28 March 2025

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Dear Mr. Brown and Ms. Jalak:

**Serpent River Watershed Monitoring Program – Year Five of Cycle 5**

Rio Algom Limited and Denison Mines Inc. are pleased to submit a copy of the Serpent River Watershed Monitoring Program Year Five of Cycle 5 Annual Water Quality Report for 2024.

Yours sincerely,

Rio Algom Limited

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# 2024 Serpent River Watershed Monitoring Program Annual Water Quality Report

**Year 5 of Cycle 5**
**Submitted to the Canadian Nuclear Safety Commission and the Ministry of Environment, Conservation and Parks on behalf of Rio Algom Limited, and Denison Mines Inc**

**31 March 2025**

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# 1.0 Introduction

As part of the closure and decommissioning process, Rio Algom Limited (RAL) and Denison Mines Inc. (DMI) developed a focused and integrated performance monitoring network for legacy sites within the Serpent River Watershed (SRW). The comprehensive monitoring and management strategy clearly defined and delineated the purpose for all monitoring activities through three integrated programs: the Tailings Management Area (TMA) Operational Monitoring Program (TOMP), the Source Area Monitoring Program (SAMP), and the Serpent River Watershed Monitoring Program (SRWMP) (Minnow Environmental Inc. (Minnow), 2019). An integrated assessment of the results from the monitoring programs has been prepared every five years in a State of the Environment Report (SOE) in compliance with license requirements and in accordance with Canadian Standards Association (CSA) standard N288.4-10 (2010). The most recent SOE Report (Cycle 5, inclusive of data from January 1, 2015 – December 31, 2019) was submitted to the Joint Regulatory Review Group (JRG) on March 31, 2021.

The SRWMP was initiated in 1999 as a joint initiative of RAL and DMI with the objectives of evaluating the effectiveness of mine decommissioning plans and assessing long-term environmental water quality trends in the watershed (Beak International Incorporated (Beak, 1999).

Evolution of the program, key outcomes, program modification decisions, and associated references are summarized in Appendix I. In 2024, the SRWMP followed the 2020 program modification recommendations described in the Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Cycle 5 Study Design, (Minnow, 2019).

The SRWMP Annual Water Quality Report for 2024 provides surface water quality data from watershed monitoring locations from January 1, 2024, through December 31, 2024, summarizing Year 5 of Cycle 5 of the monitoring program. This report should be read in conjunction with the Annual Operating Care and Maintenance (OCM) reports, prepared independently by each company, which provides a summary of operational activities completed at the facilities as well as data collected as required by the SAMP and TOMP (RAL, 2025; DMI, 2025). The objective of the SRWMP annual data review is to identify anomalous data and evaluate short-term data trends at key locations. Step changes and anomalies are identified in this report by reviewing and compiling the last five years of annual average data for all SRWMP monitoring locations and reviewing the information for any noticeable changes. Significant changes and unusual results are investigated in accordance with the Water Quality Assessment and Response Plan, which is found in Appendix A of the most recent SOE Report (Minnow, 2021).

The SRWMP Annual Water Quality Report for 2024 also provides a summary of the data quality management program results for the period January 1, 2024, through December 31, 2024.

As part of the 2015 SOE review, the Canadian Nuclear Safety Commission (CNSC) instructed RAL and DMI to include annual reporting of a representative radiation dose to the public associated with their closed uranium mine sites in the SRW. Details on this topic are discussed in Section 4.4 of this report.

# 2.0 Methodology

## 2.1 Program Requirements

The 2024 SRWMP followed program requirements (sampling locations, frequencies, parameters, and analytical protocols) as approved in the Cycle 5 Study Design (Minnow, 2019). Table 2-1 provides a brief description of each monitoring location, the frequency of monitoring and parameters monitored.

**Table 2-1 2024 SRWMP Water Quality Monitoring Requirements**

| Reference vs Mine-exposed | Station | Location / Description | Type | Frequency | Parameters[a] |
|---|---|---|---|---|---|
| Reference | D-4 | Dunlop Lake Outlet (Q-14) | lake | S | barium, pH, iron, manganese, radium-226, sulphate and uranium |
| | SR-19 | Inlet to Elliot Lake | | Q | |
| | SR-18 | Outlet of Jim Christ Lake | | S | |
| | SR-16 | Fox Creek at Highway 108 | wetland/ stream | Q | |
| | SR-17 | Unnamed Creek Drain Lake 3 at Hwy 108 | | Q | |
| Mine-exposed | D-6 | Cinder Lake Outlet | lake | Q | barium, iron, manganese, pH, radium-226, sulphate and uranium |
| | DS-18 | Halfmoon Lake Outlet | stream | Q | barium, iron, pH, radium-226, sulphate and uranium |
| | SR-15 | May Lake Outlet | stream | Q | |
| | M-01 | Sherriff Creek at Highway 108 | stream | Q | |
| | SC-01 | Westner Lake Outlet | stream | A | |
| | D-5 | Serpent R between Denison & Quirke TMAs | lake | Q | barium, pH, radium-226, sulphate and uranium |
| | Q-09 | Serpent R Below Quirke TMA Effluent | lake | Q | |
| | Q-20 | Evans Lake Outlet to Dunlop Lake | lake | A | |
| | SR-01 | Quirke Lake Outlet | lake | A | |
| | SR-06 | McCabe Lake Outlet | lake | S | |
| | SR-08 | Nordic Lake Outlet | lake | Q | |
| Total Number of Locations and Samples/Year | | | 16 | 45 | |

Q = quarterly, S = semi-annually, A = annually.

[a] Hardness monitored at reference and mine-exposed stations where sulphate concentrations are greater than 100 mg/L and at station D-6.

## 2.2 Program Conformance

All Cycle 5 sampling requirements were met during the 2024 reporting period.

Hardness continues to be monitored as an ancillary parameter at all SRWMP stations. According to the Approved Water Quality Guidelines for Aquatic Life, Wildlife & Agriculture from the British Columbia Ministry of Environment & Climate Change Strategy (BC ENV), manganese and sulphate guidelines are hardness dependent (BC ENV, 2020). Dissolved organic carbon (DOC) was added to the monitoring program at the recommendation of the Ontario Ministry of the Environment, Conservation, and Parks (MECP) as it can modify iron toxicity. DOC data is provided in Appendix V for 2024, however, it has not been used for iron assessment in this report, as the upper level of background for iron is higher than federal guidelines. Changes to the program are discussed in further detail in Section 4.2.

## 2.3 Field Measurements

Field measurement requirements and protocols for the 2024 SRWMP are presented in detail in the Cycle 5 Study Design (Table 6.2, Minnow, 2019). Field Staff have been trained and have reviewed procedures associated with the proper calibration and use of field equipment for the measurement of field parameters. The models and accuracy for equipment used in measuring SRWMP field parameters are provided in Table 2-3.

**Table 2-3 SRWMP Field Equipment Models and Accuracy**

| Parameter | Meter | Accuracy | Unit |
|---|---|---|---|
| pH | YSI Pro 10 | +/- 0.02 | pH units |
| pH | YSI Pro Plus | +/- 0.02 | pH units |
| Flow | Global Flow Probe | 0.1 | feet per second |

## 2.4 Data Quality Objectives

Field and laboratory data quality objectives (DQOs) for the 2024 SRWMP are presented in detail in the *Cycle 5 Study Design* (Minnow, 2019). Table 2-4a provides a summary of field DQOs, and Table 2-4b provides a summary of laboratory methods, detection limits and DQOs. Data quality assessment results are provided in Section 3.

## 2.5 Changes in Analytical Methods

There were no changes to analytical methods in 2024.

## 2.6 Reporting of Methods Detection Limits

Program method detection limits (MDLs) are presented in Tables 2-4a and 2-4b.

## Table 2-4a 2024 SRWMP Field Data Quality Objectives

| Parameter | Units | Assessment Criteria [1] | | Data Quality Objectives[2] | | | |
|---|---|---|---|---|---|---|---|
| | | PWQO BCMOE | Background | Detection Limit | Minimum [3] Detectable Difference | Field Blank Criteria | Field Precision |
| **Field Parameters**[3] | | | | | | | |
| Flow | L/s | - | - | method | method | - | 30% |
| pH | | | | 0.1 | 0.01 or 0.02 | - | 10% |
| *Lake Stations* | | 6.5 | - | | | | |
| *Wetland/Streams* | | - | 5.3 | | | | |
| **Laboratory Parameters** | | | | | | | |
| Barium | mg/L | 1.0 | - | 0.005 | - | 0.01 | 20% |
| Iron | mg/L | - | - | | - | | |
| *Lake Stations* | | - | 0.76 | 0.02 | - | 0.04 | 20% |
| *Wetland/Streams* | | - | 2.49 | 0.02 | - | 0.04 | 20% |
| Manganese [4] | mg/L | 0.841 | - | 0.002 | - | 0.004 | 20% |
| Radium (total) | Bq/L | 0.469[5] | - | 0.005 | - | 0.01 | 20% |
| Sulphate [4] | mg/L | 128-429[4] | - | 0.1 | - | 0.2 | 20% |
| Uranium | mg/L | 0.015 | - | 0.0005 | - | 0.001 | 20% |
| Hardness | mg/L | - | - | 0.5 | - | 1.0 | 20% |

**Notes:**

1. Table S.1, Apprendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
2. Table 6.2 Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
3. Minimum detectable difference as identified in instrument manual
4. Table S.2, Apprendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
5 The dose-base site-specific benchmark for radium is selected, as per CNSC request and is detailed in Section 5.2.5.2, of the Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)

## Table 2-4b 2024 SRWMP Laboratory Methods and Data Quality Objectives

| Parameter | Units | Assessment Criteria [1] | | Laboratory Data Quality Objectives[2] | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | PWQO BCMOE | Background | Method | Detection Limit | Laboratory Blank | Precision | Spikes | Accuracy (CRM) |
| Barium | mg/L | 1.0 | - | ICP-MS | 0.005 | 0.01 | 10% | 20% | 20% |
| Iron | mg/L | - | | ICP-OES | | | | | |
| *Lake Stations* | | | 0.76 | | 0.02 | 0.04 | 10% | 20% | 20% |
| *Wetland/Streams* | | | 2.49 | | 0.02 | 0.04 | 10% | 20% | 20% |
| Manganese [3] | mg/L | 0.841 | - | ICP-MS | 0.002 | 0.004 | 10% | 20% | 20% |
| Radium (total) | Bq/L | 0.469[4] | - | Alpha Spectroscopy | 0.005 | 0.01 | 20% | 20% | - |
| Sulphate [3] | mg/L | 128-429 | - | Ion Chromatography | 0.1 | 0.2 | 10% | 20% | 20% |
| Uranium | mg/L | 0.015 | - | ICP-MS | 0.0005 | 0.001 | 10% | 20% | 20% |
| Hardness | mg/L | - | - | ICP-OES | 0.5 | 0.1 | 10% | - | - |

**Notes:**

1. Table S.1, Apprendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
2. Table 6.2 Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
3. Table S.2, Apprendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
4. The dose-base site-specific benchmark for radium is selected, as per CNSC request and is detailed in Section 5.2.5.2, of the Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)

## 2.7 Data Screening and Assessment Conventions

Data validation was conducted on SRWMP water quality data throughout the year. The assessment screening process flags all data points outside a rolling minimum 36 period value mean ± 3 standard deviations.

Flagged data and short-term response plans for the SRWMP are reported quarterly to regulatory agencies as part of the Rio Algom water quality report. Data validation of "flagged data" for the year 2024 can be found in Appendix II.

Annual water quality reporting is designed to be concise and focused on the presentation of data in a standardized format with limited interpretation, as per Section 14.2 of the Implementation Document (Beak, 1999c). Data validation ensures prompt response to upset conditions or unusual results, as documented in Data Validation Procedures in conjunction with Water Quality Assessment and Response Plan, which is included in Appendix B of the SOE (Minnow, 2021). Assessment criteria as outlined in Table 2-4a and Table 2-4b of this report, are standardized to benchmarks selected, rationalized, and presented in Appendix S, Tables S.1 and S.2 of the Cycle 5 SOE (Minnow, 2021).

