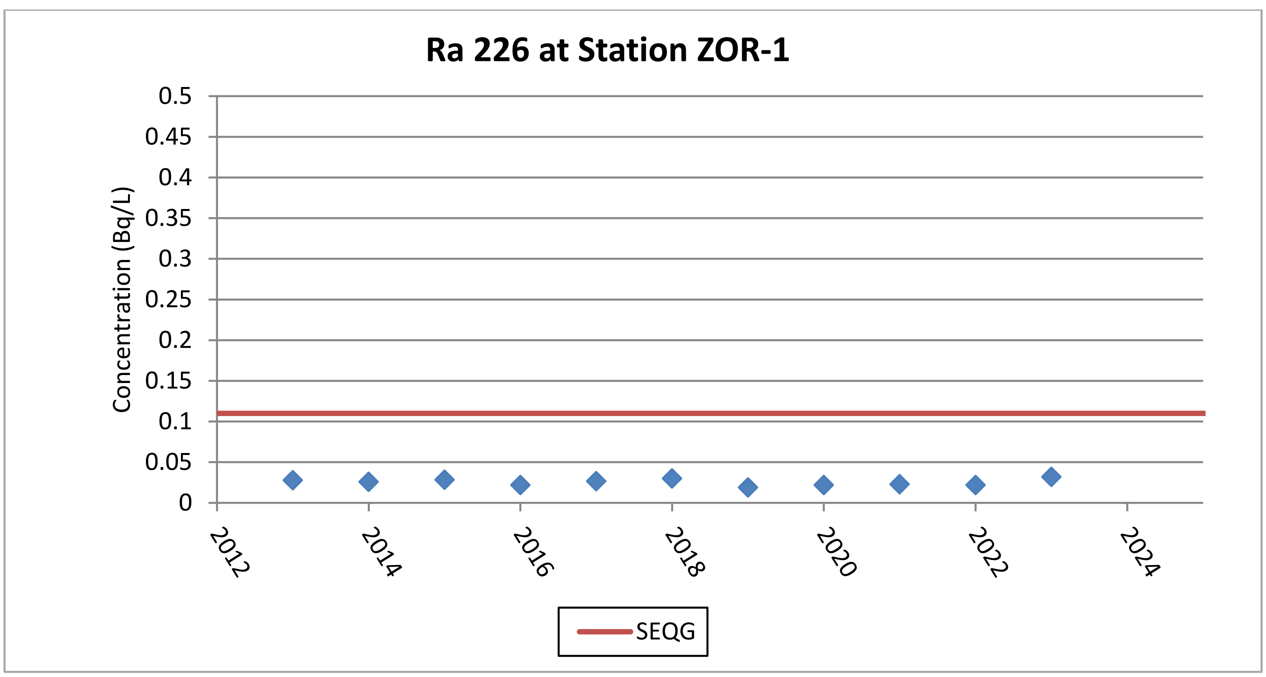
Figure 4.3 ZOR-01 and ZOR-02 sampling locations

Figure 4.3-1 ZOR-01 Outlet of Zora Lake



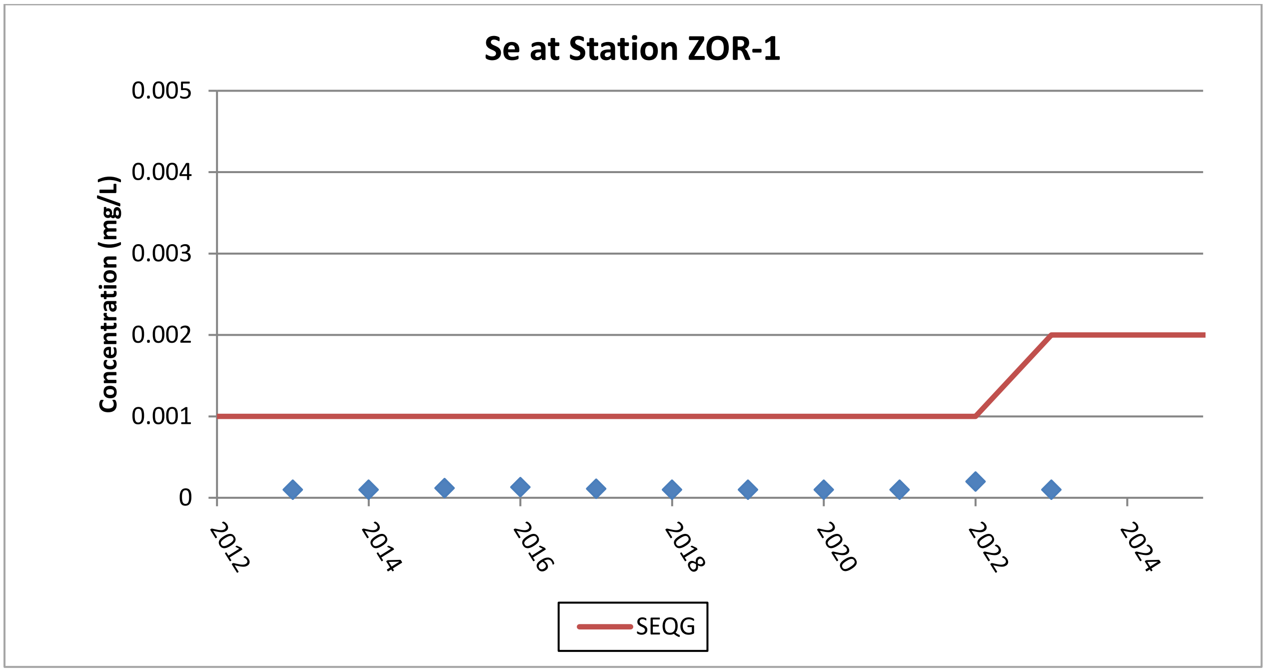
**Sampling initiated in 2013.*

Figure 4.3-2 ZOR-01 Outlet of Zora Lake



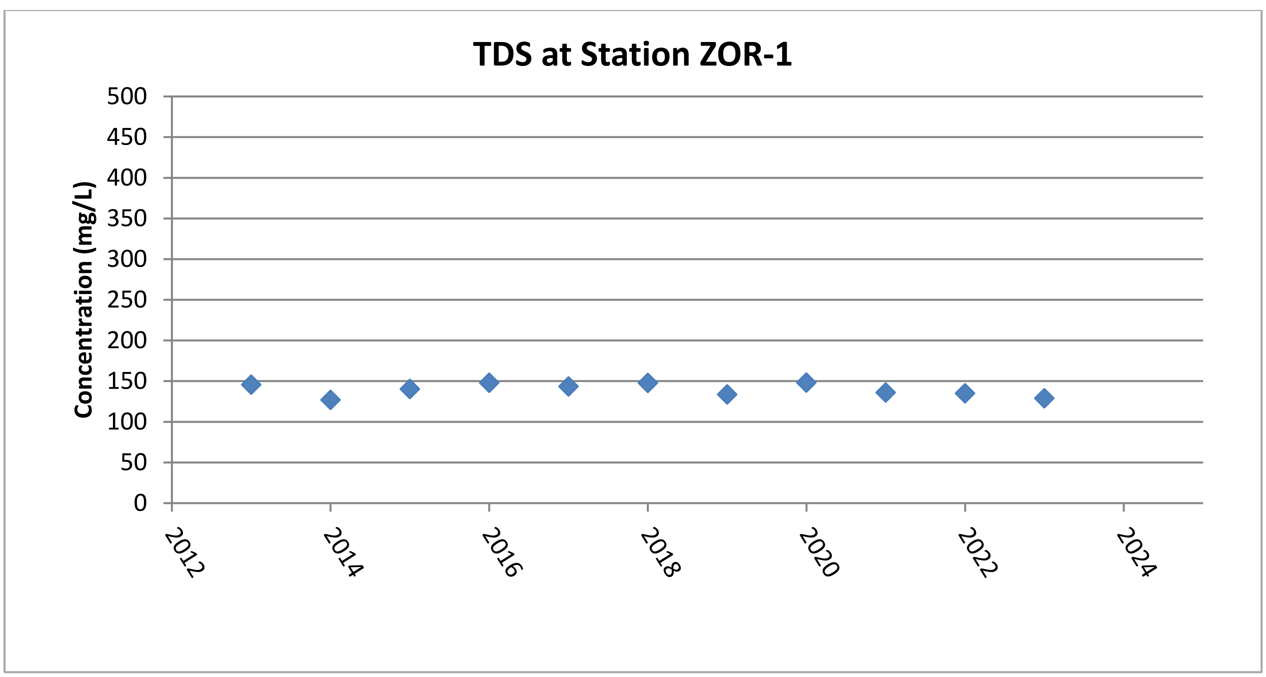
**Sampling initiated in 2013.*

Figure 4.3-3 ZOR-01 Outlet of Zora Lake



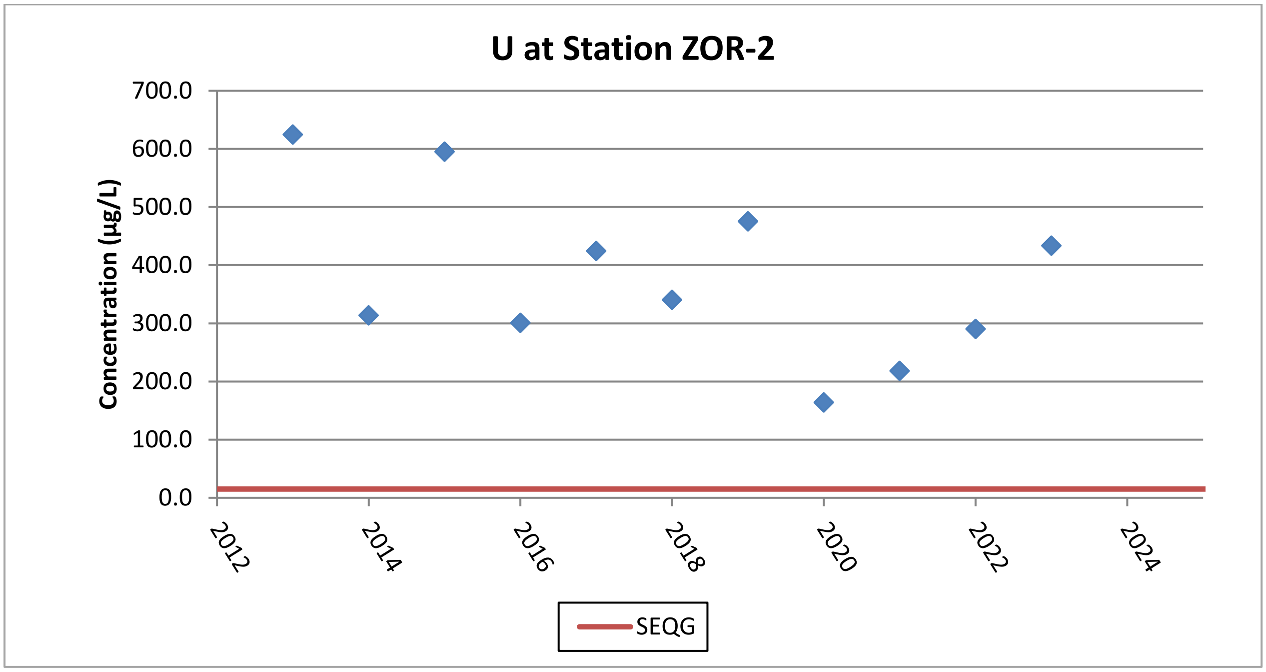
**Sampling initiated in 2013.*
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.3-4 ZOR-01 Outlet of Zora Lake



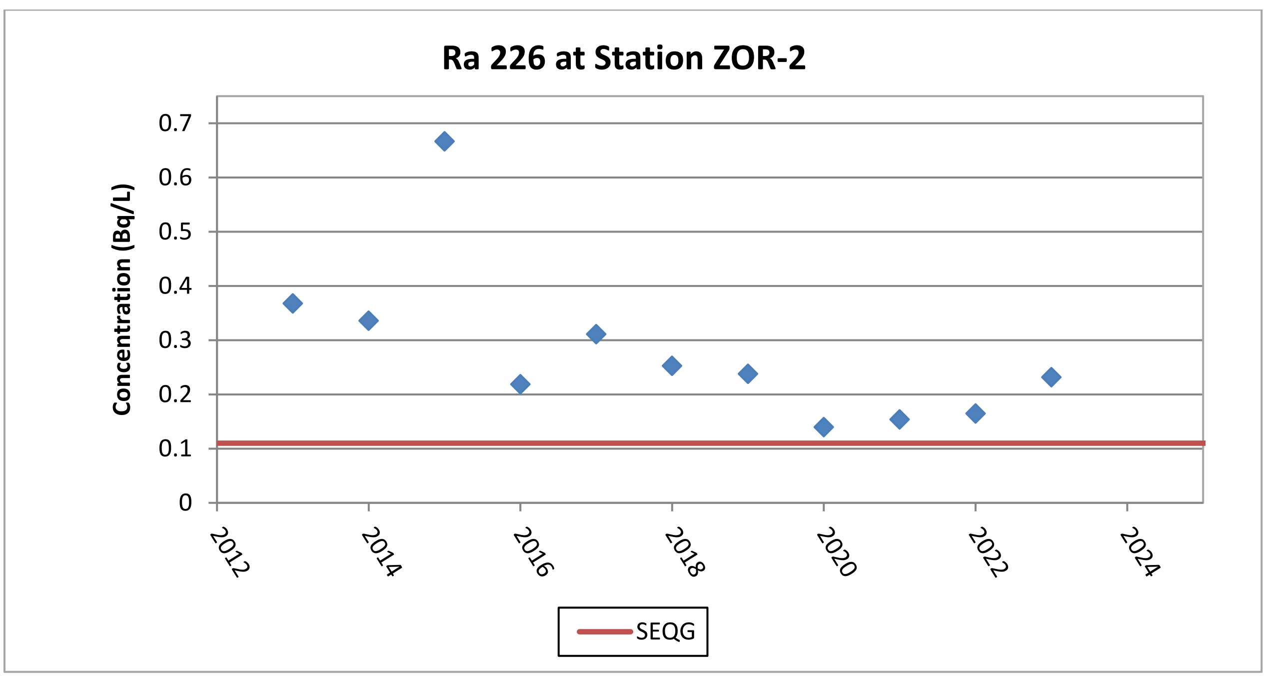
**Sampling initiated in 2013.*

Figure 4.3-5 ZOR-02 Outlet of the Zora Creek Flow Path



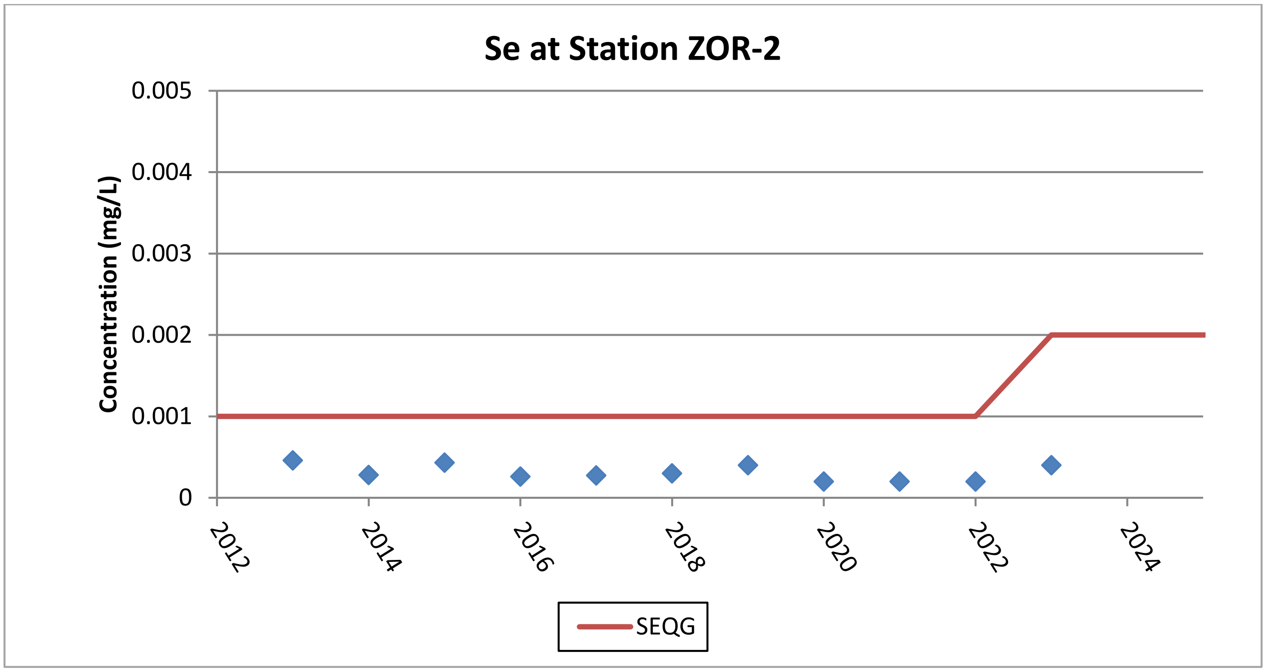
**Sampling initiated in 2013.*

Figure 4.3-6 ZOR-02 Outlet of the Zora Creek Flow Path



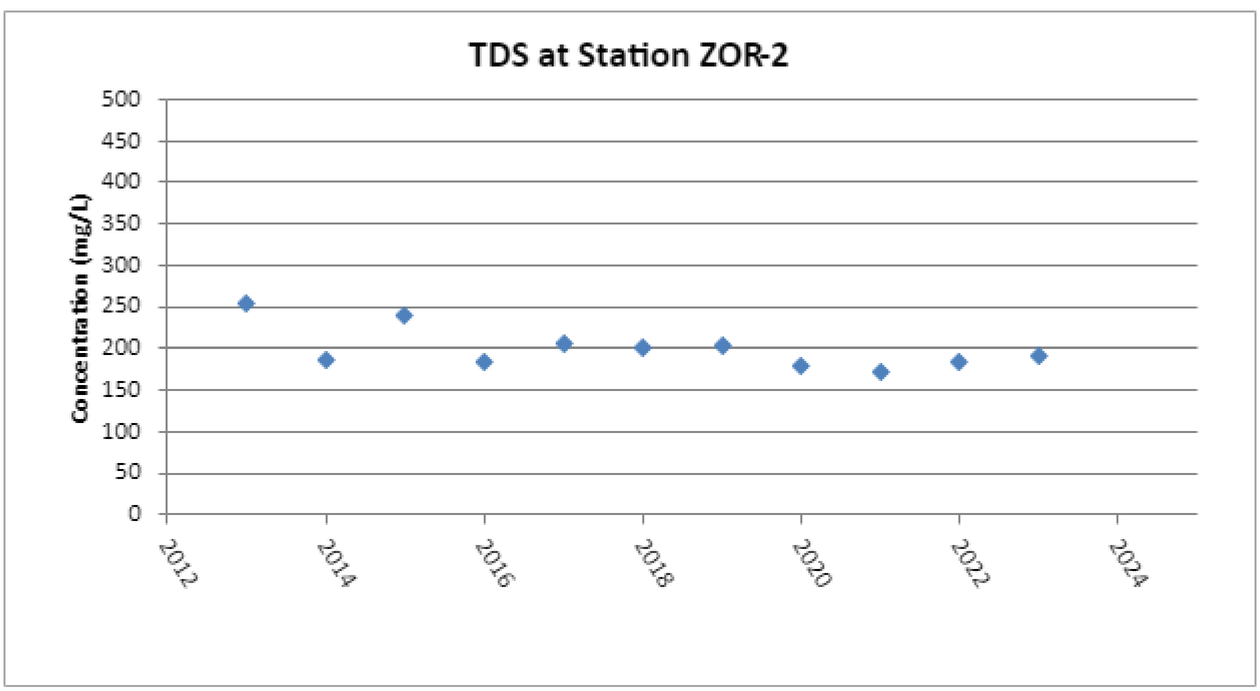
**Sampling initiated in 2013.*

Figure 4.3-7 ZOR-02 Outlet of the Zora Creek Flow Path



**Sampling initiated in 2013.*
SEQG increased from 0.001 mg/l to 0.002 mg/l in 2023.

Figure 4.3-8 ZOR-02 Outlet of the Zora Creek Flow Path



**Sampling initiated in 2013.*

Figure 4.5.1-1 - Air Sampling Locations

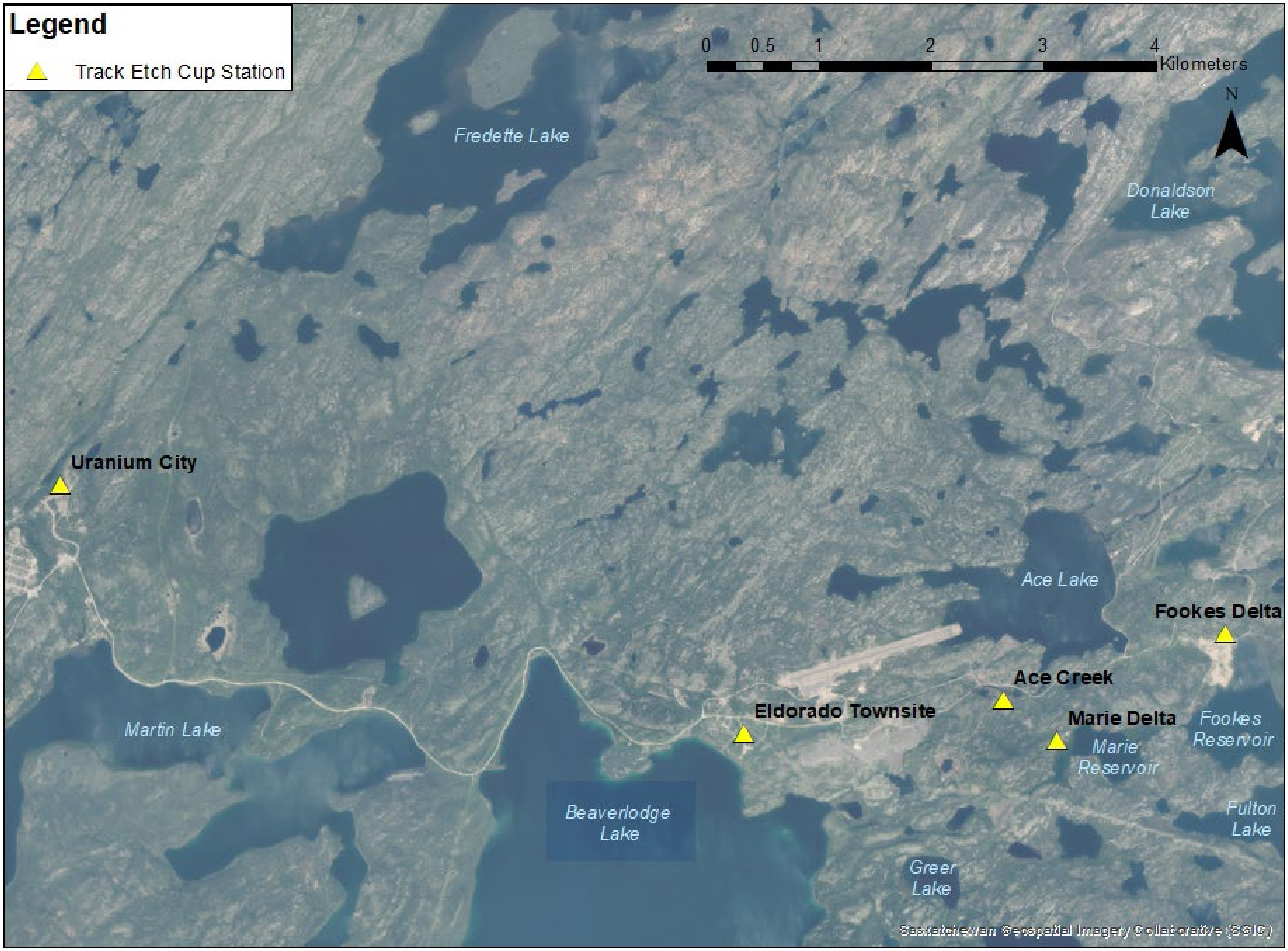
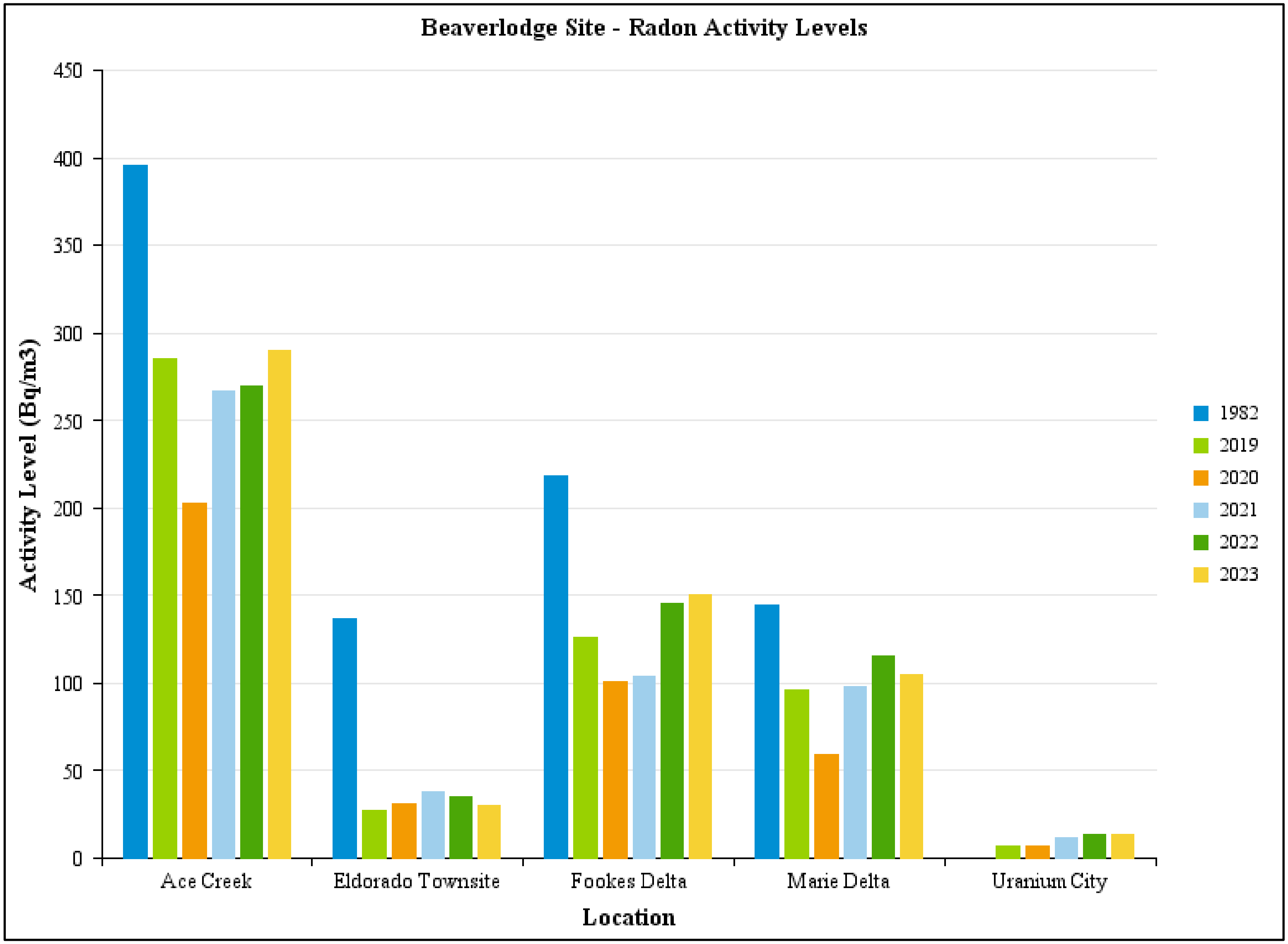


Figure 4.5.1-2 Radon Summary (2019 - 2023 versus 1982)



** In 2020, the second set of the semi-annual radon samples (five stations)were lost in transit to the lab and therefore were not analyzed as per the Beaverlodge EMP. The CNSC and SkMOE were notified of this occurrence on August 20, 2021, once it was discovered results were not reported by the lab.*

APPENDIX A

APPENDIX A

Property Name	Acceptable Gamma Levels	Boreholes Plugged	Stable Mine Openings	Stable Crown Pillar	Water Quality Within Modelled Predictions	Waste Rock	Tailings	IC Monitoring	IC Maintenance	Land Status
EAGLE 4/7	Y (Meets Guideline)	Y	Eagle shaft concrete collar and cap constructed in 2000.	Yes, no indication of instability or subsidence identified.	NA - Shaft Lake water sample	Y	No residual tailings	Inspection of evidence of recent human visitation, condition of concrete cap, evidence of artesian flow from boreole, evidence of significant pit wall failure, condition of vegetation.	Concrete cap maintenance or replacement.	Managed in IC
EAGLE (02 Zone)	Y (Meets Guideline)	Not Required in 2009	No mine openings to surface	NA	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, evidence of significant pit wall failure, condition of vegetation.	No maintenance required	Managed in IC
EMAR 16 (K260)	Y (Meets Guideline)	Not Required in 2009	No mine openings to surface	NA	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, evidence of significant pit wall failure, condition of vegetation.	No maintenance required	Managed in IC
EMAR 19 (11 Zone)	Y (Meets Guideline)	Not Required in 2009	No mine openings to surface	NA	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, evidence of significant pit wall failure, condition of vegetation.	No maintenance required	Managed in IC
EMAR 21 (46 Zone)	Y (Meets Guideline)	Not Required in 2009	Adit was backfilled during original decommissioning. Shows no signs of deterioration	Yes, no indication of instability or subsidence identified.	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, evidence of significant pit wall failure, condition of adit, evidence of instability of crown pillar above adit, condition of vegetation.	No maintenance required	Managed in IC
EXC ATO 26	Y (Meets Guideline)	NA	No mine openings to surface	Yes, no indication of instability or subsidence identified.	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, evidence of significant waste rock slope failure and condition of vegetation.	No maintenance required	Managed in IC
EXC ACE 1	Y (Risk Assessment)	NA	No mine openings to surface	NA	NA	N	Accessible tailings were covered with 600mm of waste rock. Inaccessible residual tailings were left in place as vegetation cover had established.	Inspection of evidence of recent human visitation, evidence of disturbance of the waste rock covered tailings and condition of vegetation.	No maintenance required	Managed in IC and portion free released
ACE 2	Y (Meets Guideline)	NA	No mine openings to surface	Yes, no indication of instability or subsidence identified.	NA	N	All accessible tailings were covered with 600 mm of waste rock.	Inspection of evidence of recent human visitation, condition of waste rock cover of tailings, and cover of vegetation	No maintenance required	Managed in IC
EXC ACE 3	Y (Meets Guideline)	NA	No mine openings to surface	Yes, no indication of instability or subsidence identified.	NA	N	No residual tailings	No monitoring required	No maintenance required	Managed in IC
HAB 6	Y (Meets Guideline)	Y	No mine openings to surface	NA	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, evidence of disturbance of the waste rock used to construct the trail, condition of waste rock used to construct the trail and the condition of vegetation on the trail.	No maintenance required	Managed in IC
EXC 2	Y (Meets Guideline)	Y	No mine openings to surface	NA	NA	N	No residual tailings	No monitoring required	No maintenance required	Managed in IC
ATO 26	Y (Meets Guideline)	NA	No mine openings to surface	NA	NA	N	No residual tailings	No monitoring required	No maintenance required	Managed in IC and portion free released
URA MC	Y (Meets Guideline)	NA	No mine openings to surface	Yes, no indication of instability or subsidence identified.	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, condition of the plugged artesian drill holes, evidence of significant sluffing of waste rock slope and condition of vegetation	No maintenance required	Managed in IC
HAB 3	Y (Lack of Disturbance- No Readings)	Y	No mine openings to surface	No indication of instability or subsidence identified.	Monitor AN-5	N	No residual tailings	Inspection of evidence of recent human visitation, condition of the crown pillar area, condition of vegetation	No maintenance required	Managed in IC
BOLGER 2	Y (Risk Assessment)	NA	No mine openings to surface	NA	NA	Y	No residual tailings	Inspection of recent human visitation, general pit wall stability, evidence of significant pit wall failure, evidence of significant sluffing of waste rock slope, and condition of vegetation	No maintenance required	Managed in IC
RA 6	Y (Meets Guideline)	NA	Adits RA6 was sealed with steel grating using #10 steel rail	Yes, no indication of instability or subsidence identified.	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, RA 6 adit closure condition, condition of crown pillar, evidence of slumping of waste rock slopes, evidence of surface seeps from the adit, and condition of vegetation.	Steel grate is scheduled for replacement	Managed in IC
RA 9	Y (Meets Guideline)	Y	Adit was backfilled to a sufficient depth to eliminate future erosion to ensure long term stability.	Yes, no indication of instability or subsidence identified.	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, RA 9 adit closure condition, condition of crown pillar, evidence of slumping of waste rock slopes, evidence of surface seeps from the adit, and condition of vegetation.	No maintenance required	Managed in IC
Eagle 1	Y (Meets Guideline)	Y	No mine openings to surface	Yes, no indication of instability or subsidence identified.	Monitor 12 Zone	Y	No residual tailings	Inspection of pit wall stability, vegetation condition, evidence of human visitation, sand cover over areas with elevated gamma, & status of flooded pit	No maintenance required	Managed in IC
ACE 10	Y (Lack of Disturbance- No Readings)	NA	No mine openings to surface	Yes, no indication of instability or subsidence identified.	NA	N	No residual tailings	No monitoring required	No maintenance required	Managed in IC and portion free released

