Appendix G-1

AEMP Report

# Aquatic Effects Monitoring Program 2019 Annual Report

## Meliadine Gold Project

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FINAL

March 2020

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Project No: AEM-19-04/MEL AEMP 2019

**Report Version Log**

| Version | Dates | Distribution |
|---|---|---|
| Draft (revision 0) | March 8, 2020 | Jessica Huza, Terry Ternes, Sara Savoie (Agnico Eagle) |
| Final (revision 1) | March 28, 2020 | Jessica Huza, Terry Ternes, Sara Savoie (Agnico Eagle) |

# EXECUTIVE SUMMARY

This document summarizes results of the 2019 Aquatic Effects Monitoring Program (AEMP) for Agnico Eagle's Meliadine Gold mine in the Kivalliq region of Nunavut. The AEMP was developed through consultation with communities, stakeholders, and regulators and serves as an integrated monitoring program for the aquatic receiving environment that encompasses all phases of mine development. The AEMP is designed to assess whether activities at the mine are causing changes in water quality that could affect aquatic life or human use of surface water resources.

The spatial scale of the study design includes Meliadine Lake and three Peninsula Lakes (A8, B7, and D7) near the mine site. Activities with the potential to cause changes in water quality include discharge of treated contact water to Meliadine Lake, wind-blown dust from the site, alteration of watersheds (i.e., flow diversion and dewatering) and aerial emissions.

The scope of the 2019 AEMP focused on water quality monitoring in Meliadine Lake and the Peninsula Lakes. In addition to the routine water quality monitoring in Meliadine Lake, a targeted phytoplankton study was completed in August at the Meliadine Lake study areas to assess whether the mine is contributing to nutrient enrichment in the near-field (NF) area.

Benthic invertebrate and fish studies in Meliadine Lake are completed on the 3-year monitoring timeframe for the Environmental Effects Monitoring (EEM) program. The next study is planned for 2021. Water sampling was conducted as per requirements in the Water Licence (2AM-MEL1631) and according to methods described in the *AEMP Study Design Document* (Golder 2016). A summary of the key findings from 2019 are discussed below.

## Summary of Activities on Site in 2019

Meliadine started commercial gold production in May 2019. Contact water (i.e., seepage and runoff) water from the site was collected at Collection Pond 1 (CP1) and treated at the Effluent Water Treatment Plant (EWTP) before being discharged to Meliadine Lake during the open water period (July through to early October). 2019 was the second year of treated effluent release to Meliadine Lake.

## Effluent Quality

Chemistry results from MEL-14 were below the limits outlined in the Water Licence and Metal and Diamond Mine Effluent Regulations (MDMER) in 2019 with the exception of one sample where the concentration of total dissolved solids exceeded the Water Licence limit by less than

2%. Water chemistry results from MEL-13 were below water quality guidelines for the protection of freshwater aquatic life and human health, indicating the risk of adverse effects to aquatic receptors (algae, invertebrates, and fish) and impacts to drinking water quality are unlikely. The chemistry results from MEL-14, when compared against the receiving environment samples collected at MEL-13 above the CP1 diffuser, show that effluent is rapidly diluted over a short distance away from the diffuser.

Treated effluent was not acutely toxic to *Daphnia magna* or rainbow trout in the four monthly samples collected in 2019. These test results are consistent with the toxicity test results from 2018. No effects to *Lemna minor* frond weight and frond yield compared to the control group were observed in the three monthly sublethal toxicity tests with full-strength effluent in 2019. The sublethal toxicity test indicate an improvement in effluent quality in 2019 compared to 2018 when inhibitory effects to frond yield were detected in two-of-three sampling events in full strength (i.e., 97%) effluent.

The acute and sublethal toxicity test results from 2019 indicated good overall effluent quality. It's evident that current effluent chemistry at the end-of-pipe is not acutely toxic to fish or aquatic invertebrates or chronically toxic to the most sensitive test species, *L. minor*. Considering the treated effluent is a) non-toxic at full strength, and b) rapidly diluted in the mixing zone at MEL-13, potential acute or chronic risks to aquatic life in the NF area of Meliadine Lake are considered unlikely.

No follow-up actions or mitigation are recommended for 2020 other than routine testing as per MDMER sampling requirements for the project.

## Meliadine Lake Water Quality

Five areas in Meliadine Lake were monitored in 2019. The near-field (NF) area in Meliadine Lake (MEL-01) includes 5 stations located in a perimeter around at the edge of the mixing zone, approximately 100 m from the diffuser. The mid-field (MF) area MEL-02 is located northwest of MEL-01 and allows for monitoring the spatial extent of changes in water quality caused by the activities at the mine. Four sampling events were completed at NF and MF areas in 2019: one winter event in February, and three open-water events in July, August and September. Three reference areas in the west basin (MEL-03 and MEL-04) and south basin (MEL-05) were sampled in 2019. MEL-03 was sampled monthly at the same time as the NF and MF areas and provides information about seasonal variability in water quality under natural conditions. MEL-04 and MEL-05 were sampled in August (**Figure 1-1**).

**Water Quality Guideline Screening** – Water quality in Meliadine Lake is safe for human consumption, with no exceedances of the *Guidelines for Canadian Drinking Water Quality* (Health Canada 2019) reported for any samples in 2019. Water quality guidelines for the protection of freshwater aquatic life (CCME, WQG updates to 2020) were also met throughout 2019 at the NF and MF areas.

**Normal Range Assessment** – There were several parameters that were elevated at the NF and MF areas in 2019 relative to baseline and reference conditions for Meliadine Lake. Normal range concentrations were used to single out parameters at the NF and MF higher than the upper limit ($90^{th}$ percentile) of concentrations measured during 1) the baseline period (pre-2015) and 2) at the reference areas in recent AEMP cycles (2015 to 2019). In general, the same list of parameters that exceeded in 2018 also exceeded in 2019, namely total dissolved solids (and constituent ions such as magnesium, sulphate, chloride) and the following metals: arsenic, cobalt, iron, lithium, manganese, nickel, strontium, and titanium. Aluminum, barium and mercury both exceeded the normal range in 2018 but not 2019, signaling an improvement in water quality for these parameters in 2019. Nitrogen (ammonia, nitrate, and TKN) and phosphorus were all below their respective normal range concentrations in 2019.

**Spatial Differences between Areas in 2019** – As predicted in the FEIS, some water quality parameters have increased in the NF area due to activities at the mine. TDS, some major ions, lithium, and strontium were higher in concentration at the NF area relative to the MF and reference areas in 2019. The increase in concentration at the NF area relative to the MF and reference areas corresponds to less than a 20% increase for TDS and most major ions (chloride = 34% increase at NF vs reference). The magnitude of the difference in metals concentrations between the NF and reference areas in 2019 tended to be greater. Arsenic, cobalt, and iron, for example, were 80%, 130% and, 150% higher at the NF area in 2019 compared to the pooled references. For all three parameters, the difference in concentration between the NF and reference areas were *statistically* significant, implying concentrations of some metals are different between the east basin and the west/south basins of Meliadine Lake. The difference between areas constitutes a *change*, but concentrations remain well below levels associated with effects to aquatic life or human drinking water consumption.

**Temporal Trends** – Discharge of treated mine effluent is likely to be the biggest contributor to changes in water quality observed in 2018 and 2019; potential changes caused by non-point sources (i.e., dust or aerial emissions) are likely minor relative to effluent. Subtle increases in the concentration of major ions such as sodium, chloride, and magnesium have occurred throughout the pre-construction, construction, and early operations period, consistent with

predictions in the Final Environmental Impact Statement (Agnico Eagle 2014). For most conventional and nutrient parameters, there has been no discernable increase in concentration in 2018 and 2019 relative to the baseline and pre-construction phases, and in some cases, concentrations appear to be decreasing (see total phosphorus).

Lithium and strontium have increased in the NF area and MF area since the start of AEMP monitoring in 2015. However, the pattern of the increase is matched at the reference areas dating back to the on-set of reference area sampling in 2016, suggesting the changes at the NF and MF may be related to wider, regional change. Importantly, other metals that exceeded their respective normal range concentrations in 2019 do not appear to be increasing over time. Arsenic and iron both demonstrate how concentrations can exceed the normal range concentration (calculated based on lake-wide samples) but not show evidence of an increasing temporal trend. For both parameters, concentrations measured in 2013 are within the range reported between July and September in 2019. These results demonstrate that, at least for some metals, the inter-annual variability in water chemistry at the NF area is less than the intra-annual variability in concentration (difference between seasons).

What is clear from the 2019 results is that increases relative to the baseline period related to the mine are easy to identify (see lithium and strontium). For those parameters that have increased, the concentrations reported in 2019 are consistent with last year's results.

**Conclusions** – The observed changes to conventional parameters (e.g., conductivity) and major ions aligns with predictions in the FEIS, namely, that some minor changes relative to baseline conditions are expected, but water quality will meet guidelines for the protection of aquatic life and human drinking water at the edge of the mixing zone.

**Action Level Assessment** – the low action level was not exceeded at Meliadine Lake in 2019:

1) Effluent was non-toxic in the monthly sublethal tests with the aquatic plant *Lemna minor*. No inhibitory or stimulatory responses were observed for the full-strength effluent tests in 2019.
2) Some minor changes in water quality in the NF area of Meliadine Lake have occurred due to mining-related activities, but current concentrations are well below levels associated with toxicological effects to aquatic life.
3) Water quality in Meliadine Lake met the human health-based criteria for safe drinking water.

4) Total phosphorous in Meliadine Lake was below the concentration of 0.0075 mg/L (75% of the AEMP benchmark of 0.01 mg/L) used in the nutrient enrichment assessment. Supporting information for the nutrient enrichment assessment collected during the phytoplankton study is summarized below.

**Recommendations for 2020** – Spatial and temporal trends in water quality will continue to be monitored as part of the annual AEMP in 2020.

## Peninsula Lakes Water Quality

Water quality monitoring at the Peninsula Lakes was completed twice in July and August to assess whether aerial emissions, dust, or alteration of watersheds on the Peninsula is affecting water quality beyond what was predicted in the FEIS.

**Conclusions**– Results from 2019 demonstrate that changes in water quality at the Peninsula Lakes align with predictions in the FEIS: some parameters have increased relative to the baseline period, but current conditions support freshwater aquatic life and human uses. Minor year-over-year changes in water quality that were detected for some parameters do not warrant management actions or mitigation strategies beyond those currently in place to address loadings from dust, on-site water management, or aerial emissions.

Key findings from this year's assessment are:

**Water Quality Guideline Screening** – No exceedances of aquatic life or human health drinking water quality guidelines were reported for samples collected in 2019. These results align with predictions in the FEIS.

**Normal Range Assessment** – Aluminum, iron, and lead at Lake A8, and lithium and strontium at Lake B7 increased relative to the normal range of concentrations from the baseline period in each lake. None of the parameters with toxicologically-derived water quality guidelines exceeded the AEMP benchmarks for effects to aquatic life or human health. There are no aquatic life or human health WQGs for lithium, but concentrations at Lake B7 in 2019 were consistent with concentrations reported in 2018.

**Temporal Trends** – There is clear evidence of changes in water quality coinciding with activities in the pre-construction and construction years in 2016 and 2017. Recent data from the 2018 and 2019 monitoring programs indicate that concentrations for most parameters have either decreased in the years since peak on-site construction, or remained stable in 2018 and 2019. Sodium, sulphate, aluminum have increased gradually at Lake B7 during the AEMP monitoring period. However, concentrations are below their respective normal ranges, indicating current

concentrations are within the upper limit of concentrations in the baseline period. Lithium and strontium increased markedly between 2017 and 2018, coinciding with the timing of construction on site. It's unclear to what extent the increase in lithium and strontium is related to on-site activities as opposed to natural changes. Importantly, both parameters showed a slight downward trend in 2019, indicating mining activities are not contributing to year-over-year increases.

**Recommendations for 2020** – On-going monitoring of temporal trends in water quality at the Peninsula Lakes will continue in 2020.

## Phytoplankton Survey & Nutrient Enrichment Assessment

Phytoplankton monitoring has been conducted annually as a target study in Meliadine Lake (2015 to 2019) and the Peninsula Lakes (2015 to 2018) but is not a requirement of the AEMP specified in the Water Licence. When the AEMP study design was developed, there was uncertainty about the overall utility of phytoplankton as a monitoring component to inform management decisions. As such, formal criteria for the low action level assessment and correspond management actions haven't been developed. To date, the phytoplankton community data have been used as a line of evidence, along with chlorophyll-a and nutrient concentration data, to determine if, and to what extent, activities at the mine have contributed to increased primary productivity in Meliadine Lake.

As of 2018, the scope of the phytoplankton program has focused on Meliadine Lake, with sampling completed in August each year. The study is completed concurrent with the routine AEMP water quality monitoring program at the NF, MF, and reference areas (REF). Below are the key findings from this year's study.

**Background** – Evidence of nutrient enrichment in the NF area appeared in 2015 with noticeable increases in phytoplankton biomass relative to baseline sampling in 2013. From the late exploration period through to 2017, sewage from the exploration camp was treated at the sewage treatment plant and discharged to Meliadine Lake. Annual loadings of total phosphorus (TP), calculated from the available nutrient and discharge data, were around 50 kg/year in 2013 and 2015 (no data for 2014) before doubling to 100 kg/year in 2016 and 2017. A significant reduction in TP occurred in 2018 and again in 2019 with sewage diverted to the main camp sewage treatment plant, followed by pumping to CP1 and additional treatment at the effluent water treatment plant. In 2019, the estimated loading of TP from all sources on site, including sewage, was approximately 16 kg. As outlined in the FEIS, nitrogen loading to Meliadine Lake

increased in 2018 and 2019 with the discharge of treated contact water bearing residual blasting material.

**Nutrient Concentrations** – Concentrations of total nitrogen (TN) and TP remain fairly low in the NF and MF areas. Monitoring results since 2015 show increases in TN (dissolved and total fractions) at NF, and to a lesser extent the MF area, relative to the reference areas in Meliadine Lake. Despite the apparent pattern of increase in TN at NF since 2015, the observed concentrations are consistent with baseline results for Meliadine Lake collected from 1997 to 2013. Nutrient data collected to date suggest that changes in nutrient concentrations, particularly for total nitrogen, have occurred at the NF area since 2015. The pattern of the change is consistent with mining activities, and the magnitude of the change appears to be within the range of conditions measured during the baseline period (i.e., within the normal range in 2019).

**Phytoplankton** – Total biomass, density and taxa richness, while generally higher at the NF area relative to the rest of Meliadine Lake, have not changed appreciably since 2015. Because biomass, density, and richness have been fairly constant over time despite the increases in nutrients observed at the NF area since 2015, the increase in phytoplankton metrics between 2013 and 2015 might be related to natural variability. The statistical analysis of the phytoplankton community supports a similar pattern, with the NF area being slightly different from the other sampling areas, but the biggest year-to-year changes are driven by taxa shifts that occurred at all the areas (NF, MF, and REF areas).

**Nutrient-Productivity Relationships** – Phytoplankton biomass was tracked by two metrics: volumetric-based biomass (direct measure of the community) and chlorophyll-a (surrogate measure). The metrics were weakly, but positively, correlated across years, with differential photosynthetic pigment content among phytoplankton taxa a likely important source of the variability. Ultimately, direct measurement of the community is a better indicator of biomass, but chlorophyll-a provides complementary, yet independent, information that is easy to collect. As in previous years, neither measure of biomass was correlated to either TN or TP, suggesting that mining-related nutrient inputs do not appear to be responsible for the observed differences in phytoplankton biomass or chlorophyll-a.

**Trophic Status Index (TSI)** – TSI values continue to fall in the oligotrophic classification, which is the same classification as the baseline period. While TSI values based on TP and Secchi depth at the NF area were higher than in previous years, the TSI value based on chlorophyll-a was the lowest. These TSI values provide a rough guide only and should be given less emphasis than direct measures of the phytoplankton community.

**Conclusions –** The phytoplankton community metrics (species richness and biomass) have not changed substantially at the NF area relative to the MF and REF areas since 2015.

**Recommendations for 2020** – Collectively, the phytoplankton community and nutrient data provide useful information to help detect potential effects to primary productivity resulting from nutrient enrichment in Meliadine Lake. Continued monitoring in 2020 should improve our understanding of the relative importance of these factors.

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# ACRONYMS

| | |
|---|---|
| AEMP | Aquatic Effects Monitoring Program |
| ANOVA | Analysis of variance |
| BC ENV | British Columbia Ministry of Environment and Climate Change Strategy |
| CCME | Canadian Council of Ministers of the Environment |
| CIRNAC | Crown-Indigenous Relations and Northern Affairs Canada |
| COA | Certificate of analysis |
| CoC | Chain-of-custody |
| COPC | Contaminant of potential concern |
| CRM/LCS | Certified reference material (laboratory control sample) |
| DI | Deionized water blank (aka field blank) |
| DL | Detection limit |
| DQO | Data quality objective |
| EB | Equipment blank |
| ECCC | Environment and Climate Change Canada |
| EEM | Environmental Effects Monitoring |
| EWTP | Effluent Water Treatment Plant |
| FEIS | Final Environmental Impact Statement |
| FWAL | Freshwater aquatic life (CCME chronic water quality guideline) |
| GCDWQ | Guidelines for Canadian Drinking Water Quality |
| KIA | Kivalliq Inuit Association |
| K-W | Kruskal-Wallis (for statistical comparisons among stations) |
| LOE | Line of evidence |
| MB | Method blank |
| MDMER | Metal and Diamond Mining Effluent Regulations |
| MF | Mid-field (MEL-02) |
| NF | Near-field (MEL-01) |
| NIRB | Nunavut Impact Review Board |
| NR | Normal Range (of baseline / reference concentrations) |
| nMDS | non-metric multidimensional scaling |
| NWB | Nunavut Water Board |
| PI | Prediction interval (method for estimating the Normal Range) |
| QA/QC | Quality assurance/quality control |

| | |
|---|---|
| REF | Reference areas (MEL-03, MEL-04, and MEL-05) |
| RPD | Relative percent difference |
| SRSi | Soluble and reactive silica |
| SSWQO | Site specific water quality objective |
| STP | Sewage Treatment Plant |
| TDS | Total dissolved solids |
| TN | Total nitrogen |
| TKN | Total Kjeldahl nitrogen |
| TP | Total phosphorus |
| TSF | Tailings storage facility |
| TSI | Trophic status index |
| TSS | Total suspended solids |
| WL | Water Licence |
| WRSF | Waste rock storage facility |
| WQG | Water quality guidelines |

# REPORT ORGANIZATION

The 2019 Aquatic Effects Monitoring Program (AEMP) report is organized into a main document and 9 appendices. 2019 is the first year Azimuth is reporting on the AEMP water quality results of the AEMP. The report structure remains largely the same as previous years (Golder 2019, Golder 2018).

The document is organized into the following sections. Figures and tables are included at the end of each chapter.

**Executive Summary** – a high-level summary of the 2019 monitoring results for each component of the 2019 AEMP (effluent characterization, Meliadine Lake water quality, Peninsula Lakes water quality, and the phytoplankton study in Meliadine Lake).

**Section 1** (Introduction) provides an overview of the AEMP and outlines the scope and objectives of the 2019 program according to the *AEMP Design Document* (Golder 2016). **Section 1** also explains the decision-making framework for evaluating whether changes in water quality have occurred, and whether those changes are plausibly related to activities at the mine.

**Section 2** (AEMP Study Design) summarizes the core elements of the water quality component of the AEMP study design including sampling areas, sampling methods, and data analysis.

**Section 3** (Quality Assurance / Quality Control): a high-level summary of the quality assurance and quality control assessment (QA/QC) presented in **Appendix A**.

**Section 4** (Effluent Characterization): This section summarizes results from the effluent monitoring program (i.e., effluent chemistry, toxicity test results, and loadings assessment).

**Section 5** (Meliadine Water Quality): Summary of the 2019 water quality results from the Meliadine Lake component of the AEMP.

**Section 6** (Peninsula Lake Water Quality): Summary of the 2019 water quality results from the Peninsula Lakes component of the AEMP.

**Section 7** (Meliadine Phytoplankton): Summary of the 2019 phytoplankton study in Meliadine Lake. Figures and Tables specific to each component of the program are included at the end of each section.

# CONCORANCE TABLE

Reporting for the 2019 AEMP took into consideration comments provided to Agnico Eagle regarding the 2018 EEM/AEMP interpretive report. Comments that apply to the Environmental Effects Monitoring (EEM) portion of the 2018 interpretive report will be addressed within the EEM study design for Cycle 2. Comments pertaining specifically to the AEMP are addressed in this table, with references to specific sections of the report.

Notes:
[a] Comments from the various agencies summarized in Nunavut Water Board File No. 2AM-MEL1631.
[b] Comments related to sediment, benthic invertebrate community, and fish will be addressed in the next EEM cycle.

| Component | Agency | Comment [a] | Comment | Reference / Response |
|---|---|---|---|---|
| Nutrient enrichment | CIRNAC | #4 | Provide updates on Mine-related impacts on Meliadine Lake, and the effects of diversion of STP effluent to CP1 on parameter concentrations and nutrients. | Nutrient loadings by year presented in **Figure 7-1**<br>Nutrient concentrations discussed in the Phytoplankton Study (**Section 7**). |
| Meliadine Lake water quality | NWB | #3 | Investigate discrepancies in pre-treatment vs. post-treatment chloride concentrations at the monitoring stations MEL-12 and MEL-14 and consider the CCME long term limits for the ongoing elevated chloride concentrations; | It's not clear whether this question, as stated, is meant to be addressed within the AEMP. The purpose of the Aquatic Effects Monitoring Program is to evaluate changes in water quality in the receiving environment, not the efficacy of treatment methods and pre-treatment water quality.<br><br>In regard to on-going elevated chloride concentrations, chloride is rapidly diluted when effluent is discharged at MEL-13. Within the mixing zone concentrations were between 11 and 13 mg/L in the four monthly samples. At the edge of the mixing zone (MEL-01 stations) the range in concentrations reported in 2019 was 10.6 mg/L to 14.7 mg/L. Chloride concentration at MEL-14, the last point of compliance averaged 474 mg/L in the 14 weekly samples collected between June 26 and Oct 1$^{st}$.<br><br>The long-term freshwater aquatic life guideline (aka chronic) for chloride is 120 mg/L. Current concentrations within the mixing zone and at the edge of the mixing zone (100 m) in Meliadine Lake are approximately 10-times lower than the long-term CCME freshwater aquatic life guideline. |

| Component | Agency | Comment [a] | Comment | Reference / Response |
|---|---|---|---|---|
| Meliadine Lake water quality | NWB | #3 (con't) | Implement a more integrated review of all chemistry results focusing on possible relationship between different monitoring stations; | Relationships between near-field, mid-field and reference areas are discussed in **Section 5** (Meliadine Lake) and **Section 6** (Peninsula Lakes). |
| | | | Provide further clarification regarding the efficiency of current treatment system | Nutrient loadings by year since 2013 shown in **Figure 7-1**. Total phosphorus loading to Meliadine Lake in 2019 was the lowest since 2013 when loadings estimates were first calculated. Nitrogen loading has increased in 2018 and 2019 coinciding with discharge of treated effluent from CP1. Absolute concentrations in the NF are low. |
| | | | Ensure timely exceedance reporting | Addressed within the Annual Report |
| | | | Ensure consistency in reporting of chemistry units throughout the entire submission | Units for water chemistry are reported in the following manner: Major ions (mg/L); nutrient (mg/L), cyanide (mg/L), metals (µg/L); radium-226 (Bq/L). Effluent concentrations are reported in mg/L in the loadings assessment for calculating the monthly and annual loadings to Meliadine Lake (in kg). |
| Peninsula Lakes water quality | NWB | #4 | Provide a discussion on increased concentrations of total metals in Lake B7 (or other Peninsula Lakes if similar patterns are observed in the future) and potential relationship with the mine activities; | Potential changes in water quality at the Peninsula Lakes related to mining activities are discussed in the context of the FEIS predictions and comparison to the normal range of concentrations during the baseline period in **Section 6** (Peninsula Lakes). |
| | | | Consider including Lake A38 (and possibly A9) into future Peninsula Lakes Study and provide a discussion on how its chemistry has improved compared to previous years. | The current study design includes Lake A8, B7, and D7 as the monitoring locations for assessing potential changes in water quality in waterbodies close to the site caused by non-point sources such as dust, aerial emissions, and alterations of the watersheds as part of the approved mine plan. It not evident at this time that adding Lake A38 or A9 to the Peninsula Lake study design would provide incremental benefit beyond information already collected at Lake A8, B7, and D7 to inform the Response Framework. |
| Benthic invertebrate community | ECCC | #7 | Consider multivariate methods to assess the Bray-Curtis Index (e.g., Mantel's test, distance-based redundancy analysis dbRDA.) | See note [b] |
| Sediment quality | NWB | #5 | Provide further clarification on the optimization of sampling locations | See note [b] |
| | | | Provide further clarification on the data used to estimate normal ranges; | |
| | | | Introduce the time scale into correlation plots | |

| Component | Agency | Comment [a] | Comment | Reference / Response |
|---|---|---|---|---|
| Fish population health | NWB | #6 | Provide clear statements addressing all previous commitments; | See note [b] |
| | | | Avoid contradictions between future Annual Reports and Monitoring Program results; | |
| | | | Ensure consistent calculations in future reports; | |
| | | | Discuss the use of 'body size vs. egg size' correlation with DFO; | |
| | | | Ensure completeness of data provided to the Board. | |
| Plankton | NWB | #7 | Provide further clarification on the differences between pre-construction ranges and normal ranges; | Refer to **Section 7.5.2** for a detailed discussion of changes in the phytoplankton community. |
| | | | Ensure proper references to tables and figures in future reports. | Noted |
| | | #8 | Provide further clarification on the direction of plume development; | Plume delineation was not a requirement of the 2019 AEMP. Characterization of the plume direction was undertaken as a requirement of the Cycle 1 EEM study in 2018. Future characterization of the effluent plume in the mixing zone may be undertaken to support biological studies in 2021. |
| | | | Provide a discussion regarding the differences in specific conductivity during ice-covered conditions. | Increases in specific conductivity are common in the winter as ice-formation excludes certain ions (e.g., chloride) and increases their concentration in the water column. Based on long-term water quality monitoring at the Meadowbank project, conductivity typically increases progressively during the ice-covered season as the thickness of the ice layer increases, causing an overall reduction in water volume. |

# 1 INTRODUCTION

## 1.1 Background

Agnico Eagle Mines Ltd is sole owner of the Meliadine Gold Project (the mine) located in the Kivalliq District, approximately 25 km north of Rankin Inlet, Nunavut. The Meliadine property is approximately 111,000 ha and is located on the SE shore of Meliadine Lake (**Figure 1-1**). There are and currently six deposits in the mine plan. Underground mining at the Tiriganiaq gold deposit is currently underway, with future open pit mining planned at Tiriganiaq Pit 1 and Tiriganiaq Pit 2. The extent of the development, as of late 2019, is shown in **Figure 1-2**.

The Aquatic Effects Monitoring Program (AEMP) is a requirement of the Type A Water Licence (2AM-MEL-1631; Part I in NWB 2016). The scope of the *AEMP Design Document* (Golder 2016) was developed through consultation with communities, stakeholders, and regulators and serves as an integrated monitoring program that encompasses all phases of mine development. The AEMP takes into consideration aspects of the federal Environmental Effects Monitoring (EEM) program required under the *Metal and Diamond Mining Effluent Regulations (MDMER)*.

## 1.2 Objectives and Scope of the 2019 AEMP

The AEMP, at the most basic level, is the mechanism for assessing whether activities at the mine are causing changes in the aquatic environment. More specifically, the AEMP has three main objectives,

- Assess whether mining-related activities are causing effects in the aquatic receiving environment,
- Evaluate the accuracy of the predictions in the Final Environmental Impact Statement (FEIS, Agnico Eagle 2014), and
- Collect information to 1) verify the effectiveness of current mitigation/control measures, and 2) support mitigation planning if necessary.

The core elements of the integrated AEMP are water quality, sediment chemistry, benthic invertebrate community, and fish. As discussed above, the AEMP was developed, in part, based on requirements of the EEM program. Biological studies (i.e., benthic invertebrate communities and fish) are conducted on a 3-year cycle in Meliadine Lake. EEM Cycle 1 began in August 2018 in Meliadine Lake. The next biological monitoring studies for benthic invertebrates and fish is planned for 2021. In 2019 (and 2020), the core components of the AEMP were water quality

monitoring in Meliadine Lake and the Peninsula Lakes. Phytoplankton monitoring in Meliadine Lake was also completed in August 2019 as part of the multi-year investigation into whether the mine has, or is contributing to nutrient enrichment in the near-field (NF) area in Meliadine Lake. The phytoplankton community results (i.e., biomass), along with the chlorophyll-a and nutrient data, are considered in a weight-of-evidence assessment to help answer this question.

### 1.2.1 Key Questions

The AEMP study design uses *key questions* to evaluate water quality monitoring results from the Meliadine Lake and the Peninsula Lake programs. The questions help define how the water quality data are analyzed and interpreted. The key questions for the AEMP are as follows:

- *Are concentrations of key parameters in the effluent less than limits specified under MDMER and the Water Licence?*
- *Is current water quality consistent with predictions in the FEIS and less than AEMP actions levels?*
- *Have concentrations changed over time, relative to baseline / reference conditions?*

The first bullet pertains to the effluent quality assessment for Meliadine discussed in **Section 4**. The other two questions apply to the Meliadine Lake and Peninsula Lake receiving environment monitoring. The approach to evaluating current water quality relative to FEIS predictions and AEMP Action Levels is discussed in the following two sections.

### 1.2.2 Verification of FEIS Predictions

Water quality predictions were developed in the FEIS for Meliadine Lake and some of the Peninsula Lakes that may be affected by development at the mine (Agnico Eagle 2014). Current water quality is compared to FEIS predictions to verify the predicted trends in water quality during different phases of the project. Deviations from predicted water quality are captured within the action level assessment and Response Framework discussed in the following section.

There are two types of FEIS predictions discussed in this report, *numerical* predictions and *narrative* predictions. Both are discussed in the Meliadine Lake Peninsula Lakes chapters, but the *narrative* predictions are the points of comparison when answering the key question of whether current water quality is consistent with predictions in the FEIS.

- **Numerical Predictions** are estimated concentrations from water quality models or baseline concentrations (i.e., median or maximum) that are considered applicable through the various phases of mining. Numerical predictions for Meliadine Lake and the Peninsula Lakes are discussed in more detail within their respective chapters.

- **Narrative Predictions** are broad statements about future water quality as the project transitions from construction through post-closure. Narrative classifications for future water quality are defined as *negligible* if similar to baseline (increase of 10% or less) or a *minor change* relative to baseline conditions. Minor changes are defined as a noticeable increase compared to baseline, but less than WQGs (Golder 2019).

### 1.2.3 Response Framework and Action Levels

A core component of the *AEMP Design Document* is the Response Framework that links monitoring results with appropriate management actions to identify and mitigate changes before effects occur[1]. The Response Framework for Meliadine was developed based on *Draft Guidelines for Adaptive Management – a Response Framework for Aquatic Effects Monitoring* (WLWB 2010) and experience gained at Meadowbank (Azimuth 2012).

The Response Framework uses action levels to define the level of response associated with each action level (i.e., low, medium, or high). Action levels were developed for each monitoring component (e.g., water, benthic invertebrate community endpoints, etc.) based on comparison to the baseline data (e.g., normal range assessment), by adopting thresholds such as water quality guidelines as *benchmarks*, or statistical tests. The managed response is dependent on what changed in the environment (e.g., higher concentration of X parameter) and the action level that is exceeded (low, moderate, or high). Furthermore, the specific management action that would be appropriate in a given case depends on the underlying cause. For example, if a metal becomes elevated in the aquatic receiving environment, the identification of options for further assessment and/or mitigation would be different if the source of the metal is groundwater versus effluent versus dust (Azimuth 2012).

Low action levels, which were updated in 2018, provide an early warning indicator (aka 'trigger') that changes in water quality have occurred before concentrations increase to levels associated with effects to aquatic life or drinking water quality. An overview of the action levels and evaluation criteria are provided below.

[1] Terminology for *effect* and *change* is taken from the AEMP Design Document (Golder 2016). *Effects* are defined as *changes* that are linked to activities at the mine. For example, a particular water quality parameter may increase from one year to the next due to inherent natural temporal variability or a regional trend that caused changes in water quality over a wide area. In this respect, the increase constitutes a *change*, but not an *effect* that is plausibly linked to activities at the mine.

### End-of-Pipe Effluent Toxicity

Sublethal toxicity tests are used to assess end-of-pipe toxicity in the action level assessment.

- Low action level: *Is effluent from MEL-14 causing persistent sublethal toxic effects?*
    - A persistent sublethal effect is detected in the same test organisms in three consecutive rounds of monthly testing. Effects, in this assessment, are defined as any concentration of effluent that causes a 25% effect (i.e., IC25) relative to the control treatment. Effects may be inhibitory (e.g., reduction in growth or reproduction) or stimulatory (e.g., increased growth).

The action level assessment for end-of-pipe toxicity is present in the effluent characterization chapter (**Section 4.3.2**).

### Effects to Aquatic Life – Toxicological Impairment

Mining activities have the potential to increase concentrations of parameters that could exert toxic effects on primary producers (algae), aquatic invertebrates, and fish. Parameters carried forward in this assessment have toxicologically-based thresholds for the protection of aquatic life, such as pH, dissolved oxygen, certain major ions and nutrients (e.g., chloride and nitrate), and metals.

The low action level assessment for toxicological effects to aquatic life is completed for the NF area in Meliadine Lake and the Peninsula Lakes. The low action level assessment has three conditions, each of which must be met in a *weight-of-evidence* type assessment to trigger an exceedance. The three conditions are:

- *Has water quality at the near-field area changed relative to baseline/reference conditions?*
    - Current water quality exceeds the normal range of baseline/reference conditions and, in the case of Meliadine Lake concentrations in the NF area are statistically significantly greater than the reference areas.
- *Does current water quality exceed 75% of the AEMP benchmark?*
    - AEMP benchmarks are based on either CCME water quality guidelines or site-specific water quality objectives (SSWQO) in the case of fluoride, arsenic, and iron (see below). 75% of the AEMP benchmark serves an early-warning that concentrations are increasing, but haven't reached levels associated with effects to aquatic life.

- *Is there a divergent trend in water quality at the NF area in Meliadine Lake compared to the reference areas?*[2]
    - Water quality plots are used to visually assess whether the *pattern* of change in water quality over time at the NF area is divergent from the pattern at the reference areas. The normal range assessment is used to short-list parameters that warrant more scrutiny in the temporal assessment.

**AEMP Benchmarks for Aquatic Life**. With the exception of fluoride, arsenic, and iron, which have SSWQO (Golder 2014), AEMP Benchmarks for toxicological effects to aquatic life were set as the most conservative (lowest) value reported from the following sources:

- Canadian Council of Ministers of the Environment (CCME),
- Environment and Climate Change Canada (ECCC; Federal Environmental Quality Guidelines [FEQG]),
- British Columbia Ministry of Environment and Climate Change Strategy (BC ENV), or
- Guidelines from other jurisdictions (e.g., TDS guideline for Alaska of 500 mg/L [ADEC, 2012])

Some parameters, such as aluminum, cadmium, and zinc have calculated guidelines that are dependent on other parameters known to affect their toxicity (e.g., hardness, pH, DOC). For simplicity, the AEMP benchmarks for these parameters were conservatively defined as the lowest sample-specific CCME freshwater aquatic life WQG value calculated in 2019. In the case of sulphate, which has hardness-dependent aquatic life guideline in BC, the AEMP benchmark was set to 128 mg/L for Meliadine Lake (hardness < 30 mg $CaCO_3$/L) compared to 218 for the Peninsula Lakes (hardness between 31 to 75 mg $CaCO_3$/L) to account for natural differences in hardness among the lakes.

### Drinking Water Quality for Human Consumption

The low action level assessment for safe drinking water follows the same approach described above for aquatic life. 75% of the GCDWQ are the AEMP benchmarks for evaluating whether drinking water quality is being impacted by mining activities.

**AEMP Benchmarks for Drinking Water Quality**. Canadian drinking water quality guidelines (Health Canada 2019) were adopted as the AEMP Benchmarks to protect human health. With

[2] There are no reference areas used in the assessment of the Peninsula Lakes. Temporal trends are evaluated as part of normal range assessment (i.e., comparison of current water quality to baseline conditions).

the exception of fluoride, arsenic, and iron, which have SSWQO, AEMP benchmarks for the protection of aquatic life are more conservative (i.e., lower) than the AEMP benchmarks to protect human drinking water quality. Therefore, if the concentration of a given parameter is below the AEMP benchmark for aquatic life, the benchmark for drinking water quality is also met. Fluoride, arsenic, and iron are the only parameters with more stringent AEMP benchmarks for the protection of drinking water than aquatic life.

### Effects to Aquatic Life – Nutrient Enrichment

The low action level assessment for nutrient enrichment water follows the same approach described above for aquatic life:

- *Are concentrations of chlorophyll-a and total phosphorous (TP) elevated relative to baseline / reference?*
- *Do concentrations exceed 75% of the AEMP benchmarks?*
- *Is there a divergent temporal trend between NF and reference areas?*

All three conditions must be met for an exceedance of the low action level for nutrient enrichment.

**AEMP Benchmarks for Nutrient Enrichment.** Total phosphorus (i.e., the limiting nutrient in Meliadine Lake) and chlorophyll-a (i.e., a direct indicator of primary productivity used in trophic status assessment) are the parameters included in the nutrient enrichment action level assessment. The AEMP benchmarks for nutrient enrichment were selected to protect the oligotrophic status of Meliadine Lake and represent the commonly accepted upper limits of the oligotrophic ranges for total phosphorus and chlorophyll-a (Golder 2019).

- Total phosphorus: 0.01 mg/L based on CCME (2004) trigger ranges for evaluating trophic status in lakes.
- Chlorophyll-a: 4.5 µg/L, based on an evaluation by DDMI (2013) of chlorophyll-a concentrations compared to trophic status. Their assessment concluded that 4.5 µg/L represents a reasonable and conservative upper boundary for classifying northern lakes as oligotrophic (Golder 2019).

Nutrient chemistry data are collected as part of the routine water quality monitoring program for the Meliadine Lake AEMP and as supporting information in the phytoplankton study conducted in August. Nutrient chemistry data from the routine water quality monitoring program are interpreted within the low action level assessment.

## Updates to the AEMP Benchmarks

A few minor edits were made to the AEMP benchmarks in 2019 (**Table 1-1**). Antimony, which was not included in the list of AEMP benchmarks for aquatic life in 2018, has a working[3] water quality guideline in BC as well as a Health Canada guideline. Another note-worthy change in 2019 is the adoption of the draft FEQG for strontium[4] to replace the benchmark adopted from Pacholski (2009) in previous years.

**Table 1-1. Updated AEMP benchmarks for the protection of aquatic life and drinking water quality.**

| Parameter | Assessment | Former AEMP Benchmark | New AEMP Benchmark |
|---|---|---|---|
| Antimony | Human Health | None applied | 6 µg/L (Health Canada 2019) |
| Antimony | Aquatic Life | None applied | 9 µg/L (BC ENV 2017) |
| Strontium | Aquatic Life | 30,000 µg/L (Pacholski 2009) | 1,700 µg/L (FEQG 2019) |

The complete list of updated AEMP benchmarks for the protection of aquatic life and safe drinking water are provided in **Table 1-2**.

[3] WWQGs provide benchmarks for those substances that have not yet been fully assessed and formally endorsed by the ENV (BC ENV, 2017).

[4] Sufficient chronic toxicity data were available to meet the minimum data requirements for deriving a guideline based on the species sensitivity distribution (SSD) method (CCME Type A). The guideline was developed using the long-term toxicity data for three fish, three invertebrate and one plant species.

**Table 1-2. AEMP benchmarks for evaluating the potential for adverse effects to aquatic life and water quality for human consumption.**

| Parameter | Units | Aquatic Life Water Quality Guidelines | | | | AEMP Benchmarks | | Source |
|---|---|---|---|---|---|---|---|---|
| | | SSWQO | CCME | FEQG | Other Sources | Aquatic Life | Human Health | |
| pH | - | - | 6.5 -9.0 | - | - | 6.5 to 9.0 | - | CCME FWAL [a] |
| Dissolved oxygen | mg/L | - | 6.5 | - | - | 6.5 | - | CCME FWAL [a] |
| TDS | mg/L | - | - | - | 500 | 500 | 500 | ADEC 2012 [b], Health Canada [e] |
| Chloride | mg/L | - | 120 | - | - | 120 | - | CCME FWAL [a] |
| Sulphate | mg/L | - | - | - | 128 to 218 | 128 to 218 | - | BC ENV 2018 [c] |
| Fluoride | mg/L | 2.8 | 0.12 | - | - | 2.8 | 1.5 | SSWQO [d], Health Canada [e] |
| Nitrate | mg-N/L | - | 2.93 | - | - | 2.93 | 10 | CCME FWAL [a], Health Canada [e] |
| Nitrite | mg-N/L | - | 0.06 | - | - | 0.06 | 1.0 | CCME FWAL [a], Health Canada [e] |
| Total ammonia | mg-N/L | - | 1.79 | - | - | 1.79 | - | CCME FWAL [a] |
| Aluminum | µg/L | - | 100 | - | - | 100 | - | CCME FWAL [a] |
| Antimony | µg/L | - | - | - | 9.0 | 9.0 | 6.0 | BC ENV 2018 [f], Health Canada [e] |
| Arsenic | µg/L | 25 | 5 | - | - | 25 | 10 | Health Canada [e], SSWQO [d] |
| Barium | µg/L | - | - | - | 1,000 | 1,000 | - | BC ENV 2018 [c] |
| Boron | µg/L | - | 1,500 | - | - | 1,500 | 5,000 | CCME FWAL [a], Health Canada [e] |
| Cadmium | µg/L | - | 0.04 | - | - | 0.04 | 5 | CCME FWAL [a] |
| Chromium (VI) | µg/L | - | 1 | - | - | 1 | 50 | CCME FWAL [a] |
| Cobalt | µg/L | - | - | 0.78 | - | 0.78 | - | FEQG [g] |
| Copper | µg/L | - | 2 | - | - | 2 | - | CCME FWAL [a] |
| Iron | µg/L | 1,060 | 300 | - | - | 1,060 | 300 | Health Canada [e] or SSWQO [d] |
| Lead | µg/L | - | 1 | - | - | 1 | 10 | CCME FWAL [a] |

| Parameter | Units | Aquatic Life Water Quality Guidelines | | | | AEMP Benchmarks | | Source |
|---|---|---|---|---|---|---|---|---|
| | | SSWQO | CCME | FEQG | Other Sources | Aquatic Life | Human Health | |
| Mercury | µg/L | - | 0.026 | - | - | 0.026 | 1 | CCME FWAL [a] |
| Molybdenum | µg/L | - | 73 | - | - | 73 | - | CCME FWAL [a] |
| Nickel | µg/L | - | 25 | - | - | 25 | - | CCME FWAL [a] |
| Selenium | µg/L | - | 1 | - | - | 1 | 50 | CCME FWAL [a] |
| Silver | µg/L | - | 0.25 | - | - | 0.25 | - | CCME FWAL [a] |
| Strontium | µg/L | - | - | 1,700 | - | 1,700 | 7,000 | FEQG [h] \| Health Canada [e] |
| Thallium | µg/L | - | 0.8 | - | - | 0.8 | - | CCME FWAL [a] |
| Uranium | µg/L | - | 15 | - | - | 15 | 20 | CCME FWAL [a] |
| Vanadium | µg/L | - | - | 120 | - | 120 | - | FEQG [i] |
| Manganese (D) | µg/L | - | 210 | - | - | 210 | - | CCME FWAL [a] |
| Zinc (D) | µg/L | - | 5.6 | - | - | 5.6 | - | CCME FWAL [a] |
| Cyanide (free) | mg/L | - | 0.005 | - | - | 0.005 | 0.2 | CCME FWAL [a] |

Notes:

[a] CCME FWAL = Canadian Environmental Guidelines for the Protection of Aquatic Life (current to February, 2020).
Note: benchmarks for parameters that are pH or hardness-dependent were conservatively set at the lowest guidelines calculated for the 2019 samples in Meliadine Lake.

[b] ADEC (Alaska Department of Environmental Conservation). 2012. Water Quality Standards. 18 AAC 70. Amended as of April 8, 2012. Juneau, AK, USA. Available at: Link. Accessed March 2014.

[c] British Columbia Ministry of Environment (BC ENV). 2019. British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture - Summary Report. Water Protection & Sustainability Branch, BC Ministry of Environment & Climate Change Strategy. August 2019.
Note: the guideline is hardness dependent. 128 mg/L applies to Meliadine Lake (hardness < 30 mg $CaCO_3$/L); 218 mg/L applies to the Peninsula Lakes (hardness = 31 to 75 mg $CaCO_3$/L)

[d] Site Specific Water Quality Objectives (Golder, 2013)

[e] Health Canada. 2019. Guidelines for Canadian Drinking Water Quality—Summary Table. Water and Air Quality Bureau, Health Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

[f] British Columbia Ministry of Environment (BC ENV). 2017. British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture - Summary Report. Water Protection & Sustainability Branch, BC Ministry of Environment & Climate Change Strategy. August 2019.

[g] ECCC. 2017. Canadian Environmental Protection Act, 1999, Federal Environmental Quality Guidelines, Cobalt. Environment Canada. May 2017.
Note: the guideline is hardness dependent. The value shown is based on the mean hardness in the open water samples collected at MEL-01 in 2019.

[h] ECCC. 2019. Canadian Environmental Protection Act, 1999, Federal Environmental Quality Guidelines, Strontium. Environment and Climate Change Canada. May 2016.

[i] ECCC. 2016. Canadian Environmental Protection Act, 1999, Federal Environmental Quality Guidelines, Vanadium. Environment and Climate Change Canada. May 2016.

## 1.3 Mine Description and Major Activities from 2019

Meliadine began commercial gold production in May 2019. The current extent of the mining development is shown in **Figure 1-2**. The current estimated life-of-mine is 14 years, with both underground and open-pit mining of the Tiriganiaq deposit. Ore for Phase 1 of the project is currently sourced from underground operations. The mill uses a conventional gold circuit comprising crushing, grinding, gravity separation and cyanide leaching with a carbon-in-leach circuit, followed by cyanide destruction and filtration of the tailings for dry stacking[5].

Runoff and seepage (contact water) from the tailings storage facility (TSF), waste rock storage facilities 1 and 2 (WRSF1 and WRSF2) and other areas around the site is diverted to collection ponds and ultimately pumped to Collection Pond No. 1 (CP1) and treated at the Effluent Water Treatment Plant prior to discharge at the permanent diffuser located at MEL-13 in Meliadine Lake. A list of relevant AEMP monitoring stations for compliance sampling are provided in **Table 1-3**.

For the purpose of the Meliadine Lake AEMP, discharge of treated effluent from CP1 to Meliadine Lake via the permanent diffuser is a more relevant milestone when defining the transition from *construction* to *operations*.

Major site related activities with the potential to impact water quality in 2019 include:

- Continuous discharge of treated effluent from CP1 to Meliadine Lake over a 90-day period from July 9$^{th}$ to October 5$^{th}$. Water from CP1 was below the TDS discharge limit of 1,400 mg/L with the exception of September 13 when approximately 11,000 m$^3$ of water with a TDS concentration of 1,430 mg/L was released. Exceedance of the TDS discharge limit by 30 mg/L corresponds to approximately 2% of the authorized limit in the water license.
- Dust from normal operations which is monitored monthly at locations around the mine (station IDs DF-4, -5, -6, and -7; **Figure 1-2**). In addition to normal dustfall monitoring, a snow pack monitoring survey was conducted in May 2019, and as part of the survey, snow samples were collected and submitted for analysis of TSS and metals[6].

[5] Meliadine website: Link

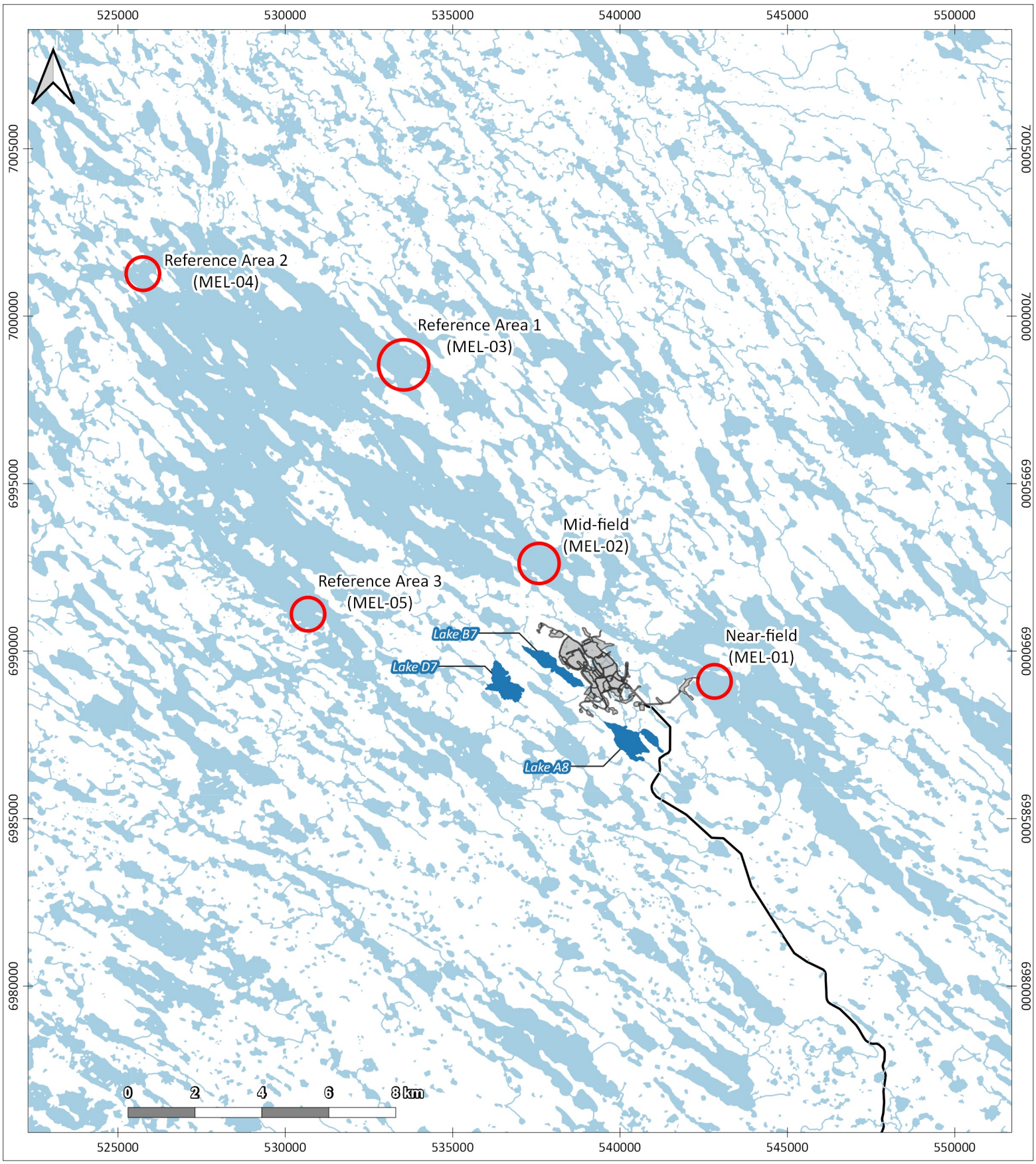
[6] Completed in accordance with Term & Condition 1c of the Project Certificate No.:006 (NIRB 2019). The intent of the condition is to assist in predicting the impact of contaminants released in snowmelt on the water quality in Meliadine Lake.

- Diversion of treated sewage from the permanent camp and exploration camps to CP1. Further treatment at the water treatment plant (EWTP) with contact water from the site.
- Grading of the industrial pad between June 8th and July 6th.
- Construction of Saline Pond 2 in the winter of 2019, with the deposition of a temporary waste rock pile straddling the watershed lines between the "A" and "J" watersheds.
- Landfarm[7] B was manipulated and screened for large materials in the middle of August. An approved temporary berm outside the lined container was used to aid in the material movement.

**Table 1-3. AEMP monitoring station descriptions.**

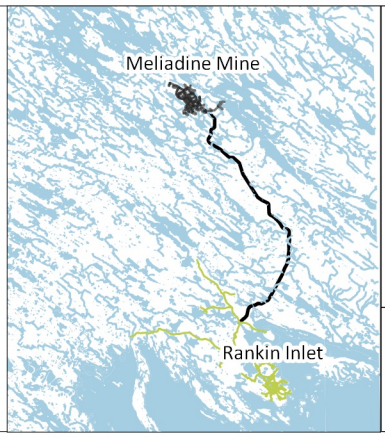
| Station ID | Station Description |
|---|---|
| CP1 | Collection pond 1: main collection pond for contact water from the site |
| CP5 | Saline collection pond |
| MEL-14 | Final point of control for treated effluent (MDMER and WL compliance) |
| MEL-13 | Receiving environment monitoring location in Meliadine Lake |
| MEL-07 | Exploration camp treated sewage (diverted to CP1 as of Nov '17) |
| MEL-01 | Near-field (NF) exposure area in east basin of Meliadine Lake |
| MEL-02 | Mid-field (MF) exposure area in Meliadine Lake, downstream from MEL-01 |
| MEL-03 | Reference Area 1 in the NE area of the west basin of Meliadine Lake |
| MEL-04 | Reference Area 2 in the NW area of the west basin of Meliadine Lake |
| MEL-05 | Reference Area 3 in the south basin of Meliadine Lake (near the outlet) |
| REF | Pooled reference areas (MEL-03, MEL-04, and MEL-05) |
| Lake A8 | Peninsula Lake included in the AEMP |
| Lake B7 | Peninsula Lake included in the AEMP; west of the Tailings Storage Facility |
| Lake D7 | Peninsula Lake included in the AEMP |

[7] From the Water Licence (NWB 2016): "On-site storage and remediation has been established as the preferred method for treatment of light petroleum hydrocarbon contaminated soil that may be generated on the proposed mine site. The landfarm is designed to receive soils, rock, snow, and ice contaminated with petroleum hydrocarbons and antifreeze."




**Legend**

- Mine Plan (Februray 2020)
- Peninsula Lakes
- All-Weather Access Road (AWAR)

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REFERENCES:
1. Waterbody and watercourse data from Natural Resources Canada (NRC)
2. Mine Plan provided by Agnico Eagle

Figure 1-1
Meliadine Mine Site and Location of the AEMP Study Areas.

2019 Aquatic Effects Monitoring Program Annual Report

| | |
|---|---|
| Date: | March 17, 2020 |
| Datum: | NAD 83 UTM Zone 15N |
| Scale: | 1:150,000; overview(1:650,000) |
| Software: | QGIS version 3.8.2 |
| Produced by: | E. Franz |

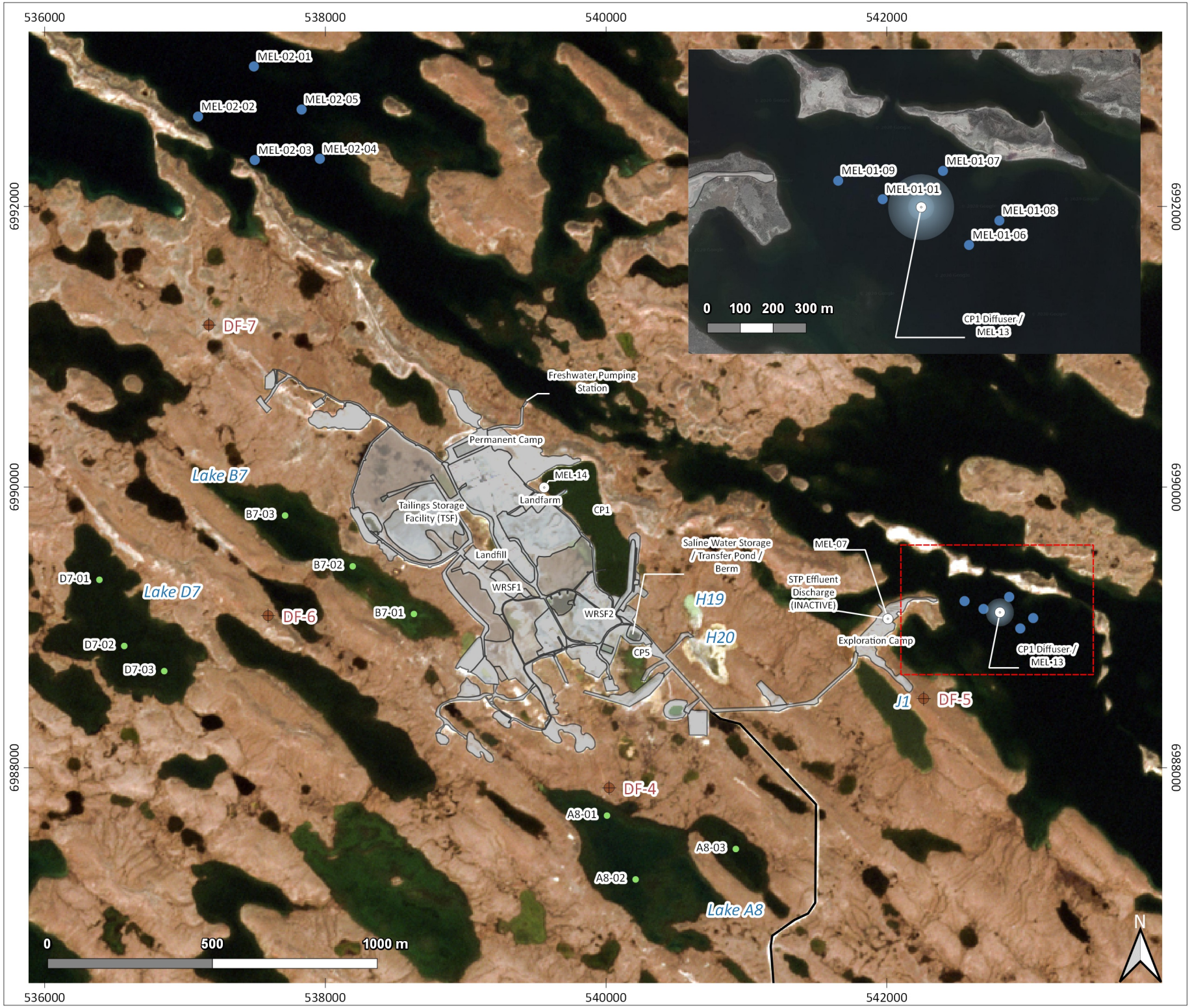


Figure 1-2
Meliadine Mine Site and AEMP water quality monitoring locations in MEL-01, MEL-02 and the Peninsula Lakes

2019 Aquatic Effects Monitoring Program Annual Report

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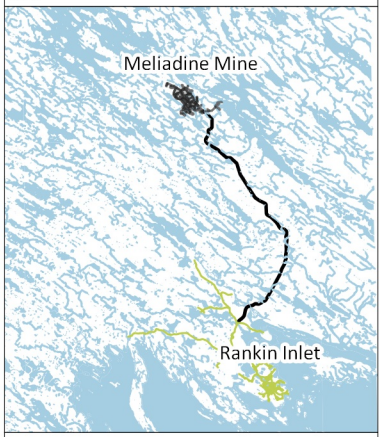
| | |
|---|---|
| Date: | March 17, 2020 |
| Datum: | NAD 83 UTM Zone 15N |
| Scale: | 1:35,000; inset (1:14,900) |
| Software: | QGIS version 3.8.2 |
| Produced by: | E. Franz |

REFERENCES:
1. Basemap imagery from Sentinel 2 on September 13, 2019
2. Mine Plan provided by Agnico Eagle
3. Mixing zone extent based on Golder (2019) and the FEIS (Agnico Eagle 2014)




**Legend**

- Mine Plan (Februray 2020)
- Dustfall/Snowpack Monitoring Station
- Compliance WQ Monitoring Station

AEMP surface WQ Monitoring Station

- Meliadine Lake
- Peninsula Lakes
- Mixing zone (~100 m radius)

# 2 AEMP STUDY DESIGN

## 2.1 Overview

The AEMP is an integrated monitoring program that considers activities at the mine and the potential for effects to the aquatic environment. Changes in surface water quality, sediment quality, lower trophic communities, fish habitat, and fish health due to release of mine water, physical alteration of watersheds, and air emissions are monitored. The AEMP is currently focused on assessing potential changes related to construction and early operations, but the design also considers later phases of the Project (i.e., late operations to closure), and potential development of other deposits.

The *AEMP Design Document* (Golder 2016) provides the blueprint for monitoring changes in Meliadine Lake and three lakes located close to the mine (referred to collectively as the Peninsula Lakes). The proposed components, stations, parameters, frequency, and overall design are appropriate for all phases of the Project, from construction through closure.

The AEMP was designed, in part, based on EEM study requirements specified under the MDMER. The core components of the Meliadine Lake AEMP are water quality, sediment quality, benthic invertebrate community; and fish population health, and fish tissue chemistry. Phytoplankton monitoring, which was originally proposed as a targeted program to evaluate its suitability for monitoring changes in water quality, has been conducted annually since 2015.

In years when EEM sampling is not completed, the AEMP focuses specifically on assessing water quality monitoring in Meliadine Lake and the Peninsula Lakes. To streamline reporting, some information included in the *AEMP Design Document* is only summarized herein; Readers are referred to the design document, as necessary, for more details.

## 2.2 Aquatic Receiving Environment

### 2.2.1 Meliadine Lake Watershed

The Meliadine Lake watershed is approximately 560 $km^2$ and drains into Hudson Bay via two separate tributaries. The largest outflow is the Meliadine River, located in the south basin end of the lake, which flows through a series of small water bodies and Little Meliadine Lake before draining into Hudson Bay, just north of Rankin Inlet. The second outflow is a smaller tributary in the west basin of the lake that flows into Peter Lake, which ultimately drains into Melvin Bay via the Diana River system (Golder 2012).

Meliadine Lake is one of the larger lakes in the region with a surface area of approximately 107 $km^2$ and a maximum length of 31 km (SE to NW). The morphology of the lake is characterized by a highly convoluted shoreline, numerous islands, and shallow reefs. More than one third of Meliadine Lake volume is contributed by lake areas that are less than 2 m in depth, which indicates a considerable reduction in lake volume and overwintering potential during winter (Golder 2019). Maximum ice thickness is about 2 m and occurs in March/April, increasing the concentration of some ions, such as chloride, in the water near the ice-water interface. This occurs due to cryo-concentration, where ice formation excludes certain ions and increases their concentration in the water column (Wetzel 1983). This phenomenon is well documented at reference lakes and exposure areas sampled in the winter as part of the Core Receiving Environment Monitoring Program (CREMP) for the Meadowbank Mine (Azimuth 2019).

The lake is partitioned into three basins based on its morphology. Descriptions of each basin (summarized below) are taken from the 2019 interpretive report (Golder 2019) based on information collected during the baseline period to support the FEIS.

- The **east basin** is 2,212 ha and contributes approximately 21% to the entire area of Meliadine Lake. It is separated from the rest of the lake by a shallow and narrow area (up to 2.3 m deep, 100 to 300 m wide, and 800 m long) that features numerous rocky islands and reefs. Golder noted in the FEIS (Agnico Eagle 2014) that the east basin may be isolated from the west basin during the winter months, resulting in limited fish passage.
- The **west basin** is the largest basin in Meliadine Lake, contributing approximately 68% of the surface area of the entire Lake.
- The **south basin** is 1,135 ha and contributes approximately 11% to the entire lake area. The SE end of the south basin near the outlet to the Meliadine River is generally shallow (less than 4 m deep).

### 2.2.2 Peninsula Lakes Watersheds

Several small watersheds are located on the Meliadine peninsula between the south and east basins of the lake. These peninsula watersheds comprise an extensive network of lakes, ponds, and interconnecting streams that ultimately drain into Meliadine Lake. The lakes within the Peninsula are generally small (<90 ha in area) and shallow (<5 m in maximum depth). They are connected to each other (and to Meliadine Lake) through short stream sections; however, they can often be isolated by limited flow during summer/fall and frozen stream conditions during winter (Golder 2012).

## 2.3 Water Quality Monitoring

### 2.3.1 Study Areas

The AEMP involves two distinct monitoring programs: the Meliadine Lake study and the Peninsula Lakes study. For the most part, the two programs share common field methods, analytical methods, quality assurance and quality control protocols, and methods for evaluating the water quality data. A brief overview of the AEMP water quality monitoring program for the two areas is provided below.

#### Meliadine Lake

The water quality component of the Meliadine Lake AEMP is designed to detect changes in water quality related to the mine and define the spatial and temporal extent of any changes. The study design uses near-field (NF), mid-field (MF), and three reference areas to provide spatial context when interpreting potential changes year-over-year. Conceptually, NF areas provide the first line of early-warning for introductions of stressors into the receiving environment and are situated in close proximity to the primary sources of exposure at a site. MF areas are located farther downstream from the NF monitoring areas and provide insights into the spatial extent of any observed changes in chemistry closer to the source. Finally, reference areas provide insights into regional trends (e.g., climatic events) that would be expected to influence all sampling areas (i.e., natural temporal changes).

There are five water quality sampling *areas* in Meliadine Lake, and each area has five spatially-distinct replicate *stations* located at least 100 m apart to characterize variability within each area. The targeted lake depth at each station is 8 to 10 m, with water samples collected at a depth of 4 m from the surface. These stations are also where benthic invertebrates and sediment are collected for the EEM program every 3 years.

- **Near-field (MEL-01)** – Sampling stations within the *near-field* area (MEL-01) are located between 80 and 100 m apart at the edge of the mixing zone. The entire NF area is approximately 500 m in diameter (**Figure 1-2**). The stations are situated around the diffuser to provide greater likelihood of detecting changes in water quality during the open-water discharge period. A plume delineation study conducted in July and August 2018 as part of the EEM/AEMP noted the plume was more noticeable to the south-west of the diffuser, although the direction and rate of plume dispersion is highly dependent on wind speed and direction. Based on the specific conductivity results from the plume survey in 2018, the plume was no longer detectable above background conductivity at 250 m away from the diffuser (Golder 2019).

- **Mid-field (MEL-02)** – the *mid-field* monitoring area (MEL-02) is located approximately 3 km northwest from MEL-01, NW of the constriction separating the east and west basin. The flow direction at MEL-01 is from SE to NW, so results for MEL-02 provide insights into the spatial extent of changes in water quality if concentrations are increasing at MEL-01.
- **Reference Areas 1, 2, and 3 (MEL-03, MEL-04 and MEL-05)** – Three *reference areas* in Meliadine Lake are sampled annually to assess whether there are spatial differences in water quality at the NF and MF stations relative to far-field locations in Meliadine Lake.
    - Reference Area 1 (MEL-03) is located in the NE area of the west basin[8] of Meliadine Lake and is sampled concurrently with the NF and MF areas in July, August, and September.
    - Reference Area 2 (MEL-04; NW part of the west basin) and Reference Area 3 (MEL-05; south basin near the outlet to Meliadine River) are sampled in August as part of the expanded monitoring program that includes phytoplankton monitoring.

The Meliadine Lake water sampling program is primarily geared toward assessing changes in concentrations during the open-water season, coinciding with when effluent is discharged to Meliadine Lake. The open-water season in the region is short, typically from early to mid-June until the end of October. Sampling in June and October is not recommended due to safety concerns related to ice stability in the spring and inclement weather in October.

Given the short-window to complete open-water sampling, one winter (through-ice) sampling event is completed at the NF and MF areas to provide a *snap-shot* of conditions in Meliadine Lake and provide data to assess seasonal variability at the NF and MF areas. Water samples are not collected from reference areas in the winter, which precludes a more thorough analysis of whether changes in water quality in the winter are representative of natural variability or indicative of changes caused by activities at the mine.

### Peninsula Lakes

The water quality component of the Peninsula Lakes AEMP is designed to detect changes in water quality related to primarily to the deposition of aerial emissions and alteration of watersheds (i.e., changes to natural drainage paths or hydrologic balance) (Agnico Eagle 2014). Changes in water quality in the Peninsula Lakes area were predicted to be local and to not extend to Meliadine Lake.

[8] Use of east, west and south basins for Meliadine Lake as per Golder (2019).

Water quality monitoring at three headwater lakes (Lake A8, Lake B7 and Lake D7; **Figure 1-2**) is conducted twice during the open water season in July and August to assess whether the mine is indirectly causing changes in water quality. As outlined in the *AEMP Study Design* (Golder 2016), the scope of the Peninsula Lakes AEMP focuses solely on assessing changes in water quality. If changes in water quality are detected, follow-up investigations *may* be implemented as part of the AEMP Response Framework (Figure 8.1 in Golder 2016).

### 2.3.2 Field Methods

Field methods for the Meliadine Lake and the Peninsula Lakes program follow the same standard operating procedure (SOP), with a few slight modifications when sampling at the shallower Peninsula Lakes. The two components of the water quality monitoring program are:

- Field measurements (*in-situ* water quality profiles), and
- Surface water sampling for chemistry analyses.

#### *In-situ* Field Measurements

Field sampling is completed by boat and without anchoring if wind and wave conditions are light to moderate. In inclement weather, the boat is anchored to stay within close proximity to the fixed sampling location. At each sampling station, field measurements (water depth and physicochemical measurements) are collected prior to surface water quality samples for chemistry analysis. Total depth of the water column is measured either by using a sounding line or a boat-mounted sonar unit; during the ice-cover program a sounding line is used to measure total depth. *In-situ* physicochemical measurements are taken just below the surface (or below the ice during ice-covered conditions), at 0.5 m below the surface, at 1.0 m below the surface and every 1 m thereafter throughout the water column ending at approximately 0.5 m above the sediment. Multiprobes (e.g., YSI) with sensors for measuring dissolved oxygen (DO) as mg/L and %, temperature as °C, pH, and specific conductivity as µS/cm are used for limnology measurements. During ice-covered conditions at Meliadine Lake, ice thickness is also measured.

#### Surface Water Sampling

Surface water samples are collected using a Kemmerer grab sampler from mid-depth in the water column during the open-water sampling events. Meliadine Lake stations are sampled at 4 m. The shallower Peninsula Lakes are sampled at 1 m below the surface. The Kemmerer is triple rinsed prior to sampling at each area. For the winter sampling event at Meliadine Lake, water samples are collected mid-depth using an electric diaphragm pump connected to a length of C-

Flex (Cole Parmer) silicon tubing. Prior to filling the bottles, water is pumped through the tubing for at least two minutes to flush the entire system.

Bottles for chemistry analysis are pre-labelled before going into the field and handled (i.e., preserved and filtered) according to specifications provided by ALS Environmental. Filtered samples for dissolved organic carbon, dissolved nutrients, and dissolved metals are collected using a syringe and 0.45 µm disc filter provided by ALS (see **Table 2-1**). A checklist is included with the field data sheet to verify the samples requiring filtration and to ensure preservation is handled correctly.

**Table 2-1. Water quality parameters collected for the AEMP.**

| List of AEMP Water Quality Parameters |
|---|
| **Field Measurements**<br>pH, specific conductivity, dissolved oxygen, temperature, Secchi depth (open-water), total depth and ice thickness (winter). |
| **Conventional Parameters and Major Ions**<br>bicarbonate alkalinity, chloride, carbonate alkalinity, turbidity, conductivity, hardness, calcium, potassium, magnesium, sodium, sulphate, pH, total alkalinity, total dissolved solids (TDS) and total suspended solids (TSS). |
| **Nutrients and Organic Carbon**<br>ammonia-nitrogen, total Kjeldahl nitrogen, nitrate-nitrogen, nitrite-nitrogen, orthophosphate, total phosphorus, total organic carbon, dissolved organic carbon, and reactive silica. |
| **Total and Dissolved metals**[9]<br>aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc. |
| **Other Parameters**<br>Cyanides: total cyanide, free cyanide, and weak acid dissociable (WAD) cyanide.<br>Radium-226[10] |

[9] Note that metals, metalloids (e.g., arsenic), and non-metals (e.g., selenium) are referred to as "metals" in this document.

[10] Radium-226 sampling is completed as part of the MDMER sampling at the NF area (MEL-01) and Reference Area 1 (MEL-03). Monitoring of Ra-226 in the receiving environment may be discontinued in 2020 pending a review of the number of samples with non-detect values throughout the entire monitoring period.

### 2.3.3 Laboratory Methods

#### Chemistry

Water quality samples for the AEMP are sent to ALS Environmental in Winnipeg, MB. The lab in Winnipeg arranges sample shipping to Edmonton, Vancouver, and Fort Collins, Colorado based on the analytical capabilities at these locations and the detection limits for the project. ALS is an analytical laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). Specific ALS analytical methods and reported detection limits are provided in the certificates of analysis (COAs) for the samples submitted in 2019 (**Appendix E**).

### 2.3.4 Data Management

Water quality data for the Meliadine project are managed within an EQUIS database. Water quality data are uploaded directly to EQUIS by the different laboratories. Data analysis, including summary statistics, plotting, and statistical analyses were completed using open-source software (R; version 3.6.1).

Descriptive summary statistics were calculated for the list of AEMP water chemistry parameters listed in **Table 2-1**. Summary statistics (mean, standard deviation (SD), median, minimum and maximum values) are calculated on the pooled annual results for each area (in the case of Meliadine Lake) or individual lakes (for the Peninsula Lakes). Summary statistics were calculated separately for the winter and open-water sampling events in Meliadine Lake. In cases when the reported concentration from the lab was less than the detection limit (DL), half the value of the DL was used to calculate the mean and SD. If more than 50% of the values were <DL, the mean and SD were not calculated and other statistics (e.g., median or maximum) were used to interpret the results. Parameters with more than 50% of the samples below the DL were not carried forward for further analysis. This approach to handling non-detect (or censored data) was adopted from previous reports (e.g., Golder 2019).

## 2.4 Water Quality Data Evaluation Methods

The following sections describe how the water quality data are evaluated and interpreted to support verification of the Final Environmental Impact Statement (FEIS) predictions and the low action level assessment outlined in **Section 1.2.1**. Water quality data are evaluated similarly between Meliadine Lake and the Peninsula Lakes. Elements of the water quality evaluation that pertain specifically to either Meliadine Lake or the Peninsula Lakes are discussed in their respective sections.

### 2.4.1 Comparison to Water Quality Guidelines and Objectives

Individual samples, as well as measures of central tendency (mean and median) were compared to Canadian water quality guidelines for the protection of aquatic life (CCME 2020) and drinking water quality guidelines published by Health Canada (2019) to identify samples and parameters that exceed WQGs (**Table 2-2**). Water quality guidelines for the protection of aquatic life are numerical limits or narrative statements based on the most current, scientifically defensible toxicological data available for the parameter of interest, and are designed to be protective of all forms of aquatic life including the most sensitive life stage of the most sensitive species. Water quality results are compared to the Guidelines for Canadian Drinking Water Quality (GCDWQ) to verify that water is safe for human consumption.

**Table 2-2. List of Water Quality Screening Guidelines and Objectives.**

| Guideline or Objective | Acronym | Reference |
|---|---|---|
| Canadian Water Quality Guidelines (Acute and Chronic) | CCME, Acute/ Chronic | CCME 1999 |
| Drinking Water Quality Guidelines | GCDWQ | Health Canada 2017 |
| Aesthetic Objectives | CAO | Health Canada 2017 |
| Site Specific Water Quality Objectives | SSWQO | Golder 2013a |

Exceedances of guidelines or objectives are flagged for discussion. For most parameters, the WQGs were adopted as *AEMP benchmarks* in the action level assessment (see **Section 1.2.3**).

### 2.4.2 Numerical Water Quality Predictions in the FEIS

As part of the Final Environmental Impact Statement (FEIS) for the mine (Agnico Eagle 2014), water quality predictions were developed for Meliadine Lake and some of the Peninsula Lakes that may be affected by development at the mine. Predictions were developed for all phases of the project from construction through post-closure to characterize changes in surface water quality (and sediment) as well as evaluate the effectiveness of proposed mitigations measures on reducing mine-related changes in water and sediment quality (Agnico Eagle 2014). The approach, methodology, and detailed results of the FEIS predictions are provided in Appendix 7.4-A of the FEIS. An overview of the numerical predictions for Meliadine Lake and the Peninsula Lakes is provided below.

### Meliadine Lake

Concentrations at the edge of the Meliadine Lake mixing zone (Near-field area, MEL-01), as well as the Mid-field area (MEL-02) are evaluated relative to the numerical FEIS predictions to verify the conclusions in the water quality model. Exceedances of numerical FEIS predictions are flagged and discussed, but do not factor into the low action level assessment (**Section 1.2.3**).

Numerical water quality predictions for Meliadine Lake were developed based on the expectation that water quality must meet water quality guidelines for the protection of aquatic life, human health, and recreational activities at the edge of the mixing zone[11] for the duration of the project. The mixing zone was defined as 100 m radius from the diffuser. The water quality model involved calculating the range of effluent mixing scenarios for Meliadine Lake [12]. Conservative assumptions about effluent dilution were then used to calculate the maximum allowable effluent concentrations for discharge and corresponding predicted concentrations at the edge of the 100 m mixing zone. The predicted concentrations at the edge of the mixing zone are referred to in this document as the *numerical* FEIS predictions and a point of comparison for current water quality results in the NF and MF areas in Meliadine Lake.

Below are some of the conclusions from the water quality model summarized in Volume 7 of the FEIS (Agnico Eagle 2014):

- With the exception of cadmium, concentrations of water quality parameters are predicted to be lower than CCME freshwater aquatic life and Health Canada guidelines at the edge of the 100 m mixing zone in the NF area. The CCME water quality guideline for cadmium is hardness-dependent, which means the low hardness (as $CaCO_3$) in Meliadine Lake corresponded to low water quality guideline at the edge of the mixing zone. Importantly, the release of effluent is not predicted to increase concentrations of cadmium to above background concentrations. Cadmium concentrations within the mixing zone (MEL-13) and at the edge of the mixing zone (MEL-01 stations) in 2019 are well below CCME freshwater aquatic life guidelines, confirming that the release of

[11] The mixing zone in Meliadine Lake was defined as the volume of water within 100 m radius around the diffuser. Conceptually, the size of mixing zones should be limited in size to ensure that WQGs are met over the widest possible area (CCME 2008). Selection of 100 m was based on guidance from the State of Oregon (2012) and the US EPA (1995) that recommend the size of the mixing zone should be less than 5% of the surface area of the lake.

[12] The effluent mixing model is based on the combination of the range of ambient water baseline water quality in Meliadine Lake, effluent characteristics and diffuser configurations. The most conservative scenario (less dilution) was carried forward for calculating the maximum allowable effluent concentration. The predicted dilution at the edge of the mixing zone for the most conservative scenario was 145:1.

effluent is no increasing cadmium in the NF area. In summary, there were no water quality contaminants of potential concern (COPCs)identified in the FEIS (Volume 7; Agnico Eagle 2014).

- Concentrations of total dissolved solids, major ions and several metals (total concentrations) were predicted to increase relative to baseline conditions within the mixing zone.
- Effluent beyond the mixing zone will be carried by currents within Meliadine Lake and further mix with Meliadine Lake. The bathymetry of east basin, flow direction, and the location of the effluent diffuser, was predicted to convey effluent in a NW direction towards the west basin and outlet of the lake. However, accumulation of treated effluent within the east basin was acknowledged as a possibility. A mass-balance estimate was calculated over a period of 40 years to model changes in water quality if effluent accumulates in the east basin. The results indicated TDS, chloride, and sodium would gradually increase in the east basin of Meliadine Lake during construction and operations. Maximum concentrations were predicted in the last year of operations, with TDS at 176 mg/L, chloride at 66 mg/L, and sodium at 19 m/L (Volume 7 of the FEIS[13], Agnico Eagle 2014). Predicted concentrations in Meliadine Lake are expected to exceed the range of concentrations observed during the baseline period; however, concentrations of are predicted to remain below the water quality guidelines (Cl = 120 mg/L [CCME], Health Canada aesthetic drinking water quality guidelines for TDS [500 mg/L] or sodium [200 mg/L]).
- Dissolved oxygen levels in the NF area were estimated to assess whether the release of treated effluent could contribute to lower DO levels in the lake[14]. The results of the modeling exercise are presented in the Appendix 7-4-A of the FEIS (Section 4.3.4 [page 7.4-A – 40]). The NF area was predicted to be well-oxygenated through the construction, operations, and post-closure phases. Within the mixing zone, the model predicted DO *may* periodically fall below the CCME guidelines for the protection of aquatic life (i.e., 6.5 mg/L; CCME 1999) in late summer during the operations phase. As discussed in

[13] In Section 7.4.6.1.2.1 (Far Field Mixing) in Volume 7.