Approved program modifications implemented in January of 2020 focused water quality monitoring on lakes located immediately downstream of the decommissioned TMAs. An in-depth and detailed statistical evaluation of water quality trends has been included in the SOE produced every five years (Minnow 2009, 2011, 2017, 2021). Based on environmental performance and continuing monitoring and annual reporting for the Serpent River watershed, the Canadian Nuclear Safety Commission (CNSC) and Ontario Ministry of Environment, Conservation, and Parks (MECP) agreed to transition SOE reporting to a 10-year reporting cycle (Minnow 2024). The Cycle 6/7 SOE Report will be submitted to regulators in March 2030, beginning the 10-year reporting frequency.

A SRWMP location summary of all annual average concentrations is reviewed and compared to assessment criteria in this report in Table 3-2. In addition, the most recent five-year annual concentrations of mine indicator parameters at key downstream locations are reviewed in this report in Figures 3-1a to 3-1c.

# 3.0 Results

## 3.1 Data Quality Results and Assessment

Detailed laboratory quality assurance and quality control (QA/QC) results are provided in Appendix III, and detailed field QA/QC results are provided in Appendix IV. Field quality control results are summarized in Table 3-1a and Table 3-1b. Data quality results and assessments are provided in the following sections.

### 3.1.1 Laboratory Quality Assurance and Quality Control

In 2024, all analytical requirements for the SRWMP were contracted to laboratories with Canadian Association for Laboratory Accreditation Inc. (CALA) accreditations. (Appendix III).

Detailed laboratory QA/QC results are provided in Appendix III. The 10% objective for QA/QC was met. SGS performed 37909 analyses with 8557 QC checks, which represents 22.6% QC for sample analysis (Appendix III).

### 3.1.2 Quality Assurance and Quality Control Resolution of Key Issues

There were no major issues with laboratory analysis requiring resolution in 2024 (Appendix III).

### 3.2.3 Analytical Blank Performance

Laboratory quality control results confirm that blank data quality objectives were met for all parameters in all samples (Appendix III).

### 3.1.4 Analytical Duplicate Performance

Laboratory quality control results confirm that duplicate data quality objectives of 20% for radium and 10% for all other parameters were achieved in all samples (Appendix III).

### 3.1.5 Analytical Laboratory Spike Performance

Laboratory quality control results confirm that the spike data performance was achieved for all parameters in all samples (Appendix III).

### 3.1.6 Analytical Certified Reference Material Performance

Laboratory quality control results confirm that the certified reference material (CRM) data quality objective of 20% accuracy was achieved for all parameters in all samples in 2024 (Appendix III).

### 3.1.7 Field Blank Performance

Field Blank water quality control results (Appendix IV) confirm that SRWMP field blank data quality objectives (DQO's) were achieved in 2024 (Table 3-1a).

### 3.1.8 Field Precision Performance

The radium-226 field precision objective of 20% was exceeded in 5 of 6 samples, at 103%, 35%, 67%, 76% and 144%. The exceedances occurred at low concentrations (≤ 0.031 Bq/L). High variability in precision at very low concentrations is not uncommon and variability may be artificially high. All values are representative of typical values observed at these locations; and therefore, the exceedances do not affect interpretation of radium-226 water quality data. The annual average percent difference was above the DQO at 71%.

An investigation on non-conformance was initiated with the lab to better understand the lack of precision. The barium isotope 133 (Ba-133) is used as the tracer to correct radium-226 (Ra-226) recovery on a per sample basis, a common industry practice. Acceptance criteria for Ba-133 recovery was set at 50-100%. Examination of the data revealed spike recoveries less than 75% was resulting in Ra-226 values that were biased high. Corrective actions were put into place to address the Ba-133 recovery issues on the week of February 10, 2025.

The TSS field precision objective of 20% was exceeded in 3 of 6 samples, at 67%, 67% and 40%. Cobalt and Manganese field precision objectives were both exceeded in 1 of 6 samples, at 22% and 24%, respectively. All other parameters fell well below the field precision objectives of 20%.

### Table 3-1a 2024 SRWMP Field Blank Results Summary

| | pH (pH) | TSS (mg/L) | DOC (mg/L) | Hard (mg/L) | SO4 (mg/L) | Ra(T) (Bq/L) | U(T) (mg/L) | Ba(T) (mg/L) | Co(T) (mg/L) | Fe(T) (mg/L) | Mn(T) (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Field Blank Statistics** | | | | | | | | | | | |
| Count | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Average | 6.34 | 1 | 0.5 | 0.132 | 0.2 | 0.005 | <0.0005 | <0.005 | <0.0005 | <0.02 | <0.02 |
| Max | 7.4 | 1 | 0.5 | 0.46 | 0.2 | 0.005 | <0.0005 | <0.005 | <0.0005 | 0.025 | <0.02 |
| Min | 5.2 | 1 | 0.5 | 0.05 | 0.2 | 0.005 | <0.0005 | <0.005 | <0.0005 | <0.02 | <0.02 |
| **Field Blank Exceedances** | | | | | | | | | | | |
| Criteria | -- | 2 | 1 | 1 | 0.2 | 0.01 | 0.001 | 0.01 | 0.001 | 0.04 | 0.004 |
| # Exceedances | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Bold indicates an exceedance of the field blank criteria.

### Table 3-1b 2024 SRWMP Field Precision Results Summary

| | TSS (mg/L) | DOC (mg/L) | Hard (mg/L) | SO4 (mg/L) | Ra(T) (Bq/L) | U(T) (mg/L) | Ba(T) (mg/L) | Co(T) (mg/L) | Fe(T) (mg/L) | Mn(T) (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Field Duplicate Statistics** | | | | | | | | | | |
| Count | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Average | **29%** | 2% | 2% | 2% | **71%** | 5% | 2% | 9% | 7% | 6% |
| Max | **67%** | 4% | 3% | 7% | **144%** | 18% | 3% | **22%** | 20% | **24%** |
| Min | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 2% | 1% |
| **Field Precision Exceedances** | | | | | | | | | | |
| Criteria | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% |
| # Exceedances | **3** | 0 | 0 | 0 | **5** | 0 | 0 | **1** | 0 | **1** |

Bold indicates an exceedance of the field precision criteria.

## 3.2 Annual Average Location Results Summary

Annual average concentrations of SRWMP parameters for 2024 in comparison to the Cycle 5 SOE (Minnow, 2021) receiving environment assessment criteria are provided in Table 3-2. Annual detailed results and five-year summaries of annual average concentrations in comparison to assessment criteria are provided in Appendix V.

Water quality throughout the Serpent River Watershed continues to meet and remain well below the assessment criteria established for the protection of aquatic life. Annual average concentrations for all parameters in 2024 were less than the assessment criteria at all locations and pH was within the assessment range (Appendix V).

The annual average sulphate concentration at SR-08 (Nordic Lake Outlet) is elevated (145.0 mg/l) compared to other SRWMP stations. However, the sulphate benchmark for SRWMP sites is dependent on specific water hardness at the sample location (BC ENV 2020). Based on an annual average hardness of 180.3 mg/L in 2024 at SR-08, the resulting criterion for sulphate is 309 mg/L. In 2024, all sulphate results at SR-08 fell within BC ENV guidelines for the protection of aquatic life (BC ENV, 2020). Sulphate assessment criteria for individual stations and detailed results are included in Appendix V, as well as Table S-1, Appendix S, of the Cycle 5 SOE for the SRWMP, SAMP, and TOMP (Minnow, 2021).

The annual average manganese concentration at D-6, appears elevated compared to other SRWMP locations at 0.216 mg/L; however, the result is not unexpected considering the annual average water hardness of 84.2 mg/L. The manganese average concentration is well below the BC ENV chronic toxicity guideline of 0.8 mg/L for the protection of aquatic biota. In addition, individual hardness results in 2024 ranged from 18.2 mg/L to 285.0 mg/L and individual manganese results ranged from 0.057 mg/L to 0.972 mg/L (Appendix V), demonstrating that all manganese concentrations remained well below the acute protection guideline of 1.1 mg/L (BC ENV, 2020). No accumulation was observed downstream at D-5 where the manganese annual average concentration was 0.024 mg/L.

Table 3-2 2024 SRWMP Location Annual Average Results Summary

| Table 3.2 - Average Results Summary - 2024 | | | Barium (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Assessment Criteria[1]** | | | | | | | | | | |
| **Wetland/Stream Benchmark[2]** | | | 1 | | 2.49 | 0.841 | 5.3 | 0.469 | 128-309 | 0.015 |
| **Lake Benchmark[3]** | | | 1 | | 0.76 | 0.841 | 6.5 | 0.469 | 128-309 | 0.015 |
| **MDL[4]** | | | 0.005 | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Location** | | **# of Samples Collected** | | | | | | | | |
| **Far Field:** | | | | | | | | | | |
| SR-01 | Lake | 1 | 0.045 | 35.7 | < 0.007 | 0.003 | 6.8 | 0.047 | 28.0 | 0.0011 |
| SR-08 | Lake | 4 | 0.017 | 180.3 | 0.05 | 0.029 | 6.7 | 0.029 | 145.0 | 0.0009 |
| SR-15 | Wetland/Stream | 2 | 0.064 | 38.0 | 0.02 | 0.007 | 7.5 | 0.053 | 16.3 | < 0.0005 |
| **Near Field:** | | | | | | | | | | |
| D-5 | Lake | 4 | 0.059 | 21.7 | 0.07 | 0.024 | 6.5 | 0.070 | 11.8 | 0.0009 |
| D-6 | Wetland/Stream | 4 | 0.018 | 84.2 | 0.17 | 0.216 | 6.6 | 0.009 | 69.5 | < 0.0005 |
| DS-18 | Wetland/Stream | 4 | 0.014 | 63.3 | 0.26 | 0.015 | 7.0 | 0.095 | 42.8 | 0.0010 |
| M-01 | Wetland/Stream | 4 | 0.018 | 40.4 | 0.73 | 0.134 | 6.8 | 0.024 | 10.5 | 0.0021 |
| Q-09 | Lake | 4 | 0.069 | 69.2 | 0.14 | 0.086 | 6.8 | 0.084 | 57.5 | 0.0017 |
| Q-20 | Lake | 1 | 0.018 | 40.2 | 0.01 | 0.007 | 7.3 | < 0.005 | 21.0 | < 0.0005 |
| SC-01 | Lake | 1 | 0.012 | 34.1 | 0.24 | 0.022 | 7.0 | 0.018 | 25.0 | < 0.0005 |
| SR-06 | Lake | 2 | 0.128 | 31.7 | 0.01 | 0.015 | 7.2 | 0.068 | 21.0 | 0.0005 |
| **Reference:** | | | | | | | | | | |
| D-4 | Lake | 2 | 0.011 | 9.1 | 0.02 | 0.016 | 6.6 | < 0.005 | 2.8 | < 0.0005 |
| SR-16 | Wetland/Stream | 4 | 0.006 | 7.5 | 0.94 | 0.039 | 6.1 | 0.008 | 0.9 | < 0.0005 |
| SR-17 | Wetland/Stream | 4 | 0.018 | 10.8 | 1.52 | 0.063 | 6.1 | 0.006 | 2.2 | < 0.0005 |
| SR-18 | Lake | 2 | 0.044 | 10.2 | 0.09 | 0.030 | 6.9 | < 0.005 | 3.3 | < 0.0005 |
| SR-19 | Lake | 4 | 0.020 | 15.3 | 0.29 | 0.036 | 6.9 | < 0.005 | 2.7 | < 0.0005 |

Notes below

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

**Sulfate criteria of 128 mg/l**
**Sulfate criteria of 218 mg/l**
**Sulfate criteria of 309 mg/l**

# 3.3 Five-Year Annual Average Trends at Key Locations

Figures 3-3a to 3-3c show five-year trends of annual average concentrations for the mine-related parameters sulphate, radium-226, and uranium at the following key locations:

- SR-01, Quirke Lake Outlet.
- SR-06, McCabe Lake Outlet.
- SR-08, Nordic Lake Outlet.
- DS-18, Halfmoon Lake Outlet.

Based on a review of five years of data, annual sulphate concentrations at all key lake outlets are well below the assessment criterion of between 128-309 mg/L as established for each station. Annual concentrations have remained stable at all locations over the past five years (Figure 3-3a), with the exception of SR-08 (Nordic Lake Outlet) where a slight increase was observed in 2021; however, all results remained well below the assessment criterion of 309 mg/L. This data can be found in the SRWMP Annual Water Quality Report 2021 (RAL, DMI, 2022). DS-18, SR-06 and SR-08 all saw a slight decrease in 2023, but all returned to trend in 2024.