URA 5	Y (Risk Assessment)	Y	No mine openings to surface	Yes, no indication of instability or subsidence identified.	Monitor AC-14	Y	Tailing spills identified in Ace Catchment Area I and Ace Stope Area were excavated and disposed of underground, covered with 600mm of waste rock or left undisturbed (if inaccessible).	Inspections of areas where residual tailings remain on URA 5 property	No maintenance required	Managed in IC
EXC URA 5	Y (Risk Assessment)	NA	No mine openings to surface	Yes, no indication of instability or subsidence identified.	NA	Y	Accessible tailing spills were covered with 600 mm of waste rock. Tailings at Ace Catchment I were removed.	Inspection of evidence of past tailing spill area for evidence of disturbance, the condition of waste rock slope, and the condition of vegetation.	No maintenance required	Managed in IC
URA 3	Y (Risk Assessment)	Y	25373 Raise secured with a stainless steel cap in 2017.	Yes, no indication of instability or subsidence identified.	NA	N	No residual tailings	Inspection of evidence of recent human visitation, the condition of stainless steel raise cap.	Stainless steel cap will require periodic material assessments.	Managed in IC and portion free released
ACE 5	Y (Lack of Disturbance- No Readings)	Y	No mine openings to surface	Yes, no indication of instability or subsidence identified.	NA	N	No residual tailings	No monitoring required	No maintenance required	Managed in IC
JO-NES	Y (Meets Guideline)	Y	810394 Vent Raise and 820694 Vent Raise filled with waste rock in 1982 and covered with a concrete cap. In 2017, stainless steel caps were placed over the concrete caps. Adit was filled with waste rock from site.	Yes, no indication of instability or subsidence identified.	NA	Y	No residual tailings	Inspection of evidence of recent human visitation, general pit wall stability, evidence of significant pit wall failure, evidence of significant sluffing of waste rock within the former pit, condition of stainless steel caps and adit, condition of vegetation.	Stainless steel caps will need periodic material assessments.	Managed in IC and portion free released
HAB 2A	Y (Meets Guideline)	Y	D013810 Raise (645553E; 6611886N) was made secure via installation of stainless steel cap in 2017.	Yes, no indication of instability or subsidence identified.	NA	N	No residual tailings	Inspection of evidence of recent human visitation, condition of stainless-steel caps installed on D013810 raise and condition of vegetation	Stainless steel cap will need periodic material assessment	Managed in IC
ACE MC	Y (Risk Assessment)	Y	Ace Shaft closed with concrete cap in 1984, secured by covering concrete cap with stainless steel cap in 2016. 103 Raise temporarily sealed in 1984, then sealed with concrete cap in 1985. Secured in 2017 by covering concrete cap with stainless steel cap. 201 Raise was backfilled at decommissioning with no evidence of material settling, additional sorted waste rock was placed on the raise.	Yes, no indication of instability or subsidence identified.	NA	Y	Residual tailings were present on property. Accessible residual tailings were covered with 600mm of waste rock.	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.	Stainless steel caps will need periodic material assessments.	Managed in IC
URA FR	Y (Lack of Disturbance- No Readings)	Y	No mine openings to surface	Yes, no indication of instability or subsidence identified.	Monitor AC-14	N	No residual tailings	Condition of vegetation, condition of the waste rock seeps, evidence of flow from previously flowing sealed boreholes.	No maintenance required	Managed in IC
URA 4	Y (Meets Guideline)	Y	Fine Ore Bin Raise, Surface Dump Raise, Fay Shaft, and 024094 Vent Raise all were permanently secured with stainless steel cap in 2020, 2018, 2020 and 2017 respectively. Custom Ore Raise, Custom Ore Raise and Access to Custom Crusher (Adit) closed in 2020 with engineered waste rock covers.	No indication of instability or subsidence identified	N/A	Y	Accessible tailings were covered with 600mm of waste rock. Inaccessible areas were assessed on individual basis.	Evidence of recent human visitation, past tailings spill areas for evidence of disturbance, condition of vegetation, condition of the waste rock, condition of the stainless steel capped mine openings and the engineered rock covered mine openings.	Stainless steel caps will require periodic material assessments	Managed in IC
ACE 7	Y (Meets Guideline)	NA	Shaft adit closed during operation and is now buried, adit closure is sufficient and no additional investigation required.	Yes, no indication of instability or subsidence identified.	N/A	Y	No residual tailings	Evidence of recent human visitation, condition of the waste rock, condition of vegetation.	No maintenance required	Managed in IC
ACE 8	Y (Meets Guideline)	Y	Verna Shaft (645470E: 6606022N) closed with concrete cap in 1982, secured by replacing concrete cap with a stainless steel cap in 2018	Yes, no indication of instability or subsidence identified.	N/A	Y	No residual tailings	Evidence of recent human visitation, condition of the waste rock, condition of vegetation, condition of the stainless steel cap.	Stainless steel cap will require periodic material assessments	Managed in IC
ACE 1	Y (Risk Assessment)	Y	105#2 Raise closed with reinforced concrete cap during September 1982, resecured with engineered rock cover in 2018. 2157 Raise and Finger Raise sealed during summer 1984 with concrete caps, further secured in 2017 by covering the existing concrete caps with stainless steal caps. 195 Access Raise and 195 Raise were sealed in summer of 1984, field verification conducted in 2019 and additional sorted waste rock placed above the area.	Placement of cover consisting of 1.5 to 2 meter berm over identified areas of risk placed in September 2016. No indication of instability or subsidence identified	NA	N	Residual tailings covered with 600mm of waste rock, residual tailings in inaccessible areas left undisturbed	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.	Stainless steel caps will need periodic material assessments.	Managed in IC and Free Release
ACE 3	Y (Meets Guideline)	Y	Bored Vent Raise had a concrete cover installed in 1984, permanently sealed in 2017 with a stainless steel cap over the concrete cap.	Yes, no indication of instability or subsidence identified.	NA	N	No residual tailings	Evidence of recent human visitation, condition of vegetation, condition of the stainless steel capped raise.	Stainless steel cap will require periodic material assessments	Managed in IC
ACE 9	Y (Risk Assessment)	Y	No mine openings to surface	Yes, no indication of instability or subsidence identified.	NA	N	Residual tailings from pipeline infrastructure dismantling were removed. Other accessible tailings were covered with 600mm of waste rock. Inaccessible areas left undisturbed.	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	No maintenance required	Managed in IC

EXC URA 7	Y (Lack of Disturbance- No Readings)	NA	No mine openings to surface	Yes, no indication of instability or subsidence identified.	Monitor at AC-14	N	No residual tailings	No monitoring required	NA	Managed in IC
GC 2	Y (Meets Guideline)	NA	No mine openings to surface	NA	NA	N	Tailings considered inaccessible, showed signs of revegetation or were within Marie Reservoir drainage basin, and were left undisturbed.	Evidence of human visitation, past tailings spill areas for evidence of disturbance, condition of vegetation.	No maintenance required	Managed in IC
NW 3 Ext	Y (Meets Guideline)	NA	Verna mine 026594 Ventilation Raise has a stainless steel cap covering the existing concrete cap, 026594 Finger Raise and Verna Manway had concrete caps replaced with stainless steel caps.	Yes, no indication of instability or subsidence identified.	NA	N	No residual tailings	Evidence of recent human visitation, condition of vegetation, condition of stainless steel caps.	Stainless steel caps will require periodic material assessments	Managed in IC
NW 3	Y (Meets Guideline)	NA	72 Zone Portal (645831E: 6605769N) was sealed with waste rock by backfilling to a depth of 17m in 1982.	Yes, no indication of instability or subsidence identified.	NA	N	No residual tailings	Evidence of recent human visitation, condition of the waste rock, condition of vegetation, condition of the 72 Zone Portal plug.	No maintenance required	Managed in IC
ACE 14	Y (Risk Assessment)	NA	No mine openings to surface	Yes, no indication of instability or subsidence identified.	N/A	N	Tailings considered inaccessible, showed signs of revegetation or were within Marie Reservoir drainage basin, and were left undisturbed.	Evidence of recent human visitation, past tailings spill areas for evidence of disturbance, condition of vegetation.	No maintenance required	Managed in IC
EXC ACE 15	Y (Lack of Disturbance- No Readings)	NA	No mine openings to surface	NA	NA	N	No residual tailings	No monitoring required	No maintenance required	Managed in IC and Free Release
EMAR 1	Y (Meets Guideline)	Y	No mine openings to surface	Yes, no indication of instability or subsidence identified.	Monitor at DB-6	Y	No residual tailings	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).	No maintenance required	Managed in IC
EXC 1	Y (Meets Guideline)	Y	Vertical mine openings: 013904 Raise and 013905 Raise were permanently sealed by covering original concrete cap with a stainless steel cap in 2017. Vertical Mine opening Heater Raise was permanently sealed by replacing concrete cap with stainless steel cap in 2019. Two sealed adits: Haulage Adit and The Service Adit both had two walls constructed of 2" by 6" timbers with reinforced wire and 6" shotcrete applied to outside of form to prohibit access to shaft collar and entrance of Adit. The Vent Plant Raise located in the Haulage Adit was capped in 1975 and further secured with waste rock.	Yes, no indication of instability or subsidence identified.	Monitor at AN-5	Y	No residual tailings	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	Stainless steel caps will require periodic material assessments	Managed in IC
HAB 1	Y (Meets Guideline)	Y	013918 Raise, 013909 Raise and 013929 Raise were backfilled with waste rock during mining of small pit, 013927 Raise was backfilled with waste rock and capped with concrete cap during original decommissioning. In 2017 a stainless steel cap covered the concrete cap.	Yes, no indication of instability or subsidence identified.	Monitor at AN-5	Y	No residual tailings	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)	Stainless steel cap will require periodic material assessments.	Managed in IC and Free Release
HAB 2	Y (Meets Guideline)	Y	The Hab shaft was made secure in 2018 when the original concrete cap was replaced with a stainless steel cap.	Yes, no indication of instability or subsidence identified.	Monitor at AN-5	Y	No residual tailings	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).	Stainless steel cap will require periodic material assessments.	Managed in IC
URA 1	Y (Meets Guideline)	Y	NA	NA	NA	Y	No residual tailings	Evidence of recent human visitation, condition of vegetation, condition of the waste rock, condition of cover on Lowe Fay Pit, condition of the previously flowing boreholes BH-001, BH-002, BH-003, BH-004, BH-005, BH-006, BH-007, BH-15, and BH-31, and evidence of any seepage from former open pit (Lower Fay Pit).	No maintenance required	Proposed for IC
URA 7	Y (Meets Guideline)	Y	CB-1 Access Raise (engineered rock cover), Sorting Plant Raise and Sorting Plant Bin (both engineered rock cover), and Waste Haul Adit (backfilled).	NA	NA	Y	All accessible tailings were covered with 600 mm of waste rock.	Evidence of recent human visitation, condition of vegetation, condition of waste rock, evidence of disturbance to covered tailings, condition of mill cover and note areas of any subsidence, and condition of engineered rock covered mine openings and backfilled openings and related ID plates.	No maintenance required	Proposed for IC
URA 6 EXC URA 6 ACE 19	Y (Risk Assessment)	Y	NA	NA	Monitor at TL-7	NA	No residual tailings	Evidence of recent human visitation, condition of vegetation, inspection of Minewater outflow channel for blockages of the channel (sloughing, beaver dams, etc.), note condition of obsolete Minewater saddle dam, and evidence of beaver dams.	No maintenance required	Proposed for IC

ACE 17 EXC ACE 17 EXCE 18 EXC ACE 14 ACE 15 EX GC 2 GORE GC 4 EXC GC 4	Y (Meets Guideline)	NA	No mine openings to surface	NA	Monitor at TL-4	Y	Residual tailings were present on properties. Accessible residual tailings were covered with 600mm of waste rock. Inaccessible areas left undisturbed.	Evidence of recent human visitation, condition of vegetation, regular inspection of residual tailings deltas, condition of cover, and evidence of disturbance to the covered tailings delta and tailings line right of way, check secondary outlet of Marie Reservoir and powerline right-of-way. geotechnical inspection of Marie Outlet structure, and evidence of beaver dam (Marie Reservoir Outlet).	No maintenance required	Proposed for IC
GC 1 NW 2 GORE 1 GC 3 NW 1 EXC GC 3 GC 5 GORE 2 LEE 4 LEE 3 LEE 2 EXC LEE 3	Y (Meets Guideline)	NA	No mine openings to surface	NA	Monitor at TL-3	Y	Residual tailings were present on properties. Residual tailing on the delta are covered with 1.0m to 1.6 m of material (waste rock, sand, and general fill). Inaccessible areas left undisturbed.	Evidence of recent human visitation, condition of vegetation, regular inspection of residual tailings deltas, condition of cover, evidence of disturbance to the covered tailings delta and tailings line right of way, geotechnical inspection of Fookes Outlet structure and Delta, subsidence of waste disposal area, and evidence of beaver dam (Fookes Reservoir Outlet).	No maintenance required	Proposed for IC
BOLGER 1	Y (Meets Guideline)	Y	No mine openings to surface	NA	Monitor at AC-6A	Y	No residual tailings	Evidence of recent human visitation, condition of vegetation, condition of waste rock, regular inspection of waste rock slope, pit wall stability, channel, channel slope, and water quality at AC-6A.	No maintenance required	Proposed for IC

APPENDIX B

APPENDIX B

Beaverlodge

Decommissioned Beaverlodge Mine/Mill Site

2023 Geotechnical Inspection Report

August 2023

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1.0 INTRODUCTION

From May 24 – May 29, 2023, Cameco Corporation (Cameco) personnel were on site to conduct a field test of the Beaverlodge Institutional Control Inspection Field Guide (ICIFG) and the annual geotechnical inspection. As a result, all the Beaverlodge properties, those in the Institutional Control program and those still under CNSC licence, were inspected following the ICIFG to ensure the relevant aspects of each area were inspected and continue to behave as expected and that conditions remain safe, secure and stable. The ICIFG report will serve as a baseline for future IC inspections.

As part of this inspection, geotechnical components were evaluated using the regulatory accepted criterion-based checklist developed with SRK Consultants. The geotechnical inspection completed in 2023 consisted of inspecting conditions at the Fookes Delta, the two outlet spillways at Fookes and Marie reservoirs and the relevant crown pillars associated with the former Hab, Dubyna and Ace mining areas.

The 2015 geotechnical inspection completed by SRK concluded that overall; the Fookes cover, and the two outlet structures were performing as expected. The report concluded that it would be reasonable for Cameco to move towards final close out and a return to Institutional Control for the properties associated with the cover and outlet structures (*SRK, 2016*). SRK recommended that in the meantime, documented inspections by Cameco and/or regulators should continue on an annual basis. A follow-up inspection was completed in 2020 by SRK, who noted that there were no observable changes to the landform and no concerns identified. Following the 2020 inspection, SRK recommended that Cameco continue with annual inspections using the existing inspection protocols, and that once the properties are transferred to the IC Program that they are inspected every five years for two cycles, then less frequently after that if the areas remain stable.

Figure 1 provides the locations of the Fookes Delta and the outlet structures. Additional details are provided in **Section 5.0**, including **Figure 4**, **Figure 5**, and **Figure 6,** which provide the locations of applicable crown pillar monitoring.

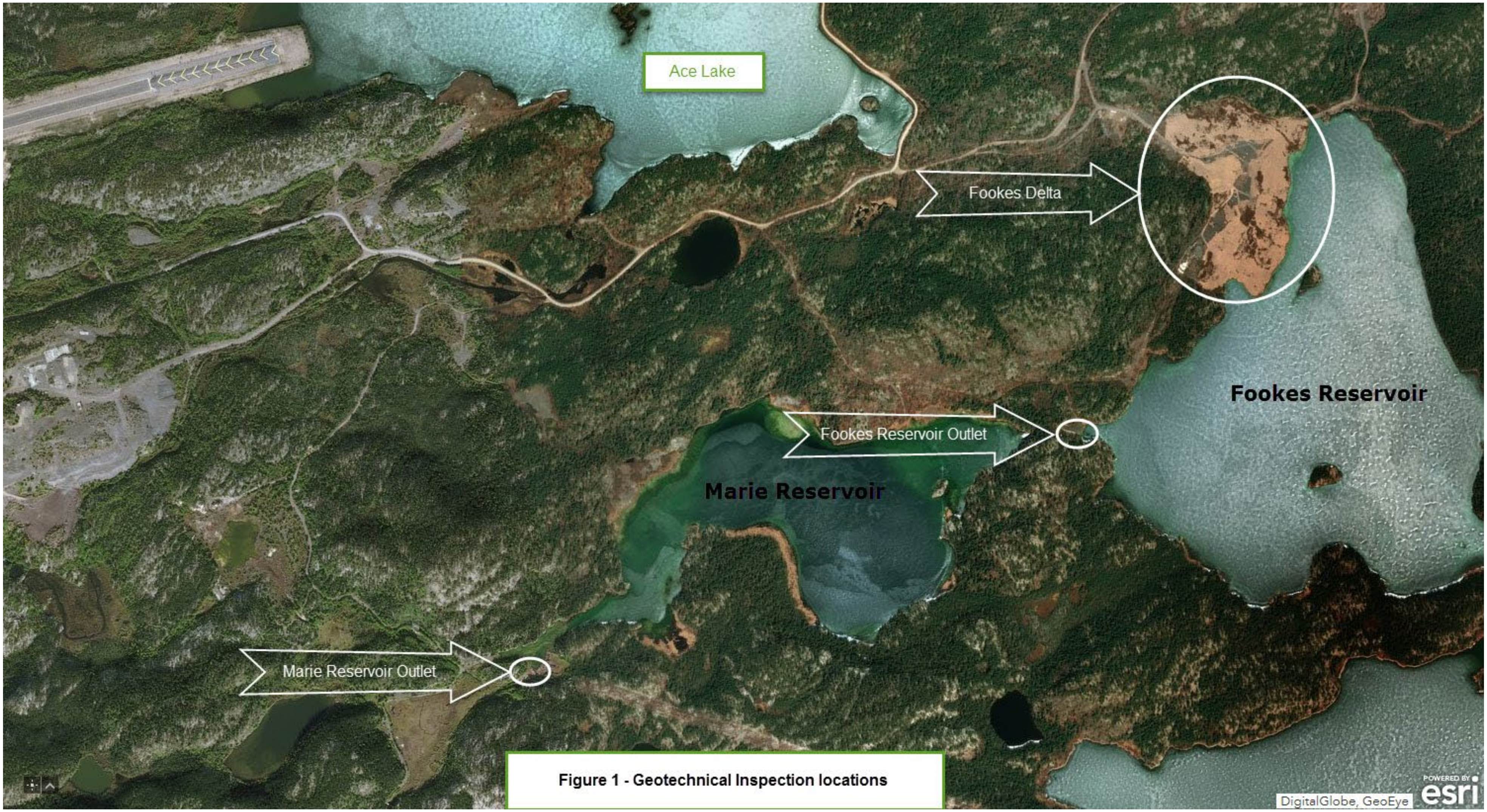


Figure 1. Geotechnical Inspection Locations

2.0 OUTLET STRUCTURE INSPECTIONS (FOOKES & MARIE RESERVOIR)

Both spillway structures consist of a rip-rap lined open channel (with trapezoidal cross-section), which discharge into a rip-rap lined stilling basin. The rip-rap lining in both the spillway channels and the stilling basins was intruded with grout for added erosion protection; however, the rip-rap in the spillway was designed to be stable in the absence of grout intrusion. The spillways are capable of passing a 500-year flood event with a depth of 0.3 m (680 L/sec) and 0.35 m (760 L/sec) at the entrances of the Fookes and Marie reservoir outlet spillways, respectively.

The cracking and displacement of the grout-intruded rip-rap within the two spillways was anticipated in their original designs and does not affect the performance of either outlet spillway. Additional cracking and ice-jacking are anticipated over time, but the condition of the two outlet spillways continues to be satisfactory and is expected to remain so moving forward (SRK 2021).

2.1 General Observations

Local land users have noted water levels have been significantly higher than normal since 2020 and snowpack in 2023 followed that trend, with the last 4 years being the highest snowpacks recorded since Beaverlodge began tracking that information in 2005. However, 2023 saw freshet come early and the snowpack was largely gone by the first week of May. May 2023 was also significantly warmer than May 2022 with the average daytime high being more than 10 degrees warmer in May 2023. Lake Athabasca was completely ice free at the end of May 2023, which is uncommon.

Comparisons of photos between inspection years is presented in **Section 4.0**. Photos taken in 2023 were from late May. Due to the early freshet and the abnormally mild May the vegetation growth is lusher in 2023 than it was in 2022.

2.2 Inspection Checklist for Outlet Structures

The specific elements to be evaluated during these inspections include the following:

I. Check the condition of the spillway channel, with a view to confirming the grout-intruded rip-rap is still in place.
II. Check the condition of the rip-rap on either side of the spillway, with a view to confirming no erosion has occurred due to overtopping associated with an extreme flood event.
III. Document conditions with photographs.

2.3 Marie Reservoir Outlet Inspection

I. Check the condition of the spillway channel, with a view to confirming the grout-intruded rip-rap is still in place.

Previously, SRK identified that the grout-intruded rip-rap is relatively intact, except near the spillway entrance where one large block and several smaller ones on the right side of the spillway (looking downstream from Marie Reservoir) have been displaced due to ice-jacking.

In addition to the comparison photos provided in **Section 4.0,** photos taken during the 2023 inspection providing photographic record of the condition of the Marie Reservoir spillway channel are included in **Appendix A**. Despite the continued elevated flows over the past 4 years the spillway channel remains in a similar condition as observed in previous inspections.

The observations and photographic record from the 2023 inspection support the observations made by SRK that the spillway continues to perform as designed (*SRK 2021*).

II. Check the condition of the rip-rap on either side of the spillway, with a view to confirming no erosion has occurred due to overtopping associated with an extreme flood event

In previous years it has been noted that higher than normal water levels over the last number of years have resulted in some natural debris and dimensional lumber along the leading edge of the rip-rap on either side of the spillway as well as the edges of the channel. Following the 2022 inspection, all dimensional lumber was removed from the area as part of the final clean-up in preparation for transferring properties to the Province of Saskatchewan's Institutional Control Program. Despite the increased flows the spillway appears to be performing as expected with no erosion of the rip-rap embankment on either side of the spillway. No new debris was noted in the channel in 2023.

Despite the unusually high flows observed over the past 4 years the Marie Reservoir outlet spillway has, in general, changed little since 2004. Photographic comparison to previous inspection photos is provided in **Section 4.0**. The grout-intruded rip-rap is relatively intact except near the spillway entrance where one large block slab and several smaller ones on the left side of the spillway (looking upstream) continued to be displaced due to ice-jacking (**Appendix A, Photo A1**).

As noted in previous geotechnical inspections beaver activity at the outlet of Marie Reservoir has resulted in construction of a small dam. The crest of the beaver dam appears to be similar to previous years, although the water level behind the dam appears to be slightly lower. This condition will continue to be monitored during future inspections. There are currently no plans to remove the beaver dam as it is naturally occurring. A photo of the Marie Outlet structure documenting the beaver dam is located in **Section 4.0**.

2.4 Fookes Reservoir Outlet Inspection

I. Check the condition of the spillway channel, with a view to confirming the grout-intruded rip-rap is still in place

Similar to the Marie Outlet, SRK also identified that the grout-intruded rip-rap along the length of the Fookes Reservoir outlet spillway shows signs of cracking. In addition, there has been some ice-jacking, with the most significant displacements located near the upper part of the spillway (i.e., on the sides of the spillway, within 5 to 6 m of the spillway entrance) (**Appendix B, Photo B1)**. The base of the channel does not show signs of significant displacement, and the middle to lower parts of the spillway remain in good condition.

II. In addition to the comparison photos provided in **Section 4.0,** photos taken during the 2023 inspection providing photographic record of the condition of the Fookes Reservoir spillway channel are included in **Appendix B**. Following the 2022 inspection, all dimensional lumber was removed from the area as part of the final clean-up in preparation for transferring properties to the Province of Saskatchewan's Institutional Control Program. No new debris was noted in 2023.*Check the condition of the rip-rap on either side of the spillway, with a view to confirming no erosion has occurred due to overtopping associated with an extreme flood event*

Despite the increased flows the spillway appears to be performing as expected with no erosion of the rip-rap embankment on either side of the spillway. Photographic comparison to previous inspection photos is provided in **Section 4.0**.

3.0 FOOKES DELTA

3.1 General Observations

Historically, the area along the northeast side of the Fookes Delta has contained standing water. The Fookes Delta cover in this area was purposefully graded to establish an overall preferential gradient towards Fookes Reservoir. **Figure 2** provides an overview of the cover design (*SRK, 2008*), with the surface drainage paths outlined. As per the SRK design for the Fookes cover, the northern drainage ditch area of the delta was never intended to provide fully channelized flow to Fookes Reservoir. As a result, some ponding in higher precipitation years was anticipated and may be expected to occur.

During the 2023 inspection of Fookes Delta, it was noted that the drainage area running along the north side of the delta contained water and was performing as designed, while the drainage channel to Fookes Reservoir was dry. The small amount of ponded water was that was observed at the base of the north access ramp on the waste rock cover (**Appendix C, Photo C2**) during the 2022 inspection was dry in 2023.

Generally, the cover was in good condition showing no areas of excessive erosion, despite greater than normal precipitation and the elevated water levels seen in Fookes Reservoir over the past number of years, discussed in Section 2.4. The east and west berms were in good condition with no evidence they have been breached by vehicular traffic. In 2022, there was some localized ATV traffic noted on the Fookes Delta cover, however no new disturbance was noted in 2023. Vegetation is well established within 50 m of the shoreline and the engineered drainage structures. Vegetation continues to gradually encroach and thicken over much of the delta.

Photographic comparison to previous inspection photos is provided in **Section 4.0**. Photos showing the conditions encountered during the site inspection are provided in **Appendix C**.

3.2 Inspection Checklist

I. Check for evidence of new tailing boils or tailings exposure due to frost action

II. Check for evidence of significant erosion of the cover material
   a. Trench along the northeast edge of the delta (sand flows, erosion of waste rock, slumping, etc.) – maintain photographic and GPS record (identify areas of concern on map).
   b. Cover limit along its contact with Fookes Reservoir – maintain photographic and GPS record (identify areas of concern on map) where sand from the delta cover extends into the reservoir.

III. Ensure erosion-protection devices are performing as expected on former north access road
   a. Waterbars (chevrons)
   b. Diversion ditches
   c. Erosion of cover adjacent to the former access road

IV. Ensure earthen berms are in place to limit access to the delta

3.3 Fookes Cover Inspection

I. Check for evidence of new tailing boils or tailings exposure due to frost action

No new boil development was noted on the delta.

II. Check for evidence of significant erosion of the cover material

The shoreline, where the edge of the sand cover contacts Fookes Reservoir, was inspected and was in good condition. Photos taken in 2023 continue to show significant vegetation coverage along the shoreline.

The 2023 inspection showed that water is being captured in the drainage channels as per design and there is no evidence of any significant erosion of the cover. The drainage channel continues to vegetate heavily as can be seen in the photos in Section 4 and **Figure 2**.

The Fookes Delta cover is in good condition and showed no sign of excessive erosion. As vegetation continues to establish on the shoreline, it will increase the stability of the cover.

III. Ensure erosion protection devices are performing as expected on former north access road

As part of the design and installation of the covers in 2005 and 2007, the area considered most vulnerable to erosion was in the area on and below the access ramp at the northwest corner of the delta (*SRK, 2010*). The general condition of the ramp is very good. Access to this ramp is closed off by a windrow of material at the top of the ramp, except for the small access trail to allow the remediation of the piezometer standpipes. The water bars (chevrons, **Figure 3**) are performing as expected and continue to show little sign of erosion (**Appendix C, Photo C1**).

In addition to the chevrons, run-out structures were installed to carry away excessive water during extreme run-off events. These run-out structures are also in good shape with no observed additional eroded material beyond that observed during previous inspections (**Appendix C, Photo C3**).

IV. Ensure earthen berms are in place to limit access to the delta

Since the earthen berms protecting the east and west access points to the Fookes Delta were repaired and reinforced in 2011 and 2012 respectively, there has not been any new evidence of passenger vehicular traffic accessing the delta. In 2022, there was some localized ATV traffic noted on the Fookes Delta cover, however no new disturbance was noted in 2023. A photo of the berm located on the east access point is provided in Appendix C (**Photo C7**).