[14] Dissolved oxygen concentrations are increased by physical mixing (i.e., wind and currents) and by photosynthesis. Oxygen is removed from the water by biological respiration, carbonaceous and nitrogenous consumption, and sediment oxygen demand. Photosynthesis, biological respiration, and sediment oxygen demand had a negligible influence on the DO concentrations in mass-balance (Agnico Eagle 2014). Nitrogen and carbon compounds in the effluent were the primary drivers for oxygen consumption in the model.

**Section 5.3.2**, the NF area is well-oxygenated throughout the summer months when effluent is discharged to Meliadine Lake.

### Peninsula Lake Model Results

Predictions (medians and peaks) were made for several Lakes on the peninsula including Lake A8 and Lake D7. Predictions were not made for Lake B7 given this lake will be affected by dewatering activities and construction of the tailings storage facility (TSF). The conclusions from the model assessment where most parameters were predicted to be within the range of baseline concentrations (+ 10%) throughout the construction, operations, and closure phases of the project. Less than 10% increase compared to baseline was considered a *negligible* change in the FEIS (Agnico Eagle 2014). Nitrate, aluminum, iron, and titanium were the only parameters that were predicted to increase > 10% relative to baseline concentrations due to atmospheric loadings (Agnico Eagle 2014). An increase in concentration > 10% from baseline, but less than water quality guidelines constitutes a *minor* change (Golder 2019).

## 2.4.3 Comparison to Normal Ranges

Normal range, as defined in the AEMP, numerically describes the natural range of baseline/reference conditions for the various components of the AEMP. In simple terms, the normal range is the instrument used to assess whether current conditions (e.g., the measured concentration of a particular metal) has changed relative to baseline/reference conditions.

### Existing Method (Barrett el al. 2015)

The approach to calculating the normal range in previous AEMP cycles followed methods in Barrett et al. (2015). The approach takes into consideration underlying distribution of the baseline/reference data (i.e., are the baseline data normally distributed) when determining which method to use to estimate the limits of the normal range. Three methods were proposed in the *AEMP Design Document* (Golder 2016) for calculating the normal range for a given variable (e.g., water quality parameters). A brief description of each method is provided below as per the methods described in the 2018 Interpretive report (Golder 2019):

- **Prediction Interval (PI)** – If the baseline/reference data are normally distributed, the normal range is calculated using the 80% prediction interval. Normality [of the raw data] is assessed using the Shapiro-Wilk test, using $\alpha = 0.05$ to indicate a significant departure from normality.
- **PI Method (Box-Cox Transformation; PI [λ])** – When the baseline/reference data are not normally distributed, but normality could be achieved after Box-Cox transformation (Box

and Cox 1964), the normal range is calculated on the Box-Cox transformed data and the upper and lower bound of the normal ranges are back-transformed.

- **Percentile** – If neither the untransformed data nor Box-Cox transformed datasets are normally distributed, the normal range boundaries are defined as the 10$^{th}$ and 90$^{th}$ percentile of the baseline data. In cases where the percentile method is used, a dataset of 1,000 samples is randomly generated from the normal range dataset and the 10$^{th}$ and 90$^{th}$ percentile are calculated from the distribution of 1,000 samples to estimate the normal range.

Normal range estimates were calculated separately for Meliadine Lake, Lake A8, Lake B7, and Lake D7 using samples collected during the open-water sampling events[15]. The baseline period for the Peninsula Lakes ended in 2017; meaning no new data are included in normal range calculations for Lake A8, Lake B7, and Lake D7. In the case of Meliadine Lake, normal ranges are updated each year with the addition of new reference data from MEL-03, MEL-04, and MEL-05.

### Revised Method (90$^{th}$ Percentile)

In preparation for this year reporting, a review of the normal range method was undertaken. Alternative options for calculating the normal range were proposed after reviewing the 2018 report and identifying steps in the analysis that could be modified (e.g., how non-detect data are handled) and an overall simplification of the method that defaults to percentiles (e.g., upper 90$^{th}$) to estimate the normal range of baseline/reference conditions. Before adopting a new method, a sensitivity analysis was completed to determine if the revised percentile method produced similar normal range estimates compared to normal ranges in last year's report. The normal range sensitivity assessment focused specifically on Meliadine Lake results up to and including the 2018 data. Results and recommendations stemming from this assessment are provided in **Appendix F** and summarized below:

- *Key question*: how do normal ranges calculated using a simplified percentile method compare to the normal ranges calculated using the PI or PI (λ) methods described above?
- *Approach*: In the 2018 report (Golder 2019), normal ranges were estimated using PI or PI (λ) for nine parameters: TDS, TKN, DOC, aluminum, arsenic, barium, copper, strontium, and uranium.

[15] Normal ranges were not derived for the ice-covered sampling events due to insufficient reference and baseline data for the winter months.

- *Results*: the results of the normal ranges calculated using PI and the proposed percentile method are provided in **Table 2-3**. For most parameters, the two methods produced very similar results for the upper limit of the normal range (< 1% difference between methods for five parameters).
- *Upper 90$^{th}$ as the Normal Range* – The characteristics of the mine effluent are not reasonably expected to cause a decrease in concentrations. The upper (90$^{th}$ percentile) normal range is the point of comparison for determining if a particular parameter has changed relative to baseline/reference conditions. pH is the exception, where a lower limit (10$^{th}$ percentile) of baseline/reference conditions is also relevant.
- *Censored Data* – approaches presented above (following Barrett et al. 2015) were not intended for datasets that include censored data (i.e., measurements below detection limits). When censored data are present, substituting them with arbitrary values (e.g., ½ DL as described in Golder (2019), typically results in biased estimates (Helsel 2012). Instead, it is recommended that alternative methods be used to estimate quantities such as means, medians, and percentiles (Helsel 2012).

**Table 2-3. Comparison of the prediction interval (PI) and percentile methods for estimating the normal range of concentrations in Meliadine Lake.**

| | | | | Prediction Interval (PI) | | | Percentile (Proposed) | | % Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | N | <DL | Outliers | Method | Lower | Upper | Lower | Upper | Lower | Upper |
| TDS (meas) | 94 | 0 | 0 | PI(λ) | 29.1 | 50.4 | 28.3 | 49.4 | -2.6% | -1.9% |
| TKN | 94 | 12 | 0 | PI(λ) | 0.072 | 0.252 | 0.095 | 0.255 | 32.7% | 1.4% |
| DOC | 82 | 0 | 0 | PI(λ) | 2.10 | 2.71 | 2.11 | 2.72 | 0.4% | 0.5% |
| Aluminum | 69 | 0 | 1 | PI(λ) | 1.83 | 4.53 | 1.83 | 4.68 | 0.1% | 3.2% |
| Arsenic | 69 | 0 | 0 | PI(λ) | 0.174 | 0.243 | 0.176 | 0.250 | 1.2% | 2.7% |
| Barium | 69 | 0 | 0 | PI | 7.25 | 7.88 | 7.22 | 7.82 | -0.4% | -0.8% |
| Copper | 69 | 0 | 0 | PI(λ) | 0.645 | 0.825 | 0.650 | 0.832 | 0.8% | 0.8% |
| Strontium | 69 | 0 | 0 | PI | 29.5 | 33.1 | 29.4 | 33.0 | -0.3% | -0.2% |
| Uranium | 69 | 1 | 1 | PI(λ) | 0.0114 | 0.0162 | 0.0120 | 0.0163 | 5.2% | 0.6% |

Notes:
Concentrations reported in mg/L for TDS, TKN, and DOC. Metals concentrations reported in µg/L.
Values less than DL were set to DL/2 when calculating the normal range as described in Golder (2019).

The comparative assessment of PI and percentile methods demonstrated that the simpler approach to calculating normal ranges using percentiles produced similar results compared to the PI methods. Based on the comparison of methods, percentiles were adopted for calculating

the normal range in water quality parameter concentrations for Meliadine Lake in 2019. Details of the normal range calculations for Meliadine Lake are as follows:

- The normal range concentrations are for open-water conditions.
- Pooled reference area (MEL-03, MEL-04, and MEL-05) data collected during the AEMP Monitoring Program between 2016 and 2019 and baseline data collected in Meliadine Lake between 1995 and 2013 (Agnico Eagle 2014) were included in the calculations. Results for metals and nitrogen parameters were not retained in the normal range calculations because detection limits were typically 10-fold higher than current DLs[16].
- The same list of parameters outlined in the 2018 AEMP were included in the normal range calculations in 2019 (see **Table 2-4** for the complete list of parameters and normal range concentrations).
- The upper limit of the normal range was set equal to the 90$^{th}$ percentile of the baseline/reference area data (*Method A*) or equal to the current detection limit (*Method B*) for parameters with greater than 85% of the values less than the DL. Method B applied for nine parameters: nitrite, antimony, beryllium, bismuth, cadmium, silver, thallium, vanadium, and cyanide (total).
- Percentiles were calculated in R (version 3.6.2) using the NADA statistical package (version 1.6-1) to analyse censored data using regression on ordered statistics (ROS)[17]. For parameters with no censored data, the ROS method of calculating the 90$^{th}$ percentile is equal to the default method in R.

### 2.4.4 Temporal and Spatial Trends Assessment

Temporal and spatial trends in water quality in Meliadine Lake and the Peninsula Lakes were assessed using a variety of approaches, including the normal range screening assessment, scatterplots and boxplots, and statistical comparisons. There are subtle differences in how spatial and temporal trends are evaluated for Meliadine compared to the Peninsula Lake based on their respective study designs, but for both studies, a similar step-wise approach was used to identify parameters that show spatial and temporal trends. The generalized workflow below was developed to short-list the number of parameters that get carried forward in the discussion:

[16] Refer to Golder 2019; Appendix 6B for details regarding the normal range screening completed for the 2018 AEMP.

[17]. The ROS (regression-on-order statistics) method imputes values for the data below DLs, and then combines the modelled (imputed) values with the uncensored (measured) data, resulting in a new data set. From that data set, quantiles (e.g., the 90$^{th}$ percentile), are estimated using the standard rank or interpolation methods.

- Parameters with fewer than 50% detected concentrations in 2019 were excluded from the spatial and temporal trend assessment. The monthly water quality results were examined to verify that the frequency of non-detects was generally consistent in each month.
- Develop a short-list of parameters that have increased in the current year (i.e., 2019) compared to baseline/reference conditions based on the normal range assessment. The normal range, as defined above, is the upper limit of baseline/reference conditions; implicitly, parameters that exceed the normal range also show temporal and spatial trends relative to baseline/reference conditions. Changes in water quality related to the mine are expected to be detected closer to the source. Exceedance of normal range concentrations at MF in the absence of corresponding increases at NF areas suggests that the apparent change is likely attributed to natural variability rather than activities at the mine.
- Spatial differences between areas in Meliadine Lake were evaluated statistically using either ANOVA or the equivalent non-parametric Kruskal-Wallis (K-W) test if assumptions of normality and equal variance (homoscedasticity) were not met for a given parameter. For parameters where significantly different between areas were detected ($p<0.1$ in the post-hoc tests), the magnitude of the difference in concentration between areas was calculated.
- Water quality results were plotted and visually assessed on a spatial (Near-field, Mid-Field, and Reference areas) and temporal (over the full range of monitoring years) scale to determine if any trends in water quality were evident.

## 2.5 Phytoplankton Monitoring

Phytoplankton monitoring in Meliadine Lake was initially proposed as a two-year targeted study to assess whether phytoplankton are a useful monitoring tool for the Meliadine Lake AEMP. As per the study design (Golder, 2016), sampling for the phytoplankton program was harmonized with the water quality monitoring program in Meliadine Lake. As of 2018, phytoplankton monitoring occurs in August each year, concurrent to the August AEMP sampling event at NF, MF and reference areas in Meliadine Lake.

In the sections that follow, the field collection and laboratory analysis methods for the phytoplankton program are discussed. An overview of the field and laboratory QA/QC protocols are summarized in **Section 3.2** and detailed information about the QA/QC program is provided

in **Appendix A**. Data analysis methods used for the phytoplankton program are provided in **Section 7.4.2**.

### 2.5.1 Field Collection and Lab Analysis Methods

The phytoplankton program consists of the following components:

1. Phytoplankton taxonomy (biomass [mg/m$^3$], density [cells/L], and richness [number of taxa])
2. Chlorophyll-a
3. Nutrients

Water samples are collected as composite samples collected from discrete depth intervals through the water column (aka depth-integrated samples). Depth-integrated, rather than discrete sampling, considers potential heterogeneity in the vertical distribution of the phytoplankton community top to bottom in the water column. Sampling followed the same methods as in previous years (e.g., Golder 2019). First, Secchi depth (20-cm disk) was measured at each location to determine the depth of the euphotic zone[18], defined as 2-times the Secchi depth. After defining the depth of the euphotic zone, water samples were collected (using the Kemmerer) from just below the surface and every two meters through the euphotic zone (or to 2 m off the lake bed if the estimated euphotic zone extended right to the bottom[19]). An equal volume of water from each discrete sample was combined in a clean bucket to create the composite depth-integrated sample. Subsamples of the composite depth integrated water sample were collected for 1) nutrients, 2) chlorophyll-a, and 3) phytoplankton taxonomy. One sample at each station was collected for nutrients and phytoplankton; triplicate samples were collected for chlorophyll-a.

- Each sample for nutrient analysis was collected from the depth-integrated composite and processed according to instructions from ALS. Samples were processed (i.e., filtered and/or preserved as required by analyte or analyte group) and refrigerated. Samples were shipped cold to ALS (Edmonton) for analysis of total nitrogen (TN), dissolved nitrogen, total Kjeldahl nitrogen (TKN), dissolved Kjeldahl nitrogen, total ammonia,

[18] The euphotic zone is the vertical extent of water column where sufficient light is present for photosynthesis; typically, depth where 1% of surface irradiance is measured (see Koenings and Edmundson 1991, Alberta Environment 2006; both as cited in Golder 2019).

[19] The total water depth at all of the stations in Meliadine is less than 2-times the Secchi depth.

nitrate, nitrite, total phosphorus (TP), dissolved phosphorus, dissolved orthophosphate, and soluble reactive silica (SRSi).[20]

- Triplicate subsamples of the depth-integrated composite were collected for chlorophyll-a. Each triplicate sample was collected by filtering 500 mL of water through MF-Millipore™ Membrane Filter (0.45 µm pore size) using a vacuum pump. Individual filters were folded in half, placed in pre-labelled containers, and shipped frozen to the Biogeochemical Analytical Service Laboratory at the University of Alberta (Edmonton), for spectrophotometric analysis of chlorophyll-a. A description of QA issues with the 2019 chlorophyll-a sample collection methods are provided in **Section 3.2**.
- Each sample for phytoplankton analysis was collected from the depth-integrated composite in a 250-ml amber Nalgene bottle. Samples were preserved with 4 ml of Lugol's solution, sealed, and stored in the dark for transportation to Plankton-R-Us (Winnipeg) for taxonomic identification to the lowest practical level and for density and biomass (based on biovolumes).

[20] Some of the nutrient parameters from the phytoplankton study were not analyzed because the samples were incorrectly entered upon receipt at the lab. ALS acknowledged the samples were not processed as per the quote for the project and provided recommendations on how they intend on improving sample handling in 2020 and beyond.

**Table 2-4. Revised normal range concentrations for water quality parameters in Meliadine Lake.**

Notes:
Normal ranges are the 90th percentile of the baseline/reference area data for Meliadine Lake.
[a] DL = current detection limit
[b] Methods used to calculate the normal range: Method A = percentile method; Method B = upper limit was set equal to current DL.
[c] Lower and upper limits for pH.

| Parameter | Units | DL [a] | N | >DL | Normal Range | Method [b] |
|---|---|---|---|---|---|---|
| pH Field [c] | - | NA | 120 | 120 | 7.00 \| 7.96 | A |
| Conductivity (lab) | µS/cm | 1 | 119 | 119 | 77.4 | A |
| Hardness | mg/L | 0.2 | 119 | 119 | 23.1 | A |
| Alkalinity, Total | mg/L | 1 | 119 | 119 | 20.0 | A |
| Total Dissolved Solids | mg/L | 13 | 119 | 119 | 52.4 | A |
| TDS (Calculated) | mg/L | 1 | 105 | 105 | 38.4 | A |
| Total Suspended Solids | mg/L | 1 | 119 | 17 | 1.10 | A |
| Alkalinity, Bicarbonate | mg/L | 1.2 | 119 | 119 | 24.4 | A |
| Calcium | mg/L | 0.01 | 119 | 119 | 7.31 | A |
| Chloride | mg/L | 0.1 | 119 | 119 | 8.75 | A |
| Fluoride | mg/L | 0.02 | 99 | 92 | 0.0280 | A |
| Magnesium | mg/L | 0 | 119 | 119 | 1.17 | A |
| Potassium | mg/L | 0.02 | 119 | 116 | 0.937 | A |
| Reactive Silica (SiO2) | mg/L | 0.01 | 69 | 69 | 0.265 | A |
| Sodium | mg/L | 0.02 | 119 | 119 | 4.55 | A |
| Sulphate | mg/L | 0.3 | 119 | 116 | 3.682 | A |
| Nitrate (as N) | mg/L | 0.01 | 94 | 22 | 0.0207 | A |
| Nitrite (as N) | mg/L | 0 | 94 | 3 | 0.0010 | B |
| Ammonia (as N) | mg/L | 0.01 | 94 | 33 | 0.0149 | A |
| Total Kjeldahl Nitrogen | mg/L | 0.05 | 119 | 107 | 0.249 | A |
| Total Phosphorus | mg/L | 0 | 118 | 116 | 0.0060 | A |
| Total Diss Phosphorus | mg/L | 0 | 94 | 86 | 0.00337 | A |
| Orthophosphate (PO4-P) | mg/L | 0 | 94 | 11 | 0.0010 | A |
| Total Organic Carbon | mg/L | 0.5 | 119 | 119 | 3.00 | A |
| Dissolved Organic Carbon | mg/L | 0.5 | 107 | 107 | 2.70 | A |
| Aluminum | µg/L | 1 | 94 | 94 | 5.39 | A |
| Antimony | µg/L | 0.02 | 94 | 2 | 0.02 | B |
| Arsenic | µg/L | 0.02 | 94 | 94 | 0.251 | A |

**Table 2-4. Revised normal range concentrations for water quality parameters in Meliadine Lake.**

Notes:
Normal ranges are the 90th percentile of the baseline/reference area data for Meliadine Lake.
[a] DL = current detection limit
[b] Methods used to calculate the normal range: Method A = percentile method; Method B = upper limit was set equal to current DL.
[c] Lower and upper limits for pH.

| Parameter | Units | DL [a] | N | >DL | Normal Range | Method [b] |
|---|---|---|---|---|---|---|
| Barium | µg/L | 0.02 | 94 | 94 | 7.91 | A |
| Beryllium | µg/L | 0.01 | 94 | 0 | 0.005 | B |
| Bismuth | µg/L | 0.01 | 94 | 0 | 0.005 | B |
| Boron | µg/L | 5 | 94 | 45 | 6.67 | A |
| Cadmium | µg/L | 0.01 | 94 | 8 | 0.0050 | B |
| Chromium | µg/L | 0.1 | 94 | 11 | 0.131 | A |
| Cobalt | µg/L | 0.01 | 94 | 82 | 0.016 | A |
| Copper | µg/L | 0.05 | 94 | 94 | 0.923 | A |
| Iron | µg/L | 1 | 94 | 94 | 15.1 | A |
| Lead | µg/L | 0.01 | 94 | 37 | 0.0258 | A |
| Lithium | µg/L | 0.5 | 94 | 70 | 0.70 | A |
| Manganese | µg/L | 0.05 | 94 | 94 | 3.15 | A |
| Mercury | µg/L | 0 | 94 | 54 | 0.00080 | A |
| Molybdenum | µg/L | 0.05 | 94 | 88 | 0.0827 | A |
| Nickel | µg/L | 0.05 | 94 | 94 | 0.417 | A |
| Selenium | µg/L | 0.04 | 94 | 21 | 0.0464 | A |
| Silver | µg/L | 0.01 | 94 | 1 | 0.005 | B |
| Strontium | µg/L | 0.02 | 94 | 94 | 34.3 | A |
| Thallium | µg/L | 0.01 | 94 | 1 | 0.005 | B |
| Tin | µg/L | 0.02 | 94 | 18 | 0.0445 | A |
| Titanium | µg/L | 0.05 | 94 | 25 | 0.191 | A |
| Uranium | µg/L | 0 | 94 | 93 | 0.0167 | A |
| Vanadium | µg/L | 0.05 | 94 | 1 | 0.05 | B |
| Zinc T | µg/L | 0.5 | 94 | 44 | 2.17 | A |
| Zinc D | µg/L | 0.5 | 94 | 47 | 1.96 | A |
| Cyanide (Total) | mg/L | 0 | 94 | 2 | 0.001 | B |

# 3 QUALITY ASSURANCE / QUALITY CONTROL

The framework of the 2019 quality assurance quality control QA/QC program is outlined in the *AEMP Design Document* (Golder, 2016). The Design Document is the foundation for assessing data quality for each component of the AEMP (e.g., water, phytoplankton, etc.). Detailed analysis of the data quality for each component is provided in **Appendix A**. A summary of the key messages from the 2019 QA/QC program is provided in the subsections below.

## 3.1 Limnology and Water Chemistry QA/QC

Field QC procedures included collection and/or analysis of field duplicates and blanks (travel, equipment, and deionized water blanks). The laboratory QC program included duplicate analysis, blanks, and analysis of spike samples and reference material to verify the accuracy and precision of the analytical method. The objectives and methods for water QA/QC are provided in **Appendix A**.

### 3.1.1 Field Data and Sample Collection

For specific field QA procedures, see **Appendix A**. Briefly, field QA methods were applied to prevent cross-contamination between locations and from the equipment itself. These methods included wearing nitrile gloves and rinsing the sample equipment with surface water prior to collecting samples.

#### QA Summary: AEMP Field Data and Sample Collection

- The 2019 AEMP water quality sampling plan for Meliadine Lake and the Peninsula Lakes was completed in full, as per the recommended schedule and timing of sampling in the *AEMP Design Document* (Golder, 2016) and recommendations in the 2018 interpretive report (Golder, 2019).
- Sample integrity related to shipping and hold times is briefly discussed in **Section 3.3** and in further detail in **Appendix A**. Analytical results from the travel blanks (TB), deionized water blanks (DI) and equipment blanks (EB) indicated reliable sample handling and that the potential for cross-contamination to bias the results is unlikely.
- The laboratory QC assessment completed by ALS indicated the 2019 water quality data were typically within the established DQOs. In the few instances where a DQO was exceeded, the lab concluded the results were reliable and fit for use in the water quality assessment.

- Sample submission issues related to sample entry and hold-times encountered in 2019 have been corrected at the lab for 2020.

#### Corrective Actions for 2020

- In one of the field duplicates, some analytes were omitted for analysis due to a misunderstanding of the submitted CoC report. More information about these missing analytes is provided in **Appendix A**.

### 3.1.2 Field Duplicates

#### QA Summary: Field Duplicate Results

There were only a few sample/parameter combinations where the field duplicate RPDs did not meet lab-specified DQOs in 2019. Furthermore, most of the deviations noted in 2019 occurred for parameters that were within 10-times the analytical detection limit. The high degree of precision between field duplicate samples indicate consistency in sample collection and sample handling in 2019. For more information about field duplicate results refer to **Appendix A**.

### 3.1.1 Blank Samples

Three different types of *blank* samples are included in the AEMP, equipment blanks, field blanks and travel blanks. For detailed information about each type of blank sample collected refer to **Appendix A**.

#### QA Summary: Blank Results

Results from the DI blanks and travel blanks did not warrant flagging any parameters as cautionary or unreliable in the 2019 analyses.

- **Travel Blanks** – A travel blank was only submitted for the July sampling event. There were a number of parameters that were at detectable concentrations. All analytes detected in the travel blanks in 2019, except conductivity, were detected in the equipment blanks. Nitrate (as N) and combined nitrate and nitrite were flagged as they were reported at concentrations in the travel blank well above 10-times the DLs, whereas concentrations were only slightly above the MDLs in the equipment blank from the same sampling event.
- **De-ionized (DI) Blanks and Equipment Blanks**– A number of parameters were detected in the DI and EB in 2019. Concentrations were typically less than 10-times the DL, although a few instances were noted where the concentration in the blank was greater

than 10-times the DL. The lake water samples were evaluated for potential cross-contamination, and the detected concentrations in the blanks were considered to have negligible impact on the results. No measurements were flagged as unreliable in 2019 based on the DI and EB results. The water quality data passed the QA/QC assessment and are reliable for data analysis and interpretation of spatial trends. .

### 3.1.2 Laboratory QC

The following laboratory QC measures were implemented for the water chemistry analyses, laboratory duplicates, method blanks, matrix spikes and laboratory reference materials. For detailed information about the laboratory QC measures refer to **Appendix A**.

#### QA Summary: Laboratory QC Program

Laboratory QA/QC for water chemistry was very good in 2019 with very few laboratory data quality qualifiers and none that were likely to impact data interpretation.

- **Laboratory Duplicates** - All of the laboratory duplicates met the DQOs for water chemistry in 2019. The laboratory duplicate results indicate good analytical precision.
- **Matrix Spike** – Aside from major cations or metals detected above MDL which are typically flagged in in matrix spiked recovery, silica (reactive as $SiO_2$) was also flagged in the February sampling event in 2019.
- **Laboratory Control Samples** – Only bismuth in the August sampling event, and selenium and bismuth in the September event did not meet the laboratory DQOs.

### 3.1.3 QA/QC Summary – Water Quality

The 2019 AEMP water quality data collected from Meliadine Lake and the Peninsula Lakes was considered reliable and fit for interpretation in the AEMP based on the QA/QC assessment.

## 3.2 Phytoplankton QA/QC

The approaches to field QA described above for the water chemistry QA/QC program apply equally to the phytoplankton, chlorophyll-a, and depth-integrated nutrient samples. The phytoplankton sampling plan for Meliadine Lake was completed in full, as per recommendations in the 2018 interpretive report (Golder, 2019). Sampling was completed by the Agnico Eagle Environment Department concurrent with the August AEMP sampling event. Detailed analysis of the phytoplankton data quality is included in **Appendix A**.

Summarized results of the phytoplankton, chlorophyll-a and DIN QA/QC assessments are as follows:

**Sample Integrity** –Similar challenges with shipping from a remote mine were encountered for phytoplankton samples, but were not considered likely to impact data analysis and interpretation. For chlorophyll-a, no sample integrity issues were identified by the laboratory, although uniformly lower concentrations in 2019 relative to previous years were potentially related to a different filter material used in the 2019 program. Refer to **Appendix A** for details regarding uncertainty in the accuracy of the 2019 chlorophyll-a concentrations due to sample collection issues and hold-time exceedances during shipping. The data in question were given a cautionary flag, but were not excluded from analysis in **Section 7**. For DIN samples, there were a number of analytes that were not included in the 2019 analysis, more information about these missing analytes is discussed in **Appendix A**.

**Blanks** –Laboratory blanks results were below the reported detection limit. Blanks were not included for phytoplankton or DIN samples. Laboratory blanks results for 2019 indicated reliable sample handling and that cross-contamination related to sampling equipment is unlikely.

**Field Duplicates** – The 2019 field duplicate results were very good. All of the field duplicate RPDs for phytoplankton total biomass and density met the DQOs indicating very good replicability in sample collection. For chlorophyll-a, approximately 30% of the calculated RPDs did not meet DQOs. Most nutrient parameters were below the laboratory detection limit, resulting in only a few calculated RPDs, and only a few cases where RPDs did not meet DQOs.

**Laboratory QC Assessment** –The laboratory QC assessment passed (i.e., data were within the established DQOs) for samples submitted to Plankton R Us (taxonomy laboratory duplicates) and the University of Alberta (chlorophyll-a blanks) in 2019. Aside from one depth integrated nutrient sample flag for silica ($SiO_2$), the ALS laboratory QC assessment indicated the 2019 data were typically within the established DQOs. In the few instances where a DQO was exceeded, the lab concluded the results were reliable and fit to use for interpretation.

Overall, the phytoplankton program results passed the QA/QC assessment and are reliable for data analysis and interpretation of spatial and temporal trends.

## Corrective Actions for 2020

- CoC methods were revised to ensure all necessary analytes are included in analysis in 2020.

- Chlorophyll-a sample collection methods, including the correct filter brand, will be reviewed prior to the 2020 field season. The same filter type used in previous years was requested from the University of Alberta well ahead of this year's program.

## 3.3 Data Entry & Sample Shipping

Careful documentation and handling of all samples and data is a key component of QA/QC in a field program. Field QA/QC procedures pertaining to data collection and entry were adhered to in 2019 and are described in **Appendix A**. Sample shipments to the analytical laboratories were accompanied by chain-of-custody (CoC) forms detailing sample identification, reporting requirements, and sample handling information.

Overall, sample temperatures received at the laboratory were variable depending on season and reflect the challenges with shipping from a remote mine site. Likewise, hold-time exceedances for parameters and analytes with short hold-times are unavoidable but are not considered likely to impact data analysis and interpretation.

In 2020, an additional QA/QC assessment will be included after each sampling period to ensure the analytes requested for analysis match the results returned by the laboratory. This will also provide further direction for upcoming sampling events.

# 4 EFFLUENT CHARACTERIZATION

Mine effluent discharged to the receiving environment of Meliadine Lake is permitted under the Type A Water Licence (WL) 2AM-MEL1631 (NWB 2016). The mill uses dry-stacked tailings; therefore, there is no liquid effluent from the milling process. Water requiring treatment originates from surface runoff drainage from the two waste rock storage facilities (WRSF1 and WRSF2) along with effluent generated from the Tailings Storage Facility (TSF). Runoff from the site is collected at containment Pond 1 (CP1). Drainage from the WRSFs is collected at another containment pond (CP5) and treated by reverse osmosis to lower the concentration of dissolved solids before being pumped to CP1. Water collected at the TSF is collected at CP3 and is transported to CP1. Water at CP1 is treated at the effluent water treatment plant (EWTP) before being discharged to Meliadine Lake via the permanent diffuser (CP1 diffuser). MEL-14 is the post-treatment, *end of pipe* compliance point for effluent chemistry and toxicity testing specified under MDMER and the WL. MEL-13 is the first receiving environment station, located directly above the CP1 diffuser, and is sampled in compliance with MDMER and WL reporting (**Figure 5-1**); MEL-13 samples are compared to guidelines or objectives for the protection of aquatic life and drinking water to provide context for the mixing zone. Compliance monitoring at MEL-14 in 2019 is provided in **Table 4-1**.

## 4.1 Objectives

The purpose of effluent characterization program is to ensure that the mine is compliant with effluent quality limits specified in the Water Licence and requirements specified in the MDMER. The effluent chemistry data, toxicity test results, discharge volumes, and loadings are reported quarterly by the Agnico Eagle Environment Department to the Minister of the Environment as per MDMER (Section 21 and Section 22; Government of Canada 2020). The compliance monitoring results are summarized here to provide context when interpreting the water quality data for the NF area in Meliadine Lake.

### 4.1.1 Compliance with Effluent Quality Limits in the Water Licence and MDMER

Compliance with the Type A Water Licence (2AM-MEL1631; NWB 2016) and the MDMER (Government of Canada 2020) means discharge limits must not be exceeded at station MEL-14 (effluent quality limits presented in **Table 4-2** [WL] and **Table 4-3** [MDMER]). In addition to the above, mines are required under the MDMER to analyze additional parameters in the effluent as part of the effluent characterization (as per Schedule 5, Section 4). This effluent characterization

is required quarterly, and samples must be collected at least one month apart. Water Licence limits for pH, total suspended solids, nickel and lead were adopted from MDMER (Schedule 4).

### 4.1.2 Acute Toxicity Testing

Monthly acute toxicity testing is a requirement for mines authorized to discharge effluent to the aquatic receiving environment (Subsection 36[3] of the *Fisheries Act*). When the mine is discharging to Meliadine Lake, monthly toxicity testing is conducted on rainbow trout to verify that treated effluent released to Meliadine Lake is not acutely lethal[21]. Acute toxicity testing is also conducted using the aquatic invertebrate *Daphnia magna* at the same time as the rainbow trout toxicity tests as per Subsection 17(2) of the MDMER.

### 4.1.3 Sublethal Toxicity Testing (Action Level Assessment – End of Pipe Toxicity)

The low Action Level for end-of-pipe toxicity is classified as a persistent sublethal toxic effect observed in the same test organism in three consecutive monthly samples collected from MEL-14 for compliance purposes. Sublethal effects are defined as an effluent concentration less than the highest test concentration that causes a 25% effect to growth or reproduction relative to the control treatment (also known as the IC25).

If the low Action Level for end-of-pipe toxicity is reached, additional investigations may be undertaken, such as increased frequency of testing to confirm the effect, assessing the spatial extent of the effect within the mixing zone in MEL-01, or other targeted investigations to identify the underlying cause of the effect (e.g., toxicity identification evaluation testing).

## 4.2 Effluent Chemistry

In 2019, weekly sampling for effluent chemistry was completed at MEL-14 throughout the 90-day discharge period (July 8 to October 5). Monthly water quality was also collected in the receiving environment at MEL-13 on July 14, August 18, and September 18. All samples were sent to Bureau Veritas Laboratories (Nepean, ON) for analysis.

### 4.2.1 MEL-14 Effluent Chemistry

Effluent quality for samples collected from MEL-14 in 2019 are presented in **Table 4-6** (monthly mean) and **Table 4-7** (yearly mean). Chemistry data for the individual samples are provided in **Appendix B1**. Monthly mean concentrations were below the WL and MDMER limits in 2019.

[21] Acute lethality means full-strength undiluted effluent kills more than 50% of the rainbow trout during the 96-hr test period.

One sample collected in September minorly exceed the maximum allowable concentration for total dissolved solids (TDS). TDS measured 1,430 mg/L, corresponding to a 2% increase above the authorized limit of 1,400 mg/L. The magnitude (2% increase) and duration likely had a negligible effect on TDS in September (monthly mean = 1,350 mg/L).

### 4.2.2 MEL-13 Water Quality

Summary statistics and screening results for the receiving water samples collected from above the CP1 diffuser at MEL-13 are presented in **Table 4-8**. Water quality results for the individual samples are reported in **Appendix B2**. There were no exceedances of *Canadian Water Quality Guideline for the Protection of Aquatic Life* (CCME 1999) or *Guidelines for Canadian Drinking Water Quality* (GCDWQ; Health Canada 2017), or Site-Specific Water Quality Objectives (SSWQO; Golder 2013a) in the MEL-13 samples collected in 2019. The results from MEL-13 demonstrate that, even within the mixing zone (~100 m radius from the outfall), concentrations are below the threshold for potential effects to aquatic life and health-based and aesthetic drinking water guidelines.

### 4.2.3 Summary of Effluent Chemistry

Chemistry data from MEL-14 demonstrate the mine was in compliance with Water Licence and MDMER limits through 2019 with the exception of one TDS value in September. Water chemistry from MEL-13 were below WQGs (aquatic life or human health); toxicological effect to aquatic life and effects to drinking water quality are unlikely.

## 4.3 Acute and Sublethal Toxicity Testing

Monthly acute toxicity testing with *Daphnia magna* (water flea) and *Oncorhynchus mykiss* (rainbow trout) was conducted at the same time as sampling for chemistry on June 24th, July 9th, August 13th, and October 1st. The lab reports are provided in **Appendix B4**. Note that the September effluent samples for acute toxicity testing were mis-placed by the lab.

Sublethal toxicity testing with the aquatic plant duckweed *(Lemna minor*) was conducted twice in 2019 as specified under MDMER Schedule 5 subsection 6(3)[22]. *L. minor* was chosen for sublethal toxicity testing because it was the most sensitive test species in 2018 with inhibition to frond yield at effluent concentrations as low as 38% (Golder 2019).

[22] Sublethal toxicity testing is required on the species with the lowest geometric mean, taking into account the inhibition concentration that produces a 25% effect or an effective concentration of 25% (Government of Canada, 2020).

Results of the 2019 acute and sublethal toxicity test results are summarized in **Table 4-4**.

### 4.3.1 Acute Toxicity Test Results

Effluent released to Meliadine Lake was not acutely toxic to *D. magna* or rainbow trout in the four monthly samples collected in 2019. Concentrations of TDS at the end-of-pipe in 2019 ranged between 860 mg/L and 1,190 mg/L in effluent samples collected for acute toxicity testing (**Appendix B1**). These acute toxicity test results are consistent with the results reported in 2018. Two years of data demonstrate that effluent quality discharge limits for TDS (and other parameters) are protective of effects to aquatic life.

### 4.3.2 Sublethal Toxicity Test Results

Full strength effluent had no effect on *L. minor* frond weight and frond yield compared to the control group in the three tests conducted in 2019. These results represent an improvement in effluent quality compared to 2018 when inhibitory effects to frond yield were detected in two-of-three sampling events in full strength (i.e., 97%) effluent.

### 4.3.3 Summary and Discussion on TDS

In the context of the low Action Level Assessment for end-of-pipe toxicity, the sublethal toxicity test results from 2019 indicated good overall effluent. No follow-up actions or mitigation are recommended for 2020 other than routine testing as per MDMER sampling requirements for the project.

The potential biological effects of TDS are related to the specific composition of the ions, their speciation, and other solids present in water. TDS may also exhibit toxicity through osmotic stress (Davies and Hall 2007). Due to the complex and variable composition of ions and dissolved solids measured as TDS, a generic TDS guideline for the protection of aquatic life must be overly protective to account for the most toxic potential combination to the most sensitive organisms and life stage (Weber-Scannell and Duffy 2007). Assigning a threshold concentration for TDS is difficult because the high site specificity of this parameter. Except in conditions where ratios and speciation of ionic components do not vary, TDS is a poor predictor of toxicity (Chapman and McPherson 2016).

Scannell and Jacobs (2001) completed a detailed review on the effects of TDS on aquatic life including fish, aquatic invertebrates, and algae focusing on Alaskan waters and TDS components that would be similar to those found in mine effluent. They found no effects to invertebrate growth and survival at concentrations below 1,500 mg/L, that there was no reported range of concentrations that caused a toxic response in algae, and that fertilization and hatching rates in

salmonids was the most sensitive life stage with affects at concentrations around 750 mg/L. They also concluded that toxicity was due primarily to ionic properties rather than osmotic effects.

Based on the available data, the concentrations of TDS in the effluent are not contributing to noticeably higher measured TDS concentrations within the mixing zone at MEL-13 (45 to 70 mg/L; **Table 4-8**) or at the edge of the mixing zone in the NF area (37 to 60 mg/L; **Table 5-3**). It's evident from the 2019 results that TDS is diluted rapidly over a short distance in the NF area.

## 4.4 Loadings to Meliadine Lake

The loadings of deleterious substances in the effluent deposited to Meliadine Lake are recorded monthly (during discharge months) from the final discharge point (i.e., MEL-14) as per Part 2, Division 2, Section 20 of the MDMER (Government of Canada, 2020). Additionally, CIRNAC has requested to be updated on Mine-related impacts on Meliadine Lake and informed whether the diversion of STP effluent to CP1 has resulted in decreased parameter concentrations and nutrient effects in Meliadine Lake as has been suggested[23].

Monthly loadings are calculated using Equation 1:

$$ML = C \times V / 1{,}000 \qquad \text{(Equation 1)}$$

Where *ML* is the monthly loading in kg, *C* is the monthly mean concentration of the deleterious substances in mg/L, and *V* is the total monthly volume of effluent deposited from the final discharge point (i.e., MEL-14) in $m^3$. Daily discharge volumes were provided to Azimuth by Agnico Eagle and are presented in a table in **Appendix B3**.

The monthly volume of effluent discharged to Meliadine Lake from CP1 diffuser is provided in **Table 4-5** while the monthly loadings of effluent quality parameters are shown in **Table 4-9**. The total volume of water discharged to Meliadine Lake in 2019 was 306,773 $m^3$, less than half the volume that was discharged to Meliadine Lake in 2018 (642,521 $m^3$; Golder, 2019). Loadings were generally higher in September relative to other months in 2019. The lower volume of water discharged in 2019 is due to a restrictive TDS limit of 1,400 mg/L. If post-treatment effluent concentrations are greater than 1,400 mg/L, discharge to the NF area is suspended.

[23] Nutrient loading to Meliadine Lake is discussed in **Section 7.5**in the context of nutrient enrichment in Meliadine Lake.

Loadings were generally higher in September relative to other months in 2019. The loadings estimate for selected nutrient parameters (i.e., total phosphorus and TKN) are discussed in **Section 7** to inform the nutrient enrichment discussion.

## 4.5 Tables – Effluent Characterization

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**Table 4-1. Overview of the effluent characterization program in 2019.**

| Month | Date | MEL-14 | | |
|---|---|---|---|---|
| | | Effluent Chemistry | Acute Toxicity[a] | Sublethal Toxicity [b] |
| June | 24-Jun | ● | ● | |
| July | 09-Jul | ● | ● | ● |
| | 15-Jul | ● | | |
| | 25-Jul | ● | | |
| | 30-Jul | ● | | |
| August | 06-Aug | ● | ● | |
| | 13-Aug | ● | | ● |
| | 20-Aug | ● | | |
| | 29-Aug | ● | | |
| September | 03-Sep | ● | ○ | |
| | 07-Sep | ● | | |
| | 12-Sep | ● | | |
| | 17-Sep | ● | | |
| | 24-Sep | ● | | |
| October | 01-Oct | ● | ● | ● |

Notes:
● = sampling completed; ○ = sampling was conducted, but tox testing was not completed; blank cells = sampling not planned
[a] Acute toxicity testing with *Daphnia magna* and rainbow trout (LC50)
[b] Sublethal toxicity testing with the aquatic macrophyte *Lemna minor*.

**Table 4-2. Effluent quality limits for the effluent discharge from MEL-14, as per the Water Licence (NWB 2016).**

| Parameter | Units | Maximum Average Concentration | Maximum Concentration in a Grab Sample |
|---|---|---|---|
| pH [a] | - | 6.0 \| 9.5 | 6.0 \| 9.5 |
| Total Dissolved Solids (measured) | mg/L | 1,400 | 1,400 |
| Total Suspended Solids [a] | mg/L | 15 | 30 |
| Total Phosphorus | mg/L | 2 | 4 |
| Total Aluminum | mg/L | 2 | 3 |
| Total Arsenic | mg/L | 0.3 | 0.6 |
| Total Cyanide | mg/L | 0.5 | 1 |
| Total Copper | mg/L | 0.2 | 0.4 |
| Total Ammonium | mg/L | 14 | 18 |
| Total Nickel [a] | mg/L | 0.5 | 1 |
| Total Lead [a] | mg/L | 0.2 | 0.4 |
| Total Zinc | mg/L | 0.4 | 0.8 |
| Total Petroleum Hydrocarbons | mg/L | 5 | 5 |

Notes:
[a] Adopted from Metal and Diamond Mining Effluent Regulations (Government of Canada 2018).

**Table 4-3. Authorized limits of deleterious substances (*Schedule 4, MDMER*).**

| Parameter | Units | Maximum Monthly Mean Concentration | Maximum Concentration in a Composite Sample | Maximum Concentration in a Grab Sample |
|---|---|---|---|---|
| Arsenic | mg/L | 0.5 | 0.75 | 1 |
| Copper | mg/L | 0.3 | 0.45 | 0.6 |
| Cyanide | mg/L | 1 | 1.5 | 2 |
| Lead | mg/L | 0.2 | 0.3 | 0.4 |
| Nickel | mg/L | 0.5 | 0.75 | 1 |
| Zinc | mg/L | 0.5 | 0.75 | 1 |
| TSS | mg/L | 15 | 22.5 | 30 |
| Radium 226 | Bq/L | 0.37 | 0.74 | 1.11 |

Notes:
All concentrations are total values (i.e., unfiltered).

**Table 4-4. Acute and sublethal toxicity test results for MEL-14 in 2019.**

| Test species | Test | Endpoint | Test Results (%v/v) | | | |
|---|---|---|---|---|---|---|
| | | | 24-Jun | 09-Jul | 06-Aug & 13-Aug | 01-Oct |
| *Daphnia magna* | Acute | Survival (LC50) | > 100 | > 100 | > 100 | > 100 |
| *Oncorhynchus mykiss* | Acute | Survival (LC50) | > 100 | > 100 | > 100 | > 100 |
| *Lemna minor* | Sublethal | Frond weight (IC25) | - | >97 | >97 | >97 |
| | Sublethal | Frond yield (IC25) | - | >97 | >97 | >97 |

Notes:
Samples were collected for acute toxicity testing on August 6 and for sublethal testing on August 13.
%v/v = percent volume by volume (i.e., percent effluent associated with effects for each endpoint).
LC50 = concentration that causes a 50% reduction in survival; IC25 = concentration that causes a 25% effect.

**Table 4-5. Discharge volume to Meliadine Lake from CP1 in 2019.**

| Month (2019) | # of days discharging | Volume Discharged ($m^3$) |
|---|---|---|
| June | 0 | - |
| July | 24 | 30,614 |
| August | 31 | 107,540 |
| September | 30 | 157,912 |
| October | 5 | 10,707 |

Table 4-6. Monthly mean effluent concentration at MEL-14 in 2019.

Notes:

[a] Discharge started on July 8 through to October 5, 2019. * Mean concentration for the July loading estimate includes one effluent characterization sample collected on June 24th.

[b] Values <DL were conservatively set = DL when calculating the monthly loadings to Meliadine Lake.

| Parameter | | Maximum Average Concentration [a] | | Monthly Effluent Quality Summary for MEL-14 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | July * | | August | | September | | October | |
| | | MDMER | WL | N<DL | Mean Conc. (n=5) [b] | N<DL | Mean Conc. (n=4) [b] | N<DL | Mean Conc. (n=4) [b] | N<DL | Conc. (n=1) [b] |
| **Field Measurements** | | | | | | | | | | | |
| pH | | | 6.0 \| 9.5 | 0 | 7.1 | 0 | 7.4 | 0 | 7.1 | 0 | 7.3 |
| Conductivity | | | | 0 | 1,733 | 0 | 1,840 | 0 | 2,170 | 0 | 2,171 |
| Temperature | | | | 0 | 16 | 0 | 15 | 0 | 13 | 0 | 3.5 |
| Dissolved oxygen | | | | 0 | 11 | 0 | 7.0 | 0 | 8.7 | 0 | 12 |
| Dissolved oxygen | | | | 0 | 80 | 0 | 77 | 0 | 90 | 0 | 91 |
| **Conventional Parameters** | | | | | | | | | | | |
| pH | pH units | | | 0 | 7.3 | 0 | 7.5 | 0 | 7.6 | 0 | 7.4 |
| Specific conductivity | µS/cm | | | 0 | 1,740 | 0 | 1,750 | 0 | 2,167 | 0 | 2,100 |
| Hardness, as $CaCO_3$ (T) | mg/L | | | 0 | 310 | 0 | 339 | 0 | 436 | 0 | 422 |
| Total alkalinity, as $CaCO_3$ | mg/L | | | 0 | 18 | 0 | 34 | 0 | 42 | 0 | 24 |
| Total dissolved solids | mg/L | | 1,400 | 0 | 1,064 | 0 | 1,134 | 0 | 1,350 | 0 | 860 |
| Total suspended solids | mg/L | 15 | 15 | 1 | 3.6 | 0 | 3.8 | 0 | 3.3 | 0 | 2.0 |
| Total organic carbon | mg/L | | | 0 | 4.5 | 0 | 8.0 | 0 | 9.8 | 0 | 3.6 |
| Dissolved organic carbon | mg/L | | | 0 | 4.1 | 0 | 6.9 | 0 | 9.0 | 0 | 3.6 |
| Turbidity | NTU | | | 0 | 4.1 | 0 | 0.85 | 0 | 0.70 | 0 | 0.20 |
| **Major Ions** | | | | | | | | | | | |
| Bicarbonate, as $CaCO_3$ | mg/L | | | 0 | 18 | 0 | 34 | 0 | 42 | 0 | 24 |
| Carbonate, as $CaCO_3$ | mg/L | | | 5 | 1.0 | 4 | 1.0 | 4 | 1.0 | 1 | 1.0 |
| Calcium | mg/L | | | 0 | 88 | 0 | 90 | 0 | 122 | 0 | 108 |
| Chloride | mg/L | | | 0 | 454 | 0 | 428 | 0 | 530 | 0 | 530 |
| Magnesium | mg/L | | | 0 | 23 | 0 | 24 | 0 | 32 | 0 | 28 |
| Potassium | mg/L | | | 0 | 13 | 0 | 12 | 0 | 14 | 0 | 14 |
| Sodium | mg/L | | | 0 | 182 | 0 | 171 | 0 | 211 | 0 | 214 |
| Sulphate | mg/L | | | 0 | 52 | 0 | 55 | 0 | 83 | 0 | 74 |
| Reactive silica, as $SiO_2$ | mg/L | | | 0 | 0.80 | 0 | 0.60 | 0 | 1.3 | 0 | 0.68 |
| **Nutrients** | | | | | | | | | | | |
| Nitrate | mg/L | | | 0 | 13 | 0 | 12 | 0 | 13 | 0 | 14 |
| Nitrite | mg/L | | | 0 | 0.34 | 0 | 0.70 | 0 | 0.52 | 0 | 0.37 |
| Nitrate + nitrite | mg/L | | | 0 | 13 | 0 | 13 | 0 | 13 | 0 | 14 |
| Total ammonia | mg/L | | 14 | 0 | 4.6 | 0 | 3.1 | 0 | 3.6 | 0 | 4.0 |
| Total Kjeldahl nitrogen | mg/L | | | 0 | 4.9 | 0 | 3.5 | 0 | 3.8 | 0 | 4.3 |
| Total phosphorus | mg/L | | 2 | 2 | 0.023 | 2 | 0.022 | 3 | 0.021 | 1 | 0.020 |
| Orthophosphate | mg/L | | | 5 | 0.01 | 4 | 0.01 | 3 | 0.012 | 1 | 0.01 |
| **Total Metals** | | | | | | | | | | | |
| Aluminum | mg/L | | 2 | 0 | 0.19 | 0 | 0.30 | 0 | 0.26 | 0 | 0.12 |
| Antimony | mg/L | | | 5 | 0.0005 | 4 | 0.0005 | 4 | 0.001 | 1 | 0.0005 |
| Arsenic | mg/L | 0.5 | 0.3 | 0 | 0.0019 | 0 | 0.0015 | 0 | 0.0018 | 0 | 0.0010 |
| Barium | mg/L | | | 0 | 0.046 | 0 | 0.058 | 0 | 0.068 | 0 | 0.055 |
| Beryllium | mg/L | | | 5 | 0.00010 | 4 | 0.00010 | 4 | 0.00020 | 1 | 0.00010 |
| Bismuth | mg/L | | | 5 | 0.0010 | 4 | 0.0010 | 4 | 0.0020 | 1 | 0.0010 |
| Boron | mg/L | | | 0 | 0.31 | 0 | 0.27 | 1 | 0.27 | 0 | 0.35 |
| Cadmium | mg/L | | | 1 | 0.00002 | 0 | 0.00001 | 1 | 0.00003 | 0 | 0.00003 |
| Chromium | mg/L | | | 5 | 0.0010 | 4 | 0.0010 | 4 | 0.0020 | 1 | 0.0010 |
| Cobalt | mg/L | | | 0 | 0.00062 | 0 | 0.00041 | 1 | 0.00062 | 0 | 0.00052 |
| Copper | mg/L | 0.3 | 0.2 | 1 | 0.0010 | 0 | 0.00098 | 1 | 0.0012 | 0 | 0.00072 |
| Iron | mg/L | | | 0 | 0.59 | 0 | 0.091 | 0 | 0.14 | 0 | 0.080 |
| Lead | mg/L | | 0.2 | 4 | 0.00021 | 3 | 0.00021 | 4 | 0.00040 | 1 | 0.00020 |
| Lithium | mg/L | | | 0 | 0.070 | 0 | 0.053 | 0 | 0.062 | 0 | 0.082 |
| Manganese | mg/L | | | 0 | 0.043 | 0 | 0.014 | 0 | 0.040 | 0 | 0.038 |
| Mercury | mg/L | | | 5 | 0.00001 | 4 | 0.00001 | 4 | 0.00001 | 1 | 0.00001 |
| Molybdenum | mg/L | | | 1 | 0.0013 | 1 | 0.0013 | 1 | 0.0025 | 0 | 0.0014 |
| Nickel | mg/L | | 0.5 | 0 | 0.0028 | 0 | 0.0030 | 1 | 0.0041 | 0 | 0.0034 |
| Selenium | mg/L | | | 5 | 0.00010 | 2 | 0.00011 | 1 | 0.00022 | 0 | 0.00014 |
| Silver | mg/L | | | 5 | 0.00002 | 4 | 0.00002 | 4 | 0.00004 | 1 | 0.00002 |
| Strontium | mg/L | | | 0 | 1.9 | 0 | 1.9 | 0 | 2.1 | 0 | 2.2 |
| Thallium | mg/L | | | 0 | 0.00002 | 0 | 0.00003 | 2 | 0.00003 | 0 | 0.00002 |
| Tin | mg/L | | | 5 | 0.0050 | 4 | 0.0050 | 4 | 0.010 | 1 | 0.0050 |
| Titanium | mg/L | | | 5 | 0.0050 | 4 | 0.0050 | 4 | 0.010 | 1 | 0.0050 |
| Uranium | mg/L | | | 1 | 0.00018 | 0 | 0.00029 | 1 | 0.00036 | 0 | 0.00028 |
| Vanadium | mg/L | | | 5 | 0.0050 | 4 | 0.0050 | 4 | 0.010 | 1 | 0.0050 |
| Zinc | mg/L | | 0.4 | 3 | 0.0057 | 3 | 0.0051 | 3 | 0.010 | 0 | 0.015 |
| **Dissolved Metals** | | | | | | | | | | | |
| Aluminum | mg/L | | | 0 | 0.036 | 0 | 0.059 | 0 | 0.041 | 0 | 0.019 |
| Antimony | mg/L | | | 5 | 0.00050 | 4 | 0.00050 | 4 | 0.00050 | 1 | 0.00050 |
| Arsenic | mg/L | | | 0 | 0.0017 | 0 | 0.0014 | 0 | 0.0017 | 0 | 0.00084 |
| Barium | mg/L | | | 0 | 0.047 | 0 | 0.055 | 0 | 0.068 | 0 | 0.050 |
| Beryllium | mg/L | | | 5 | 0.00010 | 4 | 0.00010 | 4 | 0.00010 | 1 | 0.00010 |
| Bismuth | mg/L | | | 5 | 0.0010 | 4 | 0.0010 | 4 | 0.0010 | 1 | 0.0010 |
| Boron | mg/L | | | 0 | 0.31 | 0 | 0.28 | 0 | 0.26 | 0 | 0.34 |
| Cadmium | mg/L | | | 1 | 0.00001 | 1 | 0.00001 | 0 | 0.00002 | 0 | 0.00002 |
| Chromium | mg/L | | | 5 | 0.0010 | 4 | 0.0010 | 4 | 0.0010 | 1 | 0.0010 |
| Cobalt | mg/L | | | 1 | 0.00060 | 0 | 0.00040 | 0 | 0.00050 | 0 | 0.00048 |

Table 4-6. Monthly mean effluent concentration at MEL-14 in 2019.

| Parameter | | Maximum Average Concentration [a] | | Monthly Effluent Quality Summary for MEL-14 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | July * | | August | | September | | October | |
| | | MDMER | WL | N<DL | Mean Conc. (n=5) [b] | N<DL | Mean Conc. (n=4) [b] | N<DL | Mean Conc. (n=4) [b] | N<DL | Conc. (n=1) [b] |
| Copper | mg/L | | | 1 | 0.00090 | 0 | 0.00091 | 0 | 0.00079 | 0 | 0.00068 |
| Iron | mg/L | | | 0 | 0.081 | 0 | 0.069 | 0 | 0.062 | 0 | 0.044 |
| Lead | mg/L | | | 5 | 0.00020 | 4 | 0.00020 | 3 | 0.00024 | 1 | 0.00020 |
| Lithium | mg/L | | | 0 | 0.071 | 0 | 0.056 | 0 | 0.059 | 0 | 0.070 |
| Manganese | mg/L | | | 0 | 0.036 | 0 | 0.0083 | 0 | 0.030 | 0 | 0.031 |
| Mercury | mg/L | | | 5 | 0.00001 | 4 | 0.00001 | 4 | 0.00001 | 1 | 0.00001 |
| Molybdenum | mg/L | | | 1 | 0.0013 | 1 | 0.0046 | 0 | 0.0026 | 0 | 0.0012 |
| Nickel | mg/L | | | 0 | 0.0027 | 0 | 0.0029 | 0 | 0.0037 | 0 | 0.0034 |
| Selenium | mg/L | | | 4 | 0.00010 | 2 | 0.00011 | 0 | 0.00013 | 0 | 0.00012 |
| Silicon | mg/L | | | 0 | 0.41 | 0 | 0.33 | 0 | 0.68 | 0 | 0.53 |
| Silver | mg/L | | | 5 | 0.00002 | 4 | 0.00002 | 4 | 0.00002 | 1 | 0.00002 |
| Strontium | mg/L | | | 0 | 1.9 | 0 | 1.8 | 0 | 2.3 | 0 | 2.1 |
| Sulphur | mg/L | | | 0 | 20 | 0 | 21 | 0 | 31 | 0 | 28 |
| Thallium | mg/L | | | 0 | 0.00003 | 0 | 0.00003 | 0 | 0.00002 | 0 | 0.00002 |
| Tin | mg/L | | | 5 | 0.0050 | 4 | 0.0050 | 4 | 0.0050 | 1 | 0.0050 |
| Titanium | mg/L | | | 5 | 0.0050 | 4 | 0.0050 | 4 | 0.0050 | 1 | 0.0050 |
| Uranium | mg/L | | | 2 | 0.00014 | 0 | 0.00025 | 0 | 0.00032 | 0 | 0.00025 |
| Vanadium | mg/L | | | 5 | 0.0050 | 4 | 0.0050 | 4 | 0.0050 | 1 | 0.0050 |
| Zinc | mg/L | | | 4 | 0.0054 | 3 | 0.0056 | 3 | 0.0064 | 0 | 0.013 |
| Zirconium | mg/L | | | 4 | 0.00010 | 4 | 0.00010 | 4 | 0.00010 | 1 | 0.00010 |
| **Volatile Organics** | | | | | | | | | | | |
| Benzene | mg/L | | | 5 | 0.00020 | 4 | 0.00020 | 4 | 0.00020 | 1 | 0.00020 |
| Ethylbenzene | mg/L | | | 5 | 0.00020 | 4 | 0.00020 | 4 | 0.00020 | 1 | 0.00020 |
| Toluene | mg/L | | | 5 | 0.00040 | 4 | 0.00020 | 4 | 0.00020 | 1 | 0.00020 |
| Xylenes | mg/L | | | 5 | 0.00040 | 4 | 0.00040 | 4 | 0.00040 | 1 | 0.00040 |
| m,p-Xylenes | mg/L | | | 5 | 0.00020 | 4 | 0.00040 | 4 | 0.00040 | 1 | 0.00040 |
| o-Xylene | mg/L | | | 5 | 0.025 | 4 | 0.00020 | 4 | 0.00020 | 1 | 0.00020 |
| **Hydrocarbons** | | | | | | | | | | | |
| F1 (C6-C10)-BTEX | mg/L | | | 5 | 0.025 | 4 | 0.025 | 4 | 0.025 | 1 | 0.025 |
| F1 (C6-C10) | mg/L | | | 5 | 0.10 | 4 | 0.025 | 4 | 0.025 | 1 | 0.025 |
| F2 (C10-C16) | mg/L | | | 5 | 0.20 | 4 | 0.10 | 4 | 0.10 | 1 | 0.10 |
| F3 (C16-C34) | mg/L | | | 5 | 0.20 | 4 | 0.20 | 4 | 0.20 | 1 | 0.20 |
| F4 (C34-C50) | mg/L | | | 5 | 0.20 | 4 | 0.20 | 4 | 0.20 | 1 | 0.20 |
| **Cyanides** | | | | | | | | | | | |
| Cyanide | mg/L | 1.0 | 0.5 | 1 | 0.0014 | 0 | 0.0014 | 2 | 0.0014 | 1 | 0.0010 |
| **Radionuclides** | | | | | | | | | | | |
| Radium-226 | Bq/l | 0.37 | | 4 | 0.064 | 4 | 0.0050 | 4 | 0.0050 | 1 | 0.0050 |

Table 4-7. Yearly mean effluent quality at MEL-14 in 2019.

Notes:
[a] MDMER = Metal and Diamond Mining Effluent Regulations (Schedule 4, Government of Canada, 2018); WL = Water Licence (Schedule I, Table 2 of the Water Licence; NWB 2016)
[b] Mean and Standard Deviation (SD) not reported if 50% of the samples were less than detection (N<DL).

| Parameter | Units | Maximum Allowable Concentration [a] | | Yearly Effluent Quality Summary for MEL-14 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Summary Statistics [b] | | | | | | | Exceedances | |
| | | MDMER | WL | N | N<DL | Mean | SD | Median | Min | Max | <MDMER | <WL |
| **Field Measurements** | | | | | | | | | | | | |
| pH | pH units | | 6.0 \| 9.5 | 15 | 0 | 7.2 | 0.21 | 7.2 | 6.9 | 7.7 | - | 0 |
| Conductivity | µS/cm | | | 15 | 0 | 1,951 | 242 | 1,994 | 1,534 | 2,243 | - | - |
| Temperature | °C | | | 15 | 0 | 14 | 4.4 | 14 | 3.5 | 22 | - | - |
| Dissolved oxygen | mg/L | | | 10 | 0 | 8.7 | 2.0 | 7.9 | 5.9 | 12 | - | - |
| Dissolved oxygen | % | | | 15 | 0 | 83 | 18 | 85 | 37 | 110 | - | - |
| **Conventional Parameters** | | | | | | | | | | | | |
| pH | pH units | | | 14 | 0 | 7.5 | 0.18 | 7.4 | 7.2 | 7.8 | - | - |
| Specific conductivity | µS/cm | | | 18 | 0 | 1,906 | 234 | 1,900 | 1,500 | 2,300 | - | - |
| Hardness, as $CaCO_3$ (T) | mg/L | | | 14 | 0 | 362 | 77 | 375 | 232 | 462 | - | - |
| Total alkalinity, as $CaCO_3$ | mg/L | | | 14 | 0 | 30 | 15 | 25 | 12 | 51 | - | - |
| Total dissolved solids | mg/L | | 1,400 | 18 | 0 | 1,171 | 173 | 1,180 | 860 | 1,430 | - | 1 |
| Total suspended solids | mg/L | 30 | 30 | 14 | 1 | 3.4 | 2.0 | 3.0 | 1.0 | 8.0 | 0 | 0 |
| Total organic carbon | mg/L | | | 14 | 0 | 7.0 | 4.0 | 5.0 | 3.1 | 13 | - | - |
| Dissolved organic carbon | mg/L | | | 14 | 0 | 6.2 | 3.4 | 4.4 | 2.8 | 11 | - | - |
| Turbidity | NTU | | | 14 | 0 | 1.9 | 4.4 | 0.75 | 0.20 | 17 | - | - |
| **Major Ions** | | | | | | | | | | | | |
| Bicarbonate, as $CaCO_3$ | mg/L | | | 14 | 0 | 30 | 15 | 25 | 12 | 51 | - | - |
| Carbonate, as $CaCO_3$ | mg/L | | | 14 | 14 | - | - | - | - | 1.0 | - | - |
| Calcium | mg/L | | | 14 | 0 | 100 | 21 | 108 | 66 | 128 | - | - |
| Chloride | mg/L | | | 14 | 0 | 474 | 54 | 470 | 370 | 550 | - | - |
| Magnesium | mg/L | | | 14 | 0 | 26 | 5.3 | 27 | 17 | 34 | - | - |
| Potassium | mg/L | | | 14 | 0 | 13 | 1.2 | 13 | 11 | 15 | - | - |
| Sodium | mg/L | | | 14 | 0 | 189 | 21 | 184 | 162 | 236 | - | - |
| Sulphate | mg/L | | | 14 | 0 | 63 | 16 | 60 | 39 | 90 | - | - |
| Reactive silica, as $SiO_2$ | mg/L | | | 14 | 0 | 0.87 | 0.38 | 0.82 | 0.42 | 1.9 | - | - |
| **Nutrients** | | | | | | | | | | | | |
| Nitrate | mg/L | | | 14 | 0 | 13 | 1.1 | 13 | 11 | 14 | - | - |
| Nitrite | mg/L | | | 14 | 0 | 0.50 | 0.17 | 0.45 | 0.21 | 0.75 | - | - |
| Nitrate + nitrite | mg/L | | | 14 | 0 | 13 | 1.0 | 14 | 11 | 14 | - | - |
| Total ammonia | mg/L | | 18 | 14 | 0 | 3.8 | 0.80 | 3.8 | 2.6 | 5.6 | - | 0 |
| Total Kjeldahl nitrogen | mg/L | | | 14 | 0 | 4.1 | 0.76 | 4.2 | 2.9 | 5.5 | - | - |
| Total phosphorus | mg/L | | 4 | 14 | 8 | - | - | 0.020 | 0.020 | 0.027 | - | 0 |
| Orthophosphate | mg/L | | | 14 | 13 | - | - | - | 0.010 | 0.019 | - | - |
| **Total Metals** | | | | | | | | | | | | |
| Aluminum | mg/L | | 3 | 14 | 0 | 0.24 | 0.19 | 0.17 | 0.067 | 0.54 | - | 0 |
| Antimony | mg/L | | | 14 | 14 | - | - | - | 0.00050 | 0.0025 | - | - |
| Arsenic | mg/L | 1 | 0.6 | 14 | 0 | 0.0017 | 0.00053 | 0.0019 | 0.00090 | 0.0025 | 0 | 0 |
| Barium | mg/L | | | 14 | 0 | 0.056 | 0.013 | 0.052 | 0.038 | 0.073 | - | - |
| Beryllium | mg/L | | | 14 | 14 | - | - | - | 0.00010 | 0.00050 | - | - |
| Bismuth | mg/L | | | 14 | 14 | - | - | - | 0.0010 | 0.0050 | - | - |
| Boron | mg/L | | | 14 | 1 | 0.29 | 0.073 | 0.32 | 0.18 | 0.39 | - | - |
| Cadmium | mg/L | | | 14 | 2 | 0.00002 | 0.00001 | 0.00002 | 0.00001 | 0.00005 | - | - |
| Chromium | mg/L | | | 14 | 14 | - | - | - | 0.0010 | 0.0050 | - | - |
| Cobalt | mg/L | | | 14 | 1 | 0.00055 | 0.00020 | 0.00052 | 0.00024 | 0.0010 | - | - |
| Copper | mg/L | 0.6 | 0.4 | 14 | 2 | 0.0010 | 0.00052 | 0.00091 | 0.00050 | 0.0025 | 0 | 0 |
| Iron | mg/L | | | 14 | 0 | 0.28 | 0.60 | 0.11 | 0.049 | 2.4 | - | - |
| Lead | mg/L | 0.4 | 0.4 | 14 | 12 | - | - | - | 0.00020 | 0.0010 | 0 | 0 |
| Lithium | mg/L | | | 14 | 0 | 0.064 | 0.010 | 0.065 | 0.050 | 0.082 | - | - |
| Manganese | mg/L | | | 14 | 0 | 0.033 | 0.021 | 0.033 | 0.0056 | 0.080 | - | - |
| Mercury | mg/L | | | 14 | 14 | - | - | - | - | 0.00001 | - | - |
| Molybdenum | mg/L | | | 14 | 3 | 0.0016 | 0.0010 | 0.0015 | 0.0010 | 0.0050 | - | - |
| Nickel | mg/L | 1 | 1 | 14 | 1 | 0.0033 | 0.00082 | 0.0034 | 0.0018 | 0.0050 | 0 | 0 |
| Selenium | mg/L | | | 14 | 8 | - | - | 0.00011 | 0.00010 | 0.00050 | - | - |
| Silver | mg/L | | | 14 | 14 | - | - | - | 0.00002 | 0.00010 | - | - |
| Strontium | mg/L | | | 14 | 0 | 2.0 | 0.25 | 2.0 | 1.4 | 2.3 | - | - |
| Thallium | mg/L | | | 14 | 2 | 0.00003 | 0.00001 | 0.00003 | 0.00001 | 0.00005 | - | - |
| Tin | mg/L | | | 14 | 14 | - | - | - | 0.0050 | 0.025 | - | - |
| Titanium | mg/L | | | 14 | 14 | - | - | - | 0.0050 | 0.025 | - | - |
| Uranium | mg/L | | | 14 | 2 | 0.00027 | 0.00012 | 0.00025 | 0.00010 | 0.00050 | - | - |
| Vanadium | mg/L | | | 14 | 14 | - | - | - | 0.0050 | 0.025 | - | - |
| Zinc | mg/L | 0.8 | 1 | 14 | 9 | - | - | 0.0050 | 0.0050 | 0.025 | 0 | 0 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Aluminum | mg/L | | | 14 | 0 | 0.043 | 0.024 | 0.035 | 0.019 | 0.11 | - | - |
| Antimony | mg/L | | | 14 | 14 | - | - | - | - | 0.00050 | - | - |
| Arsenic | mg/L | | | 14 | 0 | 0.0016 | 0.00051 | 0.0017 | 0.00084 | 0.0023 | - | - |
| Barium | mg/L | | | 14 | 0 | 0.056 | 0.014 | 0.051 | 0.037 | 0.078 | - | - |
| Beryllium | mg/L | | | 14 | 14 | - | - | - | - | 0.00010 | - | - |
| Bismuth | mg/L | | | 14 | 14 | - | - | - | - | 0.0010 | - | - |
| Boron | mg/L | | | 14 | 0 | 0.29 | 0.078 | 0.32 | 0.18 | 0.41 | - | - |
| Cadmium | mg/L | | | 14 | 2 | 0.00002 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | - | - |
| Chromium | mg/L | | | 14 | 14 | - | - | - | - | 0.0010 | - | - |
| Cobalt | mg/L | | | 14 | 1 | 0.00051 | 0.00017 | 0.00049 | 0.00020 | 0.00085 | - | - |
| Copper | mg/L | | | 14 | 1 | 0.00085 | 0.00030 | 0.00088 | 0.00020 | 0.0013 | - | - |
| Iron | mg/L | | | 14 | 0 | 0.069 | 0.046 | 0.056 | 0.0098 | 0.17 | - | - |
| Lead | mg/L | | | 14 | 13 | - | - | - | 0.00020 | 0.00036 | - | - |
| Lithium | mg/L | | | 14 | 0 | 0.063 | 0.0084 | 0.064 | 0.054 | 0.082 | - | - |
| Manganese | mg/L | | | 14 | 0 | 0.026 | 0.019 | 0.023 | 0.0053 | 0.070 | - | - |
| Mercury | mg/L | | | 14 | 14 | - | - | - | - | 0.00001 | - | - |

Table 4-7. Yearly mean effluent quality at MEL-14 in 2019.

| Parameter | Units | Maximum Allowable Concentration [a] | | Yearly Effluent Quality Summary for MEL-14 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Summary Statistics [b] | | | | | | | Exceedances | |
| | | MDMER | WL | N | N<DL | Mean | SD | Median | Min | Max | <MDMER | <WL |
| Molybdenum | mg/L | | | 14 | 2 | 0.0026 | 0.0026 | 0.0015 | 0.0010 | 0.0098 | - | - |
| Nickel | mg/L | | | 14 | 0 | 0.0031 | 0.00072 | 0.0033 | 0.0014 | 0.0039 | - | - |
| Selenium | mg/L | | | 14 | 6 | 0.00011 | 0.00002 | 0.00010 | 0.00010 | 0.00015 | - | - |
| Silver | mg/L | | | 14 | 14 | - | - | - | - | 0.00002 | - | - |
| Strontium | mg/L | | | 14 | 0 | 2.0 | 0.33 | 2.0 | 1.3 | 2.4 | - | - |
| Thallium | mg/L | | | 14 | 0 | 0.00003 | 0.00001 | 0.00003 | 0.00001 | 0.00003 | - | - |
| Tin | mg/L | | | 14 | 14 | - | - | - | - | 0.0050 | - | - |
| Titanium | mg/L | | | 14 | 14 | - | - | - | - | 0.0050 | - | - |
| Uranium | mg/L | | | 14 | 2 | 0.00023 | 0.00010 | 0.00024 | 0.00010 | 0.00044 | - | - |
| Vanadium | mg/L | | | 14 | 14 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - |
| Zinc | mg/L | | | 14 | 10 | 0.0063 | 0.0026 | 0.0050 | 0.0050 | 0.013 | - | - |
| Zirconium | mg/L | | | 14 | 13 | - | - | 0.00010 | 0.00010 | 0.00010 | - | - |
| **Volatile Organics** | | | | | | | | | | | | |
| Benzene | mg/L | | | 14 | 14 | - | - | - | - | 0.00020 | - | - |
| Ethylbenzene | mg/L | | | 14 | 14 | - | - | - | - | 0.00020 | - | - |
| Toluene | mg/L | | | 14 | 14 | - | - | - | - | 0.00020 | - | - |
| Xylenes | mg/L | | | 14 | 14 | - | - | - | - | 0.00040 | - | - |
| m,p-Xylenes | mg/L | | | 14 | 14 | - | - | - | - | 0.00040 | - | - |
| o-Xylene | mg/L | | | 14 | 14 | - | - | - | - | 0.00020 | - | - |
| **Hydrocarbons** | | | | | | | | | | | | |
| F1 (C6-C10)-BTEX | mg/L | | | 14 | 14 | - | - | - | - | 0.025 | - | - |
| F1 (C6-C10) | mg/L | | | 14 | 14 | - | - | - | - | 0.025 | - | - |
| F2 (C10-C16) | mg/L | | | 14 | 14 | - | - | - | - | 0.10 | - | - |
| F3 (C16-C34) | mg/L | | | 14 | 14 | - | - | - | - | 0.20 | - | - |
| F4 (C34-C50) | mg/L | | | 14 | 14 | - | - | - | - | 0.20 | - | - |
| **Cyanides** | | | | | | | | | | | | |
| Cyanide | mg/L | 2 | 1 | 14 | 5 | 0.0016 | 0.0010 | 0.0014 | 0.0010 | 0.0050 | 0 | 0 |
| Cyanide (free) | mg/L | | | 14 | 9 | 0.0011 | 0.00015 | 0.0010 | 0.0010 | 0.0014 | - | - |
| **Radionuclides** | | | | | | | | | | | | |
| Radium-226 | Bq/l | | | 14 | 13 | 0.026 | - | - | 0.0050 | 0.30 | 0 | - |

Table 4-8. Water quality measured at MEL-13 (the mixing zone in Meliadine Lake) in 2019.