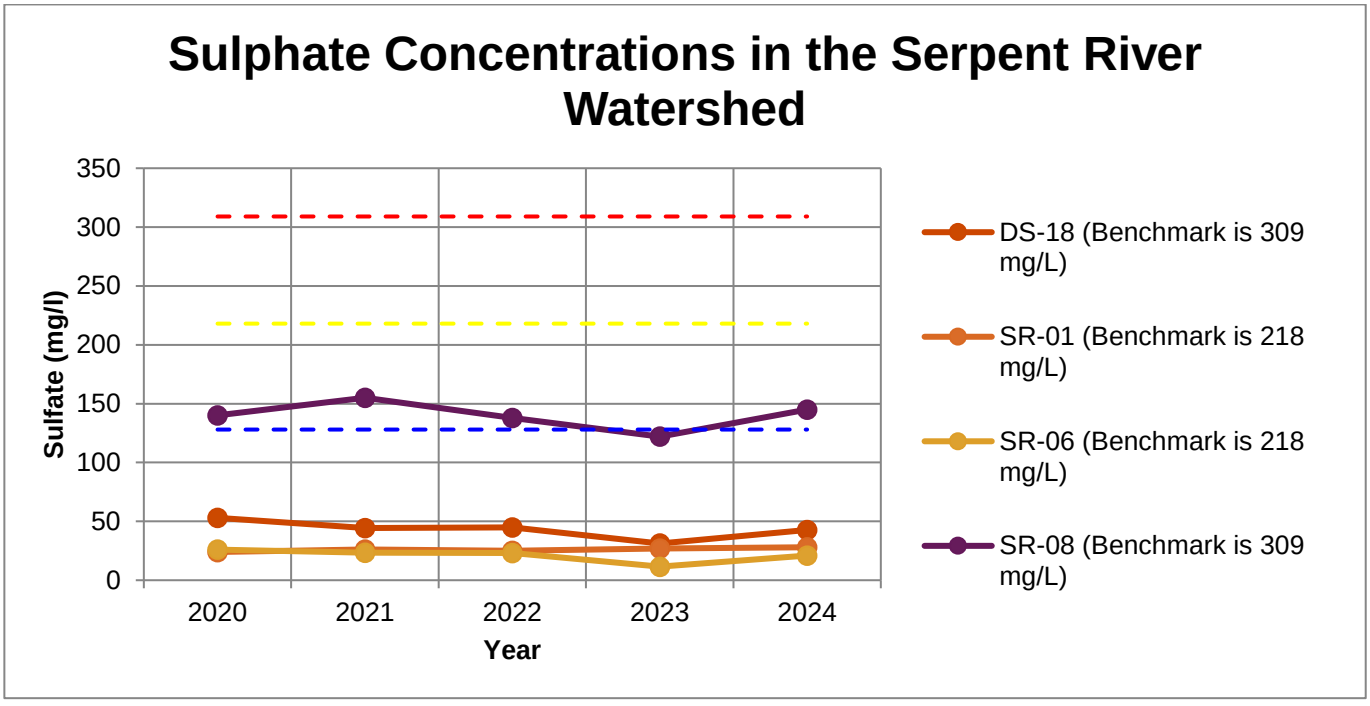


**Figure 3-3a Annual Average Sulphate Concentrations at SR-01, SR-06, SR-08, and DS-18, 2020-2024**

Annual average radium-226 concentrations are much lower than the assessment criterion of 0.469 Bq/L (Figure 3-3b). At station DS-18, annual average radium concentrations appear slightly elevated compared to other annual average radium-226 concentrations but is more similar to other location concentrations in 2025 than the previous four years (Appendix V). The slightly elevated radium-226 may be indicative of flushing through the historic tailings spill upstream in the Halfmoon wetland area; however, all DS-18 results in the last five years remained well below the assessment criterion of 0.469 Bq/L and well below the Health Canada (2009) drinking water quality standard of 0.5 Bq/L.

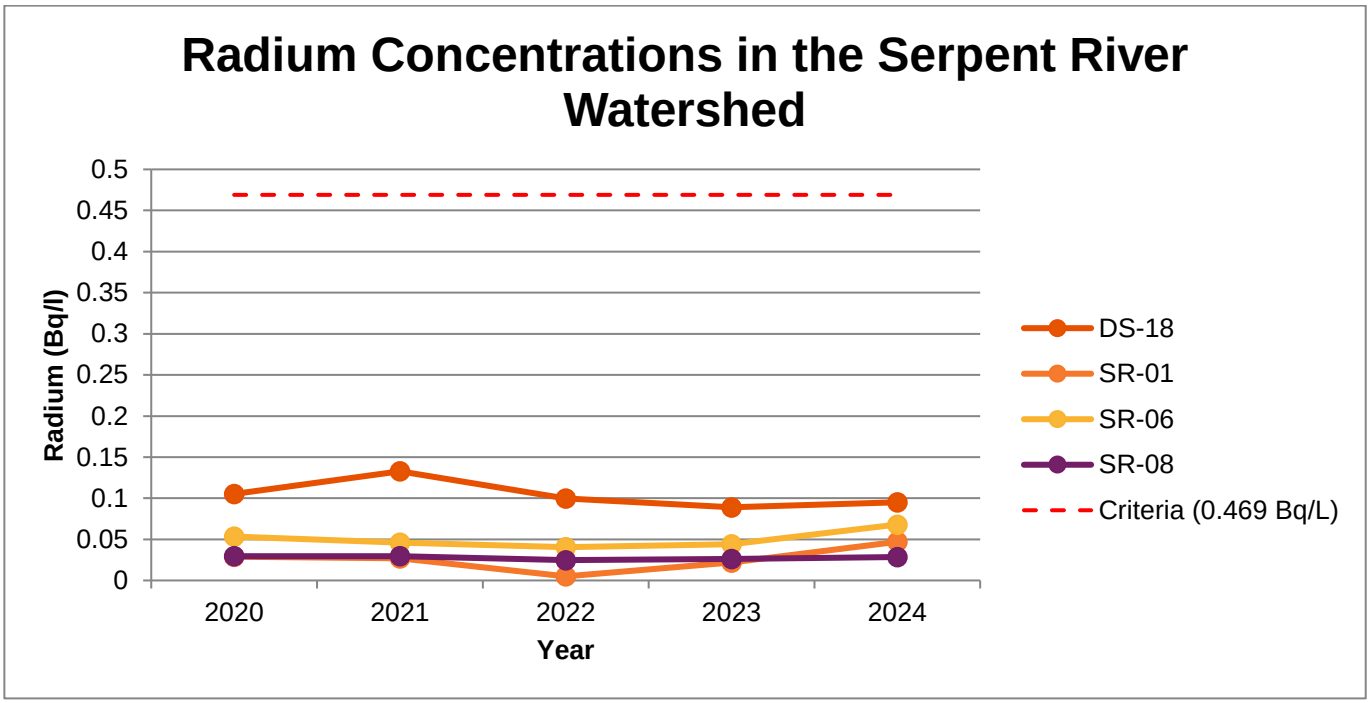


**Figure 3-3b Annual Average Radium Concentrations at SR-01, SR-06, SR-08, and DS-18, 2020-2024**

Annual average uranium concentrations at all four key lake locations appear to be stable and were more than an order of magnitude below the assessment criteria of 0.0150 mg/L (Figure 3-3c).

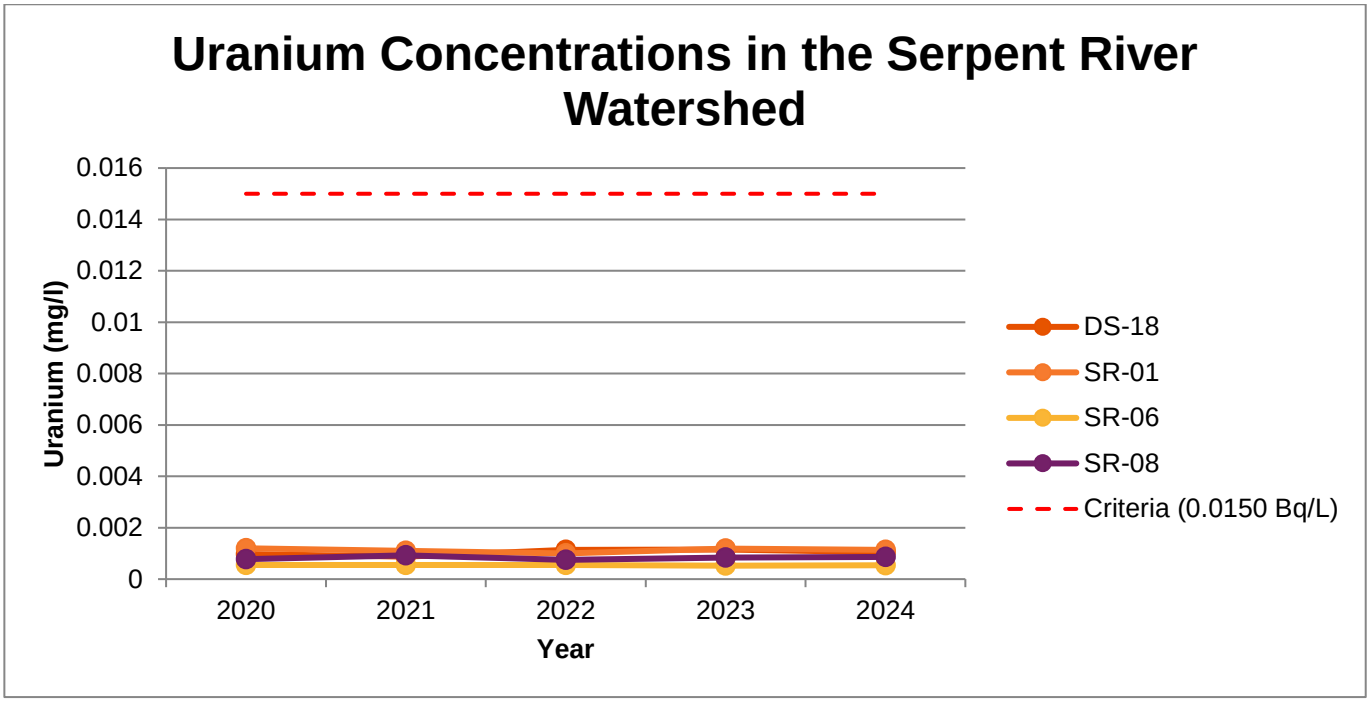


**Figure 3-3c Annual Average Uranium Concentrations at SR-01, SR-06, SR-08, and DS-18, 2020-2024**

# 4.0 Discussion

## 4.1 Response Monitoring

SRWMP surface water results demonstrate that water quality concentrations are stable, continue to meet assessment criteria, and that the area is continuing to recover since the decommissioning of the mines in the area.

Beginning in 2016, monitoring at the outlet of May Lake (SR-15) was voluntarily re-established in response to gradually increasing barium and radium-226 concentrations upstream at the outlet of McCabe Lake (SR-06); it was previously removed in the SRWMP Cycle 3 Study Design (Minnow 2009). Although annual average concentrations have decreased substantially in the last four years, particularly at SR-06, station SR-15 was re-established in the monitoring program as per the Cycle 5 Study Design (beginning 2020) to aid in the assessment of any long-term impacts to the receiving environment (Appendix V).

## 4.2 SRWMP Performance Monitoring Program Changes

There were no changes to the performance monitoring program in 2024. As described in the Cycle 5 Study Design (Minnow 2019), the approved site-specific water quality benchmark for radium-226 (0.469 Bq/L) for the protection of aquatic life, continues to be used to evaluate the SRW.

As previously mentioned in Section 2.2, after review of the Cycle 5 Study Design (Minnow, 2019), the MECP recommended adding DOC to the SRWMP monitoring program. This was in anticipation of a new federal environmental water quality guideline for iron that was published in May 2024, which includes DOC and pH as toxicity modifiers. In addition, hardness continues to be monitored as an ancillary parameter to all SRWMP stations as it assists in the interpretation of water quality concentrations for manganese and sulphate, as discussed in the approved Cycle 4 Study Design for the SRWMP, SAMP and TOMP (BC ENV, 2020 and Minnow, 2016).