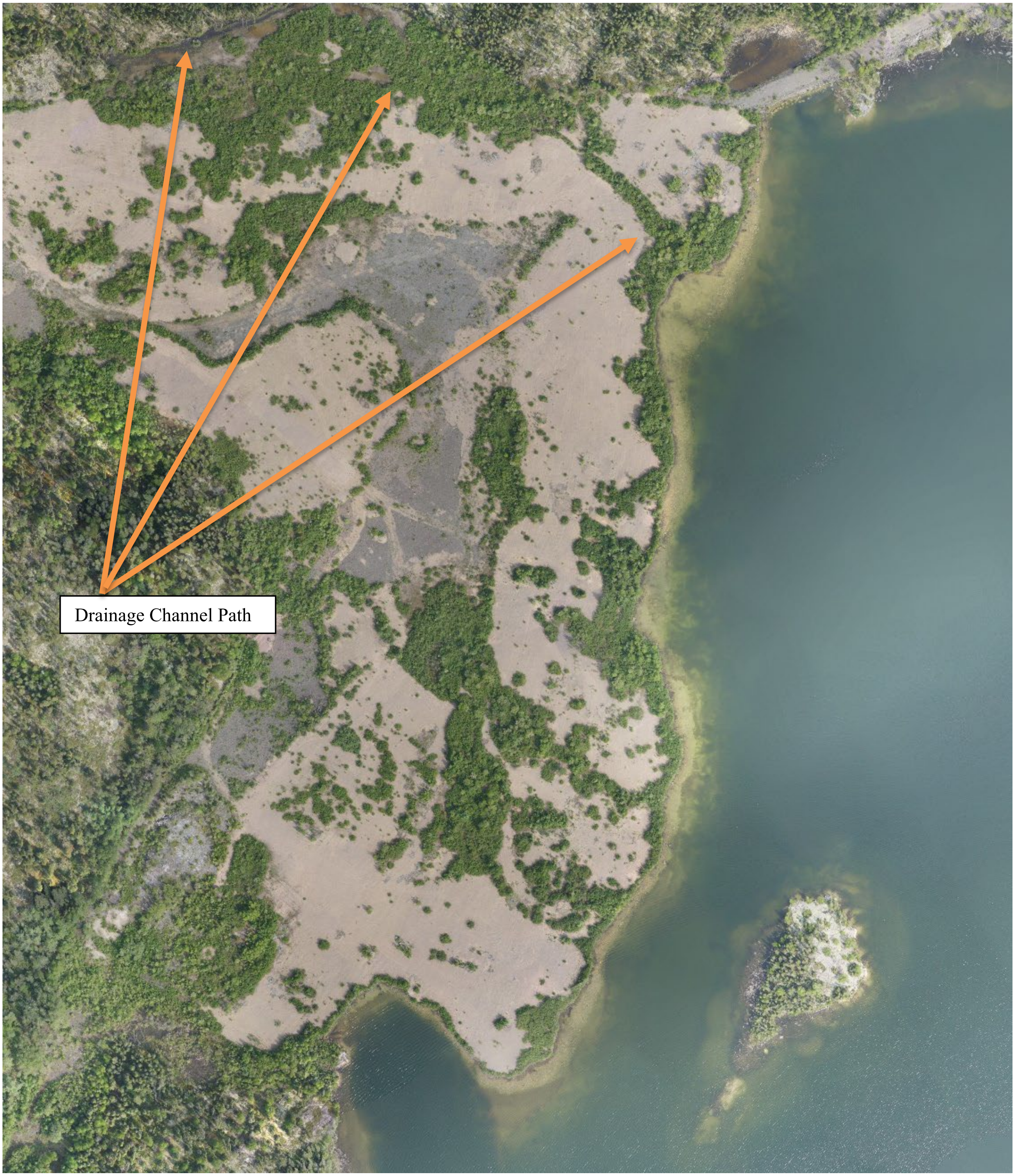


Figure 2. Fookes Overview

Figure 3. Fookes chevron and runout structure

4.0 PHOTOGRAPHIC COMPARISONS

Beaver dam constuction at the outlet structure for Marie Reservoir

Marie Outlet Structure looking upstream

Marie Outlet Structure looking downstream

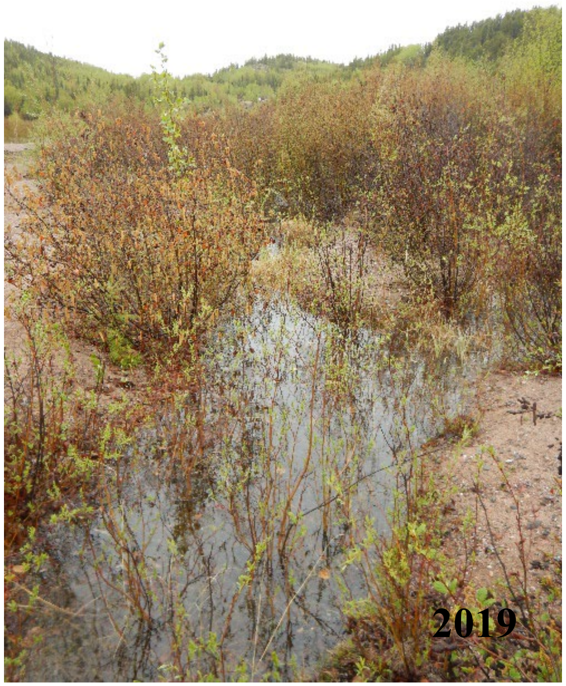
Marie Reservoir Outlet Structure

– Ice jacked block of grout intruded rip-rap

Fookes Outlet Structure looking upstream

Fookes Outlet Structure looking downstream

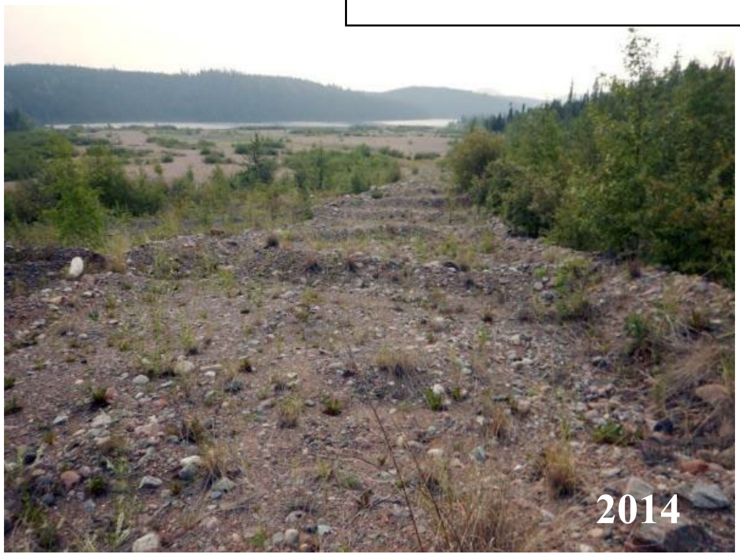
Drainage area looking NW towards access point on hill

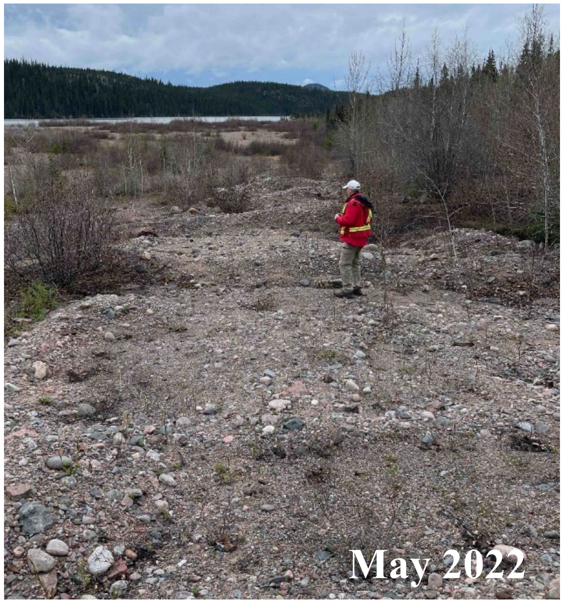


Fookes Cover Shoreline

Note: pictures are not taken from the exact same locations

Chevrons in place on north access point to the Fookes Delta





5.0 CROWN PILLAR AREAS

In 2016, the Geotechnical Inspection Checklist was updated to include the identified crown pillar areas at the Hab, Dubyna and Ace areas as per recommendations from SRK. Cameco committed to perform assessments of the relevant crown pillar locations annually until such time as the properties are transferred to the IC Program, where monitoring will continue under that program. As the Hab, Dubyna and Ace areas had not been transferred to the IC program at the time of the 2023 inspection Cameco completed the inspections of these crown pillars in 2023.

Table 1 and **Table 2** provide GPS points for locations associated with the Dubyna and Hab areas where visual monitoring was recommended. As shown in **Figure 4**, for the Dubyna area, the area between inspection points are expected to coincide with the Level 1 stoping area where crown pillar thicknesses would be expected to be the thinnest. As shown in **Figure 5**, for the Hab area, inspection points are expected to align roughly with the 2nd level workings where stoping of the Hab 039 Zone was conducted. **Figure 6** provides the layout of the Ace Stope Area cover along with the locations of historic subsidence observed in the area, where inspections typically focus.

Table 1. Visual Monitoring Location Recommendations for Dubyna

Location	Position	Elevation (approx.)	Comment
DUB-01	Zone:12 V 647946, 6608477	339 m	In mine waste backfill
DUB-02	Zone:12 V 647973, 6608480	339 m	Near edge of waste rock backfill
DUB-03	Zone:12 V 647997, 6608487	333 m	Close to lake

Table 2. Visual Monitoring Location Recommendations for Hab

Location	Position	Elevation (approx.)	Comment
HAB039-01	Zone:12 V 645272, 6612203	408 m	Near the edge of the mine waste backfill
HAB039-02	Zone:12 V 645339, 6612234	415 m	Covered by mine waste backfill in the pit
HAB039-03	Zone:12 V 645384, 6612251	419 m	Covered by mine waste backfill, near the edge of the pit rim

HAB039-04	Zone:12 V 645373, 6612211	408 m	Approximately above the 2nd level workings
HAB039-05	Zone:12 V 645298, 6612178	403 m	Approximately above the 2nd level workings

Inspections of the Ace, Hab and Dubyna crown pillars occurred on May 25 – 29, 2023. Photographs of the covered Ace Stope Area and the crown pillar areas at Hab and Dubyna are provided in **Appendix D**.

At the Ace area, the cover material over the stopes was inspected by walking the toe of the cover material, as well as the interface between the cover material and natural ground. No signs of tensions cracks or visible depressions were observed along the Ace stope cover material in 2023.

The crown pillar monitoring points at Hab and Dubyna were located, and a visual walking inspection was completed at each site. The inspection involved walking between and around the points identified in **Tables 1** and **2**. Observations at both areas did not show any evidence of tension cracks or slumping in 2023.

It was noted at Dubyna that recent beaver activity resulted in significant clearing along the crown pillar inspection area. As well, a beaver lodge was constructed along the shore of Dubyna Lake near furthest extent of the crown pillar.

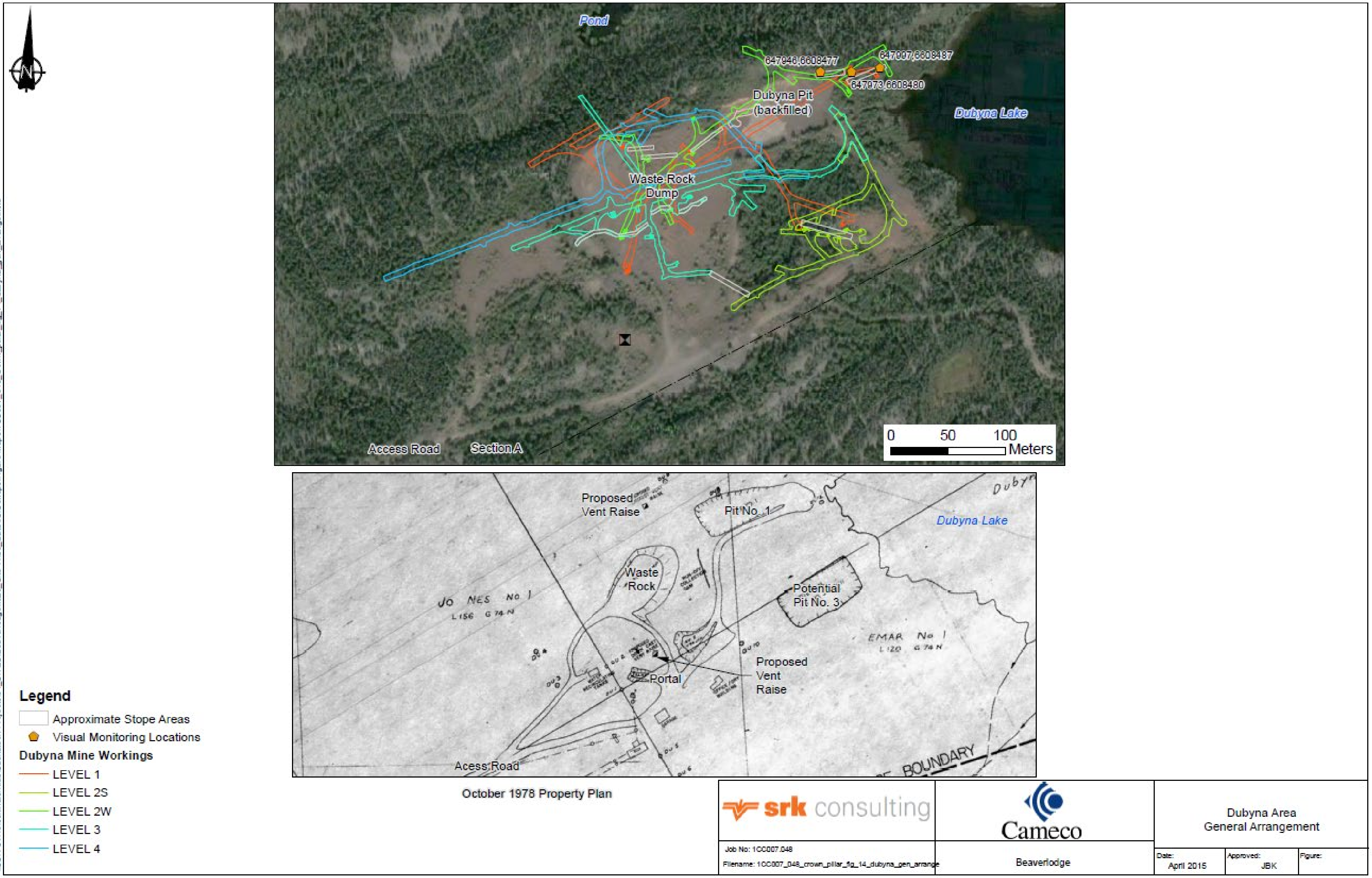


Figure 4. Dubyna area general arrangement

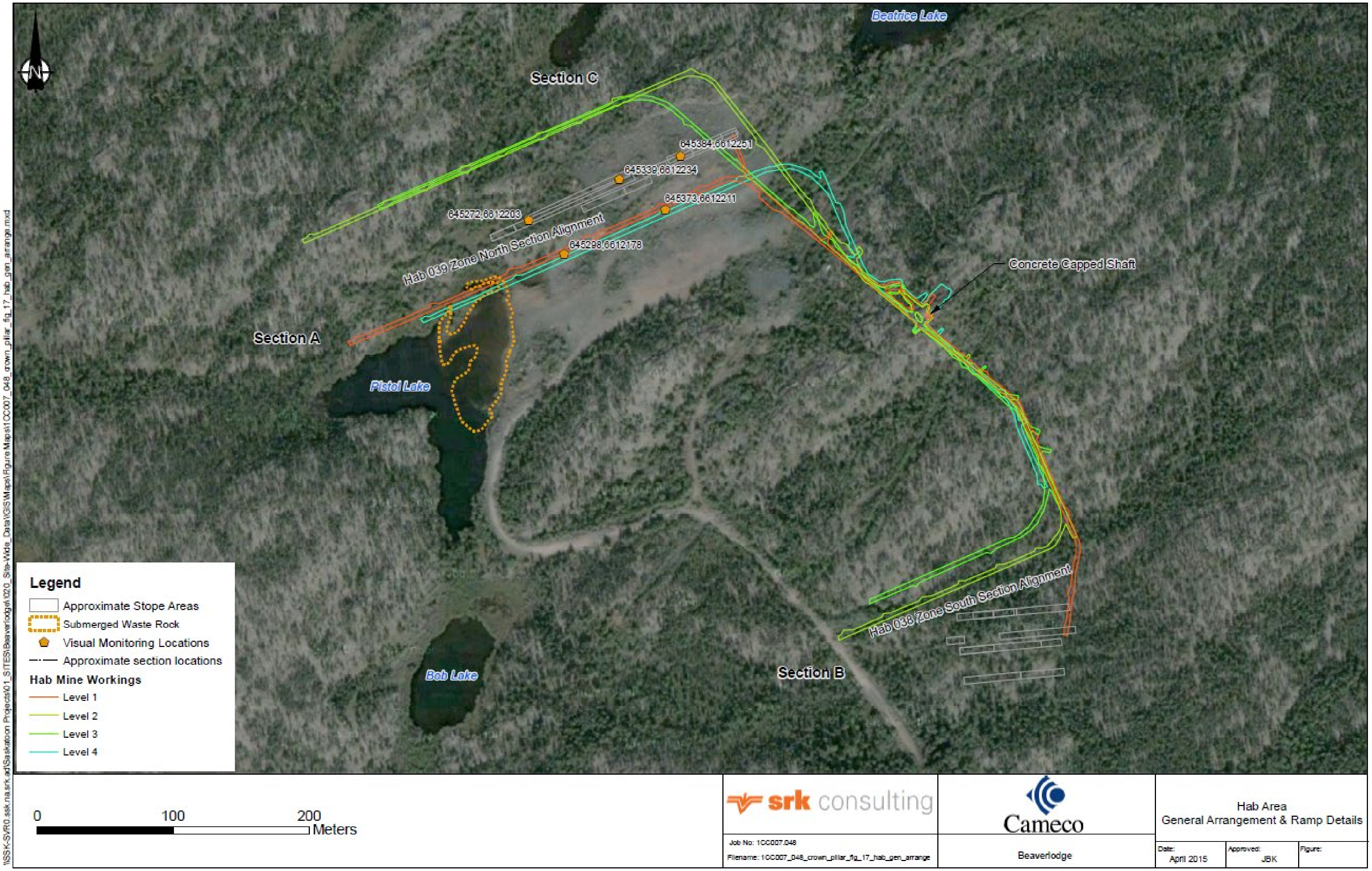


Figure 5. Hab area general arrangement and ramp details

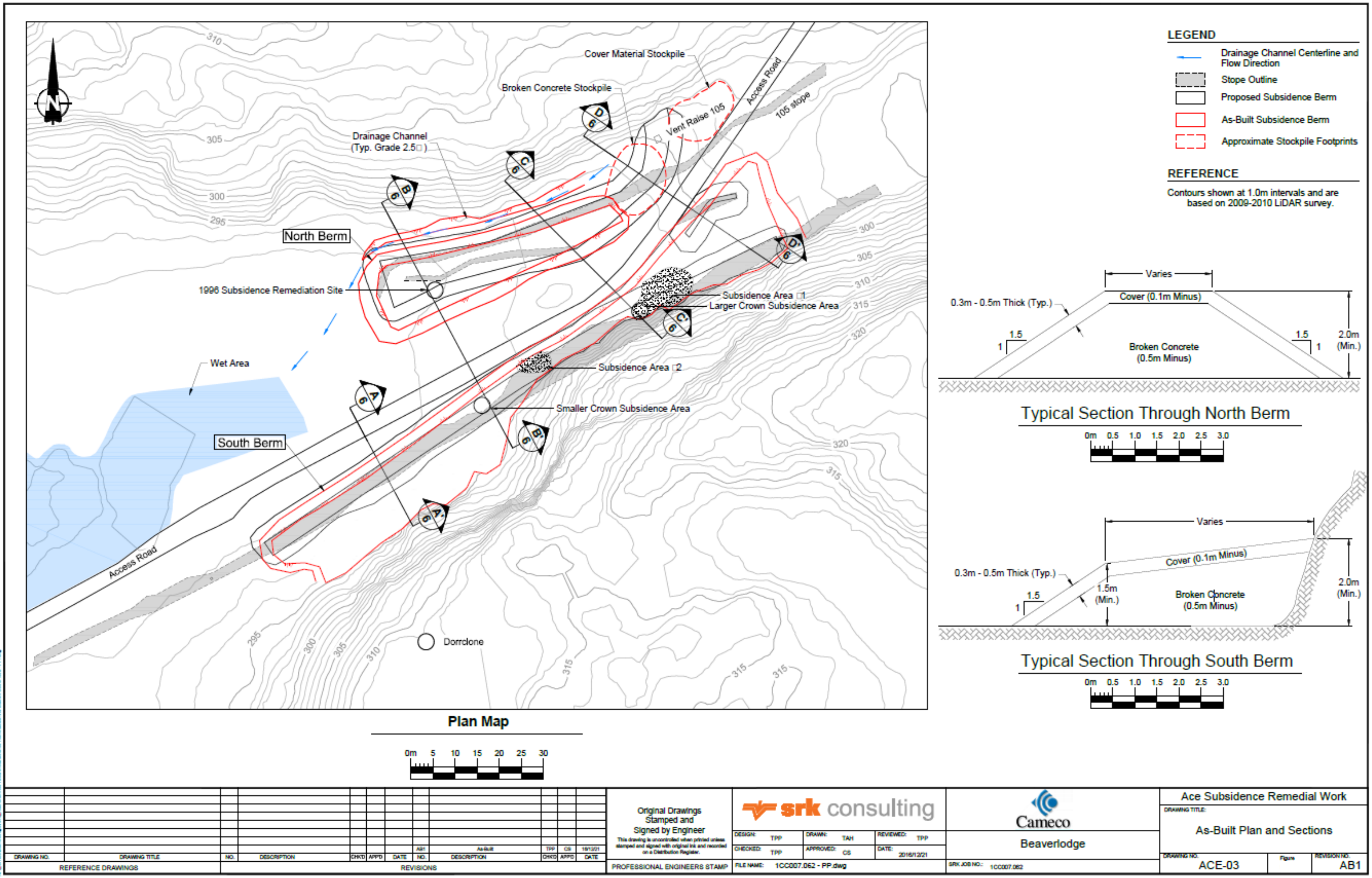


Figure 6. Ace crown pillar remediation

6.0 ZORA STREAM RECONSTRUCTION

Remedial work completed at the Bolger Pit site from 2014 to 2016 included the excavation of a channel through the existing Bolger Waste Rock Pile and the relocation of the excavated waste rock to the Bolger Pit. The intent of this work was to improve water quality, specifically uranium concentrations, in both Zora Creek and Verna Lake and to re-establish a more natural Zora Creek flow path.

In the Zora Creek Design Report (SRK, 2014), it was recommended to complete a geotechnical inspection in each of the first two years following construction. Subsequently, SRK completed geotechnical inspections in 2017 (SRK, 2017c) and 2018 (SRK, 2019) of the reconstructed Zora Creek flow path. Both the 2017 and 2018 inspections found that there were no immediate or significant areas of concern with regards to the performance or geotechnical stability of the reconstructed flow path. Continued monitoring of water quality and the potential presence of accumulated sediment were recommended. In addition, it was recommended that the next geotechnical inspection occur in 2023, or earlier if requested by Cameco (SRK, 2019). Cameco requested a geotechnical inspection for the area be completed in 2020 to align with other geotechnical inspections at the decommissioned Beaverlodge properties.

The 2020 SRK inspection identified that from a geotechnical perspective, it would be reasonable for Cameco to transfer the properties associated with the Bolger Pit and the Drainage Channel to the IC Program. However, in the interim it was recommended that Cameco continue with annual inspections of the area as part of the annual regulatory inspection. It was also noted that involvement by a geotechnical engineer should not be required except in the unlikely event that significant geotechnical concerns arise.

The Zora Creek Stream Reconstruction area was inspected on May 26, 2023. Overall, the conditions observed had not changed from previous years in that water quality results are performing as expected and no significant accumulation of sediment has been observed. The results of the 2023 assessment of the Bolger Pit and the Drainage Channel can be summarized as follows:

- The beaver dam located at the outlet of Zora Lake (inlet to the stream reconstruction) remains intact.
- The embankments along the sides of the channel remain stable with no evidence of sloughing or instability.
- Vegetation along the downstream portion of the channel (near the stilling basin) is now well established and thickening.

Photographic record of the inspection is provided in **Appendix E**.

7.0 REFERENCES

SRK Consulting (2008). Beaverlodge Decommissioning: 2007 Construction Activities at the Fookes Lake Delta. Report prepared for Cameco Corporation, February, 2008.

SRK Consulting (2010). Beaverlodge Project: Inspection of Fookes Delta and Outlet Structures at Fookes Reservoir and Marie Reservoir. Report prepared for Cameco Corporation, September, 2010.

SRK Consulting (Canada) Inc. (2015). Beaverlodge Property – Crown Pillar Assessment (2014 – 2015), Project Number: 1CC007.048. Report submitted to Cameco Corporation, July 2015.

SRK Consulting (2016). Beaverlodge Project: Inspection of Select Areas within the Fookes and Marie Reservoirs and Ace Creek Catchment. Report prepared for Cameco Corporation, January, 2016.

SRK Consulting (Canada) Inc. (2021). Beaverlodge Project – 2020 Geotechnical Inspection Report - Decommissioned Beaverlodge Mine/Mill Site. Prepared for Cameco Corporation

8.0 APPENDICES

Appendix A – Marie Reservoir Outlet photos

Appendix B – Fookes Reservoir Outlet photos

Appendix C – Fookes Delta photos

Appendix D – Ace and Hab crown pillar inspection photos

Appendix E – Zora Stream Reconstruction photos

Appendix A
Marie Outlet Photos

Photo A1 – Marie Reservoir Spillway looking upstream (May 2023)

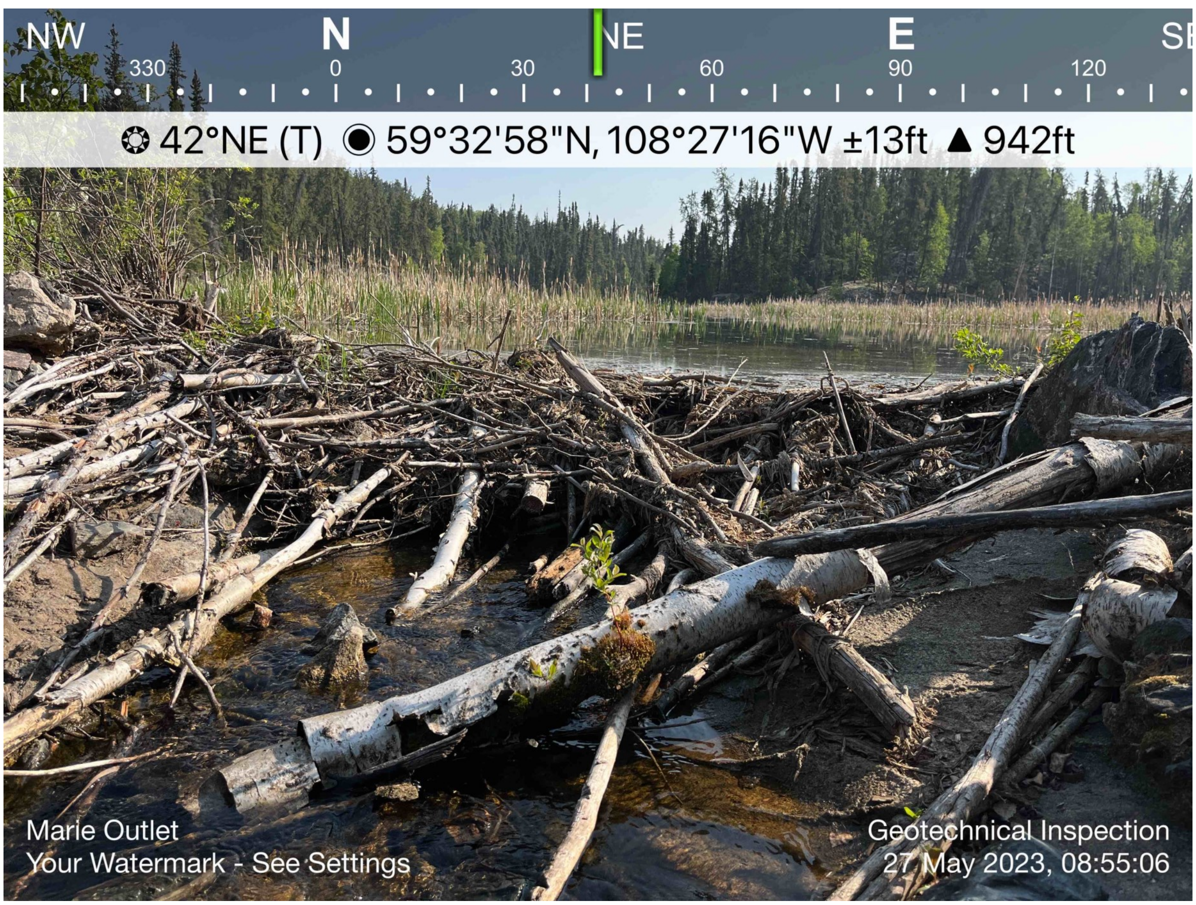


Photo A2 - Marie Reservoir Spillway inlet; beaver dam first noted in 2018

Photo A3 – Marie Reservoir Spillway (water flowing into stilling basin) (May 2023)

Photo A4 – Marie Reservoir Spillway looking northeast (May 2023)

Appendix B
Fookes Outlet Photos

Photo B1 – Fookes Reservoir Spillway looking into Fookes Reservoir

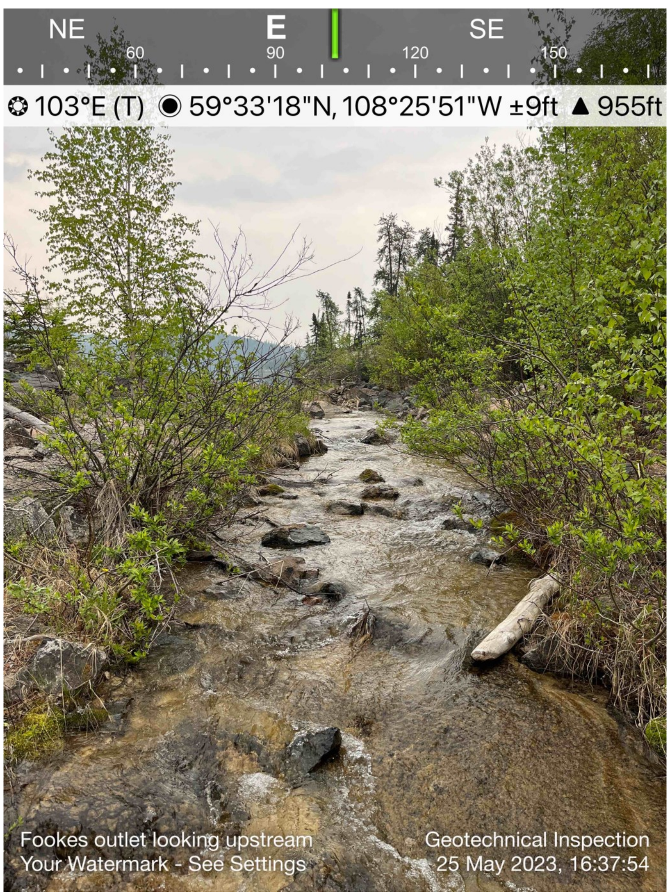


Photo B2 – Fookes Reservoir Spillway looking upstream

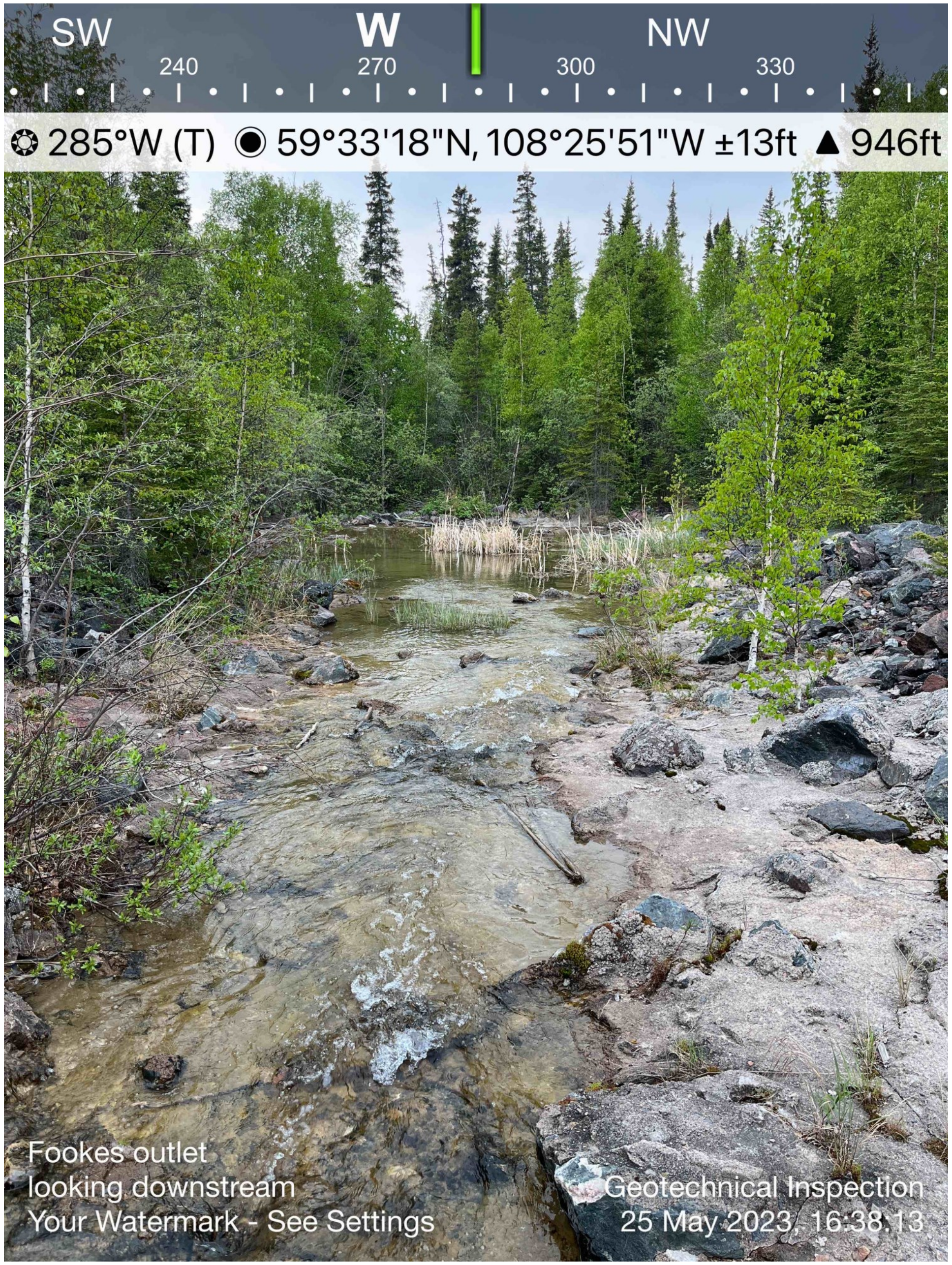


Photo B3 – Fookes Reservoir Spillway looking downstream (mid channel)

Photo B4 – Fookes Reservoir Spillway stilling basin

Photo B5 – Fookes Reservoir Spillway showing broken rip-rap on north and south sides of channel. Note debris has been removed since 2022 inspection.

Appendix C
Fookes Delta Photos

Photo C1 – Chevrons in place on north access point to the Fookes delta looking south (May 2023)

Photo C2 – no ponded water (May 2023). This area previously had ponded water on waste rock cover at bottom of hill near north access road during freshet in 2022.