Notes:
[a] WQG abbreviations are A=acute; C=chronic; D=drinking water; AES=aesthetic drinking water; SQO = site-specific water quality objective.
[b] Acute and chronic guidelines for cadmium, manganese (d), and zinc (d) are based on site-specific water quality (e.g., hardness). The value shown represent the range in site-specific guidelines for MEL-01 in 2019.
[c] Mean and Standard Deviation (SD) not reported if 50% of the samples were less than detection (N<DL).

| Parameter | Units | Screening Criteria [a] | | | | | Water Quality Summary for MEL-13 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME [b] | | Health Canada | | SSWQO (SQO) | Summary Statistics [c] | | | | | | WQG Exceedances | | | | |
| | | Acute (A) | Chronic (C) | GCDWQ (D) | Aesthetic (AES) | | N | N<DL | Mean | SD | Min | Max | A | C | D | AES | SQO |
| **Field Measurements** | | | | | | | | | | | | | | | | | |
| pH | pH units | | 6.5 \| 9.0 | | 7.0 \| 11 | | 3 | 0 | 7.6 | 0.27 | 7.4 | 7.9 | - | - | - | 0 | - |
| Conductivity | µS/cm | | | | | | 3 | 0 | 82 | 5.0 | 77 | 87 | - | - | - | - | - |
| Temperature | °C | | | | 15 | | 3 | 0 | 9.2 | 2.9 | 7.5 | 13 | - | - | - | 0 | - |
| **Conventional Parameters** | | | | | | | | | | | | | | | | | |
| pH | pH units | | 6.5 \| 9.0 | | 7.0 \| 11 | | 4 | 0 | 7.5 | 0.15 | 7.3 | 7.6 | - | - | - | - | - |
| Specific conductivity | µS/cm | | | | | | 4 | 0 | 85 | 4.6 | 79 | 90 | - | - | - | - | - |
| Hardness, as $CaCO_3$ | mg/L | | | | | | 4 | 0 | 23 | 1.6 | 22 | 26 | - | - | - | - | - |
| Total alkalinity, as $CaCO_3$ | mg/L | | | | | | 4 | 0 | 16 | 1.0 | 14 | 16 | - | - | - | - | - |
| Total dissolved solids | mg/L | | | | 500 | | 4 | 0 | 59 | 11 | 45 | 70 | - | - | - | 0 | - |
| Total suspended solids | mg/L | | | | | | 4 | 1 | 1.0 | 0 | 1.0 | 1.0 | - | - | - | - | - |
| Total organic carbon | mg/L | | | | | | 4 | 0 | 3.1 | 0.12 | 3.0 | 3.2 | - | - | - | - | - |
| Dissolved organic carbon | mg/L | | | | | | 4 | 0 | 2.8 | 0.18 | 2.6 | 3.0 | - | - | - | - | - |
| Turbidity | NTU | | | | | | 4 | 1 | 0.20 | 0.082 | 0.10 | 0.30 | - | - | - | - | - |
| **Major Ions** | | | | | | | | | | | | | | | | | |
| Bicarbonate, as $CaCO_3$ | mg/L | | | | | | 4 | 0 | 16 | 1.0 | 14 | 16 | - | - | - | - | - |
| Carbonate, as $CaCO_3$ | mg/L | | | | | | 4 | 4 | - | - | - | 1.0 | - | - | - | - | - |
| Calcium | mg/L | | | | | | 4 | 0 | 7.1 | 0.25 | 6.7 | 7.3 | - | - | - | - | - |
| Chloride | mg/L | 640 | 120 | | 250 | | 4 | 0 | 12 | 0.82 | 11 | 13 | 0 | 0 | - | 0 | - |
| Magnesium | mg/L | | | | | | 4 | 0 | 1.3 | 0.057 | 1.2 | 1.3 | - | - | - | - | - |
| Potassium | mg/L | | | | | | 4 | 0 | 0.93 | 0.038 | 0.88 | 0.97 | - | - | - | - | - |
| Sodium | mg/L | | | | 200 | | 4 | 0 | 5.1 | 0.33 | 4.7 | 5.5 | - | - | - | 0 | - |
| Sulphate | mg/L | | | | 500 | | 4 | 0 | 3.6 | 0.24 | 3.3 | 3.8 | - | - | - | 0 | - |
| Reactive silica, as $SiO_2$ | mg/L | | | | | | 4 | 0 | 0.45 | 0.24 | 0.26 | 0.80 | - | - | - | - | - |
| **Nutrients** | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 124 | 2.9 | 10.0 | | | 4 | 4 | - | - | - | 0.10 | 0 | 0 | 0 | - | - |
| Nitrite | mg/L | | 0.060 | 1.0 | | | 4 | 4 | - | - | - | 0.010 | - | 0 | 0 | - | - |
| Nitrate + nitrite | mg/L | | | | | | 4 | 4 | - | - | - | 0.10 | - | - | - | - | - |
| Total ammonia | mg/L | | 0.56 | | | | 4 | 1 | 0.11 | 0.080 | 0.050 | 0.22 | - | 0 | - | - | - |
| Total Kjeldahl nitrogen | mg/L | | | | | | 4 | 0 | 0.22 | 0.10 | 0.15 | 0.37 | - | - | - | - | - |
| Total phosphorus | mg/L | | | | | | 4 | 3 | 0.021 | - | 0.020 | 0.025 | - | - | - | - | - |
| Orthophosphate | mg/L | | | | | | 4 | 4 | - | - | - | 0.010 | - | - | - | - | - |
| **Total Metals** | | | | | | | | | | | | | | | | | |
| Aluminum | µg/L | | 100 | | | | 4 | 0 | 7.0 | 3.0 | 5.1 | 12 | - | 0 | - | - | - |
| Antimony | µg/L | | | 6.0 | | | 4 | 4 | - | - | - | 0.50 | - | - | 0 | - | - |
| Arsenic | µg/L | | 5.0 | 10.0 | | 25 | 4 | 0 | 0.36 | 0.062 | 0.29 | 0.43 | - | 0 | 0 | - | 0 |
| Barium | µg/L | | | 1,000 | | | 4 | 0 | 7.6 | 0.37 | 7.1 | 7.9 | - | - | 0 | - | - |
| Beryllium | µg/L | | | | | | 4 | 4 | - | - | - | 0.10 | - | - | - | - | - |
| Bismuth | µg/L | | | | | | 4 | 4 | - | - | - | 1.0 | - | - | - | - | - |
| Boron | µg/L | 29,000 | 1,500 | 5,000 | | | 4 | 4 | - | - | - | 50 | 0 | 0 | 0 | - | - |
| Cadmium | µg/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | | | 4 | 4 | - | - | - | 0.010 | 0 | 0 | 0 | - | - |
| Chromium | µg/L | | 1.0 | 50 | | | 4 | 4 | - | - | - | 1.0 | - | 0 | 0 | - | - |
| Cobalt | µg/L | | | | | | 4 | 4 | - | - | - | 0.20 | - | - | - | - | - |
| Copper | µg/L | | 2.0 | 2,000 | 1,000 | | 4 | 0 | 0.72 | 0.087 | 0.65 | 0.84 | - | 0 | 0 | 0 | - |
| Iron | µg/L | | 300 | | 300 | 1,060 | 4 | 0 | 28 | 6.4 | 23 | 36 | - | 0 | - | 0 | 0 |
| Lead | µg/L | | 1.0 | 5.0 | | | 4 | 4 | - | - | - | 0.20 | - | 0 | 0 | - | - |
| Lithium | µg/L | | | | | | 4 | 4 | - | - | - | 2.0 | - | - | - | - | - |
| Manganese | µg/L | | | 120 | 20 | | 4 | 0 | 7.7 | 6.8 | 3.5 | 18 | - | - | 0 | 0 | - |
| Mercury | µg/L | | 0.026 | 1.0 | | | 4 | 4 | - | - | - | 0.010 | - | 0 | 0 | - | - |
| Molybdenum | µg/L | | 73 | | | | 4 | 4 | - | - | - | 1.0 | - | 0 | - | - | - |
| Nickel | µg/L | | 25 | | | | 4 | 4 | - | - | - | 1.0 | - | 0 | - | - | - |
| Selenium | µg/L | | 1.0 | 50 | | | 4 | 4 | - | - | - | 0.10 | - | 0 | 0 | - | - |
| Silver | µg/L | | 0.25 | | | | 4 | 4 | - | - | - | 0.020 | - | 0 | - | - | - |
| Strontium | µg/L | | | 7,000 | | | 4 | 0 | 41 | 3.7 | 38 | 46 | - | - | 0 | - | - |
| Thallium | µg/L | | 0.80 | | | | 4 | 4 | - | - | - | 0.010 | - | 0 | - | - | - |
| Tin | µg/L | | | | | | 4 | 4 | - | - | - | 5.0 | - | - | - | - | - |
| Titanium | µg/L | | | | | | 4 | 4 | - | - | - | 5.0 | - | - | - | - | - |
| Uranium | µg/L | 33 | 15 | 20 | | | 4 | 4 | - | - | - | 0.10 | 0 | 0 | 0 | - | - |
| Vanadium | µg/L | | | | | | 4 | 4 | - | - | - | 5.0 | - | - | - | - | - |
| Zinc | µg/L | | | | 5,000 | | 4 | 4 | - | - | - | 5.0 | - | - | - | 0 | - |
| **Dissolved Metals** | | | | | | | | | | | | | | | | | |
| Aluminum | µg/L | | | | | | 4 | 4 | - | - | - | 3.0 | - | - | - | - | - |
| Antimony | µg/L | | | | | | 4 | 4 | - | - | - | 0.50 | - | - | - | - | - |
| Arsenic | µg/L | | | | | | 4 | 0 | 0.34 | 0.053 | 0.27 | 0.39 | - | - | - | - | - |
| Barium | µg/L | | | | | | 4 | 0 | 7.3 | 0.096 | 7.2 | 7.4 | - | - | - | - | - |
| Beryllium | µg/L | | | | | | 4 | 4 | - | - | - | 0.10 | - | - | - | - | - |
| Bismuth | µg/L | | | | | | 4 | 4 | - | - | - | 1.0 | - | - | - | - | - |
| Boron | µg/L | | | | | | 4 | 4 | - | - | - | 50 | - | - | - | - | - |
| Cadmium | µg/L | | | | | | 4 | 4 | - | - | - | 0.010 | - | - | - | - | - |
| Chromium | µg/L | | | | | | 4 | 4 | - | - | - | 1.0 | - | - | - | - | - |
| Cobalt | µg/L | | | | | | 4 | 4 | - | - | - | 0.20 | - | - | - | - | - |
| Copper | µg/L | | | | | | 4 | 0 | 0.87 | 0.36 | 0.66 | 1.4 | - | - | - | - | - |
| Iron | µg/L | | | | | | 4 | 0 | 8.0 | 2.9 | 5.1 | 12 | - | - | - | - | - |
| Lead | µg/L | | | | | | 4 | 4 | - | - | - | 0.20 | - | - | - | - | - |
| Lithium | µg/L | | | | | | 4 | 4 | - | - | - | 2.0 | - | - | - | - | - |
| Manganese | µg/L | 1680 \| 2570 | 210 \| 330 | | | | 4 | 2 | 3.9 | - | 1.0 | 12 | 0 | 0 | - | - | - |
| Mercury | µg/L | | | | | | 4 | 4 | - | - | - | 0.010 | - | - | - | - | - |
| Molybdenum | µg/L | | | | | | 4 | 1 | 3.9 | 4.0 | 1.0 | 9.7 | - | - | - | - | - |
| Nickel | µg/L | | | | | | 4 | 4 | - | - | - | 1.0 | - | - | - | - | - |
| Selenium | µg/L | | | | | | 4 | 4 | - | - | - | 0.10 | - | - | - | - | - |
| Silver | µg/L | | | | | | 4 | 4 | - | - | - | 0.020 | - | - | - | - | - |
| Strontium | µg/L | | | | | | 4 | 0 | 40 | 3.2 | 37 | 45 | - | - | - | - | - |
| Thallium | µg/L | | | | | | 4 | 4 | - | - | - | 0.010 | - | - | - | - | - |
| Tin | µg/L | | | | | | 4 | 4 | - | - | - | 5.0 | - | - | - | - | - |
| Titanium | µg/L | | | | | | 4 | 4 | - | - | - | 5.0 | - | - | - | - | - |
| Uranium | µg/L | | | | | | 4 | 4 | - | - | - | 0.10 | - | - | - | - | - |
| Vanadium | µg/L | | | | | | 4 | 4 | - | - | - | 5.0 | - | - | - | - | - |
| Zinc | µg/L | 24 \| 39.5 | 5.56 \| 9.61 | | | | 4 | 4 | - | - | - | 5.0 | 0 | 0 | - | - | - |
| **Volatile Organics** | | | | | | | | | | | | | | | | | |
| Benzene | mg/L | | 0.30 | 0.0050 | | | 4 | 4 | - | - | - | 0.00020 | - | 0 | 0 | - | - |
| Ethylbenzene | mg/L | | 0.090 | 0.14 | 0.0016 | | 4 | 4 | - | - | - | 0.00020 | - | 0 | 0 | 0 | - |
| Toluene | mg/L | | 0.0020 | 0.060 | 0.024 | | 4 | 4 | - | - | - | 0.00020 | - | 0 | 0 | 0 | - |

Table 4-8. Water quality measured at MEL-13 (the mixing zone in Meliadine Lake) in 2019.

| Parameter | Units | Screening Criteria [a] | | | | | Water Quality Summary for MEL-13 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME [b] | | Health Canada | | SSWQO (SQO) | Summary Statistics [c] | | | | | | WQG Exceedances | | | | |
| | | Acute (A) | Chronic (C) | GCDWQ (D) | Aesthetic (AES) | | N | N<DL | Mean | SD | Min | Max | A | C | D | AES | SQO |
| Xylenes | mg/L | | | 0.090 | 0.020 | | 4 | 4 | - | - | - | 0.00040 | - | - | 0 | 0 | - |
| m,p-Xylenes | mg/L | | | | | | 4 | 4 | - | - | - | 0.00040 | - | - | - | - | - |
| o-Xylene | mg/L | | | | | | 4 | 4 | - | - | - | 0.00020 | - | - | - | - | - |
| **Hydrocarbons** | | | | | | | | | | | | | | | | | |
| F1 (C6-C10)-BTEX | mg/L | | | | | | 4 | 4 | - | - | - | 0.025 | - | - | - | - | - |
| F1 (C6-C10) | mg/L | | | | | | 4 | 4 | - | - | - | 0.025 | - | - | - | - | - |
| F2 (C10-C16) | mg/L | | | | | | 4 | 4 | - | - | - | 0.10 | - | - | - | - | - |
| F3 (C16-C34) | mg/L | | | | | | 4 | 4 | - | - | - | 0.20 | - | - | - | - | - |
| F4 (C34-C50) | mg/L | | | | | | 4 | 4 | - | - | - | 0.20 | - | - | - | - | - |
| **Cyanides** | | | | | | | | | | | | | | | | | |
| Cyanide | mg/L | | 0.0050 | 0.20 | | | 4 | 4 | - | - | - | 0.0050 | - | 0 | 0 | - | - |
| Cyanide (free) | mg/L | | | | | | 4 | 4 | - | - | - | 0.0010 | - | - | - | - | - |
| **Radionuclides** | | | | | | | | | | | | | | | | | |
| Radium-226 | Bq/l | | | | | | 4 | 4 | - | - | - | 0.0050 | - | - | - | - | - |

Table 4-9. Loadings estimate to Meliadine Lake from CP1 in 2019.

Notes:

[a] Discharge started on July 8 through to October 5, 2019. * Mean concentration for the July loading estimate includes one effluent characterization sample collected on June 24th.

[b] Values <DL were conservatively set = DL when calculating the monthly loadings to Meliadine Lake.

[c] Monthly loadings = average concentration (mg/L) x total volume/1,001.

| Month [a] | July * | | | August | | | September | | | October | | | Annual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total volume ($m^3$) | 30,614 | | | 107,540 | | | 157,912 | | | 10,707 | | | 306,773 |
| **Parameter** | N<DL | Mean Conc. (n=5) [b] | Loadings [b] (kg) | N<DL | Mean Conc. (n=4) [b] | Loadings [b] (kg) | N<DL | Mean Conc. (n=4) [b] | Loadings [b] (kg) | N<DL | Conc. (n=1) [b] | Loadings [b] (kg) | Annual Loadings to MEL-13 |
| **Conventional Parameters (mg/L)** | | | | | | | | | | | | | |
| Hardness, as $CaCO_3$ | 0 | 310 | 9,484 | 0 | 339 | 36,402 | 0 | 436 | 68,810 | 0 | 422 | 4,518 | 120,721 |
| Total alkalinity, as $CaCO_3$ | 0 | 18 | 539 | 0 | 34 | 3,683 | 0 | 42 | 6,672 | 0 | 24 | 257 | 11,269 |
| Total dissolved solids | 0 | 1,064 | 32,573 | 0 | 1,134 | 125,822 | 0 | 1,350 | 213,181 | 0 | 860 | 9,208 | 385,192 |
| Total suspended solids | 1 | 3.6 | 110 | 0 | 3.8 | 403 | 0 | 3.3 | 513 | 0 | 2.0 | 21 | 1,062 |
| Total organic carbon | 0 | 4.5 | 138 | 0 | 8.0 | 860 | 0 | 9.8 | 1,551 | 0 | 3.6 | 39 | 2,615 |
| Dissolved organic carbon | 0 | 4.1 | 124 | 0 | 6.9 | 739 | 0 | 9.0 | 1,421 | 0 | 3.6 | 39 | 2,347 |
| **Major Ions (mg/L)** | | | | | | | | | | | | | |
| Bicarbonate, as $CaCO_3$ | 0 | 18 | 539 | 0 | 34 | 3,656 | 0 | 42 | 6,672 | 0 | 24 | 257 | 11,242 |
| Carbonate, as $CaCO_3$ | 5 | 1.0 | 31 | 4 | 1.0 | 108 | 4 | 1.0 | 158 | 1 | 1.0 | 11 | 325 |
| Calcium | 0 | 88 | 2,699 | 0 | 90 | 9,641 | 0 | 122 | 19,186 | 0 | 108 | 1,156 | 33,090 |
| Chloride | 0 | 454 | 13,899 | 0 | 428 | 45,973 | 0 | 530 | 83,693 | 0 | 530 | 5,675 | 151,182 |
| Magnesium | 0 | 23 | 691 | 0 | 24 | 2,535 | 0 | 32 | 5,018 | 0 | 28 | 300 | 8,650 |
| Potassium | 0 | 13 | 393 | 0 | 12 | 1,304 | 0 | 14 | 2,278 | 0 | 14 | 151 | 4,179 |
| Sodium | 0 | 182 | 5,560 | 0 | 171 | 18,336 | 0 | 211 | 33,280 | 0 | 214 | 2,291 | 60,243 |
| Sulphate | 0 | 52 | 1,592 | 0 | 55 | 5,942 | 0 | 83 | 13,067 | 0 | 74 | 792 | 21,657 |
| Reactive silica, as $SiO_2$ | 0 | 0.80 | 25 | 0 | 0.60 | 65 | 0 | 1.3 | 202 | 0 | 0.68 | 7.3 | 302 |
| **Nutrients (mg/L)** | | | | | | | | | | | | | |
| Nitrate | 0 | 13 | 389 | 0 | 12 | 1,320 | 0 | 13 | 2,017 | 0 | 14 | 146 | 3,924 |
| Nitrite | 0 | 0.34 | 10 | 0 | 0.70 | 75 | 0 | 0.52 | 82 | 0 | 0.37 | 3.9 | 173 |
| Nitrate + nitrite | 0 | 13 | 399 | 0 | 13 | 1,398 | 0 | 13 | 2,096 | 0 | 14 | 150 | 4,097 |
| Total ammonia | 0 | 4.6 | 140 | 0 | 3.1 | 333 | 0 | 3.6 | 568 | 0 | 4.0 | 43 | 1,100 |
| Total Kjeldahl nitrogen | 0 | 4.9 | 149 | 0 | 3.5 | 374 | 0 | 3.8 | 604 | 0 | 4.3 | 46 | 1,189 |
| Total phosphorus | 2 | 0.023 | 0.69 | 2 | 0.022 | 2.4 | 3 | 0.021 | 3.3 | 1 | 0.020 | 0.21 | 15 |
| Orthophosphate | 5 | 0.01 | 0.31 | 4 | 0.01 | 1.08 | 3 | 0.012 | 1.93 | 1 | 0.01 | 0.11 | 16 |
| **Total Metals (mg/L)** | | | | | | | | | | | | | |
| Aluminum | 0 | 0.19 | 5.9 | 0 | 0.30 | 33 | 0 | 0.26 | 41 | 0 | 0.12 | 1.3 | 82 |
| Antimony | 5 | 0.0005 | 0.02 | 4 | 0.0005 | 0.05 | 4 | 0.001 | 0.16 | 1 | 0.0005 | 0.0054 | 14 |
| Arsenic | 0 | 0.0019 | 0.057 | 0 | 0.0015 | 0.16 | 0 | 0.0018 | 0.28 | 0 | 0.0010 | 0.011 | 1 |
| Barium | 0 | 0.046 | 1.4 | 0 | 0.058 | 6.2 | 0 | 0.068 | 11 | 0 | 0.055 | 0.59 | 19 |
| Beryllium | 5 | 0.00010 | 0.0031 | 4 | 0.00010 | 0.011 | 4 | 0.00020 | 0.032 | 1 | 0.00010 | 0.0011 | 14 |
| Bismuth | 5 | 0.0010 | 0.031 | 4 | 0.0010 | 0.11 | 4 | 0.0020 | 0.32 | 1 | 0.0010 | 0.011 | 14 |
| Boron | 0 | 0.31 | 9.5 | 0 | 0.27 | 29 | 1 | 0.27 | 42 | 0 | 0.35 | 3.8 | 87 |
| Cadmium | 1 | 0.00002 | 0.00049 | 0 | 0.00001 | 0.0014 | 1 | 0.00003 | 0.0042 | 0 | 0.00003 | 0.00027 | 2 |
| Calcium | 0 | 87 | 2,677 | 0 | 93 | 10,031 | 0 | 123 | 19,384 | 0 | 124 | 1,328 | 33,847 |
| Chromium | 5 | 0.0010 | 0.031 | 4 | 0.0010 | 0.11 | 4 | 0.0020 | 0.32 | 1 | 0.0010 | 0.011 | 14 |
| Cobalt | 0 | 0.00062 | 0.019 | 0 | 0.00041 | 0.044 | 1 | 0.00062 | 0.098 | 0 | 0.00052 | 0.0056 | 1 |
| Copper | 1 | 0.0010 | 0.032 | 0 | 0.00098 | 0.11 | 1 | 0.0012 | 0.19 | 0 | 0.00072 | 0.0077 | 2 |
| Iron | 0 | 0.59 | 18 | 0 | 0.091 | 9.7 | 0 | 0.14 | 22 | 0 | 0.080 | 0.86 | 51 |
| Lead | 4 | 0.00021 | 0.0065 | 3 | 0.00021 | 0.022 | 4 | 0.00040 | 0.063 | 1 | 0.00020 | 0.0021 | 12 |
| Lithium | 0 | 0.070 | 2.1 | 0 | 0.053 | 5.7 | 0 | 0.062 | 9.8 | 0 | 0.082 | 0.88 | 19 |
| Magnesium | 0 | 22 | 681 | 0 | 26 | 2,777 | 0 | 31 | 4,935 | 0 | 28 | 294 | 8,794 |
| Manganese | 0 | 0.043 | 1.3 | 0 | 0.014 | 1.5 | 0 | 0.040 | 6.4 | 0 | 0.038 | 0.41 | 10 |
| Mercury | 5 | 0.00001 | 0.00031 | 4 | 0.00001 | 0.0011 | 4 | 0.00001 | 0.0016 | 1 | 0.00001 | 0.00011 | 14 |
| Molybdenum | 1 | 0.0013 | 0.040 | 1 | 0.0013 | 0.13 | 1 | 0.0025 | 0.39 | 0 | 0.0014 | 0.015 | 4 |
| Nickel | 0 | 0.0028 | 0.086 | 0 | 0.0030 | 0.32 | 1 | 0.0041 | 0.64 | 0 | 0.0034 | 0.036 | 2 |
| Potassium | 0 | 13 | 387 | 0 | 12 | 1,312 | 0 | 14 | 2,282 | 0 | 15 | 164 | 4,199 |
| Selenium | 5 | 0.00010 | 0.0031 | 2 | 0.00011 | 0.012 | 1 | 0.00022 | 0.034 | 0 | 0.00014 | 0.0015 | 8 |
| Silicon | 0 | 0.43 | 13 | 0 | 0.35 | 38 | 0 | 0.70 | 110 | 0 | 0.66 | 7.1 | 170 |
| Silver | 5 | 0.00002 | 0.00061 | 4 | 0.00002 | 0.0022 | 4 | 0.00004 | 0.0063 | 1 | 0.00002 | 0.00021 | 14 |
| Sodium | 0 | 181 | 5,553 | 0 | 178 | 19,115 | 0 | 211 | 33,240 | 0 | 215 | 2,302 | 60,996 |
| Strontium | 0 | 1.9 | 58 | 0 | 1.9 | 202 | 0 | 2.1 | 333 | 0 | 2.2 | 23 | 624 |
| Sulphur | 0 | 20 | 610 | 0 | 21 | 2,245 | 0 | 30 | 4,682 | 0 | 33 | 350 | 7,990 |
| Thallium | 0 | 0.00002 | 0.00075 | 0 | 0.00003 | 0.0031 | 2 | 0.00003 | 0.0042 | 0 | 0.00002 | 0.00026 | 2 |
| Tin | 5 | 0.0050 | 0.15 | 4 | 0.0050 | 0.54 | 4 | 0.010 | 1.6 | 1 | 0.0050 | 0.054 | 16 |
| Titanium | 5 | 0.0050 | 0.15 | 4 | 0.0050 | 0.54 | 4 | 0.010 | 1.6 | 1 | 0.0050 | 0.054 | 16 |
| Uranium | 1 | 0.00018 | 0.0055 | 0 | 0.00029 | 0.031 | 1 | 0.00036 | 0.057 | 0 | 0.00028 | 0.0030 | 2 |
| Vanadium | 5 | 0.0050 | 0.15 | 4 | 0.0050 | 0.54 | 4 | 0.010 | 1.6 | 1 | 0.0050 | 0.054 | 16 |
| Zinc | 3 | 0.0057 | 0.17 | 3 | 0.0051 | 0.55 | 3 | 0.010 | 1.6 | 0 | 0.015 | 0.16 | 12 |
| Zirconium | 5 | 0.00010 | 0.0031 | 4 | 0.00010 | 0.011 | 4 | 0.00020 | 0.032 | 1 | 0.00010 | 0.0011 | 14 |
| **Dissolved Metals (mg/L)** | | | | | | | | | | | | | |
| Aluminum | 0 | 0.036 | 1.1 | 0 | 0.059 | 6.3 | 0 | 0.041 | 6.5 | 0 | 0.019 | 0.21 | 14 |
| Antimony | 5 | 0.00050 | 0.015 | 4 | 0.00050 | 0.054 | 4 | 0.00050 | 0.079 | 1 | 0.00050 | 0.0054 | 14 |
| Arsenic | 0 | 0.0017 | 0.053 | 0 | 0.0014 | 0.15 | 0 | 0.0017 | 0.27 | 0 | 0.00084 | 0.0090 | 0 |
| Barium | 0 | 0.047 | 1.4 | 0 | 0.055 | 5.9 | 0 | 0.068 | 11 | 0 | 0.050 | 0.53 | 19 |
| Beryllium | 5 | 0.00010 | 0.0031 | 4 | 0.00010 | 0.011 | 4 | 0.00010 | 0.016 | 1 | 0.00010 | 0.0011 | 14 |
| Bismuth | 5 | 0.0010 | 0.031 | 4 | 0.0010 | 0.11 | 4 | 0.0010 | 0.16 | 1 | 0.0010 | 0.011 | 14 |
| Boron | 0 | 0.31 | 9.5 | 0 | 0.28 | 30 | 0 | 0.26 | 41 | 0 | 0.34 | 3.6 | 85 |
| Cadmium | 1 | 0.00001 | 0.00044 | 1 | 0.00001 | 0.0015 | 0 | 0.00002 | 0.0029 | 0 | 0.00002 | 0.00025 | 2 |
| Chromium | 5 | 0.0010 | 0.031 | 4 | 0.0010 | 0.11 | 4 | 0.0010 | 0.16 | 1 | 0.0010 | 0.011 | 14 |
| Cobalt | 1 | 0.00060 | 0.018 | 0 | 0.00040 | 0.043 | 0 | 0.00050 | 0.079 | 0 | 0.00048 | 0.0051 | 1 |
| Copper | 1 | 0.00090 | 0.027 | 0 | 0.00091 | 0.098 | 0 | 0.00079 | 0.12 | 0 | 0.00068 | 0.0073 | 1 |
| Iron | 0 | 0.081 | 2.5 | 0 | 0.069 | 7.4 | 0 | 0.062 | 9.8 | 0 | 0.044 | 0.48 | 20 |
| Lead | 5 | 0.00020 | 0.0061 | 4 | 0.00020 | 0.022 | 3 | 0.00024 | 0.038 | 1 | 0.00020 | 0.0021 | 13 |
| Lithium | 0 | 0.071 | 2.2 | 0 | 0.056 | 6.0 | 0 | 0.059 | 9.4 | 0 | 0.070 | 0.75 | 19 |
| Manganese | 0 | 0.036 | 1.1 | 0 | 0.0083 | 0.89 | 0 | 0.030 | 4.8 | 0 | 0.031 | 0.33 | 7 |
| Mercury | 5 | 0.00001 | 0.00031 | 4 | 0.00001 | 0.0011 | 4 | 0.00001 | 0.0016 | 1 | 0.00001 | 0.00011 | 14 |
| Molybdenum | 1 | 0.0013 | 0.040 | 1 | 0.0046 | 0.49 | 0 | 0.0026 | 0.41 | 0 | 0.0012 | 0.013 | 3 |
| Nickel | 0 | 0.0027 | 0.083 | 0 | 0.0029 | 0.31 | 0 | 0.0037 | 0.59 | 0 | 0.0034 | 0.036 | 1 |
| Selenium | 4 | 0.00010 | 0.0031 | 2 | 0.00011 | 0.012 | 0 | 0.00013 | 0.020 | 0 | 0.00012 | 0.0013 | 6 |
| Silicon | 0 | 0.41 | 13 | 0 | 0.33 | 36 | 0 | 0.68 | 107 | 0 | 0.53 | 5.7 | 163 |
| Silver | 5 | 0.00002 | 0.00061 | 4 | 0.00002 | 0.0022 | 4 | 0.00002 | 0.0032 | 1 | 0.00002 | 0.00021 | 14 |
| Strontium | 0 | 1.9 | 58 | 0 | 1.8 | 191 | 0 | 2.3 | 362 | 0 | 2.1 | 22 | 641 |
| Sulphur | 0 | 20 | 615 | 0 | 21 | 2,250 | 0 | 31 | 4,848 | 0 | 28 | 304 | 8,118 |
| Thallium | 0 | 0.00003 | 0.00078 | 0 | 0.00003 | 0.0029 | 0 | 0.00002 | 0.0034 | 0 | 0.00002 | 0.00024 | 0 |
| Tin | 5 | 0.0050 | 0.15 | 4 | 0.0050 | 0.54 | 4 | 0.0050 | 0.79 | 1 | 0.0050 | 0.054 | 16 |
| Titanium | 5 | 0.0050 | 0.15 | 4 | 0.0050 | 0.54 | 4 | 0.0050 | 0.79 | 1 | 0.0050 | 0.054 | 16 |
| Uranium | 2 | 0.00014 | 0.0044 | 0 | 0.00025 | 0.027 | 0 | 0.00032 | 0.050 | 0 | 0.00025 | 0.0027 | 2 |
| Vanadium | 5 | 0.0050 | 0.15 | 4 | 0.0050 | 0.54 | 4 | 0.0050 | 0.79 | 1 | 0.0050 | 0.054 | 16 |
| Zinc | 4 | 0.0054 | 0.17 | 3 | 0.0056 | 0.60 | 3 | 0.0064 | 1.0 | 0 | 0.013 | 0.14 | 12 |
| Zirconium | 4 | 0.00010 | 0.0031 | 4 | 0.00010 | 0.011 | 4 | 0.00010 | 0.016 | 1 | 0.00010 | 0.0011 | 13 |

Table 4-9. Loadings estimate to Meliadine Lake from CP1 in 2019.

| **Month** [a] | **July *** | | | **August** | | | **September** | | | **October** | | | **Annual** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total volume ($m^3$)** | 30,614 | | | 107,540 | | | 157,912 | | | 10,707 | | | 306,773 |
| **Parameter** | N<DL | Mean Conc. (n=5) [b] | Loadings [b] (kg) | N<DL | Mean Conc. (n=4) [b] | Loadings [b] (kg) | N<DL | Mean Conc. (n=4) [b] | Loadings [b] (kg) | N<DL | Conc. (n=1) [b] | Loadings [b] (kg) | Annual Loadings to MEL-13 |
| **Volatile Organics (mg/L)** | | | | | | | | | | | | | |
| Benzene | 5 | 0.00020 | 0.0061 | 4 | 0.00020 | 0.022 | 4 | 0.00020 | 0.032 | 1 | 0.00020 | 0.0021 | 14 |
| Ethylbenzene | 5 | 0.00020 | 0.0061 | 4 | 0.00020 | 0.022 | 4 | 0.00020 | 0.032 | 1 | 0.00020 | 0.0021 | 14 |
| Toluene | 5 | 0.00040 | 0.012 | 4 | 0.00020 | 0.022 | 4 | 0.00020 | 0.032 | 1 | 0.00020 | 0.0021 | 14 |
| Xylenes | 5 | 0.00040 | 0.012 | 4 | 0.00040 | 0.043 | 4 | 0.00040 | 0.063 | 1 | 0.00040 | 0.0043 | 14 |
| m,p-Xylenes | 5 | 0.00020 | 0.0061 | 4 | 0.00040 | 0.043 | 4 | 0.00040 | 0.063 | 1 | 0.00040 | 0.0043 | 14 |
| o-Xylene | 5 | 0.025 | 0.77 | 4 | 0.00020 | 0.022 | 4 | 0.00020 | 0.032 | 1 | 0.00020 | 0.0021 | 15 |
| **Hydrocarbons (mg/L)** | | | | | | | | | | | | | |
| F1 (C6-C10)-BTEX | 5 | 0.025 | 0.77 | 4 | 0.025 | 2.7 | 4 | 0.025 | 3.9 | 1 | 0.025 | 0.27 | 22 |
| F1 (C6-C10) | 5 | 0.10 | 3.1 | 4 | 0.025 | 2.7 | 4 | 0.025 | 3.9 | 1 | 0.025 | 0.27 | 24 |
| F2 (C10-C16) | 5 | 0.20 | 6.1 | 4 | 0.10 | 11 | 4 | 0.10 | 16 | 1 | 0.10 | 1.1 | 48 |
| F3 (C16-C34) | 5 | 0.20 | 6.1 | 4 | 0.20 | 22 | 4 | 0.20 | 32 | 1 | 0.20 | 2.1 | 76 |
| F4 (C34-C50) | 5 | 0.20 | 6.1 | 4 | 0.20 | 22 | 4 | 0.20 | 32 | 1 | 0.20 | 2.1 | 76 |
| **Cyanides (mg/L)** | | | | | | | | | | | | | |
| Cyanide | 1 | 0.0014 | 0.043 | 0 | 0.0014 | 0.15 | 2 | 0.0014 | 0.23 | 1 | 0.0010 | 0.011 | 4 |
| Cyanide (free) | 2 | 0.0012 | 0.036 | 4 | 0.0010 | 0.11 | 2 | 0.0010 | 0.16 | 1 | 0.0010 | 0.011 | 9 |
| **Radionuclides (Bq/L)** | | | | | | | | | | | | | |
| Radium-226 | 4 | 0.064 | 2.0 | 4 | 0.0050 | 0.54 | 4 | 0.0050 | 0.79 | 1 | 0.0050 | 0.054 | 16 |

# 5 MELIADINE LAKE WATER QUALITY

Water quality was monitored in Meliadine Lake as part of the 2019 AEMP. The Meliadine Lake portion of the AEMP in 2019 is made up of water quality (this section) and phytoplankton (**Section 7**).

## 5.1 Objectives

The purpose of the water quality monitoring program in Meliadine Lake is to assess whether mine-related activities are affecting water quality. Fundamentally, there are two key questions that the AEMP at Meliadine Lake seeks to answer each year:

1. *Is water quality in Meliadine Lake consistent with predictions outlined in the Final Environmental Impact Statement (FEIS) and less than AEMP actions levels?*
2. *Has water quality in the exposure areas at Meliadine Lake changed over time, relative to the reference areas?*

## 5.2 2019 Field Program

Details of the water quality study design, including field and lab methods are provided in **Section 1.3**. Quality assurance / quality control (QA/QC) methods and results are summarized in **Section 3** and fully detailed in **Appendix A**.

### 5.2.1 Field Data and Sample Collection

Sampling areas and stations within each area are shown in **Figure 5-1**. Station-specific information (coordinates and depths) are provided in **Table 5-1**.

Field sample collections and analyses followed methods outlined in the AEMP Design Document (Golder, 2016) and in recent AEMP interpretive reports (Golder, 2019). The full sampling program was completed at the NF, MF and reference areas (REF[24]) as proposed. The only notable deviation from the study design was reactive silica, orthophosphate, and dissolved phosphorus were not analyzed in the samples collected in July, August, and September. Corrective measures to ensure the complete list of parameters are covered are discussed in **Section 3.1.1**.

[24] The term REF is used when discussing the combined reference area results from MEL-03, MEL-04, and MEL-05.

### 5.2.2 Data Analysis

Analysis of the water quality data for Meliadine Lake followed the *AEMP Design Document* and the 2018 AEMP report, with a few modifications aimed at simplifying the amount of information used in the assessment (described in **Section 2.4**). The following data analysis tasks were completed in 2019:

- Screening against aquatic life and drinking water quality guidelines,
- Comparison to water quality predictions in the FEIS,
- Comparison against the normal range of baseline conditions, and
- Temporal assessment (qualitative) of changing concentrations over time

Methods for handling the data are outlined in **Section 2.4**. Data analysis methods for Meliadine Lake broadly followed the methods outlined in the *AEMP Design Document* and methods specific to the AEMP in last year's report. A few modifications were made to simplify the number of analyses used to inform decision making. In some cases, the level of analyses was overly complicated for completing the stated objectives of 1) verifying FEIS predictions, 2) determining if the low action levels were exceeded, and 3) evaluating spatial and temporal changes in water quality.

## 5.3 Results and Discussion

This section summarizes the 2019 Meliadine Lake water quality results. Specific components include:

- Limnology characterization (**Section 5.3.1**);
- Water chemistry characterization (**Section 5.3.2**);
- Water chemistry screening against guidelines and objectives, FEIS predictions, and normal range (**Section 2.4**); and
- Spatial and temporal assessments (**Section 5.3.6**).

Ultimately, this information is used to inform the Meliadine lake water quality low Action Level assessment (**Section 5.4**).

Figures and tables specific to the data evaluation are included at the end of the chapter in **Section 5.6** and **Section 5.7** , respectively.

Supplemental boxplots showing the concentration of key water quality parameters are provided in **Appendix C1**. Water quality results for the individual samples collected in 2019 are provided in **Appendix C3**.

### 5.3.1 Field-Measured Water Quality Parameters

Plots of the limnology profiles for each sampling event are shown in **Figure 5-2** and discussed below by season. Tabulated results are provided in **Appendix C3**.

#### Winter

During ice-covered conditions (February sampling event) the field profiles followed a similar pattern between Near-field and Mid-field areas. Water temperatures were generally consistent among Near-field and Mid-field stations at approximately 0°C below ice cover, gradually increasing to approximately 2°C above the lakebed.

Water was well oxygenated at the surface, but decreased with depth at both Near-field and Mid-field areas, with one depth interval at MEL-01-07 dipping below the CCME WQG of 6.5 mg/L at the last depth horizon (6m). Dissolved oxygen (DO) at surface measured over 15 mg/L, and dropped by ~ 2 mg/L every 1 m from just below the ice to ~1 m above the sediment. DO can be difficult parameter to measure accurately during winter sampling events, and the results from MEL-01-07 seem anomalous when compared to the other NF station sampled in February. The steep decline in DO was not evident at MEL-01-08 where concentrations remained consistent from surface (17 mg/L) to near-bottom (13 mg/L). The uncertainty over MEL-01-07 results notwithstanding, the NF and MF areas are clearly well-oxygenated when the lakes are covered in ice.

Ambient pH was generally between 6.5 and 7.5 and showed little change with depth. pH at MF station MEL-02-06 was uncharacteristically low in February. The field technicians made note of ice on the pH probe, which may have affected the readings. These results were given a low weighting in the data evaluation, but were not excluded from the limnology profile plot.

Specific conductivity measurements were uniform throughout the water column at the NF and MF areas in the February event, with the exception of MEL-02-03. Conductivity increases slightly from 30 µS/cm just below the ice to 75 µS/cm near-bottom. The same pattern was not evident at other NF and MF stations.

#### Open Water

During open-water conditions (July and August sampling events), the field profiles followed similar patterns among areas. Dissolved oxygen was similar both spatially (among areas) and

temporally (between monthly events). All DO measures were well above the CCME WQG (Figure 5-2).

pH was constant over the full depth profile, regardless of sampling area or sampling month. pH ranged from approximately 7.0 to 7.7 and all pH readings were within the CCME WQG range of 6.5 to 9.0.

Specific conductivity was well-mixed over the full depth profile in open water sampling events, and differed very little between NF, MF and reference areas. Conductivity did increase at the NF area from approximately 75 µS/cm in July to between 85 and 100 µS/cm in September coinciding with the release of effluent at the CP1 diffuser. Field conductivity readings taken in the mixing zone right about the diffuser (MEL-13) were similar to conductivity readings taken at the NF stations at the edge of the mixing zone. It's clear from these results, as well as the water quality screening for MEL-13, that effluent is rapidly diluted a short distance from the outfall. Plume delineation is not a requirement of the annual AEMP, but last year's study completed as part of the EEM program estimated the maximum effluent concentration at 100 m was less than 2% (Golder 2019).

### 5.3.2 Water Chemistry – General Overview of the 2019 Results

Water chemistry samples were collected from Meliadine Lake in February (ice-cover), July, August and September (open water). Descriptive summary statistics for each area are provided for the ice-cover (**Table 5-2**) and open-water (**Table 5-3**) sampling events. The results are summarized by season below.

#### Ice Cover

In 2019 during ice-cover, Meliadine Lake water quality was characterized by conditions typical of northern headwater lakes. Reported water hardness is considered soft, with median concentrations of 32 and 31 mg/L (as $CaCO_3$) at the NF and MF stations, respectively (McNeely et al. 1979). Furthermore, the pH across the Lake areas was neutral and the conductance low with median specific conductivities of 107 µg/cm at NF and 102 µg/cm at MF. Based on total phosphorous, Meliadine Lake is oligotrophic (0.004 – 0.01 mg/L) to ultra-oligotrophic (<0.004 mg/L) at the NF (0.0038 mg-P/L) and MF (0.0049 mg-P/L) stations (CCME, 2004). Concentrations of metals were low in the Meliadine Lake areas, reported as either below the laboratory detection limits or below respective water quality guidelines (CCME aquatic life and Health Canada drinking water quality guidelines).

### Open Water

In 2019, water quality reported during open-water sampling events was comparable to water quality during ice-cover. Water hardness was still considered soft, with median concentrations slightly below what was reported during ice-cover (i.e., 22 and 22.6 mg/L (as $CaCO_3$) across all stations; McNeely et al. 1979). Though the pH across the Lake areas went from neutral during ice-cover to slightly basic during open water sampling events, the specific conductance remained low with median concentrations 73 µS/cm and 82 µS/cm across all stations. Based on total phosphorus, water quality was oligotrophic (0.004 – 0.01 mg/L) to ultra-oligotrophic (<0.004 mg/L) at all areas during open water sampling events, similar to ice-cover events (CCME, 2004). Most concentrations of metals were reported as either below the laboratory detection limits or below respective water quality guidelines, except in two samples collected from the Reference Area 1 (MEL-03) in September (discussed below).

### Snow Pack Chemistry Results (May 2019)

Snow pack monitoring was completed at four areas around the site on May 11$^{th}$, 2019. Results of the survey are presented in **Appendix J**. Two of the locations, DF-5, located south of the exploration camp, and DF-7, NW of the site, are upgradient from Meliadine Lake and represent the most suitable monitoring areas for assessing whether dust (and contaminants of concern) are accumulating in the snow pack at concentrations that may affect water quality in Meliadine Lake (**Figure 1-2**).

The majority of parameters measured in the snow samples from DF-5 and DF-7 were less than the analytical DLs, including arsenic, cadmium, chromium, copper, lead, molybdenum, nickel, and selenium. Of the parameters that were detected, most were less than 5-times the analytical detection limit. At concentrations close to the DL, the analytical precision is reduced. These data demonstrate that dust loading to the snow pack, if it is occurring, is not likely to have a measurable impact on water quality within Meliadine Lake. Furthermore, there is no systematic pattern of higher concentrations at a given monitoring station. There were no far-field or reference areas sampled. The farthest location, DF-6, is located west of the site between Lake B7 and Lake D7; chemistry data from this station was consistent with the other three monitoring locations, with mostly non-detect results. The prevalence of non-detects in snow samples at all four monitoring stations indicates measures to control off-site dust migration during the winter months are effective.

### 5.3.3 Water Quality Guidelines Screening

Water quality summary statistics were screened against water quality guidelines and objectives for ice-cover (**Table 5-2**) and open-water (**Table 5-3**) conditions. No exceedances of aquatic life or health-based drinking water guidelines were documented in the ice-covered samples collected at the NF and MF areas in February. The same was true for the NF and MF areas during the open-water sampling period. The only exceedances occurred in September 2019 at Reference Area 1 (MEL-03); copper exceeded the CCME aquatic life guideline of 2 µg/L in two of five samples collected. It is not uncommon to have reference/baseline water samples naturally exceed aquatic life criteria, particularly in mineralized regions. Elevated concentrations of copper were also reported in two samples at MEL-02 in September, but concentrations did not exceed the CCME aquatic life water quality guideline. Concentrations of copper at MEL-01 for the September event were consistent with previous years' results. There was no plausible evidence to discount the two samples from MEL-03 with copper concentrations that exceeded the CCME aquatic life guideline, and the results were retained for calculating the updated normal range of baseline copper concentrations in Meliadine Lake.

### 5.3.4 Comparison to FEIS Predictions

The FEIS predicted *minor changes* in water quality at the edge of the mixing zone and no residual impacts from effluent discharge in Meliadine Lake outside the mixing zone (e.g., at the NF area)[25]. *Minor changes* were defined as a measurable increase in a parameter that is outside the range of baseline values but is still within water quality guidelines. Parameters predicted to exceed baseline concentrations but meet guidelines at the edge of the mixing zone included TDS, several major ions, nutrients, and a number of total metals. Within the mixing zone, the FEIS predicted that DO could fall below the CCME guideline (6.5 mg/L) in late summer during the operations phase. Field-measured DO taken monthly in July, August, and September at MEL-13 above the diffuser was fully saturated (100%) in 2019 (**Appendix B2**). There is no evidence to suggest the mine is contributing to anoxic conditions within the mixing zone in Meliadine Lake.

Median concentrations for the NF area (at the edge of the effluent mixing zone) and the MF area were compared to FEIS predictions for ice-cover event (**Table 5-4**) and the open-water events (**Table 5-5**). FEIS predictions were exceeded in winter, ice-covered sampling event at the NF area for TDS, chloride, fluoride, and sodium and at the MF area for fluoride and sodium. These results are consistent with the predicted seasonal changes in water quality related to

[25] See Section 7.4.7 (Residual Impact Summary) in the FEIS for more information (Volume 7; Agnico Eagle 2014)

cryo-concentration. As stated in the FEIS, *water quality in winter can often be high in TDS due to the formation of ice as pure water, which increases the concentration of dissolved solids in the remaining water* (see page 7-247 in Volume 7; Agnico Eagle 2014).

For the open-water events, predictions were exceeded at the NF area (fluoride and sodium) and MF area (fluoride). Overall, the water chemistry data from 2019 were consistent with the narrative prediction of *minor changes,* meaning increased concentrations for some parameters relative to baseline concentrations, but no exceedances of water quality guidelines for the protection of aquatic life or human health.

### 5.3.5 Normal Range Assessment

Median water chemistry concentrations for the open-water sampling events[26] at the NF and MF areas were compared against revised normal range estimates for Meliadine Lake to identify changes relative to baseline/reference conditions in **Table 5-6**. Details of the revised 90$^{th}$ percentile method for calculating the normal range of parameter concentrations are discussed in **Section 2.4.3**.

Sixteen (16) parameters at the NF exceeded their respective normal range concentrations based on the median concentration from the open-water sampling events:

- TDS (calculated)[27], conductivity, chloride, magnesium, potassium, sodium, sulphate, DOC
- Total metals: arsenic, cobalt, iron, lithium, manganese, nickel, strontium and titanium

Thirteen (13) parameters exceed their respective normal range concentrations at the MF area in 2019:

- Chloride, magnesium, sodium, sulphate
- Total metals: arsenic, barium, chromium, iron, lithium, manganese, nickel, and strontium.

[26] Normal range concentrations are not calculated for samples collected in the winter because adequate reference and baseline data were not available for the calculation.

[27] TDS results are provided as *measured* and *calculated* concentrations for the AEMP water quality samples. Calculated TDS, rather than measured TDS, was selected for the normal range assessment to remain consistent with existing methods. Golder provided a detailed review of calculated vs measured TDS results in a Technical Memorandum for the Snap Lake Project (Golder 2013b). From their review, they noted that "measured TDS is subject to laboratory interferences that can reduce the accuracy of the measurement. Calculated TDS assumes the analytes exist in the sample in the forms analyzed, so are not influenced by any changes that may occur when taken out of solution. Using this method is likely more accurate given the practical limitations in handling and measuring TDS."

Total barium and chromium exceed the normal range at the MF area but upstream at the NF area. Given that the observed pattern was not consistent with effluent exposure (i.e., they were likely natural), barium and chromium were excluded from further analysis of spatial trends.

A closer look at the spatial and temporal trends for these 16 parameters is presented in the following sections, but a few specific observations about the normal range assessment in 2019 merit discussion.

- Arsenic concentrations in the NF have consistently exceeded the normal range estimate during the monitoring period (Golder 2019, 2018). The estimate of the normal range for arsenic is based on a sample size of n=94, with all of the samples collected from the reference areas in the west and south basins of Meliadine Lake between 2016 and 2019. There are no baseline data from the east basin in the normal range assessment, meaning natural variability between basins are not accounted for in estimate of the normal range in arsenic concentration in Meliadine Lake. **Figure C2-28** shows the concentration of arsenic in the NF area has remained stable throughout dating back to the baseline phase in 2013[28]. The median arsenic concentration in 2013 was 0.42 µg/L in the five samples collected in August from the NF area (Azimuth 2013). In 2019, the median concentration of 15 open-water samples was 0.41 µg/L. Arsenic is likely to continue exceeding the normal range for the foreseeable future as indicated by the data discussed above, but concentrations do not appear to be increasing year-over-year at the NF area.
- The same conclusion above for arsenic also applies to chromium (**Figure C2-34**), copper (**Figure C2-36**), iron (**Figure C2-36**), namely, certain metals may have occurred naturally at higher concentrations in the east basin of Meliadine Lake compared to the other areas.

The available water chemistry data for arsenic, chromium, copper, and iron emphasize the need to scrutinize *apparent* exceedances of the normal range, particularly using plots showing changes in concentrations over time, to determine if the increase is mine-related or if current concentrations are in-line with available and representative baseline data. As shown for arsenic, an exceedance of the normal range does not necessarily imply concentrations have increased over time.

[28] Refer to **Section 2.4.3** for a discussion on reference data included in the normal range calculations. A screening assessment completed as part of the 2018 AEMP concluded the 2013 baseline metals data from the east basin of Meliadine Lake were not suitable for use in the normal range calculations (see Appendix 6B in Golder 2019 for the underlying rationale).

### 5.3.6 Spatial Trend Assessment – 2019 Open Water Period[29]

Sixteen (16) parameters exceeding their respective normal range concentrations in the open-water period were carried forward in the spatial assessment of differences *among* exposure and pooled reference areas using the non-parametric Kruskal-Wallis (K-W) test[30]. Parameters that were significantly different ($p<0.1$) in the K-W test were compared further for differences *between*: (1) NF vs MF, (2) NF vs REF (pooled), and (3) MF vs REF (pooled) using the non-parametric post-hoc Wilcoxon signed-rank test. Differences were considered significant if the p-value < 0.1. In addition to the parameters that exceeded their normal range, dissolved manganese was added to the assessment as July 2019 results at MEL-01 were substantially higher than MEL-02 and reference (**Table 5-3**). The results of the K-W statistical analysis are presented in Table 5-7 and summarized below.

#### Near-field vs Reference

All of the parameters that exceeded the normal range screening assessment were statistically significantly higher at the NF area compared to the pooled reference areas. This finding is consistent with the normal range screening and confirms that concentrations in the NF are elevated relative to the reference areas as well as relative to baseline conditions in Meliadine Lake. The magnitude of the differences between NF and REF was less than 2-fold (or 50%) for most parameters with the exception of cobalt (2.3-fold difference [132 %]) and iron (2.5-fold difference [147%]). As discussed in **Section 5.3.4**, the increase in some parameters in the NF area constitutes a change in water quality that is consistent with predictions in the FEIS.

#### Near-field vs Mid-field

Spatial differences between NF and MF during open-water period were detected for 14 of 17 parameters. TDS (calculated)[31], total potassium and dissolved manganese were the only parameters the exceeded the normal range, but were not statistically significantly different between NF and MF in 2019.

[29] Note that statistical comparisons of the difference in concentration between the NF and MF areas were not completed for the winter sampling event. Winter sampling is limited to 1 sampling event per year; formal analysis of spatial trends with sample sizes of n=5 provide limited incremental value beyond visually inspection of the concentration plots.

[30] Parameters carried forward in the spatial assessment were first evaluated for normality and homoscedasticity (i.e., equal variance). All of the parameters carried forward in the spatial assessment failed the assumption of normality; analyses were conducted using non-parametric methods.

[31] TDS (calculated) was selected for normal range screening in 2018 rather than measured TDS.

- Median TDS (calculated) was similar between the NF and MF areas in 2019, a departure from 2018 when TDS was elevated at MEL-01 compared to MEL-02 (185, p = 0.001). Calculated TDS was higher at the NF area relative to the pooled reference areas, but the magnitude of the difference was only 8% (NF median = 40.1 mg/L compared to 37.2 mg/L). The measured TDS concentrations confirm the calculated TDS results, with median concentrations for the open-water period equal to 49 mg/L at NF and MF and 47 mg/L at the pooled reference areas (**Table 5-3**). The observed concentrations are well below the predicted TDS concentration at the edge of the mixing zone of 68 mg/L (see Table 7.4-A24 in the FEIS [Agnico Eagle 2014]).
- Dissolved manganese was higher at the NF vs MF and NF vs the pooled reference areas in 2019 because of elevated concentrations at all 5 NF stations in the July event. The higher concentrations measured in July at the NF correspond to a 45% increase relative to MF and an 80% increase relative to the pooled reference areas. The highly variable concentrations of manganese at the NF between July and August resulted in a non-significant relationship between the NF and MF (p=0.28) and NF and REF (p=0.12).
- Total potassium was equally elevated (mean total potassium the same at each station) at MEL-01 and MEL-02 in 2019, and therefore did not differ significantly between the NF and MF areas.
- Similar to the NF vs REF comparison, cobalt and iron were both significantly higher at the NF area compared to MF area in 2019 and the magnitude of the difference was comparatively large (e.g., 85 to 100% increase) Most of the other parameters followed the same spatial pattern of highest concentrations at the NF area and lowest concentration at the REF areas, but the magnitude of the differences were typically less than 50%. For TDS (and constituent parameters) and conductivity, the magnitude of the difference in median concentrations was less than 10%, indicating relatively uniform concentrations for these parameters extending from the east basin past the narrows towards the west basin of Meliadine Lake.

### 5.3.7 Temporal Trend Assessment

Water quality data for key parameters within Meliadine Lake were qualitatively examined for temporal patterns on condensed time series plots of open-water conditions between 2015 and 2019 presented in **Figure 5-3** through **Figure 5-8**. Plots for all parameters in the winter and open-water sampling events are presented in **Appendix C1** (boxplots) and **Appendix C2** (scatter plots) to illustrate general trends in parameter concentrations during open water and ice cover conditions in Meliadine Lake. It was noted in the 2018 AEMP (Golder 2019) that a gradual

increase in concentration in the NF area each consecutive year was observed for numerous parameters. Results from 2019 show that concentrations appear to have plateaued or, in some cases, decreased compared to 2018.

### Ice-covered Period

Temporal patterns (exposure areas only) were flagged for the following parameters in the ice-covered sampling event based on visual examination of the plots in **Appendix C1** (boxplots) and **Appendix C2** (scatter plots):

- Measured TDS concentrations continued to increase in the winter at the NF in 2019 relative to winter sampling events in 2018 and 2017, but the open-water TDS concentrations in 2019 were similar to the range of conditions in 2017 (construction) and 2018 (first year of discharge). The seasonal pattern at TDS follows the same trend at both the NF and MF areas: higher concentrations in the winter (related to cryo-concentration), followed by a return to near-baseline conditions in the open-water period. Predictably, constituent parameters of TDS (e.g., major cations, alkalinity, etc.) and conductivity followed the same seasonal pattern of higher concentration in the winter compared to July through September.
- Certain metals were seasonally elevated in the winter compared to the open-water period, namely lead (**Figure C2-38**), lithium (**Figure C2-39**), strontium (**Figure C2-46**) and zinc (**Figure C2-52**). Of these metals, the increase in lithium and strontium clearly coincides with the onset of discharge in June 2018. Lead and zinc have followed the same seasonal pattern since pre-construction.

### Open-water Period

Temporal patterns detected during open-water conditions were as follows:

- At MEL-01 many parameters plateaued or decreased in 2019 compared to 2018 and construction years, but remained elevated above the normal range. MEL-02 generally showed similar temporal patterns (but dampened and with lower concentrations) as MEL-01.
- Total chromium was higher in 2019 compared to previous years in the exposure and reference areas (**Figure C2-34**). The pattern of the increase is not related to activities on site in 2019. The apparent increase appears to be at least partly related to a higher detection limit in 2019 compared to previous years. Concentrations up to 0.5 µg/L were

measured at the NF and MF exposure areas and Reference Areas 1 and 3 (MEL-03 and MEL-05).

- Generally, there was more variability in measured concentrations in the open-water sampling period in 2019 compared to 2018. This is partially explained by fewer sampling events in 2018 (2 open-water events) compared to 2019 (3 months, 3 open-water events).
- Reference areas (MEL-03, -04, -05) remained consistent for most parameters in 2019 compared to previous years. Exceptions were total alkalinity, some nutrients, total strontium, total iron, total cobalt, total aluminum, TKN, all of which show a slight upward trend throughout the monitoring period.
- Concentrations of total phosphorus decreased in 2019 compared to 2018, marking back-to-back years of phosphorous trending lower in the NF area.

## 5.4 Low Action Level Assessment – Meliadine Lake

Water quality data from the AEMP are assessed within a response framework that compares the annual water quality data against low actions level criteria when deciding if additional studies, monitoring, or mitigation are required. Low action levels, which were updated in 2018, provide an early warning indicator (aka 'trigger') that changes in water quality have occurred before concentrations increase to levels associated with effects to aquatic life or impaired drinking water quality for human consumption. Below is an investigation if any low action levels have been triggered. The low action level assessment for nutrient enrichment in Meliadine Lake is presented **Section 7.6** of the 2019 discussion of the Meliadine lake phytoplankton community.

### 5.4.1 Toxicological Impairment: Effluent

The low Action Level for end-of-pipe toxicity is classified as a persistent sublethal toxic effect observed in the same test organism in three consecutive monthly samples collected from MEL-14 for compliance purposes.

As stated in **Section 4.3.1** , acute toxicity tests run in 2019 showed no adverse effects. Full strength effluent had no effect on *L. minor* frond weight and frond yield compared to the control group in the three tests conducted in 2019. Therefore, effluent discharged to Meliadine Lake in 2019 is not expected to cause toxicological impairment.

### 5.4.2 Water Quality for the Protection of Aquatic Life and Human Health

Data evaluation methods described in **Section 2.4** provide the evidence used to answer the following three questions about whether the mine is causing changes to water quality in Meliadine Lake. A summary of the conclusions for each question is provided in **Table 5-8**.

*Question 1: is the concentration for a given parameter at Near-field area MEL-01 greater than the normal range* and *significantly greater compared to the reference areas?*

**Response**: Conductivity (lab), TDS (calculated), major ions (chloride, magnesium, potassium, sodium, and sulphate), DOC, and total metals (arsenic, cobalt, iron, lithium, manganese, nickel, strontium and titanium) all exceeded their respective upper normal range concentration (90$^{th}$ percentile) and were significantly greater in the Near-field area compared to the reference area.

*Question 2: is the concentration for a given parameter at Near-field area MEL-01 greater than 75% of the AEMP benchmark?*

**Response**: Of the parameters with AEMP benchmarks, none exceeded the early warning trigger (75% of the AEMP benchmark) in 2019.

For parameters without an AEMP benchmark, the second criterion is not applicable; for these parameters, the low action level trigger is evaluated based on criteria in questions 1 (above) and 3 (below).

*Question 3: Is there evidence of a divergent trend over time in the concentrations of a given parameter at the Near-field compared to the reference area?*

**Response**: In 2019, numerous parameters showed a significant difference between the NF area and pooled reference data, as discussed in **Section 5.3.6.** Of the parameters meeting both question #1 and #2 (if we ignore the two conditions of Question #2) all had significant differences between the NF area and pooled reference area data; however, the spatial divergence observed in 2019 does not give indication of whether the parameter is trending over time. Temporal trends for each parameter were examined in **Section 5.3.7**. Generally, it was found that concentrations in the exposure areas had decreased in 2019 compared to 2018 and earlier and reference area parameter concentration trends continued to be flat or showed very gradual concentration increases. Based on this temporal assessment none of the short-listed parameters meet Question #3 criteria.

## 5.5 Recommendations for 2020

At this stage of the AEMP, there is no evidence of year-over-year changes in water quality that warrant management actions or mitigation strategies beyond on-going monitoring as per the Water Licence.

## 5.6 Figures – Meliadine Lake Water Quality

Figures specific to Meliadine Lake are presented below. Additional supporting water chemistry plots are provided in **Appendix C1** (boxplots) and **Appendix C2** (scatterplots).

Figure 5-1. Water quality monitoring stations in Meliadine Lake..... 71
Figure 5-2. Field water quality measurements at the Meliadine Lake sampling areas in 2019.. 72
Figure 5-3. Meliadine Lake water quality (open water) – concentrations of TDS, hardness, and major ions (Ca, Mg, K, and Na) since 2013. ..... 73
Figure 5-4. Meliadine Lake water quality (open-water) – pH, conductivity, and concentrations of selected nutrients since 2013. ..... 74
Figure 5-5. Meliadine Lake water quality (open-water) –concentrations of selected metals (total) since 2013. ..... 75
Figure 5-6. Meliadine Lake water quality (open-water) –concentrations of selected metals (total) since 2013. ..... 76
Figure 5-7. Meliadine Lake water quality (open-water) – concentrations of selected metals (dissolved) since 2013. ..... 77
Figure 5-8. Lake water quality (open-water) – concentrations of dissolved lead, lithium, manganese, nickel, strontium and zinc since 2013..... 78

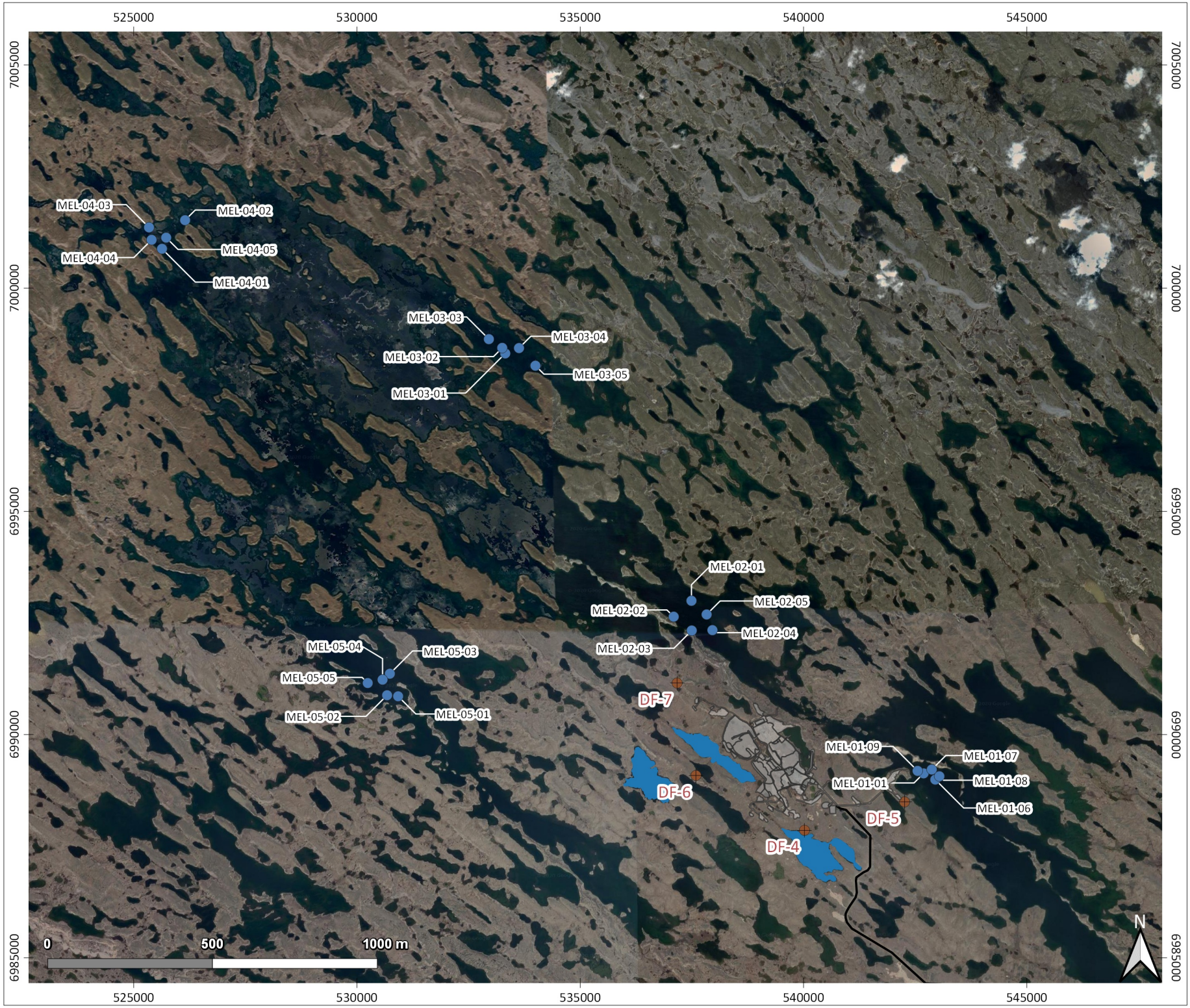


Figure 5-1
Water quality monitoring stations in Meliadine Lake.

2019 Aquatic Effects Monitoring Program Annual Report

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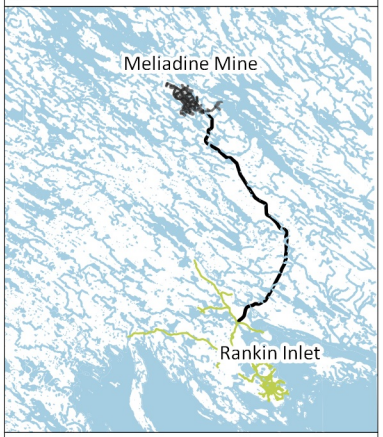
| | |
|---|---|
| Date: | March 17, 2020 |
| Datum: | NAD 83 UTM Zone 15N |
| Scale: | 1:110,000 |
| Software: | QGIS version 3.8.2 |
| Produced by: | E. Franz |

REFERENCES:
1. Basemap imagery from Sentinel 2 on September 13, 2019
2. Mine Plan provided by Agnico Eagle
3. Mixing zone extent based on Golder (2019) and the FEIS (Agnico Eagle 2014)




**Legend**

- Mine Plan (Februray 2020)
- Peninsula Lakes

Monitoring Stations

- Meliadine Lake
- Dustfall/Snowpack Monitoring Station

**Figure 5-2. Field water quality measurements at the Meliadine Lake sampling areas in 2019.**

Notes: Black star symbol indicates in-situ reading taken at MEL-13 (MDMER sampling); Five water quality profiles (one per station) were taken at each area per month. Vertical red dashed lines represent CCME guidelines for dissolved oxygen (6.5 mg/L) and pH (6.5 and 9).

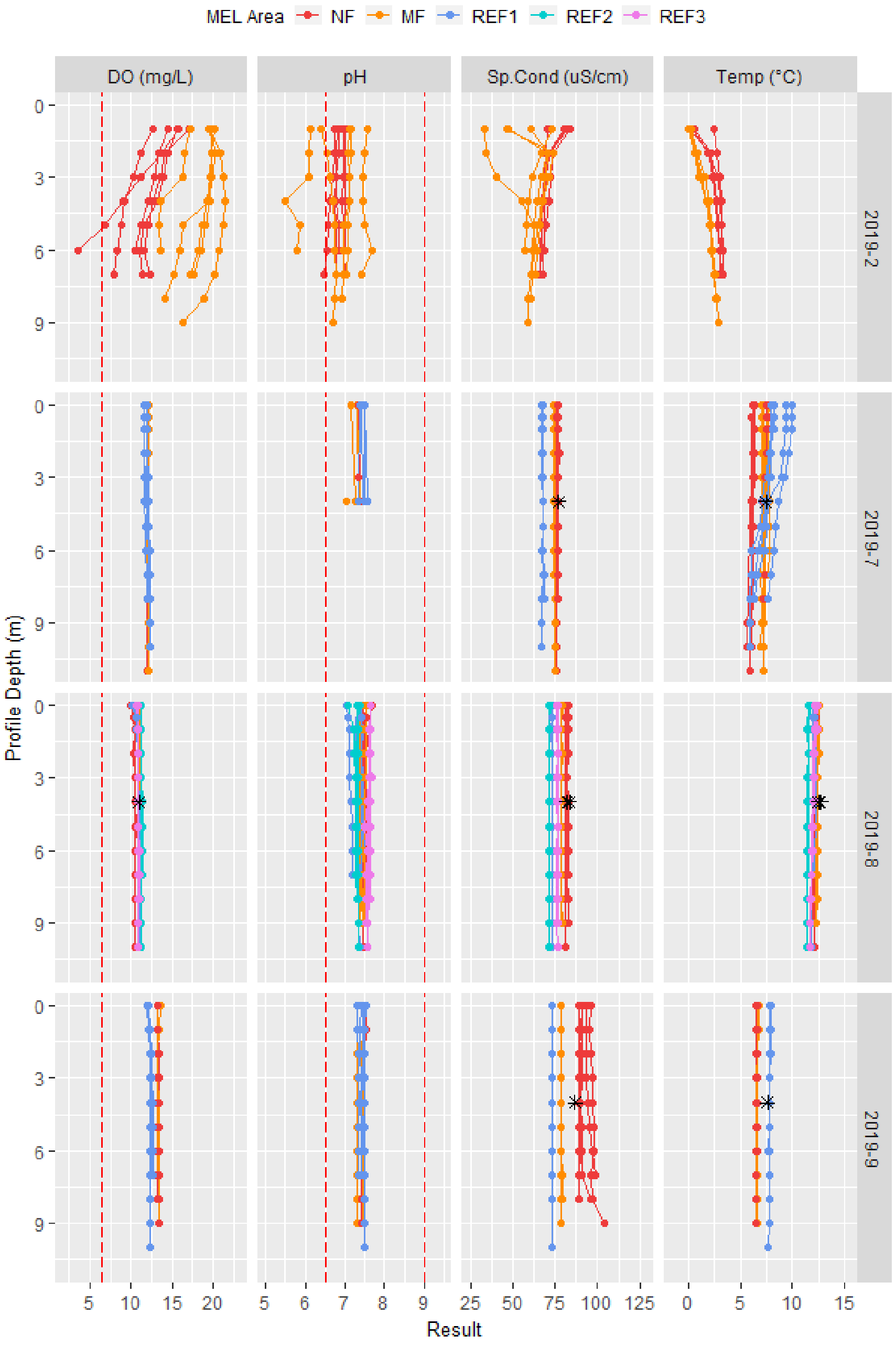





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**Figure 5-3. Meliadine Lake water quality (open water) – concentrations of TDS, hardness, and major ions (Ca, Mg, K, and Na) since 2013.**

Notes: TDS = total dissolved solids; Hard = hardness; Ca, Mg, K, and Na = calcium, magnesium, potassium, sodium; Cl = chloride; SO4 = sulphate.
FEIS predictions for the edge of the mixing zone in MEL-01 (Agnico Eagle 2014).

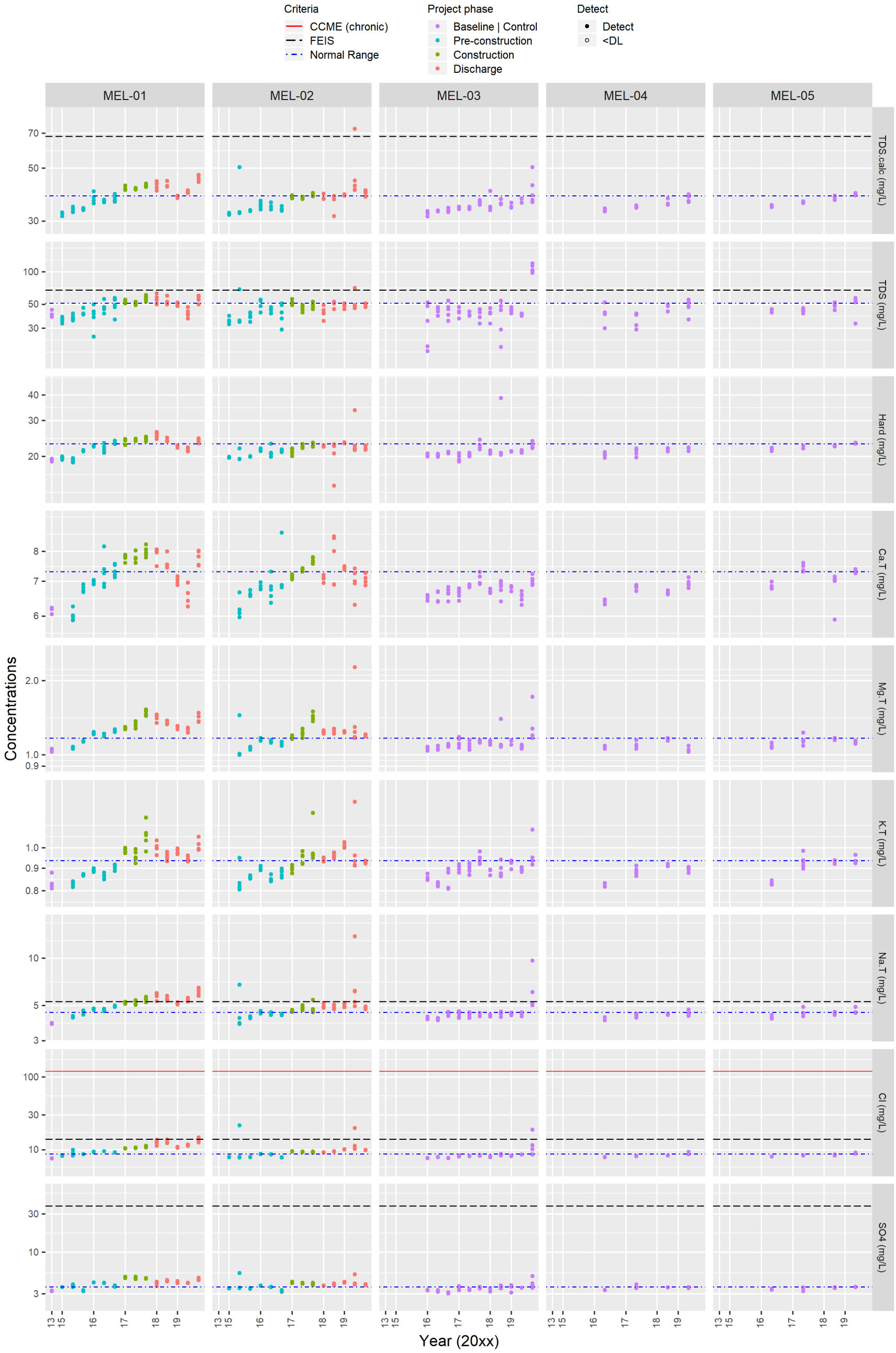




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**Figure 5-4. Meliadine Lake water quality (open-water) – pH, conductivity, and concentrations of selected nutrients since 2013.**

Notes: field and lab conductivity (F and L); Alk.T = total alkalinity; NH3-N = ammonia (as N); NO3-N = nitrate (as N); TKN = total Kjeldahl nitrogen; T-P = total phosphorus. FEIS predictions for the edge of the mixing zone in MEL-01 (Agnico Eagle 2014).

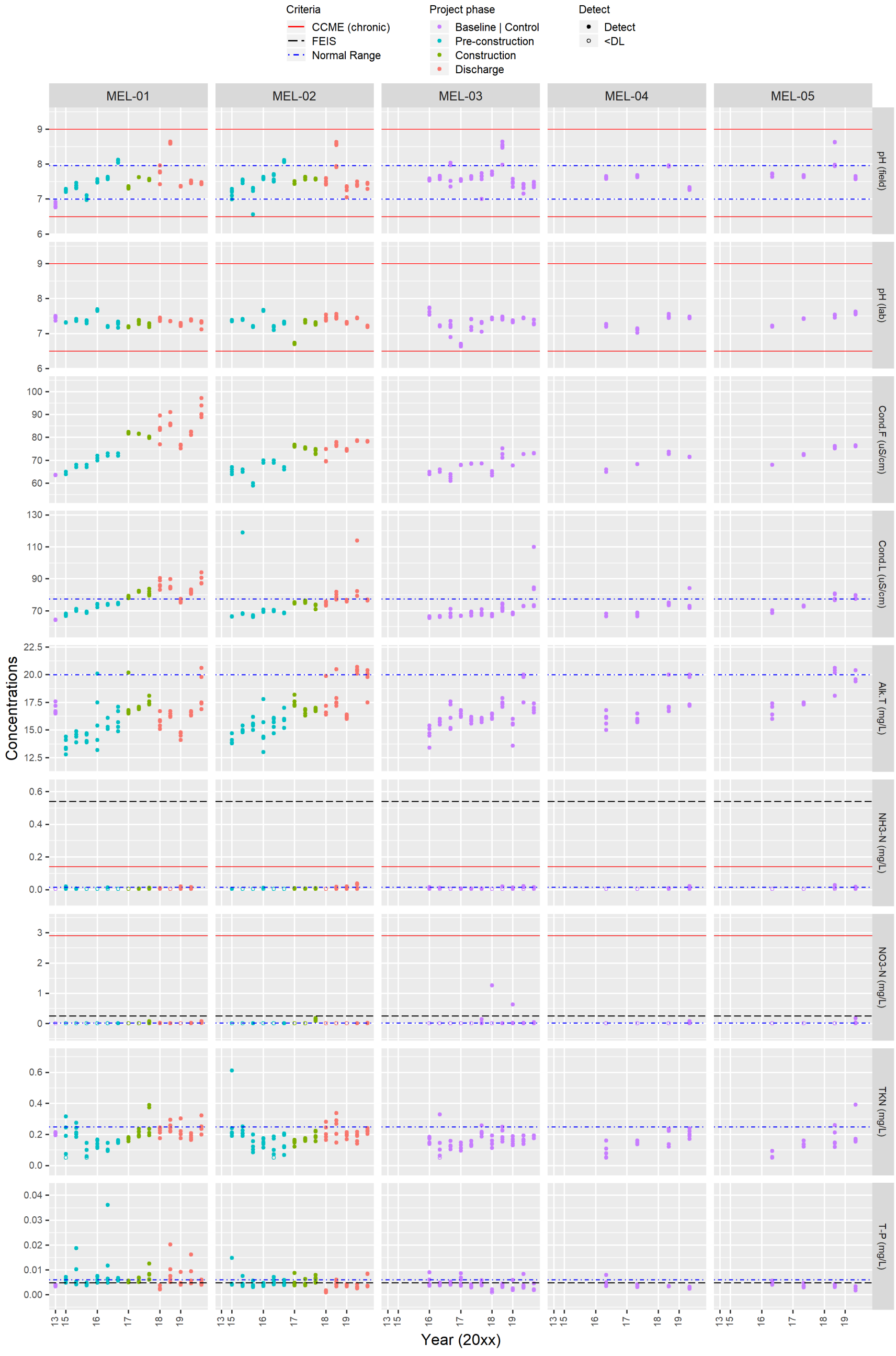




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**Figure 5-5. Meliadine Lake water quality (open-water) –concentrations of selected metals (total) since 2013.**

Notes: Concentrations shown in log10 scale for the total (unfiltered) fraction.
FEIS predictions for the edge of the mixing zone in MEL-01 (Agnico Eagle 2014).

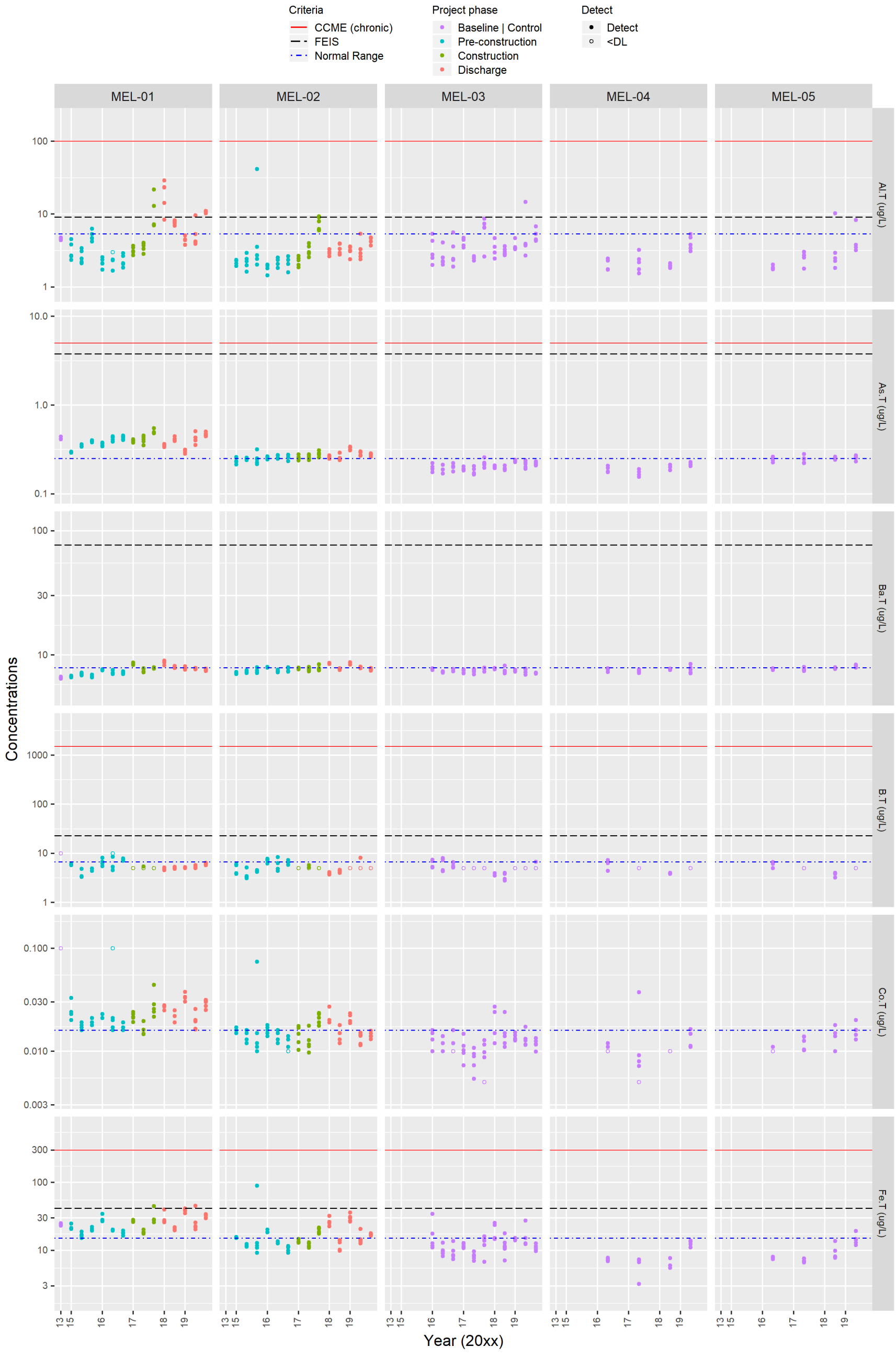




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**Figure 5-6. Meliadine Lake water quality (open-water) –concentrations of selected metals (total) since 2013.**

Notes: Concentrations shown in log10 scale for the total (unfiltered) fraction.
FEIS predictions for the edge of the mixing zone in MEL-01 (Agnico Eagle 2014).