## 4.3 Changes to Location Classification and Frequency

As noted in the Cycle 5 SOE, station D-6 is located in a habitat more characteristic of a wetland area, not a lake. Under this classification, D-6 was assessed based on wetland benchmarks (Photo set S.1, Appendix S, Minnow, 2021).

## 4.4 Representative Public Radiation Dose Estimation

The CNSC requested that RAL and DMI provide annual reporting of the radiation dose to the public associated with the closed uranium mine sites in the Serpent River Watershed. Historically, estimates of the public dose had been based on the use of very conservative values to demonstrate that public dose in the vicinity of Elliot Lake did not exceed the upper dose limit. Measurements of radon and gamma radiation collected during mine operations resulted in dose estimates less than 5% of the annual public dose limit of 1 mSv/a.

However, to determine an updated and more realistic representative annual public dose estimation for a person residing in Elliot Lake, a design monitoring program to support public dose estimation was prepared in early 2016. Details of the design program were provided in the document Preliminary Design Monitoring Program to Support Public Dose Estimation (Ecometrix Incorporated (Ecometrix), 2016, 2017), which was included as an appendix in the SRWMP Annual Water Quality Report 2016 (RAL, DMI, 2017).

All components of the design monitoring program were completed in 2019 and it was concluded that the updated public dose is 0.01 mSv/a, two orders of magnitude lower than the regulatory public dose limit of 1 mSv/a. Details of the design monitoring program and the subsequent results are included in Appendix U of the Cycle 5 SOE (Minnow, 2021).

The public dose estimate will be reviewed, and if required, updated as part of the combined Cycle 6/7 SOE Report.

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# Appendix I

## Performance Monitoring Changes 1999 - 2021, Evolution of Programs

## Summary of Changes to the Elliot Lake Monitoring Programs (IBMP, TOMP, SAMP, and SRWMP) and Associated Documents[b]

| Cycle | Report Title | Year | Period Covered | Descriptions of Changes to the Monitoring Programs within Each Cycle |
|---|---|---|---|---|
| **Cycle 1** | Serpent River Watershed Monitoring Program Framework Document | 1999 | historical monitoring data | **IBMP, TOMP, SAMP, and SRWMP** were developed based on program objectives and existing monitoring data collected over the period of operations and decommissioning. |
| | In-Basin Monitoring Program Report | 1999 | | |
| | Serpent River Watershed and In-Basin Monitoring Program – Implementation Document | 1999 | | |
| | Serpent River Watershed Monitoring Program -1999 Study | 2001 | 1999 to 2000 | |
| | In-Basin Monitoring Program for the Uranium Tailings Areas - 1999 Study | 2001 | | |
| **Cycle 2** | Overview of Elliot Lake Monitoring Programs and Source Area Monitoring Program Design | 2002 | 2000 to 2004 | **Changes only SRWMP** most associated with optimization after first cycle of program was complete:<br>• monitoring substances reduced to mine indicator parameters (barium, cobalt, DOC, iron, manganese, radium-226, selenium, silver, sulphate and uranium);<br>• addition of two lake reference stations (Summers and Semiwite lakes) and 3 stream reference areas (SR-16, SR-17 and SR-18);<br>• removal of shallow lakes for sediment and benthic sampling (Westner, Grassy, Halfmoom, Upper Cinder and Horne lakes);<br>• removal of some stream sediment and benthic stations (D-15, SC-03 and SR-07);<br>• removal of Depot Lake and Serpent Harbour; addition of May Lake;<br>• the transfer of some SRWMP stations to SAMP or TOMP (N-12, ECA-131, P-11, MPE and Q-23); and<br>• fish health assessment eliminated based on performance, fish community assessment added for McCabe Lake and fish tissue monitoring reduced in scope based on performance. |
| | TMA Operational Monitoring Program Design (TOMP) | 2002 | | |
| | Cycle 2 Study Design – Serpent River Watershed and In- Basin Monitoring Programs | 2004 | | |
| | Serpent River Watershed Monitoring Program: Cycle 2 Interpretive Report | 2005 | | |
| | Serpent River In-Basin Monitoring Program: Cycle 2 Interpretive Report - 2004 Study | 2005 | | |
| | Serpent River Watershed State of the Environment | 2009 | | |
| | Monitoring Framework For Closed Uranium Mines Near Elliot Lake | 2009 | | **IBMP** eliminated based on objectives of program being achieved.<br><br>**TOMP and SAMP:**<br>• removal of silver, selenium based on performance and removal of conductivity based on redundancy with sulphate; and |
| | In Basin Monitoring Program, Cycle 3 Study Design | 2009 | | |

| | | | | |
|---|---|---|---|---|
| **Cycle 3** | Serpent River Watershed Monitoring Program: Cycle 3 Study Design | 2009 | 2005 to 2009 | • DOC, hardness and flow added at selected stations.<br><br>**SRWMP:**<br>• removal of selenium and sliver based on performance;<br>• removal of station SR-12, ELO, SR-09, SR-15, SR-02, SR-03, SR-11, P-01, QL-01 and SR-16 and SR-17 based on performance;<br>• monthly monitoring frequency reduced to quarterly;<br>• sediment and benthic monitoring removed from Whiskey, Evans and Cinder lakes based on redundancy;<br>• depositional streams (Q-20, D-6, SR-06, M-01 and SR-08) based on very high natural variability masking results; and<br>• fishing in McCabe Lake and fish tissue monitoring eliminated based on performance. |
| | Source Area Monitoring Program Revised Study Design | 2009 | | |
| | Tailing Management Area Monitoring Program (TOMP) Revised Study Design | 2009 | | |
| | Serpent River Watershed State of the Environment Report | 2011 | | |
| **Cycle 4** | Cycle 4 Study Design For the SRWMP, SAMP and TOMP | 2014[a] | 2010 to 2014 | Minor changes to **TOMP** and **SAMP**.<br><br>**SRWMP**:<br>• elimination of reference stations SR-05, P-222 and SR-14;<br>• removal of cobalt as substance for monitoring, addition of DOC;<br>• far-field lakes removed from the program (Hough, Pecors, and McCarthy);<br>• removal of Rochester Lake as a sediment and benthic reference area; and<br>• reduction in benthic and sediment sampling to 1/10 years based on measured deposition rates. |
| | Serpent River Watershed Cycle 4 State of the Environment | 2016 | | |
| **Cycle 5** | Cycle 5 Study Design For the SRWMP, SAMP and TOMP | 2019 | 2015 to 2019 | **TOMP, SAMP, and SRWMP**:<br>• improved approach to trend analysis of surface water quality using the non-parametric seasonal Kendall test.<br><br>**SRWMP**:<br>• improved approach to calculate benchmark upper limit of background water quality values have previously been calculated based on the upper 95th percentile of values collect across all five years (rather than annual means);<br>• use of a Serpent River Watershed site-specific dose-based radium-226 benchmark for assessment of water quality;<br>• addition of a lake-specific dose-based radium-226 benchmark for assessment of sediment quality; and<br>• sediment and benthic monitoring removed from Elliot Lake based on improvements in water quality, negligible mine-related sediment toxicity, and gradual improvement in benthic invertebrate communities. |
| | Serpent River Watershed Cycle 5 State of the Environment | 2021 | | |

[a] Study Design was submitted to CNSC and JRG in 2014 but reissued with agency comments in 2016.

Notes: IBMP = In Basin Monitoring Program. TOMP = Tailings Management Area Monitoring Program. SAMP = Source Area Monitoring Program. SRWMP = Serpent River Watershed Monitoring Program.

[b] Table 1.2, Cycle 5 State of the Environment Report, Minnow, 2021

# Appendix II

## Flagged Data Results

# Flagged Data Report Form

## 2024 Annual Report

| Station | Analyte | Fraction | Date | Low | High | Flag | Result Unit | Comment |
|---|---|---|---|---|---|---|---|---|
| SR-16 | Radium | Tot | 2024-07-24 | 0.0034 | 0.0069 | High | 0.016 Bq/l | Result is most commonly under detection limit but came in slightly higher. Monitoring will continue on a quarterly schedule. |
| SR-17 | Iron | Tot | 2024-07-24 | 0 | 3.6606 | High | 4.13 mg/l | Result is above the high flag and a 3-year high. Monitoring will continue quarterly. |
| SR-17 | Manganese | Tot | 2024-07-24 | 0 | 0.1319 | High | 0.152 mg/l | Result is above the high flag and a 3-year high. Monitoring will continue quarterly. |
| D-6 | Radium | Tot | 2024-05-07 | 0.00043 | 0.0121059 | High | 0.022 Bq/l | Result is above the high flag but within historical range. Monitoring will continue quarterly |
| DS-18 | Iron | Tot | 2024-02-05 | 0 | 0.3719979 | High | 0.405 mg/l | Result is above the high flag but within historical range. Monitoring will continue quarterly |

# Appendix III

## Laboratory QA/QC Results

***REPORT CODE:*** *BHP-ANN24*

***REPORT TITLE:*** *Annual 2024 BHP Data Quality Report*

***REVISION:*** *1.0*

***ISSUED BY:***

*Quality Coordinator,*
*SGS Environmental, Lakefield*

***AUTHORIZED BY:***

*Technical Manager,*
*SGS Environmental, Lakefield*

***DATE:*** *20 Feb. 2025*

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# 1. MANAGEMENT SYSTEM

SGS Environmental, Lakefield is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation (CALA), for specific tests listed in the scope of accreditation. ISO/IEC 17025 addresses both the management system and the technical aspects of operating a testing laboratory.

The management system at SGS Environmental consists of a documented quality system, which is directed by the Quality Coordinator who is independent of the production area. All appropriate documentation (quality manual, methods, written instructions, standard operating procedures, and data approval criteria) is in place and includes both general and method specific quality control requirements.

Quality control procedures include duplicate samples, spiked blanks, spiked replicates, reagent/instrument blanks, preparation control samples, certified reference material analysis, and instrument control samples, as appropriate for the individual methods. Matrix matching of reference materials to samples is always attempted. Frequency of insertion of control samples is method specific and follows legislated guidelines. A summary of the quality control recoveries is presented in the tables following.

# 2. QUALITY CONTROL PARAMETERS

All QC parameters are taken directly from SGS LIMS. BHP samples are processed as part of our “worksheet” batch system. A compilation of all QC data appropriate to the parameters tested has been compiled below.

# 3. NOTABLE OCCURANCES/ACTIONS

- Data compiled from January 2024 to December 2024
- SGS Environmental, Lakefield laboratory performed 37909 analyses with 8557 QC checks, which represents 22.6% QC for sample analysis. **Corrective Action**: N/A
- All blank data results were within the data quality objectives. **Corrective Action**: N/A
- All CRM/spike blank data results were within the data quality objectives. **Corrective Action**: N/A
- No duplicate value exceeded the data quality objectives. **Corrective Action:** N/A
- No spike duplicates fell outside of the data quality objectives. **Corrective Action**: N/A

# 4. QC DATA SUMMARY

## *4.1. Blank Data*

| Parameter | Unit | Required Limit | Number of Blanks | Mean Blank Result |
|---|---|---|---|---|
| Acidity | mg/L as CaCO3 | 2 | 97 | 2.0 |

| | | | | |
|---|---|---|---|---|
| Silver | mg/L | 0.0001 | 111 | <0.0001 |
| Alkalinity | mg/L as CaCO3 | 2 | 50 | 2 |
| Arsenic | mg/L | 0.0005 | 111 | <0.0005 |
| Barium | mg/L | 0.005 | 155 | <0.005 |
| Cobalt | mg/L | 0.0005 | 119 | <0.0005 |
| Copper | mg/L | 0.0005 | 111 | <0.0005 |
| DOC | mg/L | 0.5 | 109 | <0.5 |
| Iron | mg/L | 0.02 | 120 | <0.02 |
| Manganese | mg/L | 0.002 | 121 | <0.002 |
| Nickel | mg/L | 0.002 | 111 | <0.002 |
| Lead | mg/L | 0.00002 | 111 | <0.00002 |
| Ra226 | Bq/L | 0.005 | 143 | <0.005 |
| Selenium | mg/L | 0.0005 | 111 | <0.0005 |
| Sulphate | mg/L | 0.1 | 202 | <0.1 |
| Total Dissolved Solids | mg/L | 10 | 39 | <10 |
| Total Suspended Solids | mg/L | 1 | 244 | <1 |
| Uranium | mg/L | 0.0005 | 121 | <0.0005 |
| Zinc | mg/L | 0.001 | 111 | <0.001 |