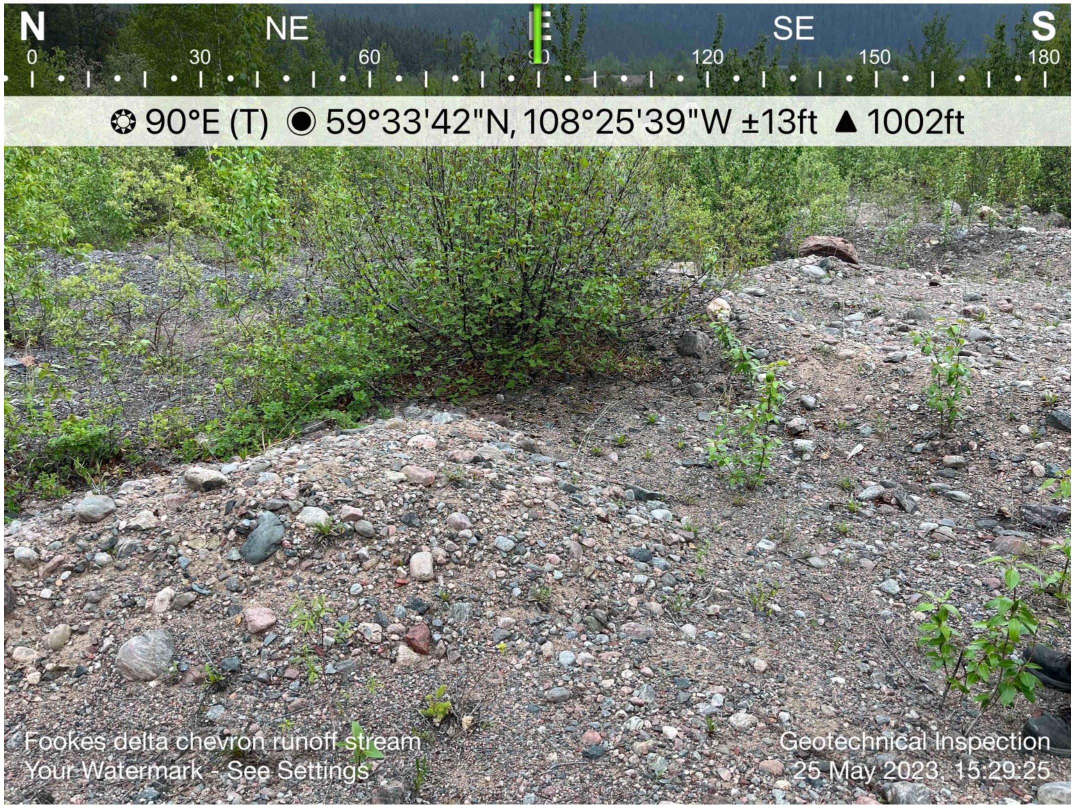


Photo C3 – Chevron run-out structure along north access road

Photo C4 – Drainage collection area on edge of Fookes Tailings Delta approximately 100m from access point

Photo C5a-b – Panoramic views of the Fookes cover (Photos taken May 2023) vegetations is yet to leaf-out

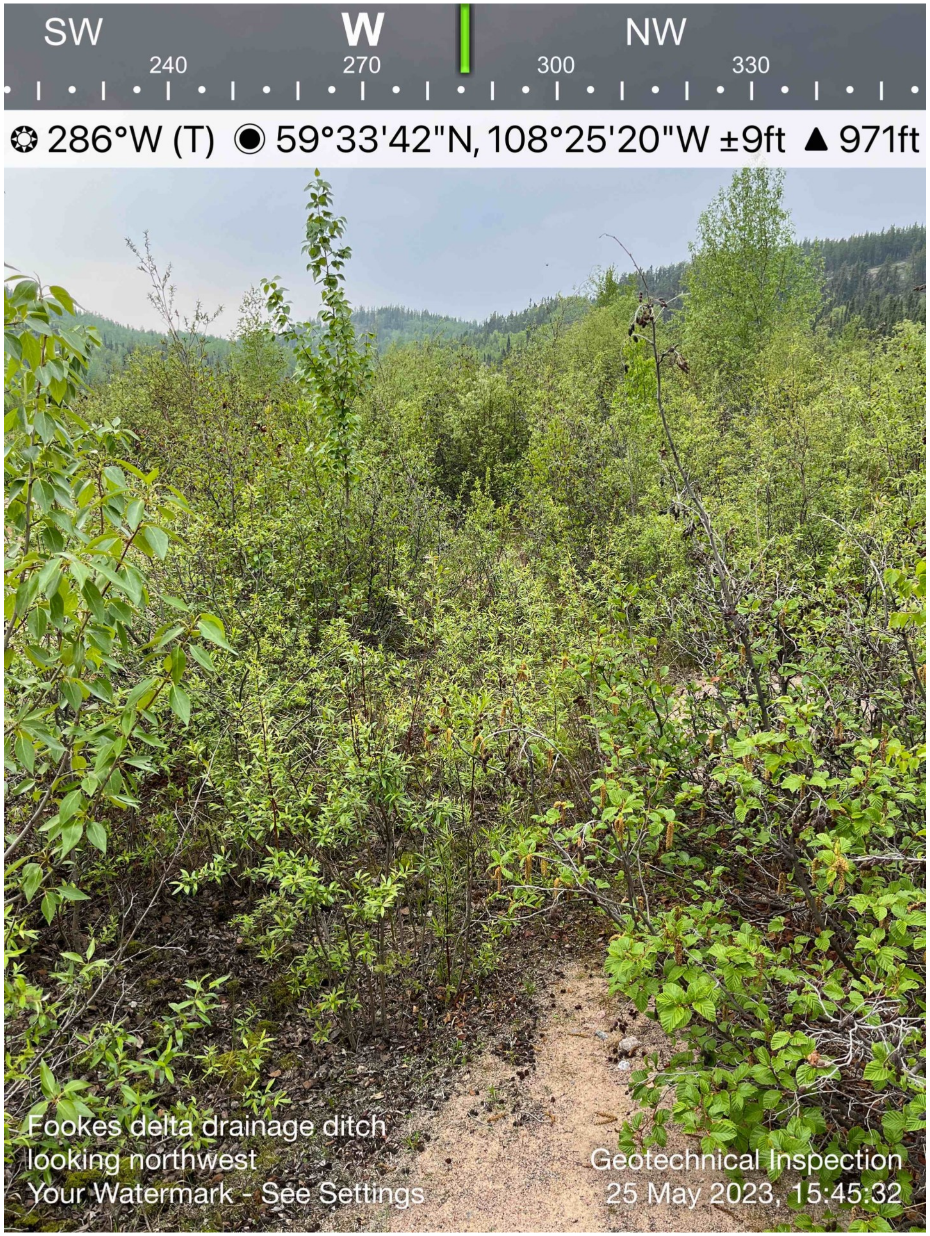


Photo C6 – View of vegetation establishing along drainage channel (May 2023).

Photo C7 – View of east berm looking onto the delta. No evidence of traffic crossing the berm (May 2023).

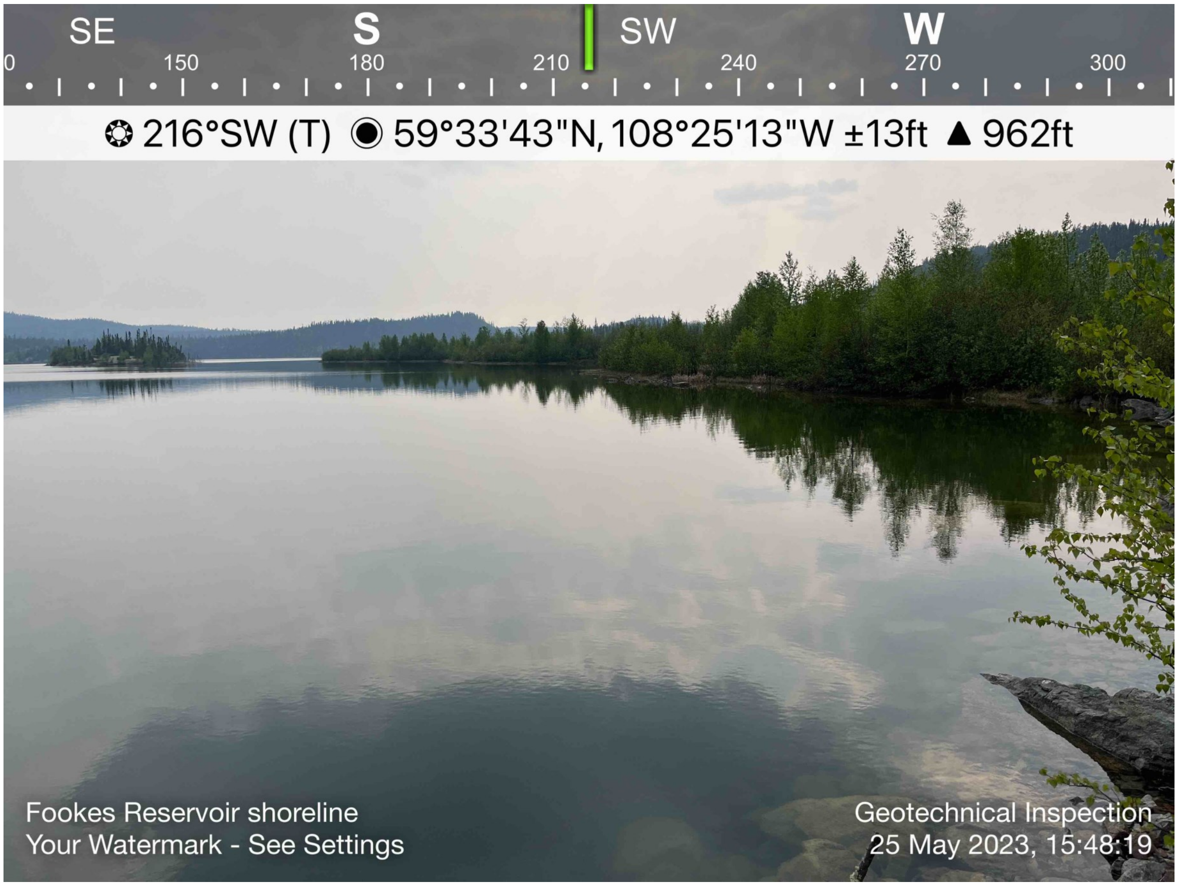


Photo C8—Fookes Reservoir shoreline (looking west) Note vegetation along shoreline is well

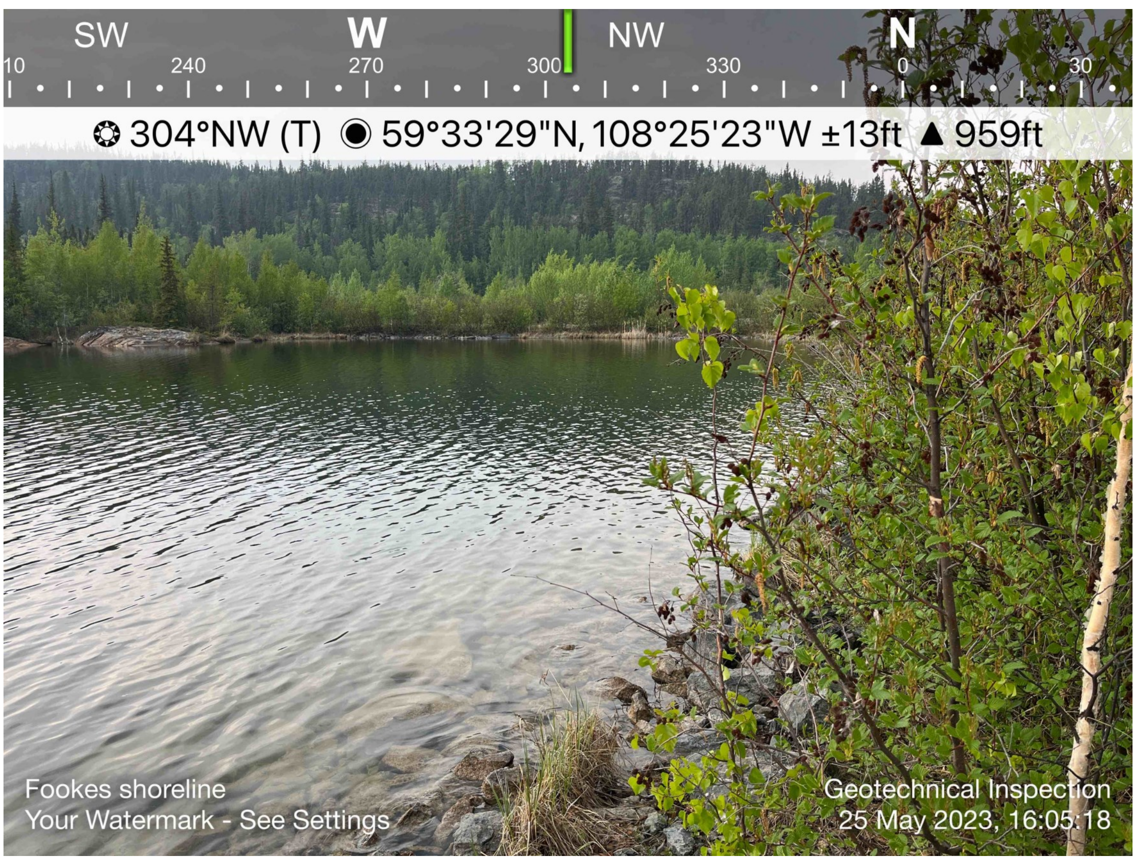


Photo C9—Fookes Reservoir shoreline (looking west).

Appendix D
Crown Pillar Area Photos

Photo D1 - View of the cover placed over Ace 201 Stope

Photo D2 - view of Ace 105 and 208 Stope cover

Photo D3—Dubyna CP-1 location (looking east)

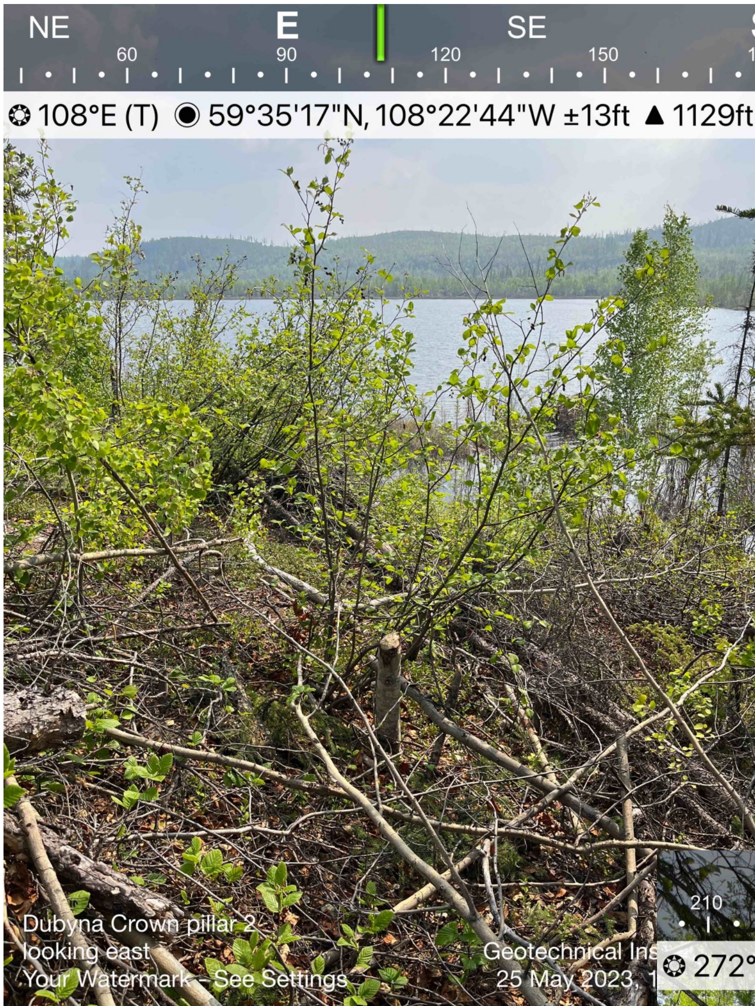


Photo D4—Dubyna CP- 2 location (looking east)

Photo D5—Dubyna CP-2 location (looking west)

Photo D6—Dubyna CP– 3 location (looking west)

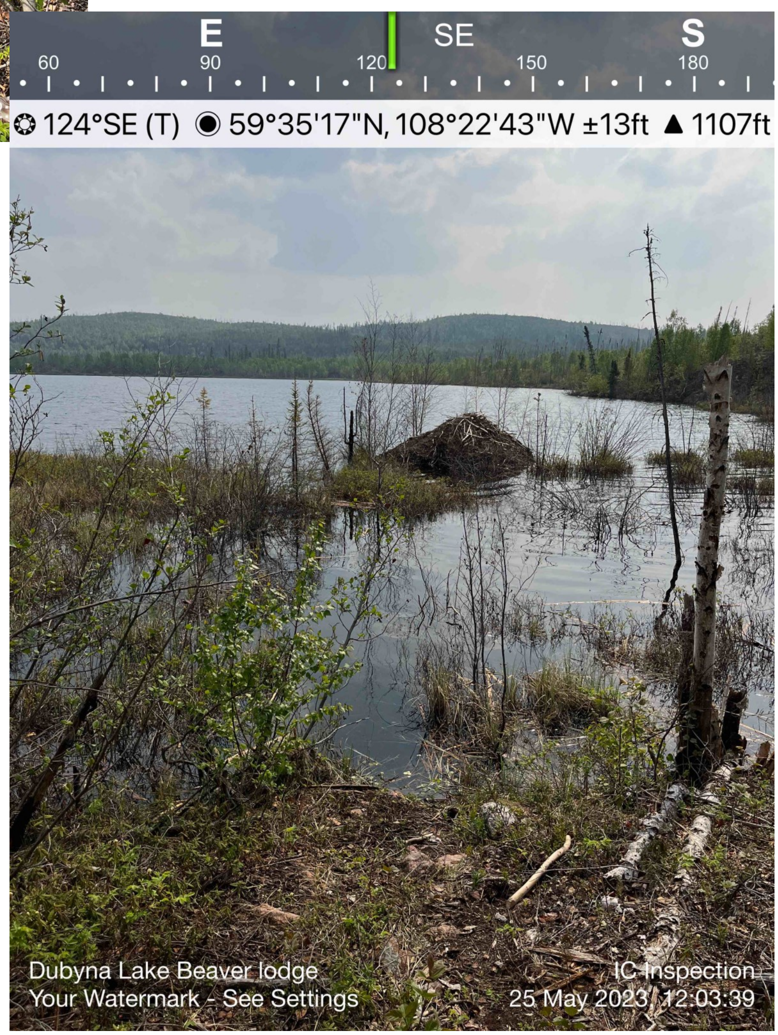


Photo D7—Dubyna CP– 3 location (looking east to Dubyna Lake)

Photo D8—HAB039-01 location (looking northeast)

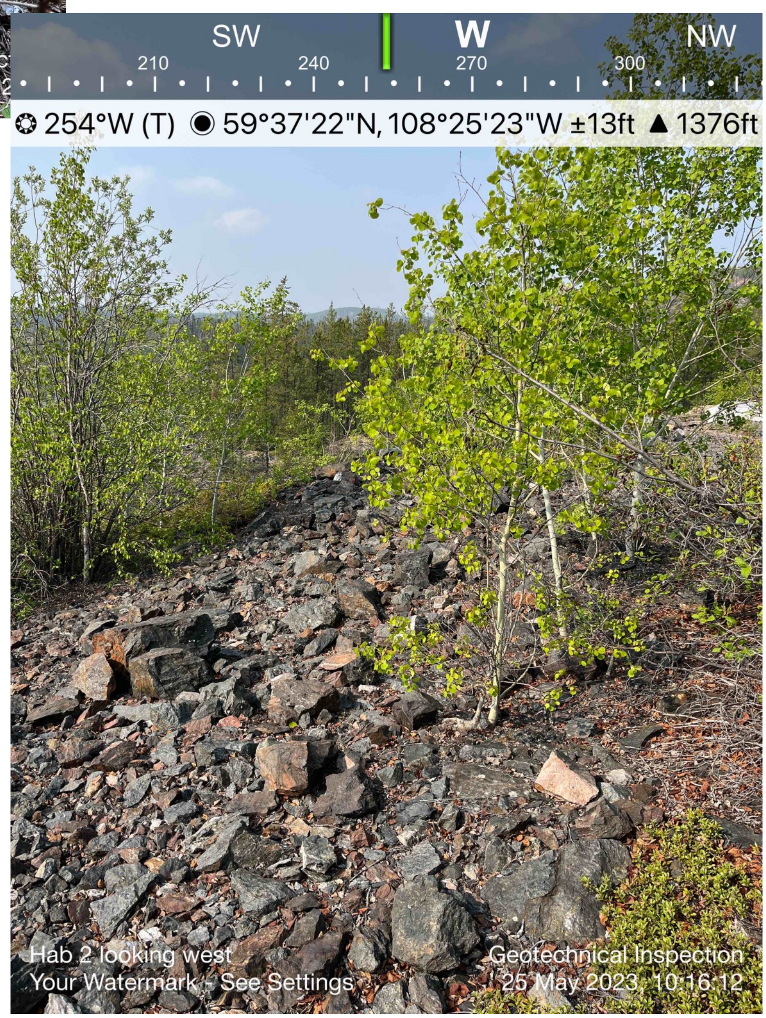


Photo D9—HAB039-02 looking west

Photo D10—HAB039-02 location (looking east)

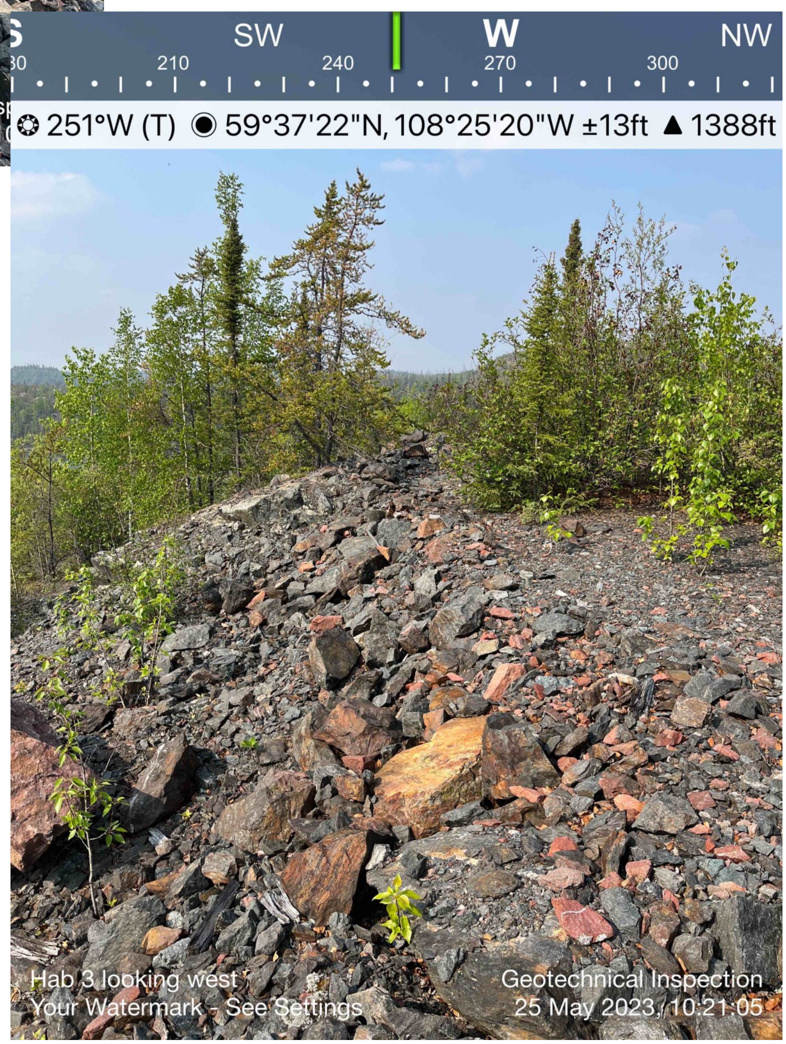


Photo D11—HAB039-03 looking west

Photo D12—HAB039-04 looking west

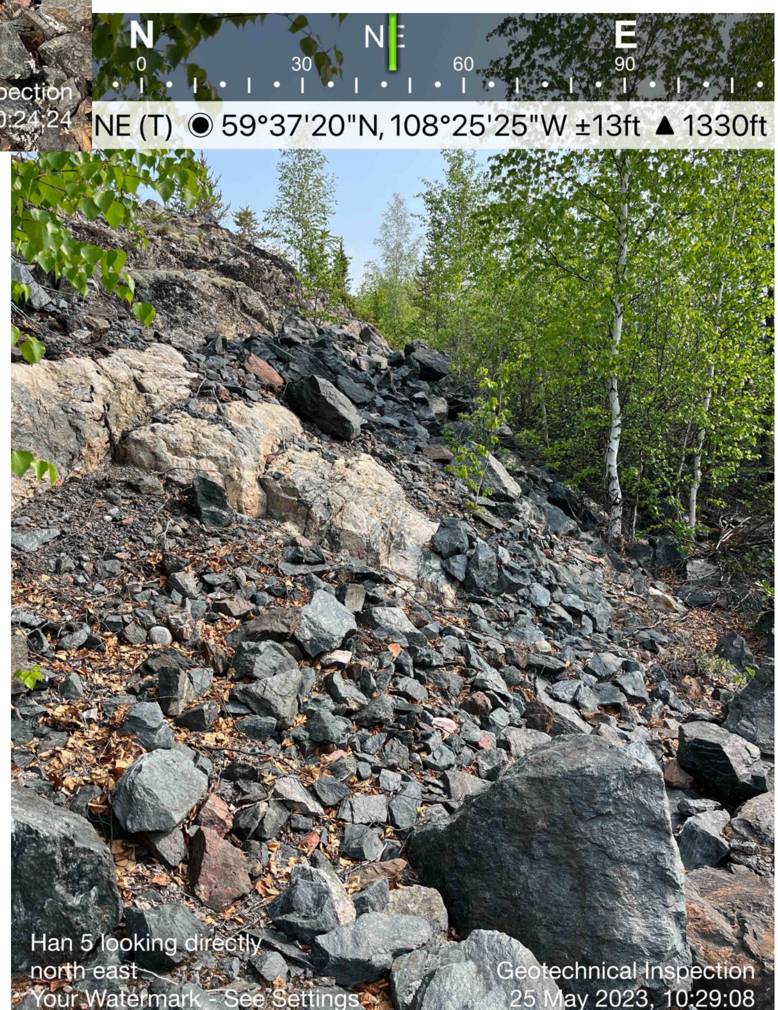


Photo D13—HAB039-05 location (looking east)

Appendix E
Zora Creek Reconstruction Photos

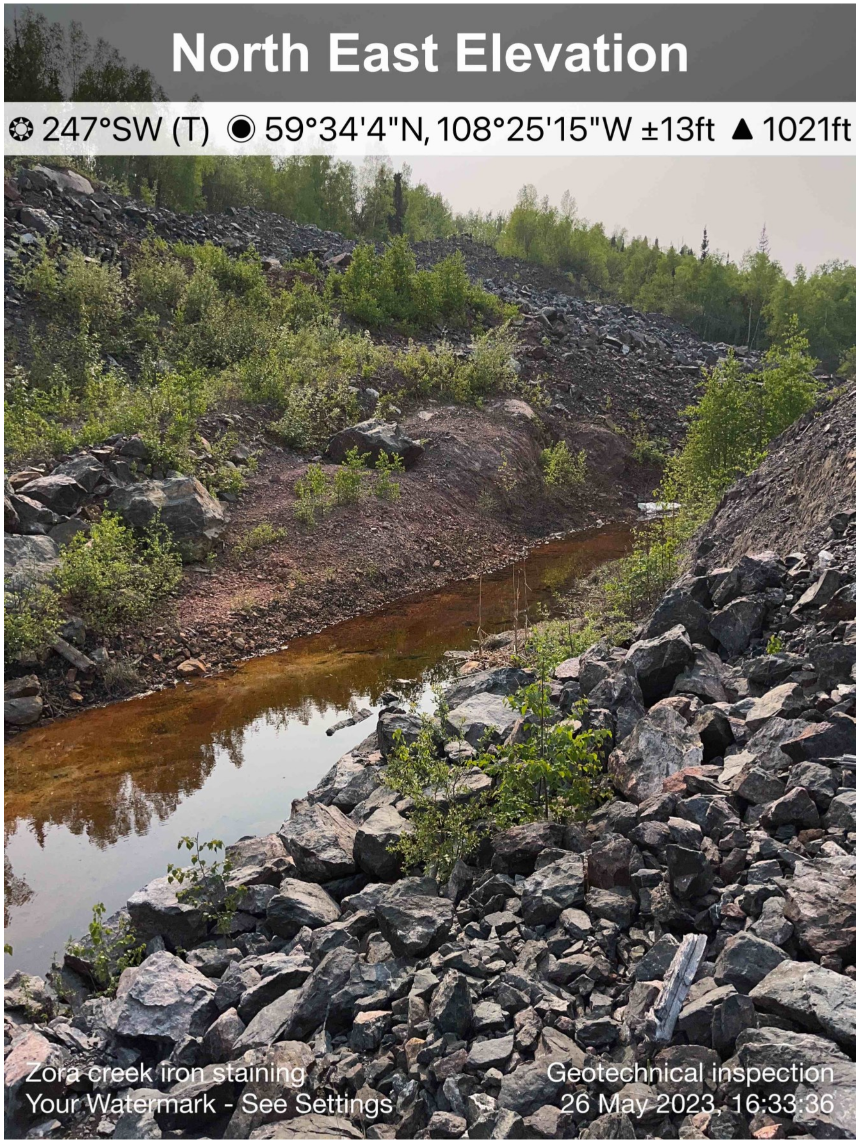


Photo E01—View looking downstream towards Verna Lake (May 2023)

Photo E02—View from level crossing looking upstream towards Zora Lake (May 2023)

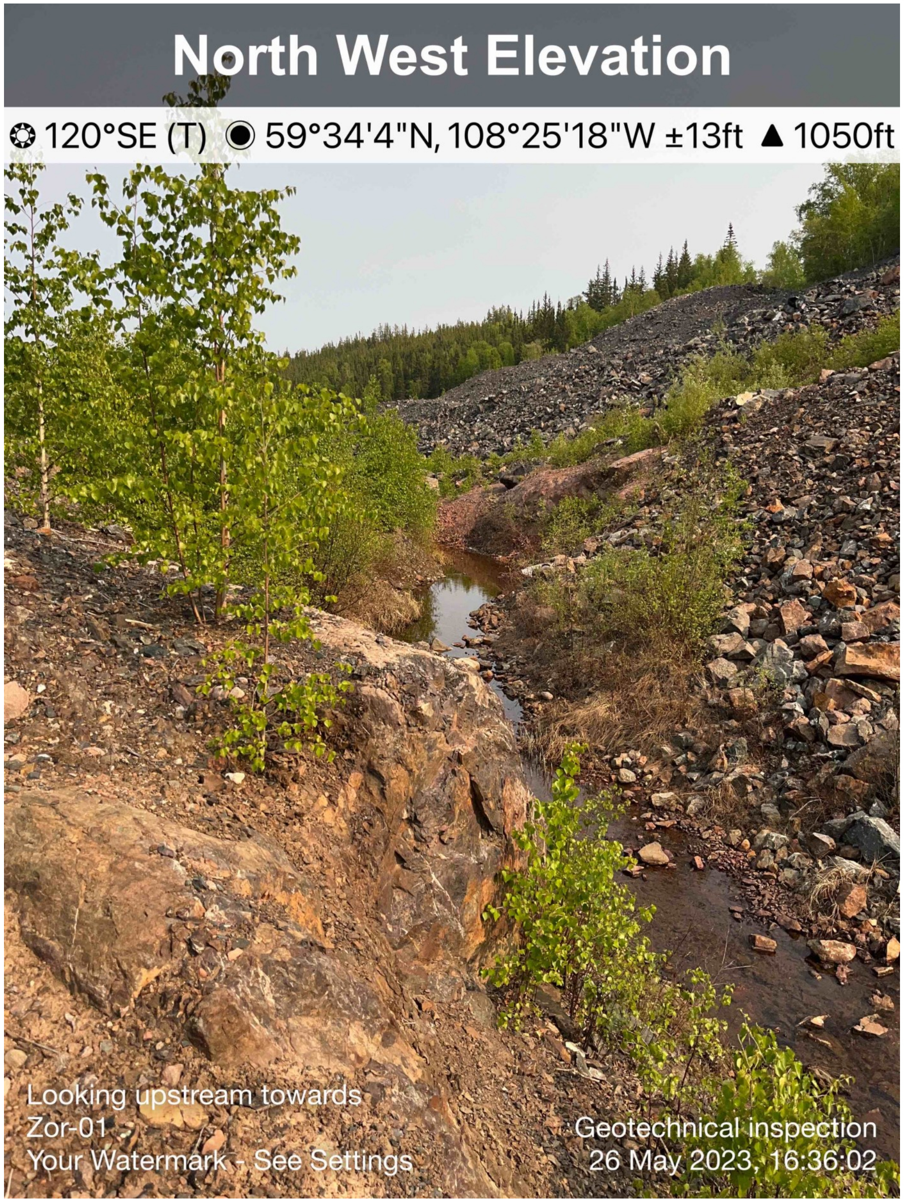


Photo E03—View near stilling basin looking upstream (May 2023)