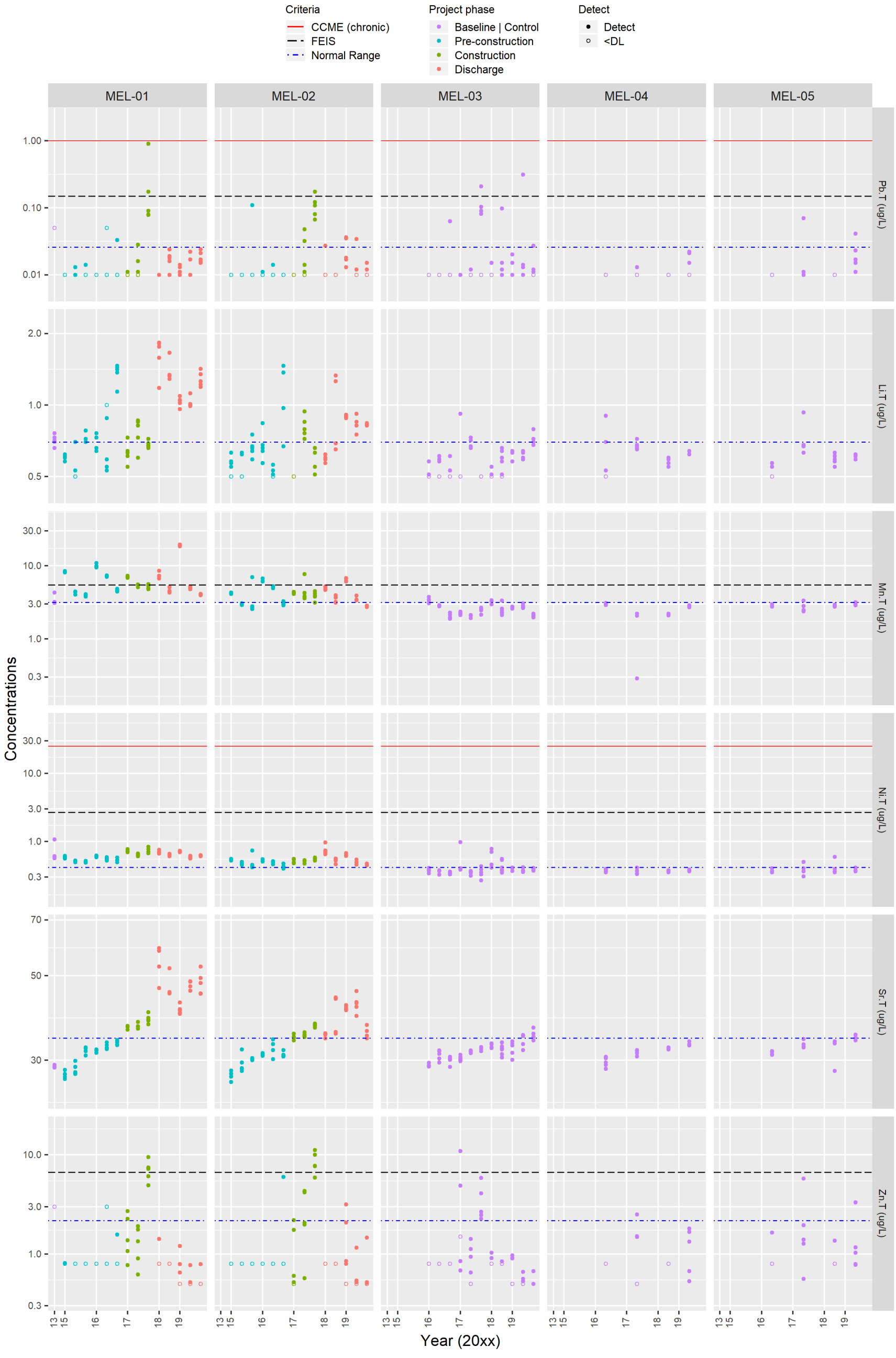




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**Figure 5-7. Meliadine Lake water quality (open-water) – concentrations of selected metals (dissolved) since 2013.**

Notes: Concentrations shown in log10 scale for the dissolved (0.45 µm filtered) fraction.
No FEIS predictions or water quality guidelines for these dissolved metals.

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**Figure 5-8. Lake water quality (open-water) – concentrations of dissolved lead, lithium, manganese, nickel, strontium and zinc since 2013.**

Notes: Concentrations shown in log10 scale for the dissolved (0.45 µm filtered) fraction.

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## 5.7 Tables – Meliadine Lake Water Quality

Tables specific to Meliadine Lake are presented below. The 2019 water quality dataset for the Meliadine Lake stations is provided in **Appendix C3**.

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**Table 5-1. Meliadine Lake monitoring stations sampled in 2019.**

| Area | Station ID | UTM (zone 15V) | | Sampling Event (Month)[a] | | | | Depths[b] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Feb | Jul | Aug | Sep | | |
| | | Easting | Northing | 16 & 22 | 12 to 14 | 8 to 16 | 6 & 14 | Total | Secchi |
| MEL-01 (Near-field) | MEL-01-01 | 542690 | 6989132 | ✓ | ✓ | ✓ | ✓ | 9.4 | 4.8 |
| | MEL-01-06 | 542952 | 6988993 | ✓ | ✓ | ✓ | ✓ | 10.2 | 4.6 |
| | MEL-01-07 | 542873 | 6989218 | ✓ | ✓ | ✓ | ✓ | 8.4 | 4.6 |
| | MEL-01-08 | 543044 | 6989067 | ✓ | ✓ | ✓ | ✓ | 8.3 | 4.7 |
| | MEL-01-09 | 542555 | 6989188 | ✓ | ✓ | ✓ | ✓ | 7.6 | 4.6 |
| MEL-02 (Mid-field) | MEL-02-01 | 537491 | 6992999 | - | ✓ | ✓ | ✓ | 7.7 | 6.9 |
| | MEL-02-02 | 537093 | 6992642 | - | ✓ | ✓ | ✓ | 9.4 | 7.9 |
| | MEL-02-03 | 537497 | 6992332 | ✓ (FD) | ✓ | ✓ | ✓ | 10.4 | 7.8 |
| | MEL-02-04 | 537961 | 6992341 | - | ✓ | ✓ | ✓ | 8.5 | 7.3 |
| | MEL-02-05 | 537831 | 6992692 | ✓ | ✓ | ✓ | ✓ | 9.2 | 7.4 |
| | MEL-02-06 | 536922 | 6992853 | ✓ | - | - | - | 7.3 | - |
| | MEL-02-08 | 538342 | 6991952 | ✓ | - | - | - | 8 | - |
| MEL-03 (Reference 1) | MEL-03-01 | 533321 | 6998540 | - | ✓ | ✓ | ✓ | 6.7 | 6.7 |
| | MEL-03-02 | 533253 | 6998664 | - | ✓ | ✓ (FD) | ✓ | 8.1 | 7.6 |
| | MEL-03-03 | 532954 | 6998860 | - | ✓ | ✓ | ✓ | 10.9 | 7.9 |
| | MEL-03-04 | 533629 | 6998660 | - | ✓ | ✓ | ✓ | 7.9 | 7.1 |
| | MEL-03-05 | 533997 | 6998265 | - | ✓ | ✓ | ✓ | 7.8 | 7.3 |
| MEL-04 (Reference 2) | MEL-04-01 | 525634 | 7000884 | - | - | ✓ | - | 7.7 | 7.0 |
| | MEL-04-02 | 526151 | 7001525 | - | - | ✓ | - | 10.5 | 7.0 |
| | MEL-04-03 | 525343 | 7001363 | - | - | ✓ | - | 8.3 | 7.0 |
| | MEL-04-04 | 525401 | 7001085 | - | - | ✓ | - | 8.7 | 7.0 |
| | MEL-04-05 | 525727 | 7001134 | - | - | ✓ (FD) | - | 8.4 | 7.0 |
| MEL-05 (Reference 3) | MEL-05-01 | 530922 | 6990859 | - | - | ✓ | - | 9.5 | 9.5 |
| | MEL-05-02 | 530675 | 6990883 | - | - | ✓ | - | 9.6 | 8.5 |
| | MEL-05-03 | 530737 | 6991365 | - | - | ✓ | - | 8.8 | 8.8 |
| | MEL-05-04 | 530573 | 6991231 | - | - | ✓ | - | 10.5 | 10.5 |
| | MEL-05-05 | 530241 | 6991156 | - | - | ✓ | - | 8.3 | 8.3 |

Notes:
[a] Water and limno profiles = ✓ ; Field duplicate sample collected = FD.
[b] Depths (total and secchi) are reported as the average if the station was sampled more than once.

Table 5-2. Meliadine Lake water quality summary statistics, winter sampling event, 2019.

Notes

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | Screening Criteria | | | | | Near-Field Area (MEL-01) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME Aquatic Life [b] | | Health Canada | | SSWQO | Summary Statistics [c] Winter Sampling | | | | | | | |
| | | Acute | Chronic | GCDWQ | Aesthetic Objective | | N | N<MDL | % <MDL | Mean | SD | Median | Min | Max |
| **Field Measurements** | | | | | | | | | | | | | | |
| Temperature | °C | - | - | - | 15 | - | 5 | 0 | 0 | 2.8 | 0.24 | 2.7 | 2.6 | 3.1 |
| Sp. Conductivity (field) | uS/cm | - | - | - | - | - | 5 | 0 | 0 | 69 | 1.6 | 68 | 67 | 71 |
| pH (field) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 5 | 0 | 0 | 6.8 | 0.15 | 6.8 | 6.6 | 7.0 |
| DO (mg/L) | mg/L | - | 6.5 | - | - | - | 5 | 0 | 0 | 11 | 2.0 | 12 | 9.1 | 13 |
| **Conventional Parameters** | | | | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | - | - | - | - | - | 5 | 0 | 0 | 111 | 11 | 107 | 103 | 131 |
| Hardness | mg/L | - | - | - | - | - | 5 | 0 | 0 | 34 | 4.1 | 32 | 31 | 41 |
| pH (lab) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 5 | 0 | 0 | 7.2 | 0.044 | 7.2 | 7.2 | 7.3 |
| Total Dissolved Solids | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 81 | 11 | 81 | 70 | 94 |
| Total Dissolved Solids (Calc'd) | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 57 | 6.2 | 55 | 53 | 68 |
| Total Suspended Solids | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 1.0 | 1.0 | 1.0 |
| Turbidity (lab) | NTU | - | - | - | - | - | 5 | 0 | 0 | 0.21 | 0.090 | 0.18 | 0.15 | 0.37 |
| **Major Ions** | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | mg/L | - | - | - | - | - | 5 | 0 | 0 | 30 | 2.5 | 29 | 29 | 35 |
| Alkalinity, Carbonate | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.60 | 0.60 | 0.60 |
| Alkalinity, Hydroxide | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.34 | 0.34 | 0.34 |
| Alkalinity, Total | mg/L | - | - | - | - | - | 5 | 0 | 0 | 25 | 2.1 | 24 | 24 | 28 |
| Calcium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 10 | 1.1 | 9.7 | 9.4 | 12 |
| Chloride | mg/L | 640 | 120 | - | 250 | - | 5 | 0 | 0 | 16 | 1.7 | 15 | 15 | 19 |
| Fluoride | mg/L | - | 0.12 | 1.5 | - | 2.8 | 5 | 0 | 0 | 0.030 | 0.0024 | 0.029 | 0.028 | 0.034 |
| Magnesium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 1.9 | 0.22 | 1.8 | 1.7 | 2.3 |
| Potassium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 1.3 | 0.19 | 1.3 | 1.2 | 1.7 |
| Sodium (T) | mg/L | - | - | - | 200 | - | 5 | 0 | 0 | 7.6 | 0.97 | 7.2 | 7.0 | 9.3 |
| Sulphate | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 5.6 | 0.56 | 5.4 | 5.2 | 6.6 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | - | 0.14 | - | - | - | 5 | 0 | 0 | 0.026 | 0.0053 | 0.024 | 0.022 | 0.035 |
| Nitrate (as N) | mg/L | 124 | 2.9 | 10.0 | - | - | 5 | 0 | 0 | 0.015 | 0.0051 | 0.012 | 0.0097 | 0.022 |
| Nitrate + Nitrite (as N) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.015 | 0.0051 | 0.012 | 0.0097 | 0.022 |
| Nitrite (as N) | mg/L | - | 0.060 | 1.0 | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Total Kjeldahl Nitrogen | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.25 | 0.043 | 0.23 | 0.21 | 0.31 |
| Total Phosphorus | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.0048 | 0.0020 | 0.0038 | 0.0029 | 0.0076 |
| **Organic/Inorganic Carbon** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | - | - | - | - | - | 5 | 0 | 0 | 2.7 | 0.57 | 2.7 | 1.9 | 3.5 |
| Total Organic Carbon | mg/L | - | - | - | - | - | 5 | 0 | 0 | 3.0 | 0.68 | 3.1 | 2.0 | 3.9 |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (T) | ug/L | - | 100 | - | - | - | 5 | 0 | 0 | 2.2 | 1.9 | 1.9 | 0.69 | 5.5 |
| Antimony (T) | ug/L | - | - | 6.0 | - | - | 5 | 4 | 80 | - | - | 0.020 | 0.020 | 0.025 |
| Arsenic (T) | ug/L | - | 5.0 | 10.0 | - | 25 | 5 | 0 | 0 | 0.44 | 0.066 | 0.42 | 0.41 | 0.56 |
| Barium (T) | ug/L | - | - | 1,000 | - | - | 5 | 0 | 0 | 10 | 1.4 | 10 | 9.4 | 13 |
| Beryllium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Bismuth (T) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.010 | 0.010 | 0.014 |
| Boron (T) | ug/L | 29,000 | 1,500 | 5,000 | - | - | 5 | 0 | 0 | 6.3 | 0.74 | 6.0 | 5.8 | 7.6 |
| Cadmium (T) | ug/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | - | - | 5 | 4 | 80 | - | - | 0.0050 | 0.0050 | 0.0098 |
| Chromium (T) | ug/L | - | 1.0 | 50 | - | - | 5 | 3 | 60 | - | - | 0.060 | 0.060 | 0.13 |
| Cobalt (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.014 | 0.0054 | 0.012 | 0.011 | 0.024 |
| Copper (T) | ug/L | - | 2.0 | 2,000 | 1,000 | - | 5 | 0 | 0 | 1.1 | 0.39 | 0.86 | 0.82 | 1.7 |
| Gallium (T) | ug/L | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Iron (T) | ug/L | - | 300 | - | 300 | 1,060 | 5 | 0 | 0 | 8.5 | 6.1 | 5.3 | 4.9 | 19 |
| Lanthanum (T) | ug/L | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lead (T) | ug/L | - | 1.0 | 5.0 | - | - | 5 | 0 | 0 | 0.17 | 0.17 | 0.11 | 0.075 | 0.47 |
| Lithium (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 1.6 | 0.20 | 1.6 | 1.5 | 2.0 |
| Manganese (T) | ug/L | - | - | 120 | 20 | - | 5 | 0 | 0 | 1.9 | 0.24 | 1.9 | 1.7 | 2.2 |
| Mercury (T) | ug/L | - | 0.026 | 1.0 | - | - | 5 | 4 | 80 | - | - | 0.00050 | 0.00050 | 0.0014 |
| Molybdenum (T) | ug/L | - | 73 | - | - | - | 5 | 0 | 0 | 0.11 | 0.014 | 0.11 | 0.095 | 0.13 |
| Nickel (T) | ug/L | - | 25 | - | - | - | 5 | 0 | 0 | 0.75 | 0.13 | 0.70 | 0.67 | 0.98 |
| Selenium (T) | ug/L | - | 1.0 | 50 | - | - | 5 | 2 | 40 | 0.037 | 0.017 | 0.040 | 0.040 | 0.059 |
| Silver (T) | ug/L | - | 0.25 | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (T) | ug/L | - | - | 7,000 | - | - | 5 | 0 | 0 | 60 | 7.7 | 57 | 55 | 73 |
| Thallium (T) | ug/L | - | 0.80 | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Titanium (T) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.10 | 0.10 | 0.21 |
| Uranium (T) | ug/L | 33 | 15 | 20 | - | - | 5 | 0 | 0 | 0.016 | 0.0032 | 0.014 | 0.013 | 0.021 |
| Vanadium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (T) | ug/L | - | - | - | 5,000 | - | 5 | 1 | 20 | 2.6 | 3.1 | 1.2 | 0.80 | 8.0 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.85 | 0.17 | 0.77 | 0.66 | 1.0 |
| Antimony (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.020 | 0.020 | 0.029 |
| Arsenic (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.43 | 0.062 | 0.42 | 0.37 | 0.54 |
| Barium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 11 | 1.2 | 10 | 9.7 | 13 |
| Beryllium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Bismuth (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Boron (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 6.4 | 0.74 | 6.2 | 5.9 | 7.7 |
| Cadmium (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.0050 | 0.0050 | 0.0098 |
| Chromium (D) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.060 | 0.060 | 0.74 |
| Cobalt (D) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.010 | 0.010 | 0.024 |
| Copper (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.95 | 0.32 | 0.82 | 0.77 | 1.5 |
| Iron (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 5.2 | 4.6 | 3.5 | 2.1 | 13 |
| Lead (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.13 | 0.100 | 0.093 | 0.061 | 0.31 |
| Lithium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 1.6 | 0.22 | 1.5 | 1.5 | 2.0 |
| Manganese (D) | ug/L | 1680 \| 2570 | 210 \| 330 | - | - | - | 5 | 0 | 0 | 0.51 | 0.27 | 0.41 | 0.32 | 0.97 |
| Mercury (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.00050 | 0.00050 | 0.00081 |
| Molybdenum (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.17 | 0.097 | 0.12 | 0.11 | 0.34 |
| Nickel (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.75 | 0.096 | 0.75 | 0.64 | 0.90 |
| Selenium (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.040 | 0.040 | 0.046 |
| Silver (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 60 | 7.8 | 57 | 54 | 73 |
| Thallium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Titanium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.10 | 0.10 | 0.10 |
| Uranium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.016 | 0.0033 | 0.015 | 0.014 | 0.022 |
| Vanadium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (D) | ug/L | 24 \| 39.5 | 5.56 \| 9.61 | - | - | - | 5 | 0 | 0 | 2.8 | 2.9 | 1.4 | 1.1 | 7.9 |
| **Other** | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (Total) | mg/L | - | 0.0050 | 0.20 | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (WAD) | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Radium-226 | Bq/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0053 | 0.0046 | 0.0097 |

Table 5-2. Meliadine Lake water quality summary statistics, winter sampling event, 2019.

Notes

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | Screening Criteria | | | | | Mid-Field Area (MEL-02) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME Aquatic Life [b] | | Health Canada | | SSWQO | Summary Statistics [c] Winter Sampling | | | | | | | |
| | | Acute | Chronic | GCDWQ | Aesthetic Objective | | N | N<MDL | % <MDL | Mean | SD | Median | Min | Max |
| **Field Measurements** | | | | | | | | | | | | | | |
| Temperature | °C | - | - | - | 15 | - | 5 | 0 | 0 | 1.8 | 0.14 | 1.8 | 1.7 | 2.0 |
| Sp. Conductivity (field) | uS/cm | - | - | - | - | - | 5 | 0 | 0 | 63 | 5.4 | 64 | 55 | 68 |
| pH (field) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 5 | 0 | 0 | 6.8 | 0.76 | 7.1 | 5.5 | 7.5 |
| DO (mg/L) | mg/L | - | 6.5 | - | - | - | 5 | 0 | 0 | 19 | 3.0 | 19 | 14 | 21 |
| **Conventional Parameters** | | | | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | - | - | - | - | - | 5 | 0 | 0 | 104 | 8.7 | 102 | 95 | 118 |
| Hardness | mg/L | - | - | - | - | - | 5 | 0 | 0 | 32 | 3.1 | 31 | 29 | 37 |
| pH (lab) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 5 | 0 | 0 | 7.4 | 0.044 | 7.4 | 7.3 | 7.5 |
| Total Dissolved Solids | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 65 | 5.2 | 64 | 60 | 72 |
| Total Dissolved Solids (Calc'd) | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 54 | 4.4 | 53 | 50 | 61 |
| Total Suspended Solids | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 1.0 | 1.0 | 1.0 |
| Turbidity (lab) | NTU | - | - | - | - | - | 5 | 0 | 0 | 0.14 | 0.023 | 0.14 | 0.12 | 0.17 |
| **Major Ions** | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | mg/L | - | - | - | - | - | 5 | 0 | 0 | 33 | 2.7 | 32 | 30 | 37 |
| Alkalinity, Carbonate | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.60 | 0.60 | 0.60 |
| Alkalinity, Hydroxide | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.34 | 0.34 | 0.34 |
| Alkalinity, Total | mg/L | - | - | - | - | - | 5 | 0 | 0 | 27 | 2.3 | 26 | 25 | 31 |
| Calcium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 8.3 | 2.7 | 9.2 | 5.3 | 12 |
| Chloride | mg/L | 640 | 120 | - | 250 | - | 5 | 0 | 0 | 13 | 1.0 | 13 | 12 | 14 |
| Fluoride | mg/L | - | 0.12 | 1.5 | - | 2.8 | 5 | 0 | 0 | 0.034 | 0.0023 | 0.034 | 0.030 | 0.036 |
| Magnesium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 1.4 | 0.48 | 1.5 | 0.88 | 2.0 |
| Potassium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 1.1 | 0.38 | 1.2 | 0.65 | 1.6 |
| Sodium (T) | mg/L | - | - | - | 200 | - | 5 | 0 | 0 | 5.9 | 1.9 | 6.7 | 3.7 | 8.0 |
| Sulphate | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 5.0 | 0.52 | 4.9 | 4.5 | 5.9 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | - | 0.14 | - | - | - | 5 | 0 | 0 | 0.023 | 0.0020 | 0.022 | 0.021 | 0.026 |
| Nitrate (as N) | mg/L | 124 | 2.9 | 10.0 | - | - | 5 | 0 | 0 | 0.0057 | 0.00062 | 0.0055 | 0.0052 | 0.0067 |
| Nitrate + Nitrite (as N) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.0063 | 0.0011 | 0.0060 | 0.0052 | 0.0079 |
| Nitrite (as N) | mg/L | - | 0.060 | 1.0 | - | - | 5 | 4 | 80 | - | - | 0.0010 | 0.0010 | 0.0026 |
| Total Kjeldahl Nitrogen | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.20 | 0.11 | 0.23 | 0.050 | 0.35 |
| Total Phosphorus | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.0048 | 0.0016 | 0.0049 | 0.0030 | 0.0067 |
| **Organic/Inorganic Carbon** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | - | - | - | - | - | 5 | 0 | 0 | 2.0 | 0.66 | 1.9 | 1.4 | 3.1 |
| Total Organic Carbon | mg/L | - | - | - | - | - | 5 | 0 | 0 | 2.2 | 0.69 | 1.9 | 1.8 | 3.4 |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (T) | ug/L | - | 100 | - | - | - | 5 | 0 | 0 | 1.5 | 0.67 | 1.8 | 0.82 | 2.4 |
| Antimony (T) | ug/L | - | - | 6.0 | - | - | 5 | 5 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (T) | ug/L | - | 5.0 | 10.0 | - | 25 | 5 | 0 | 0 | 0.26 | 0.070 | 0.28 | 0.18 | 0.33 |
| Barium (T) | ug/L | - | - | 1,000 | - | - | 5 | 0 | 0 | 9.4 | 3.0 | 11 | 5.8 | 13 |
| Beryllium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Bismuth (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Boron (T) | ug/L | 29,000 | 1,500 | 5,000 | - | - | 5 | 0 | 0 | 4.2 | 1.7 | 4.8 | 2.3 | 6.4 |
| Cadmium (T) | ug/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Chromium (T) | ug/L | - | 1.0 | 50 | - | - | 5 | 4 | 80 | - | - | 0.060 | 0.060 | 0.11 |
| Cobalt (T) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.010 | 0.010 | 0.015 |
| Copper (T) | ug/L | - | 2.0 | 2,000 | 1,000 | - | 5 | 0 | 0 | 0.77 | 0.31 | 0.81 | 0.44 | 1.2 |
| Gallium (T) | ug/L | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Iron (T) | ug/L | - | 300 | - | 300 | 1,060 | 5 | 0 | 0 | 4.8 | 1.4 | 4.7 | 3.1 | 6.3 |
| Lanthanum (T) | ug/L | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Lead (T) | ug/L | - | 1.0 | 5.0 | - | - | 5 | 0 | 0 | 0.056 | 0.037 | 0.032 | 0.026 | 0.097 |
| Lithium (T) | ug/L | - | - | - | - | - | 5 | 1 | 20 | 0.77 | 0.37 | 0.92 | 0.50 | 1.2 |
| Manganese (T) | ug/L | - | - | 120 | 20 | - | 5 | 0 | 0 | 0.75 | 0.092 | 0.76 | 0.64 | 0.85 |
| Mercury (T) | ug/L | - | 0.026 | 1.0 | - | - | 5 | 4 | 80 | - | - | 0.00050 | 0.00050 | 0.00066 |
| Molybdenum (T) | ug/L | - | 73 | - | - | - | 5 | 1 | 20 | 0.073 | 0.035 | 0.081 | 0.050 | 0.12 |
| Nickel (T) | ug/L | - | 25 | - | - | - | 5 | 0 | 0 | 0.51 | 0.11 | 0.53 | 0.38 | 0.64 |
| Selenium (T) | ug/L | - | 1.0 | 50 | - | - | 5 | 5 | 100 | - | - | 0.040 | 0.040 | 0.040 |
| Silver (T) | ug/L | - | 0.25 | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (T) | ug/L | - | - | 7,000 | - | - | 5 | 0 | 0 | 42 | 13 | 48 | 27 | 55 |
| Thallium (T) | ug/L | - | 0.80 | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Titanium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.10 | 0.10 | 0.10 |
| Uranium (T) | ug/L | 33 | 15 | 20 | - | - | 5 | 2 | 40 | 0.011 | 0.0063 | 0.012 | 0.010 | 0.020 |
| Vanadium (T) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.050 | 0.050 | 0.052 |
| Zinc (T) | ug/L | - | - | - | 5,000 | - | 5 | 2 | 40 | 1.3 | 1.3 | 1.1 | 0.80 | 3.5 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (D) | ug/L | - | - | - | - | - | 5 | 1 | 20 | 0.47 | 0.27 | 0.40 | 0.30 | 0.78 |
| Antimony (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.020 | 0.020 | 0.022 |
| Arsenic (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.30 | 0.025 | 0.30 | 0.27 | 0.34 |
| Barium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 11 | 0.85 | 11 | 10.0 | 12 |
| Beryllium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Bismuth (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Boron (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 5.2 | 0.61 | 5.1 | 4.7 | 6.3 |
| Cadmium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Chromium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.060 | 0.060 | 0.060 |
| Cobalt (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Copper (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.86 | 0.17 | 0.80 | 0.74 | 1.2 |
| Iron (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 2.5 | 0.90 | 2.0 | 1.7 | 3.9 |
| Lead (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.033 | 0.021 | 0.033 | 0.012 | 0.056 |
| Lithium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.91 | 0.082 | 0.90 | 0.83 | 1.0 |
| Manganese (D) | ug/L | 1680 \| 2570 | 210 \| 330 | - | - | - | 5 | 0 | 0 | 0.27 | 0.086 | 0.23 | 0.19 | 0.41 |
| Mercury (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.00050 | 0.00050 | 0.00052 |
| Molybdenum (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.71 | 1.4 | 0.11 | 0.090 | 3.2 |
| Nickel (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.58 | 0.031 | 0.57 | 0.55 | 0.63 |
| Selenium (D) | ug/L | - | - | - | - | - | 5 | 2 | 40 | 0.039 | 0.019 | 0.044 | 0.040 | 0.062 |
| Silver (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 49 | 3.6 | 48 | 46 | 55 |
| Thallium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Titanium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.10 | 0.10 | 0.10 |
| Uranium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.014 | 0.0027 | 0.014 | 0.010 | 0.017 |
| Vanadium (D) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.050 | 0.050 | 0.051 |
| Zinc (D) | ug/L | 24 \| 39.5 | 5.56 \| 9.61 | - | - | - | 5 | 0 | 0 | 1.6 | 0.70 | 1.3 | 0.89 | 2.6 |
| **Other** | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (Total) | mg/L | - | 0.0050 | 0.20 | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (WAD) | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Radium-226 | Bq/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.0065 | 0.0039 | 0.0082 |

Table 5-3. Meliadine Lake water quality summary statistics, open water sampling events, 2019.

Notes

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | Screening Criteria [a] | | | | | Near-Field Area (MEL-01) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME Aquatic Life [b] | | Health Canada | | SSWQO | Summary Statistics [c] Open Water Sampling | | | | | | | |
| | | Acute | Chronic | GCDWQ | Aesthetic Objective | | N | N<MDL | % <MDL | Mean | SD | Median | Min | Max |
| **Field Measurements** | | | | | | | | | | | | | | |
| Temperature | °C | - | - | - | 15.0 | - | 15 | 0 | 0 | 8.5 | 2.7 | 7.2 | 6.1 | 12.2 |
| Sp. Conductivity (field) | uS/cm | - | - | - | - | - | 15 | 0 | 0 | 83 | 7.1 | 82 | 75 | 97 |
| pH (field) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 12 | 0 | 0 | 7.4 | 0.047 | 7.4 | 7.4 | 7.5 |
| DO (mg/L) | mg/L | - | 6.5 | - | - | - | 15 | 0 | 0 | 12.0 | 1.2 | 12.0 | 10.5 | 13.4 |
| DO (%) | % | - | - | - | - | - | 15 | 0 | 0 | 104 | 5.0 | 101 | 98 | 111 |
| **Conventional Parameters** | | | | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | - | - | - | - | - | 15 | 0 | 0 | 83 | 5.8 | 82 | 75 | 94 |
| Hardness | mg/L | - | - | - | - | - | 15 | 0 | 0 | 22.7 | 1.1 | 22.6 | 21.2 | 24.6 |
| pH (lab) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 15 | 0 | 0 | 7.3 | 0.078 | 7.3 | 7.1 | 7.4 |
| Total Dissolved Solids | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 49.2 | 7.0 | 49.0 | 37.0 | 60 |
| TDS (Calculated) | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 41.0 | 3.3 | 40.1 | 37.5 | 46.9 |
| Total Suspended Solids | mg/L | - | - | - | - | - | 15 | 11 | 73 | - | - | 1.0 | 1.0 | 1.6 |
| Turbidity (lab) | NTU | - | - | - | - | - | 15 | 0 | 0 | 0.47 | 0.12 | 0.42 | 0.33 | 0.76 |
| **Major Ions** | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | mg/L | - | - | - | - | - | 15 | 0 | 0 | 20.1 | 2.3 | 20.0 | 17.2 | 25.1 |
| Alkalinity, Carbonate | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.60 | 0.60 | 0.60 |
| Alkalinity, Hydroxide | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.34 | 0.34 | 0.34 |
| Alkalinity, Total | mg/L | - | - | - | - | - | 15 | 0 | 0 | 16.5 | 1.9 | 16.4 | 14.1 | 20.6 |
| Calcium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 7.2 | 0.53 | 7.1 | 6.3 | 8.0 |
| Chloride | mg/L | 640 | 120 | - | 250 | - | 15 | 0 | 0 | 11.9 | 1.2 | 11.6 | 10.6 | 14.7 |
| Fluoride | mg/L | - | 0.12 | 1.5 | - | 2.8 | 15 | 0 | 0 | 0.025 | 0.0023 | 0.026 | 0.022 | 0.028 |
| Magnesium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 1.3 | 0.071 | 1.3 | 1.2 | 1.5 |
| Potassium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.98 | 0.033 | 0.97 | 0.93 | 1.1 |
| Sodium (T) | mg/L | - | - | - | 200 | - | 15 | 0 | 0 | 5.6 | 0.44 | 5.4 | 5.1 | 6.5 |
| Sulphate | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 4.3 | 0.21 | 4.3 | 4.1 | 4.8 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | - | 0.14 | - | - | - | 10 | 1 | 10.0 | 0.0096 | 0.0052 | 0.0077 | 0.0050 | 0.020 |
| Nitrate (as N) | mg/L | 124 | 2.9 | 10.0 | - | - | 15 | 5 | 33.3 | 0.020 | 0.022 | 0.014 | 0.0050 | 0.076 |
| Nitrate + Nitrite (as N) | mg/L | - | - | - | - | - | 15 | 5 | 33.3 | 0.020 | 0.023 | 0.014 | 0.0051 | 0.076 |
| Nitrite (as N) | mg/L | - | 0.060 | 1.0 | - | - | 15 | 13 | 87 | - | - | 0.0010 | 0.0010 | 0.0023 |
| Total Kjeldahl Nitrogen | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.22 | 0.046 | 0.21 | 0.17 | 0.32 |
| Total Phosphorus | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.0062 | 0.0032 | 0.0047 | 0.0040 | 0.016 |
| **Organic Carbon** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | - | - | - | - | - | 15 | 0 | 0 | 2.8 | 0.14 | 2.8 | 2.5 | 3.1 |
| Total Organic Carbon | mg/L | - | - | - | - | - | 15 | 0 | 0 | 2.9 | 0.095 | 2.8 | 2.7 | 3.1 |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (T) | ug/L | - | 100 | - | - | - | 15 | 0 | 0 | 6.9 | 3.2 | 5.1 | 3.8 | 11.1 |
| Antimony (T) | ug/L | - | - | 6.0 | - | - | 15 | 15 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (T) | ug/L | - | 5.0 | 10.0 | - | 25.0 | 15 | 0 | 0 | 0.40 | 0.080 | 0.41 | 0.28 | 0.51 |
| Barium (T) | ug/L | - | - | 1,000 | - | - | 15 | 0 | 0 | 7.7 | 0.17 | 7.7 | 7.4 | 8.1 |
| Beryllium (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (T) | ug/L | 29,000 | 1,500 | 5,000 | - | - | 15 | 2 | 13.3 | 5.2 | 1.2 | 5.3 | 5.0 | 6.4 |
| Cadmium (T) | ug/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | - | - | 15 | 12 | 80 | - | - | 0.0050 | 0.0050 | 0.0096 |
| Chromium (T) | ug/L | - | 1.0 | 50.0 | - | - | 15 | 10 | 67 | - | - | 0.10 | 0.10 | 0.53 |
| Cobalt (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.027 | 0.0067 | 0.030 | 0.016 | 0.038 |
| Copper (T) | ug/L | - | 2.0 | 2,000 | 1,000 | - | 15 | 0 | 0 | 0.81 | 0.14 | 0.79 | 0.67 | 1.2 |
| Iron (T) | ug/L | - | 300 | - | 300 | 1,060 | 15 | 0 | 0 | 32.4 | 7.4 | 32.8 | 20.4 | 45.0 |
| Lead (T) | ug/L | - | 1.0 | 5.0 | - | - | 15 | 2 | 13.3 | 0.014 | 0.0057 | 0.014 | 0.010 | 0.024 |
| Lithium (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1.1 | 0.14 | 1.1 | 0.96 | 1.4 |
| Manganese (T) | ug/L | - | - | 120 | 20.0 | - | 15 | 0 | 0 | 9.3 | 7.1 | 4.9 | 3.9 | 19.6 |
| Mercury (T) | ug/L | - | 0.026 | 1.0 | - | - | 15 | 2 | 13.3 | 0.00063 | 0.00021 | 0.00062 | 0.00050 | 0.00097 |
| Molybdenum (T) | ug/L | - | 73 | - | - | - | 15 | 0 | 0 | 0.077 | 0.015 | 0.073 | 0.058 | 0.098 |
| Nickel (T) | ug/L | - | 25.0 | - | - | - | 15 | 0 | 0 | 0.64 | 0.054 | 0.62 | 0.56 | 0.73 |
| Selenium (T) | ug/L | - | 1.0 | 50.0 | - | - | 15 | 11 | 73 | - | - | 0.040 | 0.040 | 0.050 |
| Silicon (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 224 | 31.6 | 208 | 188 | 276 |
| Silver (T) | ug/L | - | 0.25 | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (T) | ug/L | - | - | 7,000 | - | - | 15 | 0 | 0 | 45.4 | 3.9 | 45.6 | 39.7 | 53 |
| Sulfur (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1,531 | 171 | 1,520 | 1,310 | 1,900 |
| Thallium (T) | ug/L | - | 0.80 | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (T) | ug/L | - | - | - | - | - | 15 | 6 | 40.0 | 0.027 | 0.017 | 0.020 | 0.020 | 0.051 |
| Titanium (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.35 | 0.22 | 0.21 | 0.12 | 0.69 |
| Uranium (T) | ug/L | 33.0 | 15.0 | 20.0 | - | - | 15 | 0 | 0 | 0.015 | 0.0018 | 0.015 | 0.013 | 0.019 |
| Vanadium (T) | ug/L | - | - | - | - | - | 15 | 10 | 67 | - | - | 0.050 | 0.050 | 0.083 |
| Zinc (T) | ug/L | - | - | - | 5,000 | - | 15 | 9 | 60 | - | - | 0.50 | 0.50 | 1.2 |
| Zirconium (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 2.2 | 0.56 | 2.2 | 1.4 | 3.1 |
| Antimony (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.34 | 0.054 | 0.36 | 0.27 | 0.42 |
| Barium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 7.4 | 0.22 | 7.4 | 7.0 | 7.8 |
| Beryllium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (D) | ug/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 0.0050 | 0.0050 | 0.0071 |
| Boron (D) | ug/L | - | - | - | - | - | 15 | 7 | 46.7 | 4.0 | 1.4 | 5.0 | 5.0 | 5.8 |
| Cadmium (D) | ug/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 0.0050 | 0.0050 | 0.042 |
| Chromium (D) | ug/L | - | - | - | - | - | 15 | 10 | 67 | - | - | 0.10 | 0.10 | 0.46 |
| Cobalt (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.012 | 0.0040 | 0.011 | 0.0076 | 0.020 |
| Copper (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.78 | 0.087 | 0.77 | 0.68 | 1.0 |
| Iron (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 8.6 | 3.0 | 6.9 | 5.2 | 13.9 |
| Lead (D) | ug/L | - | - | - | - | - | 15 | 13 | 87 | - | - | 0.010 | 0.010 | 0.022 |
| Lithium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1.0 | 0.084 | 1.0 | 0.94 | 1.3 |
| Manganese (D) | ug/L | 1680 \| 2570 | 210 \| 330 | - | - | - | 15 | 0 | 0 | 4.7 | 6.3 | 0.59 | 0.29 | 14.5 |
| Mercury (D) | ug/L | - | - | - | - | - | 15 | 7 | 46.7 | 0.00044 | 0.00020 | 0.00051 | 0.00050 | 0.00086 |
| Molybdenum (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.073 | 0.010 | 0.072 | 0.054 | 0.091 |
| Nickel (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.61 | 0.066 | 0.58 | 0.55 | 0.71 |
| Selenium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.040 | 0.040 | 0.040 |
| Silicon (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 203 | 33.0 | 192 | 169 | 252 |
| Silver (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 43.1 | 2.9 | 41.9 | 38.9 | 52 |
| Sulfur (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1,335 | 131 | 1,310 | 1,180 | 1,580 |
| Thallium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (D) | ug/L | - | - | - | - | - | 15 | 7 | 46.7 | 0.039 | 0.059 | 0.022 | 0.020 | 0.24 |
| Titanium (D) | ug/L | - | - | - | - | - | 15 | 13 | 87 | - | - | 0.050 | 0.050 | 0.071 |
| Uranium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.013 | 0.0014 | 0.013 | 0.011 | 0.015 |
| Vanadium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (D) | ug/L | 24 \| 40 | 5.6 \| 9.6 | - | - | - | 15 | 5 | 33.3 | 0.62 | 0.38 | 0.59 | 0.50 | 1.7 |
| Zirconium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Other** | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | 0.0050 | - | - | - | 15 | 15 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (Total) | mg/L | - | - | 0.20 | - | - | 15 | 15 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (WAD) | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Radium-226 | Bq/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0078 | 0.0056 | 0.0089 |

Table 5-3. Meliadine Lake water quality summary statistics, open water sampling events, 2019.

Notes

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | Screening Criteria [a] | | | | | Mid-Field Area (MEL-02) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME Aquatic Life [b] | | Health Canada | | SSWQO | Summary Statistics [c] Open Water Sampling | | | | | | | |
| | | Acute | Chronic | GCDWQ | Aesthetic Objective | | N | N<MDL | % <MDL | Mean | SD | Median | Min | Max |
| **Field Measurements** | | | | | | | | | | | | | | |
| Temperature | °C | - | - | - | 15.0 | - | 13 | 0 | 0 | 9.0 | 2.8 | 7.3 | 6.5 | 12.4 |
| Sp. Conductivity (field) | uS/cm | - | - | - | - | - | 13 | 0 | 0 | 77 | 1.8 | 78 | 74 | 79 |
| pH (field) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 13 | 0 | 0 | 7.4 | 0.12 | 7.4 | 7.1 | 7.5 |
| DO (mg/L) | mg/L | - | 6.5 | - | - | - | 13 | 0 | 0 | 12.1 | 0.97 | 12.1 | 11.0 | 13.3 |
| DO (%) | % | - | - | - | - | - | 13 | 0 | 0 | 105 | 4.1 | 105 | 100 | 111 |
| **Conventional Parameters** | | | | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | - | - | - | - | - | 15 | 0 | 0 | 80 | 9.6 | 77 | 76 | 114 |
| Hardness | mg/L | - | - | - | - | - | 15 | 0 | 0 | 23.2 | 3.0 | 22.6 | 21.5 | 33.8 |
| pH (lab) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 15 | 0 | 0 | 7.3 | 0.10 | 7.3 | 7.2 | 7.5 |
| Total Dissolved Solids | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 49.9 | 6.1 | 49.0 | 45.0 | 71 |
| TDS (Calculated) | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 42.1 | 8.8 | 39.5 | 38.0 | 73 |
| Total Suspended Solids | mg/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 1.0 | 1.0 | 2.9 |
| Turbidity (lab) | NTU | - | - | - | - | - | 15 | 0 | 0 | 0.32 | 0.047 | 0.32 | 0.24 | 0.43 |
| **Major Ions** | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | mg/L | - | - | - | - | - | 15 | 0 | 0 | 22.8 | 2.4 | 24.4 | 19.5 | 25.3 |
| Alkalinity, Carbonate | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.60 | 0.60 | 0.60 |
| Alkalinity, Hydroxide | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.34 | 0.34 | 0.34 |
| Alkalinity, Total | mg/L | - | - | - | - | - | 15 | 0 | 0 | 18.7 | 2.0 | 20.0 | 16.0 | 20.7 |
| Calcium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 7.2 | 0.32 | 7.3 | 6.3 | 7.5 |
| Chloride | mg/L | 640 | 120 | - | 250 | - | 15 | 0 | 0 | 10.9 | 2.5 | 10.2 | 9.9 | 19.8 |
| Fluoride | mg/L | - | 0.12 | 1.5 | - | 2.8 | 15 | 0 | 0 | 0.027 | 0.0012 | 0.027 | 0.025 | 0.028 |
| Magnesium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 1.3 | 0.27 | 1.2 | 1.2 | 2.3 |
| Potassium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.98 | 0.091 | 0.94 | 0.91 | 1.3 |
| Sodium (T) | mg/L | - | - | - | 200 | - | 15 | 0 | 0 | 5.7 | 2.3 | 5.0 | 4.7 | 13.7 |
| Sulphate | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 4.1 | 0.35 | 4.1 | 3.9 | 5.3 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | - | 0.14 | - | - | - | 10 | 1 | 10.0 | 0.016 | 0.012 | 0.012 | 0.0050 | 0.038 |
| Nitrate (as N) | mg/L | 124 | 2.9 | 10.0 | - | - | 15 | 10 | 67 | - | - | 0.0050 | 0.0050 | 0.015 |
| Nitrate + Nitrite (as N) | mg/L | - | - | - | - | - | 15 | 11 | 73 | - | - | 0.0051 | 0.0051 | 0.015 |
| Nitrite (as N) | mg/L | - | 0.060 | 1.0 | - | - | 15 | 15 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Total Kjeldahl Nitrogen | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.20 | 0.027 | 0.20 | 0.14 | 0.24 |
| Total Phosphorus | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.0042 | 0.0018 | 0.0035 | 0.0026 | 0.0085 |
| **Organic Carbon** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | - | - | - | - | - | 15 | 0 | 0 | 2.5 | 0.11 | 2.5 | 2.4 | 2.8 |
| Total Organic Carbon | mg/L | - | - | - | - | - | 15 | 0 | 0 | 2.6 | 0.15 | 2.6 | 2.5 | 2.9 |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (T) | ug/L | - | 100 | - | - | - | 15 | 0 | 0 | 3.6 | 0.94 | 3.5 | 2.4 | 5.4 |
| Antimony (T) | ug/L | - | - | 6.0 | - | - | 15 | 15 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (T) | ug/L | - | 5.0 | 10.0 | - | 25.0 | 15 | 0 | 0 | 0.30 | 0.023 | 0.29 | 0.26 | 0.34 |
| Barium (T) | ug/L | - | - | 1,000 | - | - | 15 | 0 | 0 | 8.0 | 0.38 | 8.0 | 7.5 | 8.7 |
| Beryllium (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (T) | ug/L | 29,000 | 1,500 | 5,000 | - | - | 15 | 14 | 93 | - | - | 5.0 | 5.0 | 8.1 |
| Cadmium (T) | ug/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Chromium (T) | ug/L | - | 1.0 | 50.0 | - | - | 15 | 6 | 40.0 | 0.23 | 0.17 | 0.27 | 0.10 | 0.51 |
| Cobalt (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.016 | 0.0037 | 0.015 | 0.011 | 0.023 |
| Copper (T) | ug/L | - | 2.0 | 2,000 | 1,000 | - | 15 | 0 | 0 | 0.92 | 0.36 | 0.74 | 0.64 | 1.9 |
| Iron (T) | ug/L | - | 300 | - | 300 | 1,060 | 15 | 0 | 0 | 20.8 | 7.4 | 17.6 | 12.7 | 36.0 |
| Lead (T) | ug/L | - | 1.0 | 5.0 | - | - | 15 | 6 | 40.0 | 0.015 | 0.011 | 0.012 | 0.010 | 0.036 |
| Lithium (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.85 | 0.047 | 0.84 | 0.75 | 0.92 |
| Manganese (T) | ug/L | - | - | 120 | 20.0 | - | 15 | 0 | 0 | 4.2 | 1.7 | 3.4 | 2.7 | 6.8 |
| Mercury (T) | ug/L | - | 0.026 | 1.0 | - | - | 15 | 8 | 53 | - | - | 0.00050 | 0.00050 | 0.00072 |
| Molybdenum (T) | ug/L | - | 73 | - | - | - | 15 | 0 | 0 | 0.070 | 0.0047 | 0.070 | 0.058 | 0.077 |
| Nickel (T) | ug/L | - | 25.0 | - | - | - | 15 | 0 | 0 | 0.53 | 0.080 | 0.49 | 0.45 | 0.67 |
| Selenium (T) | ug/L | - | 1.0 | 50.0 | - | - | 15 | 8 | 53 | - | - | 0.040 | 0.040 | 0.073 |
| Silicon (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 161 | 17.8 | 163 | 133 | 188 |
| Silver (T) | ug/L | - | 0.25 | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (T) | ug/L | - | - | 7,000 | - | - | 15 | 0 | 0 | 39.6 | 3.3 | 40.9 | 34.2 | 45.5 |
| Sulfur (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1,515 | 173 | 1,480 | 1,330 | 2,020 |
| Thallium (T) | ug/L | - | 0.80 | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (T) | ug/L | - | - | - | - | - | 15 | 7 | 46.7 | 0.063 | 0.11 | 0.022 | 0.020 | 0.37 |
| Titanium (T) | ug/L | - | - | - | - | - | 15 | 3 | 20.0 | 0.15 | 0.090 | 0.13 | 0.075 | 0.39 |
| Uranium (T) | ug/L | 33.0 | 15.0 | 20.0 | - | - | 15 | 0 | 0 | 0.015 | 0.00096 | 0.015 | 0.013 | 0.017 |
| Vanadium (T) | ug/L | - | - | - | - | - | 15 | 11 | 73 | - | - | 0.050 | 0.050 | 0.078 |
| Zinc (T) | ug/L | - | - | - | 5,000 | - | 15 | 5 | 33.3 | 0.86 | 0.82 | 0.52 | 0.50 | 3.2 |
| Zirconium (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1.7 | 0.21 | 1.7 | 1.3 | 2.1 |
| Antimony (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.26 | 0.011 | 0.26 | 0.24 | 0.28 |
| Barium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 7.7 | 0.52 | 7.5 | 7.1 | 8.6 |
| Beryllium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (D) | ug/L | - | - | - | - | - | 15 | 13 | 87 | - | - | 5.0 | 5.0 | 12.2 |
| Cadmium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Chromium (D) | ug/L | - | - | - | - | - | 15 | 6 | 40.0 | 0.22 | 0.15 | 0.23 | 0.10 | 0.48 |
| Cobalt (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.0071 | 0.0019 | 0.0064 | 0.0051 | 0.012 |
| Copper (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.70 | 0.080 | 0.68 | 0.63 | 0.88 |
| Iron (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 7.4 | 3.8 | 5.1 | 4.3 | 16.0 |
| Lead (D) | ug/L | - | - | - | - | - | 15 | 12 | 80 | - | - | 0.010 | 0.010 | 0.076 |
| Lithium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.82 | 0.074 | 0.78 | 0.74 | 1.0 |
| Manganese (D) | ug/L | 1680 \| 2570 | 210 \| 330 | - | - | - | 15 | 0 | 0 | 1.1 | 1.1 | 0.45 | 0.32 | 2.7 |
| Mercury (D) | ug/L | - | - | - | - | - | 15 | 9 | 60 | - | - | 0.00050 | 0.00050 | 0.00086 |
| Molybdenum (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.070 | 0.0066 | 0.071 | 0.059 | 0.082 |
| Nickel (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.51 | 0.077 | 0.46 | 0.44 | 0.63 |
| Selenium (D) | ug/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 0.040 | 0.040 | 0.044 |
| Silicon (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 141 | 16.0 | 139 | 120 | 165 |
| Silver (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 38.0 | 3.5 | 37.1 | 34.5 | 48.8 |
| Sulfur (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1,481 | 418 | 1,390 | 1,190 | 2,930 |
| Thallium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (D) | ug/L | - | - | - | - | - | 15 | 9 | 60 | - | - | 0.020 | 0.020 | 0.11 |
| Titanium (D) | ug/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 0.050 | 0.050 | 0.091 |
| Uranium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.013 | 0.0022 | 0.013 | 0.011 | 0.021 |
| Vanadium (D) | ug/L | - | - | - | - | - | 15 | 12 | 80 | - | - | 0.050 | 0.050 | 0.057 |
| Zinc (D) | ug/L | 24 \| 40 | 5.6 \| 9.6 | - | - | - | 15 | 7 | 46.7 | 0.60 | 0.38 | 0.59 | 0.50 | 1.3 |
| Zirconium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Other** | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | 0.0050 | - | - | - | 15 | 12 | 80 | - | - | 0.0010 | 0.0010 | 0.0012 |
| Cyanide (Total) | mg/L | - | - | 0.20 | - | - | 15 | 12 | 80 | - | - | 0.0010 | 0.0010 | 0.0014 |
| Cyanide (WAD) | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Radium-226 | Bq/L | - | - | - | - | - | - | - | - | - | - | - | - | - |

Table 5-3. Meliadine Lake water quality summary statistics, open water sampling events, 2019.

Notes

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | Screening Criteria [a] | | | | | Pooled Reference Areas | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME Aquatic Life [b] | | Health Canada | | SSWQO | Summary Statistics [c] Open Water Sampling | | | | | | | |
| | | Acute | Chronic | GCDWQ | Aesthetic Objective | | N | N<MDL | % <MDL | Mean | SD | Median | Min | Max |
| **Field Measurements** | | | | | | | | | | | | | | |
| Temperature | °C | - | - | - | 15.0 | - | 25 | 0 | 0 | 10.2 | 2.1 | 11.5 | 7.1 | 12.3 |
| Sp. Conductivity (field) | uS/cm | - | - | - | - | - | 25 | 0 | 0 | 72 | 2.8 | 73 | 68 | 77 |
| pH (field) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 25 | 0 | 0 | 7.4 | 0.13 | 7.4 | 7.2 | 7.7 |
| DO (mg/L) | mg/L | - | 6.5 | - | - | - | 25 | 0 | 0 | 11.5 | 0.61 | 11.2 | 10.9 | 12.6 |
| DO (%) | % | - | - | - | - | - | 25 | 0 | 0 | 103 | 6.5 | 104 | 73 | 108 |
| **Conventional Parameters** | | | | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | - | - | - | - | - | 25 | 0 | 0 | 76 | 8.6 | 73 | 68 | 110 |
| Hardness | mg/L | - | - | - | - | - | 25 | 0 | 0 | 22.0 | 0.93 | 22.0 | 20.9 | 23.8 |
| pH (lab) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 25 | 0 | 0 | 7.4 | 0.11 | 7.5 | 7.3 | 7.6 |
| Total Dissolved Solids | mg/L | - | - | - | 500 | - | 25 | 0 | 0 | 58 | 26.4 | 47.0 | 33.0 | 120 |
| TDS (Calculated) | mg/L | - | - | - | 500 | - | 25 | 0 | 0 | 37.7 | 3.3 | 37.2 | 34.1 | 51 |
| Total Suspended Solids | mg/L | - | - | - | - | - | 25 | 22.0 | 88 | - | - | 1.0 | 1.0 | 2.0 |
| Turbidity (lab) | NTU | - | - | - | - | - | 25 | 0 | 0 | 0.27 | 0.083 | 0.25 | 0.19 | 0.57 |
| **Major Ions** | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | mg/L | - | - | - | - | - | 25 | 0 | 0 | 21.9 | 2.3 | 21.2 | 16.6 | 24.9 |
| Alkalinity, Carbonate | mg/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.60 | 0.60 | 0.60 |
| Alkalinity, Hydroxide | mg/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.34 | 0.34 | 0.34 |
| Alkalinity, Total | mg/L | - | - | - | - | - | 25 | 0 | 0 | 17.9 | 1.9 | 17.4 | 13.6 | 20.4 |
| Calcium (T) | mg/L | - | - | - | - | - | 25 | 0 | 0 | 6.9 | 0.29 | 6.9 | 6.3 | 7.4 |
| Chloride | mg/L | 640 | 120 | - | 250 | - | 25 | 0 | 0 | 9.2 | 2.1 | 8.7 | 8.1 | 18.8 |
| Fluoride | mg/L | - | 0.12 | 1.5 | - | 2.8 | 25 | 0 | 0 | 0.026 | 0.0011 | 0.027 | 0.024 | 0.029 |
| Magnesium (T) | mg/L | - | - | - | - | - | 25 | 0 | 0 | 1.1 | 0.13 | 1.1 | 1.0 | 1.7 |
| Potassium (T) | mg/L | - | - | - | - | - | 25 | 0 | 0 | 0.92 | 0.043 | 0.92 | 0.88 | 1.1 |
| Sodium (T) | mg/L | - | - | - | 200 | - | 25 | 0 | 0 | 4.8 | 1.1 | 4.5 | 4.3 | 9.6 |
| Sulphate | mg/L | - | - | - | 500 | - | 25 | 0 | 0 | 3.7 | 0.32 | 3.6 | 3.1 | 5.0 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | - | 0.14 | - | - | - | 25 | 6.0 | 24.0 | 0.010 | 0.0062 | 0.0092 | 0.0050 | 0.021 |
| Nitrate (as N) | mg/L | 124 | 2.9 | 10.0 | - | - | 25 | 9.0 | 36.0 | 0.047 | 0.13 | 0.012 | 0.0050 | 0.63 |
| Nitrate + Nitrite (as N) | mg/L | - | - | - | - | - | 25 | 9.0 | 36.0 | 0.047 | 0.13 | 0.012 | 0.0051 | 0.63 |
| Nitrite (as N) | mg/L | - | 0.060 | 1.0 | - | - | 25 | 25.0 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Total Kjeldahl Nitrogen | mg/L | - | - | - | - | - | 25 | 0 | 0 | 0.18 | 0.051 | 0.17 | 0.13 | 0.39 |
| Total Phosphorus | mg/L | - | - | - | - | - | 24 | 0 | 0 | 0.0030 | 0.0015 | 0.0026 | 0.0017 | 0.0083 |
| **Organic Carbon** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | - | - | - | - | - | 25 | 0 | 0 | 2.2 | 0.24 | 2.2 | 1.6 | 2.8 |
| Total Organic Carbon | mg/L | - | - | - | - | - | 25 | 0 | 0 | 2.4 | 0.34 | 2.3 | 1.9 | 3.5 |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (T) | ug/L | - | 100 | - | - | - | 25 | 0 | 0 | 4.6 | 2.4 | 3.8 | 2.7 | 14.7 |
| Antimony (T) | ug/L | - | - | 6.0 | - | - | 25 | 25.0 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (T) | ug/L | - | 5.0 | 10.0 | - | 25.0 | 25 | 0 | 0 | 0.23 | 0.019 | 0.23 | 0.19 | 0.27 |
| Barium (T) | ug/L | - | - | 1,000 | - | - | 25 | 0 | 0 | 7.5 | 0.43 | 7.4 | 6.9 | 8.5 |
| Beryllium (T) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (T) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (T) | ug/L | 29,000 | 1,500 | 5,000 | - | - | 25 | 24.0 | 96 | - | - | 5.0 | 5.0 | 6.7 |
| Cadmium (T) | ug/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | - | - | 25 | 24.0 | 96 | - | - | 0.0050 | 0.0050 | 0.0074 |
| Chromium (T) | ug/L | - | 1.0 | 50.0 | - | - | 25 | 18.0 | 72 | - | - | 0.10 | 0.10 | 0.55 |
| Cobalt (T) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 0.014 | 0.0023 | 0.013 | 0.0099 | 0.020 |
| Copper (T) | ug/L | - | 2.0 | 2,000 | 1,000 | - | 25 | 0 | 0 | 0.89 | 0.45 | 0.71 | 0.62 | 2.4 |
| Iron (T) | ug/L | - | 300 | - | 300 | 1,060 | 25 | 0 | 0 | 13.8 | 3.4 | 13.3 | 9.7 | 27.3 |
| Lead (T) | ug/L | - | 1.0 | 5.0 | - | - | 25 | 4.0 | 16.0 | 0.027 | 0.060 | 0.015 | 0.010 | 0.31 |
| Lithium (T) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 0.64 | 0.046 | 0.63 | 0.58 | 0.79 |
| Manganese (T) | ug/L | - | - | 120 | 20.0 | - | 25 | 0 | 0 | 2.7 | 0.33 | 2.8 | 2.0 | 3.2 |
| Mercury (T) | ug/L | - | 0.026 | 1.0 | - | - | 25 | 14.0 | 56 | - | - | 0.00050 | 0.00050 | 0.0040 |
| Molybdenum (T) | ug/L | - | 73 | - | - | - | 25 | 0 | 0 | 0.072 | 0.010 | 0.069 | 0.058 | 0.10 |
| Nickel (T) | ug/L | - | 25.0 | - | - | - | 25 | 0 | 0 | 0.38 | 0.019 | 0.38 | 0.36 | 0.42 |
| Selenium (T) | ug/L | - | 1.0 | 50.0 | - | - | 25 | 17.0 | 68 | - | - | 0.040 | 0.040 | 0.064 |
| Silicon (T) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 118 | 8.3 | 117 | 98 | 142 |
| Silver (T) | ug/L | - | 0.25 | - | - | - | 25 | 24.0 | 96 | - | - | 0.0050 | 0.0050 | 0.0069 |
| Strontium (T) | ug/L | - | - | 7,000 | - | - | 25 | 0 | 0 | 33.8 | 1.3 | 33.8 | 30.1 | 36.5 |
| Sulfur (T) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 1,269 | 160 | 1,240 | 990 | 1,670 |
| Thallium (T) | ug/L | - | 0.80 | - | - | - | 25 | 25.0 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (T) | ug/L | - | - | - | - | - | 25 | 9.0 | 36.0 | 0.031 | 0.021 | 0.028 | 0.020 | 0.078 |
| Titanium (T) | ug/L | - | - | - | - | - | 25 | 6.0 | 24.0 | 0.17 | 0.21 | 0.15 | 0.074 | 1.2 |
| Uranium (T) | ug/L | 33.0 | 15.0 | 20.0 | - | - | 25 | 0 | 0 | 0.015 | 0.0015 | 0.015 | 0.012 | 0.018 |
| Vanadium (T) | ug/L | - | - | - | - | - | 25 | 24.0 | 96 | - | - | 0.050 | 0.050 | 0.079 |
| Zinc (T) | ug/L | - | - | - | 5,000 | - | 25 | 7.0 | 28.0 | 0.82 | 0.68 | 0.67 | 0.50 | 3.3 |
| Zirconium (T) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 2.2 | 0.83 | 2.0 | 1.4 | 4.6 |
| Antimony (D) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 0.21 | 0.025 | 0.21 | 0.17 | 0.28 |
| Barium (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 7.3 | 0.40 | 7.3 | 6.7 | 8.6 |
| Beryllium (D) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (D) | ug/L | - | - | - | - | - | 25 | 24.0 | 96 | - | - | 0.0050 | 0.0050 | 0.012 |
| Boron (D) | ug/L | - | - | - | - | - | 25 | 23.0 | 92 | - | - | 5.0 | 5.0 | 5.6 |
| Cadmium (D) | ug/L | - | - | - | - | - | 25 | 24.0 | 96 | - | - | 0.0050 | 0.0050 | 0.0052 |
| Chromium (D) | ug/L | - | - | - | - | - | 25 | 12.0 | 48.0 | 0.19 | 0.17 | 0.16 | 0.10 | 0.49 |
| Cobalt (D) | ug/L | - | - | - | - | - | 25 | 7.0 | 28.0 | 0.0055 | 0.0024 | 0.0055 | 0.0050 | 0.0099 |
| Copper (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 0.71 | 0.11 | 0.67 | 0.60 | 1.1 |
| Iron (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 4.1 | 1.3 | 3.8 | 2.7 | 8.3 |
| Lead (D) | ug/L | - | - | - | - | - | 25 | 22.0 | 88 | - | - | 0.010 | 0.010 | 0.12 |
| Lithium (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 0.64 | 0.040 | 0.63 | 0.59 | 0.75 |
| Manganese (D) | ug/L | 1680 \| 2570 | 210 \| 330 | - | - | - | 25 | 0 | 0 | 0.65 | 0.46 | 0.48 | 0.24 | 1.6 |
| Mercury (D) | ug/L | - | - | - | - | - | 25 | 22.0 | 88 | - | - | 0.00050 | 0.00050 | 0.00062 |
| Molybdenum (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 0.080 | 0.020 | 0.077 | 0.065 | 0.15 |
| Nickel (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 0.38 | 0.028 | 0.37 | 0.33 | 0.44 |
| Selenium (D) | ug/L | - | - | - | - | - | 25 | 21.0 | 84 | - | - | 0.040 | 0.040 | 0.046 |
| Silicon (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 109 | 6.2 | 109 | 100 | 134 |
| Silver (D) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 34.0 | 2.1 | 33.3 | 31.3 | 38.6 |
| Sulfur (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 1,252 | 129 | 1,220 | 1,080 | 1,640 |
| Thallium (D) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (D) | ug/L | - | - | - | - | - | 25 | 11.0 | 44.0 | 0.025 | 0.019 | 0.025 | 0.020 | 0.080 |
| Titanium (D) | ug/L | - | - | - | - | - | 25 | 21.0 | 84 | - | - | 0.050 | 0.050 | 0.077 |
| Uranium (D) | ug/L | - | - | - | - | - | 25 | 0 | 0 | 0.014 | 0.00094 | 0.014 | 0.012 | 0.015 |
| Vanadium (D) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (D) | ug/L | 24 \| 40 | 5.6 \| 9.6 | - | - | - | 25 | 6.0 | 24.0 | 0.75 | 0.57 | 0.59 | 0.50 | 2.8 |
| Zirconium (D) | ug/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Other** | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | 0.0050 | - | - | - | 25 | 23.0 | 92 | - | - | 0.0010 | 0.0010 | 0.0011 |
| Cyanide (Total) | mg/L | - | - | 0.20 | - | - | 25 | 23.0 | 92 | - | - | 0.0010 | 0.0010 | 0.0012 |
| Cyanide (WAD) | mg/L | - | - | - | - | - | 25 | 25.0 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Radium-226 | Bq/L | - | - | - | - | - | 15 | 13.0 | 87 | - | - | 0.0072 | 0.0048 | 0.0092 |

Table 5-3. Meliadine Lake water quality summary statistics, open water sampling events, 2019.

Notes

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | Screening Criteria [a] | | | | | Reference Area 1 (MEL-03) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME Aquatic Life [b] | | Health Canada | | SSWQO | Summary Statistics [c] Open Water Sampling | | | | | | | |
| | | Acute | Chronic | GCDWQ | Aesthetic Objective | | N | N<MDL | % <MDL | Mean | SD | Median | Min | Max |
| **Field Measurements** | | | | | | | | | | | | | | |
| Temperature | °C | - | - | - | 15.0 | - | 15 | 0 | 0 | 9.2 | 2.1 | 7.8 | 7.1 | 12.3 |
| Sp. Conductivity (field) | uS/cm | - | - | - | - | - | 15 | 0 | 0 | 71 | 2.6 | 73 | 68 | 73 |
| pH (field) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 15 | 0 | 0 | 7.4 | 0.025 | 7.4 | 7.2 | 7.6 |
| DO (mg/L) | mg/L | - | 6.5 | - | - | - | 15 | 0 | 0 | 11.8 | 0.65 | 12.0 | 10.9 | 12.6 |
| DO (%) | % | - | - | - | - | - | 15 | 0 | 0 | 101 | 8.3 | 103 | 73 | 108 |
| **Conventional Parameters** | | | | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | - | - | - | - | - | 15 | 0 | 0 | 75 | 10.8 | 73 | 68 | 110 |
| Hardness | mg/L | - | - | - | - | - | 15 | 0 | 0 | 21.7 | 0.84 | 21.3 | 20.9 | 23.8 |
| pH (lab) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 15 | 0 | 0 | 7.4 | 0.073 | 7.4 | 7.3 | 7.5 |
| Total Dissolved Solids | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 64 | 32.5 | 44.0 | 39.0 | 120 |
| TDS (Calculated) | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 37.5 | 4.2 | 36.7 | 34.1 | 51 |
| Total Suspended Solids | mg/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 1.0 | 1.0 | 1.0 |
| Turbidity (lab) | NTU | - | - | - | - | - | 15 | 0 | 0 | 0.24 | 0.029 | 0.23 | 0.19 | 0.29 |
| **Major Ions** | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | mg/L | - | - | - | - | - | 15 | 0 | 0 | 21.0 | 2.4 | 20.5 | 16.6 | 24.4 |
| Alkalinity, Carbonate | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.60 | 0.60 | 0.60 |
| Alkalinity, Hydroxide | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.34 | 0.34 | 0.34 |
| Alkalinity, Total | mg/L | - | - | - | - | - | 15 | 0 | 0 | 17.2 | 1.9 | 16.8 | 13.6 | 20.0 |
| Calcium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 6.8 | 0.24 | 6.8 | 6.3 | 7.2 |
| Chloride | mg/L | 640 | 120 | - | 250 | - | 15 | 0 | 0 | 9.4 | 2.7 | 8.6 | 8.1 | 18.8 |
| Fluoride | mg/L | - | 0.12 | 1.5 | - | 2.8 | 15 | 0 | 0 | 0.026 | 0.00086 | 0.026 | 0.025 | 0.027 |
| Magnesium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 1.2 | 0.16 | 1.1 | 1.1 | 1.7 |
| Potassium (T) | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.93 | 0.052 | 0.92 | 0.88 | 1.1 |
| Sodium (T) | mg/L | - | - | - | 200 | - | 15 | 0 | 0 | 5.0 | 1.4 | 4.5 | 4.3 | 9.6 |
| Sulphate | mg/L | - | - | - | 500 | - | 15 | 0 | 0 | 3.7 | 0.40 | 3.6 | 3.1 | 5.0 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | - | 0.14 | - | - | - | 15 | 4 | 26.7 | 0.011 | 0.0065 | 0.011 | 0.0050 | 0.021 |
| Nitrate (as N) | mg/L | 124 | 2.9 | 10.0 | - | - | 15 | 8 | 53 | - | - | 0.0050 | 0.0050 | 0.63 |
| Nitrate + Nitrite (as N) | mg/L | - | - | - | - | - | 15 | 8 | 53 | - | - | 0.0051 | 0.0051 | 0.63 |
| Nitrite (as N) | mg/L | - | 0.060 | 1.0 | - | - | 15 | 15 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Total Kjeldahl Nitrogen | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.17 | 0.022 | 0.17 | 0.13 | 0.19 |
| Total Phosphorus | mg/L | - | - | - | - | - | 15 | 0 | 0 | 0.0032 | 0.0018 | 0.0025 | 0.0019 | 0.0083 |
| **Organic Carbon** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | - | - | - | - | - | 15 | 0 | 0 | 2.2 | 0.31 | 2.1 | 1.6 | 2.8 |
| Total Organic Carbon | mg/L | - | - | - | - | - | 15 | 0 | 0 | 2.3 | 0.37 | 2.3 | 1.9 | 3.5 |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (T) | ug/L | - | 100 | - | - | - | 15 | 0 | 0 | 4.8 | 2.9 | 3.9 | 2.7 | 14.7 |
| Antimony (T) | ug/L | - | - | 6.0 | - | - | 15 | 15 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (T) | ug/L | - | 5.0 | 10.0 | - | 25.0 | 15 | 0 | 0 | 0.22 | 0.014 | 0.23 | 0.19 | 0.24 |
| Barium (T) | ug/L | - | - | 1,000 | - | - | 15 | 0 | 0 | 7.3 | 0.23 | 7.3 | 6.9 | 7.8 |
| Beryllium (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (T) | ug/L | 29,000 | 1,500 | 5,000 | - | - | 15 | 14 | 93 | - | - | 5.0 | 5.0 | 6.7 |
| Cadmium (T) | ug/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Chromium (T) | ug/L | - | 1.0 | 50.0 | - | - | 15 | 9 | 60 | - | - | 0.10 | 0.10 | 0.48 |
| Cobalt (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.013 | 0.0018 | 0.013 | 0.0099 | 0.017 |
| Copper (T) | ug/L | - | 2.0 | 2,000 | 1,000 | - | 15 | 0 | 0 | 0.98 | 0.56 | 0.67 | 0.62 | 2.4 |
| Iron (T) | ug/L | - | 300 | - | 300 | 1,060 | 15 | 0 | 0 | 13.9 | 4.1 | 12.7 | 9.7 | 27.3 |
| Lead (T) | ug/L | - | 1.0 | 5.0 | - | - | 15 | 3 | 20.0 | 0.032 | 0.078 | 0.012 | 0.010 | 0.31 |
| Lithium (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.65 | 0.056 | 0.64 | 0.58 | 0.79 |
| Manganese (T) | ug/L | - | - | 120 | 20.0 | - | 15 | 0 | 0 | 2.5 | 0.34 | 2.7 | 2.0 | 3.1 |
| Mercury (T) | ug/L | - | 0.026 | 1.0 | - | - | 15 | 12 | 80 | - | - | 0.00050 | 0.00050 | 0.00088 |
| Molybdenum (T) | ug/L | - | 73 | - | - | - | 15 | 0 | 0 | 0.070 | 0.0091 | 0.069 | 0.058 | 0.088 |
| Nickel (T) | ug/L | - | 25.0 | - | - | - | 15 | 0 | 0 | 0.39 | 0.021 | 0.38 | 0.36 | 0.42 |
| Selenium (T) | ug/L | - | 1.0 | 50.0 | - | - | 15 | 12 | 80 | - | - | 0.040 | 0.040 | 0.052 |
| Silicon (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 117 | 10.2 | 117 | 98 | 142 |
| Silver (T) | ug/L | - | 0.25 | - | - | - | 15 | 14 | 93 | - | - | 0.0050 | 0.0050 | 0.0069 |
| Strontium (T) | ug/L | - | - | 7,000 | - | - | 15 | 0 | 0 | 33.7 | 1.7 | 33.8 | 30.1 | 36.5 |
| Sulfur (T) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1,299 | 194 | 1,300 | 990 | 1,670 |
| Thallium (T) | ug/L | - | 0.80 | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (T) | ug/L | - | - | - | - | - | 15 | 5 | 33.3 | 0.029 | 0.017 | 0.028 | 0.020 | 0.062 |
| Titanium (T) | ug/L | - | - | - | - | - | 15 | 3 | 20.0 | 0.19 | 0.27 | 0.15 | 0.074 | 1.2 |
| Uranium (T) | ug/L | 33.0 | 15.0 | 20.0 | - | - | 15 | 0 | 0 | 0.016 | 0.0014 | 0.015 | 0.014 | 0.018 |
| Vanadium (T) | ug/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 0.050 | 0.050 | 0.079 |
| Zinc (T) | ug/L | - | - | - | 5,000 | - | 15 | 7 | 46.7 | 0.50 | 0.27 | 0.50 | 0.50 | 0.97 |
| Zirconium (T) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 2.3 | 0.89 | 2.1 | 1.4 | 4.6 |
| Antimony (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.20 | 0.017 | 0.20 | 0.17 | 0.24 |
| Barium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 7.1 | 0.22 | 7.1 | 6.7 | 7.4 |
| Beryllium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (D) | ug/L | - | - | - | - | - | 15 | 13 | 87 | - | - | 5.0 | 5.0 | 5.6 |
| Cadmium (D) | ug/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 0.0050 | 0.0050 | 0.0052 |
| Chromium (D) | ug/L | - | - | - | - | - | 15 | 5 | 33.3 | 0.26 | 0.18 | 0.24 | 0.10 | 0.49 |
| Cobalt (D) | ug/L | - | - | - | - | - | 15 | 3 | 20.0 | 0.0060 | 0.0023 | 0.0059 | 0.0050 | 0.0099 |
| Copper (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.74 | 0.13 | 0.69 | 0.61 | 1.1 |
| Iron (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 4.6 | 1.4 | 4.0 | 3.0 | 8.3 |
| Lead (D) | ug/L | - | - | - | - | - | 15 | 13 | 87 | - | - | 0.010 | 0.010 | 0.015 |
| Lithium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.64 | 0.050 | 0.61 | 0.59 | 0.75 |
| Manganese (D) | ug/L | 1680 \| 2570 | 210 \| 330 | - | - | - | 15 | 0 | 0 | 0.78 | 0.56 | 0.51 | 0.24 | 1.6 |
| Mercury (D) | ug/L | - | - | - | - | - | 15 | 14 | 93 | - | - | 0.00050 | 0.00050 | 0.00062 |
| Molybdenum (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.080 | 0.020 | 0.078 | 0.066 | 0.15 |
| Nickel (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.38 | 0.035 | 0.38 | 0.33 | 0.44 |
| Selenium (D) | ug/L | - | - | - | - | - | 15 | 12 | 80 | - | - | 0.040 | 0.040 | 0.046 |
| Silicon (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 109 | 2.3 | 109 | 104 | 113 |
| Silver (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 34.7 | 2.4 | 35.5 | 31.3 | 38.6 |
| Sulfur (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 1,251 | 165 | 1,200 | 1,080 | 1,640 |
| Thallium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (D) | ug/L | - | - | - | - | - | 15 | 5 | 33.3 | 0.028 | 0.020 | 0.026 | 0.020 | 0.080 |
| Titanium (D) | ug/L | - | - | - | - | - | 15 | 11 | 73 | - | - | 0.050 | 0.050 | 0.077 |
| Uranium (D) | ug/L | - | - | - | - | - | 15 | 0 | 0 | 0.014 | 0.00092 | 0.014 | 0.013 | 0.015 |
| Vanadium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (D) | ug/L | 24 \| 40 | 5.6 \| 9.6 | - | - | - | 15 | 4 | 26.7 | 0.74 | 0.63 | 0.56 | 0.50 | 2.8 |
| Zirconium (D) | ug/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Other** | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | 0.0050 | - | - | - | 15 | 15 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (Total) | mg/L | - | - | 0.20 | - | - | 15 | 14 | 93 | - | - | 0.0010 | 0.0010 | 0.0012 |
| Cyanide (WAD) | mg/L | - | - | - | - | - | 15 | 15 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Radium-226 | Bq/L | - | - | - | - | - | 15 | 13 | 87 | - | - | 0.0072 | 0.0048 | 0.0092 |

Table 5-3. Meliadine Lake water quality summary statistics, open water sampling events, 2019.