## *4.2. Reference Material/Spiked Blank Data*

| Parameter | Unit | Number of RM or SB | % Recovery |
|---|---|---|---|
| Acidity | mg/L as CaCO3 | 97 | 98.0 |
| Silver | mg/L | 110 | 100.4 |
| Alkalinity | mg/L as CaCO3 | 50 | 100.4 |
| Arsenic | mg/L | 110 | 100.8 |
| Barium | mg/L | 154 | 99.7 |
| Cobalt | mg/L | 118 | 100.4 |
| Copper | mg/L | 110 | 101.3 |
| DOC | mg/L | 109 | 99.6 |
| Iron | mg/L | 119 | 101.0 |
| Manganese | mg/L | 120 | 101.0 |
| Nickel | mg/L | 110 | 101.8 |
| Lead | mg/L | 110 | 99.1 |
| Ra226 | Bq/L | 143 | 104.3 |
| Selenium | mg/L | 110 | 100.5 |
| Sulphate | mg/L | 202 | 95.8 |
| Total Dissolved Solids | Mg/L | 0 | |
| Total Suspended Solids | mg/L | 244 | 97.5 |

| | | | |
|---|---|---|---|
| Uranium | mg/L | 120 | 99.8 |
| Zinc | mg/L | 110 | 100.9 |

## 4.3. Duplicate Data

| Parameter | Unit | RPD* Limit | Number of Duplicates | RPD* |
|---|---|---|---|---|
| Acidity | mg/L as CaCO3 | 20 | 97 | ND |
| Silver | mg/L | 20 | 111 | ND |
| Alkalinity | mg/L as CaCO3 | 20 | 50 | 1.9 |
| Arsenic | mg/L | 20 | 111 | 6.2 |
| Barium | mg/L | 20 | 155 | 2.8 |
| Cobalt | mg/L | 20 | 119 | 4.9 |
| Copper | mg/L | 20 | 111 | 3.8 |
| DOC | mg/L | 20 | 109 | 1.9 |
| Iron | mg/L | 20 | 120 | 3.2 |
| Manganese | mg/L | 20 | 121 | 2.5 |
| Nickel | mg/L | 20 | 111 | 4.3 |
| Lead | mg/L | 20 | 111 | 5.7 |
| Ra226 | Bq/L | 20 | 143 | 11.3 |
| Selenium | mg/L | 20 | 111 | 7.9 |
| Sulphate | mg/L | 20 | 202 | 2.1 |
| Total Dissolved Solids | mg/L | 20 | 39 | 2.3 |
| Total Suspended Solids | mg/L | 20 | 244 | 1.7 |
| Uranium | mg/L | 20 | 121 | 3.5 |
| Zinc | mg/L | 20 | 111 | 3.0 |

*RPD – Relative Percent Difference

ND – No Data, no detectable concentration of the parameter in the samples

## 4.4. Spike Duplicate Data

| Parameter | Unit | Number of Spike Dups | Mean % Recovery |
|---|---|---|---|
| Silver | mg/L | 111 | 83.6 |
| Arsenic | mg/L | 111 | 103.6 |
| Barium | mg/L | 155 | 99.2 |
| Cobalt | mg/L | 119 | 100.0 |
| Copper | mg/L | 111 | 100.0 |
| DOC | mg/L | 109 | 97.9 |
| Iron | mg/L | 120 | 103.1 |
| Manganese | mg/L | 121 | 103.2 |

| | | | |
|---|---|---|---|
| Nickel | mg/L | 111 | 100.9 |
| Lead | mg/L | 111 | 97.4 |
| Selenium | mg/L | 196 | 103.5 |
| Sulphate | mg/L | 51 | 93.9 |
| Uranium | mg/L | 110 | 100.2 |
| Zinc | mg/L | 65 | 102.6 |

## *4.5. QC Frequency*

| | |
|---|---|
| Total Number of Blanks: | 2297 |
| Total Number of Reference Materials/Spiked Blanks: | 2246 |
| Total Number of Duplicate Samples: | 2297 |
| Total Number of Spiked Duplicate Samples: | 1717 |
| **Sum of QC Insertion:** | **8557** |
| **Total Analysis:** | **37909** |

# Appendix IV

## Field QA/QC Results

**SRWMP Data Quality Reporting**

**Field Precision 2024**

| Location | Date | TSS | DOC | Hardness | Sulphate | Radium (Total) | Uranium (Total) | Barium (Total) | Cobalt (Total) | Iron (Total) | Manganese (Total) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mg/L | mg/L | mg/L | mg/L | Bq/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| D-6 | 2024.05 | < 1 | 4.2 | 18.7 | 11 | 0.007 | 0.000037 | 0.0108 | 0.000119 | 0.085 | 0.0591 |
| BSD2 | | 1 | 4.3 | 18.2 | 11 | 0.022 | 0.000035 | 0.0106 | 0.000109 | 0.080 | 0.0572 |
| Variance | | 0% | 2% | 3% | 0% | **103%** | 6% | 2% | 9% | 6% | 3% |
| D-6 | 2024.11 | < 1 | 4.1 | 80.0 | 69 | < 0.005 | 0.000060 | 0.0174 | 0.000141 | 0.167 | 0.0779 |
| BSD2 | | 1 | 4.0 | 82.1 | 66 | < 0.005 | 0.000061 | 0.0176 | 0.000141 | 0.170 | 0.0805 |
| Variance | | 0% | 2% | 3% | 4% | 0% | 2% | 1% | 0% | 2% | 3% |
| M-01 | 2024.02 | 1 | 5.5 | 43.2 | 13 | 0.007 | 0.00215 | 0.0181 | 0.000292 | 0.581 | 0.0739 |
| BSR5 | | 1 | 5.3 | 43.9 | 13 | 0.010 | 0.00217 | 0.0186 | 0.000366 | 0.631 | 0.0754 |
| Variance | | 0% | 4% | 2% | 0% | **35%** | 1% | 3% | **22%** | 8% | 2% |
| M-01 | 2024.05 | 2 | 5.4 | 30.6 | 10 | 0.028 | 0.00280 | 0.0164 | 0.000238 | 0.259 | 0.0501 |
| BSR5 | | 1 | 5.5 | 30.9 | 10 | 0.014 | 0.00273 | 0.0163 | 0.000248 | 0.254 | 0.0498 |
| Variance | | **67%** | 2% | 1% | 0% | **67%** | 3% | 1% | 4% | 2% | 1% |
| M-01 | 2024.07 | 2 | 6.3 | 46.4 | 5.8 | 0.031 | 0.00192 | 0.0219 | 0.000493 | 1.67 | 0.304 |
| BSR5 | | 4 | 6.2 | 46.4 | 5.7 | 0.014 | 0.00194 | 0.0220 | 0.000485 | 1.71 | 0.307 |
| Variance | | **67%** | 2% | 0% | 2% | **76%** | 1% | 0% | 2% | 2% | 1% |
| M-01 | 2024.11 | 2 | 4.7 | 41.3 | 13 | 0.031 | 0.00151 | 0.0168 | 0.000367 | 0.404 | 0.108 |
| BSR5 | | 3 | 4.7 | 41.9 | 14 | < 0.005 | 0.00180 | 0.0172 | 0.000441 | 0.494 | 0.138 |
| Variance | | **40%** | 0% | 1% | 7% | **144%** | 18% | 2% | 18% | 20% | **24%** |
| Count | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Average | | **29%** | 2% | 2% | 2% | **71%** | 5% | 2% | 9% | 7% | 6% |
| Max | | **67%** | 4% | 3% | 7% | **144%** | 18% | 3% | **22%** | 20% | **24%** |
| Min | | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 2% | 1% |
| Criteria | | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% |
| # Exceed. | | **3** | 0 | 0 | 0 | **5** | 0 | 0 | **1** | 0 | **1** |

Bold indicates an exceedance of the field precision criteria.

*Issued on: February 14, 2025*

**SRWMP Data Quality Reporting**

**Field Blanks 2024**

| | | Barium | DOC | Hardness | Iron | Manganese | Radium | Sulfate | Uranium |
|---|---|---|---|---|---|---|---|---|---|
| | | mg/l | mg/l | mg/l | mg/l | mg/l | Bq/l | mg/l | mg/l |
| **Date** | **Sample** | | | | | | | | |
| 2/8/2024 | FBR5 | <0.005 | 0.5 | <0.05 | 0.025 | <0.002 | <0.005 | <0.02 | <0.0005 |
| 5/7/2024 | FBD2 | <0.005 | <0.5 | <0.05 | <0.02 | <0.002 | <0.005 | <0.2 | <0.0005 |
| 5/8/2024 | FBR5 | <0.005 | 0.5 | 0.05 | <0.02 | <0.002 | <0.005 | <0.02 | <0.0005 |
| 11/20/2024 | FBD2 | <0.005 | <0.5 | <0.05 | <0.02 | <0.002 | <0.005 | <0.2 | <0.0005 |
| 11/26/2024 | FBR5 | <0.005 | <0.5 | 0.46 | <0.02 | <0.002 | <0.005 | <0.02 | <0.0005 |
| | | | | | | | | | |
| | | | | | | | | | |
| | Count | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | Average | <0.005 | <0.5 | 0.17 | <0.02 | <0.002 | 0.006 | <0.02 | <0.0005 |
| | Maximum | <0.005 | <0.5 | 0.41 | <0.02 | <0.002 | 0.008 | <0.2 | <0.0005 |
| | Minimum | <0.005 | <0.5 | <0.05 | <0.02 | <0.002 | <0.005 | <0.02 | <0.0005 |
| | Criteria[1] | 0.01 | 1 | 1 | 0.04 | 0.004 | 0.01 | 0.02 | 0.001 |
| | Exceedances | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1 Field Blank criteria as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Bold indicates an exceedance in the Field Blank criteria

# Appendix V

## Location Results

## D-4 Dunlop Lake Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **5/7/2024** | 0.0108 | 2.9 | 8.7 | 0.020 | 0.0133 | 6.5 | < 0.005 | 2.7 | 0.000013 |
| **11/20/2024** | 0.0108 | 2.8 | 9.5 | 0.024 | 0.0192 | 6.7 | < 0.005 | 2.9 | 0.000010 |
| | | | | | | | | | |
| **Count** | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **High** | 0.0108 | 2.9 | 9.5 | 0.024 | 0.0192 | 6.7 | < 0.005 | 2.9 | 0.000013 |
| **Low** | 0.0108 | 2.8 | 8.7 | 0.02 | 0.0133 | 6.5 | < 0.005 | 2.7 | 0.00001 |
| **Mean** | 0.0108 | 2.8 | 9.1 | 0.022 | 0.0162 | 6.6 | < 0.005 | 2.8 | 0.000012 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 128 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## D-5 Serpent River between Denison & Quirke TMAs

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Flow (l/s) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|
| **2/5/2024** | 0.0263 | 3.4 | 1045 | 15.8 | 0.054 | 0.0364 | **6.30** | 0.008 | 7.5 | 0.000471 |
| **5/7/2024** | 0.0324 | 3.3 | 5970 | 17.4 | 0.039 | 0.0178 | 6.8 | 0.044 | 9.2 | 0.000888 |
| **8/13/2024** | 0.105 | 3.8 | 505 | 19.4 | 0.111 | 0.0239 | **6.37** | 0.122 | 8.6 | 0.00104 |
| **11/20/2024** | 0.0738 | 3.7 | 854 | 34.1 | 0.064 | 0.0176 | 6.6 | 0.104 | 22 | 0.00118 |
| | | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.105 | 3.8 | 5970 | 34.1 | 0.111 | 0.0364 | 6.8 | 0.122 | 22 | 0.00118 |
| **Low** | 0.0263 | 3.3 | 505 | 15.8 | 0.039 | 0.0176 | 6.3 | 0.008 | 7.5 | 0.000471 |
| **Mean** | 0.0594 | 3.6 | 2094 | 21.7 | 0.067 | 0.0239 | 6.52 | 0.07 | 11.8 | 0.00089 |
| | | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | -- | 2.49 | 0.841 | 8.5 | 0.469 | 128 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 2 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | -- | 0% | 0% | 25% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## D-6 Cinder Lake Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Flow (l/s) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|
| **2/5/2024** | 0.0123 | 4.8 | 105.9 | 20.9 | 0.127 | 0.0492 | 6.32 | < 0.005 | 10 | 0.000034 |
| **5/7/2024** | 0.0108 | 4.2 | 329 | 18.7 | 0.085 | 0.0591 | 6.6 | 0.007 | 11 | 0.000037 |
| **8/13/2024** | 0.0372 | 2.8 | 1 | 285.0 | 0.363 | **0.972** | 6.71 | 0.008 | **250** | 0.000234 |
| **11/20/2024** | 0.0174 | 4.1 | 87 | 80.0 | 0.167 | 0.0779 | 6.7 | < 0.005 | 69 | 0.000060 |
| | | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.0372 | 4.8 | 329 | 285 | 0.363 | 0.972 | 6.7 | 0.008 | 250 | 0.000234 |
| **Low** | 0.0108 | 2.8 | 1 | 18.7 | 0.085 | 0.049 | 6.3 | 0.005 | 10 | 0.000034 |
| **Mean** | 0.0194 | 4 | 130.7 | 101.2 | 0.186 | 0.290 | 6.6 | 0.006 | 85 | 0.000091 |
| | | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | -- | 0 | 1 | 0 | 0 | 1 | 0 |
| **Frequency** | 0% | 0% | -- | -- | 0% | 25% | 0% | 0% | 25% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## BSD2