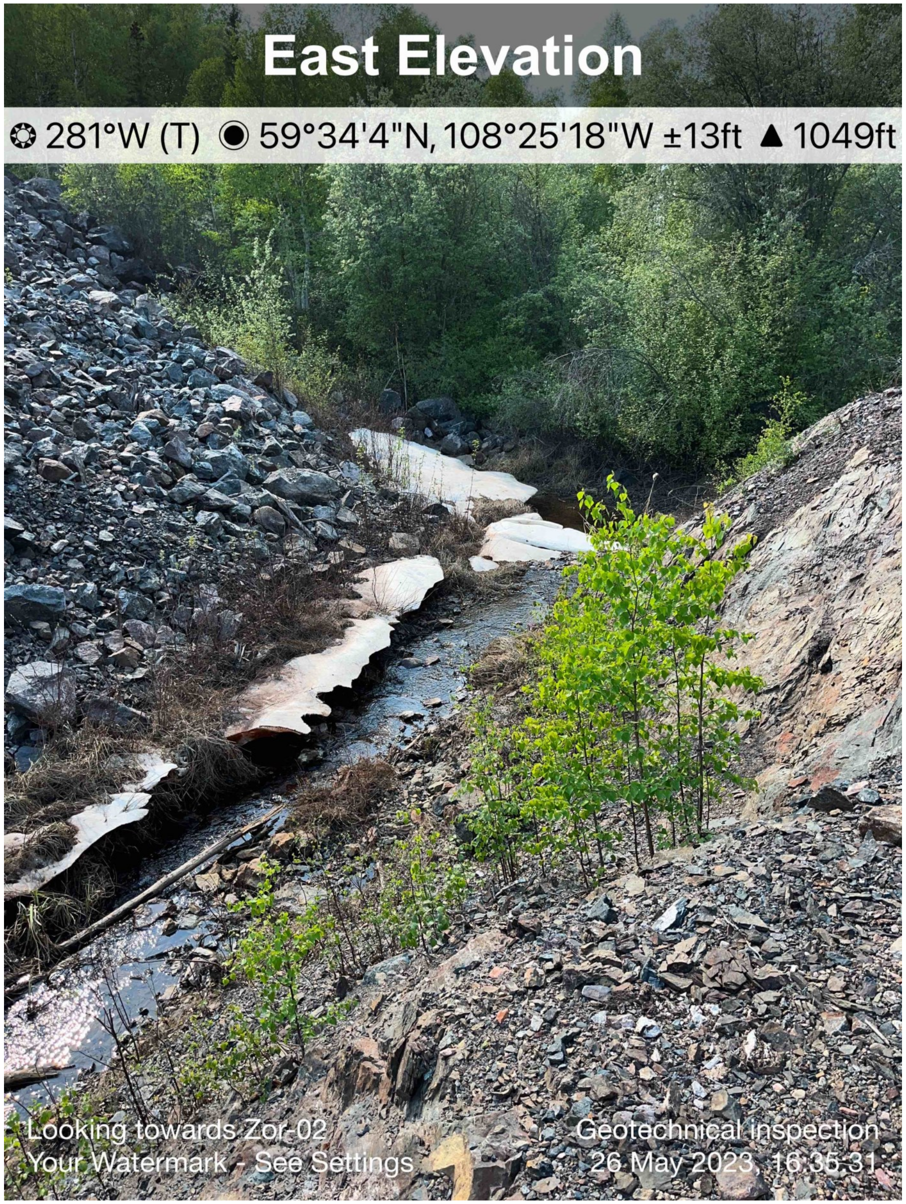


Photo E04—View near stilling basin, looking downstream at stilling basin (May 2023). Note the glaciation remaining from the late spring

Photo E05—View of well-established beaver dam at the outlet of Zora Lake, looking downstream (May 2023)

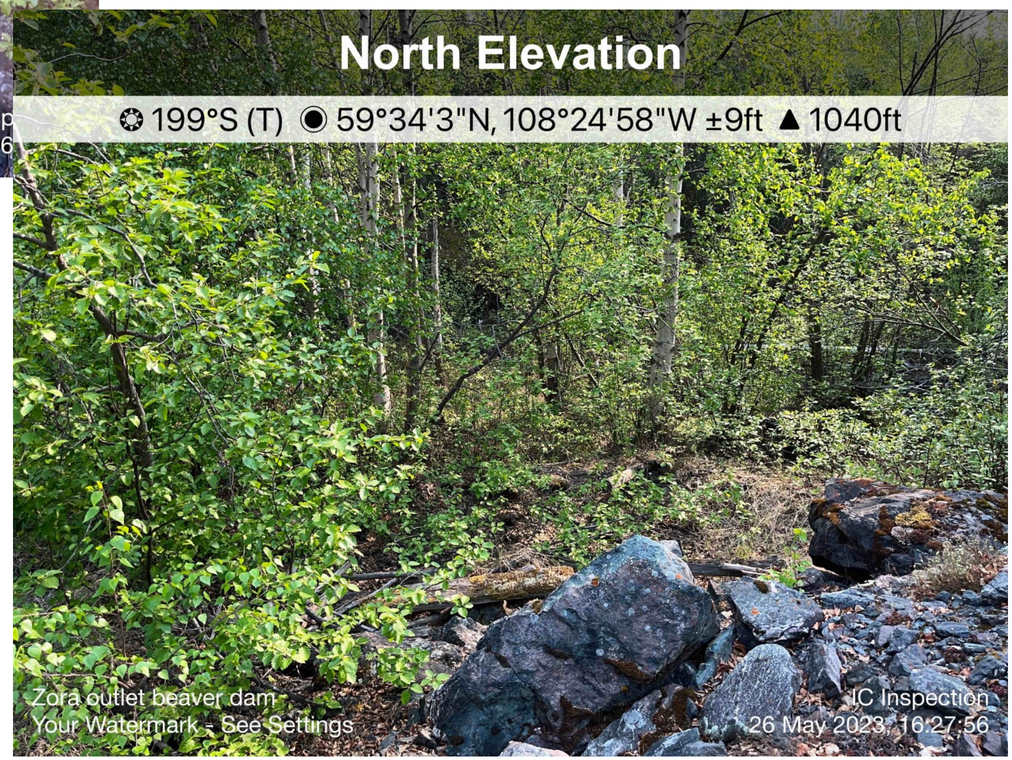


Photo E06—View near well-established beaver dam at outlet of Zora Lake, looking across Zora Creek looking south (May 2023)

Photo A1 – Marie Reservoir Spillway looking upstream (May 2023)

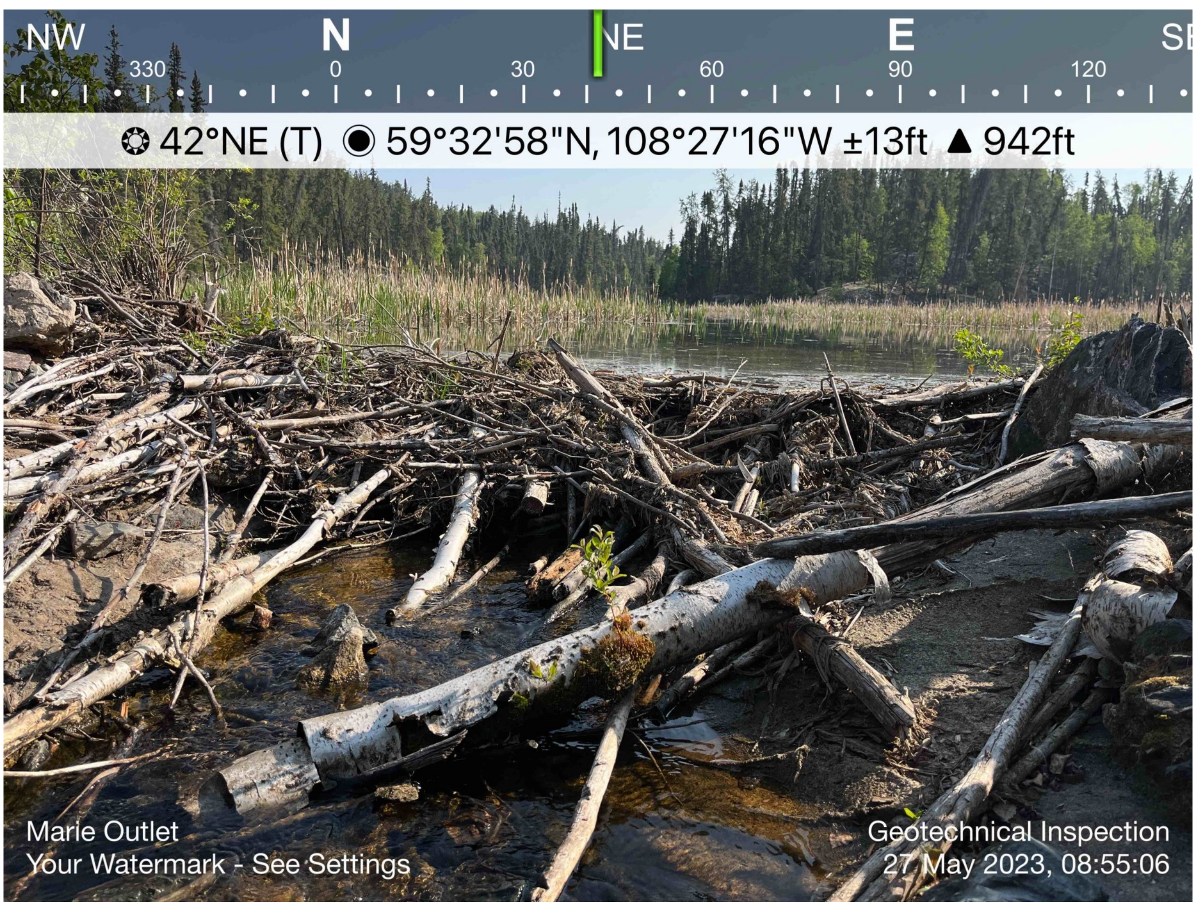


Photo A2 - Marie Reservoir Spillway inlet; beaver dam first noted in 2018

Photo A3 – Marie Reservoir Spillway (water flowing into stilling basin) (May 2023)

Photo A4 – Marie Reservoir Spillway looking northeast (May 2023)

Photo B1 – Fookes Reservoir Spillway looking into Fookes Reservoir

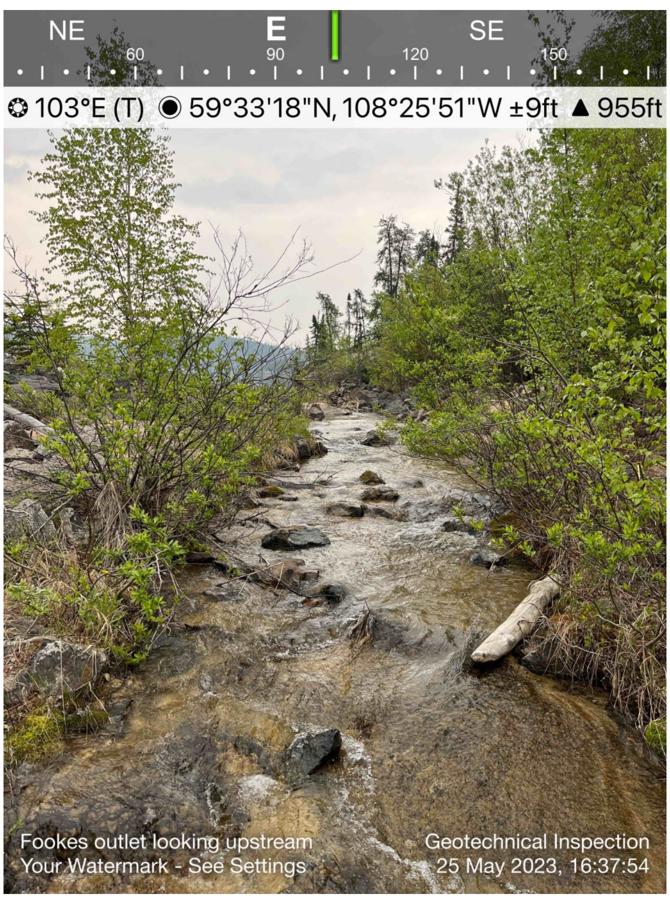


Photo B2 – Fookes Reservoir Spillway looking upstream

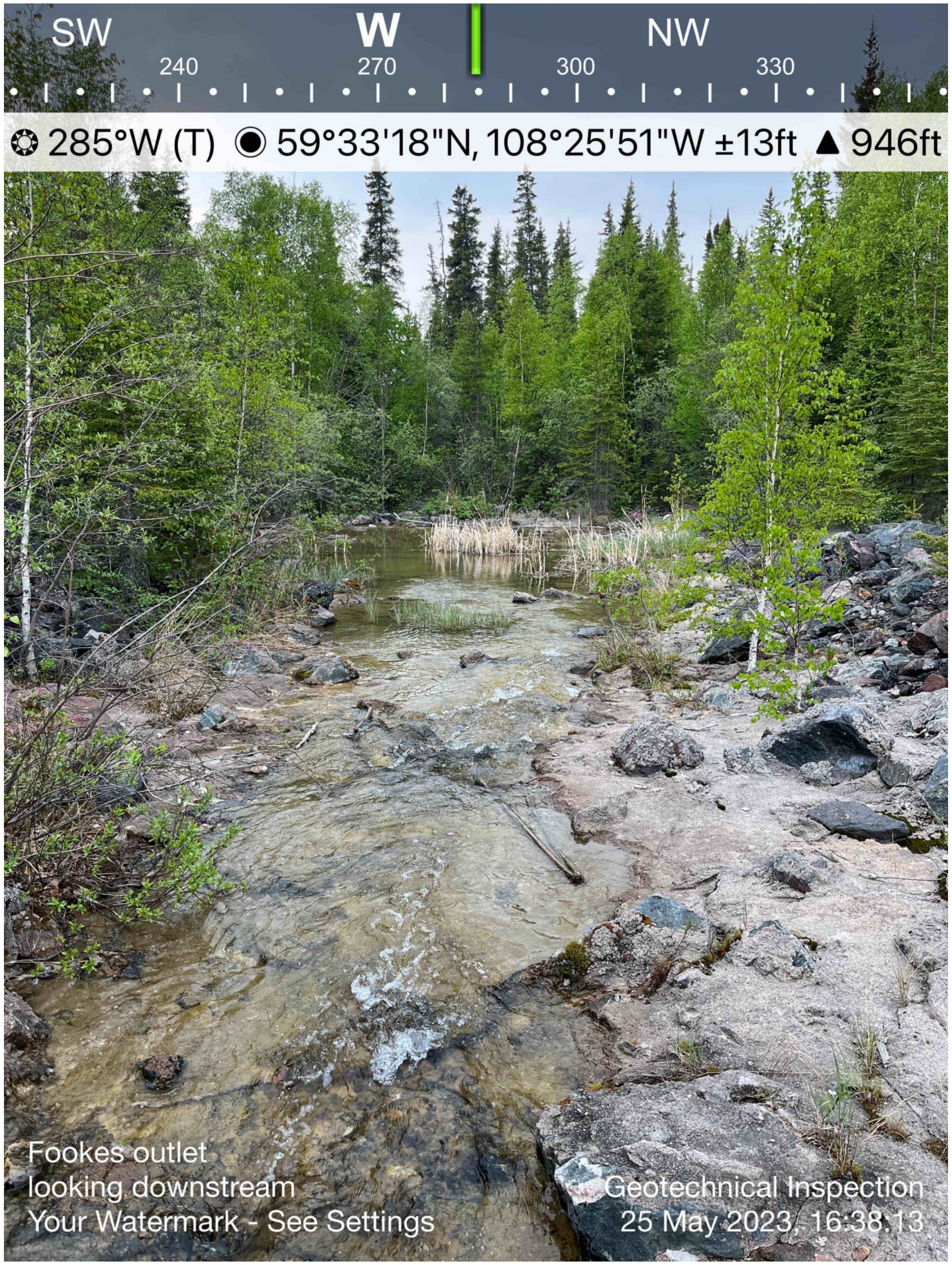


Photo B3 – Fookes Reservoir Spillway looking downstream (mid channel)

Photo B4 – Fookes Reservoir Spillway stilling basin

Photo B5 – Fookes Reservoir Spillway showing broken rip-rap on north and south sides of channel. Note debris has been removed since 2022 inspection.

Photo C1 – Chevrons in place on north access point to the Fookes delta looking south (May 2023)

Photo C2 – no ponded water (May 2023). This area previously had ponded water on waste rock cover at bottom of hill near north access road during freshet in 2022.

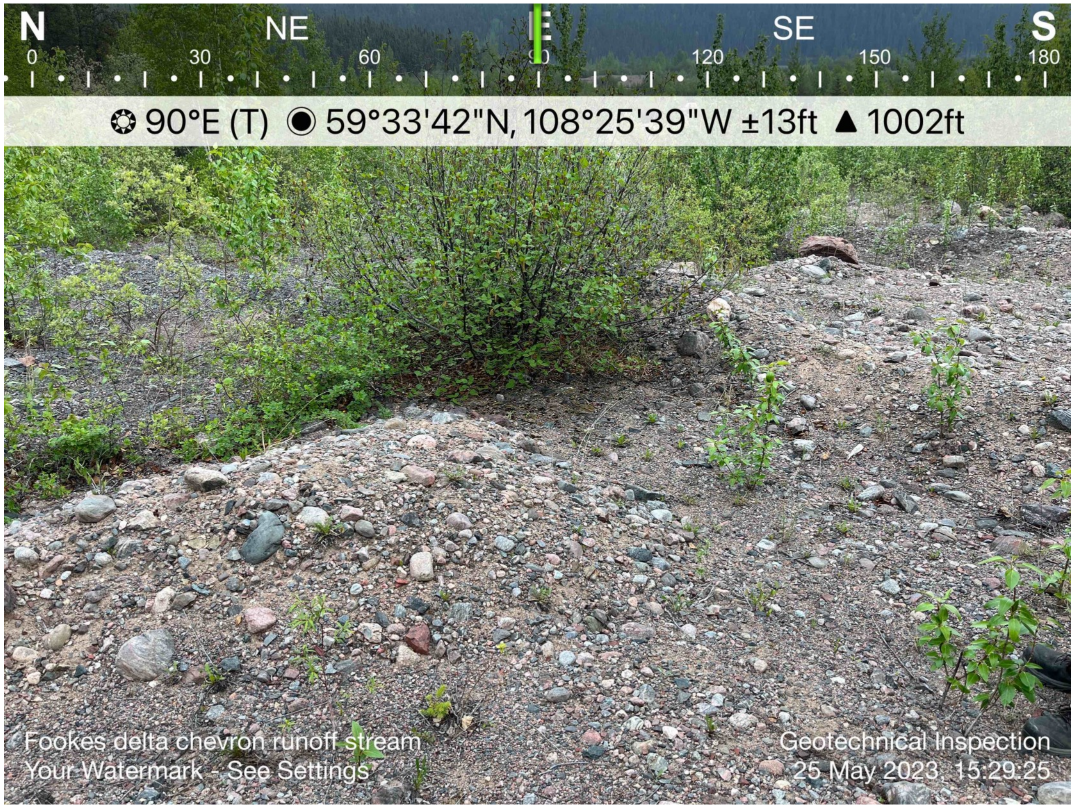


Photo C3 – Chevron run-out structure along north access road

Photo C4 – Drainage collection area on edge of Fookes Tailings Delta approximately 100m from access point

Photo C5a-b – Panoramic views of the Fookes cover (Photos taken May 2023) vegetations is yet to leaf-out

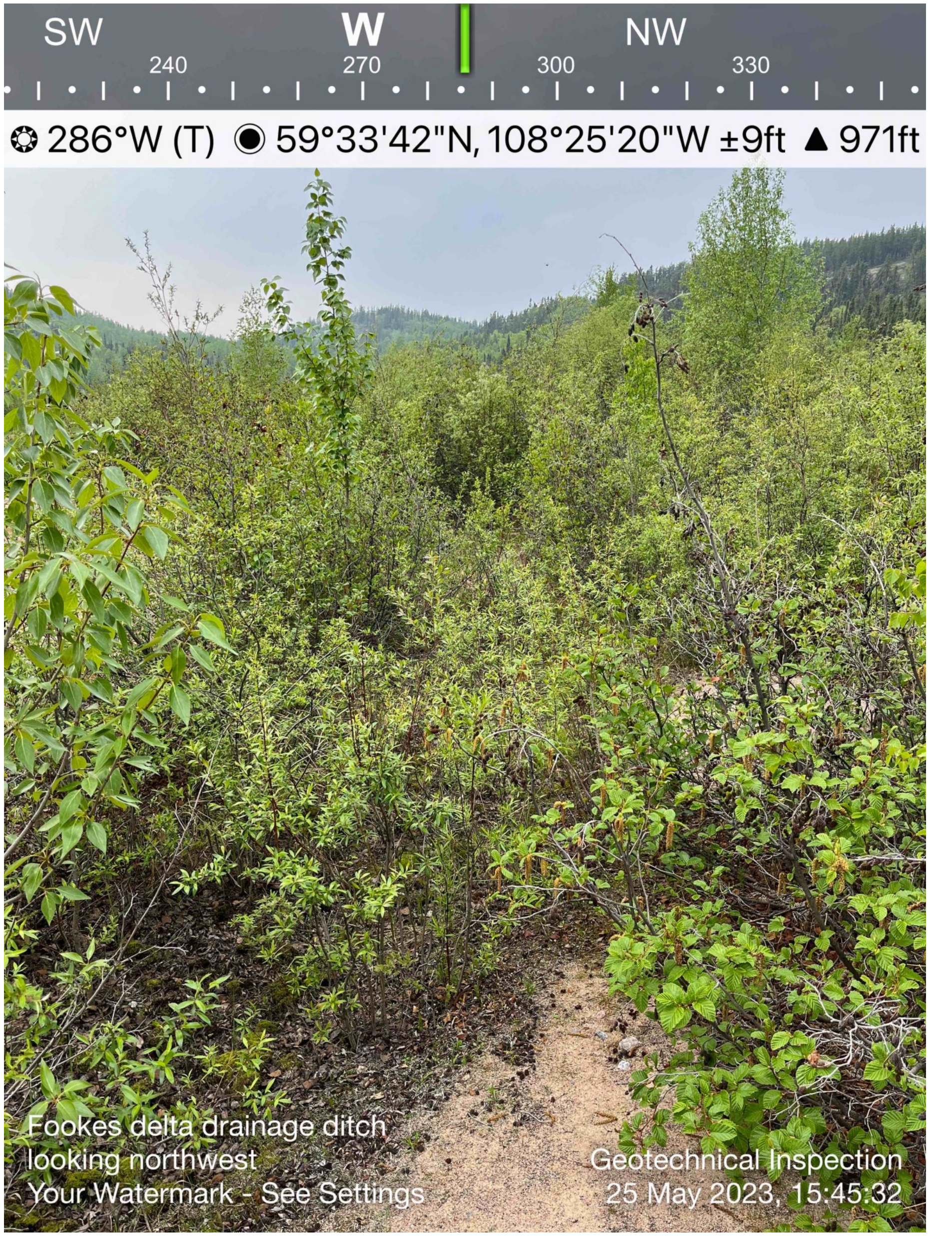


Photo C6 – View of vegetation establishing along drainage channel (May 2023).

Photo C7 – View of east berm looking onto the delta. No evidence of traffic crossing the berm (May 2023).

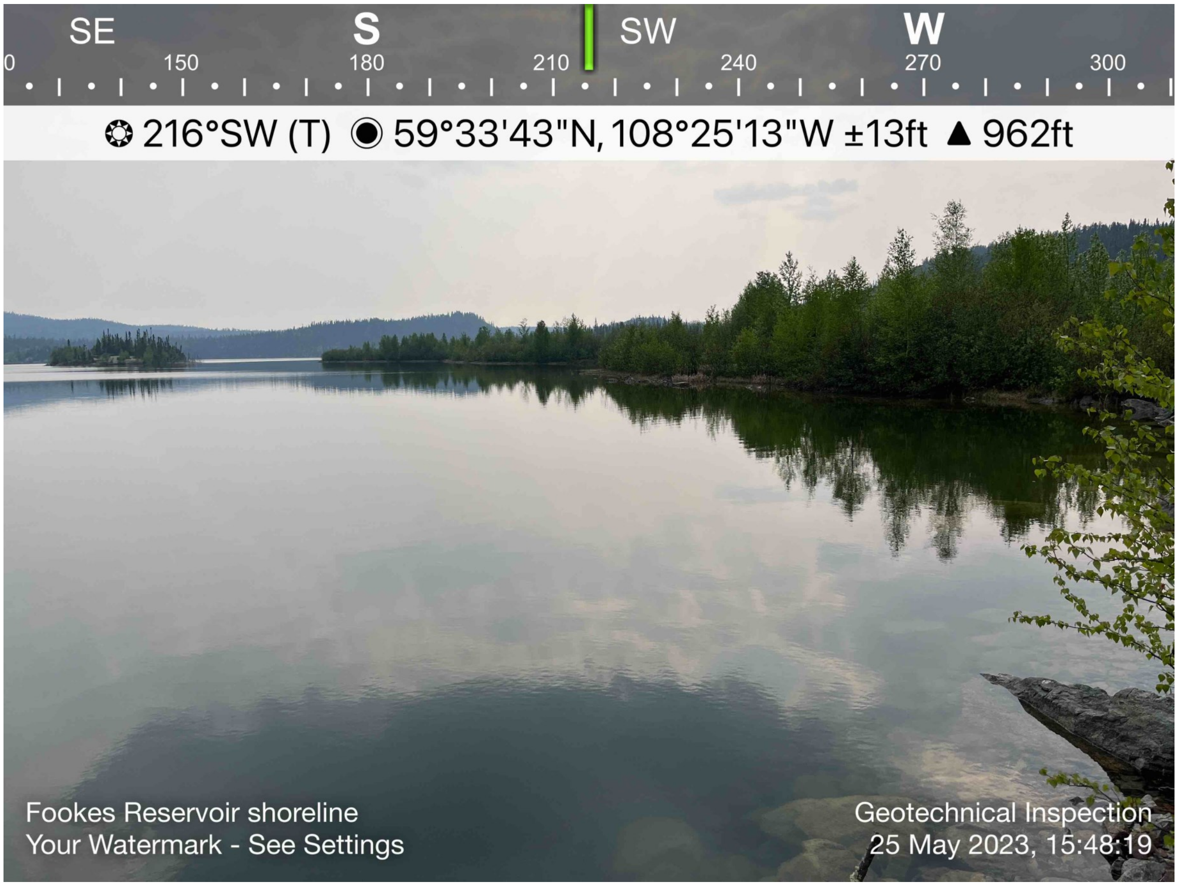


Photo C8—Fookes Reservoir shoreline (looking west) Note vegetation along shoreline is well

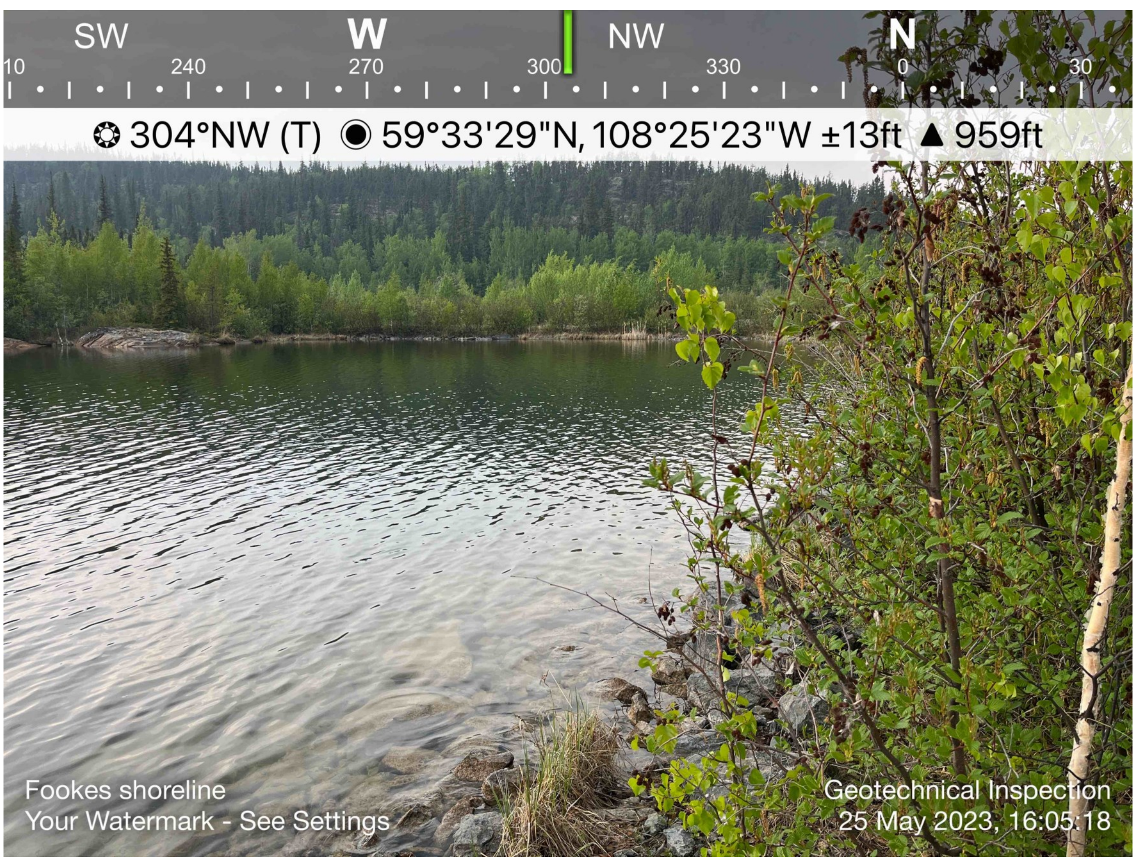


Photo C9—Fookes Reservoir shoreline (looking west).