Notes

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | Screening Criteria [a] | | | | | Reference Area 2 (MEL-04) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME Aquatic Life [b] | | Health Canada | | SSWQO | Summary Statistics [c] Open Water Sampling | | | | | | | |
| | | Acute | Chronic | GCDWQ | Aesthetic Objective | | N | N<MDL | % <MDL | Mean | SD | Median | Min | Max |
| **Field Measurements** | | | | | | | | | | | | | | |
| Temperature | °C | - | - | - | 15.0 | - | 5 | 0 | 0 | 11.5 | 0.051 | 11.5 | 11.4 | 11.6 |
| Sp. Conductivity (field) | uS/cm | - | - | - | - | - | 5 | 0 | 0 | 71 | 0.055 | 71 | 71 | 72 |
| pH (field) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 5 | 0 | 0 | 7.3 | 0.031 | 7.3 | 7.3 | 7.3 |
| DO (mg/L) | mg/L | - | 6.5 | - | - | - | 5 | 0 | 0 | 11.2 | 0.052 | 11.2 | 11.2 | 11.3 |
| DO (%) | % | - | - | - | - | - | 5 | 0 | 0 | 105 | 0.54 | 105 | 104 | 106 |
| **Conventional Parameters** | | | | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | - | - | - | - | - | 5 | 0 | 0 | 75 | 5.2 | 73 | 72 | 84 |
| Hardness | mg/L | - | - | - | - | - | 5 | 0 | 0 | 21.9 | 0.36 | 22.1 | 21.3 | 22.2 |
| pH (lab) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 5 | 0 | 0 | 7.5 | 0.018 | 7.5 | 7.4 | 7.5 |
| Total Dissolved Solids | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 47.6 | 7.2 | 48.0 | 36.0 | 55 |
| TDS (Calculated) | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 37.1 | 1.2 | 36.4 | 36.1 | 38.8 |
| Total Suspended Solids | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 1.0 | 1.0 | 1.0 |
| Turbidity (lab) | NTU | - | - | - | - | - | 5 | 0 | 0 | 0.26 | 0.033 | 0.27 | 0.21 | 0.29 |
| **Major Ions** | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | mg/L | - | - | - | - | - | 5 | 0 | 0 | 22.3 | 1.8 | 21.1 | 21.0 | 24.4 |
| Alkalinity, Carbonate | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.60 | 0.60 | 0.60 |
| Alkalinity, Hydroxide | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.34 | 0.34 | 0.34 |
| Alkalinity, Total | mg/L | - | - | - | - | - | 5 | 0 | 0 | 18.3 | 1.5 | 17.3 | 17.2 | 20.0 |
| Calcium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 6.9 | 0.12 | 6.9 | 6.8 | 7.1 |
| Chloride | mg/L | 640 | 120 | - | 250 | - | 5 | 0 | 0 | 8.9 | 0.26 | 8.8 | 8.7 | 9.3 |
| Fluoride | mg/L | - | 0.12 | 1.5 | - | 2.8 | 5 | 0 | 0 | 0.026 | 0.0014 | 0.027 | 0.024 | 0.027 |
| Magnesium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 1.1 | 0.022 | 1.1 | 1.0 | 1.1 |
| Potassium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.90 | 0.011 | 0.90 | 0.88 | 0.91 |
| Sodium (T) | mg/L | - | - | - | 200 | - | 5 | 0 | 0 | 4.5 | 0.16 | 4.4 | 4.3 | 4.7 |
| Sulphate | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 3.6 | 0.044 | 3.6 | 3.6 | 3.7 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | - | 0.14 | - | - | - | 5 | 1 | 20.0 | 0.0094 | 0.0069 | 0.0080 | 0.0050 | 0.021 |
| Nitrate (as N) | mg/L | 124 | 2.9 | 10.0 | - | - | 5 | 1 | 20.0 | 0.027 | 0.032 | 0.012 | 0.0050 | 0.079 |
| Nitrate + Nitrite (as N) | mg/L | - | - | - | - | - | 5 | 1 | 20.0 | 0.027 | 0.032 | 0.012 | 0.0051 | 0.079 |
| Nitrite (as N) | mg/L | - | 0.060 | 1.0 | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Total Kjeldahl Nitrogen | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.21 | 0.026 | 0.20 | 0.17 | 0.24 |
| Total Phosphorus | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.0028 | 0.00030 | 0.0027 | 0.0024 | 0.0032 |
| **Organic Carbon** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | - | - | - | - | - | 5 | 0 | 0 | 2.2 | 0.053 | 2.3 | 2.1 | 2.3 |
| Total Organic Carbon | mg/L | - | - | - | - | - | 5 | 0 | 0 | 2.3 | 0.12 | 2.2 | 2.1 | 2.5 |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (T) | ug/L | - | 100 | - | - | - | 5 | 0 | 0 | 4.1 | 0.94 | 3.8 | 3.1 | 5.3 |
| Antimony (T) | ug/L | - | - | 6.0 | - | - | 5 | 5 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (T) | ug/L | - | 5.0 | 10.0 | - | 25.0 | 5 | 0 | 0 | 0.22 | 0.0091 | 0.22 | 0.21 | 0.23 |
| Barium (T) | ug/L | - | - | 1,000 | - | - | 5 | 0 | 0 | 7.7 | 0.54 | 7.6 | 7.1 | 8.5 |
| Beryllium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (T) | ug/L | 29,000 | 1,500 | 5,000 | - | - | 5 | 5 | 100 | - | - | 5.0 | 5.0 | 5.0 |
| Cadmium (T) | ug/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Chromium (T) | ug/L | - | 1.0 | 50.0 | - | - | 5 | 5 | 100 | - | - | 0.10 | 0.10 | 0.10 |
| Cobalt (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.013 | 0.0025 | 0.011 | 0.011 | 0.016 |
| Copper (T) | ug/L | - | 2.0 | 2,000 | 1,000 | - | 5 | 0 | 0 | 0.72 | 0.039 | 0.75 | 0.67 | 0.75 |
| Iron (T) | ug/L | - | 300 | - | 300 | 1,060 | 5 | 0 | 0 | 12.9 | 1.2 | 13.3 | 11.0 | 13.9 |
| Lead (T) | ug/L | - | 1.0 | 5.0 | - | - | 5 | 1 | 20.0 | 0.017 | 0.0072 | 0.021 | 0.010 | 0.022 |
| Lithium (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.64 | 0.0089 | 0.64 | 0.62 | 0.64 |
| Manganese (T) | ug/L | - | - | 120 | 20.0 | - | 5 | 0 | 0 | 2.8 | 0.068 | 2.8 | 2.7 | 2.9 |
| Mercury (T) | ug/L | - | 0.026 | 1.0 | - | - | 5 | 2 | 40.0 | 0.0012 | 0.0016 | 0.00064 | 0.00050 | 0.0040 |
| Molybdenum (T) | ug/L | - | 73 | - | - | - | 5 | 0 | 0 | 0.067 | 0.0027 | 0.067 | 0.063 | 0.070 |
| Nickel (T) | ug/L | - | 25.0 | - | - | - | 5 | 0 | 0 | 0.37 | 0.0073 | 0.37 | 0.37 | 0.38 |
| Selenium (T) | ug/L | - | 1.0 | 50.0 | - | - | 5 | 2 | 40.0 | 0.040 | 0.020 | 0.044 | 0.040 | 0.064 |
| Silicon (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 118 | 5.6 | 117 | 113 | 128 |
| Silver (T) | ug/L | - | 0.25 | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (T) | ug/L | - | - | 7,000 | - | - | 5 | 0 | 0 | 33.3 | 0.37 | 33.6 | 32.8 | 33.6 |
| Sulfur (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 1,190 | 95 | 1,180 | 1,090 | 1,330 |
| Thallium (T) | ug/L | - | 0.80 | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (T) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.020 | 0.020 | 0.054 |
| Titanium (T) | ug/L | - | - | - | - | - | 5 | 2 | 40.0 | 0.12 | 0.043 | 0.15 | 0.093 | 0.25 |
| Uranium (T) | ug/L | 33.0 | 15.0 | 20.0 | - | - | 5 | 0 | 0 | 0.014 | 0.00061 | 0.014 | 0.013 | 0.015 |
| Vanadium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (T) | ug/L | - | - | - | 5,000 | - | 5 | 0 | 0 | 1.2 | 0.58 | 1.3 | 0.53 | 1.8 |
| Zirconium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 2.4 | 0.90 | 2.1 | 1.8 | 4.0 |
| Antimony (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.20 | 0.012 | 0.20 | 0.18 | 0.21 |
| Barium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 7.4 | 0.058 | 7.4 | 7.3 | 7.5 |
| Beryllium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 5.0 | 5.0 | 5.0 |
| Cadmium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Chromium (D) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.10 | 0.10 | 0.24 |
| Cobalt (D) | ug/L | - | - | - | - | - | 5 | 1 | 20.0 | 0.0046 | 0.0012 | 0.0051 | 0.0050 | 0.0055 |
| Copper (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.64 | 0.042 | 0.64 | 0.60 | 0.71 |
| Iron (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 3.0 | 0.19 | 3.0 | 2.7 | 3.2 |
| Lead (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.010 | 0.010 | 0.12 |
| Lithium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.62 | 0.013 | 0.63 | 0.60 | 0.63 |
| Manganese (D) | ug/L | 1680 \| 2570 | 210 \| 330 | - | - | - | 5 | 0 | 0 | 0.51 | 0.085 | 0.46 | 0.45 | 0.65 |
| Mercury (D) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.00050 | 0.00050 | 0.00052 |
| Molybdenum (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.083 | 0.032 | 0.069 | 0.065 | 0.14 |
| Nickel (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.37 | 0.0094 | 0.37 | 0.36 | 0.38 |
| Selenium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.040 | 0.040 | 0.040 |
| Silicon (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 107 | 4.6 | 107 | 100 | 113 |
| Silver (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 32.2 | 0.21 | 32.2 | 32.0 | 32.5 |
| Sulfur (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 1,254 | 44.5 | 1,260 | 1,200 | 1,310 |
| Thallium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (D) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.020 | 0.020 | 0.028 |
| Titanium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Uranium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.013 | 0.00077 | 0.014 | 0.012 | 0.014 |
| Vanadium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (D) | ug/L | 24 \| 40 | 5.6 \| 9.6 | - | - | - | 5 | 2 | 40.0 | 0.59 | 0.34 | 0.65 | 0.50 | 1.0 |
| Zirconium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Other** | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | 0.0050 | - | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (Total) | mg/L | - | - | 0.20 | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (WAD) | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Radium-226 | Bq/L | - | - | - | - | - | - | - | - | - | - | - | - | - |

Table 5-3. Meliadine Lake water quality summary statistics, open water sampling events, 2019.

Notes

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | Screening Criteria [a] | | | | | Reference Area 3 (MEL-05) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CCME Aquatic Life [b] | | Health Canada | | SSWQO | Summary Statistics [c] Open Water Sampling | | | | | | | |
| | | Acute | Chronic | GCDWQ | Aesthetic Objective | | N | N<MDL | % <MDL | Mean | SD | Median | Min | Max |
| **Field Measurements** | | | | | | | | | | | | | | |
| Temperature | °C | - | - | - | 15.0 | - | 5 | 0 | 0 | 12.0 | 0.066 | 12.0 | 11.9 | 12.1 |
| Sp. Conductivity (field) | uS/cm | - | - | - | - | - | 5 | 0 | 0 | 76 | 0.16 | 76 | 76 | 77 |
| pH (field) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 5 | 0 | 0 | 7.6 | 0.037 | 7.6 | 7.6 | 7.7 |
| DO (mg/L) | mg/L | - | 6.5 | - | - | - | 5 | 0 | 0 | 10.9 | 0.022 | 10.9 | 10.9 | 10.9 |
| DO (%) | % | - | - | - | - | - | 5 | 0 | 0 | 104 | 0.19 | 104 | 104 | 105 |
| **Conventional Parameters** | | | | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | - | - | - | - | - | 5 | 0 | 0 | 78 | 1.00 | 78 | 77 | 80 |
| Hardness | mg/L | - | - | - | - | - | 5 | 0 | 0 | 23.3 | 0.12 | 23.3 | 23.1 | 23.4 |
| pH (lab) | pH units | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 5 | 0 | 0 | 7.6 | 0.030 | 7.6 | 7.6 | 7.6 |
| Total Dissolved Solids | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 50 | 9.8 | 54 | 33.0 | 57 |
| TDS (Calculated) | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 38.8 | 0.39 | 38.7 | 38.4 | 39.3 |
| Total Suspended Solids | mg/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 1.1 | 1.0 | 2.0 |
| Turbidity (lab) | NTU | - | - | - | - | - | 5 | 0 | 0 | 0.39 | 0.13 | 0.35 | 0.25 | 0.57 |
| **Major Ions** | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | mg/L | - | - | - | - | - | 5 | 0 | 0 | 24.0 | 0.52 | 23.9 | 23.6 | 24.9 |
| Alkalinity, Carbonate | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.60 | 0.60 | 0.60 |
| Alkalinity, Hydroxide | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.34 | 0.34 | 0.34 |
| Alkalinity, Total | mg/L | - | - | - | - | - | 5 | 0 | 0 | 19.7 | 0.41 | 19.6 | 19.4 | 20.4 |
| Calcium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 7.3 | 0.048 | 7.3 | 7.3 | 7.4 |
| Chloride | mg/L | 640 | 120 | - | 250 | - | 5 | 0 | 0 | 9.0 | 0.085 | 8.9 | 8.9 | 9.1 |
| Fluoride | mg/L | - | 0.12 | 1.5 | - | 2.8 | 5 | 0 | 0 | 0.027 | 0.0012 | 0.027 | 0.026 | 0.029 |
| Magnesium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 1.1 | 0.011 | 1.1 | 1.1 | 1.1 |
| Potassium (T) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.94 | 0.016 | 0.93 | 0.92 | 0.96 |
| Sodium (T) | mg/L | - | - | - | 200 | - | 5 | 0 | 0 | 4.6 | 0.17 | 4.6 | 4.5 | 4.9 |
| Sulphate | mg/L | - | - | - | 500 | - | 5 | 0 | 0 | 3.7 | 0.019 | 3.7 | 3.6 | 3.7 |
| **Nutrients** | | | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | - | 0.14 | - | - | - | 5 | 1 | 20.0 | 0.0088 | 0.0056 | 0.0075 | 0.0050 | 0.017 |
| Nitrate (as N) | mg/L | 124 | 2.9 | 10.0 | - | - | 5 | 0 | 0 | 0.052 | 0.072 | 0.021 | 0.0058 | 0.18 |
| Nitrate + Nitrite (as N) | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.052 | 0.072 | 0.021 | 0.0058 | 0.18 |
| Nitrite (as N) | mg/L | - | 0.060 | 1.0 | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Total Kjeldahl Nitrogen | mg/L | - | - | - | - | - | 5 | 0 | 0 | 0.21 | 0.10 | 0.16 | 0.15 | 0.39 |
| Total Phosphorus | mg/L | - | - | - | - | - | 4 | 0 | 0 | 0.0023 | 0.00074 | 0.0022 | 0.0017 | 0.0033 |
| **Organic Carbon** | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | - | - | - | - | - | 5 | 0 | 0 | 2.3 | 0.065 | 2.3 | 2.2 | 2.4 |
| Total Organic Carbon | mg/L | - | - | - | - | - | 5 | 0 | 0 | 2.5 | 0.39 | 2.3 | 2.3 | 3.2 |
| **Total Metals** | | | | | | | | | | | | | | |
| Aluminum (T) | ug/L | - | 100 | - | - | - | 5 | 0 | 0 | 4.5 | 2.2 | 3.5 | 3.2 | 8.3 |
| Antimony (T) | ug/L | - | - | 6.0 | - | - | 5 | 5 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (T) | ug/L | - | 5.0 | 10.0 | - | 25.0 | 5 | 0 | 0 | 0.26 | 0.014 | 0.26 | 0.23 | 0.27 |
| Barium (T) | ug/L | - | - | 1,000 | - | - | 5 | 0 | 0 | 8.1 | 0.15 | 8.1 | 7.9 | 8.3 |
| Beryllium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Boron (T) | ug/L | 29,000 | 1,500 | 5,000 | - | - | 5 | 5 | 100 | - | - | 5.0 | 5.0 | 5.0 |
| Cadmium (T) | ug/L | 0.43 \| 0.70 | 0.043 \| 0.064 | 5.0 | - | - | 5 | 4 | 80 | - | - | 0.0050 | 0.0050 | 0.0074 |
| Chromium (T) | ug/L | - | 1.0 | 50.0 | - | - | 5 | 4 | 80 | - | - | 0.10 | 0.10 | 0.55 |
| Cobalt (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.016 | 0.0027 | 0.016 | 0.013 | 0.020 |
| Copper (T) | ug/L | - | 2.0 | 2,000 | 1,000 | - | 5 | 0 | 0 | 0.79 | 0.15 | 0.72 | 0.70 | 1.1 |
| Iron (T) | ug/L | - | 300 | - | 300 | 1,060 | 5 | 0 | 0 | 14.6 | 2.8 | 14.1 | 12.0 | 19.3 |
| Lead (T) | ug/L | - | 1.0 | 5.0 | - | - | 5 | 0 | 0 | 0.021 | 0.012 | 0.017 | 0.011 | 0.041 |
| Lithium (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.61 | 0.012 | 0.61 | 0.59 | 0.62 |
| Manganese (T) | ug/L | - | - | 120 | 20.0 | - | 5 | 0 | 0 | 3.0 | 0.12 | 2.9 | 2.9 | 3.2 |
| Mercury (T) | ug/L | - | 0.026 | 1.0 | - | - | 5 | 0 | 0 | 0.00067 | 0.00013 | 0.00064 | 0.00054 | 0.00087 |
| Molybdenum (T) | ug/L | - | 73 | - | - | - | 5 | 0 | 0 | 0.082 | 0.012 | 0.076 | 0.071 | 0.10 |
| Nickel (T) | ug/L | - | 25.0 | - | - | - | 5 | 0 | 0 | 0.38 | 0.019 | 0.37 | 0.37 | 0.41 |
| Selenium (T) | ug/L | - | 1.0 | 50.0 | - | - | 5 | 3 | 60 | - | - | 0.040 | 0.040 | 0.047 |
| Silicon (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 120 | 2.8 | 120 | 117 | 123 |
| Silver (T) | ug/L | - | 0.25 | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (T) | ug/L | - | - | 7,000 | - | - | 5 | 0 | 0 | 34.4 | 0.58 | 34.4 | 33.8 | 35.0 |
| Sulfur (T) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 1,258 | 35.6 | 1,240 | 1,230 | 1,310 |
| Thallium (T) | ug/L | - | 0.80 | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (T) | ug/L | - | - | - | - | - | 5 | 1 | 20.0 | 0.045 | 0.031 | 0.040 | 0.020 | 0.078 |
| Titanium (T) | ug/L | - | - | - | - | - | 5 | 1 | 20.0 | 0.17 | 0.13 | 0.15 | 0.092 | 0.40 |
| Uranium (T) | ug/L | 33.0 | 15.0 | 20.0 | - | - | 5 | 0 | 0 | 0.013 | 0.00075 | 0.013 | 0.012 | 0.014 |
| Vanadium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (T) | ug/L | - | - | - | 5,000 | - | 5 | 0 | 0 | 1.4 | 1.1 | 1.0 | 0.78 | 3.3 |
| Zirconium (T) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Dissolved Metals** | | | | | | | | | | | | | | |
| Aluminum (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 1.6 | 0.055 | 1.6 | 1.6 | 1.7 |
| Antimony (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.020 | 0.020 | 0.020 |
| Arsenic (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.25 | 0.018 | 0.25 | 0.24 | 0.28 |
| Barium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 7.9 | 0.37 | 7.8 | 7.7 | 8.6 |
| Beryllium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Bismuth (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.0050 | 0.0050 | 0.012 |
| Boron (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 5.0 | 5.0 | 5.0 |
| Cadmium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Chromium (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.10 | 0.10 | 0.21 |
| Cobalt (D) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.0050 | 0.0050 | 0.0097 |
| Copper (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.67 | 0.058 | 0.66 | 0.63 | 0.77 |
| Iron (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 3.8 | 0.54 | 3.6 | 3.4 | 4.6 |
| Lead (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| Lithium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.65 | 0.0089 | 0.64 | 0.64 | 0.66 |
| Manganese (D) | ug/L | 1680 \| 2570 | 210 \| 330 | - | - | - | 5 | 0 | 0 | 0.41 | 0.042 | 0.42 | 0.37 | 0.48 |
| Mercury (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.00050 | 0.00050 | 0.00050 |
| Molybdenum (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.076 | 0.0041 | 0.077 | 0.071 | 0.081 |
| Nickel (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.37 | 0.0054 | 0.37 | 0.36 | 0.37 |
| Selenium (D) | ug/L | - | - | - | - | - | 5 | 4 | 80 | - | - | 0.040 | 0.040 | 0.041 |
| Silicon (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 112 | 13.3 | 106 | 102 | 134 |
| Silver (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Strontium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 33.5 | 0.35 | 33.5 | 33.0 | 33.9 |
| Sulfur (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 1,256 | 53 | 1,250 | 1,200 | 1,310 |
| Thallium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0050 | 0.0050 | 0.0050 |
| Tin (D) | ug/L | - | - | - | - | - | 5 | 3 | 60 | - | - | 0.020 | 0.020 | 0.067 |
| Titanium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Uranium (D) | ug/L | - | - | - | - | - | 5 | 0 | 0 | 0.013 | 0.00087 | 0.013 | 0.013 | 0.015 |
| Vanadium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.050 | 0.050 | 0.050 |
| Zinc (D) | ug/L | 24 \| 40 | 5.6 \| 9.6 | - | - | - | 5 | 0 | 0 | 0.96 | 0.59 | 0.82 | 0.51 | 2.0 |
| Zirconium (D) | ug/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.010 | 0.010 | 0.010 |
| **Other** | | | | | | | | | | | | | | |
| Cyanide (free) | mg/L | - | 0.0050 | - | - | - | 5 | 3 | 60 | - | - | 0.0010 | 0.0010 | 0.0011 |
| Cyanide (Total) | mg/L | - | - | 0.20 | - | - | 5 | 4 | 80 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Cyanide (WAD) | mg/L | - | - | - | - | - | 5 | 5 | 100 | - | - | 0.0010 | 0.0010 | 0.0010 |
| Radium-226 | Bq/L | - | - | - | - | - | - | - | - | - | - | - | - | - |

Table 5-4. Near-field and Mid-field water quality from the 2019 winter sampling event compared against FEIS predictions.

Notes

Yellow highlighted cells indicate the median concentration is greater than the predicted concentration at the edge of the mixing zone in MEL-01.

[a] Predictions for the edge of the mixing zone in Meliadine Lake (refer to Appendix 7.4-A of the Meliadine FEIS [Agnico Eagle, 2014]).

[b] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | FEIS Prediction [a] | Near-Field Area (MEL-01) | | | | | Mid-Field Area (MEL-02) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Summary Statistics [b] - Winter Sampling | | | FEIS Screening | | Summary Statistics [b] - Winter Sampling | | | FEIS Screening | |
| | | | N | N<MDL | Median | % > FEIS | # > FEIS | N | N<MDL | Median | % > FEIS | # > FEIS |
| **Conventional Parameters** | | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 68 | 5 | 0 | 81 | 100 | 5 | 5 | 0 | 64 | 40 | 2.0 |
| Total Suspended Solids | mg/L | 31 | 5 | 5 | 1.0 | 0 | 0 | 5 | 5 | 1.0 | 0 | 0 |
| **Major Ions** | | | | | | | | | | | | |
| Chloride | mg/L | 14 | 5 | 0 | 15 | 100 | 5 | 5 | 0 | 13 | 20 | 1.0 |
| Fluoride | mg/L | 0.0084 | 5 | 0 | 0.029 | 100 | 5 | 5 | 0 | 0.034 | 100 | 5.0 |
| Sodium (T) | mg/L | 5.3 | 5 | 0 | 7.2 | 100 | 5 | 5 | 0 | 6.7 | 60 | 3.0 |
| Sulphate | mg/L | 38 | 5 | 0 | 5.4 | 0 | 0 | 5 | 0 | 4.9 | 0 | 0 |
| **Nutrients (mg/L)** | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | 0.54 | 5 | 0 | 0.024 | 0 | 0 | 5 | 0 | 0.022 | 0 | 0 |
| Nitrate (as N) | mg/L | 0.25 | 5 | 0 | 0.012 | 0 | 0 | 5 | 0 | 0.0055 | 100 | 5.0 |
| Nitrite (as N) | mg/L | 0.051 | 5 | 5 | 0.0010 | 0 | 0 | 5 | 4 | 0.0010 | 0 | 0 |
| Total Phosphorus | mg/L | 0.0049 | 5 | 0 | 0.0038 | 40 | 2 | 5 | 0 | 0.0049 | 40 | 2.0 |
| **Total Metals (µg/L)** | | | | | | | | | | | | |
| Aluminum (T) | ug/L | 9.1 | 5 | 0 | 1.9 | 0 | 0 | 5 | 0 | 1.8 | 0 | 0 |
| Antimony (T) | ug/L | 0.51 | 5 | 4 | 0.020 | 0 | 0 | 5 | 5 | 0.020 | 0 | 0 |
| Arsenic (T) | ug/L | 3.8 | 5 | 0 | 0.42 | 0 | 0 | 5 | 0 | 0.28 | 0 | 0 |
| Barium (T) | ug/L | 77 | 5 | 0 | 10 | 0 | 0 | 5 | 0 | 11 | 0 | 0 |
| Boron (T) | ug/L | 23 | 5 | 0 | 6.0 | 0 | 0 | 5 | 0 | 4.8 | 0 | 0 |
| Cadmium (T) | ug/L | 0.050 | 5 | 4 | 0.0050 | 0 | 0 | 5 | 5 | 0.0050 | 0 | 0 |
| Chromium (T) | ug/L | 1.1 | 5 | 3 | 0.060 | 0 | 0 | 5 | 4 | 0.060 | 0 | 0 |
| Copper (T) | ug/L | 2.0 | 5 | 0 | 0.86 | 0 | 0 | 5 | 0 | 0.81 | 0 | 0 |
| Iron (T) | ug/L | 42 | 5 | 0 | 5.3 | 0 | 0 | 5 | 0 | 4.7 | 0 | 0 |
| Lead (T) | ug/L | 0.15 | 5 | 0 | 0.11 | 20 | 1 | 5 | 0 | 0.032 | 0 | 0 |
| Manganese (T) | ug/L | 5.5 | 5 | 0 | 1.9 | 0 | 0 | 5 | 0 | 0.76 | 0 | 0 |
| Mercury (T) | ug/L | 0.020 | 5 | 4 | 0.00050 | 0 | 0 | 5 | 4 | 0.00050 | 0 | 0 |
| Molybdenum (T) | ug/L | 5.2 | 5 | 0 | 0.11 | 0 | 0 | 5 | 1 | 0.081 | 0 | 0 |
| Nickel (T) | ug/L | 2.7 | 5 | 0 | 0.70 | 0 | 0 | 5 | 0 | 0.53 | 0 | 0 |

Table 5-4. Near-field and Mid-field water quality from the 2019 winter sampling event compared against FEIS predictions.

| Parameter | Units | FEIS Prediction [a] | Near-Field Area (MEL-01) | | | | | Mid-Field Area (MEL-02) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Summary Statistics [b] - Winter Sampling | | | FEIS Screening | | Summary Statistics [b] - Winter Sampling | | | FEIS Screening | |
| | | | N | N<MDL | Median | % > FEIS | # > FEIS | N | N<MDL | Median | % > FEIS | # > FEIS |
| Phosphorus (T) | ug/L | 0.0049 | - | - | - | - | - | - | - | - | - | - |
| Selenium (T) | ug/L | 0.16 | 5 | 2 | 0.040 | 0 | 0 | 5 | 5 | 0.040 | 0 | 0 |
| Silver (T) | ug/L | 0.10 | 5 | 5 | 0.0050 | 0 | 0 | 5 | 5 | 0.0050 | 0 | 0 |
| Thallium (T) | ug/L | 0.10 | 5 | 5 | 0.0050 | 0 | 0 | 5 | 5 | 0.0050 | 0 | 0 |
| Uranium (T) | ug/L | 1.5 | 5 | 0 | 0.014 | 0 | 0 | 5 | 2 | 0.012 | 0 | 0 |
| Zinc (T) | ug/L | 6.7 | 5 | 1 | 1.2 | 20 | 1 | 5 | 2 | 1.1 | 0 | 0 |
| **Dissolved Metals (µg/L)** | | | | | | | | | | | | |
| Zinc (D) | ug/L | 6.7 | 5 | 0 | 1.4 | 20 | 1 | 5 | 0 | 1.3 | 0 | 0 |
| **Other (mg/L)** | | | | | | | | | | | - | - |
| Cyanide (Total) | mg/L | 9.0 | 5 | 5 | 0.0010 | 0 | 0 | 5 | 5 | 0.0010 | 0 | 0 |

Table 5-5. Near-field and Mid-field water quality from the 2019 open-water sampling events compared against FEIS predictions.

Notes

Yellow highlighted cells indicate the median concentration is greater than the predicted concentration at the edge of the mixing zone in MEL-01.

[a] Predictions for the edge of the mixing zone in Meliadine Lake (refer to Appendix 7.4-A of the Meliadine FEIS [Agnico Eagle, 2014]).

[b] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Units | FEIS Prediction [a] | Near-Field Area (MEL-01) | | | | | Mid-Field Area (MEL-02) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Summary Statistics [b] - Open Water Sampling | | | FEIS Screening | | Summary Statistics [b] - Open Water Sampling | | | FEIS Screening | |
| | | | N | N<MDL | Median | % > FEIS | # > FEIS | N | N<MDL | Median | % > FEIS | # > FEIS |
| **Conventional Parameters (mg/L)** | | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 68 | 15 | 0 | 49 | 0 | 0 | 15 | 0 | 49 | 7 | 1 |
| Total Suspended Solids | mg/L | 31 | 15 | 11 | 1.0 | 0 | 0 | 15 | 14 | 1.0 | 0 | 0 |
| **Major Ions (mg/L)** | | | | | | | | | | | | |
| Chloride | mg/L | 14 | 15 | 0 | 11.6 | 7 | 1 | 15 | 0 | 10 | 7 | 1 |
| Fluoride | mg/L | 0.0084 | 15 | 0 | 0.026 | 100 | 15 | 15 | 0 | 0.027 | 100 | 15 |
| Sodium (T) | mg/L | 5.3 | 15 | 0 | 5.4 | 67 | 10 | 15 | 0 | 5.0 | 20 | 3 |
| Sulphate | mg/L | 38 | 15 | 0 | 4.3 | 0 | 0 | 15 | 0 | 4.1 | 0 | 0 |
| **Nutrients (mg/L)** | | | | | | | | | | | | |
| Ammonia (as N) | mg/L | 0.54 | 10 | 1 | 0.0077 | 0 | 0 | 10 | 1 | 0.012 | 0 | 0 |
| Nitrate (as N) | mg/L | 0.25 | 15 | 5 | 0.014 | 0 | 0 | 15 | 10 | 0.0050 | 0 | 0 |
| Nitrite (as N) | mg/L | 0.051 | 15 | 13 | 0.0010 | 0 | 0 | 15 | 15 | 0.0010 | 0 | 0 |
| Total Phosphorus | mg/L | 0.0049 | 15 | 0 | 0.0047 | 47 | 7 | 15 | 0 | 0.0035 | 13 | 2 |
| **Total Metals (µg/L)** | | | | | | | | | | | | |
| Aluminum (T) | ug/L | 9.1 | 15 | 0 | 5.1 | 40 | 6 | 15 | 0 | 3.5 | 0 | 0 |
| Antimony (T) | ug/L | 0.51 | 15 | 15 | 0.020 | 0 | 0 | 15 | 15 | 0.020 | 0 | 0 |
| Arsenic (T) | ug/L | 3.8 | 15 | 0 | 0.41 | 0 | 0 | 15 | 0 | 0.29 | 0 | 0 |
| Barium (T) | ug/L | 77 | 15 | 0 | 7.7 | 0 | 0 | 15 | 0 | 8.0 | 0 | 0 |
| Boron (T) | ug/L | 23 | 15 | 2 | 5.3 | 0 | 0 | 15 | 14 | 5.0 | 0 | 0 |
| Cadmium (T) | ug/L | 0.050 | 15 | 12 | 0.0050 | 0 | 0 | 15 | 15 | 0.0050 | 0 | 0 |
| Chromium (T) | ug/L | 1.1 | 15 | 10 | 0.10 | 0 | 0 | 15 | 6 | 0.27 | 0 | 0 |
| Copper (T) | ug/L | 2.0 | 15 | 0 | 0.79 | 0 | 0 | 15 | 0 | 0.74 | 0 | 0 |
| Iron (T) | ug/L | 42 | 15 | 0 | 32.8 | 7 | 1 | 15 | 0 | 18 | 0 | 0 |
| Lead (T) | ug/L | 0.15 | 15 | 2 | 0.014 | 0 | 0 | 15 | 6 | 0.012 | 0 | 0 |
| Manganese (T) | ug/L | 5.5 | 15 | 0 | 4.9 | 33 | 5 | 15 | 0 | 3.4 | 33 | 5 |
| Mercury (T) | ug/L | 0.020 | 15 | 2 | 0.00062 | 0 | 0 | 15 | 8 | 0.00050 | 0 | 0 |
| Molybdenum (T) | ug/L | 5.2 | 15 | 0 | 0.073 | 0 | 0 | 15 | 0 | 0.070 | 0 | 0 |
| Nickel (T) | ug/L | 2.7 | 15 | 0 | 0.62 | 0 | 0 | 15 | 0 | 0.49 | 0 | 0 |

Table 5-5. Near-field and Mid-field water quality from the 2019 open-water sampling events compared against FEIS predictions.

| Parameter | Units | FEIS Prediction [a] | Near-Field Area (MEL-01) | | | | | Mid-Field Area (MEL-02) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Summary Statistics [b] - Open Water Sampling | | | FEIS Screening | | Summary Statistics [b] - Open Water Sampling | | | FEIS Screening | |
| | | | N | N<MDL | Median | % > FEIS | # > FEIS | N | N<MDL | Median | % > FEIS | # > FEIS |
| Selenium (T) | ug/L | 0.16 | 15 | 11 | 0.040 | 0 | 0 | 15 | 8 | 0.040 | 0 | 0 |
| Silver (T) | ug/L | 0.10 | 15 | 15 | 0.0050 | 0 | 0 | 15 | 15 | 0.0050 | 0 | 0 |
| Thallium (T) | ug/L | 0.10 | 15 | 15 | 0.0050 | 0 | 0 | 15 | 15 | 0.0050 | 0 | 0 |
| Uranium (T) | ug/L | 1.5 | 15 | 0 | 0.015 | 0 | 0 | 15 | 0 | 0.015 | 0 | 0 |
| Zinc (T) | ug/L | 6.7 | 15 | 9 | 0.50 | 0 | 0 | 15 | 5 | 0.52 | 0 | 0 |
| **Dissolved Metals (µg/L)** | | | | | | | | | | | | |
| Zinc (D) | ug/L | 6.7 | 15 | 5 | 0.59 | 0 | 0 | 15 | 7 | 0.59 | 0 | 0 |
| **Other (mg/L)** | | | | | | | | | | | | |
| Cyanide (Total) | mg/L | 9.0 | 15 | 15 | 0.0010 | 0 | 0 | 15 | 12 | 0.0010 | 0 | 0 |

Table 5-6. Normal range screening summary for the open-water sampling events at the Near-field and Mid-field areas in 2019.

Notes

Yellow highlighted cells indicate the median concentration is greater than the predicted concentration in the FEIS.

[a] Median concentrations for the open water period (July to September). Values <MDL were conservatively set equal to MDL when calculating the median concentration.

[b] "Yes" indicates the median concentrations exceeded the upper limit of the normal range (90th percentile). pH was screened against upper and lower limits.

[c] Not carried forward for statistical comparison between areas because the normal range was exceeded at MF despite the NF area being within the normal range.

| Parameter | Current MDL | Normal Range (upper 90th percentile) | Near-field Area (MEL-01) | | Mid-field Area (MEL-02) | | Carry Forward for Analysis of Spatial Trends in 2019? |
|---|---|---|---|---|---|---|---|
| | | | Median Conc.[a] | > Normal Range? [b] | Median Conc.[a] | > Normal Range? [b] | |
| **Field Measurements** | | | | | | | |
| pH (field) | - | 7.0 \| 7.96 | 7.4 | No | 7.4 | No | |
| **Conventional Parameters (mg/L, unless otherwise stated)** | | | | | | | |
| Conductivity (lab; µS/cm) | 1.0 | 77 | 82 | **Yes** | 77 | No | **YES** |
| Hardness | 0.20 | 23.1 | 22.6 | No | 22.6 | No | |
| pH (lab) | 0.10 | - | 7.3 | na | 7.3 | na | |
| TDS (Calculated) | - | 38.4 | 40.1 | **Yes** | 39.5 | **Yes** | **YES** |
| Total Suspended Solids | 1.0 | 1.1 | 1.0 | No | 1.0 | No | |
| **Major Ions (mg/L)** | | | | | | | |
| Alkalinity, Total | 1.0 | 20.0 | 16.4 | No | 20.0 | No | |
| Calcium (T) | 0.010 | 7.3 | 7.1 | No | 7.3 | No | |
| Chloride | 0.10 | 8.8 | 11.6 | **Yes** | 10.2 | **Yes** | **YES** |
| Fluoride | 0.020 | 0.028 | 0.026 | No | 0.027 | No | |
| Magnesium (T) | 0.0040 | 1.2 | 1.3 | **Yes** | 1.2 | **Yes** | **YES** |
| Potassium (T) | 0.020 | 0.94 | 0.97 | **Yes** | 0.94 | No | **YES** |
| Sodium (T) | 0.0050 | 4.6 | 5.4 | **Yes** | 5.0 | **Yes** | **YES** |
| Sulphate | 0.30 | 3.7 | 4.3 | **Yes** | 4.1 | **Yes** | **YES** |
| **Nutrients (mg/L)** | | | | | | | |
| Ammonia (as N) | 0.0050 | 0.015 | 0.0077 | No | 0.012 | No | |
| Nitrate (as N) | 0.0050 | 0.021 | 0.014 | No | 0.0050 | No | |
| Nitrite (as N) | 0.0010 | 0.0010 | 0.0010 | No | 0.0010 | No | |
| Total Kjeldahl Nitrogen | 0.050 | 0.25 | 0.21 | No | 0.20 | No | |
| Total Phosphorus | 0.0010 | 0.0060 | 0.0047 | No | 0.0035 | No | |
| **Organic Carbon (mg/L)** | | | | | | | |
| Dissolved Organic Carbon | 0.50 | 2.7 | 2.8 | **Yes** | 2.5 | No | **YES** |
| Total Organic Carbon | 0.50 | 3.0 | 2.8 | No | 2.6 | No | |

Table 5-6. Normal range screening summary for the open-water sampling events at the Near-field and Mid-field areas in 2019.

| Parameter | Current MDL | Normal Range (upper 90th percentile) | Near-field Area (MEL-01) | | Mid-field Area (MEL-02) | | Carry Forward for Analysis of Spatial Trends in 2019? |
|---|---|---|---|---|---|---|---|
| | | | Median Conc. [a] | > Normal Range? [b] | Median Conc. [a] | > Normal Range? [b] | |
| **Total Metals (µg/L)** | | | | | | | |
| Aluminum (T) | 1.0 | 5.4 | 5.1 | No | 3.5 | No | |
| Antimony (T) | 0.020 | 0.020 | 0.020 | No | 0.020 | No | |
| Arsenic (T) | 0.020 | 0.25 | 0.41 | **Yes** | 0.29 | **Yes** | **YES** |
| Barium (T) | 0.020 | 7.9 | 7.7 | No | 8.0 | **Yes** | No [c] |
| Beryllium (T) | 0.0050 | 0.0050 | 0.0050 | No | 0.0050 | No | |
| Bismuth (T) | 0.0050 | 0.0050 | 0.0050 | No | 0.0050 | No | |
| Boron (T) | 1.0 | 6.7 | 5.3 | No | 5.0 | No | |
| Cadmium (T) | 0.0050 | 0.0050 | 0.0050 | No | 0.0050 | No | |
| Chromium (T) | 0.060 | 0.13 | 0.10 | No | 0.27 | **Yes** | No [c] |
| Cobalt (T) | 0.010 | 0.016 | 0.030 | **Yes** | 0.015 | No | **YES** |
| Copper (T) | 0.10 | 0.92 | 0.79 | No | 0.74 | No | |
| Iron (T) | 1.0 | 15.1 | 32.8 | **Yes** | 17.6 | **Yes** | **YES** |
| Lead (T) | 0.010 | 0.026 | 0.014 | No | 0.012 | No | |
| Lithium (T) | 0.50 | 0.70 | 1.1 | **Yes** | 0.84 | **Yes** | **YES** |
| Manganese (T) | 0.050 | 3.2 | 4.9 | **Yes** | 3.4 | **Yes** | **YES** |
| Mercury (T) | 0.00050 | 0.00080 | 0.00062 | No | 0.00050 | No | |
| Molybdenum (T) | 0.050 | 0.083 | 0.073 | No | 0.070 | No | |
| Nickel (T) | 0.060 | 0.42 | 0.62 | **Yes** | 0.49 | **Yes** | **YES** |
| Selenium (T) | 0.040 | 0.046 | 0.040 | No | 0.040 | No | |
| Silver (T) | 0.0050 | 0.0050 | 0.0050 | No | 0.0050 | No | |
| Strontium (T) | 0.020 | 34.3 | 45.6 | **Yes** | 40.9 | **Yes** | **YES** |
| Thallium (T) | 0.0050 | 0.0050 | 0.0050 | No | 0.0050 | No | |
| Tin (T) | 0.020 | 0.045 | 0.020 | No | 0.022 | No | |
| Titanium (T) | 0.050 | 0.19 | 0.21 | **Yes** | 0.13 | No | **YES** |
| Uranium (T) | 0.010 | 0.017 | 0.015 | No | 0.015 | No | |
| Vanadium (T) | 0.050 | 0.050 | 0.050 | No | 0.050 | No | |
| Zinc (T) | 0.50 | 2.2 | 0.50 | No | 0.52 | No | |
| **Dissolved Metals (µg/L)** | | | | | | | |
| Manganese (D) | 0.050 | - | 0.59 | na | 0.45 | na | |
| Zinc (D) | 0.80 | 2.0 | 0.59 | No | 0.59 | No | |
| **Other (mg/L)** | | | | | | | |
| Cyanide (free) | 0.0010 | 0.0010 | 0.0010 | No | 0.0010 | No | |

Table 5-7. Between-area statistical comparisons for parameters that exceeded the normal range in 2019.

Notes

[a] assumptions of normality and equality variance failed for all parameters. The non-parametric Kruskal-Wallis test was used to assess concentration differences among the NF, MF, and pooled reference areas.

[b] between-area comparisons were made using the Wilcoxon signed-rank test. Significant differences (bolded) between areas were assigned at p <0.1.

[c] Reference areas 1, 2, and 3 were pooled for statistical comparisons.

[d] the magnitude of the difference between areas was calculated by taking difference in concentration between upstream and downstream areas, divided by the concentration in the downstream area: ([NF]-[REF]/([REF])

| Parameter | Units | Current MDL | Model Results [a] | | Between-Area Comparisons [b] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | NF (MEL-01) vs MF (MEL-02) | | NF (MEL-01) vs REF [c] | | MF (MEL-02) vs REF [c] | |
| | | | Test | p-value | p-value | Magnitude [d] Median | p-value | Magnitude [d] Median | p-value | Magnitude [d] Median |
| **Conventional Parameters** | | | | | | | | | | |
| TDS (Calculated) | mg/L | - | K-W | ***<0.001*** | 0.983 | 2% | ***<0.001*** | 8% | ***<0.001*** | 6% |
| **Major Ions** | | | | | | | | | | |
| Chloride | mg/L | 0.10 | K-W | ***<0.001*** | ***<0.001*** | 14% | ***<0.001*** | 34% | ***<0.001*** | 18% |
| Magnesium (T) | mg/L | 0.0040 | K-W | ***<0.001*** | ***<0.001*** | 5% | ***<0.001*** | 15% | ***<0.001*** | 10% |
| Potassium (T) | mg/L | 0.020 | K-W | ***<0.001*** | 0.309 | 4% | ***<0.001*** | 6% | ***0.006*** | 2% |
| Sodium (T) | mg/L | 0.0050 | K-W | ***<0.001*** | ***0.010*** | 9% | ***<0.001*** | 20% | ***<0.001*** | 10% |
| Sulphate | mg/L | 0.30 | K-W | ***<0.001*** | ***0.006*** | 5% | ***<0.001*** | 17% | ***<0.001*** | 12% |
| **Organic/Inorganic Carbon** | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 0.50 | K-W | ***<0.001*** | ***<0.001*** | 13% | ***<0.001*** | 27% | ***<0.001*** | 12% |
| **Total Metals** | | | | | | | | | | |
| Arsenic (T) | µg/L | 0.020 | K-W | ***<0.001*** | ***<0.001*** | 38% | ***<0.001*** | 79% | ***<0.001*** | 30% |
| Cobalt (T) | µg/L | 0.010 | K-W | ***<0.001*** | ***<0.001*** | 103% | ***<0.001*** | 132% | ***0.021*** | 15% |
| Iron (T) | µg/L | 1.0 | K-W | ***<0.001*** | ***<0.001*** | 86% | ***<0.001*** | 147% | ***<0.001*** | 32% |
| Lithium (T) | µg/L | 0.50 | K-W | ***<0.001*** | ***<0.001*** | 30% | ***<0.001*** | 73% | ***<0.001*** | 33% |
| Manganese (T) | µg/L | 0.050 | K-W | ***<0.001*** | ***0.010*** | 44% | ***<0.001*** | 79% | ***<0.001*** | 25% |
| Nickel (T) | µg/L | 0.060 | K-W | ***<0.001*** | ***0.002*** | 26% | ***<0.001*** | 64% | ***<0.001*** | 30% |
| Strontium (T) | µg/L | 0.020 | K-W | ***<0.001*** | ***0.002*** | 11% | ***<0.001*** | 35% | ***<0.001*** | 21% |
| Titanium (T) | µg/L | 0.050 | K-W | ***0.0024*** | ***0.006*** | 69% | ***0.002*** | 42% | 0.748 | -16% |
| **Dissolved Metals** | | | | | | | | | | |
| Manganese (D) | µg/L | 0.050 | K-W | 0.30 | 0.281 | 25% | 0.124 | 25% | 0.933 | -6% |

Table 5-8. Meliadine Lake water quality low Action Level assessment for the protection of aquatic life, 2019.

Notes
[a] Refer to **Table 1-2** for the list of AEMP benchmarks for the protection of aquatic life.
[b] Median values were compared against the upper limit of the normal range (90th percentile).
[c] "na" indicates there is no toxicologically-based AEMP benchmark. Default to comparing whether the magnitude of the difference between NF and REF is > 2-fold.
[d] Divergent trends were assessed by comparing the pattern of change at MEL-01 to MEL-03 (Reference Area 1). "No" indicates the same pattern between areas.

| Parameter | Units | Current MDL | Screening Criteria | | Median Concentrations in 2019 | | Low Action Level Screening Assessment | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Question #1 | | Question #2 | | Question #3 |
| | | | Normal Range | AEMP Benchmark [a] | Pooled REF | NF (MEL-01) | > Normal Range?[b] *and* > REF | Conclusion | > 75% of AEMP benchmark?[c] | > 5x MDL & > 2x REF in 2019 [c] | Divergent Trend at NF vs REF? [d] |
| **Field Measurements** | | | | | | | | | | | |
| Sp. Conductivity (field) | uS/cm | | - | - | 73 | 82 | No | = Baseline | na | na | No; (Figure C2-1) |
| pH (field) | - | - | 7.0 \| 7.96 | 6.5 \| 9.0 | 7.4 | 7.4 | No | = Baseline | na | na | No; (Figure C2-2) |
| **Conventional Parameters** | | | | | | | | | | | |
| Conductivity (lab) | uS/cm | 1 | 77 | - | 73 | 82 | **Yes** | Proceed -> | No AEMP benchmark; Proceed -> | No | No; (Figure C2-3) |
| Hardness | mg/L | 0.2 | 23.1 | - | 22.0 | 22.6 | No | = Baseline | na | na | No; (Figure C2-4) |
| pH (lab) | pH units | - | - | 6.5 \| 9.0 | 7.5 | 7.3 | No | = Baseline | na | na | No; (Figure C2-5) |
| Total Dissolved Solids | mg/L | 20 | 52 | 500 | 47.0 | 49.0 | No | = Baseline | No | na | No; (Figure C2-6) |
| TDS (Calculated) | mg/L | - | 38.4 | 500 | 37.2 | 40.1 | **Yes** | Proceed -> | No | na | No; (Figure C2-7) |
| **Major Ions** | | | | | | | | | | | |
| Alkalinity, Total | mg/L | 1 | 20.0 | - | 17.4 | 16.4 | No | = Baseline | na | na | Slight increase (Figure C2-11) |
| Calcium (T) | mg/L | 0.01 | 7.3 | - | 6.9 | 7.1 | No | = Baseline | na | na | No; (Figure C2-12) |
| Chloride | mg/L | 0.1 | 8.8 | 120 | 8.7 | 11.6 | **Yes** | Proceed -> | No | na | No; (Figure C2-16) |
| Fluoride | mg/L | 0.02 | 0.028 | 0.12 | 0.027 | 0.026 | No | = Baseline | No | na | No; (Figure C2-17) |
| Magnesium (T) | mg/L | 0.004 | 1.2 | - | 1.1 | 1.3 | **Yes** | Proceed -> | No AEMP benchmark; Proceed -> | No | No; (Figure C2-13) |
| Potassium (T) | mg/L | 0.02 | 0.94 | - | 0.92 | 0.97 | **Yes** | Proceed -> | No AEMP benchmark; Proceed -> | No | No; (Figure C2-14) |
| Sodium (T) | mg/L | 0.005 | 4.6 | - | 4.5 | 5.4 | **Yes** | Proceed -> | No AEMP benchmark; Proceed -> | No | No; (Figure C2-15) |
| Sulphate | mg/L | 0.3 | 3.7 | 128 | 3.6 | 4.3 | **Yes** | Proceed -> | No | na | No; (Figure C2-22) |
| **Nutrients** | | | | | | | | | | | |
| Ammonia (as N) | mg/L | 0.005 | 0.015 | 0.14 | 0.0092 | 0.0077 | No | = Baseline | No | na | No; (Figure C2-18) |
| Nitrate (as N) | mg/L | 0.005 | 0.021 | 2.9 | 0.012 | 0.014 | No | = Baseline | No | na | No; (Figure C2-19) |
| Nitrite (as N) | mg/L | 0.001 | 0.0010 | 0.060 | 0.0010 | 0.0010 | No | = Baseline | No | na | No, mostly < DL in 2019 |
| Total Kjeldahl Nitrogen | mg/L | 0.05 | 0.25 | - | 0.17 | 0.21 | No | = Baseline | na | na | No; (Figure C2-21) |
| Total Phosphorus | mg/L | 0.001 | 0.0060 | 0.010 | 0.0026 | 0.0047 | No | = Baseline | No | na | No; (Figure C2-23) |
| **Organic/Inorganic Carbon** | | | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 0.5 | 2.7 | - | 2.2 | 2.8 | **Yes** | Proceed -> | No AEMP benchmark; Proceed -> | No | No; (Figure C2-24) |
| **Total Metals** | | | | | | | | | | | |
| Aluminum (T) | µg/L | 1 | 5.4 | 100 | 3.8 | 5.1 | No | = Baseline | No | na | No; (Figure C2-26) |
| Antimony (T) | µg/L | 0.02 | 0.020 | 9.0 | 0.020 | 0.020 | No | = Baseline | No | na | No; (Figure C2-27) |
| Arsenic (T) | µg/L | 0.02 | 0.25 | 25.0 | 0.23 | 0.41 | **Yes** | Proceed -> | No | na | Slight increase (Figure C2-28) |
| Barium (T) | µg/L | 0.02 | 7.9 | 1,000 | 7.4 | 7.7 | No | = Baseline | No | na | No; (Figure C2-29) |
| Beryllium (T) | µg/L | 0.005 | 0.0050 | - | 0.0050 | 0.0050 | No | = Baseline | na | na | No; (Figure C2-30) |
| Bismuth (T) | µg/L | 0.005 | 0.0050 | - | 0.0050 | 0.0050 | No | = Baseline | na | na | No; (Figure C2-31) |
| Boron (T) | µg/L | 1 | 6.7 | 1,500 | 5.0 | 5.3 | No | = Baseline | No | na | No; (Figure C2-32) |
| Cadmium (T) | µg/L | 0.005 | 0.0050 | 0.043 | 0.0050 | 0.0050 | No | = Baseline | No | na | No; (Figure C2-33) |

Table 5-8. Meliadine Lake water quality low Action Level assessment for the protection of aquatic life, 2019.

| Parameter | Units | Current MDL | Screening Criteria | | Median Concentrations in 2019 | | Low Action Level Screening Assessment | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Question #1 | | Question #2 | | Question #3 |
| | | | Normal Range | AEMP Benchmark [a] | Pooled REF | NF (MEL-01) | > Normal Range?[b] *and* > REF | Conclusion | > 75% of AEMP benchmark?[c] | > 5x MDL & > 2x REF in 2019 [c] | Divergent Trend at NF vs REF? [d] |
| Chromium (T) | µg/L | 0.06 | 0.13 | 1.0 | 0.10 | 0.10 | No | = Baseline | No | na | No; (Figure C2-34) |
| Cobalt (T) | µg/L | 0.01 | 0.016 | 0.55 | 0.013 | 0.030 | **Yes** | Proceed -> | No | na | Slight increase (Figure C2-35) |
| Copper (T) | µg/L | 0.1 | 0.92 | 2.0 | 0.71 | 0.79 | No | = Baseline | No | na | No; (Figure C2-36) |
| Iron (T) | µg/L | 1 | 15.1 | 300 | 13.3 | 32.8 | **Yes** | Proceed -> | No | na | No; (Figure C2-37) |
| Lead (T) | µg/L | 0.01 | 0.026 | 1.0 | 0.015 | 0.014 | No | = Baseline | No | na | No; (Figure C2-38) |
| Lithium (T) | µg/L | 0.5 | 0.70 | - | 0.63 | 1.1 | **Yes** | Proceed -> | No AEMP benchmark; Proceed -> | No | Increasing; (Figure C2-39) |
| Manganese (T) | µg/L | 0.05 | 3.2 | - | 2.8 | 4.9 | **Yes** | Proceed -> | No AEMP benchmark; Proceed -> | No | No; (Figure C2-40) |
| Mercury (T) | µg/L | 0.0005 | 0.00080 | 0.026 | 0.00050 | 0.00062 | No | = Baseline | No | na | Decreasing; (Figure C2-41) |
| Molybdenum (T) | µg/L | 0.05 | 0.083 | 73 | 0.069 | 0.073 | No | = Baseline | No | na | No; (Figure C2-42) |
| Nickel (T) | µg/L | 0.06 | 0.42 | 25.0 | 0.38 | 0.62 | **Yes** | Proceed -> | No | na | No; (Figure C2-43) |
| Selenium (T) | µg/L | 0.04 | 0.046 | 1.0 | 0.040 | 0.040 | No | = Baseline | No | na | No; (Figure C2-44) |
| Silver (T) | µg/L | 0.005 | 0.0050 | 0.25 | 0.0050 | 0.0050 | No | = Baseline | No | na | No; (Figure C2-45) |
| Strontium (T) | µg/L | 0.02 | 34.3 | 1,700 | 33.8 | 45.6 | **Yes** | Proceed -> | No | na | Increasing (Figure C2-46) |
| Thallium (T) | µg/L | 0.005 | 0.0050 | 0.80 | 0.0050 | 0.0050 | No | = Baseline | No | na | No; (Figure C2-47) |
| Tin (T) | µg/L | 0.02 | 0.045 | - | 0.028 | 0.020 | No | = Baseline | na | na | No; (Figure C2-48) |
| Titanium (T) | µg/L | 0.05 | 0.19 | - | 0.15 | 0.21 | **Yes** | Proceed -> | No AEMP benchmark; Proceed -> | No | Increasing (Figure C2-49) |
| Uranium (T) | µg/L | 0.01 | 0.017 | 15.0 | 0.015 | 0.015 | No | = Baseline | No | na | No; (Figure C2-50) |
| Vanadium (T) | µg/L | 0.05 | 0.050 | 120 | 0.050 | 0.050 | No | = Baseline | No | na | No; (Figure C2-51) |
| Zinc (T) | µg/L | 0.5 | 2.2 | - | 0.67 | 0.50 | No | = Baseline | na | na | No; (Figure C2-52) |
| **Dissolved Metals** | | | | | | | | | | | |
| Manganese (D) | µg/L | 0.05 | - | 210 | 0.48 | 0.59 | No | = Baseline | No | na | No; (Figure C2-53) |
| Zinc (D) | µg/L | 0.8 | 2.0 | 5.6 | 0.59 | 0.59 | No | = Baseline | No | na | No; (Figure C2-54) |
| **Other** | | | | | | | | | | | |
| Cyanide (free) | mg/L | 0.001 | 0.0010 | 0.0050 | 0.0010 | 0.0010 | No | = Baseline | No | na | No, < DL in 2019 |

# 6 PENINSULA LAKES WATER QUALITY

## 6.1 Objectives

Lakes A8, B7, and D7 are located on the peninsula between the south and east basins of Meliadine Lake near the mine and are monitored annually as part of the AEMP. These small lakes are included in the AEMP because of the potential for mine-related changes to water quality caused by deposition of air emissions and alteration of the sub-watersheds on the peninsula (Golder 2016). The methods and data analyses described in this report are consistent with previous AEMP reporting cycles and followed the objectives outlined in the *AEMP Study Design Document* (Golder 2016) to answer the following two key questions:

1. *Is water quality in the Peninsula Lakes consistent with water quality predictions in the FEIS and less than AEMP benchmarks[32]?*
2. *Are concentrations of key parameters increasing over time relative to baseline conditions?*

## 6.2 2019 Field Program

Field collections and sample analyses were conducted according to methods outlined in the *AEMP Design Document* (Golder, 2016) and in recent AEMP interpretive reports (Golder, 2019).

### 6.2.1 Field Data and Sample Collection

Water sampling was completed in July and August 2019 at Lake A8, Lake B7, and Lake D7 as per the study design (**Figure 1-2**). The three Peninsula Lakes are relatively shallow (1.5 to 2.5 m). Total water depth was measured using a sounding line or portable depth sounder. Secchi depth was not recorded at any of the Peninsula Lakes due the shallow depth of the lakes (i.e., the Secchi disc is visible at the bottom of the lake).

*In-situ* water quality measurements (temperature, dissolved oxygen (% and mg/L), pH, and specific conductivity) were recorded at the three fixed sampling stations in each lake (**Figure 1-2**; **Table 6-3**). Measurements were recorded at discrete intervals just below the surface and every

[32] AEMP Benchmarks are listed in **Table 1-2**.

0.5 m through the water column. The bottom profile was taken within 0.5 m of the sediment water interface.

Surface water samples were collected at 1 m using a Kemmerer grab sampler according to the water sampling SOP for the AEMP (Golder 2016). Water samples for dissolved analyses (e.g., metals) were filtered in the field using a syringe and disposable 0.45 µm disc filter according to standard methods recommended by ALS Environmental[33]. Samples were refrigerated and shipped to ALS (Winnipeg, MB) for analysis.

### 6.2.2 Data Analysis

Water quality data of the Peninsula Lakes were evaluated according to methods outlined in **Section 2.4**:

- Screening against aquatic life and drinking water quality guidelines,
- Comparison to water quality predictions in the FEIS,
- Comparison against the normal range of baseline conditions, and
- Temporal assessment (qualitative) of changing concentrations over time.

#### Normal Range Comparison

Normal ranges that were calculated for the 2018 AEMP report were carried forward in this year's assessment. Statistical methods used to estimate the normal range of concentrations for the Peninsula Lakes are described above in **Section 2.4.3**. Data included in the normal range calculation for each parameter were collected between 1995 and 2011 (baseline) and 2015 to 2017 (pre-construction). Golder conducted a review of the historical data as part of the 2018 normal range assessment and concluded that conventional parameters, major ions, and selected nutrients from the historical data were fit for use in the normal range estimation. Nitrogen parameters and metals were not retained because DLs in the historical data are not comparable with current DLs.

The cut-off for baseline data in the normal range assessment was the end of 2017. The normal range estimates from last year define what's considered baseline in each lake, and normal range concentrations from last year were carried forward in this year's analysis.

[33] ALS EnviroMail™ Issue #121 (Link) for information on best practices for filtering water samples.

## Comparison to FEIS Predictions

*Numeric* water quality predictions were made for Lake A8 and Lake D7, as well as several other small lakes located near the mine site, as part of the FEIS[34]. The water quality model predicted that changes to water quality in the small waterbodies could result from diversion of water, alteration of the watershed size and contributing areas, natural hydrological processes, evaporation, and aerial deposition of particulate matter (modelled as TSS), nutrients from blasting activities, and metals (modelled by individual metal parameter). For most water quality parameters, changes in water quality were predicted to be *negligible* (defined as <10% increase from baseline). However, due to aerial deposition from the mine, the model predicted that concentrations of nitrate, aluminum, iron, and titanium would increase by 10% or higher compared to baseline (Agnico Eagle 2014). Elevated concentrations relative to baseline that were less than water quality guidelines were classified as *minor* changes in the FEIS.

Below are the *narrative*[35] predictions of water quality for Lake A8 and D7 presented in the FEIS, along with references to specific tables for each lake:

- **Lake A8**: Water quality in Lake A8 was predicted to be within 10% of baseline throughout operations and in the post-closure period (Appendix 7.4-A; Table 7.4-A25).
- **Lake D7**: Predictions for Lake D7 were made for construction (years -3 and -2 to -1), operations (years 1 to 2, 3 to 4, 5 to 8, 9, and 10 to 12), closure, and post-closure. Baseline median and peak concentrations were predicted to occur in years 3 and 4 of operations. Predicted water quality was expected to be similar to baseline levels (within 10% of the upper limit of the normal range) for Lake D7 throughout the development (Appendix 7.4-A; Table 7.4-A34).

Water quality predictions were not developed for Lake B7 in the FEIS.

## Temporal Trend Assessment

Temporal trends in concentrations were examined qualitatively using plots showing concentrations of selected water quality parameters over time. Parameters were carried forward for temporal trend assessment if the parameter *exceeded* the normal range screening assessments in 2018 and 2019.

[34] Refer to Table 7.4-A2 (Inventory of Waterbodies) in Appendix 7.4-A of the FEIS (Agnico Eagle 2014) for lakes that were carried forward for water quality modelling.

[35] Refer to **Section 1.2.2** for the distinction between numerical and narrative FEIS predictions.

## 6.3 Results and Discussion

This section summarizes results of the 2019 water quality assessment for the Peninsula Lakes.

Figures and tables to support the results and discussion are presented at the end of this chapter in **Section 6.6** (Figures) and **Section 6.7** (Tables), respectively.

### 6.3.1 Field-Measured Water Quality Parameters

Limnology profiles for the Peninsula Lakes in July and August 2019 are presented in **Figure 6-1**. The small size and shallow depth of the Peninsula Lakes means oxygen, pH, temperature, and specific conductivity are well mixed vertically (top to bottom in the water column) and horizontally (between stations).

- Wave and wind action kept the lakes well oxygenated in July and August (> 9 mg/L).
- The pH of the lakes was slightly alkaline, measuring between 7.5 and 8.5 compared to Meliadine Lake which is typically circum-neutral (7 to 7.5).
- Specific conductivity increased slightly between the July and August event at all three lakes. Lake A8 had the highest conductivity among the three lakes measuring 200 µS/cm in July and 225 µS/cm in August. Similar results were reported in 2018, with the highest conductivity at Lake A8 (190 to 240 µS/cm) and the lowest values at Lake D7 (115 to 140 µS/cm).

### 6.3.2 Water Quality Guideline Screening

Water quality for the Peninsula Lakes was predicted to meet aquatic life and human health guidelines throughout construction, operations, and closure (Agnico Eagle 2014). Results from 2019 conform to these predictions: there were no exceedances of CCME WQGs (acute or chronic) or drinking water quality guidelines in the Peninsula Lakes samples from 2019 based on the mean concentration from the July and August sampling events. There were also no WQG exceedances based on screening of individual samples.

Summary statistics and water quality screening results for the Peninsula Lakes are provided in **Table 6-4** (Lake A8), **Table 6-5** (Lake B7), and **Table 6-6** (Lake D7).

### 6.3.3 Normal Range Assessment

Results of the normal range screening assessment for the Peninsula Lakes are summarized in **Table 6-1**. Detailed tables showing results of the normal range screening assessment are provided in **Table 6-7** (Lake A8), **Table 6-8 (**Lake B7) and, **Table 6-9** (Lake D7) at the end of this

chapter. The upper 90th PI or percentile of the normal range is also shown in the temporal chemistry plots in **Figure 6-2** to **Figure 6-6** to help visualize changes in water quality over time relative to the normal range.

**Table 6-1. Parameters that exceeded the normal range in concentration for the Peninsula Lakes in 2019 compared to 2018.**

| Lake | Parameter > NR in 2019 | Concentration | |
|---|---|---|---|
| | | 2019 | 2018 |
| A8 | $NH_3$* | 0.016 mg/L * | 0.003 mg/L |
| | Aluminum (T) | **5.2 µg/L** | **3.5 µg/L** |
| | Iron (T) | **89 µg/L** | **78 µg/L** |
| | Lead (T) | **0.06 µg/L** | **0.02 µg/L** |
| B7 | Chloride (T) | 26.6 mg/L | 24 mg/L |
| | Boron (T)* | **9.6 µg/L** * | 10 µg/L |
| | Cobalt (T) | 0.52 µg/L | 0.04 µg/L |
| | Lithium (T) | **12.6 µg/L** | **14 µg/L** |
| | Strontium (T) | **205 µg/L** | 226 µg/L |
| D7 | $NH_3$*, | 0.019 mg/L * | 0.020 mg/L |
| | Barium (T) | 17.5 µg/L | 18 µg/L |
| | Lead (T) | 0.034 µg/L | 0.019 µg/L |
| | Nickel (T) | 0.79 µg/L * | 0.82 µg/L |
| | Vanadium (T)* | 0.11 µg/L * | 0.07 µg/L |

Notes
**Bolded** concentrations exceeded the upper limit of the normal range by more than 10% and were > 5* the analytical detection limit.
"*" indicates the mean/median concentration exceed the normal range in 2019 but was <5-times the analytical detection limit.

### 6.3.4 Comparison to FEIS Predictions

For most parameters, the FEIS predicted concentrations would remain within +10% of baseline (considered a *negligible* increase); however, appreciable increases in the concentrations of nitrate, aluminum, iron, and titanium were predicted in the Peninsula Lakes as a result of atmospheric loadings. The table below summarizes FEIS predictions for parameters that exceeded the upper limit of the normal range of baseline concentrations by 10%. Results for each lake are discussed below.

**Table 6-2. Parameters that exceeded FEIS predictions in the Peninsula Lakes in 2019.**

| Lake | Concentrations Exceed 10% Baseline |
|---|---|
| A8 | Ammonia, aluminum, iron, lead |
| B7 | Boron*, lithium, strontium |
| D7 | Ammonia, lead*, vanadium* |

Notes
"*" indicates the mean/median concentration exceed the FEIS prediction but was <5 x the analytical detection limit.

## Lake A8

Lake A8 water quality in 2019 was within the normal range of concentrations for the majority of the parameters except for ammonia, aluminum, iron, and lead. Concentrations of each parameter exceeded the upper limit of the normal range by more than 10%, but were well below the water quality guidelines for protection of aquatic life and drinking water quality. Water quality for Lake A8 is consistent with predictions in the FEIS. The mean arsenic concentration in Lake A8 in 2019 was 2.3 µg/L, less than the upper limit of the normal range for the baseline period of 2.4 µg/L.

Dustfall monitoring location DF-4 located on the north shore of Lake A8 was sampled during the snow pack survey in May 2019. The station is located directly south of the mine. The majority of the parameters were less than the DL (**Appendix J**). Aluminum, arsenic, iron, strontium, as well as major cations (e.g., calcium and magnesium) were detect in the snow sample. With the exception of the major cations, the measured concentrations were at the DL, or slightly above (i.e., less than 2-times the DL). The absolute concentrations are low enough to be considered within the range of analytical uncertainty. In summary, the available snow pack chemistry data from DF-4 do not suggest the mine is causing dust loading to the tundra during the winter months.

## Lake B7

No FEIS predictions were developed for Lake B7 because the lake will be dewatered to make way for the TSF as the project develops. The extent of the TSF, as of the end of 2019, is within approximately 150 m of the NE shore of Lake B7. In the absence of FEIS predictions for Lake B7, water quality results from 2019 were compared against baseline data to evaluate the effectiveness of control measures to limit off-site migration of contaminants from non-point sources (e.g., dust and aerial emissions).

Boron, lithium, and strontium were elevated compared to baseline concentrations in 2019. Absolute concentrations are consistent with concentrations reported in 2018 (**Table 6-1**). The

mean arsenic concentration in Lake B7 in 2019 was 1.79 µg/L, less than the upper limit of the normal range for the baseline period of 1.80 µg/L.

Given the proximity of Lake B7 to the TSF, the water quality data from 2019 demonstrate that measures to control off-site dust loading are effective at keeping water quality within the range of baseline conditions at Lake B7. Chemistry data from the snow pack survey (**Appendix J**) also confirm that measures to control dust loading to the tundra are effective. Concentrations of TSS were less detection at DF-6 (**Figure 1-2**), the station closest to B7, in the samples collected on May 11th. Most metals were below their respective detection limits as well, with the exception of parameters such as calcium, magnesium, iron, potassium, and sodium, none of which are contaminants of concern for aquatic life. Strontium was detected at 0.004 mg/L, less than 5-times the DL of 0.001 mg/L.

#### Lake D7

Lead and vanadium were the only two parameters, other than ammonia, that were elevated relative to baseline concentrations in 2019. In both cases, the absolute concentrations were within 5-times the analytical detection limit. In the case of vanadium, the mean concentration (0.11 µg/L) was marginally above the normal range of 0.07 µg/L and approximately 2-fold higher than the DL of 0.05 µg/L. Similarly, the mean concentration of lead was approximately 3.5-fold higher than the DL in 2019 (mean = 0.034 µg/L; DL = 0.01 µg/L). Measurement uncertainty is higher for readings close to the detection limit, and these results should be interpreted with caution due to greater uncertainty associated with low-level analyses[36].

### 6.3.5 Temporal Trend Assessment

The normal range assessment is one way of evaluating whether current water quality is within the range of conditions measured prior to development. To further support the normal range assessment, temporal changes in water quality were qualitatively examined using temporal plots to visually examine changes in concentration for key parameters since the onset of formal baseline monitoring for the AEMP in 2015. Condensed-temporal plots of changes in concentration over time are presented in **Figure 6-2** to **Figure 6-7** and provide a visual means of assessing changes over time.

[36] The BC Environmental Laboratory Technical Advisor recommends 5-times the analytical detection limit as a guide for assessing analytical accuracy for laboratory duplicates based on measurement uncertainty estimates from various laboratories (Link to document).

Observations from the temporal assessment of changes in water quality are:

- Relative to the construction phase (2017 and 2018) major ionic compounds (**Figure 6-2**) and conventional parameters (e.g., conductivity and pH; **Figure 6-3**) have remained stable or showed a downward trend in 2019 at all three Peninsula Lakes.
- Sodium, chloride, and sulphate were slightly higher at B7 in 2019 compared to the baseline period and 2018, but all three parameters were within 10% of the normal range for the baseline dataset (**Table 6-8**).
- Nutrient parameters were either less than DLs in samples collected in 2019 (nitrate) or within the range of baseline concentrations (see TKN, total phosphorus, and DOC in **Figure 6-3**).
- Concentrations of most metals (total and dissolved) were stable in 2019 relative to concentrations in 2018 (**Figure 6-4** to **Figure 6-7**).
    - *Steady increases* in arsenic that were documented for Lake A8 in the 2018 report were not evident in the temporal plot (**Figure 6-4**) or in the normal range assessment 2019 results.
    - Concentrations of aluminum and iron (total fraction) continue to trend higher at Lake A8, as evidenced by the normal range assessment and the condensed-temporal plots (**Figure 6-4**). Dissolved aluminum and iron did not show the same year-over-year temporal increase as the total (unfiltered) concentrations in 2019 (**Figure 6-6**). In fact, dissolved concentrations of both aluminum and iron have remained relatively stable since the start of construction in 2017. The increase in both aluminum and iron concentrations is consistent with predictions in the FEIS: both metals have increased relative to baseline, but concentrations are below aquatic life and drinking water quality guidelines.
    - Lithium and strontium concentrations in Lake B7 were stable in 2019 after increasing during the construction phase (**Figure 6-5**).
    - Lead concentrations at Lake A8 and Lake D7 were elevated relative to baseline, with the caveat that absolute concentrations are relatively low. In the case of Lake D7, the median total lead concentration in 2019 was less than 5-times the analytical detection limit (DL = 0.01 µg/L; median = 0.034 µg/L; [**Table 6-9**]). It's clear from **Figure 6-7** that the frequency of detection for total lead has increased at all three Peninsula Lakes since 2017. Current concentrations are consistent with predictions in

the FEIS and well below concentrations that would trigger a low Action Level exceedance (discussed below).

## 6.4 Low Action Level Assessment – Peninsula Lakes

Results presented in **Section 6.3** provides the evidence used to answer the following two questions about whether the mine is causing changes to water quality in the Peninsula Lakes:

*Question 1: is water quality in the Peninsula Lakes consistent with the FEIS predictions (less than a 10% increase from baseline) and less than the AEMP benchmarks* (**Table 1-2**)?

**Response**: aluminum, iron, and lead at Lake A8, and lithium and strontium at Lake B7 have increased relative to baseline. None of the parameters with toxicologically-derived WQGs exceeded the early warning trigger of 75% of the AEMP benchmark concentration. There are no aquatic life or human health WQGs for lithium, but concentrations appear stable at Lake B7 in 2019 compared to 2018.

*Question 2: are concentrations increasing over time relative to baseline conditions in each lake?*

**Response**: There is clear evidence that some parameters have increased relative to the baseline period, particularly during the pre-construction and construction years in 2016 and 2017. More recent data from the 2018 and 2019 monitoring programs indicate that majority of parameters have either decreased in the years since peak on-site construction, or remained stable. At this stage of the AEMP, there is no evidence of year-over-year changes in water quality that warrant management actions or mitigation strategies beyond those currently in place. Continued monitoring of the apparent increase in total lead, and other parameters that exceed their respective normal ranges, will continue in 2020.

## 6.5 Recommendations for 2020

No management actions are required beyond routine monitoring at the Peninsula Lakes in July and August 2020.

## 6.6 Figures – Peninsula Lakes

Figure 6-1. In-situ water from the limnology profiles at the Peninsula Lakes stations in July and August, 2019. ..... 108

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Figure 6-4. Peninsula Lakes – total concentrations of aluminum, arsenic, barium, boron, cobalt, and iron since 2015. ..... 111

Figure 6-5. Peninsula Lakes – total concentrations of lead, lithium, manganese, nickel, strontium, and zinc since 2015. ..... 112

Figure 6-6. Peninsula Lakes – dissolved concentrations of aluminum, arsenic, barium, boron, cobalt, and iron since 2015. ..... 113

Figure 6-7. Peninsula Lakes – dissolved concentrations of lead, lithium, manganese, nickel, strontium, and zinc since 2015. ..... 114

**Figure 6-1. In-situ water from the limnology profiles at the Peninsula Lakes stations in July and August, 2019.**

Notes: Three profiles are taken at each lake for each sampling event.

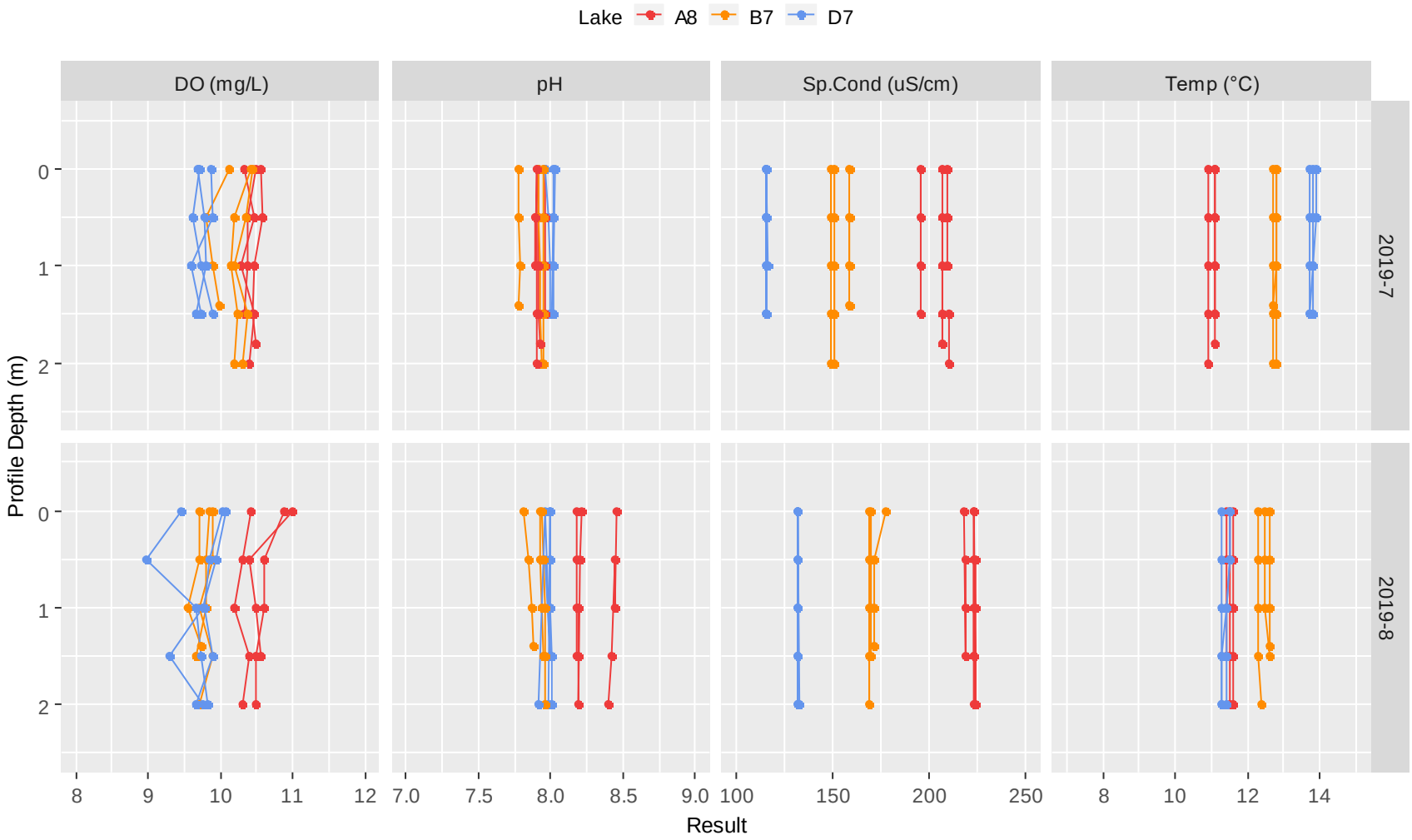

**Figure 6-2. Peninsula Lakes water quality – concentrations of TDS, hardness, and major ions (Ca, Mg, K, and Na) since 2015.**

Notes: TDS = total dissolved solids; Hard = hardness; Ca, Mg, K, and Na = calcium, magnesium, potassium, sodium; Cl = chloride; SO4 = sulphate.
Normal range = the upper 90th prediction interval or percentile of baseline concentrations (pre-2018).

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**Figure 6-3. Peninsula Lakes water quality – pH, conductivity, and concentrations of selected nutrients since 2015.**

Notes: TDS = total dissolved solids; Hard = hardness; Ca, Mg, K, and Na = calcium, magnesium, potassium, sodium; Cl = chloride; SO4 = sulphate.
Normal range = the upper 90th prediction interval or percentile of baseline concentrations (pre-2018).

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**Figure 6-4. Peninsula Lakes – total concentrations of aluminum, arsenic, barium, boron, cobalt, and iron since 2015.**

Notes: Concentrations shown in log10 scale for the total (unfiltered) fraction.
Normal range = the upper 90th prediction interval or percentile of baseline concentrations (pre-2018).

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**Figure 6-5. Peninsula Lakes – total concentrations of lead, lithium, manganese, nickel, strontium, and zinc since 2015.**

Notes: Concentrations shown in log10 scale for the total (unfiltered) fraction.
Normal range = the upper 90th prediction interval or percentile of baseline concentrations (pre-2018).

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**Figure 6-6. Peninsula Lakes – dissolved concentrations of aluminum, arsenic, barium, boron, cobalt, and iron since 2015.**

Notes: Concentrations shown in log10 scale for the dissolved (0.45 µm filtered) fraction.
No CCME water quality guidelines or normal range estimates for these dissolved metals.