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **5/7/2024** | 0.0106 | 4.3 | 18.2 | 0.08 | 0.0572 | 6.6 | 0.022 | 11 | 0.000035 |
| **11/20/2024** | 0.0176 | 4 | 82.1 | 0.17 | 0.0805 | 6.7 | < 0.005 | 66 | 0.000061 |
| | | | | | | | | | |
| **Count** | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **High** | 0.0176 | 4.3 | 82.1 | 0.17 | 0.0805 | 6.7 | 0.022 | 66 | 0.000061 |
| **Low** | 0.0106 | 4 | 18.2 | 0.08 | 0.0572 | 6.6 | 0.005 | 11 | 0.000035 |
| **Mean** | 0.0141 | 4.15 | 50.15 | 0.125 | 0.06885 | 6.65 | 0.0135 | 38.5 | 0.000048 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

## FBD2

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **5/7/2024** | < 0.00008 | < 0.5 | < 0.05 | 0.011 | 0.00001 | **5.2** | < 0.005 | < 0.2 | 0.000023 |
| **11/20/2024** | < 0.00008 | < 0.5 | < 0.05 | < 0.007 | < 0.00001 | 5.5 | < 0.005 | < 0.2 | < 0.000002 |
| | | | | | | | | | |
| **Count** | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **High** | < 0.00008 | < 0.5 | < 0.05 | 0.011 | 0.00001 | 5.5 | < 0.005 | < 0.2 | 0.000023 |
| **Low** | < 0.00008 | < 0.5 | < 0.05 | 0.007 | 0.00001 | 5.2 | < 0.005 | < 0.2 | 0.000002 |
| **Mean** | < 0.00008 | < 0.5 | < 0.05 | 0.009 | 0.00001 | 5.4 | < 0.005 | < 0.2 | 0.000012 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 1 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 50% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## DS-18 Halfmoon Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Flow (l/s) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|
| **2/5/2024** | 0.0147 | 2.7 | 142.6 | 52.0 | 0.405 | 0.0324 | 6.95 | 0.100 | 34 | 0.000931 |
| **5/21/2024** | 0.0210 | 2.7 | 208 | 96.4 | 0.266 | 0.0110 | 6.8 | 0.137 | 79 | 0.000953 |
| **8/20/2024** | 0.00961 | 3.0 | 80.42 | 51.2 | 0.257 | 0.0112 | 7.1 | 0.052 | 29 | 0.00115 |
| **11/20/2024** | 0.0114 | 2.9 | 118 | 53.4 | 0.103 | 0.00436 | 7.0 | 0.091 | 29 | 0.00115 |
| | | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.021 | 3 | 208 | 96.4 | 0.405 | 0.0324 | 7.1 | 0.137 | 79 | 0.00115 |
| **Low** | 0.00961 | 2.7 | 80.4 | 51.2 | 0.103 | 0.00436 | 6.8 | 0.052 | 29 | 0.000931 |
| **Mean** | 0.0142 | 2.8 | 137.3 | 63.2 | 0.258 | 0.01474 | 6.96 | 0.095 | 43 | 0.00105 |
| | | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | -- | 2.49 | 0.841 | 8.5 | 0.469 | 309 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## M-01 Sherriff Creek @ Hwy 108

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **2/8/2024** | 0.0181 | 5.5 | 43.2 | 0.581 | 0.0739 | 7.0 | 0.007 | 13 | 0.00215 |
| **5/8/2024** | 0.0164 | 5.4 | 30.6 | 0.259 | 0.0501 | 6.7 | 0.028 | 10 | 0.00280 |
| **7/24/2024** | 0.0219 | 6.3 | 46.4 | 1.67 | 0.304 | 6.7 | 0.031 | 5.8 | 0.00192 |
| **11/26/2024** | 0.0168 | 4.7 | 41.3 | 0.404 | 0.108 | 6.8 | 0.031 | 13 | 0.00151 |
| | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.0219 | 6.3 | 46.4 | 1.67 | 0.304 | 7 | 0.031 | 13 | 0.0028 |
| **Low** | 0.0164 | 4.7 | 30.6 | 0.259 | 0.0501 | 6.7 | 0.007 | 5.8 | 0.00151 |
| **Mean** | 0.0183 | 5.5 | 40.4 | 0.728 | 0.134 | 6.8 | 0.024 | 10 | 0.0021 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## BSR5

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **2/8/2024** | 0.0186 | 5.3 | 43.9 | 0.631 | 0.0754 | 7.0 | 0.01 | 13 | 0.00217 |
| **5/8/2024** | 0.0163 | 5.5 | 30.9 | 0.254 | 0.0498 | 6.7 | 0.014 | 10 | 0.00273 |
| **7/24/2024** | 0.022 | 6.2 | 46.4 | 1.71 | 0.307 | 6.7 | 0.014 | 5.7 | 0.00194 |
| **11/26/2024** | 0.0172 | 4.7 | 41.9 | 0.494 | 0.138 | 6.8 | < 0.005 | 14 | 0.0018 |
| | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.022 | 6.2 | 46.4 | 1.71 | 0.307 | 7 | 0.014 | 14 | 0.00273 |
| **Low** | 0.0163 | 4.7 | 30.9 | 0.254 | 0.0498 | 6.7 | 0.005 | 5.7 | 0.0018 |
| **Mean** | 0.0189667 | 5.425 | 40.775 | 0.77225 | 0.14255 | 6.8 | 0.01075 | 10.675 | 0.00216 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

## FBR5

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **2/8/2024** | < 0.00008 | < 0.5 | 0.05 | 0.025 | 0.00007 | 6.6 | < 0.005 | < 0.2 | < 0.000002 |
| **5/8/2024** | < 0.00008 | 0.5 | < 0.05 | < 0.007 | 0.00002 | 7.0 | < 0.005 | < 0.2 | 0.000005 |
| **7/24/2024** | < 0.00008 | < 0.5 | 0.34 | 0.007 | 0.00006 | 6.6 | < 0.005 | < 0.2 | 0.000010 |
| **11/26/2024** | 0.00009 | < 0.5 | 0.46 | < 0.007 | < 0.00001 | 7.4 | < 0.005 | < 0.2 | < 0.000002 |
| | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.00009 | 0.5 | 0.46 | 0.025 | 0.00007 | 7.4 | < 0.005 | < 0.2 | 0.00001 |
| **Low** | 0.00008 | 0.5 | 0.05 | 0.007 | 0.00001 | 6.6 | < 0.005 | < 0.2 | 0.000002 |
| **Mean** | 0.00008 | 0.5 | 0.22 | 0.012 | 0.00004 | 6.9 | < 0.005 | < 0.2 | 0.000005 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## Q-09 Serpent River Below Quirke TMA Effluent

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Flow (l/s) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|
| **2/7/2024** | 0.0348 | 3.6 | 1100 | 76.1 | 0.141 | 0.0702 | 6.9 | 0.032 | 64 | 0.00175 |
| **5/29/2024** | 0.0753 | 3.5 | 1990 | 51.9 | 0.168 | 0.195 | 7.0 | 0.105 | 44 | 0.00208 |
| **7/26/2024** | 0.106 | 3.9 | 1180 | 65.1 | 0.144 | 0.0481 | 6.9 | 0.142 | 51 | 0.00132 |
| **11/26/2024** | 0.0597 | 3.6 | 1330 | 83.6 | 0.111 | 0.0295 | 6.5 | 0.055 | 71 | 0.00152 |
| | | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.106 | 3.9 | 1990 | 83.6 | 0.168 | 0.195 | 7 | 0.142 | 71 | 0.00208 |
| **Low** | 0.0348 | 3.5 | 1100 | 51.9 | 0.111 | 0.0295 | 6.5 | 0.032 | 44 | 0.00132 |
| **Mean** | 0.069 | 3.6 | 1400 | 69.2 | 0.141 | 0.0857 | 6.8 | 0.084 | 58 | 0.00167 |
| | | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## Q-20 Evans Lake Outlet to Dunlop Lake

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Flow (l/s) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|
| **11/25/2024** | 0.0181 | 2.4 | 8.3 | 40.2 | 0.009 | 0.00688 | 7.3 | < 0.005 | 21 | 0.000039 |
| | | | | | | | | | | |
| **Count** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **High** | 0.0181 | 2.4 | 8.3 | 40.2 | 0.009 | 0.00688 | 7.3 | < 0.005 | 21 | 0.000039 |
| **Low** | 0.0181 | 2.4 | 8.3 | 40.2 | 0.009 | 0.00688 | 7.3 | < 0.005 | 21 | 0.000039 |
| **Mean** | 0.0181 | 2.4 | 8.3 | 40.2 | 0.009 | 0.00688 | 7.3 | < 0.005 | 21 | 0.000039 |
| | | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SC-01 Westner Lake Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **11/25/2024** | 0.0123 | 7.5 | 34.1 | 0.242 | 0.0222 | 7.0 | 0.018 | 25 | 0.000136 |
| | | | | | | | | | |
| **Count** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **High** | 0.0123 | 7.5 | 34.1 | 0.242 | 0.0222 | 7 | 0.018 | 25 | 0.000136 |
| **Low** | 0.0123 | 7.5 | 34.1 | 0.242 | 0.0222 | 7 | 0.018 | 25 | 0.000136 |
| **Mean** | 0.0123 | 7.5 | 34.1 | 0.242 | 0.0222 | 7 | 0.018 | 25 | 0.000136 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 128 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SR-01 Quirke Lake Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **10/16/2024** | 0.0446 | 3.0 | 35.7 | < 0.007 | 0.00267 | 6.8 | 0.047 | 28 | 0.00114 |
| | | | | | | | | | |
| **Count** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **High** | 0.0446 | 3 | 35.7 | < 0.007 | 0.00267 | 6.8 | 0.047 | 28 | 0.00114 |
| **Low** | 0.0446 | 3 | 35.7 | < 0.007 | 0.00267 | 6.8 | 0.047 | 28 | 0.00114 |
| **Mean** | 0.0446 | 3 | 35.7 | < 0.007 | 0.00267 | 6.8 | 0.047 | 28 | 0.00114 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SR-06 McCabe Lake Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Flow (l/s) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|---|
| **6/26/2024** | 0.111 | 2.5 | 299 | 31.8 | 0.008 | 0.00834 | 7.1 | 0.064 | 21 | 0.000510 |
| **10/3/2024** | 0.144 | 3.5 | 0 | 31.6 | 0.018 | 0.0207 | 7.3 | 0.072 | 21 | 0.000580 |
| | | | | | | | | | | |
| **Count** | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **High** | 0.144 | 3.5 | 299 | 31.8 | 0.018 | 0.0207 | 7.3 | 0.072 | 21 | 0.00058 |
| **Low** | 0.111 | 2.5 | 0 | 31.6 | 0.008 | 0.00834 | 7.1 | 0.064 | 21 | 0.00051 |
| **Mean** | 0.128 | 3 | 150 | 31.7 | 0.013 | 0.0145 | 7.2 | 0.068 | 21 | 0.000545 |
| | | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SR-08 Nordic Lake Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **2/7/2024** | 0.0194 | 4.6 | 208 | 0.029 | 0.0300 | 6.7 | 0.021 | 160 | 0.00101 |
| **4/9/2024** | 0.0151 | 3.7 | 125 | 0.097 | 0.0261 | 6.7 | 0.022 | 100 | 0.000652 |
| **7/24/2024** | 0.0171 | 4.4 | 200 | 0.048 | 0.0322 | 6.9 | 0.033 | 160 | 0.000829 |
| **11/25/2024** | 0.0181 | 4.0 | 188 | 0.014 | 0.0290 | 6.6 | 0.038 | 160 | 0.000971 |
| | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.0194 | 4.6 | 208 | 0.097 | 0.0322 | 6.9 | 0.038 | 160 | 0.00101 |
| **Low** | 0.0151 | 3.7 | 125 | 0.014 | 0.0261 | 6.6 | 0.021 | 100 | 0.000652 |
| **Mean** | 0.0174 | 4.2 | 180 | 0.047 | 0.0293 | 6.7 | 0.028 | 145 | 0.000866 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 309 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SR-15 May Lake Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **6/18/2024** | 0.0649 | 3.9 | 38.6 | 0.029 | 0.0111 | 7.3 | 0.039 | 25 | 0.000406 |
| **10/3/2024** | 0.0632 | 1.9 | 37.4 | 0.015 | 0.00332 | 7.6 | 0.066 | 7.5 | 0.000432 |
| | | | | | | | | | |
| **Count** | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **High** | 0.0649 | 3.9 | 38.6 | 0.029 | 0.0111 | 7.6 | 0.066 | 25 | 0.000432 |
| **Low** | 0.0632 | 1.9 | 37.4 | 0.015 | 0.00332 | 7.3 | 0.039 | 7.5 | 0.000406 |
| **Mean** | 0.064 | 2.9 | 38 | 0.022 | 0.00721 | 7.4 | 0.052 | 16.2 | 0.000419 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 218 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SR-16 Fox Creek @ Hwy 108