Photo D1 - View of the cover placed over Ace 201 Stope

Photo D2 - view of Ace 105 and 208 Stope cover

Photo D3—Dubyna CP-1 location (looking east)

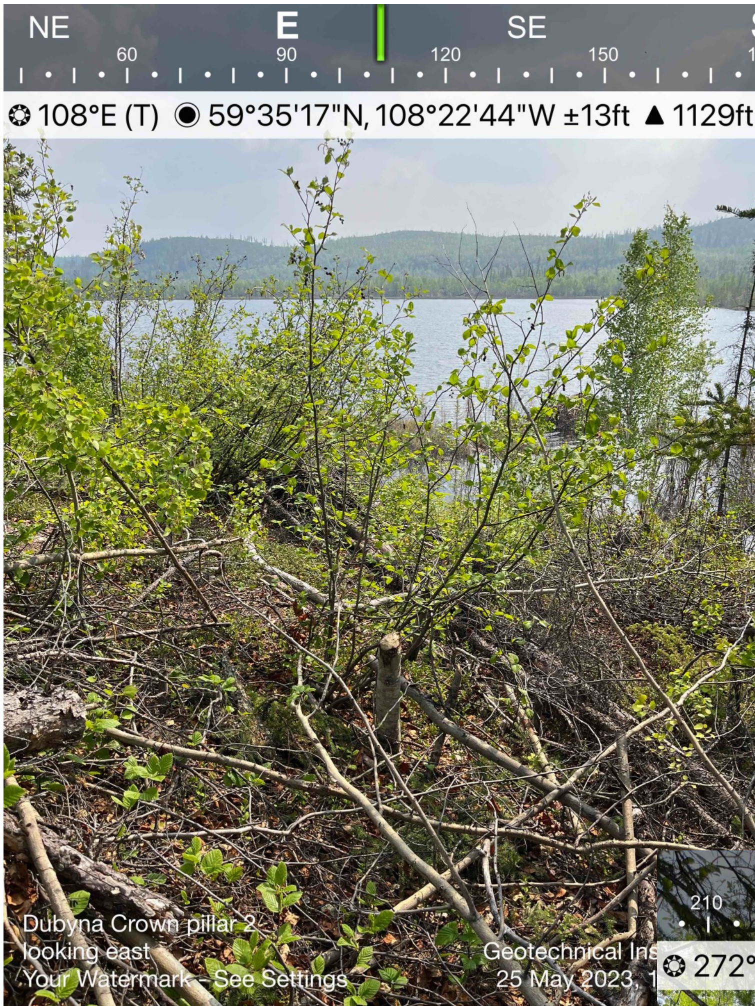


Photo D4—Dubyna CP- 2 location (looking east)

Photo D5—Dubyna CP-2 location (looking west)

Photo D6—Dubyna CP– 3 location (looking west)

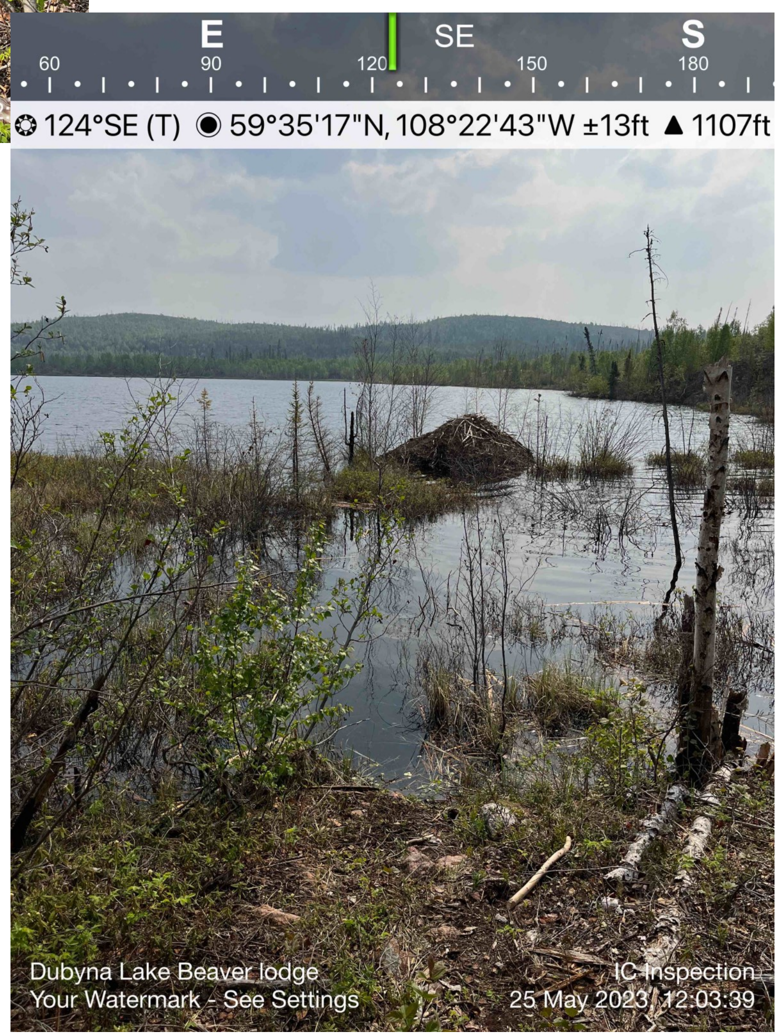


Photo D7—Dubyna CP– 3 location (looking east to Dubyna Lake)

Photo D8—HAB039-01 location (looking northeast)

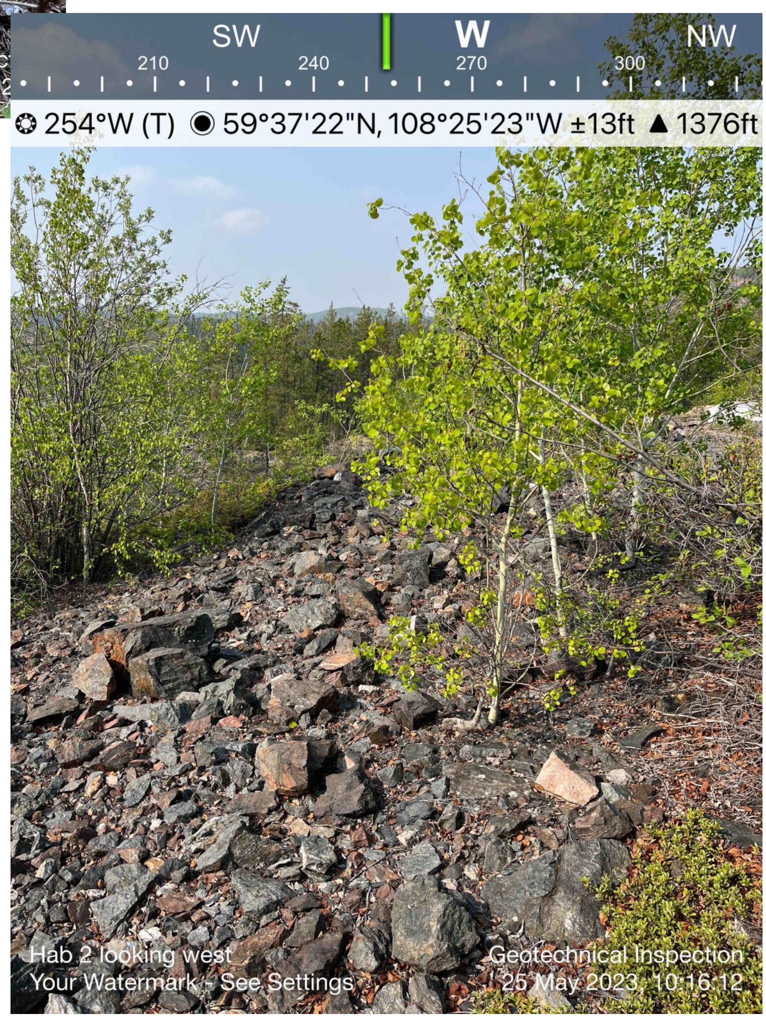


Photo D9—HAB039-02 looking west

Photo D10—HAB039-02 location (looking east)

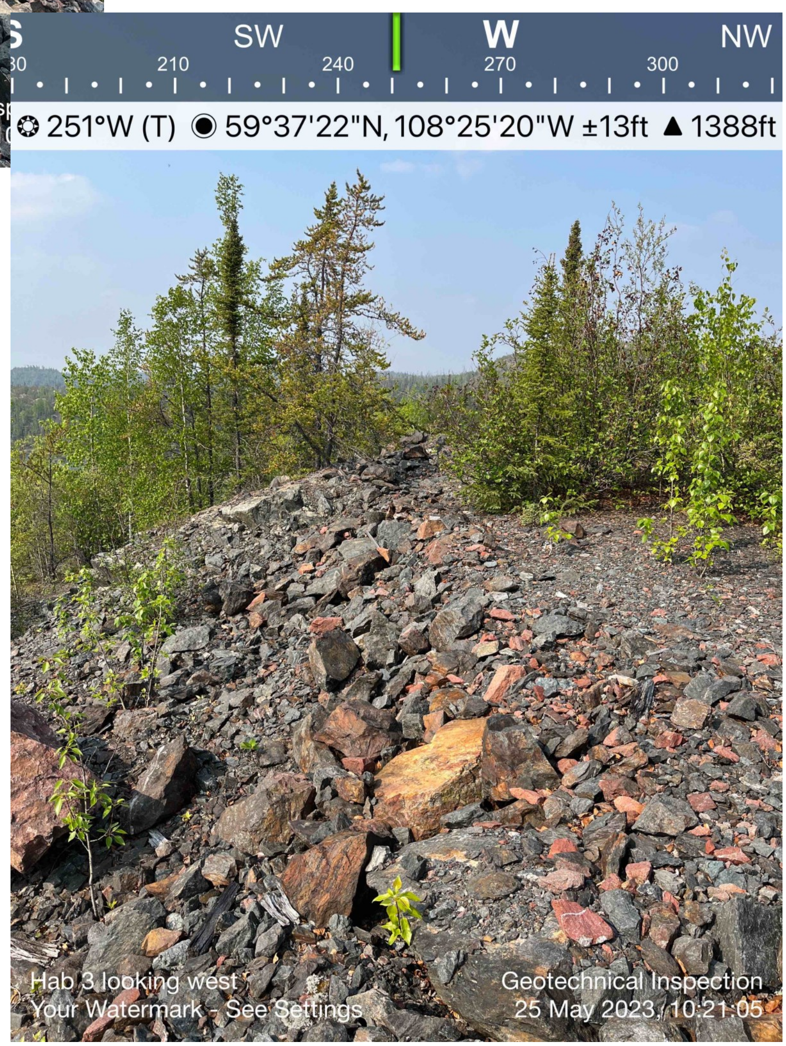


Photo D11—HAB039-03 looking west

Photo D12—HAB039-04 looking west

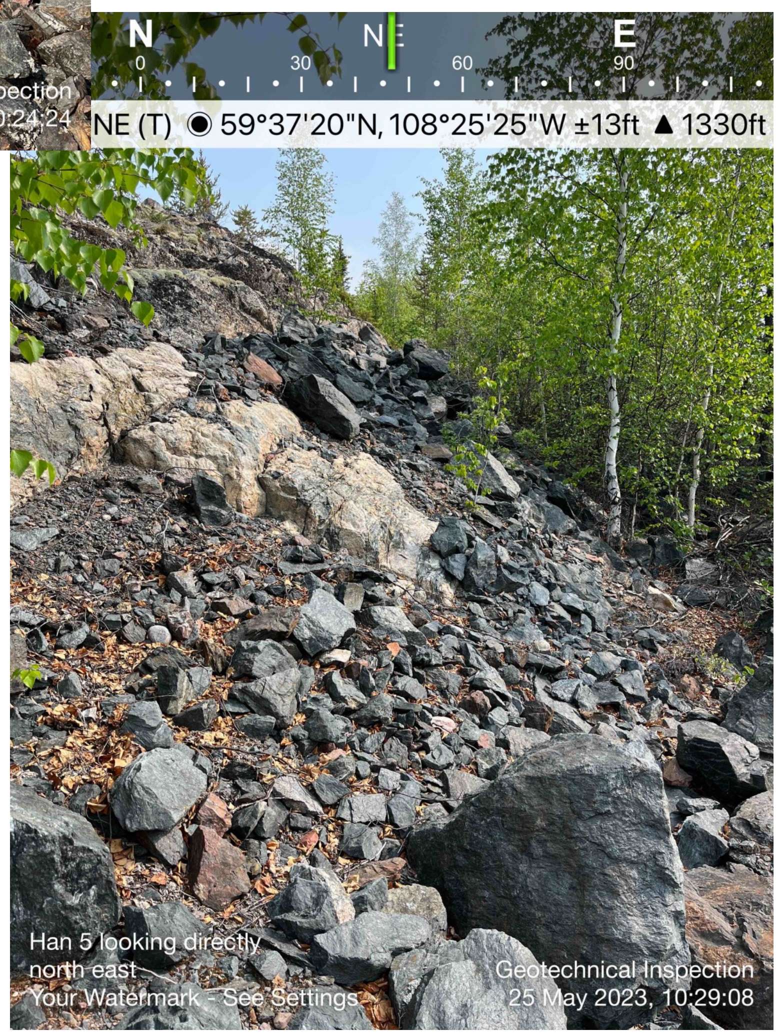


Photo D13—HAB039-05 location (looking east)

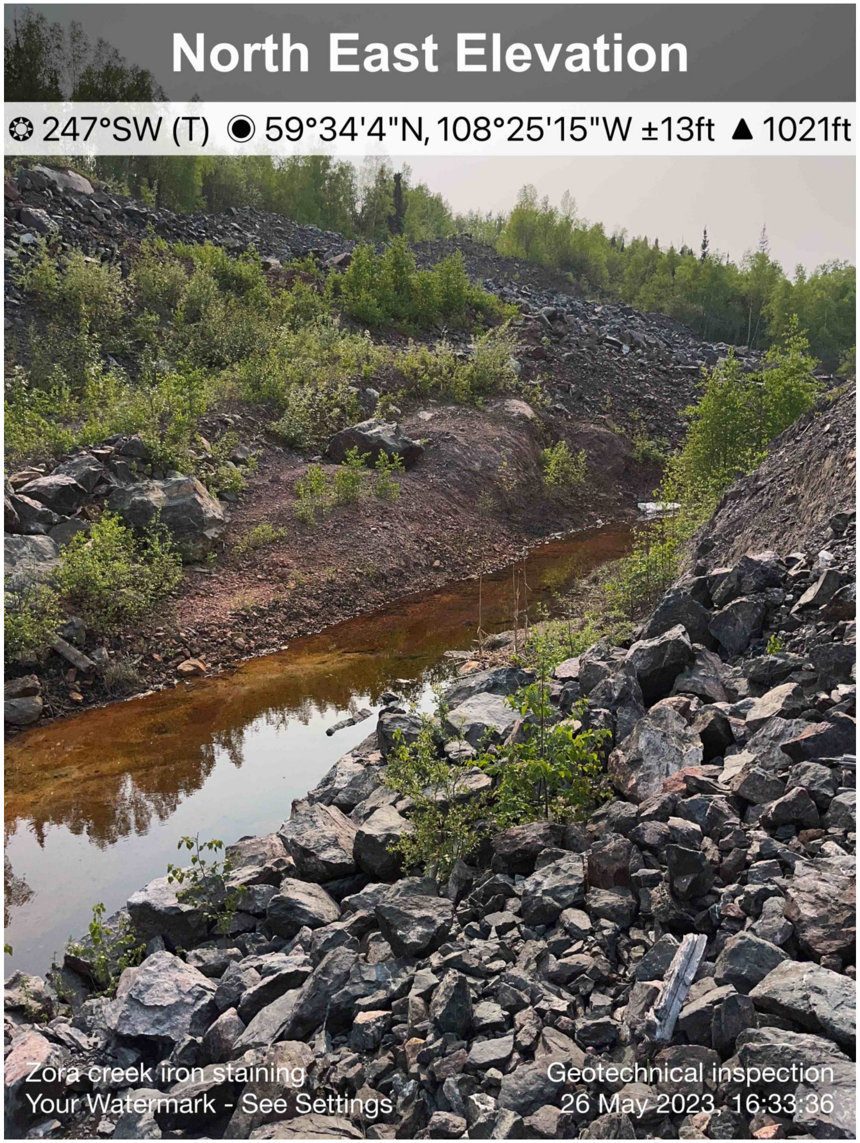


Photo E01—View looking downstream towards Verna Lake (May 2023)

Photo E02—View from level crossing looking upstream towards Zora Lake (May 2023)

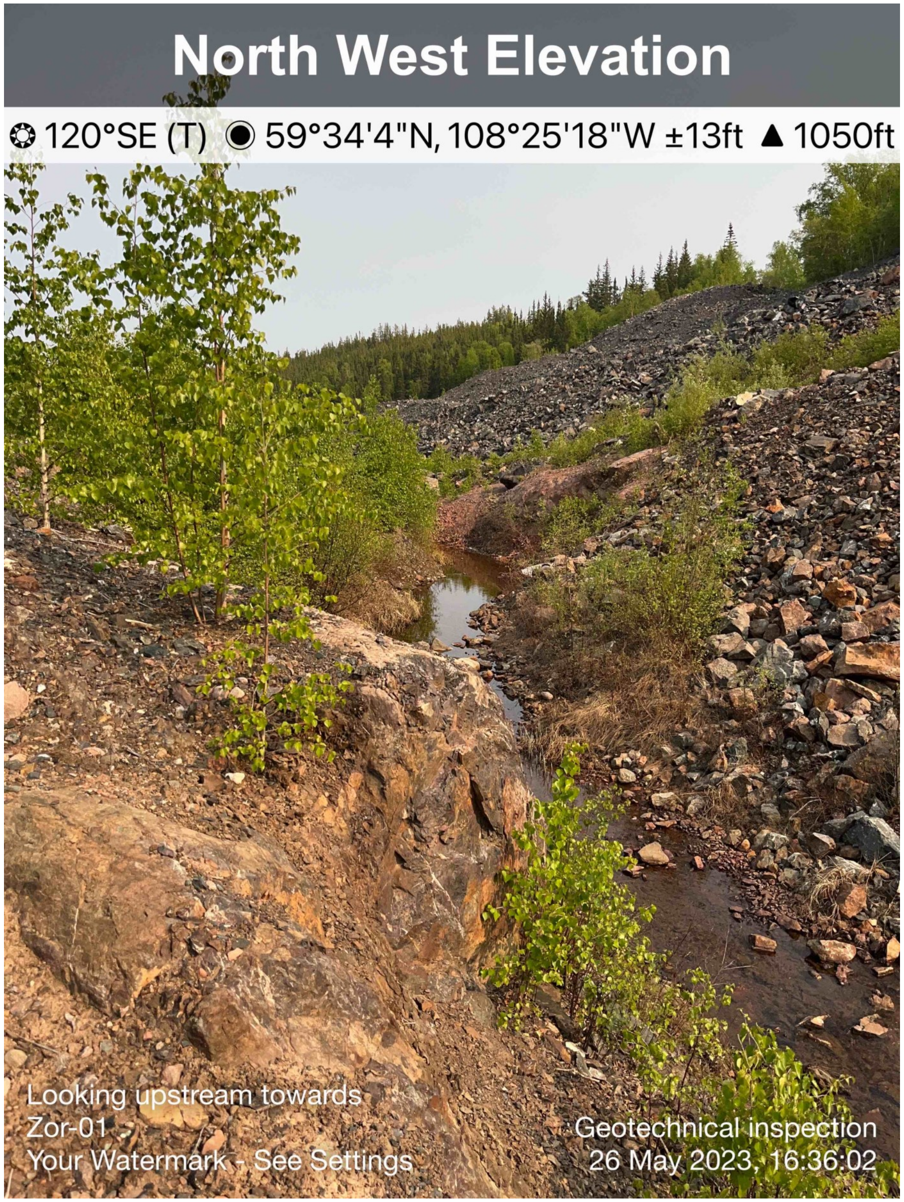


Photo E03—View near stilling basin looking upstream (May 2023)

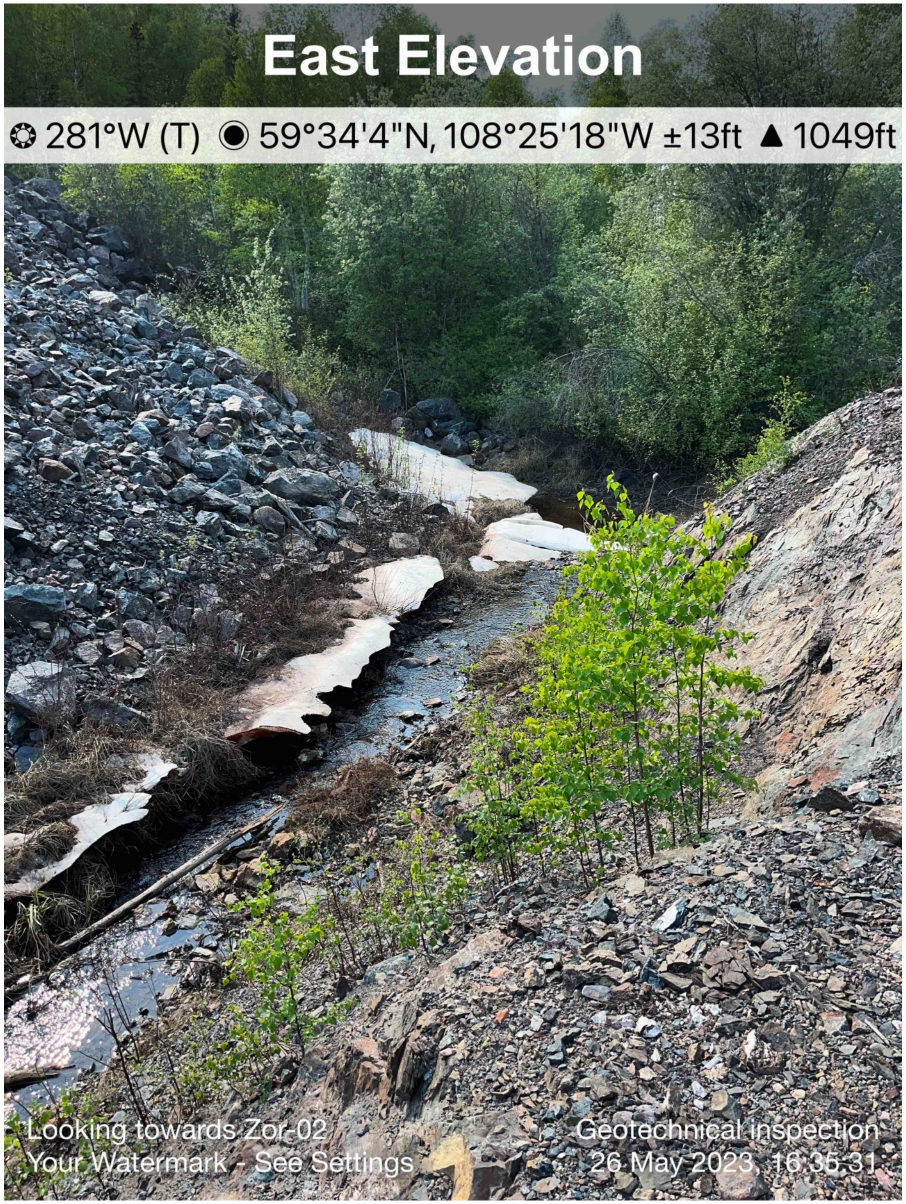


Photo E04—View near stilling basin, looking downstream at stilling basin (May 2023). Note the glaciation remaining from the late spring

Photo E05—View of well-established beaver dam at the outlet of Zora Lake, looking downstream (May 2023)

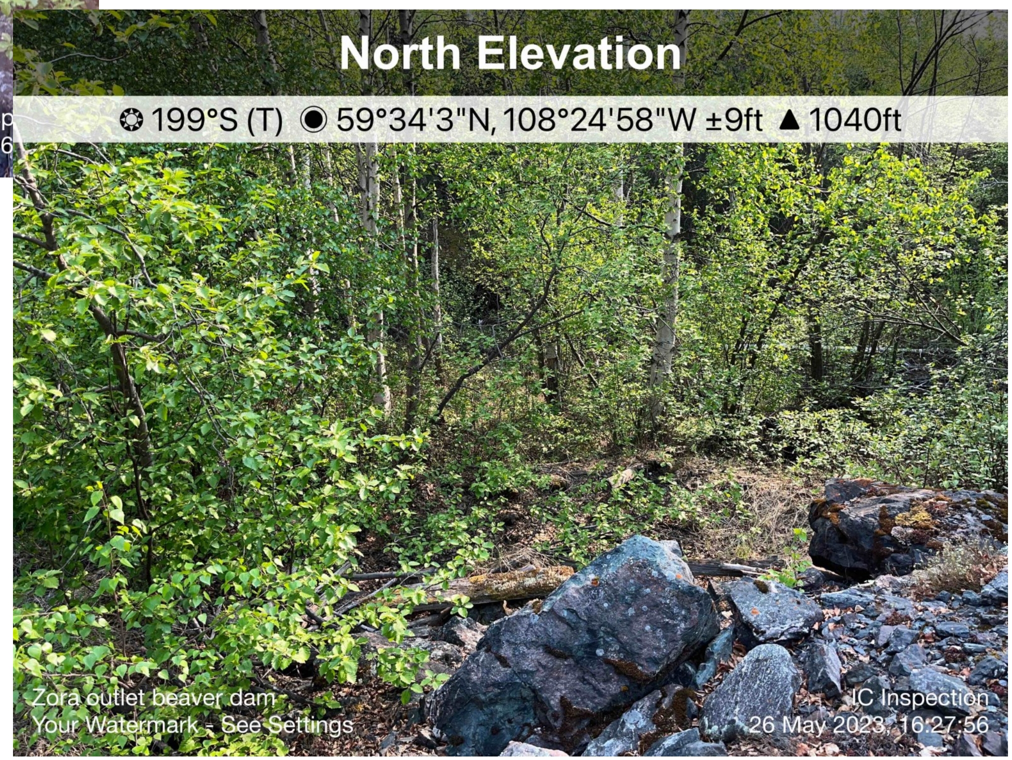


Photo E06—View near well-established beaver dam at outlet of Zora Lake, looking across Zora Creek looking south (May 2023)

APPENDIX C

APPENDIX C

Table 1: Borehole summary including the coordinates of exploration drill holes located to date in and adjacent to the former Eldorado Beaverlodge properties. The table also identifies the condition of each hole when it was initially identified and the year in which each was permanently plugged.

Area	Designation	Coordinate System: WGS 84 UTM Zone 12		Status When Located	Year Remediated	Associated Property
		Easting	Northing			
Ace	AC 01	644022.013	6605350.955	Dry	2013	ACE MC
	AC 02	643881.016	6605325.928	Dry	2013	ACE MC
	AC 03	643969.014	6605393.956	Dry	2013	ACE MC
	AC 04	643958.014	6605381.941	Dry	2013	ACE MC
	AC 05	643943.013	6605376.906	Dry	2013	ACE MC
	AC 06	643929.017	6605371.911	Dry	2013	ACE MC
	AC 07	643914.011	6605366.988	Dry	2013	ACE MC
	AC 09	643888.017	6605351.946	Dry	2013	ACE MC
	AC 10	643876.015	6605374.894	Dry	2013	ACE MC
	AC 11	643965.016	6605324.914	Dry	2013	ACE MC
	AC 12	643877.017	6605339.931	Dry	2013	ACE MC
	AC 13	643857.016	6605337.938	Dry	2013	ACE MC
	AC 14	643848.015	6605331.908	Dry	2013	ACE MC
	AC 15	643792.014	6605338.902	Dry	2013	ACE MC
	AC 16	643560.257	6605183.669	Dry	2017	ACE 1
	AC 17	644021.3	6604729.1	Dry	2017	ACE 9
	AC 18	642872.1	6604789.8	Dry	2018	ACE URA 5
	AC 22	645034	6605863	2 holes/Dry	2019	
	AC 23	645038	6605837	Dry	2019	
	AC 24	643327	6605101	2 holes/1 flowing	2021	ACE 1
Lower Ace	BH-001	641929	6604081	Discharging	2012	
	BH-002	641956	6604091	Discharging	2011	
	BH-003	641922	6604146	Discharging	2011	
	BH-004	641932	6604142	Discharging	2012	
	BH-005	641966	6604143	Discharging	2011	
	BH-006	641972	6604165	Discharging	2011	
	BH-007	642090	6604218	Discharging	2011	URA 1
	BH-009	642110	6604137	Discharging	2012	URA FR
	BH-011	642224.883	6604354.110	Dry	2021	URA 1
	BH-012	642224.798	6604351.877	Dry	2021	URA 1
	BH-014	642168	6604158	Discharging	2011	URA FR
	BH-15	642101.665	6604192.497	Dry/past discharge	2016	URA 1
	BH-16	643009.193	6604465.019	Dry	2017	URA 6
	BH-17	642993.852	6604455.146	Dry	2017	URA 6
	BH-18	642995.637	6604466.051	Dry	2017	URA 6
	BH-19	642978.88	6604452.098	Dry	2017	URA 6

Lower Ace	BH-20	643007.541	6604467.124	Dry	2017	URA 6
	BH-21	642966.862	6604445.757	Dry	2017	URA 6
	BH-22	642959.407	6604439.281	Dry	2017	URA 7
	BH-23	642954.958	6604432.3	Dry	2017	URA 7
	BH-24	642940.515	6604415.339	Dry	2017	URA 7
	BH-25	642930.8	6604406.299	Dry	2017	URA 7
	BH-26	642972.143	6604451.532	Dry	2017	URA 6
	BH-27	643250.316	6604979.231	Dry	2017	URA 5
	BH-28	643113.492	6604895.363	Dry	2017	URA 5
	BH-29	643174.26	6604925.548	Dry	2017	URA 5
	BH-30	643285.271	6604977.469	Dry	2017	URA 5
	BH-31	642101.048	6604195.52	Discharging	2017	URA 1
	BH-32	642260.649	6604592.012	Dry	2017	URA 1
	BH-33	642423.877	6604597.892	Dry	2017	URA 7
	BH-34	642401.708	6604647.831	Dry	2017	URA 3
	BH-35	642268.019	6604629.757	Dry	2017	URA 3
	BH-36	643698.938	6605341.629	Dry	2017	ACE MC
	BH-37	642456.049	6604665.374	2 holes/dry	2017	URA 4
	BH-38	642424.846	6604667.596	Dry	2017	URA 4
	BH-39	643709.725	6605142.015	Dry	2017	ACE MC
	BH-40	642242.735	6604550.461	Dry	2017	URA 1
	BH-41	642296.4	6604025.8	Dry	2017	URA FR
	BH-42	642552.3	6604731	Dry	2017	URA 4
	BH-43	642254	6604397	Dry	Covered with debris	URA 1
	BH-44	642402	6604639	Dry	2019	URA 3
	BH-45	643250	6604981	2 holes/Dry	2019	URA 5
	BH-46	643610.340	6605209.997	Dry	2021	ACE MC
	BH-47	642306.845	6604621.952	Dry	2021	URA 1
Ace-Verna	Ace 01	645193.055	6605813.101	Dry	2016	ACE 8
	EXC 01	644740.299	6605272.359	Dry	2016	ACE 3
	Ace 02	645409.239	6605930.196	Dry	2017	ACE 8
	Ace 03	645627.645	6605877.357	Dry	2017	ACE 8
	Ace 04	645187.707	6605816.337	Dry	2017	ACE 8
Dubyna	DB 01	648069.018	6608350.909	Dry	Not located**	EMAR 1
	DB 02	648021.018	6608416.903	Discharging	2011	
	DB 03	648010.017	6608430.961	Discharging	2012	
	DB 04	648009.018	6608430.921	Dry	2013	
	DB 05	648074.019	6608329.926	Dry	2013	EMAR 1
	DB 06	648059.016	6608350.96	Dry	Not located**	EMAR 1
	DB 07	648060.013	6608305.962	Dry	2013	EMAR 1
	DB 08	648047.018	6608326.964	Dry	2013	EMAR 1
	DB 09	648004.013	6608445.996	Dry	2011	EMAR 1

Dubyna	DB 10	647927.019	6608395.914	Dry	2013	EMAR 1
	DB 11	647906.016	6608372.901	Dry	2013	EMAR 1
	DB 12	647907.015	6608373.943	Dry	2013	EMAR 1
	DB 13	647922.017	6608349.899	Dry	2013	EMAR 1
	DB 13A	647937.016	6608388.951	Dry	2013	EMAR 1
	DB 14	647942.019	6608319.921	Discharging	2011	EMAR 1
	DB 15	647912.017	6608307.923	Dry	2013	EMAR 1
	DB 16	648002.017	6608424.96	Discharging	2012	EMAR 1
	DB 17	647310.016	6608147.994	Dry	2013	
	DB 18	647296.012	6608143.988	Dry	2013	
	DB 19	647294.014	6608148.926	Dry	2013	
	DB 20	647291.018	6608147.917	Dry	2013	
	DB 21	647289.015	6608145.943	Dry	2013	
	DB 22	647285.016	6608153.923	Dry	2013	
	DB 23	647282.019	6608145.891	Dry	2013	
	DB 24	647351.018	6608172.904	Dry	2013	
	DB 25	648014.014	6608458.988	Discharging	2011	
	DB 26	647374.017	6608190.976	Dry	2013	
	DB 27	647379.02	6608180.916	Dry	2013	
	DB 28	647715.679	6608234.967	Dry	2017	JO-NES
	DB 29	647513.47	6608225.766	Dry	2017	JO-NES
	DB 30	647413.386	6608235.144	Dry	2017	JO-NES
	DB 31	647411.222	6608290.178	Dry	2017	JO-NES
	DB 32	647603.393	6608298.979	Dry	2017	JO-NES
	DB 33	646948.652	6608333.328	Dry	2017	
	DB 34	645934.9	6607576	2 holes/dry	2016	
	DB 35	645991.5	6607578.2	Dry	2017	
	DB 36	647421	6608222	Dry	2017	JO-NES
	DB 37	647661.2	6608361.3	Dry	2017	JO-NES
	DB 38	647561.2	6608066.9	Dry	2017	JO-NES
	DB 39	647742.5	6608236	Dry	2017	JO-NES
	DB 40	647593.6	6608297.4	Dry	2017	JO-NES
	DB 41	647611	6608249.4	Dry	2018	JO-NES
	DB 42	647579.4	6608258.1	Dry	2018	JO-NES
	DB 43	647579.4	6608255	Dry	2018	JO-NES
	DB 44	647585.8	6608256.1	Dry	2018	JO-NES
	DB 45	647572	6608231.8	Dry	2018	JO-NES
	DB 46	647521.1	6608238.1	2 holes/Dry	2018	JO-NES
	DB 47	647572.5	6608251.3	Dry	2018	JO-NES
	DB 48	647575.6	6608248.3	Dry	2018	JO-NES
	DB 49	647572.3	6608242.3	Dry	2018	JO-NES
	DB 50	647558.3	6608239.3	Dry	2018	JO-NES

Dubyna	DB 51	647547	6608230.5	Dry	2018	JO-NES
	DB 52	647578.7	6608236.1	Dry	2018	JO-NES
	DB 53	647427.7	6608225.5	Dry	2018	JO-NES
	DB 54	647419	6608244.3	Dry	2018	JO-NES
	DB 55	647413.4	6608238.8	Dry	2018	JO-NES
	DB 56	647395.2	6608229.4	Dry	2018***	
	DB 57	647406.3	6608226.8	Dry	2018	JO-NES
	DB 58	647417.4	6608225.7	Dry	2018	JO-NES
	DB 60	647613.1	6608506.8	2 holes/Dry	2018	
	DB 61	647683.9	6608518.9	Dry	2018	
	DB 62	647785.2	6608518.5	Dry	2018	
	DB 63	647703.9	6608176.9	Dry	2018	JO-NES
	DB 64	647946	6608148	Dry	2021	EMAR 1
	HAB 01	645518.015	6612550.898	Dry	2013	HAB 1
Hab	HAB 02	645531.009	6612559.987	Dry	2013	HAB 1
	HAB 03	645560.017	6612566.911	Dry	2013	HAB 1
	HAB 04	645559.011	6612570.997	Dry	2013	HAB 1
	HAB 05	645570.017	6612585.916	Dry	2013	HAB 1
	HAB 06	645516.013	6612592.957	Dry	2013	HAB 1
	HAB 07	645490.014	6612737.978	Dry	2013	
	HAB 08	645473.016	6612730.963	Dry	2013	
	HAB 09	645458.015	6612730.938	Dry	2013	
	HAB 10	645444.016	6612727.941	Dry	2013	
	HAB 11	645428.014	6612729.995	Dry	2013	
	HAB 12	645531.017	6612306.94	Dry	2013	HAB 1
	HAB 13	645454.012	6612205.961	Dry	2013	EXC 1
	HAB 14	645203.016	6612156.978	Dry	2013	EXC 1
	HAB 15	645180.016	6612129.889	Dry	2013	HAB 3
	HAB 16	645197.013	6612184.948	Dry	2013	EXC 1
	HAB 17	645236.014	6612327.921	Dry	2013	HAB 1
	HAB 18	645265.016	6612338.968	Dry	2013	HAB 1
	HAB 19	645265.016	6612338.968	Dry	2013	HAB 1
	HAB 20*	645244.013	6612340.94	Dry	No Remediation	HAB 1
	HAB 21*	645216.013	6612306.969	Dry	No Remediation	HAB 1
	HAB 22*	645206.015	6612316.948	Dry	No Remediation	
	HAB 23	645196.016	6612315.891	Dry	2013	
	HAB 24*	645157.014	6612278.93	Dry	No Remediation	
	HAB 25*	645195.017	6612271.932	Dry	No Remediation	
	HAB 26*	645193.013	6612334.948	Dry	No Remediation	
	HAB 27	645199.014	6612341.981	Dry	2013	
	HAB 28	645237.012	6612367.979	Dry	2013	HAB 1
	HAB 29	645186.014	6612187.977	Dry	2013	