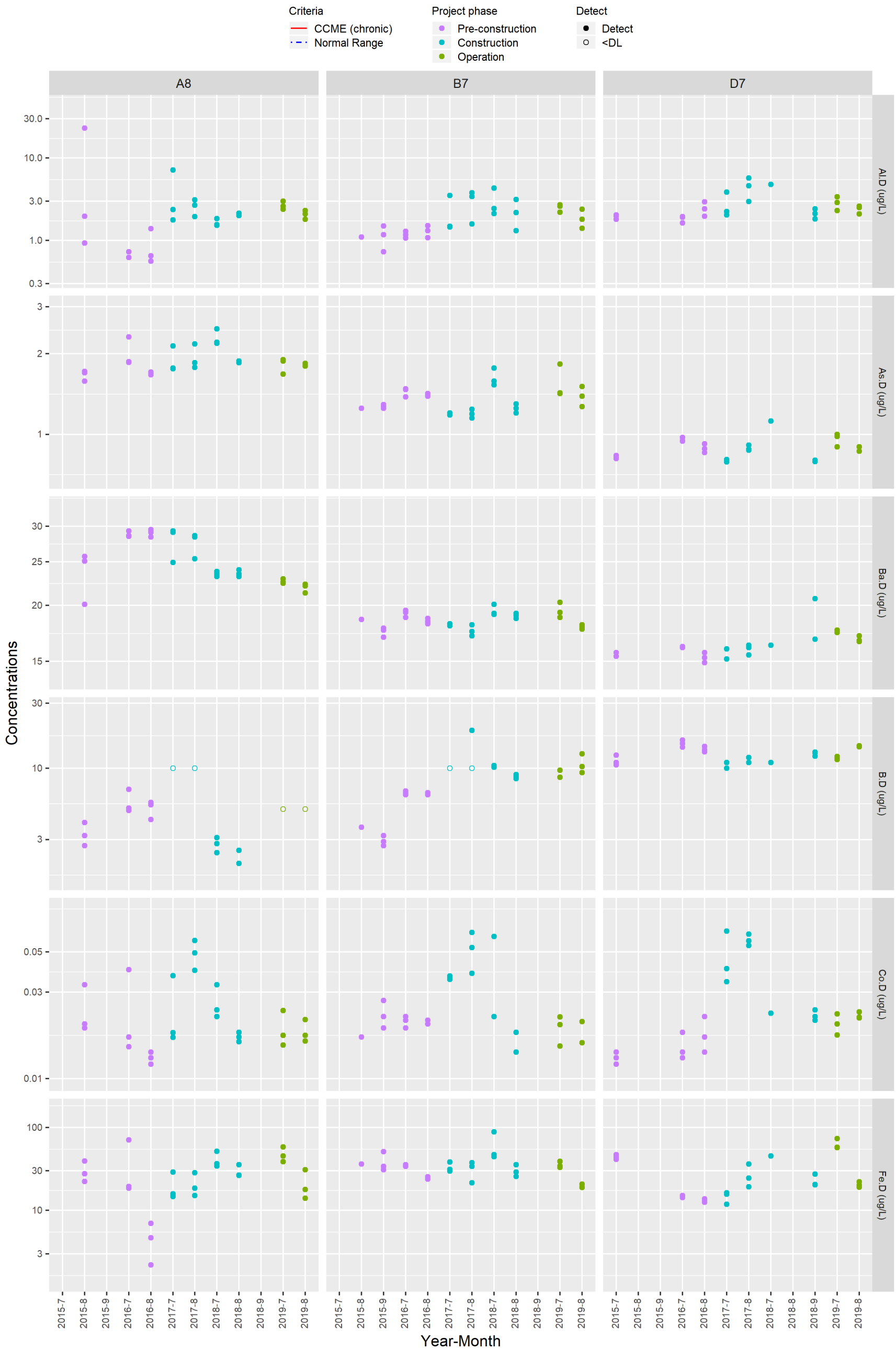




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**Figure 6-7. Peninsula Lakes – dissolved concentrations of lead, lithium, manganese, nickel, strontium, and zinc since 2015.**

Notes: Concentrations shown in log10 scale for the dissolved (0.45 µm filtered) fraction.

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## 6.7 Tables – Peninsula Lakes

Tables specific to the Peninsula Lakes study areas are presented below. The 2019 water quality dataset for the Peninsula Lake stations is provided in **Appendix D**.

Table 6-1. Parameters that exceeded the normal range in concentration for the Peninsula Lakes in 2019 compared to 2018. ..... 102
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**Table 6-3. Peninsula Lake area monitoring stations sampled in 2019.**

| Area | Station ID | UTM (zone 15V) | | | | Depths[b] |
|---|---|---|---|---|---|---|
| | | | | Jul | Aug | |
| | | Easting | Northing | 11, 13 & 15 | 9, 12 & 14 | Total |
| Lake A8 | A8-01 | 540007 | 6987659 | ✓ | ✓ (FD) | 2.3 |
| | A8-02 | 540211 | 6987204 | ✓ | ✓ | 2.2 |
| | A8-03 | 540925 | 6987421 | ✓ | ✓ | 1.7 |
| Lake B7 | B7-01 | 538631 | 6989096 | ✓ | ✓ | 1.0 |
| | B7-02 | 538195 | 6989436 | ✓ | ✓ | 1.7 |
| | B7-03 | 537713 | 6989798 | ✓ | ✓ | 1.7 |
| Lake D7 | D7-01 | 536390 | 6989340 | ✓ (FD) | ✓ (FD) | 1.7 |
| | D7-02 | 536567 | 6988868 | ✓ | ✓ | 1.7 |
| | D7-03 | 536852 | 6988689 | ✓ | ✓ | 1.8 |

Notes

[a] Water and limno profiles = ✓ ; Field duplicate sample collected = FD

[b] Total depths are reported as the average if the station was sampled more than once (Golder 2018).

Table 6-4. Lake A8 – water quality guideline screening summary, 2019.

Notes

*** No samples exceeded the low action level (75% of the AEMP Benchmark) at Lake A8 in 2019.

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calculated for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Refer to **Table 1-2** for the list of AEMP benchmarks for the protection of aquatic life.

[d] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark [c] | Lake A8 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | GCDWQ | AO | SSWQG |
| **Field Measurements** | | | | | | | | | | | | | | | | | | |
| Temperature (°C) | - | - | - | 15.0 | - | - | 6 | 0 | 11.3 | 0.27 | 11.3 | 10.9 | 11.6 | - | - | - | 0 | - |
| Sp. Conductivity (field) (µS/cm) | - | - | - | - | - | - | 6 | 0 | 213 | 11.2 | 214 | 195 | 224 | - | - | - | - | - |
| pH (field) | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 6.5 \| 9.0 | 6 | 0 | 8.1 | 0.21 | 8.1 | 7.9 | 8.4 | - | 0 | - | 0 | - |
| DO (mg/L) | - | 6.5 | - | - | - | 6.5 | 6 | 0 | 10.4 | 0.15 | 10.4 | 10.2 | 10.6 | - | 0 | - | - | - |
| DO (%) | - | - | - | - | - | - | 6 | 0 | 95 | 1.7 | 95 | 93 | 98 | - | - | - | - | - |
| **Conventional Parameters (mg/L unless otherwise specified)** | | | | | | | | | | | | | | | | | | |
| Conductivity (lab, µS/cm) | - | - | - | - | - | - | 6 | 0 | 209 | 10.8 | 211 | 192 | 219 | - | - | - | - | - |
| Hardness | - | - | - | - | - | - | 6 | 0 | 81 | 4.5 | 81 | 76 | 85 | - | - | - | - | - |
| pH (lab) | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 6.5 \| 9.0 | 6 | 0 | 7.8 | 0.031 | 7.8 | 7.7 | 7.8 | - | 0 | - | 0 | - |
| Total Dissolved Solids | - | - | - | 500 | - | 500 | 6 | 0 | 162 | 31.6 | 157 | 130 | 222 | - | - | - | 0 | - |
| TDS (Calculated) | - | - | - | 500 | - | 500 | 6 | 0 | 105 | 5.5 | 106 | 97 | 111 | - | - | - | 0 | - |
| Total Suspended Solids | - | - | - | - | - | - | 6 | 3 | - | - | 1.1 | 1.0 | 1.3 | - | - | - | - | - |
| Turbidity (lab, NTU) | - | - | - | - | - | - | 6 | 0 | 0.50 | 0.16 | 0.51 | 0.32 | 0.71 | - | - | - | - | - |
| **Major Ions (mg/L)** | | | | | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | - | - | - | - | - | - | 6 | 0 | 52 | 3.9 | 52 | 47.0 | 58 | - | - | - | - | - |
| Alkalinity, Carbonate | - | - | - | - | - | - | 6 | 6 | - | - | 0.60 | 0.60 | 0.60 | - | - | - | - | - |
| Alkalinity, Hydroxide | - | - | - | - | - | - | 6 | 6 | - | - | 0.34 | 0.34 | 0.34 | - | - | - | - | - |
| Alkalinity, Total | - | - | - | - | - | - | 6 | 0 | 42.3 | 3.2 | 42.6 | 38.5 | 47.5 | - | - | - | - | - |
| Calcium (T) | - | - | - | - | - | - | 6 | 0 | 26.8 | 2.1 | 26.9 | 24.4 | 29.0 | - | - | - | - | - |
| Chloride | 640 | 120 | - | 250 | - | 120 | 6 | 0 | 36.2 | 3.0 | 36.8 | 30.7 | 39.1 | 0 | 0 | - | 0 | - |
| Fluoride | - | 0.12 | 1.5 | - | 2.8 | 1.5 | 6 | 0 | 0.029 | 0.0032 | 0.029 | 0.026 | 0.035 | - | 0 | 0 | - | 0 |
| Magnesium (T) | - | - | - | - | - | - | 6 | 0 | 3.4 | 0.068 | 3.4 | 3.4 | 3.5 | - | - | - | - | - |
| Potassium (T) | - | - | - | - | - | - | 6 | 0 | 1.6 | 0.033 | 1.6 | 1.6 | 1.7 | - | - | - | - | - |
| Sodium (T) | - | - | - | 200 | - | - | 6 | 0 | 6.0 | 0.27 | 5.9 | 5.6 | 6.3 | - | - | - | 0 | - |
| Sulphate | - | - | - | 500 | - | 218 | 6 | 0 | 6.1 | 0.49 | 6.3 | 5.4 | 6.5 | - | - | - | 0 | - |
| **Nutrients (mg/L)** | | | | | | | | | | | | | | | | | | |
| Ammonia (as N) | - | 0.14 | - | - | - | 0.14 | 6 | 0 | 0.031 | 0.030 | 0.016 | 0.0087 | 0.082 | - | 0 | - | - | - |
| Nitrate (as N) | 124 | 2.9 | 10.0 | - | - | 2.9 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | 0 | 0 | 0 | - | - |
| Nitrate + Nitrite (as N) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0051 | 0.0051 | 0.0051 | - | - | - | - | - |
| Nitrite (as N) | - | 0.060 | 1.0 | - | - | 0.060 | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | 0 | 0 | - | - |

Table 6-4. Lake A8 – water quality guideline screening summary, 2019.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark [c] | Lake A8 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | GCDWQ | AO | SSWQG |
| Total Kjeldahl Nitrogen | - | - | - | - | - | - | 6 | 0 | 0.34 | 0.023 | 0.35 | 0.31 | 0.37 | - | - | - | - | - |
| Total Phosphorus | - | - | - | - | - | - | 6 | 0 | 0.0055 | 0.0013 | 0.0053 | 0.0039 | 0.0079 | - | - | - | - | - |
| **Organic/Inorganic Carbon (mg/L)** | | | | | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | - | - | - | - | - | - | 6 | 0 | 3.6 | 0.71 | 3.5 | 2.7 | 4.5 | - | - | - | - | - |
| Total Organic Carbon | - | - | - | - | - | - | 6 | 0 | 3.8 | 0.39 | 3.6 | 3.4 | 4.3 | - | - | - | - | - |
| **Total Metals (µg/L)** | | | | | | | | | | | | | | | | | | |
| Aluminum (T) | - | 100 | - | - | - | 100 | 6 | 0 | 5.2 | 2.0 | 6.0 | 2.2 | 7.0 | - | 0 | - | - | - |
| Antimony (T) | - | 9.0 | 6.0 | - | - | 6.0 | 6 | 3 | - | - | 0.021 | 0.020 | 0.022 | - | - | 0 | - | - |
| Arsenic (T) | - | 5.0 | 10.0 | - | 25.0 | 10.0 | 6 | 0 | 2.3 | 0.33 | 2.2 | 2.0 | 2.8 | - | 0 | 0 | - | 0 |
| Barium (T) | - | - | 1,000 | - | - | 1,000 | 6 | 0 | 22.7 | 1.1 | 22.8 | 21.2 | 23.7 | - | - | 0 | - | - |
| Beryllium (T) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Bismuth (T) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Boron (T) | 29,000 | 1,500 | 5,000 | - | - | 1,500 | 6 | 6 | - | - | 5.0 | 5.0 | 5.0 | 0 | 0 | 0 | - | - |
| Cadmium (T) | 1.59 \| 1.78 | 0.13 \| 0.14 | 5.0 | - | - | 0.043 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | 0 | 0 | 0 | - | - |
| Chromium (T) | - | 1.0 | 50.0 | - | - | 1.0 | 6 | 2 | 0.29 | 0.21 | 0.34 | 0.10 | 0.57 | - | 0 | 0 | - | - |
| Cobalt (T) | - | - | - | - | - | - | 6 | 0 | 0.050 | 0.019 | 0.051 | 0.028 | 0.073 | - | - | - | - | - |
| Copper (T) | - | 2.0 \| 2.06 | 2,000 | 1,000 | - | 2.0 | 6 | 0 | 0.73 | 0.18 | 0.67 | 0.62 | 1.1 | - | 0 | 0 | 0 | - |
| Iron (T) | - | 300 | - | 300 | 1,060 | 300 | 6 | 0 | 89 | 42.9 | 92 | 42.8 | 146 | - | 0 | - | 0 | 0 |
| Lead (T) | - | 2.25 \| 2.59 | 5.0 | - | - | 1.0 | 6 | 0 | 0.055 | 0.033 | 0.060 | 0.015 | 0.091 | - | 0 | 0 | - | - |
| Lithium (T) | - | - | - | - | - | - | 6 | 0 | 5.9 | 0.34 | 6.1 | 5.4 | 6.1 | - | - | - | - | - |
| Manganese (T) | - | - | 120 | 20.0 | - | - | 6 | 0 | 11.7 | 4.7 | 12.5 | 6.1 | 18.4 | - | - | 0 | 0 | - |
| Mercury (T) | - | 0.026 | 1.0 | - | - | 0.026 | 6 | 0 | 0.00070 | 0.00017 | 0.00068 | 0.00054 | 0.00095 | - | 0 | 0 | - | - |
| Molybdenum (T) | - | 73 | - | - | - | 73 | 6 | 0 | 0.19 | 0.024 | 0.19 | 0.16 | 0.22 | - | 0 | - | - | - |
| Nickel (T) | - | 78 \| 85 | - | - | - | 25.0 | 6 | 0 | 0.78 | 0.11 | 0.78 | 0.65 | 0.96 | - | 0 | - | - | - |
| Selenium (T) | - | 1.0 | 50.0 | - | - | 1.0 | 6 | 6 | - | - | 0.040 | 0.040 | 0.040 | - | 0 | 0 | - | - |
| Silicon (T) | - | - | - | - | - | - | 6 | 0 | 243 | 46.8 | 250 | 188 | 310 | - | - | - | - | - |
| Silver (T) | - | 0.25 | - | - | - | 0.25 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | 0 | - | - | - |
| Strontium (T) | - | 1,700 | 7,000 | - | - | 1,700 | 6 | 0 | 174 | 7.6 | 174 | 161 | 184 | - | - | 0 | - | - |
| Sulfur (T) | - | - | - | - | - | - | 6 | 0 | 2,175 | 204 | 2,240 | 1,890 | 2,450 | - | - | - | - | - |
| Thallium (T) | - | 0.80 | - | - | - | 0.80 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | 0 | - | - | - |
| Tin (T) | - | - | - | - | - | - | 6 | 1 | 0.038 | 0.018 | 0.040 | 0.020 | 0.060 | - | - | - | - | - |
| Titanium (T) | - | - | - | - | - | - | 6 | 2 | 0.15 | 0.11 | 0.16 | 0.050 | 0.31 | - | - | - | - | - |
| Uranium (T) | 33.0 | 15.0 | 20.0 | - | - | 15.0 | 6 | 0 | 0.036 | 0.0015 | 0.037 | 0.034 | 0.038 | 0 | 0 | 0 | - | - |
| Vanadium (T) | - | - | - | - | - | 120 | 6 | 3 | - | - | 0.067 | 0.050 | 0.094 | - | - | - | - | - |
| Zinc (T) | - | - | - | 5,000 | - | - | 6 | 1 | 0.69 | 0.28 | 0.70 | 0.50 | 1.0 | - | - | - | 0 | - |
| Zirconium (T) | - | - | - | - | - | - | 6 | 6 | - | - | 0.010 | 0.010 | 0.010 | - | - | - | - | - |
| **Dissolved Metals (µg/L)** | | | | | | | | | | | | | | | | | | |
| Aluminum (D) | - | - | - | - | - | - | 6 | 0 | 2.4 | 0.41 | 2.4 | 1.8 | 3.0 | - | - | - | - | - |

Table 6-4. Lake A8 – water quality guideline screening summary, 2019.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark [c] | Lake A8 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | GCDWQ | AO | SSWQG |
| Antimony (D) | - | - | - | - | - | - | 6 | 1 | 0.020 | 0.0048 | 0.021 | 0.020 | 0.023 | - | - | - | - | - |
| Arsenic (D) | - | - | - | - | - | - | 6 | 0 | 1.8 | 0.078 | 1.8 | 1.7 | 1.9 | - | - | - | - | - |
| Barium (D) | - | - | - | - | - | - | 6 | 0 | 22.3 | 0.54 | 22.4 | 21.3 | 22.9 | - | - | - | - | - |
| Beryllium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Bismuth (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Boron (D) | - | - | - | - | - | - | 6 | 6 | - | - | 5.0 | 5.0 | 5.0 | - | - | - | - | - |
| Cadmium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Chromium (D) | - | - | - | - | - | - | 6 | 4 | - | - | 0.10 | 0.10 | 0.42 | - | - | - | - | - |
| Cobalt (D) | - | - | - | - | - | - | 6 | 0 | 0.019 | 0.0033 | 0.017 | 0.015 | 0.024 | - | - | - | - | - |
| Copper (D) | - | - | - | - | - | - | 6 | 0 | 0.73 | 0.10 | 0.69 | 0.64 | 0.90 | - | - | - | - | - |
| Iron (D) | - | - | - | - | - | - | 6 | 0 | 34.1 | 16.7 | 34.8 | 14.0 | 58 | - | - | - | - | - |
| Lead (D) | - | - | - | - | - | - | 6 | 2 | 0.022 | 0.016 | 0.023 | 0.010 | 0.042 | - | - | - | - | - |
| Lithium (D) | - | - | - | - | - | - | 6 | 0 | 5.7 | 0.34 | 5.8 | 5.1 | 6.1 | - | - | - | - | - |
| Manganese (D) | 5240 \| 5780 | 350 \| 440 | - | - | - | 210 | 6 | 0 | 1.6 | 0.44 | 1.5 | 1.1 | 2.4 | 0 | 0 | - | - | - |
| Mercury (D) | - | - | - | - | - | - | 6 | 2 | 0.00049 | 0.00019 | 0.00056 | 0.00050 | 0.00067 | - | - | - | - | - |
| Molybdenum (D) | - | - | - | - | - | - | 6 | 0 | 0.19 | 0.025 | 0.19 | 0.16 | 0.22 | - | - | - | - | - |
| Nickel (D) | - | - | - | - | - | - | 6 | 0 | 0.79 | 0.10 | 0.80 | 0.65 | 0.90 | - | - | - | - | - |
| Selenium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.040 | 0.040 | 0.040 | - | - | - | - | - |
| Silicon (D) | - | - | - | - | - | - | 6 | 0 | 230 | 41.1 | 232 | 179 | 280 | - | - | - | - | - |
| Silver (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Strontium (D) | - | - | - | - | - | - | 6 | 0 | 169 | 7.3 | 171 | 155 | 176 | - | - | - | - | - |
| Sulfur (D) | - | - | - | - | - | - | 6 | 0 | 2,178 | 194 | 2,170 | 1,940 | 2,390 | - | - | - | - | - |
| Thallium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Tin (D) | - | - | - | - | - | - | 6 | 2 | 0.066 | 0.059 | 0.063 | 0.020 | 0.16 | - | - | - | - | - |
| Titanium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.050 | 0.050 | 0.050 | - | - | - | - | - |
| Uranium (D) | - | - | - | - | - | - | 6 | 0 | 0.035 | 0.0019 | 0.035 | 0.032 | 0.037 | - | - | - | - | - |
| Vanadium (D) | - | - | - | - | - | - | 6 | 3 | - | - | 0.053 | 0.050 | 0.063 | - | - | - | - | - |
| Zinc (D) | 79.7 \| 98.7 | 17.1 \| 21.6 | - | - | - | 5.6 | 6 | 2 | 0.69 | 0.40 | 0.70 | 0.50 | 1.2 | 0 | 0 | - | - | - |
| Zirconium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.010 | 0.010 | 0.010 | - | - | - | - | - |
| **Other (mg/L)** | | | | | | | | | | | | | | | | | | |
| Cyanide (Free) | - | - | - | - | - | 0.0050 | 6 | 4 | - | - | 0.0010 | 0.0010 | 0.0012 | - | - | - | - | - |
| Cyanide (Total) | - | 0.0050 | 0.20 | - | - | - | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | 0 | 0 | - | - |
| Cyanide (WAD) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | - | - | - | - |

Table 6-5. Lake B7 – water quality guideline screening summary, 2019.

Notes

*** No samples exceeded the low action level (75% of the AEMP Benchmark) at Lake B7 in 2019.

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calcuted for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Refer to **Table 1-2** for references to the AEMP Benchmarks.

[d] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark[c] | Lake B7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | GCDWQ | AO | SSWQG |
| **Field Measurements** | | | | | | | | | | | | | | | | | | |
| Temperature (°C) | - | - | - | 15.0 | - | - | 6 | 0 | 12.6 | 0.19 | 12.7 | 12.3 | 12.8 | - | - | - | 0 | - |
| Sp. Conductivity (field) (µS/cm) | - | - | - | - | - | - | 6 | 0 | 161 | 9.8 | 164 | 149 | 171 | - | - | - | - | - |
| pH (field) | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 6.5 \| 9.0 | 6 | 0 | 7.9 | 0.065 | 7.9 | 7.8 | 8.0 | - | 0 | - | 0 | - |
| DO (mg/L) | - | 6.5 | - | - | - | 6.5 | 6 | 0 | 9.9 | 0.25 | 9.8 | 9.6 | 10.2 | - | 0 | - | - | - |
| DO (%) | - | - | - | - | - | - | 6 | 0 | 93 | 2.5 | 93 | 90 | 96 | - | - | - | - | - |
| **Conventional Parameters (mg/L unless otherwise specified)** | | | | | | | | | | | | | | | | | | |
| Conductivity (lab, µS/cm) | - | - | - | - | - | - | 6 | 0 | 165 | 14.8 | 166 | 150 | 187 | - | - | - | - | - |
| Hardness | - | - | - | - | - | - | 6 | 0 | 62 | 4.6 | 62 | 57 | 69 | - | - | - | - | - |
| pH (lab) | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 6.5 \| 9.0 | 6 | 0 | 7.7 | 0.072 | 7.7 | 7.6 | 7.8 | - | 0 | - | 0 | - |
| Total Dissolved Solids | - | - | - | 500 | - | 500 | 6 | 0 | 117 | 8.8 | 120 | 101 | 126 | - | - | - | 0 | - |
| TDS (Calculated) | - | - | - | 500 | - | 500 | 6 | 0 | 83 | 8.4 | 82 | 75 | 97 | - | - | - | 0 | - |
| Total Suspended Solids | - | - | - | - | - | - | 6 | 5 | - | - | 1.0 | 1.0 | 1.3 | - | - | - | - | - |
| Turbidity (lab, NTU) | - | - | - | - | - | - | 6 | 0 | 0.51 | 0.038 | 0.52 | 0.44 | 0.55 | - | - | - | - | - |
| **Major Ions (mg/L)** | | | | | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | - | - | - | - | - | - | 6 | 0 | 41.3 | 3.5 | 41.4 | 37.7 | 45.1 | - | - | - | - | - |
| Alkalinity, Carbonate | - | - | - | - | - | - | 6 | 6 | - | - | 0.60 | 0.60 | 0.60 | - | - | - | - | - |
| Alkalinity, Hydroxide | - | - | - | - | - | - | 6 | 6 | - | - | 0.34 | 0.34 | 0.34 | - | - | - | - | - |
| Alkalinity, Total | - | - | - | - | - | - | 6 | 0 | 33.8 | 2.9 | 33.9 | 30.9 | 37.0 | - | - | - | - | - |
| Calcium (T) | - | - | - | - | - | - | 6 | 0 | 20.8 | 0.92 | 21.0 | 19.7 | 22.0 | - | - | - | - | - |
| Chloride | 640 | 120 | - | 250 | - | 120 | 6 | 0 | 26.9 | 2.6 | 26.6 | 24.3 | 31.3 | 0 | 0 | - | 0 | - |
| Fluoride | - | 0.12 | 1.5 | - | 2.8 | 1.5 | 6 | 0 | 0.027 | 0.0026 | 0.027 | 0.024 | 0.030 | - | 0 | 0 | - | 0 |
| Magnesium (T) | - | - | - | - | - | - | 6 | 0 | 2.3 | 0.30 | 2.2 | 2.0 | 2.8 | - | - | - | - | - |
| Potassium (T) | - | - | - | - | - | - | 6 | 0 | 1.4 | 0.084 | 1.4 | 1.3 | 1.5 | - | - | - | - | - |
| Sodium (T) | - | - | - | 200 | - | - | 6 | 0 | 5.4 | 2.3 | 4.2 | 3.8 | 9.2 | - | - | - | 0 | - |
| Sulphate | - | - | - | 500 | - | 218 | 6 | 0 | 5.9 | 0.24 | 5.8 | 5.7 | 6.4 | - | - | - | 0 | - |
| **Nutrients (mg/L)** | | | | | | | | | | | | | | | | | | |
| Ammonia (as N) | - | 0.14 | - | - | - | 0.14 | 6 | 0 | 0.018 | 0.014 | 0.014 | 0.0080 | 0.044 | - | 0 | - | - | - |
| Nitrate (as N) | 124 | 2.9 | 10.0 | - | - | 2.9 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | 0 | 0 | 0 | - | - |
| Nitrate + Nitrite (as N) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0051 | 0.0051 | 0.0051 | - | - | - | - | - |
| Nitrite (as N) | - | 0.060 | 1.0 | - | - | 0.060 | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | 0 | 0 | - | - |

Table 6-5. Lake B7 – water quality guideline screening summary, 2019.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark [c] | Lake B7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | GCDWQ | AO | SSWQG |
| Total Kjeldahl Nitrogen | - | - | - | - | - | - | 6 | 0 | 0.33 | 0.033 | 0.32 | 0.30 | 0.39 | - | - | - | - | - |
| Total Phosphorus | - | - | - | - | - | - | 6 | 0 | 0.0076 | 0.0015 | 0.0079 | 0.0051 | 0.0095 | - | - | - | - | - |
| **Organic/Inorganic Carbon (mg/L)** | | | | | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | - | - | - | - | - | - | 6 | 0 | 4.2 | 0.23 | 4.2 | 3.9 | 4.4 | - | - | - | - | - |
| Total Organic Carbon | - | - | - | - | - | - | 6 | 0 | 4.3 | 0.17 | 4.3 | 4.0 | 4.5 | - | - | - | - | - |
| **Total Metals (µg/L)** | | | | | | | | | | | | | | | | | | |
| Aluminum (T) | - | 100 | - | - | - | 100 | 6 | 0 | 4.5 | 0.73 | 4.7 | 3.2 | 5.3 | - | 0 | - | - | - |
| Antimony (T) | - | - | 6.0 | - | - | 6.0 | 6 | 4 | - | - | 0.020 | 0.020 | 0.026 | - | - | 0 | - | - |
| Arsenic (T) | - | 5.0 | 10.0 | - | 25.0 | 10.0 | 6 | 0 | 1.8 | 0.25 | 1.8 | 1.6 | 2.3 | - | 0 | 0 | - | 0 |
| Barium (T) | - | - | 1,000 | - | - | 1,000 | 6 | 0 | 19.4 | 0.92 | 19.1 | 18.6 | 21.0 | - | - | 0 | - | - |
| Beryllium (T) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Bismuth (T) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Boron (T) | 29,000 | 1,500 | 5,000 | - | - | 1,500 | 6 | 0 | 9.9 | 1.1 | 9.6 | 8.9 | 11.7 | 0 | 0 | 0 | - | - |
| Cadmium (T) | 1.18 \| 1.44 | 0.098 \| 0.12 | 5.0 | - | - | 0.043 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | 0 | 0 | 0 | - | - |
| Chromium (T) | - | 1.0 | 50.0 | - | - | 1.0 | 6 | 5 | - | - | 0.10 | 0.10 | 0.48 | - | 0 | 0 | - | - |
| Cobalt (T) | - | - | - | - | - | - | 6 | 0 | 0.052 | 0.018 | 0.049 | 0.035 | 0.078 | - | - | - | - | - |
| Copper (T) | - | 2.0 | 2,000 | 1,000 | - | 2.0 | 6 | 0 | 0.84 | 0.13 | 0.81 | 0.70 | 1.0 | - | 0 | 0 | 0 | - |
| Iron (T) | - | 300 | - | 300 | 1,060 | 300 | 6 | 0 | 69 | 19.4 | 66 | 49.4 | 94 | - | 0 | - | 0 | 0 |
| Lead (T) | - | 1.00 \| 1.99 | 5.0 | - | - | 1.0 | 6 | 0 | 0.051 | 0.027 | 0.052 | 0.022 | 0.084 | - | 0 | 0 | - | - |
| Lithium (T) | - | - | - | - | - | - | 6 | 0 | 12.6 | 0.36 | 12.6 | 12.2 | 13.3 | - | - | - | - | - |
| Manganese (T) | - | - | 120 | 20.0 | - | - | 6 | 0 | 7.6 | 3.3 | 7.5 | 4.4 | 11.6 | - | - | 0 | 0 | - |
| Mercury (T) | - | 0.026 | 1.0 | - | - | 0.026 | 6 | 1 | 0.00066 | 0.00024 | 0.00072 | 0.00050 | 0.00087 | - | 0 | 0 | - | - |
| Molybdenum (T) | - | 73 | - | - | - | 73 | 6 | 0 | 0.17 | 0.011 | 0.18 | 0.16 | 0.19 | - | 0 | - | - | - |
| Nickel (T) | - | 25 \| 72 | - | - | - | 25.0 | 6 | 0 | 0.86 | 0.072 | 0.85 | 0.77 | 0.97 | - | 0 | - | - | - |
| Selenium (T) | - | 1.0 | 50.0 | - | - | 1.0 | 6 | 5 | - | - | 0.040 | 0.040 | 0.044 | - | 0 | 0 | - | - |
| Silicon (T) | - | - | - | - | - | - | 6 | 0 | 213 | 11.3 | 214 | 199 | 232 | - | - | - | - | - |
| Silver (T) | - | 0.25 | - | - | - | 0.25 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | 0 | - | - | - |
| Strontium (T) | - | - | 7,000 | - | - | 1,700 | 6 | 0 | 205 | 13.9 | 206 | 189 | 220 | - | - | 0 | - | - |
| Sulfur (T) | - | - | - | - | - | - | 6 | 0 | 2,228 | 235 | 2,170 | 1,890 | 2,510 | - | - | - | - | - |
| Thallium (T) | - | 0.80 | - | - | - | 0.80 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | 0 | - | - | - |
| Tin (T) | - | - | - | - | - | - | 6 | 0 | 0.063 | 0.023 | 0.068 | 0.025 | 0.093 | - | - | - | - | - |
| Titanium (T) | - | - | - | - | - | - | 6 | 2 | 0.11 | 0.035 | 0.14 | 0.079 | 0.15 | - | - | - | - | - |
| Uranium (T) | 33.0 | 15.0 | 20.0 | - | - | 15.0 | 6 | 0 | 0.025 | 0.0018 | 0.025 | 0.023 | 0.028 | 0 | 0 | 0 | - | - |
| Vanadium (T) | - | - | - | - | - | 120 | 6 | 0 | 0.072 | 0.017 | 0.072 | 0.054 | 0.090 | - | - | - | - | - |
| Zinc (T) | - | - | - | 5,000 | - | - | 6 | 0 | 0.92 | 0.31 | 0.81 | 0.52 | 1.4 | - | - | - | 0 | - |
| Zirconium (T) | - | - | - | - | - | - | 6 | 5 | - | - | 0.010 | 0.010 | 0.032 | - | - | - | - | - |
| **Dissolved Metals (µg/L)** | | | | | | | | | | | | | | | | | | |
| Aluminum (D) | - | - | - | - | - | - | 6 | 0 | 2.2 | 0.50 | 2.3 | 1.4 | 2.7 | - | - | - | - | - |

Table 6-5. Lake B7 – water quality guideline screening summary, 2019.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark [c] | Lake B7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | GCDWQ | AO | SSWQG |
| Antimony (D) | - | - | - | - | - | - | 6 | 4 | - | - | 0.020 | 0.020 | 0.021 | - | - | - | - | - |
| Arsenic (D) | - | - | - | - | - | - | 6 | 0 | 1.5 | 0.19 | 1.4 | 1.3 | 1.8 | - | - | - | - | - |
| Barium (D) | - | - | - | - | - | - | 6 | 0 | 18.7 | 0.99 | 18.5 | 17.7 | 20.3 | - | - | - | - | - |
| Beryllium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Bismuth (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Boron (D) | - | - | - | - | - | - | 6 | 0 | 9.9 | 1.6 | 9.5 | 8.6 | 12.8 | - | - | - | - | - |
| Cadmium (D) | - | - | - | - | - | - | 6 | 5 | - | - | 0.0050 | 0.0050 | 0.013 | - | - | - | - | - |
| Chromium (D) | - | - | - | - | - | - | 6 | 3 | - | - | 0.31 | 0.10 | 0.65 | - | - | - | - | - |
| Cobalt (D) | - | - | - | - | - | - | 6 | 0 | 0.019 | 0.0028 | 0.020 | 0.015 | 0.022 | - | - | - | - | - |
| Copper (D) | - | - | - | - | - | - | 6 | 0 | 0.92 | 0.18 | 0.91 | 0.72 | 1.2 | - | - | - | - | - |
| Iron (D) | - | - | - | - | - | - | 6 | 0 | 27.5 | 9.0 | 26.9 | 18.9 | 39.1 | - | - | - | - | - |
| Lead (D) | - | - | - | - | - | - | 6 | 1 | 0.028 | 0.018 | 0.027 | 0.010 | 0.047 | - | - | - | - | - |
| Lithium (D) | - | - | - | - | - | - | 6 | 0 | 12.2 | 0.38 | 12.1 | 11.8 | 12.8 | - | - | - | - | - |
| Manganese (D) | 4040 \| 4810 | 390 | - | - | - | 210 | 6 | 0 | 0.97 | 0.54 | 0.84 | 0.43 | 2.0 | 0 | 0 | - | - | - |
| Mercury (D) | - | - | - | - | - | - | 6 | 0 | 0.00075 | 0.00012 | 0.00079 | 0.00052 | 0.00086 | - | - | - | - | - |
| Molybdenum (D) | - | - | - | - | - | - | 6 | 0 | 0.17 | 0.0090 | 0.17 | 0.16 | 0.18 | - | - | - | - | - |
| Nickel (D) | - | - | - | - | - | - | 6 | 0 | 0.86 | 0.062 | 0.85 | 0.79 | 0.95 | - | - | - | - | - |
| Selenium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.040 | 0.040 | 0.040 | - | - | - | - | - |
| Silicon (D) | - | - | - | - | - | - | 6 | 0 | 180 | 12.2 | 178 | 166 | 198 | - | - | - | - | - |
| Silver (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Strontium (D) | - | - | - | - | - | - | 6 | 0 | 199 | 16.0 | 199 | 181 | 221 | - | - | - | - | - |
| Sulfur (D) | - | - | - | - | - | - | 6 | 0 | 2,143 | 282 | 2,070 | 1,820 | 2,620 | - | - | - | - | - |
| Thallium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Tin (D) | - | - | - | - | - | - | 6 | 0 | 0.075 | 0.037 | 0.091 | 0.025 | 0.12 | - | - | - | - | - |
| Titanium (D) | - | - | - | - | - | - | 6 | 5 | - | - | 0.050 | 0.050 | 0.063 | - | - | - | - | - |
| Uranium (D) | - | - | - | - | - | - | 6 | 0 | 0.025 | 0.0012 | 0.025 | 0.023 | 0.026 | - | - | - | - | - |
| Vanadium (D) | - | - | - | - | - | - | 6 | 3 | - | - | 0.056 | 0.050 | 0.066 | - | - | - | - | - |
| Zinc (D) | 68 \| 82 | 16.2 \| 18.3 | - | - | - | 5.6 | 6 | 1 | 1.1 | 0.56 | 1.2 | 0.50 | 1.8 | 0 | 0 | - | - | - |
| Zirconium (D) | - | - | - | - | - | - | 6 | 5 | - | - | 0.010 | 0.010 | 0.011 | - | - | - | - | - |
| **Other (mg/L)** | | | | | | | | | | | | | | | | | | |
| Cyanide (Free) | - | - | - | - | - | 0.0050 | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | - | - | - | - |
| Cyanide (Total) | - | 0.0050 | 0.20 | - | - | - | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | 0 | 0 | - | - |
| Cyanide (WAD) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | - | - | - | - |

Table 6-6. Lake D7 – water quality guideline screening summary, 2019.

Notes

*** No samples exceeded the low action level (75% of the AEMP Benchmark) at Lake D7 in 2019.

[a] Refer to the main document for references to the various screening criteria.

[b] The range of acute and chronic guidelines calcuted for the 2019 water quality data is shown for parameters with site-specific water quality guidelines (e.g., cadmium, dissolved zinc, and dissolved manganese).

[c] Refer to **Table 1-2** for references to the AEMP Benchmarks.

[d] Mean and SD were not calculated if >50% of the values were <MDL. 1/2 the MDL was used to calculate the mean and SD if >50% of the measurements were > MDL.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark[c] | Lake D7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | HH | AO | SSWQG |
| **Field Measurements** | | | | | | | | | | | | | | | | | | |
| Temperature (°C) | - | - | - | 15.0 | - | - | 6 | 0 | 12.6 | 1.3 | 12.6 | 11.3 | 13.8 | - | - | - | 0 | - |
| Sp. Conductivity (field) (µS/cm) | - | - | - | - | - | - | 6 | 0 | 107 | 37.9 | 116 | 31.4 | 132 | - | - | - | - | - |
| pH (field) | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 6.5 \| 9.0 | 6 | 0 | 8.0 | 0.015 | 8.0 | 8.0 | 8.0 | - | 0 | - | 0 | - |
| DO (mg/L) | - | 6.5 | - | - | - | 6.5 | 6 | 0 | 9.7 | 0.078 | 9.8 | 9.6 | 9.8 | - | 0 | - | - | - |
| DO (%) | - | - | - | - | - | - | 6 | 0 | 91 | 3.2 | 91 | 88 | 95 | - | - | - | - | - |
| **Conventional Parameters (mg/L unless otherwise specified)** | | | | | | | | | | | | | | | | | | |
| Conductivity (lab, µS/cm) | - | - | - | - | - | - | 6 | 0 | 129 | 15.9 | 125 | 115 | 155 | - | - | - | - | - |
| Hardness | - | - | - | - | - | - | 6 | 0 | 45.5 | 3.2 | 45.2 | 42.6 | 50 | - | - | - | - | - |
| pH (lab) | - | 6.5 \| 9.0 | - | 7.0 \| 10.5 | - | 6.5 \| 9.0 | 6 | 0 | 7.8 | 0.046 | 7.8 | 7.7 | 7.8 | - | 0 | - | 0 | - |
| Total Dissolved Solids | - | - | - | 500 | - | 500 | 6 | 0 | 76 | 8.2 | 74 | 68 | 90 | - | - | - | 0 | - |
| TDS (Calculated) | - | - | - | 500 | - | 500 | 6 | 0 | 67 | 7.3 | 66 | 61 | 79 | - | - | - | 0 | - |
| Total Suspended Solids | - | - | - | - | - | - | 6 | 1 | 1.2 | 0.35 | 1.3 | 1.0 | 1.5 | - | - | - | - | - |
| Turbidity (lab, NTU) | - | - | - | - | - | - | 6 | 0 | 0.62 | 0.033 | 0.62 | 0.57 | 0.66 | - | - | - | - | - |
| **Major Ions (mg/L)** | | | | | | | | | | | | | | | | | | |
| Alkalinity, Bicarbonate | - | - | - | - | - | - | 6 | 0 | 54 | 2.6 | 54 | 51 | 57 | - | - | - | - | - |
| Alkalinity, Carbonate | - | - | - | - | - | - | 6 | 6 | - | - | 0.60 | 0.60 | 0.60 | - | - | - | - | - |
| Alkalinity, Hydroxide | - | - | - | - | - | - | 6 | 6 | - | - | 0.34 | 0.34 | 0.34 | - | - | - | - | - |
| Alkalinity, Total | - | - | - | - | - | - | 6 | 0 | 44.1 | 2.1 | 44.0 | 41.9 | 46.4 | - | - | - | - | - |
| Calcium (T) | - | - | - | - | - | - | 6 | 0 | 14.3 | 0.96 | 14.3 | 13.3 | 15.4 | - | - | - | - | - |
| Chloride | 640 | 120 | - | 250 | - | 120 | 6 | 0 | 11.0 | 3.4 | 10.0 | 8.6 | 17.3 | 0 | 0 | - | 0 | - |
| Fluoride | - | 0.12 | 1.5 | - | 2.8 | 1.5 | 6 | 0 | 0.038 | 0.0046 | 0.038 | 0.033 | 0.042 | - | 0 | 0 | - | 0 |
| Magnesium (T) | - | - | - | - | - | - | 6 | 0 | 2.6 | 0.21 | 2.5 | 2.4 | 2.9 | - | - | - | - | - |
| Potassium (T) | - | - | - | - | - | - | 6 | 0 | 1.2 | 0.075 | 1.2 | 1.2 | 1.3 | - | - | - | - | - |
| Sodium (T) | - | - | - | 200 | - | - | 6 | 0 | 7.5 | 1.3 | 7.1 | 6.4 | 9.1 | - | - | - | 0 | - |
| Sulphate | - | - | - | 500 | - | 218 | 6 | 0 | 4.5 | 0.44 | 4.4 | 4.0 | 5.3 | - | - | - | 0 | - |
| **Nutrients (mg/L)** | | | | | | | | | | | | | | | | | | |
| Ammonia (as N) | - | 0.14 | - | - | - | 0.14 | 6 | 0 | 0.019 | 0.011 | 0.019 | 0.0061 | 0.034 | - | 0 | - | - | - |
| Nitrate (as N) | 124 | 2.9 | 10.0 | - | - | 2.9 | 6 | 3 | - | - | 0.0087 | 0.0050 | 0.037 | 0 | 0 | 0 | - | - |
| Nitrate + Nitrite (as N) | - | - | - | - | - | - | 6 | 3 | - | - | 0.0087 | 0.0051 | 0.039 | - | - | - | - | - |
| Nitrite (as N) | - | 0.060 | 1.0 | - | - | 0.060 | 6 | 4 | - | - | 0.0010 | 0.0010 | 0.0014 | - | 0 | 0 | - | - |

Table 6-6. Lake D7 – water quality guideline screening summary, 2019.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark [c] | Lake D7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | HH | AO | SSWQG |
| Total Kjeldahl Nitrogen | - | - | - | - | - | - | 6 | 0 | 0.38 | 0.11 | 0.43 | 0.17 | 0.45 | - | - | - | - | - |
| Total Phosphorus | - | - | - | - | - | - | 6 | 0 | 0.0088 | 0.00056 | 0.0086 | 0.0083 | 0.0098 | - | - | - | - | - |
| **Organic/Inorganic Carbon (mg/L)** | | | | | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | - | - | - | - | - | - | 6 | 0 | 4.1 | 0.28 | 4.1 | 3.8 | 4.4 | - | - | - | - | - |
| Total Organic Carbon | - | - | - | - | - | - | 6 | 0 | 4.3 | 0.26 | 4.3 | 4.0 | 4.8 | - | - | - | - | - |
| **Total Metals (µg/L)** | | | | | | | | | | | | | | | | | | |
| Aluminum (T) | - | 100 | - | - | - | 100 | 6 | 0 | 6.3 | 0.89 | 6.3 | 5.3 | 7.9 | - | 0 | - | - | - |
| Antimony (T) | - | - | 6.0 | - | - | 6.0 | 6 | 5 | - | - | 0.020 | 0.020 | 0.022 | - | - | 0 | - | - |
| Arsenic (T) | - | 5.0 | 10.0 | - | 25.0 | 10.0 | 6 | 0 | 1.1 | 0.12 | 1.1 | 0.95 | 1.2 | - | 0 | 0 | - | 0 |
| Barium (T) | - | - | 1,000 | - | - | 1,000 | 6 | 0 | 17.5 | 0.97 | 17.5 | 16.4 | 18.5 | - | - | 0 | - | - |
| Beryllium (T) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Bismuth (T) | - | - | - | - | - | - | 6 | 3 | - | - | 0.0053 | 0.0050 | 0.038 | - | - | - | - | - |
| Boron (T) | 29,000 | 1,500 | 5,000 | - | - | 1,500 | 6 | 0 | 13.3 | 1.4 | 13.1 | 12.0 | 15.0 | 0 | 0 | 0 | - | - |
| Cadmium (T) | 0.88 \| 1.04 | 0.078 \| 0.090 | 5.0 | - | - | 0.043 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | 0 | 0 | 0 | - | - |
| Chromium (T) | - | 1.0 | 50.0 | - | - | 1.0 | 6 | 4 | - | - | 0.10 | 0.10 | 0.36 | - | 0 | 0 | - | - |
| Cobalt (T) | - | - | - | - | - | - | 6 | 0 | 0.049 | 0.0037 | 0.050 | 0.042 | 0.052 | - | - | - | - | - |
| Copper (T) | - | 2.0 | 2,000 | 1,000 | - | 2.0 | 6 | 0 | 0.91 | 0.41 | 0.77 | 0.65 | 1.7 | - | 0 | 0 | 0 | - |
| Iron (T) | - | 300 | - | 300 | 1,060 | 300 | 6 | 0 | 97 | 38.1 | 97 | 59 | 135 | - | 0 | - | 0 | 0 |
| Lead (T) | - | 1.0 | 5.0 | - | - | 1.0 | 6 | 0 | 0.034 | 0.014 | 0.034 | 0.017 | 0.057 | - | 0 | 0 | - | - |
| Lithium (T) | - | - | - | - | - | - | 6 | 0 | 1.5 | 0.18 | 1.5 | 1.3 | 1.7 | - | - | - | - | - |
| Manganese (T) | - | - | 120 | 20.0 | - | - | 6 | 0 | 11.6 | 1.2 | 11.2 | 10.5 | 13.7 | - | - | 0 | 0 | - |
| Mercury (T) | - | 0.026 | 1.0 | - | - | 0.026 | 6 | 0 | 0.00084 | 0.00013 | 0.00085 | 0.00066 | 0.00099 | - | 0 | 0 | - | - |
| Molybdenum (T) | - | 73 | - | - | - | 73 | 6 | 0 | 0.38 | 0.085 | 0.38 | 0.29 | 0.46 | - | 0 | - | - | - |
| Nickel (T) | - | 25.0 | - | - | - | 25.0 | 6 | 0 | 0.79 | 0.014 | 0.79 | 0.77 | 0.80 | - | 0 | - | - | - |
| Selenium (T) | - | 1.0 | 50.0 | - | - | 1.0 | 6 | 3 | - | - | 0.041 | 0.040 | 0.044 | - | 0 | 0 | - | - |
| Silicon (T) | - | - | - | - | - | - | 6 | 0 | 133 | 4.7 | 134 | 128 | 139 | - | - | - | - | - |
| Silver (T) | - | 0.25 | - | - | - | 0.25 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | 0 | - | - | - |
| Strontium (T) | - | - | 7,000 | - | - | 1,700 | 6 | 0 | 73 | 7.7 | 71 | 66 | 84 | - | - | 0 | - | - |
| Sulfur (T) | - | - | - | - | - | - | 6 | 0 | 1,603 | 200 | 1,570 | 1,330 | 1,880 | - | - | - | - | - |
| Thallium (T) | - | 0.80 | - | - | - | 0.80 | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | 0 | - | - | - |
| Tin (T) | - | - | - | - | - | - | 6 | 1 | 0.050 | 0.025 | 0.054 | 0.020 | 0.080 | - | - | - | - | - |
| Titanium (T) | - | - | - | - | - | - | 6 | 0 | 0.31 | 0.026 | 0.32 | 0.28 | 0.35 | - | - | - | - | - |
| Uranium (T) | 33.0 | 15.0 | 20.0 | - | - | 15.0 | 6 | 0 | 0.060 | 0.0037 | 0.061 | 0.054 | 0.065 | 0 | 0 | 0 | - | - |
| Vanadium (T) | - | - | - | - | - | 120 | 6 | 0 | 0.11 | 0.034 | 0.11 | 0.079 | 0.14 | - | - | - | - | - |
| Zinc (T) | - | - | - | 5,000 | - | - | 6 | 2 | 0.66 | 0.41 | 0.58 | 0.50 | 1.2 | - | - | - | 0 | - |
| Zirconium (T) | - | - | - | - | - | - | 6 | 6 | - | - | 0.010 | 0.010 | 0.010 | - | - | - | - | - |

Table 6-6. Lake D7 – water quality guideline screening summary, 2019.

| Parameter | Screening Criteria [a] | | | | | AEMP Benchmark [c] | Lake D7 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CCME Aquatic Life [b] | | Health Canada | | SSWQO | | Summary Statistics [d] | | | | | | | % of samples > screening criteria | | | | |
| | Acute | Chronic | GCDWQ | Aesthetic Objective | | | N | N<MDL | Mean | SD | Median | Min | Max | Acute | Chronic | HH | AO | SSWQG |
| **Dissolved Metals (µg/L)** | | | | | | | | | | | | | | | | | | |
| Aluminum (D) | - | - | - | - | - | - | 6 | 0 | 2.4 | 0.41 | 2.4 | 1.8 | 3.0 | - | - | - | - | - |
| Antimony (D) | - | - | - | - | - | - | 6 | 1 | 0.020 | 0.0048 | 0.021 | 0.020 | 0.023 | - | - | - | - | - |
| Arsenic (D) | - | - | - | - | - | - | 6 | 0 | 1.8 | 0.078 | 1.8 | 1.7 | 1.9 | - | - | - | - | - |
| Barium (D) | - | - | - | - | - | - | 6 | 0 | 22.3 | 0.54 | 22.4 | 21.3 | 22.9 | - | - | - | - | - |
| Beryllium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Bismuth (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Boron (D) | - | - | - | - | - | - | 6 | 6 | - | - | 5.0 | 5.0 | 5.0 | - | - | - | - | - |
| Cadmium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Chromium (D) | - | - | - | - | - | - | 6 | 4 | - | - | 0.10 | 0.10 | 0.42 | - | - | - | - | - |
| Cobalt (D) | - | - | - | - | - | - | 6 | 0 | 0.019 | 0.0033 | 0.017 | 0.015 | 0.024 | - | - | - | - | - |
| Copper (D) | - | - | - | - | - | - | 6 | 0 | 0.73 | 0.10 | 0.69 | 0.64 | 0.90 | - | - | - | - | - |
| Iron (D) | - | - | - | - | - | - | 6 | 0 | 34.1 | 16.7 | 34.8 | 14.0 | 58 | - | - | - | - | - |
| Lead (D) | - | - | - | - | - | - | 6 | 2 | 0.022 | 0.016 | 0.023 | 0.010 | 0.042 | - | - | - | - | - |
| Lithium (D) | - | - | - | - | - | - | 6 | 0 | 5.7 | 0.34 | 5.8 | 5.1 | 6.1 | - | - | - | - | - |
| Manganese (D) | 5240 \| 5780 | 350 \| 440 | - | - | - | 210 | 6 | 0 | 1.6 | 0.44 | 1.5 | 1.1 | 2.4 | 0 | 0 | - | - | - |
| Mercury (D) | - | - | - | - | - | - | 6 | 2 | 0.00049 | 0.00019 | 0.00056 | 0.00050 | 0.00067 | - | - | - | - | - |
| Molybdenum (D) | - | - | - | - | - | - | 6 | 0 | 0.19 | 0.025 | 0.19 | 0.16 | 0.22 | - | - | - | - | - |
| Nickel (D) | - | - | - | - | - | - | 6 | 0 | 0.79 | 0.10 | 0.80 | 0.65 | 0.90 | - | - | - | - | - |
| Selenium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.040 | 0.040 | 0.040 | - | - | - | - | - |
| Silicon (D) | - | - | - | - | - | - | 6 | 0 | 230 | 41.1 | 232 | 179 | 280 | - | - | - | - | - |
| Silver (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Strontium (D) | - | - | - | - | - | - | 6 | 0 | 169 | 7.3 | 171 | 155 | 176 | - | - | - | - | - |
| Sulfur (D) | - | - | - | - | - | - | 6 | 0 | 2,178 | 194 | 2,170 | 1,940 | 2,390 | - | - | - | - | - |
| Thallium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0050 | 0.0050 | 0.0050 | - | - | - | - | - |
| Tin (D) | - | - | - | - | - | - | 6 | 2 | 0.066 | 0.059 | 0.063 | 0.020 | 0.16 | - | - | - | - | - |
| Titanium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.050 | 0.050 | 0.050 | - | - | - | - | - |
| Uranium (D) | - | - | - | - | - | - | 6 | 0 | 0.035 | 0.0019 | 0.035 | 0.032 | 0.037 | - | - | - | - | - |
| Vanadium (D) | - | - | - | - | - | - | 6 | 3 | - | - | 0.053 | 0.050 | 0.063 | - | - | - | - | - |
| Zinc (D) | 80 \| 99 | 17.1 \| 21.6 | - | - | - | 5.6 | 6 | 2 | 0.69 | 0.40 | 0.70 | 0.50 | 1.2 | 0 | 0 | - | - | - |
| Zirconium (D) | - | - | - | - | - | - | 6 | 6 | - | - | 0.010 | 0.010 | 0.010 | - | - | - | - | - |
| **Other (mg/L)** | | | | | | | | | | | | | | | | | | |
| Cyanide (Free) | - | - | - | - | - | 0.0050 | 6 | 4 | - | - | 0.0010 | 0.0010 | 0.0012 | - | - | - | - | - |
| Cyanide (Total) | - | 0.0050 | 0.20 | - | - | - | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | 0 | 0 | - | - |
| Cyanide (WAD) | - | - | - | - | - | - | 6 | 6 | - | - | 0.0010 | 0.0010 | 0.0010 | - | - | - | - | - |

Table 6-7. Lake A8 – normal range screening assessment, 2019.

Notes

Yellow highlighted cells indicate the mean/median concentration exceeds the upper limit of the normal range (baseline) by > 10%.

**Bold** values indicate the mean/median concentration is greater than the upper limit of the normal range.

Parameters marked with "*" indicates concentrations are < 5x the current DL.

[a] Refer to the main document for information regarding the normal range estimates calculated for the 2018 interpretive report (Golder, 2019).

[b] Upper limit (90th percentile or 90th prediction interval) of the normal range used for screening purposes, with the exception of pH which has a relevant lower limit. The upper limit of the normal range was set equal to the DL (as of 2019) for those parameters without measured concentrations in the baseline dataset.

[c] If the normal range was calculated using the PI or PI (λ) method, mean concentrations were screened against upper limit. If the percentile method was used to calculate the normal range, the median concentration was compare to the upper limit.

| Parameter | Current DL | Calculation Method [a] | Normal Range (upper limit) [b] | Lake A8 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Summary Statistics [c] | | | |
| | | | | N | N<MDL | Mean | Median |
| **Field Measurements** | | | | | | | |
| Sp. Conductivity (field) (µS/cm) | 0.1 | Percentile | 334 | 6 | 0 | 213 | 214 |
| pH (field) | 0.1 | PI | 7.7 \| 8.3 | 6 | 0 | 8.1 | 8.1 |
| **Conventional Parameters (mg/L unless otherwise specified)** | | | | | | | |
| Hardness | 0.2 | Percentile | 123 | 6 | 0 | 81 | 81 |
| TDS (Calculated) | - | Percentile | 152 | 6 | 0 | 105 | 106 |
| Total Suspended Solids | 1 | Percentile | 4.0 | 6 | 3 | - | 1.1 |
| Turbidity (lab, NTU) | 0.1 | PI (λ) | 0.87 | 6 | 0 | 0.50 | 0.51 |
| **Major Ions (mg/L)** | | | | | | | |
| Alkalinity, Bicarbonate | 1 | PI (λ) | 91 | 6 | 0 | 52 | 52 |
| Alkalinity, Total | 1 | PI (λ) | 84 | 6 | 0 | 42.3 | 42.6 |
| Calcium (T) | 0.01 | Percentile | 40.0 | 6 | 0 | 26.8 | 26.9 |
| Chloride | 0.1 | Percentile | 61 | 6 | 0 | 36.2 | 36.8 |
| Fluoride | 0.02 | PI | 0.040 | 6 | 0 | 0.029 | 0.029 |
| Magnesium (T) | 0.004 | Percentile | 5.6 | 6 | 0 | 3.4 | 3.4 |
| Potassium (T) | 0.02 | Percentile | 2.5 | 6 | 0 | 1.6 | 1.6 |
| Sodium (T) | 0.02 | Percentile | 8.4 | 6 | 0 | 6.0 | 5.9 |
| Sulphate | 0.3 | PI | 9.3 | 6 | 0 | 6.1 | 6.3 |
| **Nutrients (mg/L)** | | | | | | | |
| Ammonia (as N) * | 0.005 | Percentile | 0.011 | 6 | 0 | 0.031 | 0.016 |
| Nitrate (as N) | 0.005 | Percentile | 0.015 | 6 | 6 | - | 0.0050 |
| Nitrite (as N) | 0.001 | DL | 0.0010 | 6 | 6 | - | 0.0010 |
| Total Kjeldahl Nitrogen | 0.05 | PI (λ) | 0.63 | 6 | 0 | 0.34 | 0.35 |
| Total Phosphorus | 0.001 | PI | 0.0090 | 6 | 0 | 0.0055 | 0.0053 |
| **Organic/Inorganic Carbon (mg/L)** | | | | | | | |
| Dissolved Organic Carbon | 0.5 | PI | 4.9 | 6 | 0 | 3.6 | 3.5 |
| Total Organic Carbon | 0.5 | PI | 4.7 | 6 | 0 | 3.8 | 3.6 |
| **Total Metals (µg/L)** | | | | | | | |
| Aluminum (T) | 1 | PI (λ) | 3.0 | 6 | 0 | 5.2 | 6.0 |
| Antimony (T) | 0.02 | Percentile | 0.40 | 6 | 3 | - | 0.021 |
| Arsenic (T) | 0.02 | PI | 2.4 | 6 | 0 | 2.3 | 2.2 |
| Barium (T) | 0.02 | PI | 32.0 | 6 | 0 | 22.7 | 22.8 |
| Beryllium (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |

Table 6-7. Lake A8 – normal range screening assessment, 2019.

| Parameter | Current DL | Calculation Method [a] | Normal Range (upper limit)[b] | Lake A8 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Summary Statistics [c] | | | |
| | | | | N | N<MDL | Mean | Median |
| Bismuth (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |
| Boron (T) | 5 | Percentile | 5.0 | 6 | 6 | - | 5.0 |
| Cadmium (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |
| Chromium (T) | 0.1 | DL | 0.10 | 6 | 2 | 0.29 | 0.34 |
| Cobalt (T) | 0.005 | PI | 0.050 | 6 | 0 | 0.050 | 0.051 |
| Copper (T) | 0.05 | PI | 0.89 | 6 | 0 | 0.73 | 0.67 |
| Iron (T) | 1 | PI | 67 | 6 | 0 | 89 | 92 |
| Lead (T) | 0.01 | Percentile | 0.030 | 6 | 0 | 0.055 | 0.06 |
| Lithium (T) | 0.5 | Percentile | 10.0 | 6 | 0 | 5.9 | 6.1 |
| Manganese (T) | 0.05 | PI | 13.0 | 6 | 0 | 11.7 | 12.5 |
| Mercury (T) | 0.0005 | PI | 0.0012 | 6 | 0 | 0.00070 | 0.00068 |
| Molybdenum (T) | 0.05 | Percentile | 0.22 | 6 | 0 | 0.19 | 0.19 |
| Nickel (T) | 0.05 | PI | 0.92 | 6 | 0 | 0.78 | 0.78 |
| Selenium (T) | 0.04 | DL | 0.040 | 6 | 6 | - | 0.040 |
| Silver (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |
| Strontium (T) | 0.02 | PI (λ) | 273 | 6 | 0 | 174 | 174 |
| Thallium (T) | 0.005 | Percentile | 0.0050 | 6 | 6 | - | 0.0050 |
| Tin (T) | 0.02 | Percentile | 0.050 | 6 | 1 | 0.038 | 0.040 |
| Titanium (T) | 0.05 | Percentile | 0.25 | 6 | 2 | 0.15 | 0.16 |
| Uranium (T) | 0.001 | PI (λ) | 0.054 | 6 | 0 | 0.036 | 0.037 |
| Vanadium (T) | 0.05 | DL | 0.050 | 6 | 3 | - | 0.067 |
| Zinc (T) | 0.5 | Percentile | 1.2 | 6 | 1 | 0.69 | 0.70 |
| **Dissolved Metals (µg/L)** | | | | | | | |
| Zinc (D) | 0.5 | Percentile | 8.5 | 6 | 2 | 0.69 | 0.70 |
| **Other (mg/L)** | | | | | | | |
| Cyanide (Total) | 0.001 | DL | 0.0010 | 6 | 6 | - | 0.0010 |

Table 6-8. Lake B7 – normal range screening assessment, 2019.

Notes

Yellow highlighted cells indicate the mean/median concentration exceeds the upper limit of the normal range (baseline) by > 10%.

**Bold** values indicate the mean/median concentration is greater than the upper limit of the normal range.

Parameters marked with "*" indicates concentrations are < 5x the current DL.

[a] Refer to the main document for information regarding the normal range estimates calculated for the 2018 interpretive report (Golder, 2019).

[b] Upper limit (90th percentile or 90th prediction interval) of the normal range used for screening purposes, with the exception of pH which has a relevant lower limit. The upper limit of the normal range was set equal to the DL (as of 2019) for those parameters without measured concentrations in the baseline dataset.

[c] If the normal range was calculated using the PI or PI (λ) method, mean concentrations were screened against upper limit. If the percentile method was used to calculate the normal range, the median concentration was compare to the upper limit.

| Parameter | Current DL | Calculation Method [a] | Normal Range (upper limit)[a] | Lake B7 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Summary Statistics [c] | | | |
| | | | | N | N<MDL | Mean | Median |
| **Field Measurements** | | | | | | | |
| Sp. Conductivity (field) (µS/cm) | 0.1 | Percentile | 302 | 6 | 0 | 161 | 164 |
| pH (field) | 0.1 | PI (λ) | 7.0 \| 8.2 | 6 | 0 | 7.91 | 7.94 |
| **Conventional Parameters (mg/L unless otherwise specified)** | | | | | | | |
| Hardness | 0.2 | Percentile | 118 | 6 | 0 | 62 | 62 |
| TDS (Calculated) | - | Percentile | 171 | 6 | 0 | 83 | 82 |
| Total Suspended Solids | 1 | PI (λ) | 3.00 | 6 | 5 | - | 1.00 |
| Turbidity (lab, NTU) | 0.1 | PI (λ) | 0.69 | 6 | 0 | 0.51 | 0.52 |
| **Major Ions (mg/L)** | | | | | | | |
| Alkalinity, Bicarbonate | 1 | Percentile | 135 | 6 | 0 | 41.3 | 41.4 |
| Alkalinity, Total | 1 | Percentile | 110 | 6 | 0 | 33.8 | 33.9 |
| Calcium (T) | 0.01 | Percentile | 39.0 | 6 | 0 | 20.8 | 21.0 |
| Chloride | 0.1 | Percentile | 25.0 | 6 | 0 | 26.9 | **26.6** |
| Fluoride | 0.02 | PI (λ) | 0.040 | 6 | 0 | 0.027 | 0.027 |
| Magnesium (T) | 0.004 | Percentile | 5.30 | 6 | 0 | 2.30 | 2.17 |
| Potassium (T) | 0.02 | Percentile | 2.80 | 6 | 0 | 1.41 | 1.38 |
| Sodium (T) | 0.02 | Percentile | 7.50 | 6 | 0 | 5.35 | 4.16 |
| Sulphate | 0.3 | Percentile | 6.00 | 6 | 0 | 5.90 | 5.84 |
| **Nutrients (mg/L)** | | | | | | | |
| Ammonia (as N) | 0.005 | Percentile | 0.025 | 6 | 0 | 0.018 | 0.014 |
| Nitrate (as N) | 0.005 | Percentile | 0.0050 | 6 | 6 | - | 0.0050 |
| Nitrite (as N) | 0.001 | DL | 0.0050 | 6 | 6 | - | 0.0010 |
| Total Kjeldahl Nitrogen | 0.05 | PI (λ) | 0.73 | 6 | 0 | 0.33 | 0.32 |
| Total Phosphorus | 0.001 | | 0.010 | 6 | 0 | 0.0076 | 0.0079 |
| **Organic/Inorganic Carbon (mg/L)** | | | | | | | |
| Dissolved Organic Carbon | 0.5 | PI | 5.50 | 6 | 0 | 4.16 | 4.18 |
| Total Organic Carbon | 0.5 | PI (λ) | 7.60 | 6 | 0 | 4.28 | 4.34 |
| **Total Metals (µg/L)** | | | | | | | |
| Aluminum (T) | 1 | PI (λ) | 6.60 | 6 | 0 | 4.47 | 4.65 |
| Antimony (T) | 0.02 | DL | 0.020 | 6 | 4 | - | 0.020 |
| Arsenic (T) | 0.02 | PI (λ) | 1.80 | 6 | 0 | 1.79 | 1.77 |
| Barium (T) | 0.02 | Percentile | 20.0 | 6 | 0 | 19.4 | 19.1 |

Table 6-8. Lake B7 – normal range screening assessment, 2019.

| Parameter | Current DL | Calculation Method [a] | Normal Range (upper limit)[a] | Lake B7 Summary Statistics [c] | | | |
|---|---|---|---|---|---|---|---|
| | | | | N | N<MDL | Mean | Median |
| Beryllium (T) | 0.005 | DL | 0.010 | 6 | 6 | - | 0.0050 |
| Bismuth (T) | 0.005 | DL | 0.010 | 6 | 6 | - | 0.0050 |
| Boron (T) * | 5 | Percentile | 8.00 | 6 | 0 | 9.88 | 9.6 |
| Cadmium (T) | 0.005 | Percentile | 0.0070 | 6 | 6 | - | 0.0050 |
| Chromium (T) | 0.1 | DL | 0.10 | 6 | 5 | - | 0.10 |
| Cobalt (T) | 0.005 | PI | 0.050 | 6 | 0 | **0.052** | 0.049 |
| Copper (T) | 0.05 | Percentile | 1.13 | 6 | 0 | 0.84 | 0.81 |
| Iron (T) | 1 | PI | 103 | 6 | 0 | 69 | 66 |
| Lead (T) | 0.01 | Percentile | 0.080 | 6 | 0 | 0.051 | 0.052 |
| Lithium (T) | 0.5 | PI (λ) | 7.50 | 6 | 0 | 12.6 | 12.6 |
| Manganese (T) | 0.05 | Percentile | 8.60 | 6 | 0 | 7.65 | 7.46 |
| Mercury (T) | 0.0005 | PI (λ) | 0.0040 | 6 | 1 | 0.00066 | 0.00072 |
| Molybdenum (T) | 0.05 | PI (λ) | 0.24 | 6 | 0 | 0.17 | 0.18 |
| Nickel (T) | 0.05 | PI (λ) | 1.40 | 6 | 0 | 0.86 | 0.85 |
| Selenium (T) | 0.04 | Percentile | 0.040 | 6 | 5 | - | 0.040 |
| Silver (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |
| Strontium (T) | 0.02 | PI | 155 | 6 | 0 | 205 | 206 |
| Thallium (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |
| Tin (T) | 0.02 | DL | 0.050 | 6 | 0 | 0.063 | 0.068 |
| Titanium (T) | 0.05 | Percentile | 0.25 | 6 | 2 | 0.11 | 0.14 |
| Uranium (T) | 0.001 | PI | 0.030 | 6 | 0 | 0.025 | 0.025 |
| Vanadium (T) | 0.05 | DL | 0.050 | 6 | 0 | 0.072 | 0.072 |
| Zinc (T) | 0.5 | Percentile | 1.90 | 6 | 0 | 0.92 | 0.81 |
| **Dissolved Metals (µg/L)** | | | | | | | |
| Zinc (D) | 0.5 | Percentile | 2.20 | 6 | 1 | 1.11 | 1.22 |
| **Other (mg/L)** | | | | | | | |
| Cyanide (Total) | 0.001 | DL | 0.0010 | 6 | 6 | - | 0.0010 |

Table 6-9. Lake D7 – water quality guideline screening summary, 2019.

Notes

Yellow highlighted cells indicate the mean/median concentration exceeds the upper limit of the normal range (baseline) by > 10%.

**Bold** values indicate the mean/median concentration is greater than the upper limit of the normal range.

Parameters marked with "*" indicates concentrations are < 5x the current DL.

[a] Refer to the main document for information regarding the normal range estimates calculated for the 2018 interpretive report (Golder, 2019).

[b] Upper limit (90th percentile or 90th prediction interval) of the normal range used for screening purposes, with the exception of pH which has a relevant lower limit. The upper limit of the normal range was set equal to the DL (as of 2019) for those parameters without measured concentrations in the baseline dataset.

[c] If the normal range was calculated using the PI or PI (λ) method, mean concentrations were screened against upper limit. If the percentile method was used to calculate the normal range, the median concentration was compare to the upper limit.

| Parameter | Current DL | Calculation Method [a] | Normal Range (upper limit) [a] | Lake D7 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Summary Statistics [c] | | | |
| | | | | N | N<MDL | Mean | Median |
| **Field Measurements** | | | | | | | |
| Sp. Conductivity (µS/cm) | 0.1 | Percentile | 159 | 6 | 0 | 107 | 116 |
| pH (field) | 0.1 | PI (λ) | 7.0 \| 8.2 | 6 | 0 | 8.0 | 8.0 |
| **Conventional Parameters (mg/L unless otherwise specified)** | | | | | | | |
| Hardness | 0.2 | Percentile | 56 | 6 | 0 | 45.5 | 45.2 |
| TDS (Calculated) | - | Percentile | 81 | 6 | 0 | 67 | 66 |
| Total Suspended Solids | 1 | Percentile | 2.0 | 6 | 1 | 1.2 | 1.3 |
| Turbidity (lab, NTU) | 0.1 | PI | 1.1 | 6 | 0 | 0.62 | 0.62 |
| **Major Ions (mg/L)** | | | | | | | |
| Alkalinity, Bicarbonate | 1 | Percentile | 68 | 6 | 0 | 54 | 54 |
| Alkalinity, Total | 1 | Percentile | 55 | 6 | 0 | 44.1 | 44.0 |
| Calcium (T) | 0.01 | Percentile | 17.0 | 6 | 0 | 14.3 | 14.3 |
| Chloride | 0.1 | Percentile | 25.0 | 6 | 0 | 11.0 | 10.0 |
| Fluoride | 0.02 | Percentile | 0.050 | 6 | 0 | 0.038 | 0.038 |
| Magnesium (T) | 0.004 | Percentile | 3.3 | 6 | 0 | 2.6 | 2.5 |
| Potassium (T) | 0.02 | PI (λ) | 1.8 | 6 | 0 | 1.2 | 1.2 |
| Sodium (T) | 0.02 | Percentile | 17.0 | 6 | 0 | 7.5 | 7.1 |
| Sulphate | 0.3 | Percentile | 10.0 | 6 | 0 | 4.5 | 4.4 |
| **Nutrients (mg/L)** | | | | | | | |
| Ammonia (as N) * | 0.005 | PI | 0.0090 | 6 | 0 | 0.019 | 0.019 |
| Nitrate (as N) | 0.005 | DL | 0.0050 | 6 | 3 | - | 0.0087 |
| Nitrite (as N) | 0.001 | DL | 0.00050 | 6 | 4 | - | 0.0010 |
| Total Kjeldahl Nitrogen | 0.05 | PI (λ) | 0.52 | 6 | 0 | 0.38 | 0.43 |
| Total Phosphorus | 0.001 | Percentile | 0.020 | 6 | 0 | 0.0088 | 0.0086 |
| **Organic/Inorganic Carbon (mg/L)** | | | | | | | |
| Dissolved Organic Carbon | 0.5 | PI (λ) | 5.1 | 6 | 0 | 4.1 | 4.1 |
| Total Organic Carbon | 0.5 | Percentile | 14.0 | 6 | 0 | 4.3 | 4.3 |
| **Total Metals (µg/L)** | | | | | | | |
| Aluminum (T) | 1 | PI | 6.7 | 6 | 0 | 6.3 | 6.3 |
| Antimony (T) | 0.02 | Percentile | 0.030 | 6 | 5 | - | 0.020 |
| Arsenic (T) | 0.02 | PI | 1.2 | 6 | 0 | 1.1 | 1.1 |
| Barium (T) | 0.02 | PI | 17.0 | 6 | 0 | **17.5** | 17.5 |
| Beryllium (T) | 0.005 | DL | 0.010 | 6 | 6 | - | 0.0050 |

Table 6-9. Lake D7 – water quality guideline screening summary, 2019.

| Parameter | Current DL | Calculation Method [a] | Normal Range (upper limit)[a] | Lake D7 Summary Statistics [c] | | | |
|---|---|---|---|---|---|---|---|
| | | | | N | N<MDL | Mean | Median |
| Bismuth (T) | 0.005 | DL | 0.010 | 6 | 3 | - | 0.0053 |
| Boron (T) | 5 | PI | 17.0 | 6 | 0 | 13.3 | 13.1 |
| Cadmium (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |
| Chromium (T) | 0.1 | DL | 0.10 | 6 | 4 | - | 0.10 |
| Cobalt (T) | 0.005 | Percentile | 0.050 | 6 | 0 | 0.049 | 0.050 |
| Copper (T) | 0.05 | PI | 1.0 | 6 | 0 | 0.91 | 0.77 |
| Iron (T) | 1 | PI (λ) | 112 | 6 | 0 | 97 | 97 |
| Lead (T) * | 0.01 | Percentile | 0.020 | 6 | 0 | 0.034 | 0.034 |
| Lithium (T) | 0.5 | PI | 1.9 | 6 | 0 | 1.5 | 1.5 |
| Manganese (T) | 0.05 | PI | 13.0 | 6 | 0 | 11.6 | 11.2 |
| Mercury (T) | 0.0005 | PI | 0.0010 | 6 | 0 | 0.00084 | 0.00085 |
| Molybdenum (T) | 0.05 | PI (λ) | 0.48 | 6 | 0 | 0.38 | 0.38 |
| Nickel (T) * | 0.05 | PI | 0.75 | 6 | 0 | **0.79** | 0.79 |
| Selenium (T) | 0.04 | Percentile | 0.060 | 6 | 3 | - | 0.041 |
| Silver (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |
| Strontium (T) | 0.02 | PI (λ) | 83 | 6 | 0 | 73 | 71 |
| Thallium (T) | 0.005 | DL | 0.0050 | 6 | 6 | - | 0.0050 |
| Tin (T) | 0.02 | DL | 0.050 | 6 | 1 | 0.050 | 0.054 |
| Titanium (T) | 0.05 | PI (λ) | 0.34 | 6 | 0 | 0.31 | 0.32 |
| Uranium (T) | 0.001 | PI | 0.10 | 6 | 0 | 0.060 | 0.061 |
| Vanadium (T) * | 0.05 | PI (λ) | 0.070 | 6 | 0 | 0.11 | 0.11 |
| Zinc (T) | 0.5 | Percentile | 2.0 | 6 | 2 | 0.66 | 0.58 |
| **Dissolved Metals (µg/L)** | | | | | | | |
| Zinc (D) | 0.5 | Percentile | 1.4 | 6 | 2 | 0.73 | 0.70 |
| **Other (mg/L)** | | | | | | | |
| Cyanide (Total) | 0.001 | Percentile | 0.0010 | 6 | 6 | - | 0.0010 |

# 7 MELIADINE LAKE – PHYTOPLANKTON

## 7.1 Background

Phytoplankton, microscopic plants, are the primary producers of the water column, forming the base of the pelagic food chain. Zooplankton are tiny, free-swimming animals that live in the water column and feed on phytoplankton. They are collectively known as plankton.

Plankton have been monitored in Meliadine Lake since 2013, while formal monitoring under the AEMP started in 2015. In addition to phytoplankton and zooplankton, the studies included depth-integrated nutrients, chlorophyll-a and field-collected limnological data (e.g., profiles of dissolved oxygen, temperature and conductivity, and Secchi depth). Assessment of the first three years of data (2015-2017) resulted in the recommendation to carry forward phytoplankton monitoring, with focus on a single season (August) to better assess spatial trends due to lower variability in phytoplankton monitoring endpoints (Golder 2018). Zooplankton was not recommended as a long-term monitoring tool due to high variability in the dataset as a whole (Golder 2018).

Phytoplankton monitoring is not established as a routine component of the AEMP, and as such, data generated by the yearly targeted study hasn't been formally incorporated into the action level assessment for evaluating nutrient enrichment. Rather, the phytoplankton community data has been used primarily as a supporting line of evidence in the on-going assessment of potential mine-related changes in primary productivity.

## 7.2 Historical Monitoring Results

Nutrient enrichment in Meliadine Lake has been documented as the mine increased the number of personnel on site during the construction period. A thorough review of nutrient loading to Meliadine Lake was summarized in the 2018 EEM/AEMP report (Golder 2019). The following key aspects of the review are important to consider when evaluating the phytoplankton data:

- In the early stages of exploration and pre-construction, sewage was treated using a BIODISK wastewater treatment plant located at the exploration camp. Treated sewage from the exploration camp was released to Meliadine Lake at MEL-07. A second sewage treatment plant (STP) came online in 2017 concurrent with construction of the main camp and increased personnel on site.

- Starting in November 2017, treated sewage from the exploration camp was trucked to the main camp STP for treatment. Since 2018, all treated sewage from the exploration camp STP is diverted to CP1 and treated at the Effluent Water Treatment Plant (EWTP), along with contact water, prior to being discharged to Meliadine Lake at MEL-14. Occasionally, post-treatment water quality at the exploration camp STP does not pass discharge criteria. If this occurs, the treated sewage from the exploration camp is diverted to the main camp STP for further treatment before being discharged to CP1.
- Nutrient concentrations in the NF area measured as part of the 2018 phytoplankton study were generally low and consistent with concentrations reported for the 2015 to 2017 monitoring period.
- Chlorophyll-a was higher at the NF area in 2018 compared to the MF and reference areas. The same spatial pattern was observed in previous reporting cycles, but there was no evidence of temporal increases in chlorophyll-a at NF in 2018 relative to previous monitoring cycles.

Integration of the phytoplankton community taxonomy data, chlorophyll-a results, and nutrient concentrations provided plausible evidence of increased primary productivity in the NF beginning in the pre-construction phase of the project (i.e., 2015). The increase in primary productivity coincides with sewage treatment at the exploration camp.

## 7.3 Objectives

This section presents the results of the August 2019 phytoplankton sampling program in Meliadine Lake and explores spatial and temporal trends across the entire dataset (summer events only). The emphasis of the analyses presented herein are to:

1. Assess spatial and temporal patterns in nutrients. Increased nutrient loads to Meliadine Lake could result in the stimulation of phytoplankton productivity.
2. Assess spatial and temporal patterns in phytoplankton metrics. This includes looking at key metrics (biomass, density, and taxa richness) across all taxa (i.e., *total*) or by major taxa group (MTG), as well as looking more closely at changes in community structure using multivariate analyses.
3. Assess nutrient-productivity relationships. This portion of the analysis involves looking at the spatial/temporal patterns in phytoplankton productivity metrics and comparing them to corresponding nutrient concentrations to determine if the patterns are linked.

4. Track spatial and temporal patterns in Trophic Status Index (TSI). TSI has been used to classify estimated productivity of lakes based on TP, chlorophyll-a, and/or Secchi depth.

Collectively, these analyses provide insights into whether development-related changes in nutrient concentrations in Meliadine Lake has resulted in corresponding changes to the phytoplankton community.

## 7.4 2019 Field Program

Field collections and sample analyses were conducted according to methods outlined in the *AEMP Design Document* (Golder, 2016) and in recent AEMP interpretive reports (Golder, 2019).

### 7.4.1 Field Data and Sample Collection

The 2019 phytoplankton sampling program consisted of a single event (August)[37]. Phytoplankton sampling was conducted in conjunction with AEMP water quality sampling. Five replicate stations were sampled at each monitoring area. Station locations are generally fixed over time within each sampling area, although modifications were made starting in 2018 to refine some of the specific locations of the NF and MF areas. Replicate locations for 2019 matched the 2018 locations for each sampling area. Sampling areas and stations are shown in **Figure 5-1**. Coordinates are listed in **Table 5-1**.