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **1/24/2024** | 0.00747 | **14.2** | 8.4 | 1.03 | 0.0334 | 5.8 | < 0.005 | 0.9 | 0.000031 |
| **4/4/2024** | 0.00435 | 9.1 | 4.9 | 0.257 | 0.0126 | 5.8 | < 0.005 | 1.6 | 0.000033 |
| **7/24/2024** | 0.00702 | **20.5** | 8.6 | 1.98 | 0.0798 | 5.7 | 0.016 | 0.2 | 0.000056 |
| **11/25/2024** | 0.00582 | **15.3** | 7.9 | 0.481 | 0.0304 | 6.9 | < 0.005 | 1.0 | 0.000028 |
| | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.00747 | 20.5 | 8.6 | 1.98 | 0.0798 | 6.9 | 0.016 | 1.6 | 0.000056 |
| **Low** | 0.00435 | 9.1 | 4.9 | 0.257 | 0.0126 | 5.7 | 0.005 | 0.2 | 0.000028 |
| **Mean** | 0.00616 | 14.8 | 7.4 | 0.94 | 0.039 | 6 | 0.008 | 0.9 | 0.000037 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 128 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 3 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 25% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SR-17 Unnamed Creek Drain Lake 3 @ Hwy 108

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **2/7/2024** | 0.0183 | 8.7 | 11.4 | 0.962 | 0.0523 | 6.4 | 0.007 | 2.2 | 0.000045 |
| **5/9/2024** | 0.0131 | 10.0 | 6.8 | 0.554 | 0.0229 | 5.8 | < 0.005 | 1.9 | 0.000040 |
| **7/24/2024** | 0.0236 | **15.3** | 14.4 | **4.13** | 0.152 | 5.7 | < 0.005 | 0.4 | 0.000049 |
| **11/26/2024** | 0.0161 | 10.7 | 10.4 | 0.421 | 0.0245 | 6.3 | < 0.005 | 4.2 | 0.000033 |
| | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.0236 | 15.3 | 14.4 | 4.13 | 0.152 | 6.4 | 0.007 | 4.2 | 0.000049 |
| **Low** | 0.0131 | 8.7 | 6.8 | 0.421 | 0.0229 | 5.7 | 0.005 | 0.4 | 0.000033 |
| **Mean** | 0.0178 | 11.2 | 10.8 | 1.517 | 0.0629 | 6 | 0.006 | 2.2 | 0.000042 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 128 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 5.3 | -- | -- | -- |
| **Lim Ex** | 0 | 1 | -- | 1 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 25% | -- | 25% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SR-18 Jim Christ Lake Outlet

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **5/9/2024** | 0.0421 | 5.5 | 9.1 | 0.036 | 0.00960 | 6.7 | < 0.005 | 3.0 | 0.000052 |
| **11/26/2024** | 0.0464 | 5.2 | 11.2 | 0.136 | 0.0502 | 7.1 | < 0.005 | 3.5 | 0.000059 |
| | | | | | | | | | |
| **Count** | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **High** | 0.0464 | 5.5 | 11.2 | 0.136 | 0.0502 | 7.1 | < 0.005 | 3.5 | 0.000059 |
| **Low** | 0.0421 | 5.2 | 9.1 | 0.036 | 0.0096 | 6.7 | < 0.005 | 3 | 0.000052 |
| **Mean** | 0.0442 | 5.4 | 10.2 | 0.086 | 0.0299 | 6.9 | < 0.005 | 3.2 | 0.000056 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 128 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

## SR-19 Inlet to Elliot Lake

| Sample Date | Barium (mg/l) | DOC (Diss) (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| **2/8/2024** | 0.0196 | 5.4 | 16.5 | 0.314 | 0.0219 | 6.9 | < 0.005 | 2.9 | 0.000058 |
| **5/9/2024** | 0.0171 | 5.1 | 12.8 | 0.166 | 0.0223 | 7.0 | < 0.005 | 2.3 | 0.000038 |
| **7/24/2024** | 0.0237 | 4.6 | 18.9 | 0.469 | 0.0767 | 6.7 | < 0.005 | 2.4 | 0.000070 |
| **11/25/2024** | 0.0188 | 5.9 | 13.0 | 0.230 | 0.0250 | 7.0 | < 0.005 | 3.0 | 0.000047 |
| | | | | | | | | | |
| **Count** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| **High** | 0.0237 | 5.9 | 18.9 | 0.469 | 0.0767 | 7 | < 0.005 | 3 | 0.00007 |
| **Low** | 0.0171 | 4.6 | 12.8 | 0.166 | 0.0219 | 6.7 | < 0.005 | 2.3 | 0.000038 |
| **Mean** | 0.0198 | 5.2 | 15.3 | 0.295 | 0.0365 | 6.9 | < 0.005 | 2.6 | 0.000053 |
| | | | | | | | | | |
| **High Limit** | 1 | 11 | -- | 2.49 | 0.841 | 8.5 | 0.469 | 128 | 0.015 |
| **Low Limit** | -- | -- | -- | -- | -- | 6.5 | -- | -- | -- |
| **Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |
| **10x Lim Ex** | 0 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 |
| **Frequency (10x)** | 0% | 0% | -- | 0% | 0% | 0% | 0% | 0% | 0% |

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station D-4***

| D-4 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 128 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 128 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.013 | -- | 8.9 | 0.04 | 0.014 | 6.9 | < 0.007 | 3.0 | < 0.0005 |
| 2021 | 0.011 | -- | 9.0 | 0.02 | 0.009 | 7.0 | 0.005 | 2.9 | < 0.0005 |
| 2022 | 0.012 | 3.0 | 9.6 | 0.05 | 0.017 | 6.7 | < 0.005 | 2.9 | 0.0002 |
| 2023 | 0.011 | -- | 9.0 | 0.04 | 0.021 | 6.4 | < 0.005 | 2.9 | 0.0000 |
| 2024 | 0.011 | -- | 9.1 | 0.02 | 0.016 | 6.6 | < 0.005 | 2.8 | 0.0000 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station D-5***

| D-5 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 128 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 128 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.068 | -- | 20.3 | 0.08 | 0.028 | 7.0 | 0.044 | 10.6 | 0.0013 |
| 2021 | 0.068 | -- | 20.9 | 0.08 | 0.025 | 6.9 | 0.052 | 9.8 | 0.0011 |
| 2022 | 0.072 | 3.7 | 29.5 | 0.11 | 0.032 | 6.8 | 0.063 | 16.5 | 0.0013 |
| 2023 | 0.085 | 3.8 | 26.1 | 0.09 | 0.028 | 6.6 | 0.067 | 15.6 | 0.0014 |
| 2024 | 0.059 | -- | 21.7 | 0.07 | 0.024 | 6.5 | 0.070 | 11.8 | 0.0009 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station D-6***

| D-6 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.015 | -- | 31.2 | 0.37 | 0.146 | 6.9 | < 0.007 | 21.0 | < 0.0005 |
| 2021 | 0.014 | -- | 37.2 | 0.20 | 0.099 | 6.8 | 0.009 | 27.8 | < 0.0005 |
| 2022 | 0.013 | 4.4 | 38.3 | 0.16 | 0.102 | 6.6 | < 0.005 | 28.0 | 0.0004 |
| 2023 | 0.018 | 4.7 | 101.6 | 0.36 | 0.298 | 6.6 | 0.006 | 81.5 | 0.0001 |
| 2024 | 0.018 | -- | 84.2 | 0.17 | 0.216 | 6.6 | 0.009 | 69.5 | 0.0001 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station BSD2***

| **BSD2** | **Barium (mg/l)** | **DOC (mg/l)** | **Hardness (mg/l)** | **Iron (mg/l)** | **Manganese (mg/l)** | **pH (Field) (pH)** | **Radium (Bq/l)** | **Sulfate (mg/l)** | **Uranium (mg/l)** |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.015 | -- | 31.5 | 0.35 | 0.162 | 6.8 | < 0.007 | 20.0 | < 0.0005 |
| 2021 | 0.013 | -- | 39.2 | 0.17 | 0.098 | 6.8 | 0.006 | 33.0 | < 0.0005 |
| 2022 | 0.015 | 3.9 | 58.7 | 0.21 | 0.116 | 6.6 | < 0.005 | 43.0 | < 0.0005 |
| 2023 | 0.019 | 3.9 | 114.7 | 0.40 | 0.340 | 6.7 | 0.008 | 94.0 | < 0.0005 |
| 2024 | 0.014 | 4.2 | 50.2 | 0.13 | 0.069 | 6.7 | 0.014 | 38.5 | < 0.0005 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station FBD2***

| FBD2 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | < 0.005 | -- | < 0.5 | < 0.02 | < 0.002 | 6.0 | < 0.007 | < 0.1 | < 0.0005 |
| 2021 | < 0.005 | -- | < 0.5 | < 0.02 | < 0.002 | 5.7 | < 0.005 | < 0.2 | < 0.0005 |
| 2022 | 0.000 | < 0.5 | < 0.1 | < 0.02 | 0.003 | 6.0 | < 0.005 | < 0.1 | < 0.0005 |
| 2023 | 0.000 | -- | 0.1 | < 0.01 | 0.000 | 6.2 | < 0.005 | < 0.2 | 0.0000 |
| 2024 | < 0.000 | -- | < 0.1 | 0.01 | 0.000 | 5.4 | < 0.005 | < 0.2 | 0.0000 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station DS-18***

| DS-18 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 309 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 309 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.021 | -- | 70.1 | 0.35 | 0.016 | 7.1 | 0.105 | 53.0 | 0.0010 |
| 2021 | 0.027 | -- | 58.4 | 0.16 | 0.012 | 7.1 | 0.133 | 44.3 | 0.0009 |
| 2022 | 0.019 | 2.7 | 63.4 | 0.17 | 0.013 | 6.9 | 0.100 | 45.8 | 0.0011 |
| 2023 | 0.017 | 2.2 | 65.6 | 0.20 | 0.017 | 6.7 | 0.089 | 31.2 | 0.0012 |
| 2024 | 0.014 | -- | 63.3 | 0.26 | 0.015 | 7.0 | 0.095 | 42.8 | 0.0010 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station M-01***