	HAB 30	645196.016	6612166.962	Dry	2013	EXC 1
	HAB 31	645188.016	6612161.97	Dry	2013	
	HAB 32	645188.016	6612161.97	Dry	2013	
	HAB 33	645184.017	6612166.942	Dry	2013	
	HAB 34	645185.015	6612332.966	Dry	2013	
	HAB 35	645170.015	6612318.896	Dry	2013	
	HAB 36	645146.014	6612300.909	Dry	2013	
	Hab 37	645635.866	6611795.114	Dry	2016	EXC 2
	Hab 38	645957.616	6612503.136	Dry	2016	HAB 6
	HAB 39	645944.833	6612429.845	Dry	2016	HAB 6
	Hab 40 & 41	645134.075	6611789.562	2 holes/dry	2016	HAB 3
	Hab 42 & 43	645047.948	6611855.227	2 holes/dry	2016	HAB 3
	Hab 44	645155.8	6612277.4	Dry	2016	
	Hab 45	645120.288	6612036.091	Dry	2017	HAB 3
	Hab 46	645119.989	6612043.82	Dry	2017	HAB 3
	Hab 47	645737.923	6612087.024	Dry	2017	HAB 2A
	Hab 48	645053.768	6611971.583	Dry	2017	HAB 3
	Hab 49 & 50	645291.031	6612001.84	2 holes/dry	2017	HAB 2
	Hab 51	644786.442	6611947.92	Dry	2017	
	Hab 52	645309.971	6612079.678	Dry	2017	HAB 2
	Hab 53	644794.3	6611948.2	Dry	2017	
	Hab 54	645613.7	6611925.2	Dry	2017	HAB 2A
Hab	Hab 55	645670.8	6612093.7	Dry	2017	HAB 2A
	Hab 56	645653.1	6612056.8	Dry	2017	HAB 2A
	Hab 57	645680.6	6612065.6	Dry	2017	HAB 2A
	Hab 58	644798.2	6612050.6	Dry	2017	HAB 2A
	Hab 59	645648.7	6611994.7	Dry	2017	HAB 2A
	Hab 60	645671.6	6612016.6	Dry	2017	HAB 2A
	Hab 61	645622.4	6611980.3	Dry	2017	HAB 2A
	Hab 62	645076.2	6611788.8	Dry	2017	HAB 3
	Hab 63	645737	6612086.1	Dry	2018	HAB 2A
	Hab 64	645685.9	6612061.4	Dry	2018	HAB 2A
	Hab 65	645655.5	6612055.3	Dry	2018	HAB 2A
	Hab 66	645412	6611924	Dry	2019	HAB 2A
	Hab 67	645332	6611876	Dry	2019	HAB 2A
	Hab 68	645631	6612339	Dry	2019	HAB 1
	Hab 69	645276	6612220	Dry	2021	EXC 1
	Hab 70 & 71	645704	6612168	Dry	2021	EXC 1
	VR 01	645583.015	6605976.917	Dry	2013	ACE 8
	VR 02	645612.016	6605959.984	Dry	2013	ACE 8
Verna-Bolger	VR 03	645987.422	6606161.403	Dry	2016	BOLGER 1
	VR 04	644794.274	6611948.222	Dry	2017	

	VR 05	645751.166	6606305.443	Dry	2017	BOLGER 1
	VR 06	645976.488	6606405.551	Dry	2017	
	VR 08 & 09	645934.866	6607575.955	2 holes/dry	2016	
	VR 10	645991.476	6607578.159	Dry	2017	
	VR 11	646037.829	6605999.498	Dry	2021	NW 3
	VR 12	645997.589	6605976.863	Dry	2021	NW 3
	VR 13	646052.176	6605975.309	Dry	2021	NW 3
	VR 14	646001.812	6605948.268	Dry	2021	NW 3
	VR 15	645995.007	6605897.840	Dry	2021	NW 3
	VR 16	645946.764	6605852.599	Dry	2021	NW 3
	VR 17	645885.294	6605830.366	Dry	2021	NW 3
	VR 18	645925.276	6605820.439	Dry	2021	NW 3
	VR 19	645917.392	6605771.530	Dry	2021	NW 3
	VR 20	646013.386	6605836.910	Dry	2021	NW 3
	VR 21	646027.817	6605820.750	Dry	2021	NW 3
	VR 22	646132.041	6605638.424	Dry	2021	NW 3
	VR 23	645702.416	6605821.699	Dry	2021	NW 3
	VR 26	645981.109	6605927.954	Dry	2021	NW 3
	VR 27	646027.259	6605884.492	Dry	2021	NW 3
	EG 01	640289.749	6607204.128	Dry	2016	EAGLE 1
Eagle	EG 02	640322.527	6607209.033	Dry	2016	EAGLE 1
	EG 03	640292.348	6607226.853	Dry	2016	EAGLE 1
	EG 04	640328.697	6607263.213	Dry	2016	EAGLE 1
Eagle	EG 05	640351.111	6607264.052	Dry	2016	EAGLE 1
	EG 06	640486.081	6607170.013	Dry	2016	EAGLE 1
	MC 1	638979.011	6604055.98	Dry	2013	RA 9
Martin Lake	OP 01	647251.597	6607892.5	Dry	2017	
	OP 02	646998.6	6605635.1	Dry	2017	
	OP 03	647108.6	6605695.2	Dry	2017	
	BH-8202	641471	6604205	Dry	2017	
Off Property[1]	BH-NW01	641343.6	6604130.1	Discharging	2017	
	AC 19[2]	647069	6605704	Dry	2019	
	AC 20[2]	647055	6605663	Dry	2019	
	AC 21[2]	647001	6605642	Dry	2019	

*Recent exploration activity (Not Eldorado/Cameco)
**DB 01 and DB-06 were found to be dry when first identified; however, boreholes could not be relocated despite extensive searches when remediation equipment was brought to the site.
***Assuming DB 56 was remediated in 2018 with other boreholes.
Note: AC 08, VR 07, and DB 59 have been removed from past records due to coordinate error and are not reflected in the 238 identified below.
Note: Total number of boreholes is 238, this includes 229 remediated (all with an associated year), 6 were not remediated due to being recent exploration (HB 20, Hab 21, Hab 22, HAB 24, HAB 25, and HAB 26), 2 were not located (DB 01 and DB 06), and 1 was covered with debris (BH-43).

[1] The 'Off Property' areas were operated as part of the former Eldorado Beaverlodge activities; however, these areas were not listed in the *Eldorado Resources Limited Decommissioning Approval AECB-DA-142-0*. In addition, these areas do not appear on the current Beaverlodge surface lease or in the Canadian Nuclear Safety Commission licence; however, Cameco intends to prepare these areas for transfer into the IC Program and has remediated the boreholes identified in these areas accordingly.
[2] Previously listed under the "Ace" area mistakenly. These boreholes are located off Beaverlodge property, in the Moran Pit area.

APPENDIX D

APPENDIX D

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SRC ENVIRONMENTAL ANALYTICAL LABORATORIES QUALITY ASSURANCE PROGRAM

Introduction

As one of the most modern, well-equipped laboratory complexes in Canada, SRC Environmental Analytical Laboratories (SRC Analytical) provides a wide range of commercial analytical services. SRC Analytical maintains an extensive *Quality Assurance Program* designed to ensure the reliability of analytical data. Key components of the Quality Assurance program are:

- Accreditation by Canadian Association for Laboratory Accreditation (CALA).
- Participation in interlaboratory performance assessment programs.
- Routine quality control practices.
- Computerized sample management.

Accreditation by CALA

SRC Analytical is accredited by the Canadian Association for Laboratory Accreditation (CALA), for specific environmental tests listed in the scope of accreditation approved by CALA. Accreditation ensures that procedures, facilities, and methods conform to ISO/IEC 17025:2017, the internationally recognized standard. The accreditation program consists of a biennial on-site assessment which assesses the accredited methods as well as the quality management system.

Proficiency Testing and Interlaboratory Performance Assessment

Proficiency Testing helps to ensure the accuracy of results through interlaboratory comparisons and is a mandatory requirement of accreditation. SRC Analytical participates in several proficiency testing and interlaboratory performance assessment programs including:

- Proficiency Testing Canada (PTC)
- Environment Canada's Ecosystems Interlaboratory Quality Assurance program
- ASTM's proficiency studies
- Commercially available programs such as those supplied by Environmental Resource Associates (ERA), Emerald Scientific, and NSI Lab Solutions

Quality Control

SRC Analytical employs a variety of techniques, such as the analysis of reference materials, control samples, duplicates, and spike recovery to ensure the validity of analytical results. If a problem is identified, the samples are repeated or other corrective action is taken to demonstrate that the analytical results are acceptable. If this is not possible, then the client is notified.

Computerized Sample Management

A computerized Laboratory Information Management System (LIMS) uniquely identifies samples, specifies the required analyses, monitors workflow, and stores the analytical results. All analytical data generated is the property of the client and is not released to a third party except at the written request of the client. The LIMS also prepares analytical reports and invoices.

Quality Assurance Department

Quality Assurance staff at SRC Analytical manages all aspects of the quality system. This includes reviews of quality control data, method validation, and quality audits. For further information, contact the SRC Analytical Laboratory.

Canadian Association for Laboratory Accreditation Inc.

CALA

Certificate of Accreditation

SRC Environmental Analytical Laboratories
Saskatchewan Research Council
143-111 Research Drive
Saskatoon, Saskatchewan

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

CANADIAN ASSOCIATION FOR LABORATORY ACCREDITATION INC.
CALA

Accreditation No.:	1002472
Issued On:	6/23/2022
Accreditation Date:	1/3/2005
Expiry Date:	12/22/2024

Acting President and CEO

ILAC-MRA CALA

For the specific tests to which this accreditation applies, please refer to the laboratory's scope of accreditation at www.cala.ca.

Bureau Veritas Laboratories

Quality Assurance & Quality Control Program

COR FCD-00180 / 7

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VERITAS

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1.0 Laboratory Company Profile

For over 50 years, Bureau Veritas Laboratories (formerly Maxxam) has been a leader in analytical services and solutions to the energy, environmental, industrial hygiene, food and DNA industries. Our 1,900 dedicated employees proudly lead the industry in depth of technical and scientific expertise and serve customers through our national network of laboratories. In processing over 2.3 million samples and generating in excess of 38 million results annually, we skilfully combine efficiency and customer service with rigorous science and uncompromising quality management. We are committed to success with responsibility – to our stakeholders, to our communities, and to the environment.

A major focus is analytical services for an exhaustive list of environmental contaminants. Solid wastes, effluents, potable water, receiving waters, ground waters, soils, sediments, stack emissions, ambient air, plant, animal and fish tissues are analysed for everything from pH to Dioxins.

We provide these services to a wide range of customers in North America and over 20 foreign countries. Our clients include consulting engineers, industry, businesses, all levels of government as well as private individuals.

Our laboratories function as a tight network operating under a single Quality Management System, utilizing the strengths of each and working together to ensure customer requirements are met. All major laboratories provide the full range of environmental testing services using a uniform management system and IT infrastructure to deliver a standardized high quality service across the country. In addition, certain locations have special areas of expertise, such as seawater analysis at our Burnaby facility and High Resolution Dioxin analysis in our Mississauga and Ville St-Laurent facilities.

Operating within one Laboratory Information and management System across Canada provides uniform report formats, management performance measurements, turnaround time measurements, corrective action management, and a number of other key performance indicators making us a reliable partner.

Our mission/purpose: shaping a world of trust by ensuring responsble progress.

Bureau Veritas is a world leader in laboratory testing, inspection and certification services. Created in 1828, the Group has 75,000 employees located in more than 1,600 offices and laboratories around the globe. Bureau Veritas helps its clients improve their performance by offering services and innovative solutions in order to ensure that their assets, products, infrastructure and processes meet standards and regulations in terms of quality, health and safety, environmental protection and social responsibility.

2.0 Quality Program

Bureau Veritas Laboratories currently employs 25 full-time Quality Assurance (QA) staff. The QA team is strengthened through a web-based document control and management system that ensures consistent formats while minimizing routine administrative tasks. Authorized staff have immediate secure access to all corporate and individual laboratory SOPs and support documentation.

The Quality Program is designed to comply with or exceed the data quality objectives of Industry, Canadian Regulators, United States EPA and the International Standards Organization (ISO). The QA team is assisted in performing audits with the help of many trained internal auditors that are composed of operations and support services personnel. This brings many benefits to the customer and to our company. These benefits include improved client and accreditation audits, increased communication between groups within our company, greater variety of work for staff and increased understanding of ISO/IEC 17025, our customer requirements and our own quality requirements.

The keys to the Quality Program are Prevention and Verification.

2.1 Prevention through Quality Assurance

Extensive control charting practices ensure that analyses with biases or which are potentially out of control are recognized early so that potential problems can be rectified before exceedences occur. Comprehensive internal audits of methods, Quality Control (QC) practices, sample analyses, and management system elements confirm adherence to Standard Operating Procedures. Regular system reviews and a structured Continuous Improvement Program combine to provide the strongest possible Management System.

Evaluated monthly, score carding of key performance indicators such as Proficiency Testing Performance drives the Program, defining successes and highlighting areas for improvement. We also have a corporate Management of Change procedure whereby substantive changes in the laboratory are adequately reviewed, communicated and documented.

2.2 Training

Upon hire, personnel are required to participate in the Corporate New Employee Orientation Program (NEOP) where they are trained on the quality management system, Ethics & Integrity, and the Environment, Health and Safety program. In addition to their initial training, they are provided technical training, delivered by designated individuals (supervisor or senior analyst level) with comprehensive working knowledge and experience in the area they are training. To ensure full traceability and auditability, training records for all employees are maintained in our online document control system and in the employee's personal training file, which is maintained by his/her supervisor.

Analyst competence is essential to the production of accurate data. Prior to beginning work in the laboratory, technicians and analysts are required to thoroughly understand the QA objectives and the relevant SOP. This, in conjunction with hands-on training from a senior analyst, ensures successful transfer of information is effective. Demonstration of acceptable performance on laboratory control samples or reference materials by the analyst is required for final certification to perform the method. All analysts' ongoing competence is monitored in various ways, including blind performance evaluation samples, audits, method QC samples, etc.

2.3 Customer Complaints

Formal responses are required to any customer complaints, discrepancies, deficiencies or quality issues. The deficiencies are recorded in an electronic database and cascade to the supervisor and the analyst for immediate attention. An acknowledgment of the deficiency is required within a specified timeframe accompanied by an action plan, which must include any corrective measures taken along with results of these actions. A follow-up report on the same form must be completed and returned documenting the effectiveness of the improvements implemented. If closure of the issue is not done in the required timeframe the issue is escalated to the next management level promoting prompt resolution of the issue.

2.4 Ethics and Data Integrity

All employees are required to undergo annual ethics training and to read and sign an Ethics and Data Integrity Agreement annually, promising to not knowingly commit an unethical act or through inaction, allow a coworker to do so. The management team reinforces the program and ensures that all employees understand that any violation of this Code of Ethics would constitute a serious violation of the employee's duties, subject to the disciplinary sanctions set forth in Bureau Veritas' applicable local staff policies and procedures.

2.5 Verification through Quality Control

Public safety, environmental impact and major financial decisions are routinely based on our analytical data. Legal data defensibility is essential to these activities and is verified through a comprehensive quality control program. The protocols and procedures described below are routinely employed and are described in detail in our Standard Operating Procedures (SOPs) for analysis, laboratory practice and staff training. The quality assurance objectives are translated into specific requirements that are written into all standard operating procedures.

2.6 Quality Control Protocols

Each project is conducted under a defined quality control program. Our standard quality control protocols meet or exceed the requirements of Canadian and United States regulators. In addition to this, most large projects have a defined Quality Assurance Project Plan (QAPP) that includes all required data quality objectives. The following table outlines the quality control practices routinely employed in all laboratories. Additional elements or different limits may be used on a project specific basis.

Elements of Quality Control		
Element	**Frequency**	**Limits***
Field QC		
Sample Containers	Precleaned to EPA Specs	Non Detect
Traveling Blanks	Project Specific	<RDL
Field Duplicates	Project Specific	Project Specific
Run QC, All Methods		
Method Blanks	1 in 20 or 1/batch	<RDL
Blank Spikes	1 in 20 or 1/batch	CCME or Provincial limits
Matrix Spikes	1 in 20 or 1/batch	CCME or Provincial limits
Duplicates Analysis	1 in 20 or 1/batch	± 20%-50%
Real Time Control Charts	Key parameters, all tests	± 3 SD, trend analysis
Inorganic QC		
Instrument Calibration	Multipoint	>0.995 correlation
Calibration Verification	Daily (second source)	± 10% of initial
Continuing Cal. Verification	Every 20 samples & at end	± 10% of initial
Standard Reference Material	Daily – As Required (if available)	SRM limits
Organic QC		
Instrument Calibration	Multipoint	RSD ± 20%
Calibration Verification	Daily (second source)	± 20% of initial
Continuing Cal. Verification	Every 20 samples & at end	RF or RRF ± 30% of initial
Surrogate Standards	All samples, all organic analyses	CCME or Provincial limits
Internal Standards (IS)	All Samples (method specific)	-50% to +100% of IS in Cal'n
Standard Reference Material	As required (if available)	SRM limits
External QC		
Interlaboratory Comparisons	>50/year	Top 10% overall, >95% acceptable
Internal QC Checks	As required	In house limits

* Typical QC acceptance criteria. Values may vary for specific tests.

2.7 Accreditation

Bureau Veritas Laboratories holds several accreditations granted by Canadian and United States regulatory organizations. The intent of accreditation is to document through laboratory audit, check samples, and round robin studies, each laboratory's conformance to ISO/IEC 17025, an internationally accepted management system. The accreditation process is also an integral part of our philosophy of Continuous Improvement. The following organizations have endorsed our management system. These endorsements are granted on a facility specific basis. In addition, many tier one industries have audited and approved our laboratories.

- Canadian Association for Laboratory Accreditation (CALA)
- Standards Council of Canada (SCC)
- Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC)
- National Environmental Laboratory Accreditation (NELAC)
- National Voluntary Laboratory Accreditation Program (NVLAP)
- U.S. Environmental Protection Agency Contract Laboratory
- American Industrial Hygiene Association (AIHA)
- Various US States

2.8 Proficiency Testing

Our laboratories participate in many national and international proficiency testing programs. As per ISO/IEC 17025, we are required to successfully participate in proficiency testing programs for tests included on our scope of accreditation. We go above and beyond these minimum requirements. Some of the programs in which we are currently participating include:

- Proficiency Testing Canada (PT Canada) (formerly CALA)
- Phenova
- Environment and Climate Change Canada
- Collaborative Testing Services
- State of New York – Environmental Laboratory Approval Program

2.9 Customer Service / Project Management

The quality process extends beyond accreditations, methods and staff expertise. It includes the management system for all activities from project awards to follow-up customer satisfaction surveys. The heart of the process is the Customer Experience (CX) team, the largest laboratory customer service team in Canada. This team consists of dedicated professionals whose responsibility it is to ensure the customer gets the tests meeting their requirements, when promised. Project managers are also aware of current and emerging regulations and thus are able to assist customers in choosing the correct testing protocol.

Supporting the CX team is our unique Laboratory Information Management System (MaxxLIMS). MaxxLIMS tracks and monitors all project information and provides a direct link between analysis and reporting. Employing barcodes, MaxxLIMS monitors each sample's progress through the lab as it is received and logged, extracted, analyzed and the resulting data is approved, validated and reported. Comprehensive sample tracking, combined with instrument capacity and staff commitment to customer service, allows clients to be confident in our ability to deliver quality data on time. Customer feedback and CX process insight has driven a number of innovations, mostly made possible through MaxxLIMS.

- Client website access to approved data
- Client website access to project status
- On line bottle orders

- Sample integrity forms
- Custom electronic and hard copy deliverables packages.
- Regulatory reports
- Consolidated invoicing
- Project summary performance reports
- Real time, automated sample log-in and data checks

2.10 The Quality Promise

The Quality Pyramid summarizes our quality promise to our customers. Each component of the pyramid strengthens the overall customer experience and ultimately converges at a single point, the promise to deliver accurate, defensible data to our clients.

APPENDIX E

APPENDIX E

Detailed Water Quality Results

AN-5

		Date	2023-04-29	2023-06-22	2023-09-26	2023-12-05
Group	Parameter	Unit				
Major Ions	Alkalinity	mg/l	75	77	98	125
	Bicarbonate	mg/l	92	94	120	152
	Calcium	mg/l	24	25	31	38
	Carbonate	mg/l	<1	<1	<1	<1
	Chloride	mg/l	0.5	0.4	0.7	0.9
	Hardness	mg/l	83	87	107	130
	Hydroxide	mg/l	<1	<1	<1	<1
	Potassium	mg/l	1.2	0.9	1.3	1.6
	Sodium	mg/l	3.1	2.8	3.5	4.2
	Cond-F	µS/cm	182	169	213	251
	Cond-L	µS/cm	168	176	218	267
	Sulfate	mg/l	11	13	13	18
	Sum of Ions	mg/l	138	142	177	224
Metals	Arsenic	µg/l	0.5	0.3	0.3	0.3
	Barium	mg/l	0.11	0.097	0.15	0.14
	Copper	mg/l	0.0017	0.0012	0.0008	0.0004
	Iron	mg/l	1.07	0.075	0.16	0.089
	Lead	mg/l	0.0003	<0.0001	<0.0001	<0.0001
	Molybdenum	mg/l	0.0035	0.0026	0.0028	0.0044
	Nickel	mg/l	0.0008	0.0006	0.0005	0.0005
	Selenium	mg/l	<0.0001	0.0001	<0.0001	<0.0001
	Uranium	µg/l	162	80	108	277
	Zinc	mg/l	0.0007	0.0007	0.0012	0.0008
Nutrients	Nitrate	mg/l		<0.04		
	Organic Carbon	mg/l		12		
	Total Phosphorus	mg/l		<0.01		
Physical Parameters	pH-Field	pH Unit	7.3	7.7	7.2	6.7
	pH-Laboratory	pH Unit	7.69	7.58	7.57	7.4
	Temperature	°C	6.6	17.2	13.6	3.7
	TDS	mg/l	127	128	144	180
	TSS	mg/l	2	<1	12	3
Rads	Lead-210	Bq/L		0.09		
	Polonium-210	Bq/L		0.03		
	Radium 226	Bq/L	0.63	0.39	0.68	0.62

DB-6

		Date	2023-04-29	2023-06-22	2023-09-26	2023-12-05
Group	Parameter	Unit				
Major Ions	Alkalinity	mg/l	53	74	82	100
	Bicarbonate	mg/l	65	90	100	122
	Calcium	mg/l	20	29	32	36
	Carbonate	mg/l	<1	<1	<1	<1
	Chloride	mg/l	0.3	0.5	0.5	0.5
	Hardness	mg/l	62	91	100	113
	Hydroxide	mg/l	<1	<1	<1	<1
	Potassium	mg/l	0.9	0.9	1	1.2
	Sodium	mg/l	1.2	1.7	1.8	2
	Cond-F	µS/cm	137	178	203	235
	Cond-L	µS/cm	127	181	199	222
	Sulfate	mg/l	9.9	17	17	19
	Sum of Ions	mg/l	102	144	157	187
Metals	Arsenic	µg/l	0.1	0.1	0.1	0.1
	Barium	mg/l	0.03	0.037	0.042	0.051
	Copper	mg/l	0.0009	0.0006	0.0012	0.0013
	Iron	mg/l	0.062	0.037	0.12	0.042
	Lead	mg/l	<0.0001	<0.0001	<0.0001	0.0001
	Molybdenum	mg/l	0.001	0.0014	0.0012	0.0014
	Nickel	mg/l	0.0002	0.0002	0.0002	0.0003
	Selenium	mg/l	<0.0001	0.0001	0.0001	0.0001
	Uranium	µg/l	55	94	52	144
	Zinc	mg/l	0.001	0.001	0.0018	0.0029
Nutrients	Nitrate	mg/l		<0.04		
	Organic Carbon	mg/l		10		
	Total Phosphorus	mg/l		<0.01		
Physical Parameters	pH-Field	pH Unit	7.5	7.8	7.3	7.3
	pH-Laboratory	pH Unit	7.54	7.66	7.46	7.24
	Temperature	°C	7.5	16.8	13.9	3.7
	TDS	mg/l	96	131	133	155
	TSS	mg/l	<1	<1	<1	<1
Rads	Lead-210	Bq/L		0.21		
	Polonium-210	Bq/L		<0.005		
	Radium 226	Bq/L	0.02	0.02	0.03	0.03

AC-6A

		Date	2023-05-22	2023-06-22
Group	Parameter	Unit		
Major Ions	Alkalinity	mg/l	96	95
	Bicarbonate	mg/l	117	116
	Calcium	mg/l	39	40
	Carbonate	mg/l	<1	<1
	Chloride	mg/l	0.40	0.50
	Hardness	mg/l	129	134
	Hydroxide	mg/l	<1	<1
	Potassium	mg/l	0.90	0.70
	Sodium	mg/l	2	2.10
	Cond-F	µS/cm	278	281
	Cond-L	µS/cm	260	261
	Sulfate	mg/l	38	39
	Sum of Ions	mg/l	205	207
Metals	Arsenic	µg/l	0.20	0.20
	Barium	mg/l	0.02	0.02
	Copper	mg/l	0.00070	0.00040
	Iron	mg/l	0.01	0.0093
	Lead	mg/l	<0.0001	<0.0001
	Molybdenum	mg/l	0.0013	0.0010
	Nickel	mg/l	0.0001	<0.0001
	Selenium	mg/l	0.0002	0.00020
	Uranium	µg/l	261	243
	Zinc	mg/l	<0.0005	<0.0005
Nutrients	Nitrate	mg/l		<0.04
	Organic Carbon	mg/l		9.0
	Total Phosphorus	mg/l		<0.01
Physical Parameters	pH-Field	pH Unit	7.6	7.9
	pH-Laboratory	pH Unit	8.1	7.8
	Temperature	°C	17.1	16.3
	TDS	mg/l	188	178
	TSS	mg/l	<1	<1
Rads	Lead-210	Bq/L		0.13
	Polonium-210	Bq/L		0.005
	Radium 226	Bq/L	0.09	0.08

AC-8

		Date	2023-06-22
Group	Parameter	Unit	
Major Ions	Alkalinity	mg/l	42
	Bicarbonate	mg/l	51
	Calcium	mg/l	14
	Carbonate	mg/l	<1
	Chloride	mg/l	1
	Hardness	mg/l	46
	Hydroxide	mg/l	<1
	Potassium	mg/l	0.7
	Sodium	mg/l	1.4
	Cond-F	µS/cm	106
	Cond-L	µS/cm	94
	Sulfate	mg/l	5
	Sum of Ions	mg/l	76
Metals	Arsenic	µg/l	<0.1
	Barium	mg/l	0.02
	Copper	mg/l	0.0004
	Iron	mg/l	0.019
	Lead	mg/l	<0.0001
	Molybdenum	mg/l	0.0008
	Nickel	mg/l	0.0002
	Selenium	mg/l	<0.0001
	Uranium	µg/l	8.1
	Zinc	mg/l	<0.0005
Nutrients	Nitrate	mg/l	<0.04
	Organic Carbon	mg/l	7.2
	Total Phosphorus	mg/l	<0.01
Physical Parameters	pH-Field	pH Unit	8.1
	pH-Laboratory	pH Unit	7.48
	Temperature	°C	16.4
	TDS	mg/l	79
	TSS	mg/l	<1
Rads	Lead-210	Bq/L	<0.02
	Polonium-210	Bq/L	0.006
	Radium 226	Bq/L	0.01

AC-14

		Date	2023-05-22	2023-06-22	2023-09-26	2024-01-28
Group	Parameter	Unit				
Major Ions	Alkalinity	mg/l	46	46	50	64
	Bicarbonate	mg/l	56	56	61	78
	Calcium	mg/l	15	16	18	22
	Carbonate	mg/l	<1	<1	<1	<1
	Chloride	mg/l	1	1.1	1.7	2
	Hardness	mg/l	49	52	58	73
	Hydroxide	mg/l	<1	<1	<1	<1
	Potassium	mg/l	0.8	0.6	0.9	1.3
	Sodium	mg/l	1.7	1.8	2.6	2.9
	Cond-F	µS/cm	106	113	187	162
	Cond-L	µS/cm	124	104	128	146
	Sulfate	mg/l	6.2	7.2	11	10
	Sum of Ions	mg/l	84	86	98	125
Metals	Arsenic	µg/l	0.1	0.1	0.2	0.3
	Barium	mg/l	0.021	0.021	0.026	0.034
	Copper	mg/l	0.0007	0.0006	0.0006	0.001
	Iron	mg/l	0.053	0.035	0.064	0.065
	Lead	mg/l	<0.0001	0.0002	<0.0001	0.0002
	Molybdenum	mg/l	0.0008	0.0009	0.001	0.0013
	Nickel	mg/l	0.0002	0.0002	0.0002	0.0003
	Selenium	mg/l	0.0002	0.0002	0.0002	0.0002
	Uranium	µg/l	23	30	52	38
	Zinc	mg/l	<0.0005	<0.0005	<0.0005	0.0022
Nutrients	Nitrate	mg/l		<0.04		
	Organic Carbon	mg/l		7.5		
	Total Phosphorus	mg/l		<0.01		
Physical Parameters	pH-Field	pH Unit	8.1	8	8.1	7.6
	pH-Laboratory	pH Unit	7.94	7.4	7.53	6.95
	Temperature	°C	15.7	15.4	14.7	1.4
	TDS	mg/l	94	84	94	112
	TSS	mg/l	2	<1	1	1
Rads	Lead-210	Bq/L		0.03		
	Polonium-210	Bq/L		0.008		
	Radium 226	Bq/L	0.03	0.04	0.06	0.11

AN-3

		Date	2023-06-22
Group	Parameter	Unit	
Major Ions	Alkalinity	mg/l	64
	Bicarbonate	mg/l	78
	Calcium	mg/l	20
	Carbonate	mg/l	<1
	Chloride	mg/l	0.6
	Hardness	mg/l	68
	Hydroxide	mg/l	<1
	Potassium	mg/l	0.7
	Sodium	mg/l	1.8
	Cond-F	µS/cm	127
	Cond-L	µS/cm	129
	Sulfate	mg/l	4
	Sum of Ions	mg/l	110
Metals	Arsenic	µg/l	0.1
	Barium	mg/l	0.015
	Copper	mg/l	0.0007
	Iron	mg/l	0.011
	Lead	mg/l	<0.0001
	Molybdenum	mg/l	0.002
	Nickel	mg/l	0.0003
	Selenium	mg/l	<0.0001
	Uranium	µg/l	1.6
	Zinc	mg/l	0.0008
Nutrients	Nitrate	mg/l	<0.04
	Organic Carbon	mg/l	9.4
	Total Phosphorus	mg/l	<0.01
Physical Parameters	pH-Field	pH Unit	8.3
	pH-Laboratory	pH Unit	7.78
	Temperature	°C	18
	TDS	mg/l	113
	TSS	mg/l	2
Rads	Lead-210	Bq/L	<0.02
	Polonium-210	Bq/L	0.006
	Radium 226	Bq/L	<0.005