### 7.4.2 Data Analysis

#### Spatial and Temporal Trends

Time series plots organized by sampling area were used to highlight spatial and temporal patterns in nutrients, chlorophyll-a, and phytoplankton metrics.

Phytoplankton metrics (biomass, density and taxa richness) for individual taxa were summed: (a) across all taxa (i.e., total of all organisms) and (b) across major taxa groups (i.e., dinoflagellates, diatoms, cyanophytes, cryptophytes, chrysophytes, and chlorophytes).

[37] Golder concluded in the 2017 AEMP report (Golder 2018) that spatial variability between areas was lowest in the August sampling event across all study years (2015 through 2017) compared to data collected in early open-water sampling events (July) and fall sampling events (September). Future phytoplankton monitoring was recommended once each year in August when variability in the community metrics among the monitoring areas in Meliadine Lake is typically lowest.

## Community Structure

Multivariate ordination analyses can be helpful to investigate differences in biological community structure over space and time. Previous investigations (Golder 2019) used non-metric multidimensional scaling (nMDS), which takes multidimensional taxonomic data (e.g., biomass by station-year) and then reduces it to two or three dimensions that capture major patterns of variation in the underlying data. Azimuth also used nMDS, but do so following the reference condition approach (RCA; ECCC 2012).

The fundamental premise of RCA is that a suitably large set of baseline and/or reference data can be used to characterize unimpaired conditions in terms of a variety of biological attributes (ECCC 2012). Thus, patterns in community structure are first examined for the Meliadine Lake reference areas. Secondly, patterns in community structure at the NF (MEL-01) and MF (MEL-02) areas are explored in the context of the results for the reference areas.

All statistical analyses were conducted using R 3.5.1 (R Core Team 2018) and the analysis was conducted as follows:

- Data were compiled for 12 metrics (i.e., biomass and taxa richness results for each major taxa [2 endpoints x 6 major taxa]).
- The statistical package 'vegan' (version 2.5-6) was used to conduct the nMDS. First, the entire data set was turned into a Bray-Curtis distance matrix. Then, nMDS was run on the matrix; Shepard plots and stress values were used to optimize results.
- nMDS results were visualized by first plotting 90$^{th}$, 95$^{th}$ and 99$^{th}$ percentile probability ellipses using the reference data only. Then, adding nMDS scores for NF (MEL-01) and MF (MEL-02) areas for each year.

The 90$^{th}$, 95$^{th}$ and 99$^{th}$ percentile probability ellipses provide a concise way of visualizing whether the phytoplankton community at the NF and MF areas are within the range of baseline/reference conditions for Meliadine Lake. Reliance on nMDS to assess spatial and temporal trends is a departure from previous interpretive reports where univariate, multivariate, and normal range methods were used to describe spatial and temporal trends. In 2018, the univariate, multivariate, and normal range assessments came to the same overall conclusion: the structure (taxa richness) and function (biomass) of the phytoplankton community at the NF area is different than the reference areas in Meliadine Lake (Golder 2019). Using multiple methods of analyzing the same underlying data can provide valuable insight about spatial and temporal changes in biological communities, but in the context of the phytoplankton component of the AEMP, use of univariate, multivariate, and comparisons to the

normal range has resulted in an overly complex and redundant set of analyses. Fundamentally, the three sets of analyses arrived at the same conclusion in 2018 and did not provide incremental insight into the overall assessment of nutrient enrichment in Meliadine Lake.

For the 2019 interpretive report, the RCA approach was implemented as the method for determining whether the phytoplankton community at the NF and MF areas is within the normal range of reference conditions and for evaluating spatial and temporal trends. In the future, other statistical approaches may be implemented on a case-by-case basis to supplement the RCA analyses if the underlying data support a more detailed investigation of spatial and temporal trends.

### Trophic Status

Trophic status has been tracked in Meliadine Lake since 2015 (e.g., Golder 2019). For consistency, the same approach was applied to the 2019 data. Trophic status is a means of classifying estimated productivity of a lake based on concentrations of key nutrients and chlorophyll-a, and on water transparency. The three main categories of productivity are:

- Oligotrophic (low nutrients, low productivity)
- Mesotrophic (intermediate productivity)
- Eutrophic (high nutrients, high productivity)

The main parameters used in the classification of trophic status are described below. Phosphorus, which often limits primary productivity in freshwater systems, is the primary nutrient used in trophic status indexes. Chlorophyll-a is the primary pigment used for photosynthesis in phytoplankton and is used as a surrogate measure of primary production. Water transparency, measured with a Secchi disk, is also used as a coarse indicator of phytoplankton biomass.

Three trophic status indices were used (each cited in Golder 2019):

1. Vollenweider (1968) - A general classification scheme based on ranges of TP, chlorophyll-a and Secchi depth (Table 7-1).
2. CCME (2004) - A total phosphorus-specific scheme using trigger ranges (Table 7-2).
3. Carlson (1977) - Independent index scores for TP, chlorophyll-a and Secchi depth (Table 7-3), calculated as follows:
   - $TSI_{TP} = 10\,(6 - \left[\frac{\ln\,(^{48}/_{TP})}{\ln 2}\right])$

- $TSI_{Chl} = 10\ (6 - \left[\frac{2.04 - 0.68(\ln Chl)}{\ln 2}\right])$
- $TSI_{Secchi} = 10\ (6 - \left[\frac{\ln\ \text{Secchi}}{\ln 2}\right])$

### Action Level Assessment – Nutrient Enrichment

Total phosphorus and chlorophyll-a are the two supporting measures/indicators used to evaluate nutrient enrichment. Other nutrients and water quality parameters can affect phytoplankton community structure, but phosphorous appears to be the limiting nutrient for Meliadine Lake (Golder 2019). The AEMP benchmarks are:

- Total phosphorus = 0.01 mg/L, corresponding to the upper limit of oligotrophic status in the CCME guidance document for managing freshwater systems (CCME 2004), and
- Chlorophyll-a = 4.5 µg/L, based on the relationship between chlorophyll-a and trophic status.

Concentrations greater than 75% of the AEMP benchmark are the early warning trigger values used in the low Action Level assessment.

## 7.5 Results and Discussion

### 7.5.1 Context for Assessing Nutrient Enrichment in Meliadine Lake

### Nutrient Loading to the NF Area

**Figure 7-1** shows the estimated nutrient loading (kg/year) to Meliadine Lake since 2013. Estimated loadings in 2013, 2015, 2016, and 2017 are from treated sewage originating from the exploration camp and discharged to the NF area. MEL-07 is the monitoring station for the exploration camp STP. As of late 2017, sewage from the exploration has been diverted to CP1 (if the STP is working well), or to the main camp STP for further treatment before discharge to CP1. Loadings in 2018 and 2019 represent the mass of nitrogen and phosphorus discharged to the NF area after treatment at the EWTP[38].

The increase in nitrogen load to the NF in 2018 and 2019 coincides with the onset of treated effluent discharge from CP1. The increase in nitrogen from < 500 kg/year in 2017 to over 4,000

38 Monthly loadings were calculated by multiplying the volume of effluent released in each month by the average monthly concentration.

kg/year in 2018 and 2019 is likely related to blasting residue leaching from waste rock as underground and surface construction advanced.

Phosphorus loading peaked in 2016 at approximately 100 kg/year, coinciding with increased staff at the exploration camp. The decision to divert treated sewage from the exploration camp to the permanent camp at the end of 2017 resulted in an immediate reduction in TP loading to the NF by approximately four-fold reduction in 2018. The results from 2019 confirm TP loading to the NF area is decreasing year-over-year, although the reduction observed in 2019 compared to 2018 is related to less effluent being discharged in 2019.

### Nutrient Concentrations

The effects of nutrients on phytoplankton production have been studied extensively (e.g., Schindler 1971, 1974, Kelly et al. 2018). While much of this research has focused on the adverse effects of nutrient enrichment (eutrophication) in low latitude, temperate lakes, some studies explored productivity dynamics in oligotrophic systems, including high-latitude lakes in northern Canada (e.g., Lim et al. 2001, Michelutti et al. 2002, Ogbebo et al. 2009).

As discussed previously, total phosphorous (TP) and/or total nitrogen (TN) are generally considered the most important factors affecting phytoplankton productivity in freshwater systems (e.g., Schindler 1971). While TN:TP ratios have long been used as a tool to categorize lakes based on the nutrient most likely limiting primary production (see Lewis & Wurtsbaugh 2008 for review), they have been shown to be inaccurate for both high-latitude (Ogbebo et al. 2009) and temperate lakes (Dolman and Wiedner 2015). One of the possible reasons for this is that there is substantial uncertainty in which nutrient forms are assimilable. Both nitrogen and phosphorus are present in molecules that range from highly bioavailable to essentially unavailable for uptake by algae. The challenge in assessing nutrient limitation is that the bioavailable forms are notoriously variable due to extremely high turnover rates. Lewis and Wurtsbaugh (2008) suggest that the stronger correlation between chlorophyll-a and TP relative to TN is simply due to TP having proportionately more bioavailable forms than TN. Broad experimental evidence from nitrogen and phosphrous enrichment studies suggests that phosphorous is far less limiting than was previously thought and that primary productivity is often co-limited by both nitrogen and phosphorus (Esler et al. 2007, Lewis and Wurtsbaugh 2008, Sterner 2008).

### Chlorophyll-a

Chlorophyll-a data from 2019 were lower at all areas compared to previous monitoring periods. Sample collection issues and a change in filter material are potential contributing factors, but

the historical data from the baseline period indicate the concentrations reported in 2019 are within the range of conditions previously documented for Meliadine Lake and other lakes in the region. A summary of the current chlorophyll-a results relative to recent AEMP results and historical baseline data from the region is provide below to determine the usability of the 2019 results for assessing nutrient enrichment in the NF area of Meliadine Lake.

- **2019 AEMP** – Chlorophyll-a concentrations were between 0.58 and 0.93 µg/L in the 15 samples from the NF area (5 stations x 3 replicates per station). At the MF and REF areas, chlorophyll-a was consistently lower, measuring less than 0.4 µg/L in all samples (**Figure 7-10**). The average chlorophyll-a concentration at the REF areas was of 0.1 µg/L and 0.2 µg/L at the MF area. The results from 2019, while uniformly low than previous years, match the gradient of higher to lower concentrations of chlorophyll-a at the NF to MF to REF areas that have been reported in the two most recent monitoring years (Golder 2018, Golder 2017).
- **Recent AEMP years (2015 to 2018)** – Chlorophyll-a concentrations were ~ 1 µg/L lower at the NF area in 2019 compared to 2018. Reported concentrations in 2018 were between 1.73 and 2.09 µg/L at the NF area. Dating back to 2015, the average concentration in the NF area is 1.54 µg/L (0.7 to 2.27 µg/L).
- **Historical Data** –Chlorophyll-a was measured from various lakes in the study area to characterize baseline conditions as part of permitting process. Samples were collected in 1997, 1998, and 2011 and summarized in Volume 7 of the FEIS (Agnico Eagle 2014). Chlorophyll-a results from the 1997 and 1998 sampling programs in the large lakes in the region (i.e., Meliadine Lake, Peter Lake and Little Meliadine Lake) ranged from below the detection limit (0.01 µg/L) to 2.4 µg/L (Golder 2012a). In 2011, 5 samples were collected throughout Meliadine Lake; chlorophyll-a in the east basin[39] of Meliadine Lake measured 0.81 ± 0.14 µg/L (Golder 2012b). High variability in the chlorophyll-a results was reported among the four basins in Meliadine Lake (see Figure 7.5-11 in Agnico Eagle 2014). Chlorophyll-a was typically lower in the west basin (MEL-04) compared to the east basin (MEL-01) and south basin (MEL-05). Ultimately, the historical chlorophyll-a data show that concentrations less than 1 µg/L were typical for the east basin of Meliadine Lake prior to development in the region.

[39] The four basins in Meliadine Lake were called ML-E, ML-W, ML-S, and ML-SE. The AEMP area IDs are matched to the historical naming conventions as follows: MEL-01 = ML-E, MEL-04 = ML-W and MEL-05 = ML-S

The results from 2019 were retained for analysis and interpretation for the following three reasons. First, the pattern of change between the NF, MF, and REF areas in 2019 matches previous AEMP monitoring cycles despite lower reported concentrations throughout Meliadine Lake. Second, the historical chlorophyll-a results from Meliadine Lake indicate concentrations less than 1 µg/L were common during the baseline period when nutrient inputs (particularly total phosphorous [TP]) were low. Third, the nutrient loading results from 2019 show concentrations of TP have dropped significantly in 2018 and 2019 compared to pre-construction levels with treated sewage being routed through the EWTP before discharge through the diffuser.

Given the uncertainty surrounding the collection issues and impact of different filter material on the 2019 results, the chlorophyll-a data were given a lower weighting in the nutrient enrichment weight of evidence assessment. A normal range assessment was also not completed given the obvious conclusion that would be drawn (i.e., 2019 results are lower than the upper limit of baseline/reference conditions for Meliadine Lake).

### 7.5.2 Spatial and Temporal Trends

#### Nutrient Concentrations

Analytical results for the nutrient analysis of the 2019 Phytoplankton Study are provided in **Appendix I**. Nutrient concentrations from the depth-integrate-samples in Meliadine Lake since 2015 are plotted in **Figure 7-2** (key nutrients) and **Figure 7-3** (other nutrients). Nutrient data from the routine AEMP samples in **Section 5** are discussed, as needed, to supplement findings from the depth-integrated-nutrient sampling program. Results are summarized below:

- **Total Phosphorus** – concentrations were slightly higher in 2019 at the NF area (0.008 mg/L) relative to the MF (0.003 mg/L) and REF (0.002 to 0.004 mg/L), but the magnitude of that pattern is strongly influenced by two of the five replicate samples at NF. Similar variability was seen in previous year-area combinations (e.g., MF-2016, MF-2018, MEL-04-2017, and MEL-05-2018), suggesting that it may be natural rather than linked to effluent discharge. That said, there is a weak, but generally consistent trend across years, spatial trend of higher concentrations at NF relative to the MF and REF areas. However, the lack of progressively greater differences with time makes it hard to determine whether the cause of the differences is natural or development-related.

- **Total Nitrogen and Total Kjeldahl Nitrogen** – TKN[40] was used as a surrogate for TN in 2019 due to the QAQC-related issues discussed in **Section 3.2**; TKN results to date show a strong correlation with TN across all areas and years. A strong increasing trend was seen at the NF area for the dissolved fractions of both TN and TKN (D.TN and D.TKN) through 2018; a more stepped trend was seen for the unfiltered fractions (i.e., TN and TKN). Unfiltered TKN dropped slightly in 2019 (0.18 mg/L) relative to 2018 (0.24 mg/L), putting it within the range of the 2019 results for the REF areas (0.16 to 0.21 mg/L).
- **Nitrate and Ammonia** – concentrations were either below detection limits or within the range of results from 2015 through 2019 (**Figure C2-18** [ammonia], **Figure C2-19** [nitrate]). While there have been more detected values at the NF area, the pattern is not consistent and there are no apparent temporal changes that would suggest increasing concentrations over time related to the mine.
- **Reactive Silica** – there is a strong spatial pattern in $SiO_2$ that appears to be development-related, with highest concentrations reported at the NF area, followed by the MF area then the REF areas (**Figure 7-3**). There was a single-year spike in 2017 at the NF area (0.55 mg/L, up from 0.39 mg/L in 2016) that was also seen to a lesser extent at the MF and REF areas. While there are differences in $SiO_2$ among areas that are consistent with a development-related source, the lack of a strong temporal trend adds some uncertainty that the observed differences may be natural.
- **Organic Carbon** –DOC and TOC both tend to be higher at the NF compared to MF and REF, but over time, concentrations have remained fairly consistent dating back to 2013 (NF) and 2015 (MF) (**Figure C2-24** [DOC] and **Figure C2-25** [TOC]). There was a noticeable increase during the pre-construction/construction phase from 2017 through early 2018, but since then DOC and TOC have returned to 2013 baseline levels.

Due to their low natural concentrations of nutrients, oligotrophic lakes are considered very sensitive to small changes in the supply of either TN or TP (Bergstrom 2010). The data since 2015 for TN (or TKN) shows differences between Meliadine Lake sampling areas that are consistent with the expected spatial and temporal patterns associated with mine development; the pattern for TP is not as strong, showing mainly spatial differences among the areas. However, attributing these patterns to mining-related activities is less certain when also considering baseline sampling results for Meliadine Lake (**Figure 7-4**). For example, the *elevated*

[40] TKN is the sum of organic nitrogen, including ammonia (NH3-N) and other organic forms of nitrogen.

concentrations of TN (or TKN) at MEL-01 in 2017 and 2018 ranged from approximately 0.18 to 0.28 mg/L (**Figure 7-2**), which are consistent with baseline TKN concentrations in Meliadine Lake (**Figure 7-4**). For TP, the weak spatial trend identified above shows concentrations ranging from 0.004 to 0.007 mg/L at MEL-01 in 2016 and 2017 (**Figure 7-2**), which are also highly comparable to the baseline data (**Figure 7-4**). The baseline nutrient data, while limited, do provide a point of comparison for assessing whether the patterns observed are due to natural variability or mining activity. While this seems limiting for interpreting the nutrient data in the short-term, our experience at other sites is that mining-related changes to water quality are generally obvious.

## Phytoplankton Metrics

Raw data for the phytoplankton taxonomy analyses are shown in **Appendix G1**. Summary data for key metrics by year and sampling area are presented in **Appendix G2** to **Appendix G6**.

### *Total Biomass, Density and Taxa Richness*

Total phytoplankton biomass, density and taxa richness results for Meliadine Lake are shown in **Figure 7-5**. Consistent across all metrics is a pattern where the NF area (MEL-01) is higher than the MF or REF areas. While the 2013 data suggest a sharp increase in all metrics starting in 2015, only MEL-01 was sampled so it is impossible to make any inferences about whether this pattern is due to mining activity or due to natural factors. What is clear from all these results is that there has not been a substantial change at the NF area relative to the MF and REF areas in any of the metrics since 2015.

### *Biomass, Density and Taxa Richness by Major Taxa Group*

Mean phytoplankton biomass, density and taxa richness by major taxa group is shown in **Figure 7-6**. Community composition is fairly constant in terms of both biomass and density, dominated by chrysophytes across sampling areas and years, followed much more variably by diatoms, cryptophytes, chlorophytes, and dinoflagellates. Major taxa group richness was also similar across locations and years. Thus, while phytoplankton communities at the NF area have more biomass, density and taxa than the MF or REF areas, it does not appear due to changes in major taxa groups.

### *Community Structure*

Finer patterns in community structure across sampling areas and years was explored with multivariate non-metric multidimensional scaling (nMDS) analysis. The ordination plot showing results for reference area-year combinations and their associated 90$^{th}$, 95$^{th}$ and 99$^{th}$ percentile probability ellipses is presented in the top panel of **Figure 7-7**. Results for exposure area-year combinations relative to the reference area probability ellipses are presented in the lower panel

of **Figure 7-7**. Results broken down by year are shown in **Figure 7-8**. The 2013 and 2015 data are shown for interest only.

The 2016 through 2019 results show strong divergence in phytoplankton community at the NF area (MEL-01) relative to the other areas across all years. The MF (MEL-02) area was within the 90$^{th}$ percentile probability ellipse (i.e., non-divergent) for 2017 and 2019 and was moderately divergent (outside the 95$^{th}$ but inside the 99$^{th}$ percentile probability ellipses) in 2016 and 2018. Note that two of the reference area-year combinations were either slightly divergent (MEL-04 in 2017) or moderately divergent (MEL-05 in 2018). These results are not particularly surprising considering the degree to which all total phytoplankton metrics were higher at the NF area (MEL-01) relative to the MF and REF areas. These results corroborate the earlier findings that the NF phytoplankton is different than the other areas. They also suggest that the greatest single-year change occurred between 2017 and 2018, when not only MEL-01, but all the REF areas shifted towards the upper left quadrant of the plot. Interestingly, while not obvious in terms of total biomass or taxa richness (**Figure 7-5**), it appears that the change was driven by a shift in community structure in 2018 due to increased diatom biomass/richness and decreased chrysophyte biomass/richness (**Table 7-4** and **Figure 7-6**). These results broadly align with predicted changes in the FEIS, namely that increased nitrogen concentrations beyond the mixing zone *may* result in a shift in the community structure favoring species that are capable of assimilating nitrogen more efficiently (Agnico Eagle 2014). While a change in community structure was evident at the NF area, it also occurred at all the REF areas, suggesting that it was likely due to natural factors rather than to mining activities.

### Nutrient-Productivity Relationships

Two phytoplankton productivity metrics were used in this study: chlorophyll-a and phytoplankton volumetric-based biomass. The relationship between these metrics was explored across years (**Figure 7-9**) and across sampling areas within years (**Figure 7-10**). Both plots show a positive relationship between these productivity metrics, although it appears to be stronger within years. Variability in the relationship, particularly among years, is likely due to differing chlorophyll-a content among phytoplankton groups. For example, smaller algal cells have proportionately more chlorophyll-a than do larger cells, and there is a general shift towards larger size cells during seasonal succession (Felip and Catalan 2000, Kasprzak et al. 2008).

Relationships between nutrient concentrations (TN and TP) and the two phytoplankton biomass estimators are shown across all areas and years (**Figure 7-11** highlighting areas and **Figure 7-12** highlighting years) and for the NF area only across years (**Figure 7-13**). The relationships were all highly variable and did not show consistent changes in phytoplankton biomass with increasing

nutrient concentrations. This is most easily visualized in the plot singling out MEL-01 (**Figure 7-13**), particularly looking at the 2019 results for TP, which clearly show little change in either phytoplankton biomass or chlorophyll-a across a broad range of TP concentrations.

Given the uncertainty regarding the representativeness of TP and TN of their bioavailable forms, these results, by themselves, provide little insight to support nor refute the possibility that effluent loading to Meliadine Lake may be affecting the phytoplankton community. Rather, a higher weighting should be placed on the actual phytoplankton community results.

### Trophic Status Index

Trophic status index (TSI) values were calculated for 2019 based on mean (+/- se) of TP, chlorophyll-a and Secchi depth at each sampling area and compared to previous years in **Figure 7-14**. Raw data are provided in **Appendix H**.

TSI values based on TP, chlorophyll-a and Secchi depth were all highest at the NF (MEL-01) area but remained within the oligotrophic classification category. Results are described in more detail below in the context of the underlying metrics:

- Total Phosphorus – the TSI value at the NF area was the highest recorded to date. This result was strongly influenced by elevated TP concentrations in two of the five water samples collected at MEL-01 in August 2019 (see **Figure 7-2**).
- Chlorophyll-a – the TSI value at the NF area was the lowest recorded to date at this area. Mean chlorophyll-a in 2019 was the lowest measured across all years, ranging from 0.04 µg/L at reference area MEL-03 to 0.8 µg/L at MEL-01.
- Secchi Depth – the TSI at the NF area was the highest recorded to date. Mean Secchi depth at the NF area in 2019 was 4.7 m, compared to 7.5 m at the MF area (MEL-02) and a range of 7.0 to 9.0 m across the three REF areas. Past results for the NF area were 6.4 m (2018), 7.6 m (2017), 7.0 m (2016), and 6.0 m (2015).

It is important to note that TSI is simply an index used to predict the trophic status of a lake. The existing TSI, developed by Carlson (1977) has been around for decades and is based, at least in part, on the premise that TP limits primary production in freshwater systems. As discussed previously, the current state of knowledge is such that N-P co-limitation is more prevalent (Lewis and Wurtsbaugh 2008). Nojavan et al. (2019a, 2019b) published a modified TSI that incorporates TN, TP, Secchi depth, and elevation into a single model that classifies lakes in probabilistic terms. In the absence of direct quantification of phytoplankton communities, as is often the case in water quality studies, the TSI (or new and improved version) can provide useful

information on potential spatial or temporal differences in trophic status across locations and/or years. However, when actual phytoplankton data are available, less emphasis should be placed on the TSI values.

## 7.6 Low Action Level Assessment

The low action level assessment for nutrient enrichment relies on TP and chlorophyll-a results as indicators of nutrient enrichment in the NF area. Given the level of uncertainty associated with the 2019 chlorophyll-a results, the *formal* action level assessment was based on the 2019 TP data from the NF area.

The low action level for nutrient enrichment was not exceeded in 2019 based on the following lines of evidence:

*Question 1: Are concentrations of total phosphorous (TP) elevated relative to baseline / reference?*

**Response**: There was a statistically-significant different in TP concentrations among the NF, MF, and REF areas in 2019 (K-W test; $p<0.001$). Between-area comparisons were statistically-significantly different ($P<0.1$) for NF vs MF, NF vs REF, and MF vs REF. The statistical analysis demonstrates TP concentrations were higher at the NF area relative to other areas in Meliadine Lake in 2019. Despite spatial differences between areas, open-water TP concentrations at the NF area were less than the upper 90$^{th}$ percentile of baseline/reference conditions in Meliadine Lake. In conclusion, there are clearly spatial differences in TP among the different basins in Meliadine Lake.

*Question 2: Do concentrations exceed 75% of the AEMP benchmarks?*

**Response**: Median and mean TP concentrations in the routine AEMP samples collected from the NF area in 2019 were 0.0047 mg/L and 0.0062 mg/L, below 75% of the AEMP benchmark.

*Question 3: Is there a divergent temporal trend between NF and reference areas?*

**Response**: TP has shown considerable within-area and within-year variability throughout the AEMP monitoring period (2015 to 2019). As shown in **Figure C2-23**, TP is typically more variable within a given year (i.e., seasonally between month) than between years (i.e., from 2015 to 2016, etc.). This applies equally to the NF, MF and MEL-03 reference area. In short, TP concentrations vary month-by-month in a similar pattern at the NF and MEL-03 reference area and year-over-year increases in TP at the NF area are not evident based on the available data dating back to 2013.

## 7.7 Summary and Recommendations for 2020

Based on the combined results of the 2019 phytoplankton study and those of previous years, the following conclusions can be made:

**Nutrients** – Overall, concentrations of TN and TP remain fairly low. Monitoring results since 2015 show increases in TN (dissolved and total fractions) at NF, and to a lesser extent the MF area, relative to the REF areas of Meliadine Lake. Despite the apparent pattern of increase in TN at NF since 2015, the observed concentrations appear reasonably consistent with baseline results for Meliadine Lake collected from 1997 to 2013. The observed pattern of increasing concentrations of TN at NF points to the influence of mining-related activities; however, the comparison to the historical baseline suggests that the magnitude of change thus far remains within the range of natural conditions. Trends for TP are less obvious, although it looks like concentrations at the NF area may generally be slightly higher than in the rest of the lake. In summary, results to date indicate that changes in nutrient concentrations, particularly for TN, have occurred at the NF area since 2015 (i.e., the pattern is consistent with mining activities). However, the magnitude of that change appears to be within the range of conditions measured during the baseline period. Overall, these trends should continue to be watched.

**Phytoplankton** – Total biomass, density and taxa richness, while generally higher at the NF area relative to the rest of Meliadine Lake, have not changed appreciably since 2015. Given that the pattern has been fairly constant over time, the change in community metrics may be related to natural variability, despite the increases in nutrients observed at the NF area since 2015. The multivariate community analysis supports a similar pattern, with the NF area being slightly different from the other sampling areas, but the biggest year-to-year changes are driven by taxa shifts that occurred at all the areas (NF, MF, and REF).

**Nutrient-Productivity Relationships** – Phytoplankton biomass was tracked by two metrics: volumetric-based biomass (direct measure of the community) and chlorophyll-a (surrogate measure). The metrics were weakly, but positively, correlated across years, with differential photosynthetic pigment content among phytoplankton taxa a likely important source of the variability. Ultimately, direct measurement of the community is a better indicator of biomass, but chlorophyll-a provides complementary, yet independent, information that is easy to collect. As in previous years, neither measure of biomass was correlated to either TN or TP, suggesting that mining-related nutrient inputs do not appear to be responsible for the observed differences in phytoplankton biomass or chlorophyll-a.

**Trophic Status Index** – TSI values continue to fall in the oligotrophic classification. While TSI values based on TP and Secchi depth at the NF area were higher than in previous years, the TSI value based on chlorophyll-a was the lowest. These TSI values provide a rough guide only and should be given less emphasis than direct measures of the phytoplankton community.

Collectively, the phytoplankton community and nutrient data provide useful information to help detect potential effects to primary productivity resulting from nutrient enrichment in Meliadine Lake. Continued monitoring in 2020 should improve our understanding of the relative importance of these factors.

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**Figure 7-1. Annual loadings (kg/year) of nitrogen and total phosphorus to Meliadine Lake.**

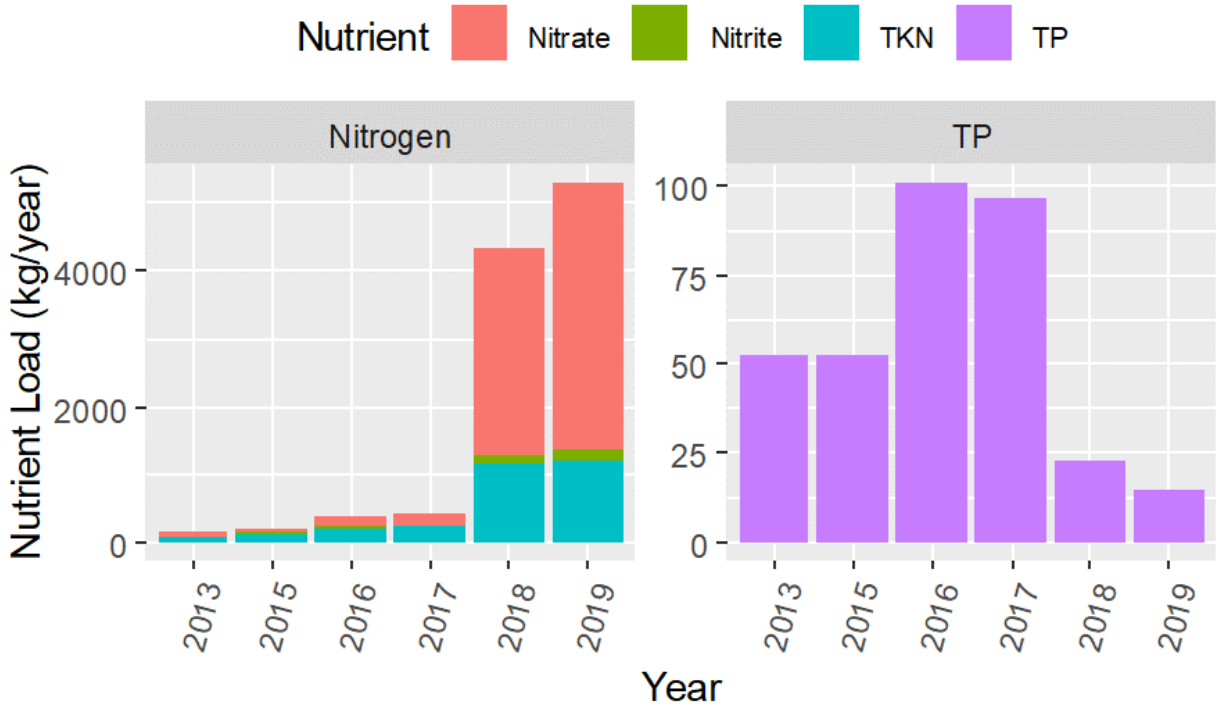

**Figure 7-2. Concentrations of key nutrients in Meliadine Lake, 2015 through 2019.**

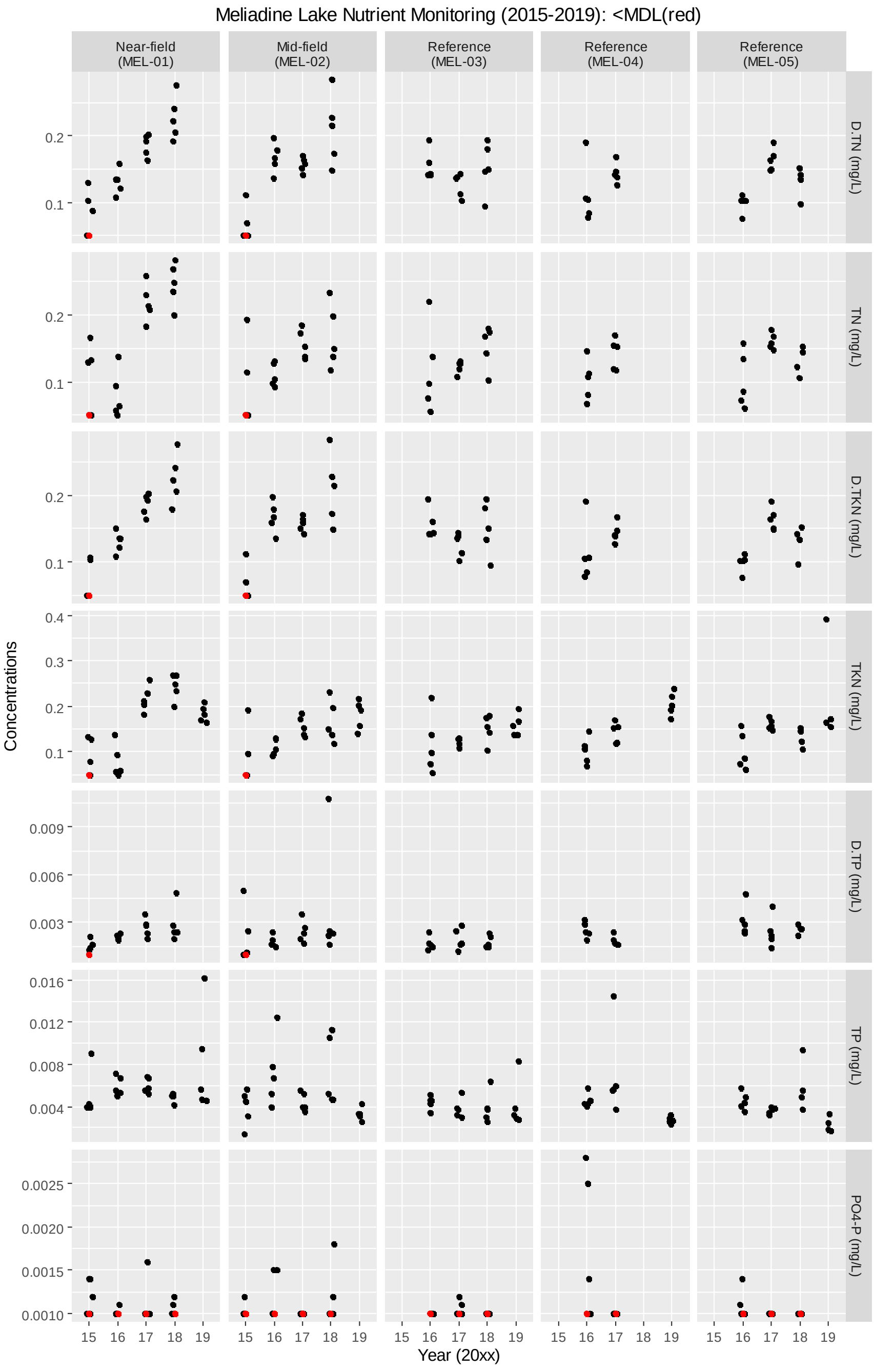




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**Figure 7-3. Concentrations of other nutrients (nitrate, nitrite, nitrate-nitrite, ammonia, and reactive silica) in Meliadine Lake, 2015 through 2019.**

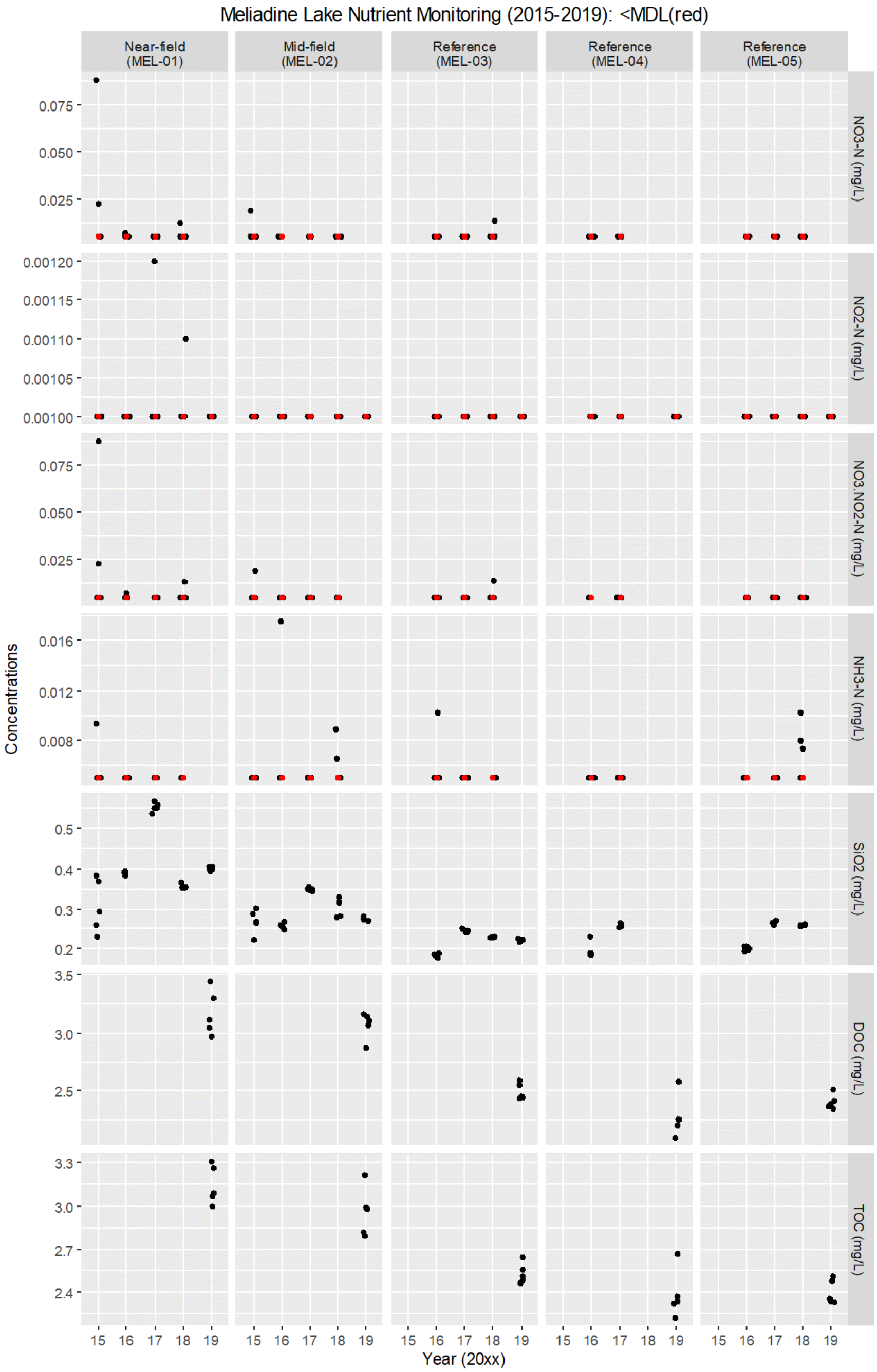




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**Figure 7-4. Concentrations of nitrogen and phosphorus in Meliadine Lake, 1997 through 2013.**

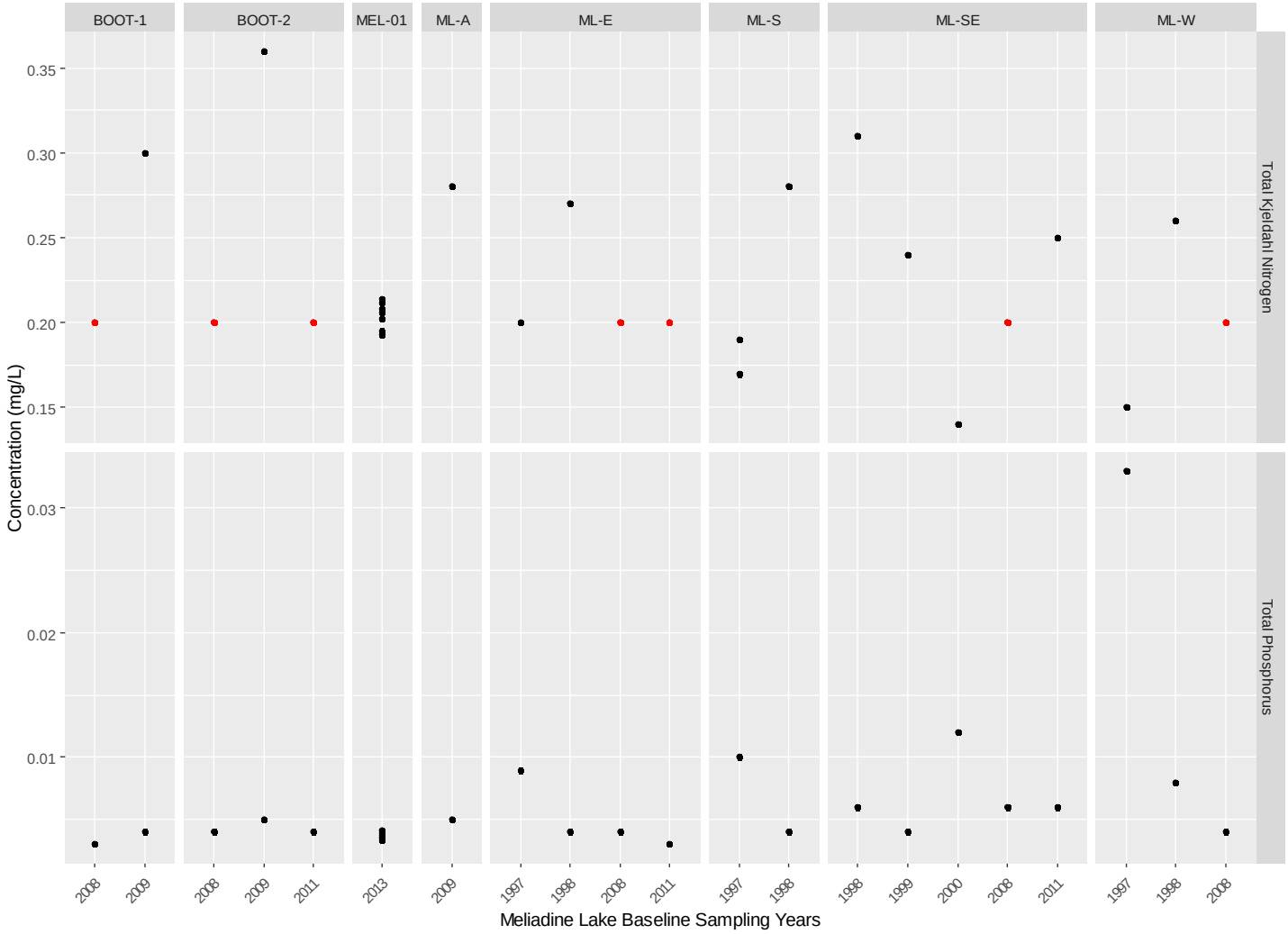

**Figure 7-5. Total phytoplankton biomass, density and taxa richness for Meliadine Lake sampling areas.**

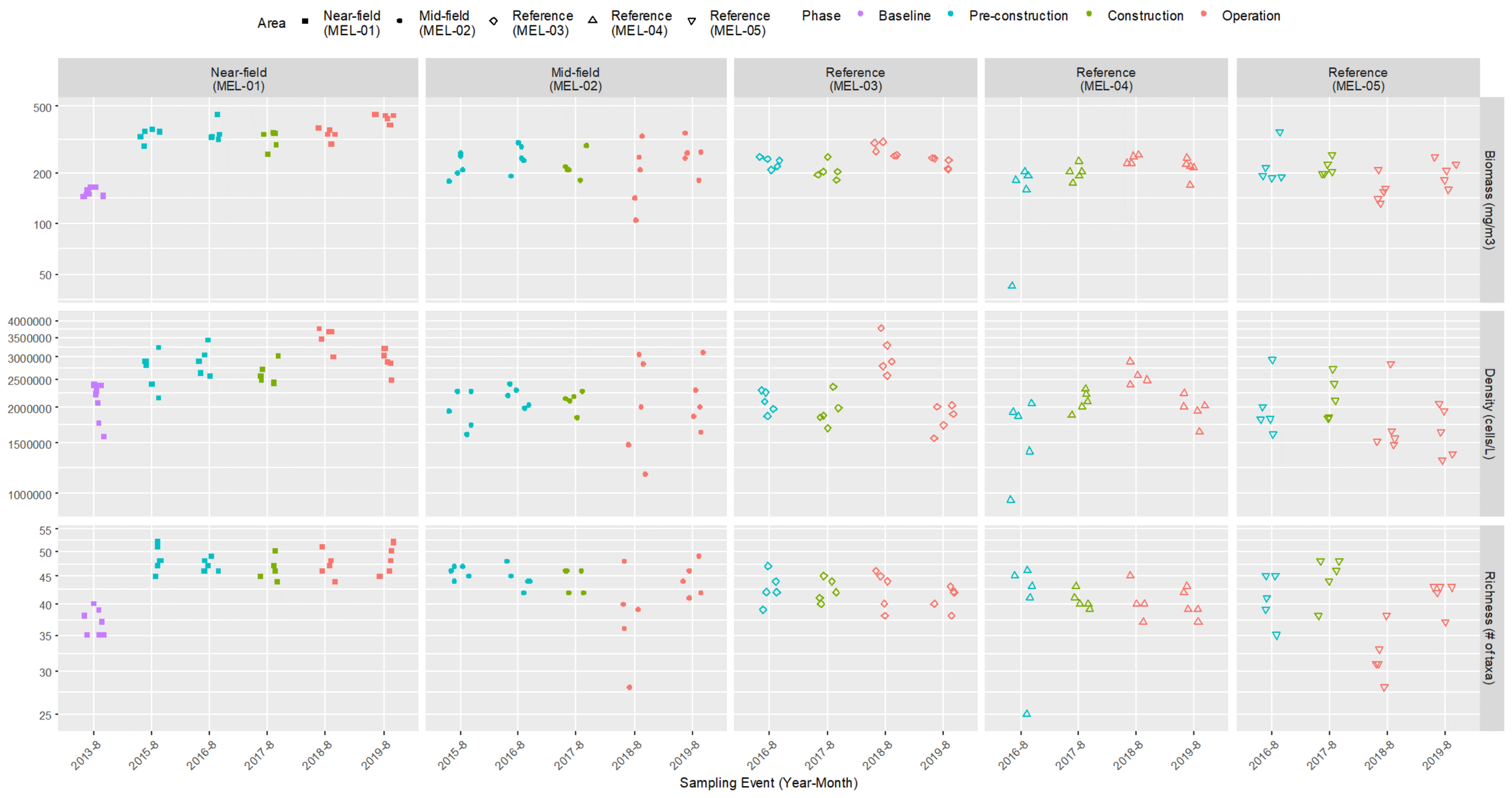




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**Figure 7-6. Major taxa group biomass, density and taxa richness for phytoplankton in Meliadine Lake sampling areas.**

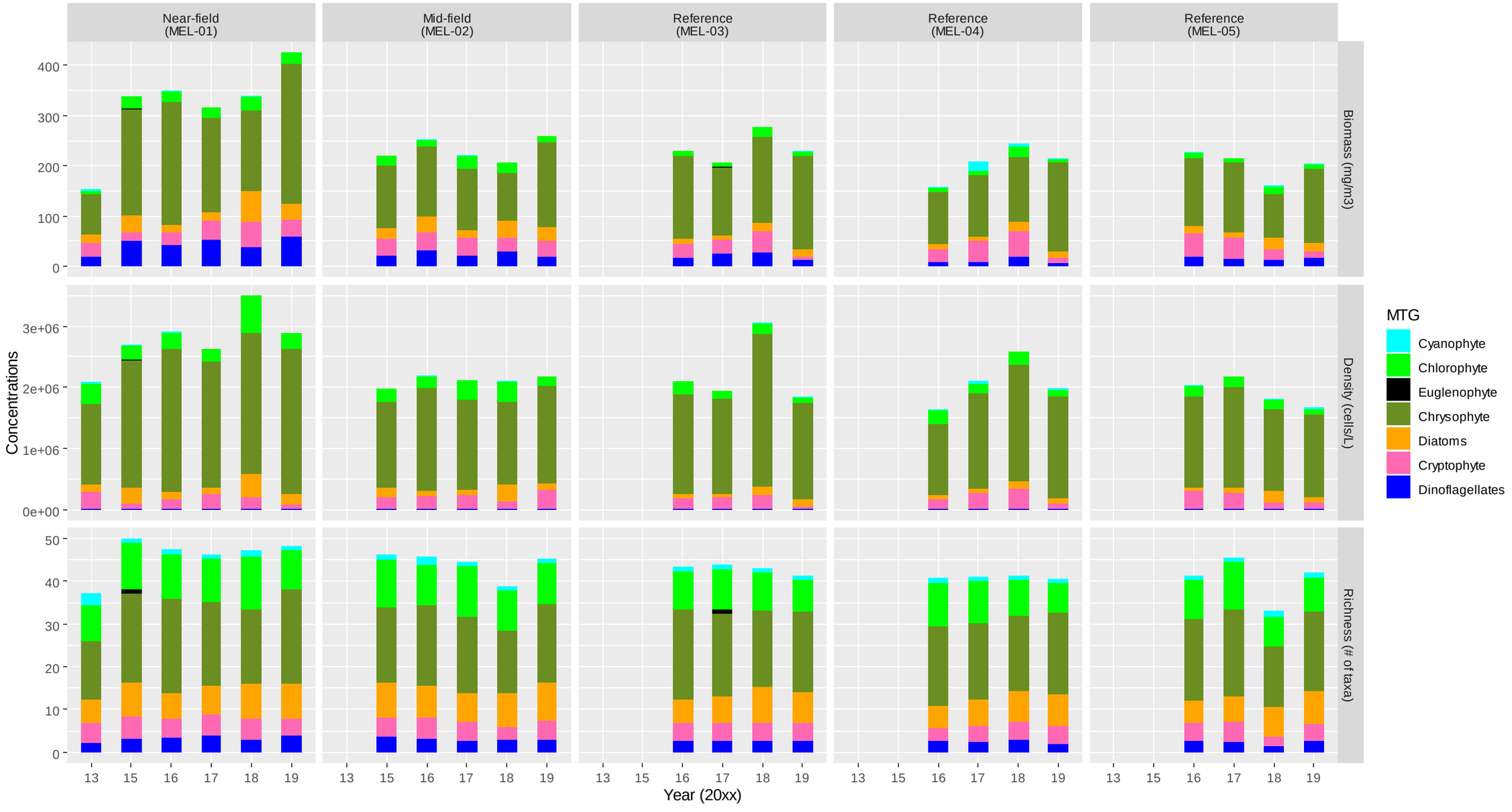




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**Figure 7-7. Ordination plot of phytoplankton community non-metric multidimensional scaling (nMDS) for Meliadine Lake (2015 through 2019).**

Notes: area-year nomenclature: MEL04-18 = Meliadine Lake area MEL-04 sample collected in 2018.
Top panel (REF) = results for reference area-year combinations and their associated probability ellipses
Bottom panel (EXP) = exposure area-year combinations shown relative to reference area probability ellipses

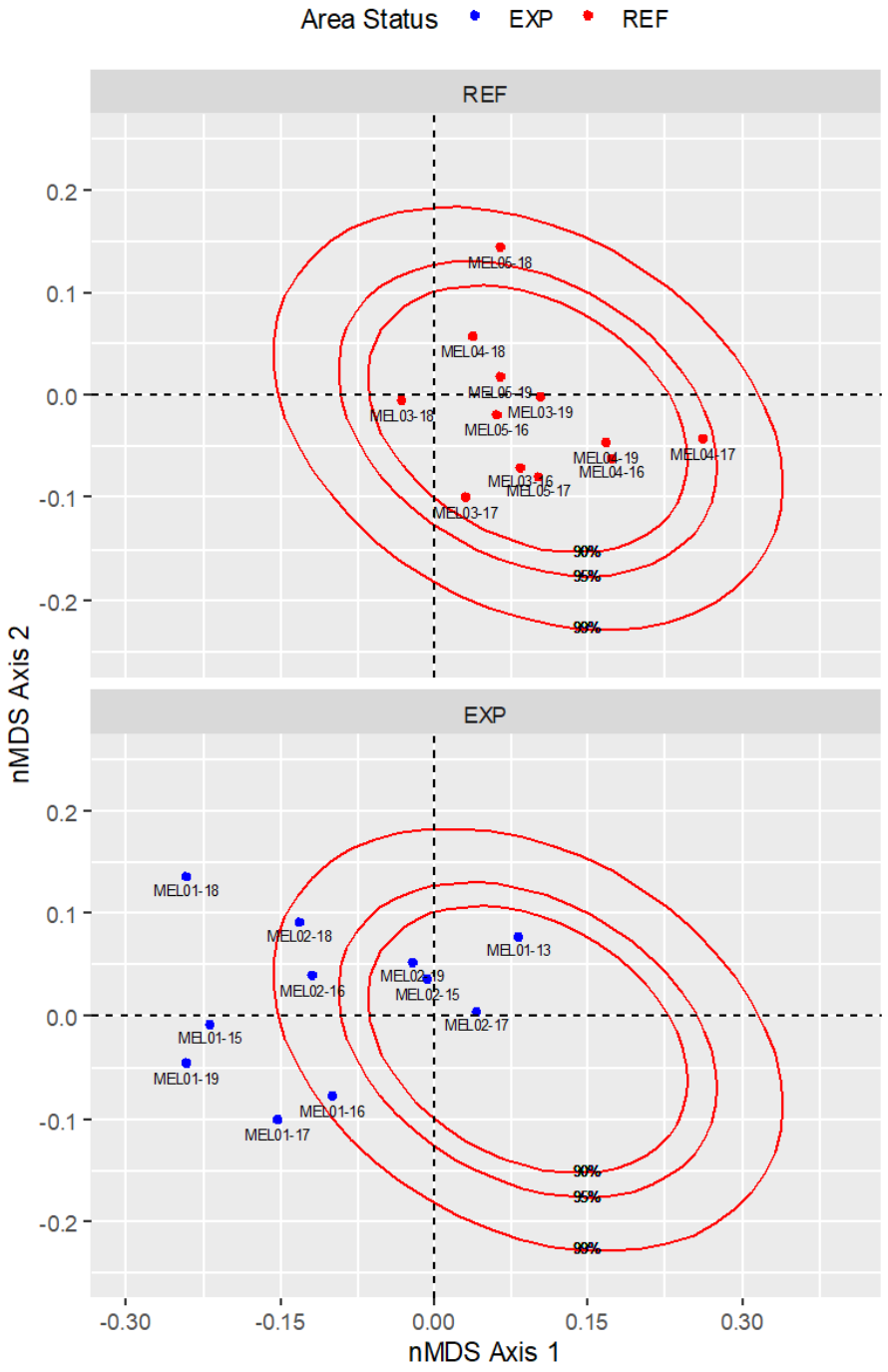

**Figure 7-8. Ordination plot of phytoplankton community non-metric multidimensional scaling (nMDS) results showing reference and exposure results by year for Meliadine Lake.**

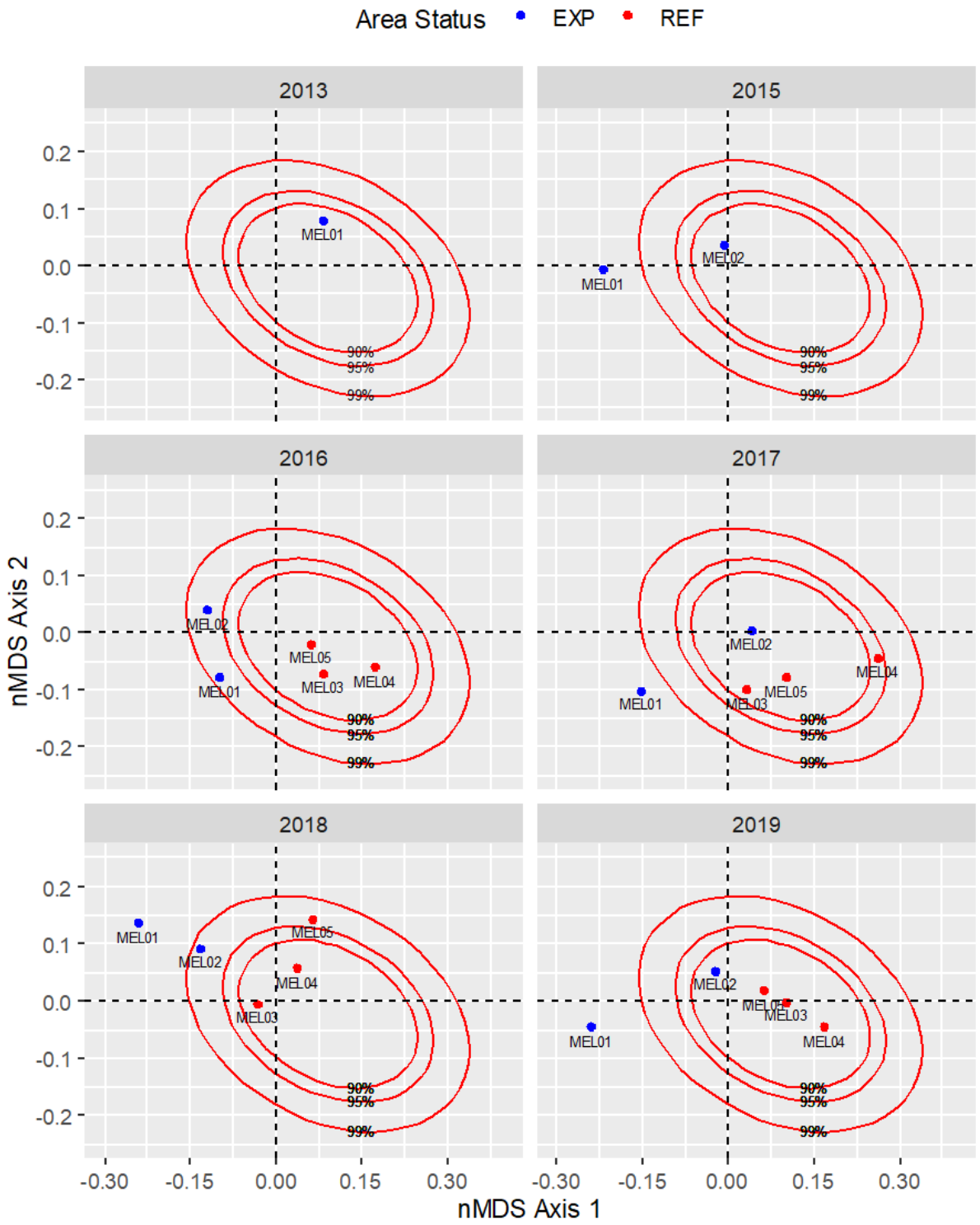




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**Figure 7-9. Relationship between chlorophyll-a and phytoplankton biomass for Meliadine Lake across years, 2016 through 2019.**

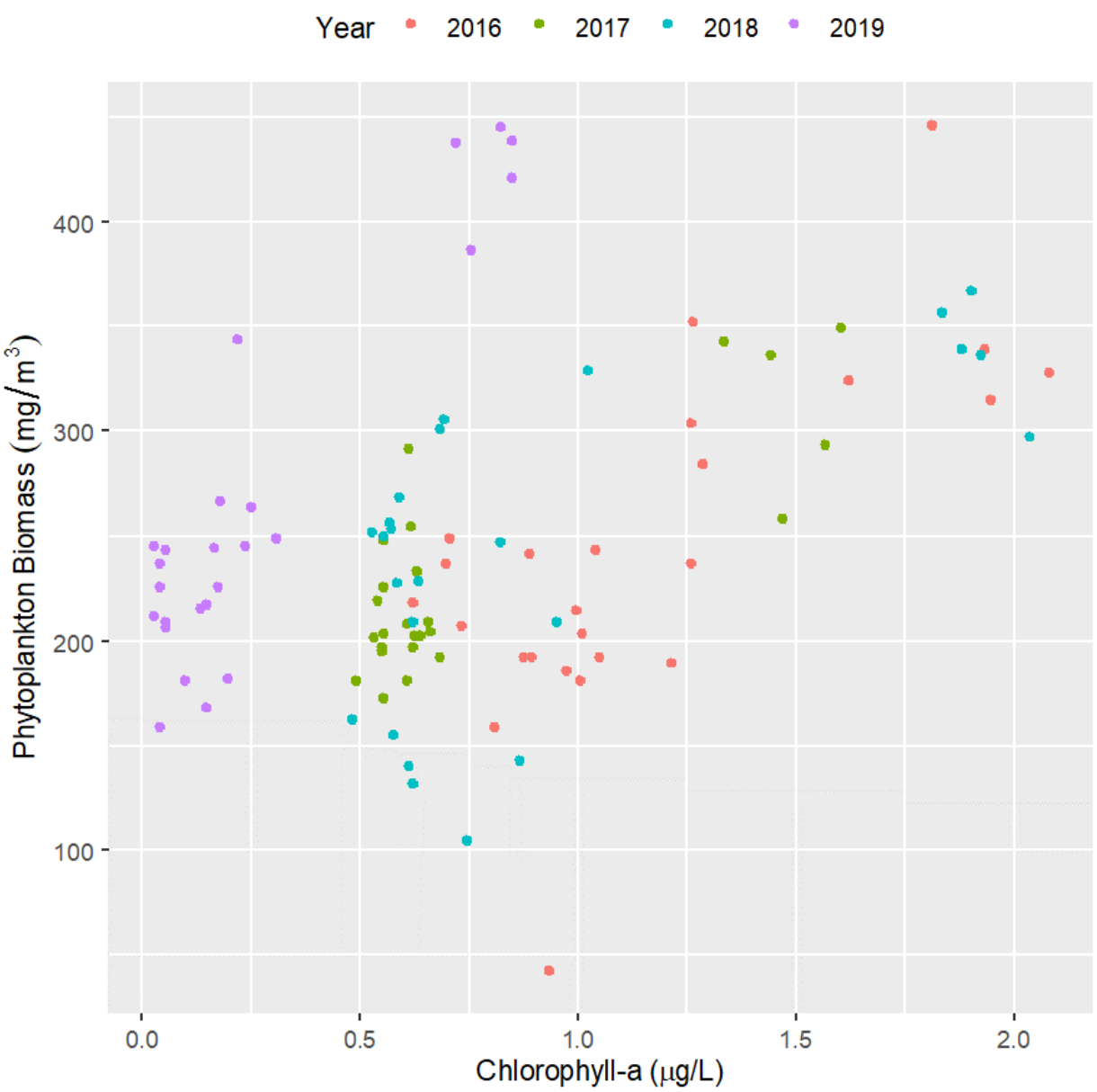

**Figure 7-10.Relationship between chlorophyll-a and phytoplankton biomass for Meliadine Lake by year, 2016 through 2019.**

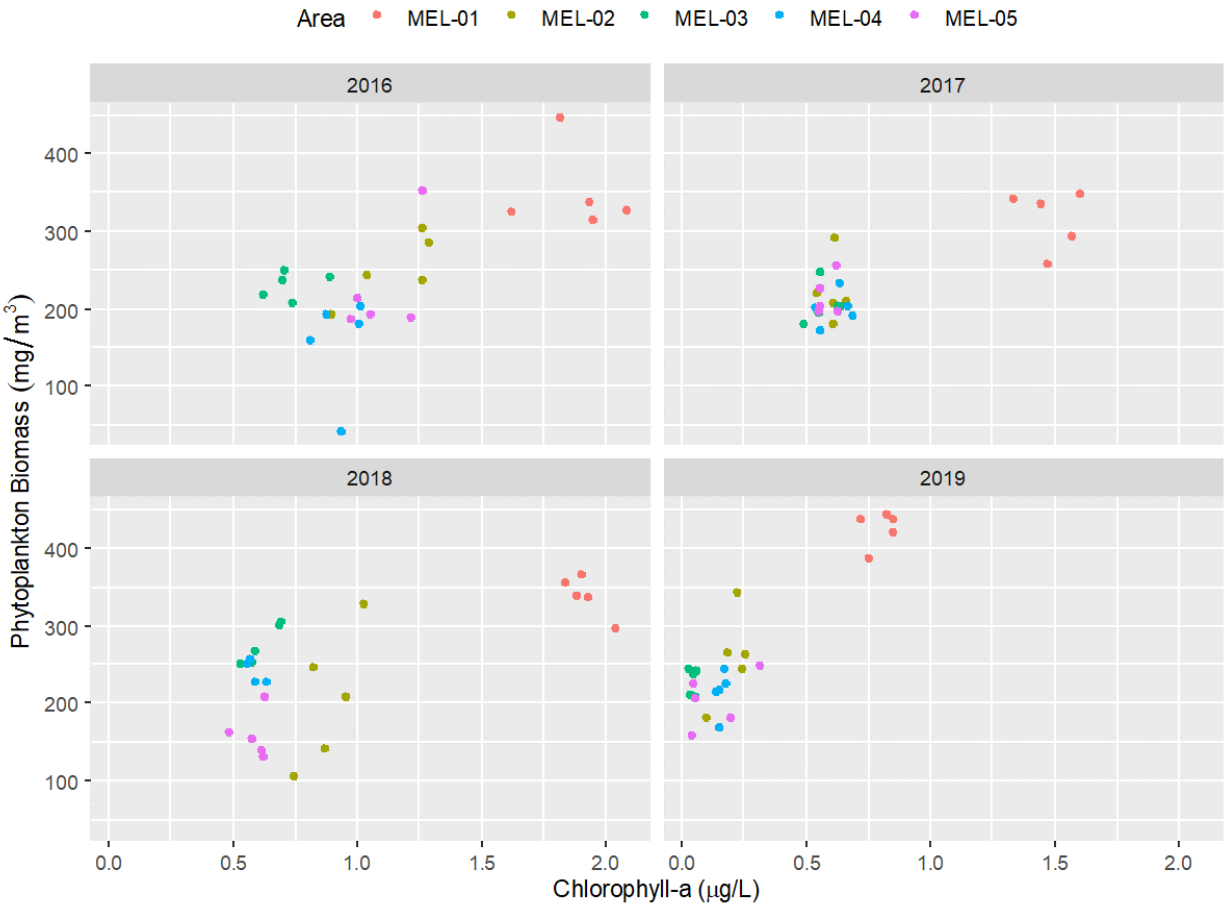

**Figure 7-11. Relationship between key nutrient concentrations and phytoplankton biomass indicators by sampling area for Meliadine Lake, 2016 through 2019.**

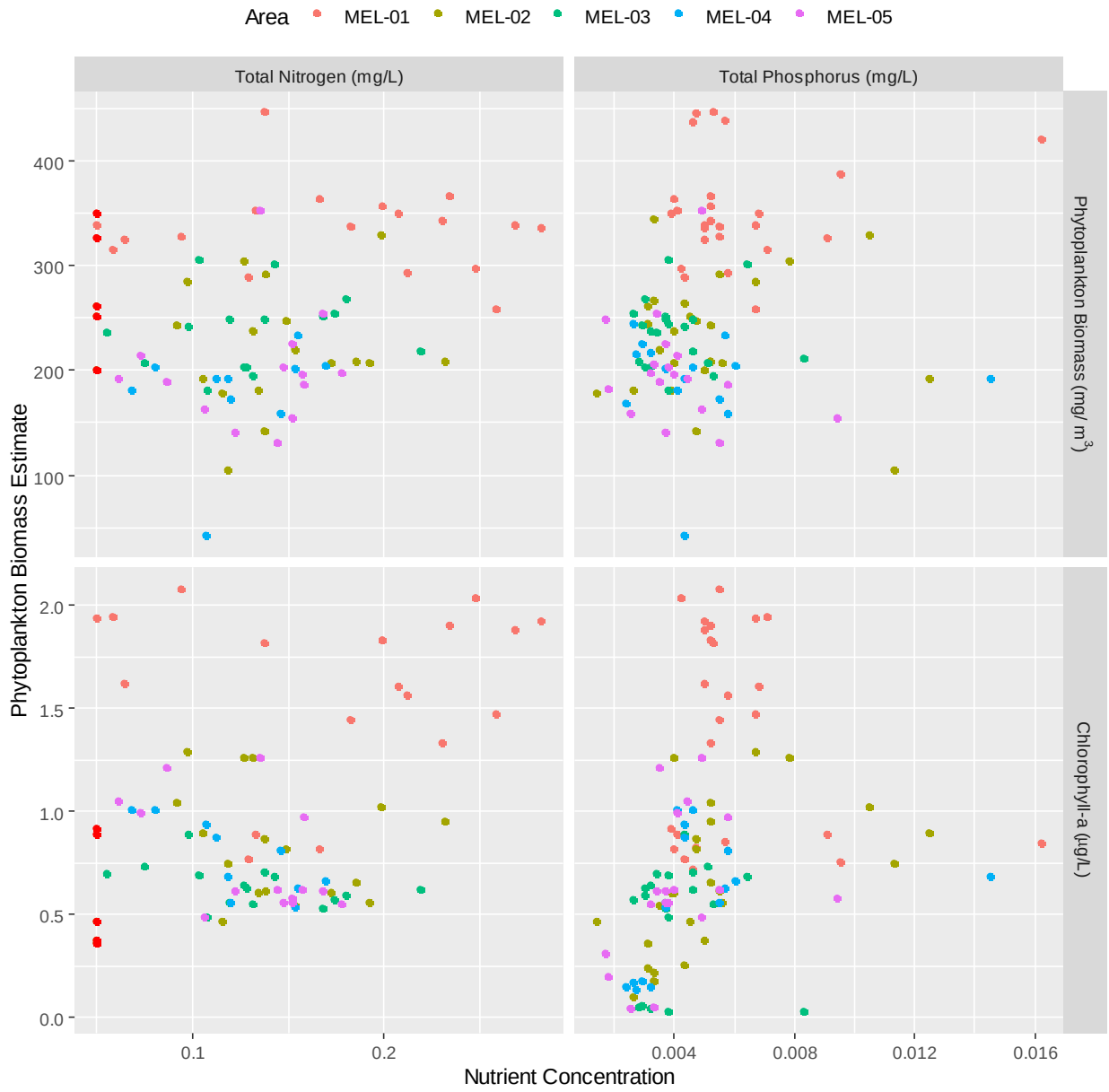

**Figure 7-12. Relationship between key nutrient concentrations and phytoplankton biomass indicators by year for Meliadine Lake, 2016 through 2019.**

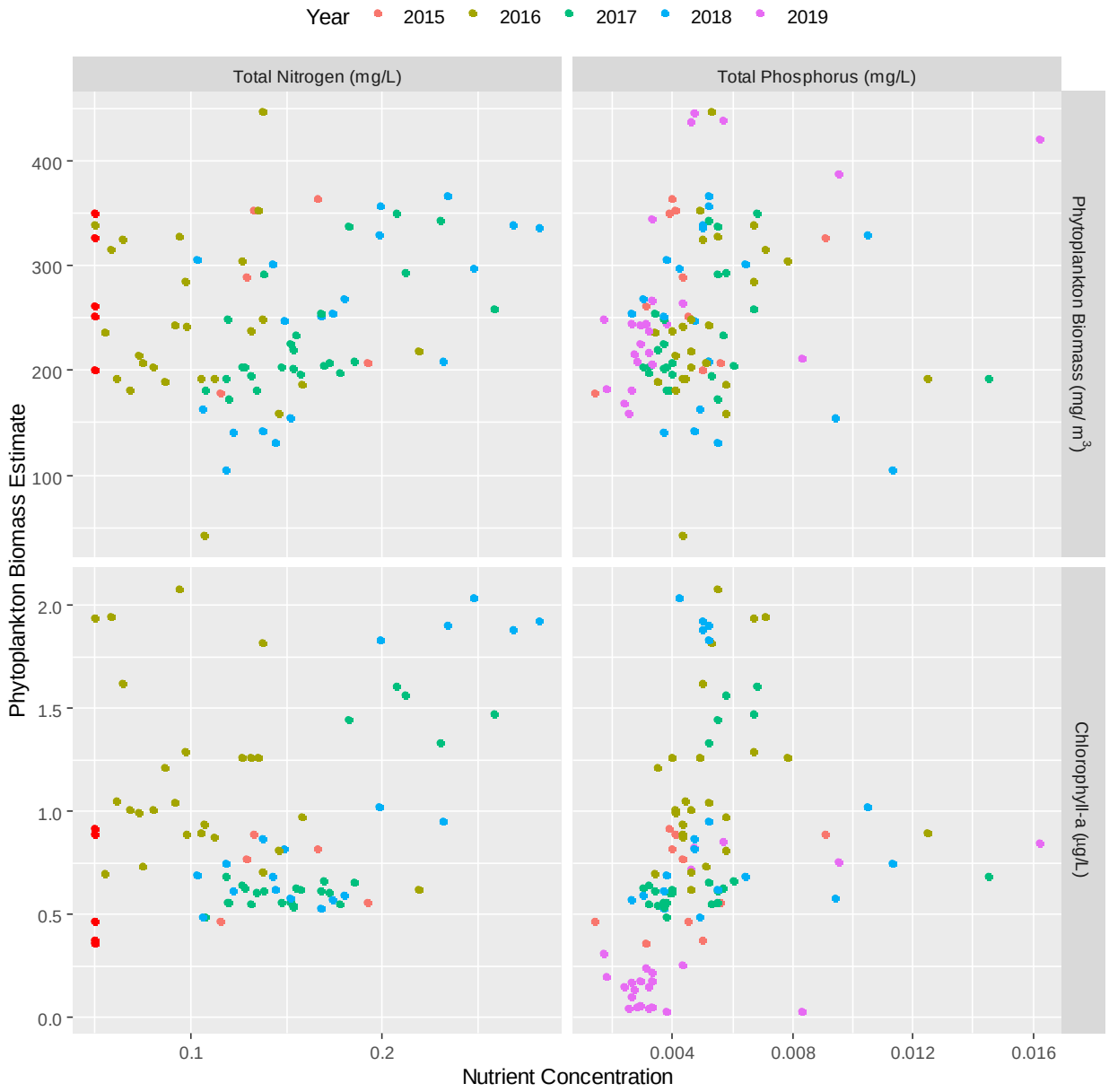




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**Figure 7-13. Relationship between key nutrient concentrations and phytoplankton biomass indicators by year for the near-field area (MEL-01) of Meliadine Lake, 2016 through 2019.**

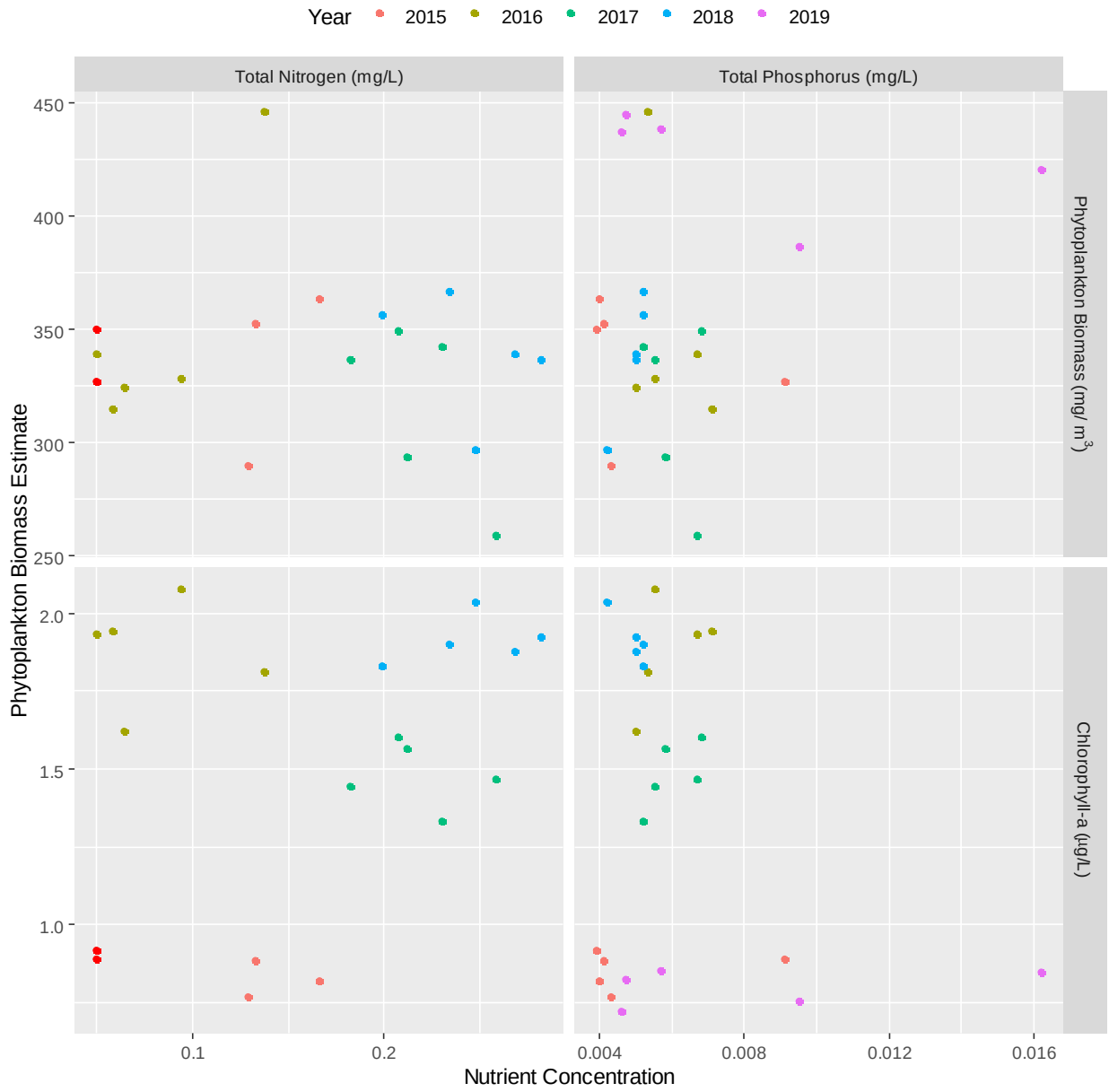

**Figure 7-14. Trophic Status Index values (+/- standard error) for Meliadine Lake, 2015 through 2019.**

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## 7.9 Tables – Meliadine Lake Phytoplankton

Tables for the Meliadine Phytoplankton Study are listed below. Supporting tables for phytoplankton, chlorophyll-a and depth integrated nutrients are provided in **Appendix G**, **Appendix H** and **Appendix I**, respectively.