| M-01 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.018 | -- | 35.4 | 1.56 | 0.275 | 6.8 | 0.029 | 7.2 | 0.0024 |
| 2021 | 0.016 | -- | 34.1 | 0.92 | 0.113 | 6.6 | 0.028 | 8.2 | 0.0021 |
| 2022 | 0.016 | 6.4 | 35.8 | 0.95 | 0.145 | 6.6 | 0.019 | 9.5 | 0.0030 |
| 2023 | 0.017 | 5.8 | 42.7 | 0.58 | 0.097 | 6.8 | 0.015 | 11.5 | 0.0021 |
| 2024 | 0.018 | -- | 40.4 | 0.73 | 0.134 | 6.8 | 0.024 | 10.5 | 0.0021 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station BSR5***

| BSR5 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.015 | -- | 31.5 | 0.31 | 0.047 | 6.9 | 0.020 | 8.9 | 0.0026 |
| 2021 | 0.014 | -- | 31.9 | 0.47 | 0.058 | 6.7 | 0.019 | 8.3 | 0.0021 |
| 2022 | 0.014 | 6.0 | 33.5 | 0.58 | 0.092 | 6.6 | 0.017 | 9.8 | 0.0026 |
| 2023 | 0.016 | -- | 42.0 | 0.53 | 0.105 | 7.2 | 0.015 | 7.3 | 0.0019 |
| 2024 | 0.019 | -- | 40.8 | 0.77 | 0.143 | 6.8 | 0.011 | 10.7 | 0.0022 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station FBR5***

| FBR5 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | < 0.005 | -- | < 0.5 | < 0.02 | < 0.002 | 5.9 | < 0.007 | < 0.1 | < 0.0005 |
| 2021 | < 0.005 | -- | < 0.5 | < 0.02 | < 0.002 | 6.0 | < 0.006 | < 0.1 | < 0.0005 |
| 2022 | < 0.000 | < 0.5 | < 0.1 | < 0.02 | < 0.002 | 6.4 | < 0.005 | < 0.1 | < 0.0005 |
| 2023 | < 0.000 | -- | 0.2 | 0.01 | 0.000 | 6.3 | 0.006 | < 0.2 | 0.0000 |
| 2024 | 0.000 | -- | 0.2 | 0.01 | 0.000 | 6.9 | < 0.005 | < 0.2 | 0.0000 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station Q-09***

| Q-09 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.074 | -- | 45.7 | 0.22 | 0.085 | 6.9 | 0.066 | 34.0 | 0.0019 |
| 2021 | 0.077 | -- | 55.7 | 0.17 | 0.066 | 6.8 | 0.073 | 46.3 | 0.0016 |
| 2022 | 0.077 | 3.9 | 81.2 | 0.17 | 0.059 | 6.7 | 0.067 | 65.5 | 0.0018 |
| 2023 | 0.129 | 3.8 | 95.6 | 0.13 | 0.055 | 6.8 | 0.084 | 80.0 | 0.0023 |
| 2024 | 0.069 | -- | 69.2 | 0.14 | 0.086 | 6.8 | 0.084 | 57.5 | 0.0017 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station Q-20***

| Q-20 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.019 | -- | 35.7 | 0.03 | 0.027 | 6.8 | < 0.007 | 17.0 | < 0.0005 |
| 2021 | 0.018 | -- | 35.4 | < 0.02 | 0.008 | 7.0 | < 0.005 | 18.0 | < 0.0005 |
| 2022 | 0.017 | 2.8 | 37.2 | 0.03 | 0.017 | 7.0 | < 0.005 | 18.0 | 0.0003 |
| 2023 | 0.019 | -- | 39.7 | 0.02 | 0.012 | 7.1 | < 0.005 | 18.7 | 0.0000 |
| 2024 | 0.018 | -- | 40.2 | 0.01 | 0.007 | 7.3 | < 0.005 | 21.0 | 0.0000 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SC-01***

| SC-01 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 128 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 128 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.009 | -- | 25.3 | 0.13 | 0.023 | 7.0 | 0.012 | 16.0 | < 0.0005 |
| 2021 | 0.011 | -- | 30.1 | 0.13 | 0.023 | 7.0 | 0.015 | 18.0 | < 0.0005 |
| 2022 | 0.014 | 7.8 | 37.7 | 0.17 | 0.021 | 6.6 | 0.014 | 26.0 | < 0.0005 |
| 2023 | 0.014 | -- | 34.8 | 0.40 | 0.085 | 7.4 | 0.026 | 27.0 | 0.0002 |
| 2024 | 0.012 | -- | 34.1 | 0.24 | 0.022 | 7.0 | 0.018 | 25.0 | 0.0001 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SR-01***

| SR-01 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.042 | -- | 34.3 | 0.03 | 0.004 | 6.8 | 0.029 | 24.0 | 0.0012 |
| 2021 | 0.041 | -- | 28.9 | < 0.02 | 0.003 | 6.9 | 0.027 | 26.0 | 0.0011 |
| 2022 | 0.042 | 3.1 | 37.8 | < 0.02 | 0.005 | **6.4** | < 0.005 | 25.0 | 0.0010 |
| 2023 | 0.043 | -- | 35.6 | < 0.01 | 0.002 | 7.5 | 0.022 | 27.0 | 0.0012 |
| 2024 | 0.045 | -- | 35.7 | < 0.01 | 0.003 | 6.8 | 0.047 | 28.0 | 0.0011 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SR-06***

| SR-06 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.148 | -- | 36.9 | < 0.02 | 0.014 | 7.2 | 0.054 | 26.0 | 0.0006 |
| 2021 | 0.138 | -- | 36.1 | 0.02 | 0.016 | 7.1 | 0.046 | 23.5 | 0.0006 |
| 2022 | 0.124 | 3.1 | 35.0 | 0.03 | 0.018 | 6.7 | 0.041 | 23.0 | 0.0006 |
| 2023 | 0.147 | -- | 35.5 | 0.16 | 0.030 | **6.5** | 0.044 | 11.6 | 0.0005 |
| 2024 | 0.128 | -- | 31.7 | 0.01 | 0.015 | 7.2 | 0.068 | 21.0 | 0.0005 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SR-08***

| SR-08 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 309 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 309 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.019 | -- | 173.8 | 0.04 | 0.034 | 6.8 | 0.030 | 140.0 | 0.0008 |
| 2021 | 0.019 | -- | 192.5 | 0.05 | 0.052 | 7.1 | 0.030 | 155.0 | 0.0009 |
| 2022 | 0.018 | 4.1 | 161.3 | 0.06 | 0.032 | 6.9 | 0.025 | 140.0 | 0.0008 |
| 2023 | 0.017 | 4.4 | 149.3 | 0.05 | 0.033 | 6.9 | 0.026 | 122.0 | 0.0008 |
| 2024 | 0.017 | -- | 180.3 | 0.05 | 0.029 | 6.7 | 0.029 | 145.0 | 0.0009 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SR-15***

| SR-15 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 218 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 218 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.103 | -- | 40.6 | 0.03 | 0.006 | 7.2 | 0.045 | 27.0 | < 0.0005 |
| 2021 | 0.087 | -- | 42.2 | 0.02 | 0.008 | 7.0 | 0.047 | 25.0 | < 0.0005 |
| 2022 | 0.065 | 3.5 | 39.1 | 0.34 | 0.010 | 6.8 | 0.053 | 25.0 | < 0.0005 |
| 2023 | 0.062 | -- | 37.0 | 0.02 | 0.007 | 6.8 | 0.024 | 14.2 | 0.0003 |
| 2024 | 0.064 | -- | 38.0 | 0.02 | 0.007 | 7.5 | 0.053 | 16.3 | 0.0004 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SR-16***

| SR-16 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 128 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 128 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.008 | -- | 7.9 | 1.12 | 0.061 | 6.2 | < 0.007 | 0.8 | < 0.0005 |
| 2021 | 0.007 | -- | 7.5 | 0.94 | 0.036 | 5.9 | < 0.006 | 0.6 | < 0.0005 |
| 2022 | 0.007 | 13.2 | 8.3 | 0.91 | 0.037 | 5.7 | 0.006 | 0.5 | < 0.0005 |
| 2023 | 0.010 | 15.8 | 10.4 | 1.34 | 0.111 | 6.1 | < 0.005 | 2.0 | 0.0003 |
| 2024 | 0.006 | -- | 7.5 | 0.94 | 0.039 | 6.1 | 0.008 | 0.9 | 0.0000 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SR-17***

| SR-17 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 128 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 128 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.020 | -- | 10.7 | 1.63 | 0.074 | 6.2 | < 0.007 | 1.8 | < 0.0005 |
| 2021 | 0.016 | -- | 9.0 | 0.97 | 0.057 | 6.1 | 0.007 | 1.6 | < 0.0005 |
| 2022 | 0.019 | 8.7 | 11.0 | 1.01 | 0.061 | 6.1 | < 0.005 | 2.0 | < 0.0005 |
| 2023 | 0.022 | 7.9 | 13.0 | 1.25 | 0.058 | 6.2 | 0.005 | 2.1 | 0.0002 |
| 2024 | 0.018 | -- | 10.8 | 1.52 | 0.063 | 6.1 | 0.006 | 2.2 | 0.0000 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SR-18***

| SR-18 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 128 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 128 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.046 | -- | 9.7 | 0.07 | 0.017 | 6.9 | < 0.007 | 3.5 | < 0.0005 |
| 2021 | 0.046 | -- | 9.8 | 0.07 | 0.035 | 6.8 | 0.006 | 3.5 | < 0.0005 |
| 2022 | 0.081 | 11.8 | 10.7 | 0.25 | 0.015 | 7.0 | < 0.005 | 4.2 | 0.0003 |
| 2023 | 0.044 | -- | 10.6 | 0.05 | 0.016 | 7.0 | < 0.005 | 3.3 | 0.0003 |
| 2024 | 0.044 | -- | 10.2 | 0.09 | 0.030 | 6.9 | < 0.005 | 3.3 | 0.0001 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value

***Rio Algom and Denison Mines Inc.***
***2024 Serpent River Watershed Water Quality Monitoring Results***
***Five Year Annual Average Station SR-19***

| SR-19 | Barium (mg/l) | DOC (mg/l) | Hardness (mg/l) | Iron (mg/l) | Manganese (mg/l) | pH (Field) (pH) | Radium (Bq/l) | Sulfate (mg/l) | Uranium (mg/l) |
|---|---|---|---|---|---|---|---|---|---|
| Assessment Criteria[1] | | | | | | | | | |
| Wetland Benchmark[2] | 1 | | | 2.49 | 0.841 | 5.3 | 0.469 | 128 | 0.015 |
| Lake Benchmark[3] | 1 | | | 0.76 | 0.841 | 6.5 | 0.469 | 128 | 0.015 |
| MDL[4] | 0.005 | | 0.05 | 0.02 | 0.002 | 0.1 | 0.005 | 0.1 | 0.0005 |
| **Year** | | | | | | | | | |
| 2020 | 0.022 | -- | 15.9 | 0.38 | 0.061 | 7.0 | < 0.007 | 2.6 | < 0.0005 |
| 2021 | 0.020 | -- | 14.5 | 0.39 | 0.056 | 7.0 | 0.007 | 2.5 | < 0.0005 |
| 2022 | 0.023 | 5.5 | 16.6 | 0.44 | 0.057 | 6.9 | < 0.005 | 2.7 | < 0.0005 |
| 2023 | 0.023 | 6.1 | 17.1 | 0.38 | 0.053 | 6.6 | < 0.005 | 3.0 | 0.0003 |
| 2024 | 0.020 | -- | 15.3 | 0.29 | 0.036 | 6.9 | < 0.005 | 2.7 | 0.0001 |

Notes
[1] Assessment criteria as per Table S.1, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021)
[2] Benchmark applies to wetland stations: M-01, DS-18, SC-01.
[3] Benchmark applies to lake stations: D-5, D-6, Q-09, Q-20, SR-01, SR-06, SR-08.
[4] Method Detection Limits as per Table 6.2, Cycle 5 Study Design for the SRWMP, SAMP and TOMP (Minnow, 2019)
Sulphate and manganese criteria taken from Table S.2, Appendix S, Cycle 5 State of the Environment Report for the SRWMP, SAMP and TOMP (Minnow, 2021). Parameters are hardness dependent.
Variation in number of significant figures reflect MDL's at the time of reporting. In 2006, laboratory reported MDL's were standardized to achieve consistency and meet program requirements, as per Cycle 2 Interpretive Report (Minnow 2005).
**Bold** indicates exceedance of evaluation criteria value