TL-3

		Date	2023-06-22	2023-12-05
Group	Parameter	Unit		
Major Ions	Alkalinity	mg/l	115	135
	Bicarbonate	mg/l	140	165
	Calcium	mg/l	30	33
	Carbonate	mg/l	<1	<1
	Chloride	mg/l	1.8	1.7
	Hardness	mg/l	96	106
	Hydroxide	mg/l	<1	<1
	Potassium	mg/l	1.0	1.2
	Sodium	mg/l	20	22
	Cond-F	µS/cm	271	281
	Cond-L	µS/cm	255	287
	Sulfate	mg/l	18	21
	Sum of Ions	mg/l	216	258
Metals	Arsenic	µg/l	0.6	0.7
	Barium	mg/l	0.041	0.045
	Copper	mg/l	0.0014	0.0015
	Iron	mg/l	0.055	0.0094
	Lead	mg/l	0.0024	0.0001
	Molybdenum	mg/l	0.0092	0.0099
	Nickel	mg/l	0.0005	0.0004
	Selenium	mg/l	0.0025	0.0027
	Uranium	µg/l	179	202
	Zinc	mg/l	<0.0005	<0.0005
Nutrients	Nitrate	mg/l	<0.04	
	Organic Carbon	mg/l	8.10	
	Total Phosphorus	mg/l	<0.01	
Physical Parameters	pH-Field	pH Unit	8.3	7.9
	pH-Laboratory	pH Unit	8.22	8.03
	Temperature	°C	18.8	4.50
	TDS	mg/l	169	185
	TSS	mg/l	2	1
Rads	Lead-210	Bq/L	0.18	
	Polonium-210	Bq/L	0.1	
	Radium 226	Bq/L	1.7	1.7

TL-4

		Date	2023-06-22	2023-12-05
Group	Parameter	Unit		
Major Ions	Alkalinity	mg/l	116	145
	Bicarbonate	mg/l	142	177
	Calcium	mg/l	29	34
	Carbonate	mg/l	<1	<1
	Chloride	mg/l	1.7	1.9
	Hardness	mg/l	93	109
	Hydroxide	mg/l	<1	<1
	Potassium	mg/l	1.1	1.4
	Sodium	mg/l	20	24
	Cond-F	µS/cm	298	306
	Cond-L	µS/cm	250	297
	Sulfate	mg/l	16	18
	Sum of Ions	mg/l	215	272
Metals	Arsenic	µg/l	0.7	0.9
	Barium	mg/l	0.079	0.1
	Copper	mg/l	0.0009	0.0008
	Iron	mg/l	0.033	0.035
	Lead	mg/l	0.0002	<0.0001
	Molybdenum	mg/l	0.0072	0.0085
	Nickel	mg/l	0.0006	0.0006
	Selenium	mg/l	0.0014	0.0014
	Uranium	µg/l	158	191
	Zinc	mg/l	0.0005	0.0007
Nutrients	Nitrate	mg/l	<0.04	
	Organic Carbon	mg/l	9.8	
	Total Phosphorus	mg/l	<0.01	
Physical Parameters	pH-Field	pH Unit	8.4	7.9
	pH-Laboratory	pH Unit	8.21	7.97
	Temperature	°C	15.3	2.3
	TDS	mg/l	163	200
	TSS	mg/l	2	2
Rads	Lead-210	Bq/L	0.14	
	Polonium-210	Bq/L	0.05	
	Radium 226	Bq/L	1.7	2

TL-6

		Date	2023-06-22
Group	Parameter	Unit	
Major Ions	Alkalinity	mg/l	226
	Bicarbonate	mg/l	276
	Calcium	mg/l	35
	Carbonate	mg/l	<1
	Chloride	mg/l	25
	Hardness	mg/l	137
	Hydroxide	mg/l	<1
	Potassium	mg/l	2.2
	Sodium	mg/l	85
	Cond-F	µS/cm	589
	Cond-L	µS/cm	580
	Sulfate	mg/l	43
	Sum of Ions	mg/l	478
Metals	Arsenic	µg/l	1.5
	Barium	mg/l	1.03
	Copper	mg/l	0.0011
	Iron	mg/l	0.35
	Lead	mg/l	0.0016
	Molybdenum	mg/l	0.0022
	Nickel	mg/l	0.0006
	Selenium	mg/l	0.0025
	Uranium	µg/l	244
	Zinc	mg/l	0.0012
Nutrients	Nitrate	mg/l	<0.04
	Organic Carbon	mg/l	33
	Total Phosphorus	mg/l	<0.01
Physical Parameters	pH-Field	pH Unit	8
	pH-Laboratory	pH Unit	8.13
	Temperature	°C	14.3
	TDS	mg/l	412
	TSS	mg/l	<1
Rads	Lead-210	Bq/L	0.25
	Polonium-210	Bq/L	0.09
	Radium 226	Bq/L	6

TL-7

		Date	2023-05-22	2023-06-22	2023-09-26	2023-12-05
Group	Parameter	Unit				
Major Ions	Alkalinity	mg/l	117	116	117	150
	Bicarbonate	mg/l	143	142	143	183
	Calcium	mg/l	30	30	28	34
	Carbonate	mg/l	<1	<1	<1	<1
	Chloride	mg/l	3.6	3.5	3	2
	Hardness	mg/l	96	98	92	111
	Hydroxide	mg/l	<1	<1	<1	<1
	Potassium	mg/l	1	1	1.4	1.5
	Sodium	mg/l	21	21	22	25
	Cond-F	µS/cm	290	306	301	312
	Cond-L	µS/cm	262	263	262	312
	Sulfate	mg/l	17	17	15	18
	Sum of Ions	mg/l	221	220	218	270
Metals	Arsenic	µg/l	0.7	0.6	1.2	0.9
	Barium	mg/l	0.4	0.23	0.53	0.4
	Copper	mg/l	0.0009	0.0007	0.0009	0.0006
	Iron	mg/l	0.038	0.029	0.35	0.07
	Lead	mg/l	<0.0001	0.0001	0.0002	<0.0001
	Molybdenum	mg/l	0.0075	0.0067	0.0065	0.009
	Nickel	mg/l	0.0005	0.0005	0.0006	0.0006
	Selenium	mg/l	0.0015	0.0012	0.0011	0.0016
	Uranium	µg/l	154	158	149	226
	Zinc	mg/l	0.0007	<0.0005	0.001	0.0009
Nutrients	Nitrate	mg/l		<0.04		
	Organic Carbon	mg/l		10		
	Total Phosphorus	mg/l		<0.01		
Physical Parameters	pH-Field	pH Unit	7.8	7.9	7.7	7.6
	pH-Laboratory	pH Unit	8.16	7.98	7.84	7.67
	Temperature	°C	18.7	16.4	14.4	1.3
	TDS	mg/l	204	188	171	200
	TSS	mg/l	1	<1	2	2
Rads	Lead-210	Bq/L		0.07		
	Polonium-210	Bq/L		0.01		
	Radium 226	Bq/L	1.8	1.2	2.4	2

TL-9

		Date	2023-05-22	2023-06-22	2023-09-26	2024-01-28
Group	Parameter	Unit				
Major Ions	Alkalinity	mg/l	117	105	82	115
	Bicarbonate	mg/l	143	128	100	140
	Calcium	mg/l	28	25	15	23
	Carbonate	mg/l	<1	<1	<1	<1
	Chloride	mg/l	2.9	2.6	2.6	3.3
	Hardness	mg/l	93	86	60	87
	Hydroxide	mg/l	<1	<1	<1	<1
	Potassium	mg/l	1.2	0.9	0.9	1.2
	Sodium	mg/l	19	20	20	26
	Cond-F	µS/cm	272	290	127	264
	Cond-L	µS/cm	254	234	194	258
	Sulfate	mg/l	14	14	14	17
	Sum of Ions	mg/l	214	196	158	218
Metals	Arsenic	µg/l	1	0.9	1	1.1
	Barium	mg/l	0.68	0.59	0.48	0.63
	Copper	mg/l	0.001	0.0006	0.0006	0.0006
	Iron	mg/l	0.045	0.04	0.066	0.014
	Lead	mg/l	0.0002	0.0007	0.0002	<0.0001
	Molybdenum	mg/l	0.0063	0.0056	0.0058	0.0071
	Nickel	mg/l	0.0004	0.0004	0.0004	0.0003
	Selenium	mg/l	0.0026	0.0016	0.002	0.002
	Uranium	µg/l	138	116	101	151
	Zinc	mg/l	0.0009	0.0007	0.0009	0.0008
Nutrients	Nitrate	mg/l		0.17		
	Organic Carbon	mg/l		11.00		
	Total Phosphorus	mg/l		<0.01		
Physical Parameters	pH-Field	pH Unit	8.3	8.2	7.8	8.3
	pH-Laboratory	pH Unit	8.29	8.1	7.94	7.8
	Temperature	°C	15.9	15	14.4	0.4
	TDS	mg/l	165	158	133	157
	TSS	mg/l	2	2	1.00	<1
Rads	Lead-210	Bq/L		0.05		
	Polonium-210	Bq/L		0.08		
	Radium 226	Bq/L	2.5	2.1	1.6	1.9

BL-3

		Date	2023-06-22	2024-01-28
Group	Parameter	Unit		
Major Ions	Alkalinity	mg/l	66	69
	Bicarbonate	mg/l	80	84
	Calcium	mg/l	20	21
	Carbonate	mg/l	<1	<1
	Chloride	mg/l	11	11
	Hardness	mg/l	72	75
	Hydroxide	mg/l	<1	<1
	Potassium	mg/l	1.1	1.2
	Sodium	mg/l	17.0	18
	Cond-F	µS/cm	214	241
	Cond-L	µS/cm	218	226
	Sulfate	mg/l	27	28
	Sum of Ions	mg/l	161	175
Metals	Arsenic	µg/l	0.2	0.3
	Barium	mg/l	0.037	0.044
	Copper	mg/l	0.0012	0.0009
	Iron	mg/l	0.0051	0.0031
	Lead	mg/l	0.0001	<0.0001
	Molybdenum	mg/l	0.003	0.0033
	Nickel	mg/l	0.0023	0.0009
	Selenium	mg/l	0.0018	0.002
	Uranium	µg/l	106	122
	Zinc	mg/l	0.0026	0.002
Nutrients	Nitrate	mg/l	<0.04	
	Organic Carbon	mg/l	3.50	
	Total Phosphorus	mg/l	<0.01	
Physical Parameters	pH-Field	pH Unit	8.2	8.1
	pH-Laboratory	pH Unit	7.78	7.24
	Temperature	°C	11.4	13.2
	TDS	mg/l	132	140
	TSS	mg/l	<1	<1
Rads	Lead-210	Bq/L	0.09	
	Polonium-210	Bq/L	<0.005	
	Radium 226	Bq/L	0.06	0.05

BL-4

		Date	2023-06-22
Group	Parameter	Unit	
Major Ions	Alkalinity	mg/l	66
	Bicarbonate	mg/l	80
	Calcium	mg/l	20
	Carbonate	mg/l	<1
	Chloride	mg/l	11
	Hardness	mg/l	72
	Hydroxide	mg/l	<1
	Potassium	mg/l	1.1
	Sodium	mg/l	17
	Cond-F	µS/cm	234
	Cond-L	µS/cm	219
	Sulfate	mg/l	27
	Sum of Ions	mg/l	161
Metals	Arsenic	µg/l	0.2
	Barium	mg/l	0.032
	Copper	mg/l	0.0007
	Iron	mg/l	0.005
	Lead	mg/l	<0.0001
	Molybdenum	mg/l	0.003
	Nickel	mg/l	0.0013
	Selenium	mg/l	0.0019
	Uranium	µg/l	107
	Zinc	mg/l	0.0018
Nutrients	Nitrate	mg/l	<0.04
	Organic Carbon	mg/l	3.4
	Total Phosphorus	mg/l	<0.01
Physical Parameters	pH-Field	pH Unit	8.2
	pH-Laboratory	pH Unit	7.73
	Temperature	°C	12.4
	TDS	mg/l	137
	TSS	mg/l	<1
Rads	Lead-210	Bq/L	0.07
	Polonium-210	Bq/L	<0.005
	Radium 226	Bq/L	0.02

BL-5

		Date	2023-06-22
Group	Parameter	Unit	
Major Ions	Alkalinity	mg/l	66
	Bicarbonate	mg/l	80
	Calcium	mg/l	20
	Carbonate	mg/l	<1
	Chloride	mg/l	10
	Hardness	mg/l	72
	Hydroxide	mg/l	<1
	Potassium	mg/l	1.1
	Sodium	mg/l	16
	Cond-F	µS/cm	213
	Cond-L	µS/cm	219
	Sulfate	mg/l	27
	Sum of Ions	mg/l	159
Metals	Arsenic	µg/l	0.2
	Barium	mg/l	0.032
	Copper	mg/l	0.0006
	Iron	mg/l	0.0046
	Lead	mg/l	<0.0001
	Molybdenum	mg/l	0.003
	Nickel	mg/l	0.0002
	Selenium	mg/l	0.0018
	Uranium	µg/l	105
	Zinc	mg/l	0.0014
Nutrients	Nitrate	mg/l	<0.04
	Organic Carbon	mg/l	3.5
	Total Phosphorus	mg/l	<0.01
Physical Parameters	pH-Field	pH Unit	8.1
	pH-Laboratory	pH Unit	7.8
	Temperature	°C	12
	TDS	mg/l	134
	TSS	mg/l	<1
Rads	Lead-210	Bq/L	0.03
	Polonium-210	Bq/L	<0.005
	Radium 226	Bq/L	0.02

ML-1

		Date	2023-06-22	2024-01-28
Group	Parameter	Unit		
Major Ions	Alkalinity	mg/l	60	67
	Bicarbonate	mg/l	73	82
	Calcium	mg/l	18	21
	Carbonate	mg/l	<1	<1
	Chloride	mg/l	7	8
	Hardness	mg/l	63	73
	Hydroxide	mg/l	<1	<1
	Potassium	mg/l	1	1.3
	Sodium	mg/l	11	12
	Cond-F	µS/cm	172	201
	Cond-L	µS/cm	174	195
	Sulfate	mg/l	17	20
	Sum of Ions	mg/l	131	152
Metals	Arsenic	µg/l	0.2	0.2
	Barium	mg/l	0.039	0.044
	Copper	mg/l	0.0024	0.0004
	Iron	mg/l	0.019	0.0028
	Lead	mg/l	0.0001	<0.0001
	Molybdenum	mg/l	0.0018	0.0022
	Nickel	mg/l	0.0003	0.0001
	Selenium	mg/l	0.0009	0.0011
	Uranium	µg/l	55	70
	Zinc	mg/l	0.0031	0.0011
Nutrients	Nitrate	mg/l	<0.04	
	Organic Carbon	mg/l	5.9	
	Total Phosphorus	mg/l	<0.01	
Physical Parameters	pH-Field	pH Unit	8.1	7.7
	pH-Laboratory	pH Unit	7.7	7.19
	Temperature	°C	12.6	2.3
	TDS	mg/l	114	130
	TSS	mg/l	<1	<1
Rads	Lead-210	Bq/L	<0.02	
	Polonium-210	Bq/L	<0.005	
	Radium 226	Bq/L	0.006	<0.005

CS-1

		Date	2023-06-21
Group	Parameter	Unit	
Major Ions	Alkalinity	mg/l	58
	Bicarbonate	mg/l	71
	Calcium	mg/l	18
	Carbonate	mg/l	<1
	Chloride	mg/l	5.9
	Hardness	mg/l	62
	Hydroxide	mg/l	<1
	Potassium	mg/l	0.8
	Sodium	mg/l	8.9
	Cond-F	µS/cm	171
	Cond-L	µS/cm	161
	Sulfate	mg/l	14
	Sum of Ions	mg/l	123
Metals	Arsenic	µg/l	0.2
	Barium	mg/l	0.038
	Copper	mg/l	0.0005
	Iron	mg/l	0.079
	Lead	mg/l	<0.0001
	Molybdenum	mg/l	0.002
	Nickel	mg/l	0.0002
	Selenium	mg/l	0.0007
	Uranium	µg/l	46
	Zinc	mg/l	0.0008
Nutrients	Nitrate	mg/l	<0.04
	Organic Carbon	mg/l	8.3
	Total Phosphorus	mg/l	<0.01
Physical Parameters	pH-Field	pH Unit	6.9
	pH-Laboratory	pH Unit	7.62
	Temperature	°C	14.7
	TDS	mg/l	112
	TSS	mg/l	5
Rads	Lead-210	Bq/L	<0.02
	Polonium-210	Bq/L	<0.005
	Radium 226	Bq/L	0.01

CS-2

		Date	2023-06-21
Group	Parameter	Unit	
Major Ions	Alkalinity	mg/l	38
	Bicarbonate	mg/l	46
	Calcium	mg/l	11
	Carbonate	mg/l	<1
	Chloride	mg/l	4.2
	Hardness	mg/l	40
	Hydroxide	mg/l	<1
	Potassium	mg/l	0.8
	Sodium	mg/l	5
	Cond-F	µS/cm	143
	Cond-L	µS/cm	102
	Sulfate	mg/l	7.8
	Sum of Ions	mg/l	78
Metals	Arsenic	µg/l	0.1
	Barium	mg/l	0.021
	Copper	mg/l	0.0012
	Iron	mg/l	0.047
	Lead	mg/l	<0.0001
	Molybdenum	mg/l	0.0009
	Nickel	mg/l	0.002
	Selenium	mg/l	0.0003
	Uranium	µg/l	17
	Zinc	mg/l	0.0028
Nutrients	Nitrate	mg/l	0.1
	Organic Carbon	mg/l	6.2
	Total Phosphorus	mg/l	<0.01
Physical Parameters	pH-Field	pH Unit	7.4
	pH-Laboratory	pH Unit	7.51
	Temperature	°C	12.2
	TDS	mg/l	76
	TSS	mg/l	2
Rads	Lead-210	Bq/L	<0.02
	Polonium-210	Bq/L	<0.005
	Radium 226	Bq/L	<0.005

ZOR-01

		Date	2023-04-29	2023-05-22	2023-06-22	2023-07-30	2023-08-17	2023-09-26	2023-10-15
Group	Parameter	Unit							
Major Ions	Alkalinity	mg/l	51	85	88	92	92	93	96
	Bicarbonate	mg/l	62	104	107	112	112	113	117
	Calcium	mg/l	17	28	30	30	30	31	32
	Carbonate	mg/l	<1	<1	<1	<1	<1	<1	<1
	Chloride	mg/l	0.2	0.2	0.3	0.3	0.3	0.3	0.2
	Hardness	mg/l	58	96	105	105	105	109	112
	Hydroxide	mg/l	<1	<1	<1	<1	<1	<1	<1
	Potassium	mg/l	0.4	0.7	0.6	0.7	0.7	0.7	0.6
	Sodium	mg/l	0.9	1.5	1.6	1.6	1.7	1.7	1.7
	Cond-F	µS/cm	137	186	197	216	199	208	222
	Cond-L	µS/cm	120	192	202	205	210	214	223
	Sulfate	mg/l	10	15	16	16	16	17	17
	Sum of Ions	mg/l	96	156	163	168	169	171	176
Metals	Arsenic	µg/l	0.1	0.1	0.1	0.1	0.2	0.1	0.2
	Barium	mg/l	0.011	0.02	0.021	0.021	0.022	0.023	0.022
	Copper	mg/l	0.0007	0.0005	0.0004	0.001	0.0006	0.0006	0.0004
	Iron	mg/l	0.016	0.0049	0.018	0.022	0.014	0.032	0.014
	Lead	mg/l	<0.0001	<0.0001	<0.0001	0.0002	0.0001	<0.0001	<0.0001
	Molybdenum	mg/l	0.0005	0.0009	0.0007	0.0007	0.0008	0.0009	0.0009
	Nickel	mg/l	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001
	Selenium	mg/l	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	Uranium	µg/l	8	14	13	14	13	13	14
	Zinc	mg/l	0.0005	<0.0005	<0.0005	0.0012	0.0007	0.0007	<0.0005
Nutrients	Nitrate	mg/l			<0.04				
	Organic Carbon	mg/l			8.1				
	Total Phosphorus	mg/l			<0.01				
Physical Parameters	pH-Field	pH Unit	7.7	7.7	8	7.6	7.7	7.6	7.2
	pH-Laboratory	pH Unit	7.6	8.09	7.94	8	7.97	7.77	7.8
	Temperature	°C	5	15.9	19.1	21.1	18.5	14.1	8.3
	TDS	mg/l	80	139	131	125	138	149	144
	TSS	mg/l	<1	<1	1	1	<1	1	1
Rads	Lead-210	Bq/L			<0.02				
	Polonium-210	Bq/L			0.006				
	Radium 226	Bq/L	0.01	0.04	0.02	0.04	0.02	0.05	0.03

ZOR-02

		Date	2023-04-29	2023-05-22	2023-06-22	2023-07-30	2023-08-17	2023-09-26	2023-10-15
Group	Parameter	Unit							
Major Ions	Alkalinity	mg/l	80	94	96	101	103	108	109
	Bicarbonate	mg/l	98	115	117	123	126	132	133
	Calcium	mg/l	39	44	50	43	41	50	49
	Carbonate	mg/l	<1	<1	<1	<1	<1	<1	<1
	Chloride	mg/l	0.3	0.4	<1	0.4	0.4	<1	<1
	Hardness	mg/l	123	144	162	141	136	164	162
	Hydroxide	mg/l	<1	<1	<1	<1	<1	<1	<1
	Potassium	mg/l	0.8	0.8	0.8	0.8	0.8	0.9	1
	Sodium	mg/l	1.4	2.1	2	1.9	2.1	2.3	2.2
	Cond-F	µS/cm	213	314	335	308	291	376	379
	Cond-L	µS/cm	253	294	318	278	274	325	326
	Sulfate	mg/l	45	54	64	42	38	56	54
	Sum of Ions	mg/l	192	226	244	220	218	252	250
Metals	Arsenic	µg/l	0.1	0.2	0.2	0.2	0.2	0.2	0.2
	Barium	mg/l	0.02	0.026	0.025	0.024	0.024	0.031	0.028
	Copper	mg/l	0.0022	0.002	0.0018	0.0021	0.0021	0.002	0.0017
	Iron	mg/l	0.058	0.085	0.14	0.061	0.073	0.14	0.13
	Lead	mg/l	<0.0001	<0.0001	0.0002	<0.0001	0.0001	<0.0001	<0.0001
	Molybdenum	mg/l	0.0012	0.0014	0.0014	0.0013	0.0013	0.0015	0.0012
	Nickel	mg/l	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
	Selenium	mg/l	0.0008	0.0005	0.0005	0.0003	0.0003	0.0002	0.0002
	Uranium	µg/l	534	567	566	380	302	438	381
	Zinc	mg/l	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005
Nutrients	Nitrate	mg/l			0.82				
	Organic Carbon	mg/l			7.1				
	Total Phosphorus	mg/l			<0.01				
Physical Parameters	pH-Field	pH Unit	8.3	7.8	7.9	7.2	7.9	7.8	7.7
	pH-Laboratory	pH Unit	7.96	8.13	7.94	8	8.06	7.99	7.94
	Temperature	°C	5.8	11.5	14.9	16.5	15.5	13.2	7.1
	TDS	mg/l	170	204	215	172	198	202	199
	TSS	mg/l	1	<1	2	<1	<1	<1	1
Rads	Lead-210	Bq/L			0.04				
	Polonium-210	Bq/L			0.05				
	Radium 226	Bq/L	0.18	0.22	0.23	0.23	0.24	0.26	0.26

APPENDIX F

APPENDIX F

DB-6 FB - Beaverlodge QA/QC Report
Sample Date: 09/26/2023

Parameter	DB-6 FB		DB-6 TB		Absolute Difference	Absolute Difference > 50%
	Results	Entered DL	Results	Entered DL		
Alkalinity (mg/l)	< 1	1	< 1	1	0.0	No
Arsenic (mg/l)	< 0.1	0.1	< 0.1	0.1	0.0	No
Barium (mg/l)	< 0.0005	0.0005	< 0.0005	0.0005	0.0	No
Bicarbonate (mg/l)	< 1	1	< 1	1	0.0	No
Calcium (mg/l)	< 0.1	0.1	< 0.1	0.1	0.0	No
Carbonate (mg/l)	< 1	1	< 1	1	0.0	No
Chloride (mg/l)	< 0.1	0.1	< 0.1	0.1	0.0	No
Copper (mg/l)	< 0.0002	0.0002	< 0.0002	0.0002	0.0	No
Hardness (mg/l)	< 1	1	< 1	1	0.0	No
Hydroxide (mg/l)	< 1	1	< 1	1	0.0	No
Iron (mg/l)	< 0.0005	0.0005	< 0.0005	0.0005	0.0	No
Lead (mg/l)	< 0.0001	0.0001	< 0.0001	0.0001	0.0	No
Molybdenum (mg/l)	< 0.0001	0.0001	< 0.0001	0.0001	0.0	No
Nickel (mg/l)	< 0.0001	0.0001	< 0.0001	0.0001	0.0	No
pH-Field (pH Unit)	6.2				0.0	No
pH-Laboratory (pH Unit)	5.44	0.07	5.49	0.07	0.0	No
Potassium (mg/l)	< 0.1	0.1	< 0.1	0.1	0.0	No
Radium 226 (Bq/L)	< 0.005	0.005	0.006	0.005	0.2	No
Selenium (mg/l)	< 0.0001	0.0001	< 0.0001	0.0001	0.0	No
Sodium (mg/l)	0.3	0.1	0.3	0.1	0.0	No
Specific Conductivity-Field (µS/cm)	4				0.0	No
Specific Conductivity-Laboratory (µS/cm)	< 1	1	< 1	1	0.0	No
Sulfate (mg/l)	< 0.2	0.2	< 0.2	0.2	0.0	No
Sum of Ions (mg/l)	< 1	1	< 1	1	0.0	No
Temperature (°C)	15.7				0.0	No
Total Dissolved Solids (mg/l)	< 5	5	< 5	5	0.0	No
Total Suspended Solids (mg/l)	< 1	1	< 1	1	0.00	No
Uranium (µg/l)	< 0.1	0.1	< 0.1	0.1	0.00	No
Zinc (mg/l)	< 0.0005	0.0005	< 0.0005	0.0005	0.0	No

AC-14 - Beaverlodge QA/QC Report
Sample Date: 01/28/2024

Parameter	AC-14		BLIND-1		Absolute Difference	Absolute Difference > 50%
	Results	Entered DL	Results	Entered DL		
Alkalinity (mg/l)	64	1	65	1	0.02	No
Arsenic (µg/l)	0.3	0.1	0.2	0.1	0.40	No
Barium (mg/l)	0.034	0.0005	0.034	0.0005	0.00	No
Bicarbonate (mg/l)	78	1	79	1	0.01	No
Calcium (mg/l)	22	0.1	22	0.1	0.00	No
Carbonate (mg/l)	< 1	1	< 1	1	0.00	No
Chloride (mg/l)	2.0	0.1	1.9	0.1	0.05	No
Copper (mg/l)	0.0010	0.0002	0.0011	0.0002	0.10	No
Hardness (mg/l)	73	1	73	1	0.00	No
Hydroxide (mg/l)	< 1	1	< 1	1	0.00	No
Iron (mg/l)	0.065	0.0005	0.065	0.0005	0.00	No
Lead (mg/l)	0.0002	0.0001	0.0002	0.0001	0.00	No
Molybdenum (mg/l)	0.0013	0.0001	0.0012	0.0001	0.08	No
Nickel (mg/l)	0.0003	0.0001	0.0003	0.0001	0.00	No
pH-Field (pH Unit)	7.6		7.6		0.00	No
pH-Laboratory (pH Unit)	6.95	0.07	7.05	0.07	0.01	No
Potassium (mg/l)	1.3	0.1	1.2	0.1	0.08	No
Radium 226 (Bq/L)	0.11	0.005	0.10	0.005	0.10	No
Selenium (mg/l)	0.0002	0.0001	0.0002	0.0001	0.00	No
Sodium (mg/l)	2.9	0.1	2.8	0.1	0.04	No
Specific Conductivity-Field (µS/cm)	162		162		0.00	No
Specific Conductivity-Laboratory (µS/cm)	146	1	150	1	0.03	No
Sulfate (mg/l)	10	0.2	10	0.2	0.00	No
Sum of Ions (mg/l)	125	1	125	1	0.00	No
Temperature (°C)	1.4		1.4		0.00	No
Total Dissolved Solids (mg/l)	112	5	92	5	0.20	No
Total Suspended Solids (mg/l)	1	1	< 1	1	0.00	No
Uranium (µg/l)	38	0.1	38	0.1	0.00	No
Zinc (mg/l)	0.0022	0.0005	0.0022	0.0005	0.00	No

TL-4 - Beaverlodge QA/QC
Report Sample Date: 06/22/2023

Parameter	TL-4		TL-4 Duplicate		Absolute Difference	Absolute Difference > 50%
	Results	Entered DL	Results	Entered DL		
Alkalinity (mg/l)	116	1			0.00	No
Arsenic (µg/l)	0.7	0.1	0.73	200	0.04	No
Barium (mg/l)	0.079	0.0005	0.082	0.01	0.04	No
Bicarbonate (mg/l)	142	1			0.00	No
Calcium (mg/l)	29	0.1			0.00	No
Carbonate (mg/l)	< 1	1			0.00	No
Chloride (mg/l)	1.7	0.1			0.00	No
Copper (mg/l)	0.0009	0.0002	< 0.001	0.001	0.11	No
Hardness (mg/l)	93	1			0.00	No
Hydroxide (mg/l)	< 1	1			0.00	No
Iron (mg/l)	0.033	0.0005	< 0.06	0.06	0.58	Yes
Lead (mg/l)	0.0002	0.0001	0.00023	0.0002	0.14	No
Lead-210 (Bq/L)	0.14	0.02	< 0.1	0.1	0.33	No
Molybdenum (mg/l)	0.0072	0.0001	0.0082	0.0002	0.13	No
Nickel (mg/l)	0.0006	0.0001	0.00065	0.0005	0.08	No
Nitrate (mg/l)	< 0.04	0.04			0.00	No
Organic Carbon (mg/l)	9.8	0.2			0.00	No
pH-Field (pH Unit)	8.4		8.4		0.00	No
pH-Laboratory (pH Unit)	8.21	0.07			0.00	No
Polonium-210 (Bq/L)	0.05	0.005	0.05	0.01	0.00	No
Potassium (mg/l)	1.1	0.1			0.00	No
Radium 226 (Bq/L)	1.7	0.01	1.5	0.005	0.13	No
Selenium (mg/l)	0.0014	0.0001	0.0014	0.0002	0.00	No
Sodium (mg/l)	20	0.1			0.00	No
Specific Conductivity-Field (µS/cm)	298		298		0.00	No
Specific Conductivity-Laboratory (µS/cm)	250	1			0.00	No
Sulfate (mg/l)	16	0.2			0.00	No
Sum of Ions (mg/l)	215	1			0.00	No
Temperature (°C)	15.3		15.3		0.00	No
Total Dissolved Solids (mg/l)	163	5			0.00	No
Total Phosphorus (mg/l)	< 0.01	0.01			0.00	No
Total Suspended Solids (mg/l)	2	1			0.00	No
Uranium (µg/l)	158	0.1	170	0.1	0.07	No
Zinc (mg/l)	0.0005	0.0005	< 0.003	0.003	1.43	Yes

TL-7 - Beaverlodge QA/QC Report
Sample Date: 09/26/2023

Parameter	TL-7		Blind-6		Absolute Difference	Absolute Difference > 50%
	Results	Entered DL	Results	Entered DL		
Alkalinity (mg/l)	117	1	116	1	0.01	No
Arsenic (µg/l)	1.2	0.1	0.7	0.1	0.53	Yes
Barium (mg/l)	0.53	0.0005	0.5	0.0005	0.06	No
Bicarbonate (mg/l)	143	1	142	1	0.01	No
Calcium (mg/l)	28	0.1	28	0.1	0.00	No
Carbonate (mg/l)	< 1	1	< 1	1	0.00	No
Chloride (mg/l)	3	0.1	2.9	0.1	0.03	No
Copper (mg/l)	0.0009	0.0002	0.0006	0.0002	0.40	No
Hardness (mg/l)	92	1	92	1	0.00	No
Hydroxide (mg/l)	< 1	1	< 1	1	0.00	No
Iron (mg/l)	0.35	0.0005	0.052	0.0005	1.48	Yes
Lead (mg/l)	0.0002	0.0001	< 0.0001	0.0001	0.67	Yes
Molybdenum (mg/l)	0.0065	0.0001	0.0069	0.0001	0.06	No
Nickel (mg/l)	0.0006	0.0001	0.0004	0.0001	0.40	No
pH-Field (pH Unit)	7.7		7.7		0.00	No
pH-Laboratory (pH Unit)	7.84	0.07	7.85	0.07	0.00	No
Potassium (mg/l)	1.4	0.1	1.4	0.1	0.00	No
Radium 226 (Bq/L)	2.4	0.02	2.3	0.005	0.04	No
Selenium (mg/l)	0.0011	0.0001	0.001	0.0001	0.10	No
Sodium (mg/l)	22	0.1	22	0.1	0.00	No
Specific Conductivity-Field (µS/cm)	301		301		0.00	No
Specific Conductivity-Laboratory (µS/cm)	262	1	261	1	0.00	No
Sulfate (mg/l)	15	0.2	15	0.2	0.00	No
Sum of Ions (mg/l)	218	1	217	1	0.00	No
Temperature (°C)	14.4		14.4		0.00	No
Total Dissolved Solids (mg/l)	171	5	165	5	0.04	No
Total Suspended Solids (mg/l)	2	1	5	1	0.86	Yes
Uranium (µg/l)	149	0.1	144	0.1	0.03	No
Zinc (mg/l)	0.001	0.0005	0.0006	0.0005	0.50	Yes