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**Table 7-1. Trophic classification of lakes based on ranges of total phosphorus, chlorophyll-a and Secchi depth.**

| Trophic Status | Total Phosphorus (mg/L) | | Chlorophyll-a (µg/L) | | Secchi Depth (m) | |
|---|---|---|---|---|---|---|
| | Mean | Range | Mean | Range | Mean | Range |
| Oligotrophic | 0.008 | 0.003 to 0.018 | 1.7 | 0.3 to 4.5 | 9.9 | 5.4 to 28.3 |
| Mesotrophic | 0.027 | 0.011 to 0.096 | 4.7 | 3.0 to 11.0 | 4.2 | 1.5 to 8.1 |
| Eutrophic | 0.084 | 0.016 to 0.386 | 14.3 | 3.0 to 78.0 | 2.5 | 0.8 to 7.0 |

Note:
Reference = Vollenweider 1968

**Table 7-2. Trophic classification of lakes based on total phosphorus trigger ranges.**

| Trophic Status | Total Phosphorus (mg/L) |
|---|---|
| Ultra-oligotrophic (very nutrient-poor) | <0.004 |
| Oligotrophic (nutrient-poor) | 0.004 to 0.010 |
| Mesotrophic (containing a moderate level of nutrients) | 0.010 to 0.020 |
| Meso-eutrophic (containing moderate to high levels of nutrients) | 0.020 to 0.035 |
| Eutrophic (nutrient-rich) | 0.035 to 0.100 |
| Hyper-eutrophic (very nutrient-rich) | >0.100 |

Note:
Reference = CCME 2004

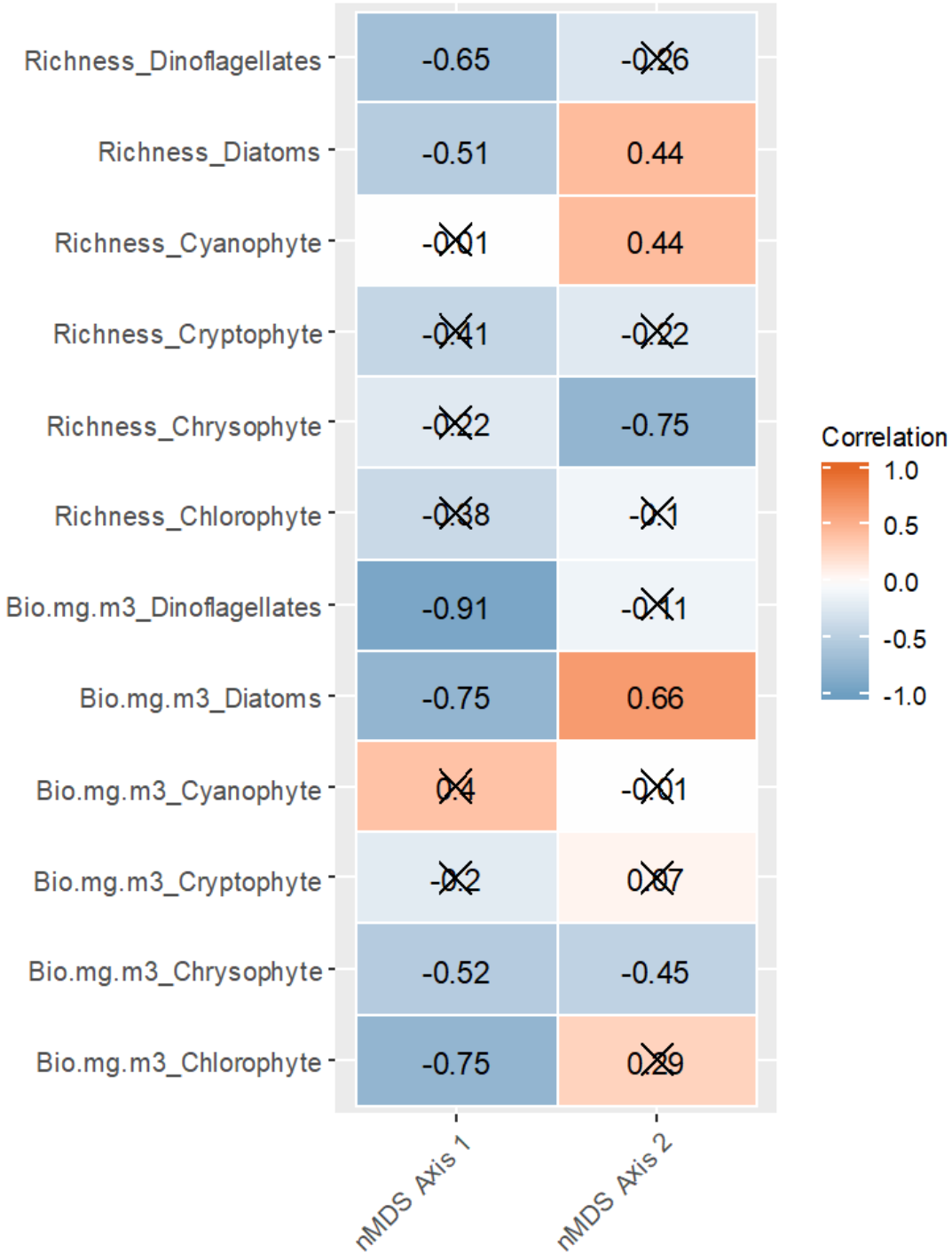
**Table 7-3. Comparison of trophic status index and general trophic classifications in lakes.**

| Trophic State Index | Total Phosphorus (mg/L) | Chlorophyll-a (µg/L) | Secchi Depth (m) | General Trophic Classification |
|---|---|---|---|---|
| <30 to 40 | 0 to 0.012 | 0 to 2.6 | >8.0 to 4 | Oligotrophic |
| 40 to 50 | 0.012 to 0.024 | 2.6 to 20 | 4 to 2 | Mesotrophic |
| 50 to 70 | 0.024 to 0.096 | 20 to 56 | 2 to 0.5 | Eutrophic |
| 70 to 100+ | 0.096 to 0.38+ | 56 to 155+ | 0.5 to <0.25 | Hyper-eutrophic |

Note:
Reference = Carlson 1977

**Table 7-4. Correlations between phytoplankton major taxa group richness and biomass metrics and nMDS axes.**

Notes: Correlations done on the 2019 data; blue cells are negatively correlated, red cells are positively correlated. "X" indicates the correlation value is not statistically significant (p<0.05).



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# APPENDICES

# APPENDIX A
# QUALITY ASSURANCE / QUALITY CONTROL

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# A.1 INTRODUCTION

The objective of quality assurance and quality control (QA/QC) is to assure that the chemical and biological data collected are representative of the material or populations being sampled, are of known quality, have sufficient laboratory precision to be highly repeatable, are properly documented, and are scientifically defensible. Data quality was assured throughout the collection and analysis of samples using specified standardized procedures, by the employment of laboratories that have been certified for all applicable methods, and by staffing the program with experienced technicians.

A brief description of Quality Assurance (QA) and Quality Control (QC) practices are provided here.

- *Quality Assurance* (QA) are the practices employed (e.g., use of experienced field staff, use of SOPs, use of field data sheets, and use of certified laboratories) to collect scientifically defensible samples meeting pre-defined data quality objectives (DQOs).
- *Quality Control* (QC) are measures taken to verify that the specific DQOs are met.

There were two major components to the 2019 Meliadine AEMP program: water quality and phytoplankton. The field and laboratory QA/QC methods (**Section A.2**) and results & discussion (**Section A.4**) for each of these media is reported herein.

# A.2 WATER CHEMISTRY

## A.2.1 QA/QC Methods

An overview of the QA/QC methods in 2019 for the water chemistry component of the AEMP is provided below; refer to the *2016 AEMP Design Plan* (Golder, 2016) for a complete description.

Field duplicates, laboratory duplicates, and blank samples were analyzed as part of the QA/QC program in each of the four sampling events in 2019.

### A.2.1.1 Field

#### Field Data and Sample Collection

Briefly, the standard QA procedures for the water chemistry program include thoroughly flushing the flexible tubing and pump to prevent cross-contamination between areas and thoroughly rinsing the sample containers with site water prior to sample collection. Field

collected limnology data focused primarily on measurements using a multiprobe meter. The meter was calibrated before field measures according to manufacturer instructions. Agnico Eagle Environment department maintains a calibration log for each field instrument used to collect field measurements. QA methods used to prevent cross-contamination between locations and from the equipment itself included wearing nitrile gloves and rinsing the sample equipment with surface water prior to collecting samples.

Careful documentation and handling of all samples and data is a key component of QA/QC in a field program. Field data were recorded on customized field data sheets. Sample bottles were labeled appropriately with the sample ID, date and project identification and sample containers were stored according to laboratory handling instructions. Field data sheets were scanned after each field program. Information that was recorded in the field (e.g., field measurements, station information, etc.) was transcribed into an EQUIS database jointly administered by Agnico Eagle and Golder.

## Sample Shipping and Handling

Shipments of samples to the analytical laboratories were accompanied by chain-of-custody (CoC) forms detailing sample identification, reporting requirements, and sample handling information. CoC forms not only inform the laboratory of sample details, they also help ensure that sample handling instructions are followed and that all samples are accounted for.

The Meliadine Environment Department plans water sampling events to minimize the amount of time that samples are in transit between Site, Val d'Or, and the various laboratories in Vancouver, Alberta, Winnipeg and Colorado. The remote location of the mine will always present challenges with some analytes meeting recommended hold-times, but the effect of slightly exceeding hold-times on the quality of the results is considered negligible. Correspondence with the lab regarding hold-time exceedance hasn't led to establishing definitive benchmarks for data quality. ALS recommends "professional judgement" when interpreting chemistry data for parameters that exceeded hold-times for analysis.

Recommended hold-times are provided by the laboratory for analytes and water quality parameters. The times vary from a low of 0.25 days for pH to six months for metals. Hold-times for water samples are regularly exceeded for turbidity, pH, nitrate, nitrite, total dissolved solids, total suspended solids and dissolved orthophosphate (as P). Occasionally, hold-times are exceeded for cyanides (free and total). Samples are generally shipped very soon after collection and the distances and logistics make it impossible to meet short hold-times. However, it is highly unlikely that results are affected for those parameters or analytes where hold-times were not met in 2019.

## Sample Blanks

Field QC procedures as part of the AEMP included collecting and analyzing three different types of *blank* samples, travel blanks, field blanks and equipment blanks. Blank sample collection, particularly equipment blank samples, requires careful planning, attention to detail, focuses on the importance of cleanliness and generally provides a good opportunity to refine sample collection skills.

Blank samples are collected once per sample event, and are submitted *blind* to the laboratory, to ensure they are treated the same as field collected samples during analysis. Results from the field, equipment and travel blanks are examined for detectable concentrations of any of the parameters measured; no parameter in blanks should exceed laboratory method detection limits (MDLs). If an analyte is detected in a blank, the results for the batch of samples submitted with the blank are compared with the measured concentration in the blank; results that are less than 5-times the detected analyte concentration in the equipment blank are flagged to examine the potential for cross-contamination to affect the results[1]. This threshold does not apply to pH measurements, as DLs are not available for the pH scale.

**Travel blanks (TB)** – One set of travel blanks was provided by the analytical laboratory for the purpose of testing for contamination associated with travel (i.e., hold time, heat/cold, moisture, desiccation, leaching, etc.). Travel blanks consist of de-ionized (DI) water provided in sampling bottles by ALS and receive the same treatment as field samples during shipment, handling, storage, and laboratory analysis. The travel blanks were opened in the field for the amount of time it takes to collect a sample and then sealed. Travel blank results are treated the same as equipment blank results by the analytical laboratory. Travel blanks should (1) be included in sample container shipments, (2) come directly from the analytical laboratory and (3) be stored in a cool place (e.g., refrigerator).

**Field blanks (aka Deionized Water Blanks [DI])** – To obtain a field blank, DI water provided by the analytical laboratory is transferred to a sample bottle in the field. Field blanks are handled and analyzed using the same techniques as water samples collected in the field. Field blanks are used to detect potential contamination during sample collection, handling, shipping and laboratory analysis. Field blank results are treated the same as equipment blank results by the analytical laboratory.

[1] This approach is consistent with how ALS flags unreliable results for the laboratory method blanks.

**Equipment blanks (EB)** – To obtain an equipment blank, DI water provided by the analytical laboratory is transferred to the same equipment used to collect field samples. The DI water is first run through the equipment and then transferred to a sample bottle. Equipment blanks are handled in the same was as field samples and are used to detect potential contamination from sampling equipment. Results from equipment blanks are examined for detectable concentrations of any of the parameters measured; no parameter should exceed MDLs. If an analyte is detected in a blank, the results for the batch of samples submitted with the blank are compared with the measured concentration in the blank; results that QA section to focus on are less than 5-times the detected analyte concentration in the equipment blank are flagged to examine the potential for cross-contamination to affect the results. Results carried forward in the QA/QC assessment are given either a cautionary flag or an unreliable flag.

## Field Duplicates

Additional samples (i.e., field duplicates) are collected as a subset of the field sampling locations for water. Field duplicates were collected at the same time and using the same methodology as field samples and with the intent of collecting the same media. Field duplicates are used to identify the precision of field sampling methods and laboratory analysis and within-station variability. Field duplicate are submitted *blind* to the laboratory and analysed using the same methods and equipment as original samples.

Results of the field duplicates are assessed by measuring the relative percent difference (RPD) as a percentage between original and duplicate measurements as measure of precision by the laboratory and the magnitude of variability between original and field duplicate samples, respectively. The variability in field duplicates may be attributed to sampling procedures but may also be attributed to natural conditions (i.e., spatial heterogeneity in the sampling media). The equation used to calculate the RPD is the following:

$$RPD = \frac{(A - B)}{(\frac{A + B}{2})} x\ 100$$

where: A = analytical result; B = duplicate result.

In 2019, the DQOs were revised for water chemistry field duplicates. The DQOs for field duplicates were adjusted to be 1.5X the laboratory RPDs (RPDs can be negative or positive). If no RPD was provided by the laboratory, the field duplicate DQO was set to a default of 40%. The adjustment above laboratory RPD levels is to reflect that field duplicates are inherently more variable in comparison to laboratory duplicates partly because field duplicate samples are collected from a large sample volume (i.e., the lake or stream) versus a small well-mixed sample volume (i.e., the single sample container in the laboratory). The Canadian Council of Ministers

for the Environment (CCME) state that acceptance limits for field-based QC are broader than laboratory QC and are typically 1.5 to 2 times the laboratory QC limits (CCME 2016).

As stated, RPD values may be either positive or negative, and ideally should provide a mix of the two, clustered around zero. RPDs are not calculated when one of the samples (i.e., either A or B above) is below detection and the other is not. If an RPD value falls outside the field duplicate DQO it is flagged for review. When analyte concentrations are less than 10-times DL we expect a greater likelihood of not meeting the DQOs because laboratory precision is slightly further from the DLs and because smaller concentrations of analytes per volume tends to magnify variability between the original sample and the duplicate. These occasions are still flagged for assessment to reflect upon the implications for sampling protocol and data interpretation. However, given the higher potential to not meet DQOs for those reasons outlined above, they are not weighted as highly unless there is a relatively high percentage of RPD values that did not meet DQOs or if the RPD values themselves are very high. Analyte concentrations that are greater than 10-times DL and do not meet the DQOs are given more weight in the QA/QC assessment.

#### A.2.1.2 Laboratory

Water samples collected during the 2019 Meliadine Lake study, with the exception of the radium-226, were analyzed by ALS Environmental Laboratory (ALS; Vancouver, Edmonton and Winnipeg locations). Analysis of radium-226 was subcontracted by ALS Edmonton to ALS in Fort Collins, Colorado, USA. ALS is an analytical laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). Performance evaluations are conducted under CALA's accreditation program for laboratory methods, protocols, and QC.

The first step in the QC program involves documenting any issues with the sample submission. This step applies to all sampling components (e.g., water chemistry and phytoplankton). ALS reports concerns surrounding sample submission as *sample integrity* issues in the Sample Receipt Confirmation (SRC) email after the samples are received. For ALS reports, the results are typically recorded in the sample integrity assessment for one of three reasons: (1) samples were damaged during transport, (2) the temperature inside the cooler was above 10°C when received by the laboratory, or (3) the recommend hold-time was exceeded prior to analysis. Sample integrity issues don't necessarily mean the data are unusable; rather, this information is meant to help the client make an informed decision on how to proceed with analysis and using the results.

There are four main components of the water chemistry laboratory QC program to assess analytical precision, bias, and completeness:

**Laboratory Duplicate** – The laboratory randomly chooses samples to re-run as duplicates. A new aliquot from the same sample is analyzed from the start in the same manner as the original aliquot taken from the bottle/jar. The difference between the two analyses is a measure of the variability associated with duplicate analyses of the same sample in the laboratory.

Results of the laboratory duplicates are assessed by measuring the RPD as a percentage between original and duplicate measurements which is referred to as measure of precision by the laboratory. For full discussion of the RPD calculation, see **Section A.2.1.1**. Laboratory duplicate DQOs are parameter-specific and depend on the concentration in the sample. The RPD DQOs for lab duplicates are lower than for field duplicates given that the same aliquot is split.

**Method Blank (MB)** – An analyte-free matrix (e.g., de-ionized water) is subjected to the entire analytical process to demonstrate that the analytical system itself does not introduce contamination. Blanks are examined for detectable concentrations of any of the parameters measured; no parameter in blanks should exceed laboratory method detection limits (MDLs). If an analyte is detected in a blank, the results for the batch of samples submitted with the blank are compared with the measured concentration in the blank. Results that are less than 10-times the detected analyte concentration in the blank are flagged to examine the potential for cross-contamination to affect the results.

**Matrix Spike (MS) / Matrix Duplicate (MD)** – A known amount of a compound chemically similar to the target analyte is added to samples to ascertain any matrix effects on recoveries and to determine the accuracy and precision of the method in this matrix.

**Laboratory Control Sample (LCS)** – An LCS is a well-characterized sample of known analytes and concentration. A reference material (i.e., certified reference material) containing certified amounts of target analytes, may be used as an LCS. Percent recovery of the target analytes in the LCS is compared to established control limits and assists in determining whether the methodology is in control and whether the laboratory is capable of making accurate and precise measurements at the required reporting limit.

**Certified Reference Material (CRM)** – These are parameters (e.g., metals, conductivity, etc.) with a known concentration against which the lab must achieve a precision of within ±10% of the CRM.

The lowest available detection limits (DL) were specified for all the chemical analyses for the Meliadine AEMP water quality program. A shift in DLs for any given water quality parameter was reviewed, and the laboratory asked to explain the change in DLs. Changes in DLs by the laboratory could limit the ability to compare results across samples. Any changes in DLs that

resulted in the DL being close to the result (i.e., less half the result) for any given parameter was flagged for further scrutiny.

Dissolved concentrations of nutrients and metals were compared to their corresponding total concentrations. If the dissolved concentration exceeded the corresponding total concentration, the parameter was re-analyzed by ALS. If the dissolved concentration after re-analysis was still 20% greater than the corresponding total concentration and both concentrations were greater than 10-times the DL the dissolved concentration was flagged.

Laboratory QC results are included in each laboratory report for AEMP water quality samples. The ALS analytical reports are included in **Appendix E**.

## A.2.2 Results and Discussion

Results of the QA/QC analysis are discussed below, along with a discussion on the implications of the QA/QC assessment of the sample results from 2019.

### A.2.2.1 Field Results

**Table A-1** summarizes sample integrity observations (e.g., broken sample containers, mislabeled containers), cooler temperature upon delivery to the lab, and parameters that exceeded the recommended hold-times for analysis.

#### Sample Shipping and Handling

The target temperature for samples arriving at ALS is between 5°C and 10°C. The range of temperatures reported in 2019 was between 4.8°C in February to a high of 21.3°C in July. These temperature ranges reflect the seasonal ambient temperatures. The effect on preserved samples is considered negligible. No sample integrity observations were identified for the February sampling event. Furthermore, there were no sample integrity observations reported by the laboratory for the July sampling event. In August, no sample integrity observations were identified for two of three batches of samples. In the third batch, the sample bottle meant for Total Kjeldahl Nitrogen (TKN) corresponding to sample MEL-04-01 was received empty. For this case, ALS analyzed TKN using subsamples from routine water sample bottles. In the September sampling event, there was a minor discrepancy in labeling for the equipment blank sample bottle compared to the CoC, which had no effect on the data quality. No sample integrity observations were identified for the second batch of samples from the September sampling event.

The sample shipping and handling QA/QC for water samples in 2019 was acceptable, with only minor sample integrity issues identified by ALS. However, some nutrient parameters were not

included in the suite of analyses in 2019 due to clerical omissions at the ALS location in Winnipeg. The logistics, distances, and general challenges of collecting and shipping samples from a remote mine in Nunavut meant that hold times were exceeded for several parameters/analytes but the impact on results is considered negligible.

## Field Duplicates

The target frequency of field duplicate sample collection is approximately 10% of the total number of samples collected. For this program there were 65 original samples collected over four events (i.e., one event in February, July, August and September) and ten duplicate samples collected. In 2019, one field duplicate was collected in February, three in July, four in August and two collected in September. The field duplicate assessment is provided in **Table A-3**.

As mentioned in **Section A.2.1.1**, the DQOs for field duplicates were 1.5X the laboratory RPD for each analyte unless no RPD was available, in which case, a default 40% was used. The laboratory RPDs for water chemistry for most analytes is 20% and, as such, in 2019 the DQOs for field duplicate water samples were generally lowered from less than ±50% to less than ±30%.

**Table A-4** summarizes analytes from each sampling event for which the field duplicate RPDs did not meet the DQOs. The shaded cells indicate one or more RPDs when concentrations were >10-times DL. The RPDs for TKN, total phosphorus, dissolved aluminum and dissolved zinc did not meet DQOs in three to four sampling events. Total aluminum concentrations were above 10-times DL in three of four sampling events. Total ammonia is measured as nitrogen and exceeded the DQOs in multiple samples collected in July and August. Some of the variability may be attributed to increased plant (algae) growth in these months.

The 2019 field duplicate results were very good with approximately 5% of the calculated RPDs not meeting DQOs. Only a few field duplicate RPDs did not meet DQOs in 2019, suggesting that sample collection and sample handling occurred at a high standard. Furthermore, very few RPDs did not meet DQOs when analyte concentrations were > 10-times DL, and for at least some of those instances the differences in analytes concentrations may be related to natural heterogeneity.

## QC Blanks

### *Travel Blanks*

Travel blank results are provided in **Table A-2**. Travel blanks were submitted for the July sampling event. There were no TB submitted for winter sampling event, as well as August and September open-water events.

Detectable concentrations of the following parameters were measured in the July TB: conductivity, nitrate (as N), total dissolved solids, total calcium, iron, tin, zinc, and dissolved calcium, chromium, magnesium, strontium, and tin. All parameters detected in the July travel blank, except conductivity, were detected in the EB from the same sampling event. Nitrate (as N) and combined Nitrate and Nitrite were well above 10-times the DLs, the concentrations in the equipment blank and concentrations in the rest of the surface water samples analyzed in the July batch. This was not flagged by the laboratory, but since these parameters were reported at concentrations above those reported in the equipment blanks the results may be attributed to laboratory error.

Future TB results will be closely monitored, and if systematic issues are noted with the DI water, a change in the source of the DI water may be implemented.

### *De-ionized Water Blanks*

The goal of these blanks is to test the quality of the de-ionized (DI) water batch and variability in laboratory analytical methods. DI blanks with the full suite of analyses were submitted for all but the February sampling event. DI blanks were submitted for dissolved metals but not filtered in the field. Results of the blanks collected for the AEMP are reported in **Table A-2**.

In July, total ammonia (as N), chromium and titanium, dissolved aluminum, barium, chromium, iron and lead concentrations were detected at levels close to the detection limits. Dissolved chromium was detected in the DI blank, travel blank and equipment blank for the same event in July suggesting a potential laboratory error. No analytes were detected at concentrations higher than 10-times the MDL.

In August, turbidity and total ammonia (as N) were detected at concentrations close to the detection limits. Total and dissolved chromium concentrations were detected at concentrations higher than 10-times the MDL in the DI blank.

While no analytes were detected at concentrations higher than 10-times the MDL, dissolved chromium and strontium were detected at concentrations close to the detection limits in September.

### *Equipment Blanks*

Equipment blanks represent one of the best opportunities to assess not only the water sampling equipment but the skills of the sample teams. Collecting these samples requires careful planning and closely following the sample collection methods as outlined in the *AEMP Design Plan* (Golder, 2016; Golder 2018).

Several analytes were detected in each of the equipment blanks submitted in 2019 – results are provided in **Table A-2**. In general, results were acceptable for the 2019 sampling events:

In February, analytes detected 10-times above the MDLs were lead, total sodium, strontium, zinc, dissolved barium, calcium, copper, lead, magnesium, sodium, strontium and zinc. Total barium was detected at 10-times above the MDLs in both the field and equipment blanks. There were a number of analytes detected in the equipment blanks at concentrations close to the detection limits. These results are considered unlikely to impact the interpretation of water quality data from that month.

In July, there were a number of analytes for which the concentrations were close to the detection limit in July, though none of the analytes were present in concentrations greater than 10-times the MDL.

Analytes that were detected in the equipment blanks but not the DI blanks at concentrations close to the MDLs are shown in **Table A-2**.

The following analytes were detected in both the DI blank and equipment blank; total ammonia, chromium, titanium, dissolved barium and chromium. Samples that are detected in both the DI blanks and equipment blanks are likely reflective of contamination in the de-ionized water or may be related to laboratory error. Other analytes were detected in the equipment blanks but not the DI blanks at concentrations close to the detection limits but are not likely to impact the interpretation of water quality in July.

In August, total and dissolved sodium and dissolved rubidium were detected at concentrations greater than 10-times the MDL in the equipment blank. Total ammonia (as N) and total chromium were detected in both the DI blank and equipment blank collected in August, suggesting potential laboratory error. Other analytes were detected at concentrations close to the detection limits but are unlikely to impact the interpretation of water quality in August.

Dissolved strontium was detected in both the DI blank and equipment blank collected in September suggesting potential laboratory error. Other analytes were detected just above the detection limit and are considered very unlikely to impact the interpretation of water quality data from the September sampling event. Dissolved sodium was the only analyte detected at concentrations greater than 10-times the DL in the equipment blank in September.

Most of these analytes were just above the detection limit and are considered very unlikely to impact the interpretation of water quality data from that month. All analytes that are detected at concentrations greater than 10-times the DL are flagged for closer scrutiny in the interpretation of the February, August and September water quality results.

The implications of possible cross-contamination on interpreting the water quality data from the same event is considered inconsequential for each sampling event.

### A.2.2.2 Laboratory Results

Laboratory detection limits were adjusted for a few analytes. While the changes aren't likely to affect the interpretation of certain analytes (e.g., total dissolved solids), the detection limit for titanium in July, August and September was adjusted due to sample matrix effects and since results were close to the detection limit the precision of the results was reduced for this parameter.

ALS provides a thorough account of their QC assessment in each COA that is issued[2]. These results are provided in **Table A-1**. The various components of the QC assessment are provided to help make informed decisions when interpreting the data. The QC program is comprised of four main elements:

- **Laboratory Duplicates** – The laboratory DQO for most parameters is an RPD of less than 20%. All of the laboratory duplicates met the DQOs for water chemistry in 2019.
- **Method blanks (MB)** – The MB is a blank matrix sample that is taken through the entire analytical procedure to test variability in the analytical method and report any bias in the analysis. MB results are equal to the limit of reporting (or MDL as termed here). MB qualifiers are either:
  - "B" – Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
  - "MB-LOR" – Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank levels.

  For most sample analysis there were no flags or very few flags (e.g., one or two analytes in one sample may have been flagged for B or MB-LOR) in the method blank results. These results indicate that the laboratory may have increased MDLs for several samples. However, the limited number of cases with DQO flags for MB samples were reviewed; the results do not affect the interpretation of the 2019 water quality data.
- **Matrix Spike (MS)** – MS recovery is periodically flagged in the QC assessment due to high concentrations of the analyte in the sample. These instances are rare, and are typically

[2] The COA may include data qualifiers that relate to the sample "batch". The sample batch may include samples that are from other projects and the qualifiers included in the COA may relate to those and not the AEMP samples. In general, this does not impact the assessment of laboratory QA; however, in some instances, data qualifiers in the COA related to sample heterogeneity may not relate to AEMP samples. The Microsoft Excel® report that accompanies the COA includes tabs with detailed assessments of laboratory QA that are project specific and can be reviewed in conjunction with the COAs.

associated with parameters such as major cations (e.g., magnesium) or certain metals with detected results above the MDL (i.e., strontium), with the exception of silica (reactive as $SiO_2$) flagged in a sample from the February sampling event. The limited number of cases with DQO flags for MS samples were reviewed; the results do not affect the interpretation of the 2019 water quality data.

- **Laboratory Control Samples (LCS) / Certified Reference Material (CRM) / Internal Reference Material (IRM)** – reference material analysis met the ALS DQOs for all samples analyzed as part of the 2019 with the following exceptions; bismuth in August and selenium and bismuth in September. The results do not affect the interpretation of the 2019 water quality data.

### A.2.3 QA/QC Summary

Overall, the field and laboratory QA/QC water chemistry results in 2019 were very good:

**Sample Integrity** –Sample temperatures received at the laboratory were variable depending on season and reflect the challenges with shipping from a remote mine site. Likewise hold time exceedances for parameters and analytes with short hold times are unavoidable but are not considered likely to impact data analysis and interpretation.

**Blanks** – There were several analytes detected in the DI and EB samples submitted in 2019. The magnitude of the detected concentrations in the various blanks was typically less than 10-times the DL. In a few instances, the measured concentration in the QA blanks was greater than 10-times the DL. Detected concentrations of various parameters in the blanks merely indicates the *potential* for cross-contamination. Close examination of the water quality data from 2019 indicated concentrations were consistent with previously-reported results, and potential for cross-contamination to bias the interpretation of the 2019 water quality data is considered unlikely.

The detection of certain parameters in both the DI and EB in 2019 suggests there may have been underlying issues with the quality of the DI water at the lab in 2019. This quality and suitability of the DI water at ALS in Winnipeg is being discussed with the laboratory manager.

**Field Duplicates** – The 2019 field duplicate results were very good with approximately 5% of the calculated RPDs not meeting DQOs.

**Laboratory QC Assessment** –the laboratory QC assessment completed by ALS indicated the 2019 water quality data were typically within the established DQOs. In the few instances where a DQO was exceeded, the lab concluded the results were reliable and fit for use in the water quality assessment.

# WATER CHEMISTRY QA/QC TABLES

## Table A-1. Laboratory QA/QC summary for water and phytoplankton, Meliadine AEMP, 2019.

| Event | Lab ID | Parameters Measured | Date sampled | Date received | Sample Integrity Observations | Temperature (°C) | Hold-time Exceedances | Data Qualifiers[1] | | | Laboratory QC Summary | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Detection Limits | | Laboratory Duplicates | | Method Blanks | | Matrix Spike | | LCS / CRM | |
| | | | | | | | | Sample ID | Parameters | Qualifier | Parameters | Qualifier | Parameters | Qualifier | Parameters | Qualifier | Parameters | Qualifier | Parameters | Qualifier |
| February | L2235701 | All parameters | 14-Feb-19 | 22-Feb | None | 4.8 | Turbidity, pH, TSS, TDS, Nitrate, Nitrite | DTC: MEL-01-07 & 08, EB, FB<br>DLRC: RA226-MMER-FC | Diss: B, Ca, Cr, Cu, Mg, Mo, K, Na, Sr<br>Ra-226 | DTC<br>DLRC | None | - | None | - | None | - | Total: Ca, Mg, Na, Sr<br>Diss: Ca, Mg, Na, Sr | MS-B | None | - |
| | L2239278 | All parameters | 22-Feb-19 | 4-Mar | None | 4.9 | Turbidity, pH, TSS, TDS, Nitrate, Nitrite | DTC: MEL-02-02, 03 & 05 | Diss: As, Ba, B, Ca, Cu, K, Mg, Ni, Na, Sr, Mo | DTC | None | - | None | - | None | - | Tot: SiO2, Ca, Mg, Na, Sr<br>Diss: Ca, Mg, Na, Sr | MS-B | None | - |
| July | L2314029 | All parameters | 12-Jul-19 | 22-Jul | None | 21.3 | Turbidity, pH, TSS, TDS, Nitrate, Nitrite, TKN, Cyanides | DLM: MEL-02-02, B7-02, D7-01<br>DTC: MEL-01-08, MEL-03-02 to 05, B7-02, D7-03, DI, EB, TB<br>DTMF: MEL-02-02 & 03, A8-02, B7-01<br>RRV: DI, EB, TB | DLM: Total and Diss Ti<br>DTC: Diss: Cr, Sn, Fe, Sr, Ca, Mg<br>DTMF: Diss: Pb, Sn<br>RRV: Total Ammonia, Diss: Al, Ba, Cr, Pb, Ba, Ca, Cu, Mg, Zn, Sr, Sn | DLM, DTC, DTMF, RRV | None | - | None | - | None | - | Tot: Ca, Mg, Na, Sr, Diss: Ca, Mg, Na, Sr | MS-B | Cyanide, Weak Acid Diss | RM-ND |
| August | L2330132 | All parameters | Aug 08 to Aug 10 | 16-Aug | None | 18.8 | Turbidity, pH, TSS, TDS, Nitrate, Nitrite | DLM: MEL-02-05, B7-03<br>DTC: MEL-01-01 & 07, MEL-02-01, MEL-03-02, B7-01<br>RRV: DI | DLM: Total Ti,<br>DTC: Diss: Sn, Mg, Na, Zn, Cr<br>RRV: Ammonia, Total and Diss Cr | DLM, DTC, RRV | None | - | None | - | Diss: K, Na, Th, Ti | B | Tot: Ca, Mg, Na, Sr<br>Diss: Ca, Mg, Na, Sr | MS-B | Total Bi | MES |
| | L2332618 | All parameters | Aug 12 and Aug 14 | 21-Aug | Sample bottle for fraction 1 meant for TKN and HN3 received empty. Lab subsampled for these parameters. | 19.8 | Turbidity, pH, TSS, TDS, Nitrate, Nitrite | <T: Field Dup,<br>DLM: MEL-04-03, MEL-04-05, A8-03<br>DTMF: MEL-04-05, Field Dup<br>HTD: D7-03<br>RRV: MEL-04-04, D7-01, Field Dup, EB | <T: Nitrate<br>DLM: Total Ti,<br>DTMF:Diss: Pb, Mo, V<br>HTD: TDS<br>RRV: Tot: Ammonia, Cr, Mg, Mo, Na, Sr, Diss: Ba, Ca, Mg, Mn, Mo, Rb, Na, Sr, Sn, Zn | <T, DLM, DTMF, HTD, RRV | None | - | None | - | None | - | None | - | None | - |
| | L2334497 | All parameters | 16-Aug-19 | 23-Aug | None | 19.4 | Turbidity, pH, TSS, TDS, Nitrate, Nitrite | DLM: MEL-05-01<br>HTD: MEL-05-02 | DLM: Total Ti<br>HTD: TDS | DLM, HTD | None | - | None | - | None | - | Tot: Ca, Mg, Na, Sr, Diss: Ca, Mg, Na, Sr | MS-B | None | - |
| | L2330135 | DIN | Aug 08 to Aug 10 | 16-Aug | None | 18.6 | Diss O-PO4, Nitrate, Nitrite | RRV: MEL-03-01-PC, 02-PC, 04-PC & 05-PC, Field Dup | RRV: Total Dissolved P, Total P | RRV | None | - | None | - | None | - | Reactive Silica (SiO2) | MS-B | None | - |
| | L2332591 | DIN | 14-Aug-19 | 21-Aug | Unclear CoC for TKN and NH3 quotes. ID from Edmonton or Winnipeg | 19.8 | Nitrate, Nitrite | None | - | - | None | - | None | - | None | - | None | - | None | - |

| Event | Lab ID | Parameters Measured | Date sampled | Date received | Sample Integrity Observations | Temperature (°C) | Hold-time Exceedances | Data Qualifiers[1] | | | Laboratory QC Summary | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Detection Limits | | Laboratory Duplicates | | Method Blanks | | Matrix Spike | | LCS / CRM | |
| | | | | | | | | Sample ID | Parameters | Qualifier | Parameters | Qualifier | Parameters | Qualifier | Parameters | Qualifier | Parameters | Qualifier | Parameters | Qualifier |
| August | L2334503 | DIN | 16-Aug-19 | 23-Aug | None | 19.2 | Nitrate, Nitrite | None | - | - | None | - | None | - | None | - | None | - | None | - |
| | C801243 | Chlorophyll a | Aug 08, 09, 12, 14 & 16 | 9-Sep | Samples received thawed | - | None | - | - | - | - | - | - | - | - | - | - | - | - | - |
| September | L2346699 | All parameters | 6-Sep-19 | 13-Sep | Discrepancy between bottle label and CoC for eb-Sept-01 | 14.4 | Turbidity, pH, TSS, Nitrate, Nitrite | DLM: MEL-02-03<br>DTC: MEL-01-01, MEL-02-01, Field Dup<br>DTMF: Field Dup<br>RRV: DI, EB | DLM: Total Ti<br>DTC: Diss: Cr<br>DTMF: Diss: Cd<br>RRV: Tot: Al, Ba, Ca, Cu, Fe, Mg, Mn, Na, Sr, Sn, Zn, Diss: Cr, Sr, Ba, Ca, Mg, Na, Sr, Zn, TOC, DOC | DLM, DTC, DTMF, RRV | None | - | None | - | None | - | Tot: Ca, Mg, Na, Sr, Diss: Ca, Mg, Na, Sr | MS-B | Total Se | MES |
| | L2351036 | All parameters | 14-Sep-19 | 20-Sep | None | 19 | Turbidity, pH, TSS, Nitrate, Nitrite, TKN, Cyanides | DLM: MEL-03-02, 03 & 04DTC: MEL-03-05RRV: MEL-03-01 | DLM: Total TiDTC: Diss: NaRRV: Total Ammonia | DLM, DTC, RRV | None | - | None | - | None | - | Tot: Ca, Mg, Na, Sr, Diss: Ca, Mg, Na, Sr | MS-B | Total Se, Diss Bi | MES |

**Notes:**

[1] Data qualifiers referring to Method Blanks, Matrix Spikes, and LCS/CRM are not flagged here. Separate columns are used for these qualifiers.

Conventionals = analytes that are not preserved

Diss O-PO4 = dissolved orthophosphate

DIN = depth integrated nutrients

LCS / CRM = laboratory control sample / certified reference material

TDS = total dissolved solids

TDP = total dissolved phosphorus

TKN = total Kjeldahl nitrogen

TSS = total suspended solids

**Data and Laboratory QC qualifiers:**

B = Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.

CNP = Cyanide test sample appears to have been preserved, but pH was <10 at time of testing. Results may be biased low, particularly for Free CN species.

DLA = Detection Limit adjusted for required dilution.

DLRC = Detection Limit Raised for Ra-226 test due to sample matrix (e.g. high TDS) or instrument detector conditions.

DTC = Dissolved concentration exceeds total. Results were confirmed by re-analysis.

DLHM = Detection Limit Adjusted: Sample has high moisture content.

DTMF = Dissolved concentration exceeds total for field-filtered samples. Metallic contaminants may have been introduced to dissolved sample during field filtration.

DUP-H = Duplicate results outside ALS DQO, due to sample heterogeneity.

HTD = Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.

HTP = Sample preparation or preservation hold time was exceeded.

MB-LOR = Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.

MES = Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes

MS-B = Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

RM-ND = Reference Material recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.

RRV = Reported Result Verified by Repeat Analysis

n/a = laboratory QC program not included as part of the analyses.

**Table A-2. Laboratory detection limits and blanks (travel, de-ionized, and equipment), Meliadine AEMP, 2019.**

| Month | February | | | July | | | | August | | | September | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | DL | DI Blank | Equip. Blank | DL | Travel Blank | DI Blank | Equip. Blank | DL | DI Blank | Equip. Blank | DL | DI Blank | Equip. Blank |
| **Physical Tests** | | | | | | | | | | | | | |
| Hardness (mg/L) | 0.2 | ***2.23*** | **1.41** | 0.2 | *<0.20* | *<0.20* | *<0.20* | 0.2 | *<0.20* | **0.23** | 0.2 | *<0.20* | *<0.20* |
| Total Suspended Solids (mg/L) | 1 | *<1.0* | *<1.0* | 1 | *<1.0* | *<1.0* | *<1.0* | 1 | *<1.0* | *<1.0* | 1 | *<1.0* | *<1.0* |
| Total Dissolved Solids (mg/L) | 13 | **4.9** | *<4.0* | 4 | **8.7** | *<4.0* | *<4.0* | 4 | *<4.0* | *<4.0* | 4 | *<4.0* | *<4.0* |
| Turbidity (NTU) | 0.1 | *<0.10* | **0.28** | 0.1 | *<0.10* | *<0.10* | *<0.10* | 0.1 | **0.12** | *<0.10* | 0.1 | *<0.10* | **0.19** |
| **Anions and Nutrients (mg/L)** | | | | | | | | | | | | | |
| Alkalinity, Total (as $CaCO_3$) | 1 | **4.8** | **2.4** | 1 | *<1.0* | *<1.0* | *<1.0* | 1 | *<1.0* | *<1.0* | 1 | *<1.0* | *<1.0* |
| Alkalinity, Bicarbonate | 1.2 | **5.9** | **2.9** | 1.2 | *<1.2* | *<1.2* | *<1.2* | 1.2 | *<1.2* | *<1.2* | 1.2 | *<1.2* | *<1.2* |
| Alkalinity, Carbonate | 0.6 | *<0.60* | *<0.60* | 0.6 | *<0.60* | *<0.60* | *<0.60* | 0.6 | *<0.60* | *<0.60* | 0.6 | *<0.60* | *<0.60* |
| Alkalinity, Hydroxide (OH) | 0.34 | *<0.34* | *<0.34* | 0.34 | *<0.34* | *<0.34* | *<0.34* | 0.34 | *<0.34* | *<0.34* | 0.34 | *<0.34* | *<0.34* |
| Ammonia, Total (as N) | 0.005 | *<0.0050* | **0.0438** | 0.005 | *<0.0050* | **0.0104** | **0.0111** | 0.005 | **0.007** | **0.009** | - | - | - |
| Chloride (Cl) | 0.1 | ***1.38*** | **0.46** | 0.1 | *<0.10* | *<0.10* | *<0.10* | 0.1 | *<0.10* | **0.11** | 0.1 | *<0.10* | *<0.10* |
| Fluoride (F) | 0.02 | *<0.020* | *<0.020* | 0.02 | *<0.020* | *<0.020* | *<0.020* | 0.02 | *<0.020* | *<0.020* | 0.02 | *<0.020* | *<0.020* |
| Nitrate and Nitrite as N | 0.0051 | ***0.0682*** | **0.0305** | 0.0051 | ***1.49*** | *<0.0051* | **0.0054** | 0.0051 | *<0.0051* | *<0.0051* | 0.0051 | *<0.0051* | **0.0067** |
| Nitrate (as N) | 0.005 | ***0.0682*** | **0.0292** | 0.005 | ***1.49*** | *<0.0050* | **0.0054** | 0.005 | *<0.0050* | *<0.0050* | 0.005 | *<0.0050* | **0.0067** |
| Nitrite (as N) | 0.001 | *<0.0010* | **0.0013** | 0.001 | *<0.0010* | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* |
| Total Kjeldahl Nitrogen | 0.05 | *<0.050* | *<0.050* | 0.05 | *<0.050* | *<0.050* | *<0.050* | 0.05 | *<0.050* | *<0.050* | 0.05 | *<0.050* | *<0.050* |
| Total Nitrogen | 0.05 | **0.068** | *<0.050* | - | - | - | - | - | - | - | - | - | - |
| Phosphorus (P)-Total Dissolved | 0.001 | *<0.0010* | **0.0028** | - | - | - | - | - | - | - | - | - | - |
| Phosphorus (P)-Total | 0.001 | *<0.0010* | **0.0028** | 0.001 | *<0.0010* | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* |
| Silica (as $SiO_2$) | 0.01 | ***0.417*** | **0.039** | - | - | - | - | - | - | - | - | - | - |
| Sulfate ($SO_4$) | 0.3 | *<0.30* | *<0.30* | 0.3 | *<0.30* | *<0.30* | *<0.30* | 0.3 | *<0.30* | *<0.30* | 0.3 | *<0.30* | *<0.30* |
| **Cyanides (mg/L)** | | | | | | | | | | | | | |
| Total Cyanide | 0.001 | *<0.0010* | *<0.0010* | 0.001 | - | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* |
| Free Cyanide | 0.001 | *<0.0010* | *<0.0010* | 0.001 | - | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | **0.0013** | 0.001 | *<0.0010* | *<0.0010* |
| **Organic / Inorganic Carbon (mg/L)** | | | | | | | | | | | | | |
| Dissolved Organic Carbon | 0.5 | *<0.50* | *<0.50* | 0.5 | *<0.50* | *<0.50* | *<0.50* | 0.5 | *<0.50* | *<0.50* | 0.5 | *<0.50* | **2.62** |
| Total Organic Carbon | 0.5 | *<0.50* | *<0.50* | 0.5 | *<0.50* | *<0.50* | *<0.50* | 0.5 | *<0.50* | *<0.50* | 0.5 | *<0.50* | *<0.50* |
| **Total Metals (mg/L)** | | | | | | | | | | | | | |
| Aluminum | 0.0003 | *<0.00030* | **0.00117** | 0.001 | *<0.0010* | *<0.0010* | **0.0023** | 0.001 | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | **0.0016** |
| Antimony | 0.00002 | *<0.000020* | **0.000033** | 0.00002 | *<0.000020* | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* |
| Arsenic | 0.00002 | **0.000082** | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* |
| Barium | 0.00005 | ***0.0012*** | ***0.000885*** | 0.00002 | *<0.000020* | *<0.000020* | **0.000145** | 0.00002 | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | **0.000113** |
| Beryllium | 0.00001 | *<0.000010* | *<0.000010* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |

| Month | February | | | July | | | | August | | | September | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | DL | DI Blank | Equip. Blank | DL | Travel Blank | DI Blank | Equip. Blank | DL | DI Blank | Equip. Blank | DL | DI Blank | Equip. Blank |
| Bismuth | 0.00001 | *<0.000010* | **0.00002** | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Boron | 0.001 | *<0.0010* | **0.0032** | 0.005 | *<0.0050* | *<0.0050* | *<0.0050* | 0.005 | *<0.0050* | *<0.0050* | 0.005 | *<0.0050* | *<0.0050* |
| Cadmium | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Calcium | 0.02 | **0.061** | **0.135** | 0.01 | **0.011** | *<0.010* | **0.025** | 0.01 | *<0.010* | *<0.010* | 0.01 | *<0.010* | **0.02** |
| Chromium | 0.00006 | ***0.00165*** | **0.000103** | 0.0001 | *<0.00010* | **0.0003** | **0.00048** | 0.0001 | ***0.00067*** | **0.00045** | 0.0001 | *<0.00010* | *<0.00010* |
| Cobalt | 0.00001 | *<0.000010* | *<0.000010* | 0.000005 | *<0.0000050* | *<0.0000050* | **0.0000072** | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Copper | 0.0001 | ***0.0015*** | **0.00068** | 0.00005 | *<0.000050* | *<0.000050* | **0.000109** | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | **0.000081** |
| Iron | 0.001 | **0.0027** | *<0.0010* | 0.001 | **0.0012** | *<0.0010* | **0.0048** | 0.001 | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | **0.0015** |
| Lead | 0.00001 | **0.00004** | ***0.0146*** | 0.00001 | *<0.000010* | *<0.000010* | **0.000051** | 0.00001 | *<0.000010* | *<0.000010* | 0.00001 | *<0.000010* | **0.000011** |
| Lithium | 0.0005 | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* |
| Magnesium | 0.004 | **0.008** | **0.0331** | 0.004 | *<0.0040* | *<0.0040* | *<0.0040* | 0.004 | *<0.0040* | **0.0064** | 0.004 | *<0.0040* | **0.0066** |
| Manganese | 0.00005 | **0.0002** | **0.000113** | 0.00005 | *<0.000050* | *<0.000050* | **0.000107** | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | **0.000064** |
| Mercury | 0.0005 | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* |
| Molybdenum | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | **0.000135** | 0.00005 | *<0.000050* | *<0.000050* |
| Nickel | 0.00006 | **0.000118** | **0.000156** | 0.00005 | *<0.000050* | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* |
| Potassium | 0.02 | *<0.020* | **0.032** | 0.02 | *<0.020* | *<0.020* | *<0.020* | 0.02 | *<0.020* | *<0.020* | 0.02 | *<0.020* | *<0.020* |
| Selenium | 0.00004 | *<0.000040* | *<0.000040* | 0.00004 | *<0.000040* | *<0.000040* | *<0.000040* | 0.00004 | *<0.000040* | *<0.000040* | 0.00004 | *<0.000040* | *<0.000040* |
| Silver | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Sodium | 0.005 | ***0.335*** | ***0.32*** | 0.02 | *<0.020* | *<0.020* | *<0.020* | 0.02 | *<0.020* | ***0.067*** | 0.02 | *<0.020* | **0.034** |
| Strontium | 0.00005 | **0.000478** | ***0.00093*** | 0.00002 | *<0.000020* | *<0.000020* | **0.000087** | 0.00002 | *<0.000020* | **0.000049** | 0.00002 | *<0.000020* | **0.000089** |
| Thallium | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Tin | 0.00005 | *<0.000050* | *<0.000050* | 0.00002 | **0.000061** | *<0.000020* | **0.000029** | 0.00002 | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | **0.000065** |
| Titanium | 0.0001 | *<0.00010* | *<0.00010* | 0.00005 | *<0.000050* | **0.000053** | **0.000067** | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* |
| Uranium | 0.00001 | *<0.000010* | *<0.000010* | 0.000001 | *<0.0000010* | *<0.0000010* | *<0.0000010* | 0.000001 | *<0.0000010* | *<0.0000010* | 0.000001 | *<0.0000010* | *<0.0000010* |
| Vanadium | 0.00005 | **0.000059** | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* |
| Zinc | 0.0008 | **0.00368** | ***0.024*** | 0.0005 | **0.00066** | *<0.00050* | **0.00116** | 0.0005 | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | **0.00117** |
| **Dissolved Metals (mg/L)** | | | | | | | | | | | | | |
| Aluminum | 0.0003 | **0.00052** | **0.00091** | 0.001 | *<0.0010* | **0.0016** | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* |
| Antimony | 0.00002 | **0.000033** | **0.000033** | 0.00002 | *<0.000020* | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* |
| Arsenic | 0.00002 | **0.00012** | **0.000022** | 0.00002 | *<0.000020* | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* | 0.00002 | *<0.000020* | *<0.000020* |
| Barium | 0.00005 | ***0.00157*** | ***0.000645*** | 0.00002 | *<0.000020* | **0.000035** | **0.000076** | 0.00002 | *<0.000020* | **0.000045** | 0.00002 | *<0.000020* | **0.000057** |
| Beryllium | 0.00001 | *<0.000010* | *<0.000010* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Bismuth | 0.00001 | *<0.000010* | *<0.000010* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Boron | 0.001 | **0.0061** | **0.0066** | 0.005 | *<0.0050* | *<0.0050* | *<0.0050* | 0.005 | *<0.0050* | *<0.0050* | 0.005 | *<0.0050* | *<0.0050* |
| Cadmium | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Calcium | 0.02 | ***0.604*** | ***0.387*** | 0.01 | **0.042** | *<0.010* | **0.03** | 0.01 | *<0.010* | **0.06** | 0.01 | *<0.010* | **0.019** |
| Chromium | 0.00006 | ***0.00151*** | **0.000336** | 0.0001 | **0.00034** | **0.00037** | **0.00047** | 0.0001 | ***0.00066*** | *<0.00010* | 0.0001 | **0.00031** | *<0.00010* |
| Cobalt | 0.00001 | *<0.000010* | *<0.000010* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |

| Month | February | | | July | | | | August | | | September | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | DL | DI Blank | Equip. Blank | DL | Travel Blank | DI Blank | Equip. Blank | DL | DI Blank | Equip. Blank | DL | DI Blank | Equip. Blank |
| Copper | 0.0001 | ***0.0013*** | ***0.00124*** | 0.00005 | *<0.000050* | *<0.000050* | **0.000069** | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* |
| Iron | 0.001 | *<0.0010* | **0.0013** | 0.001 | *<0.0010* | **0.0039** | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* | 0.001 | *<0.0010* | *<0.0010* |
| Lead | 0.00001 | **0.000027** | ***0.0124*** | 0.00001 | *<0.000010* | **0.000014** | *<0.000010* | 0.00001 | *<0.000010* | *<0.000010* | 0.00001 | *<0.000010* | *<0.000010* |
| Lithium | 0.0005 | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* |
| Magnesium | 0.004 | ***0.175*** | ***0.109*** | 0.004 | **0.0225** | *<0.0040* | **0.004** | 0.004 | *<0.0040* | **0.0197** | 0.004 | *<0.0040* | **0.0077** |
| Manganese | 0.00005 | **0.000164** | **0.000107** | 0.00005 | *<0.000050* | *<0.000050* | **0.00007** | 0.00005 | *<0.000050* | **0.000059** | 0.00005 | *<0.000050* | *<0.000050* |
| Mercury | 0.0005 | *<0.00050* | **0.00087** | 0.0005 | *<0.00050* | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* | 0.0005 | *<0.00050* | *<0.00050* |
| Molybdenum | 0.00005 | *<0.000050* | **0.00017** | 0.00005 | *<0.000050* | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | **0.000119** | 0.00005 | *<0.000050* | *<0.000050* |
| Nickel | 0.00006 | *<0.000060* | **0.000086** | 0.00005 | *<0.000050* | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* |
| Potassium | 0.02 | **0.117** | **0.08** | 0.02 | *<0.020* | *<0.020* | *<0.020* | 0.02 | *<0.020* | *<0.020* | 0.02 | *<0.020* | *<0.020* |
| Selenium | 0.00004 | *<0.000040* | *<0.000040* | 0.00004 | *<0.000040* | *<0.000040* | *<0.000040* | 0.00004 | *<0.000040* | *<0.000040* | 0.00004 | *<0.000040* | *<0.000040* |
| Silver | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Sodium | 0.005 | ***1.63*** | ***1*** | 0.02 | *<0.020* | *<0.020* | *<0.020* | 0.02 | *<0.020* | ***0.192*** | 0.02 | *<0.020* | ***0.051*** |
| Strontium | 0.00005 | ***0.00314*** | ***0.00216*** | 0.00002 | **0.000027** | *<0.000020* | **0.000151** | 0.00002 | *<0.000020* | **0.000194** | 0.00002 | **0.000036** | **0.000085** |
| Thallium | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* | 0.000005 | *<0.0000050* | *<0.0000050* |
| Tin | 0.00005 | *<0.000050* | *<0.000050* | 0.00002 | **0.000034** | *<0.000020* | **0.000026** | 0.00002 | *<0.000020* | **0.000035** | 0.00002 | *<0.000020* | *<0.000020* |
| Titanium | 0.0001 | *<0.00010* | *<0.00010* | 0.00005 | *<0.000050* | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* |
| Uranium | 0.00001 | *<0.000010* | *<0.000010* | 0.000001 | *<0.0000010* | *<0.0000010* | *<0.0000010* | 0.000001 | *<0.0000010* | *<0.0000010* | 0.000001 | *<0.0000010* | *<0.0000010* |
| Vanadium | 0.00005 | **0.000055** | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* | 0.00005 | *<0.000050* | *<0.000050* |
| Zinc | 0.0008 | *<0.00080* | ***0.0176*** | 0.0005 | *<0.00050* | *<0.00050* | **0.00137** | 0.0005 | *<0.00050* | **0.00133** | 0.0005 | *<0.00050* | **0.0011** |
| **Radiological Parameters (Water)** | | | | | | | | | | | | | |
| Ra-226 (Bq/L) | 0.0035 | *<0.011* | *<0.0074* | 0.0043 | *<0.0059* | **0.013** | *<0.0060* | 0.0048 | *<0.0068* | - | 0.0066 | *<0.0074* | *<0.0076* |

**Notes:**

**Bolded values =** concentrations exceed laboratory DLs but < 10x DL.

***Bolded italicized underlined values*** **=** concentrations exceed laboratory DLs but < 10x DL.

*Italicized numbers are below detection limits.*

" " analyte not measured

Table A-3. Field QA/QC summary for water quality, Meliadine AEMP, 2019.

| | Month | | February | | | | July | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lab RPD Values | DQO RPD Values | Feb MDLs | Meliadine Lake | | | Jul MDLs | Meliadine Lake | | | Meliadine Lake | | | Lake D7 | | |
| **Analyte** | | | | MEL-02-03 | R-19-02-01 | **RPD** | | MEL-02-02 | JUL-DUP-01 | **RPD** | MEL-01-09 | JUL-DUP-02 | **RPD** | D7-01 | JUL-DUP-03 | **RPD** |
| **Physical Tests** | | | | | | | | | | | | | | | | |
| Conductivity (µS/cm) | 10 | 15 | 1.0 | 95 | 94 | 0.74 | 1.0 | 77 | 77 | -0.39 | 77 | 77 | -0.26 | 115 | 116 | -0.87 |
| Hardness (mg/L) | | 40 | 0.20 | 29 | 29 | 0.35 | 0.20 | 24 | 24 | 0 | 23 | 23 | -0.44 | 43 | 43 | 0.70 |
| pH (Laboratory) | | 40 | 0.10 | 7.3 | 7.4 | -0.95 | 0.10 | 7.3 | 7.3 | -0.82 | 7.3 | 7.3 | -0.14 | 7.8 | 7.7 | 0.13 |
| Total Suspended Solids (mg/L) | | 40 | 1.0 | *<1.0* | *<1.0* | | 1.0 | *<1.0* | 1.0 | | 1.4 | 1.6 | -13 | 1.2 | *<1.0* | |
| Total Dissolved Solids (mg/L) | 20 | 30 | 13 | 61 | 58 | 5.0 | 4.0 | 48 | 45 | 6.5 | 49 | 50 | -2 | 68 | 70 | -3 |
| Turbidity (NTU) | 15 | 23 | 0.10 | 0.12 | 0.12 | 0 | 0.10 | 0.34 | 0.31 | 9.2 | 0.41 | 0.41 | 0 | 0.62 | 0.75 | -19 |
| **Anions and Nutrients (mg/L)** | | | | | | | | | | | | | | | | |
| Alkalinity, Total (as $CaCO_3$) | 20 | 30 | 1.0 | 25 | 24 | 2.9 | 1.0 | 16 | 16 | -2 | 15 | 15 | 0.68 | 43 | 43 | 0 |
| Alkalinity, Bicarbonate | | 40 | 1.2 | 30 | 29 | 3.0 | 1.2 | 20 | 20 | -2 | 18 | 18 | 1.1 | 52 | 52 | 0 |
| Alkalinity, Carbonate | | 40 | 0.60 | *<0.60* | *<0.60* | | 0.60 | *<0.60* | *<0.60* | | *<0.60* | *<0.60* | | *<0.60* | *<0.60* | |
| Alkalinity, Hydroxide | | 40 | 0.34 | *<0.34* | *<0.34* | | 0.34 | *<0.34* | *<0.34* | | *<0.34* | *<0.34* | | *<0.34* | *<0.34* | |
| Ammonia, Total (as N) | 20 | 30 | 0.0050 | 0.022 | 0.023 | -3 | 0.0050 | 0.0058 | 0.016 | **-94** | 0.0067 | 0.0062 | 7.8 | 0.034 | 0.022 | **42** |
| Bromide (Br) | 20 | 30 | | | | | | | | | | | | | | |
| Chloride (Cl) | 20 | 30 | 0.10 | 12 | 12 | -4 | 0.10 | 10 | 10 | 1.00 | 11 | 11 | 0.92 | 8.6 | 8.6 | -0.23 |
| Fluoride (F) | 20 | 30 | 0.020 | 0.030 | 0.033 | -10 | 0.020 | 0.025 | 0.025 | 0 | 0.022 | 0.022 | 0 | 0.034 | 0.033 | 3.0 |
| Nitrate (as N) | 20 | 30 | 0.0050 | 0.0060 | 0.0075 | -22 | 0.0050 | *<0.0050* | *<0.0050* | | *<0.0050* | 0.0083 | | *<0.0050* | *<0.0050* | |
| Nitrite (as N) | 20 | 30 | 0.0010 | *<0.0010* | 0.0021 | | 0.0010 | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | |
| Total Kjeldahl Nitrogen | 20 | 30 | 0.050 | 0.23 | 0.059 | **117** | 0.050 | 0.20 | 0.17 | 18 | 0.20 | 0.17 | 18 | 0.45 | 0.32 | **33** |
| Total Nitrogen | | 40 | 0.050 | 0.23 | 0.068 | **109** | | | | | | | | | | |
| Phosphorus (P)-Total | 20 | 30 | 0.0010 | 0.0067 | 0.0031 | **73** | 0.0010 | 0.0043 | 0.0031 | **32** | 0.0046 | 0.0040 | 14 | 0.0089 | 0.0096 | -8 |
| Sulfate ($SO_4$) | 20 | 30 | 0.30 | 4.5 | 4.8 | -7 | 0.30 | 4.1 | 4.1 | 0.24 | 4.3 | 4.4 | -4 | 4.2 | 4.0 | 5.4 |
| **Cyanides (mg/L)** | | | | | | | | | | | | | | | | |
| Total Cyanide | 20 | 30 | 0.0010 | *<0.0010* | *<0.0010* | | 0.0010 | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | |
| Free Cyanide | 20 | 30 | 0.0010 | *<0.0010* | *<0.0010* | | 0.0010 | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | |
| **Organic / Inorganic Carbon (mg/L)** | | | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | 20 | 30 | 0.50 | 1.9 | 1.5 | 21 | 0.50 | 2.7 | 2.6 | 4.6 | 2.7 | 2.7 | -2 | 3.9 | 3.8 | 4.7 |
| Total Organic Carbon | 20 | 30 | 0.50 | 1.9 | 1.5 | 21 | 0.50 | 2.8 | 2.8 | 0.71 | 2.8 | 3.0 | -6 | 4.3 | 4.0 | 6.8 |
| **Total Metals (mg/L)** | | | | | | | | | | | | | | | | |
| Aluminum | 20 | 30 | 0.00030 | 0.00082 | 0.00060 | **31** | 0.0010 | 0.0032 | 0.0029 | 9.8 | 0.0045 | 0.0033 | 31 | 0.0079 | 0.0066 | 18 |
| Antimony | 20 | 30 | 0.00002 | *<0.000020* | *<0.000020* | | 0.00002 | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | | 0.00002 | *<0.000020* | |
| Arsenic | 20 | 30 | 0.00002 | 0.00028 | 0.00025 | 12 | 0.00002 | 0.00031 | 0.00030 | 4.3 | 0.00031 | 0.00031 | -2 | 0.0012 | 0.0013 | -3 |
| Barium | 20 | 30 | 0.00005 | 0.011 | 0.010 | 6.6 | 0.00002 | 0.0084 | 0.0086 | -2 | 0.0081 | 0.0083 | -2 | 0.019 | 0.018 | 0.54 |
| Beryllium | 20 | 30 | 0.00001 | *<0.000010* | *<0.000010* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Bismuth | 20 | 30 | 0.00001 | *<0.000010* | *<0.000010* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | 0.00004 | *<0.0000050* | |
| Boron | 20 | 30 | 0.0010 | 0.0048 | 0.0048 | 0 | 0.0050 | *<0.0050* | *<0.0050* | | *<0.0050* | *<0.0050* | | 0.012 | 0.012 | -3 |
| Cadmium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Calcium | 20 | 30 | 0.020 | 9.2 | 9.0 | 2.0 | 0.010 | 7.5 | 7.5 | 0.27 | 7.1 | 7.0 | 0.57 | 14 | 13 | 0.74 |
| Chromium | 20 | 30 | 0.00006 | *<0.000060* | *<0.000060* | | 0.00010 | 0.00027 | 0.00031 | -14 | *<0.00010* | 0.00055 | | *<0.00010* | 0.00033 | |
| Cobalt | 20 | 30 | 0.00001 | *<0.000010* | 0.00001 | | 0.00001 | 0.00002 | 0.00002 | 5.3 | 0.00004 | 0.00003 | 23 | 0.00005 | 0.00005 | -4 |
| Copper | 20 | 30 | 0.00010 | 0.00085 | 0.00074 | 14 | 0.00005 | 0.00074 | 0.00067 | 11 | 0.00070 | 0.00067 | 3.7 | 0.00077 | 0.00065 | 17 |
| Iron | 20 | 30 | 0.0010 | 0.0031 | 0.0040 | -25 | 0.0010 | 0.036 | 0.027 | 28 | 0.035 | 0.034 | 3.4 | 0.14 | 0.13 | 1.5 |
| Lead | 20 | 30 | 0.00001 | 0.00010 | 0.00003 | **95** | 0.00001 | 0.00002 | 0.00002 | -16 | 0.00001 | *<0.000010* | | 0.00004 | 0.00003 | 26 |
| Lithium | 20 | 30 | 0.00050 | 0.00092 | 0.00083 | 10 | 0.00050 | 0.00090 | 0.00091 | -1 | 0.00096 | 0.00097 | -1 | 0.0013 | 0.0013 | 1.5 |
| Magnesium | 20 | 30 | 0.0040 | 1.5 | 1.5 | 0.66 | 0.0040 | 1.2 | 1.3 | -2 | 1.3 | 1.3 | 0 | 2.4 | 2.4 | 0.41 |
| Manganese | 20 | 30 | 0.00005 | 0.00084 | 0.00082 | 2.5 | 0.00005 | 0.0066 | 0.0066 | 0.76 | 0.019 | 0.019 | 1.6 | 0.014 | 0.014 | -1 |
| Mercury | 20 | 30 | 0.00050 | *<0.00050* | *<0.00050* | | 0.00050 | 0.00068 | 0.00092 | -30 | 0.00068 | 0.00069 | -1 | 0.00099 | 0.00077 | 25 |
| Molybdenum | 20 | 30 | 0.00005 | 0.00008 | 0.00008 | 3.8 | 0.00005 | 0.00007 | 0.00007 | 1.5 | 0.00006 | 0.00006 | 4.9 | 0.00029 | 0.00030 | -2 |
| Nickel | 20 | 30 | 0.00006 | 0.00053 | 0.00061 | -14 | 0.00005 | 0.00061 | 0.00061 | 0.33 | 0.00071 | 0.00070 | 0.57 | 0.00080 | 0.00077 | 3.9 |
| Potassium | 20 | 30 | 0.020 | 1.2 | 1.2 | 0 | 0.020 | 1.0 | 1.0 | -2 | 0.97 | 0.96 | 1.2 | 1.2 | 1.2 | 1.7 |
| Selenium | 20 | 30 | 0.00004 | *<0.000040* | 0.00004 | | 0.00004 | 0.00004 | *<0.000040* | | *<0.000040* | *<0.000040* | | *<0.000040* | *<0.000040* | |
| Silver | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Sodium | 20 | 30 | 0.0050 | 6.7 | 6.5 | 3.3 | 0.020 | 4.9 | 5.0 | -1 | 5.2 | 5.1 | 0.97 | 6.4 | 6.4 | -0.47 |
| Strontium | 20 | 30 | 0.00005 | 0.048 | 0.046 | 5.8 | 0.00002 | 0.041 | 0.040 | 2.7 | 0.040 | 0.040 | -0.75 | 0.067 | 0.065 | 3.6 |
| Thallium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Tin | 20 | 30 | 0.00005 | *<0.000050* | *<0.000050* | | 0.00002 | 0.00004 | 0.00003 | **53** | 0.00005 | *<0.000020* | | 0.00007 | 0.00004 | **59** |
| Titanium | 20 | 30 | 0.00010 | *<0.00010* | *<0.00010* | | 0.00005 | *<0.00010* | 0.00010 | | 0.00012 | 0.00015 | -19 | 0.00035 | 0.00034 | 1.7 |
| Uranium | 20 | 30 | 0.00001 | 0.00001 | 0.00001 | -8 | 0.00000 | 0.00001 | 0.00001 | 5.1 | 0.00001 | 0.00001 | -7 | 0.00005 | 0.00006 | -5 |
| Vanadium | 20 | 30 | 0.00005 | 0.00005 | *<0.000050* | | 0.00005 | 0.00006 | 0.00007 | -12 | *<0.000050* | *<0.000050* | | 0.00014 | 0.00015 | -3 |
| Zinc | 20 | 30 | 0.00080 | 0.0012 | 0.00099 | 19 | 0.00050 | 0.00085 | 0.00061 | **33** | *<0.00050* | *<0.00050* | | 0.0012 | 0.00055 | **73** |
| **Dissolved Metals (mg/L)** | | | | | | | | | | | | | | | | |
| Aluminum | 20 | 30 | 0.00030 | 0.00071 | 0.00038 | **61** | 0.0010 | 0.0018 | 0.0021 | -15 | 0.0014 | 0.0019 | **-30** | 0.0034 | 0.0029 | 16 |
| Antimony | 20 | 30 | 0.00002 | *<0.000020* | *<0.000020* | | 0.00002 | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | |
| Arsenic | 20 | 30 | 0.00002 | 0.00027 | 0.00030 | -8 | 0.00002 | 0.00027 | 0.00028 | -1 | 0.00028 | 0.00028 | -1 | 0.0010 | 0.0011 | -5 |
| Barium | 20 | 30 | 0.00005 | 0.010 | 0.011 | -5 | 0.00002 | 0.0083 | 0.0085 | -1 | 0.0077 | 0.0075 | 2.4 | 0.018 | 0.018 | -0.57 |
| Beryllium | 20 | 30 | 0.00001 | *<0.000010* | *<0.000010* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Bismuth | 20 | 30 | 0.00001 | *<0.000010* | *<0.000010* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Boron | 20 | 30 | 0.0010 | 0.0047 | 0.0048 | -2 | 0.0050 | *<0.0050* | *<0.0050* | | *<0.0050* | *<0.0050* | | 0.012 | 0.012 | 3.3 |
| Cadmium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | 0.00001 | *<0.0000050* | |
| Calcium | 20 | 30 | 0.020 | 9.1 | 9.1 | -0.11 | 0.010 | 7.4 | 7.4 | 0.54 | 7.0 | 7.0 | -0.14 | 13 | 13 | 1.5 |
| Chromium | 20 | 30 | 0.00006 | *<0.000060* | 0.00007 | | 0.00010 | 0.00039 | 0.00037 | 5.3 | *<0.00010* | *<0.00010* | | *<0.00010* | *<0.00010* | |
| Cobalt | 20 | 30 | 0.00001 | *<0.000010* | *<0.000010* | | 0.00001 | 0.00001 | 0.00001 | -8 | 0.00002 | 0.00002 | -0.63 | 0.00002 | 0.00002 | 14 |
| Copper | 20 | 30 | 0.00010 | 0.00083 | 0.00070 | 17 | 0.00005 | 0.00088 | 0.00070 | 24 | 0.00079 | 0.00082 | -5 | 0.00083 | 0.00063 | 27 |
| Iron | 20 | 30 | 0.0010 | 0.0039 | 0.0019 | **69** | 0.0010 | 0.012 | 0.0097 | 24 | 0.012 | 0.012 | -3 | 0.073 | 0.064 | 14 |
| Lead | 20 | 30 | 0.00001 | 0.00006 | 0.00002 | **103** | 0.00001 | 0.00008 | *<0.000010* | | *<0.000010* | *<0.000010* | | 0.00003 | 0.00002 | **35** |
| Lithium | 20 | 30 | 0.00050 | 0.00083 | 0.00084 | -1 | 0.00050 | 0.00087 | 0.00088 | -1 | 0.0010 | 0.0010 | -4 | 0.0013 | 0.0013 | 1.6 |
| Magnesium | 20 | 30 | 0.0040 | 1.5 | 1.5 | 2.0 | 0.0040 | 1.2 | 1.2 | -0.81 | 1.3 | 1.3 | -2 | 2.4 | 2.4 | -0.42 |
| Manganese | 20 | 30 | 0.00005 | 0.00023 | 0.00020 | 15 | 0.00005 | 0.0027 | 0.0026 | 3.5 | 0.012 | 0.012 | -0.81 | 0.0019 | 0.0018 | 9.2 |
| Mercury | 20 | 30 | 0.00050 | *<0.00050* | *<0.00050* | | 0.00050 | 0.00060 | 0.0011 | **-58** | *<0.00050* | 0.00074 | | 0.00078 | 0.00086 | -10 |
| Molybdenum | 20 | 30 | 0.00005 | 0.0032 | 0.00011 | 187 | 0.00005 | 0.00006 | 0.00007 | -11 | 0.00007 | 0.00006 | 11 | 0.00030 | 0.00028 | 6.8 |
| Nickel | 20 | 30 | 0.00006 | 0.00061 | 0.00053 | 13 | 0.00005 | 0.00062 | 0.00061 | 1.9 | 0.00068 | 0.00074 | -9 | 0.00078 | 0.00077 | 0.90 |
| Potassium | 20 | 30 | 0.020 | 1.2 | 1.2 | 1.7 | 0.020 | 1.0 | 1.0 | -1.00 | 0.96 | 0.98 | -1 | 1.2 | 1.2 | 0.85 |
| Selenium | 20 | 30 | 0.00004 | 0.00005 | 0.00005 | -6 | 0.00004 | *<0.000040* | *<0.000040* | | *<0.000040* | *<0.000040* | | *<0.000040* | *<0.000040* | |
| Silver | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Sodium | 20 | 30 | 0.0050 | 6.8 | 6.6 | 2.8 | 0.020 | 5.0 | 5.1 | -2 | 5.1 | 5.1 | -0.79 | 6.6 | 6.6 | 0 |
| Strontium | 20 | 30 | 0.00005 | 0.046 | 0.047 | -2 | 0.00002 | 0.040 | 0.039 | 2.3 | 0.042 | 0.040 | 4.7 | 0.065 | 0.064 | 2.5 |
| Thallium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Tin | 20 | 30 | 0.00005 | *<0.000050* | *<0.000050* | | 0.00002 | 0.00004 | 0.00002 | **37** | *<0.000020* | 0.00005 | | 0.00007 | 0.00004 | **47** |
| Titanium | 20 | 30 | 0.00010 | *<0.00010* | *<0.00010* | | 0.00005 | *<0.000050* | *<0.000050* | | *<0.000050* | *<0.000050* | | *<0.00010* | 0.00006 | |
| Uranium | 20 | 30 | 0.00001 | 0.00001 | 0.00001 | 15 | 0.00000 | 0.00001 | 0.00001 | -0.78 | 0.00001 | 0.00001 | 1.5 | 0.00005 | 0.00006 | -2 |
| Vanadium | 20 | 30 | 0.00005 | 0.00005 | *<0.000050* | | 0.00005 | *<0.000050* | 0.00007 | | *<0.000050* | *<0.000050* | | 0.00011 | 0.00011 | 3.6 |
| Zinc | 20 | 30 | 0.00080 | 0.0013 | *<0.00080* | | 0.00050 | 0.00098 | 0.00069 | **35** | *<0.00050* | *<0.00050* | | 0.0014 | 0.00051 | **94** |
| **Radiological Parameters (Water)** | | | | | | | | | | | | | | | | |
| Ra-226 (Bq/L) | 20 | 30 | 0.0035 | *<0.0060* | *<0.0045* | | 0.0043 | - | - | | *<0.0087* | 0.010 | | - | - | |

**Notes:**

RPD = Relative Percent Difference (%) = ((original - duplicate) / (original + duplicate)/2) x 100.

RPDs are calculated when both samples are above detection.

The data quality objective (DQO) for field duplicates is an RPD of 1.5X the laboratory RPD.

| | |
|---|---|
| **Bolded RPDs** | RPD values exceeded but < 10 x MDL. |
| Shaded RPDs | RPD values exceeded and > 10 x MDL. |

- = no measurement

*Italicized numbers are below detection limits.*

Table A-3. Field QA/QC summary for water quality, Meliadine AEMP, 2019.

| | Month | | | August | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lab RPD Values | DQO RPD Values | Aug MDLs | Lake D7 | | | Lake A8 | | | Meliadine Lake | | | Meliadine Lake | | |
| **Analyte** | | | | D7-01 | AUG-DUP-01 | **RPD** | A8-01 | AUG-DUP-02 | **RPD** | MEL-03-02 | AUG-DUP-03 | **RPD** | MEL-04-05 | AUG-DUP-04 | **RPD** |
| **Physical Tests** | | | | | | | | | | | | | | | |
| Conductivity (µS/cm) | 10 | 15 | 1.0 | 155 | 142 | 8.8 | 219 | 223 | -2 | 73 | 73 | 0.82 | 84 | 75 | 12 |
| Hardness (mg/L) | | 40 | 0.20 | 50 | 47 | 6.4 | 84 | 84 | 0.12 | 21 | 21 | 1.9 | 22 | 23 | -2 |
| pH (Laboratory) | | 40 | 0.10 | 7.8 | 7.8 | -0.13 | 7.7 | 7.8 | -0.39 | 7.5 | 7.5 | 0.13 | 7.5 | 7.4 | 1.2 |
| Total Suspended Solids (mg/L) | | 40 | 1.0 | 1.3 | *<2.0* | | *<1.0* | *<2.0* | | *<1.0* | *<1.0* | | *<1.0* | *<2.0* | |
| Total Dissolved Solids (mg/L) | 20 | 30 | 4.0 | 75 | 84 | -11 | 130 | 153 | -16 | 40 | 39 | 2.5 | 52 | 44 | 17 |
| Turbidity (NTU) | 15 | 23 | 0.10 | 0.64 | 0.66 | -3 | 0.35 | 0.33 | 5.9 | 0.22 | 0.22 | 0 | 0.25 | 0.27 | -8 |
| **Anions and Nutrients (mg/L)** | | | | | | | | | | | | | | | |
| Alkalinity, Total (as $CaCO_3$) | 20 | 30 | 1.0 | 46 | 46 | -0.43 | 43 | 42 | 2.1 | 18 | 20 | -13 | 20 | 17 | 18 |
| Alkalinity, Bicarbonate | | 40 | 1.2 | 56 | 57 | -0.35 | 52 | 51 | 2.1 | 21 | 24 | -13 | 24 | 20 | 18 |
| Alkalinity, Carbonate | | 40 | 0.60 | *<0.60* | *<0.60* | | *<0.60* | *<0.60* | | *<0.60* | *<0.60* | | *<0.60* | *<0.60* | |
| Alkalinity, Hydroxide | | 40 | 0.34 | *<0.34* | *<0.34* | | *<0.34* | *<0.34* | | *<0.34* | *<0.34* | | *<0.34* | *<0.34* | |
| Ammonia, Total (as N) | 20 | 30 | 0.0050 | 0.029 | 0.017 | **53** | 0.013 | 0.017 | **-30** | 0.017 | *<0.0050* | | 0.0092 | 0.038 | **-123** |
| Bromide (Br) | 20 | 30 | | | | | | | | | | | | | |
| Chloride (Cl) | 20 | 30 | 0.10 | 17 | 13 | 26 | 39 | 38 | 0.78 | 8.6 | 8.6 | -0.35 | 9.3 | 9.5 | -2 |
| Fluoride (F) | 20 | 30 | 0.020 | 0.042 | 0.041 | 2.4 | 0.029 | 0.031 | -7 | 0.027 | 0.028 | -4 | 0.024 | 0.026 | -8 |
| Nitrate (as N) | 20 | 30 | 0.0050 | 0.037 | 0.020 | **60** | *<0.0050* | *<0.0050* | | 0.017 | 0.014 | 19 | 0.033 | 0.0070 | **130** |
| Nitrite (as N) | 20 | 30 | 0.0010 | 0.0011 | *<0.0010* | | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | |
| Total Kjeldahl Nitrogen | 20 | 30 | 0.050 | 0.45 | 0.41 | 9.1 | 0.35 | 0.36 | -3 | 0.16 | 0.23 | **-39** | 0.22 | 0.22 | 0.45 |
| Total Nitrogen | | 40 | | | | | | | | | | | | | |
| Phosphorus (P)-Total | 20 | 30 | 0.0010 | 0.0098 | 0.0097 | 1.0 | 0.0051 | 0.0050 | 2.0 | 0.0029 | 0.0028 | 3.5 | 0.0029 | 0.0025 | 15 |
| Sulfate ($SO_4$) | 20 | 30 | 0.30 | 5.3 | 5.2 | 1.9 | 6.3 | 6.2 | 0.32 | 3.6 | 3.6 | -0.56 | 3.7 | 3.7 | -1 |
| **Cyanides (mg/L)** | | | | | | | | | | | | | | | |
| Total Cyanide | 20 | 30 | 0.0010 | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | | *<0.0010* | 0.0010 | | *<0.0010* | 0.0011 | |
| Free Cyanide | 20 | 30 | 0.0010 | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | | *<0.0010* | 0.0013 | |
| **Organic / Inorganic Carbon (mg/L)** | | | | | | | | | | | | | | | |
| Dissolved Organic Carbon | 20 | 30 | 0.50 | 4.3 | 4.4 | -1 | 3.4 | 3.7 | -8 | 2.1 | 2.1 | 2.9 | 2.1 | 2.2 | -0.47 |
| Total Organic Carbon | 20 | 30 | 0.50 | 4.4 | 4.3 | 2.8 | 3.6 | 3.6 | 0.84 | 2.1 | 2.1 | 0.94 | 2.2 | 2.2 | 0 |
| **Total Metals (mg/L)** | | | | | | | | | | | | | | | |
| Aluminum | 20 | 30 | 0.0010 | 0.0057 | 0.0058 | -2 | 0.0022 | 0.0022 | 0 | 0.0027 | 0.0037 | **-31** | 0.0038 | 0.011 | -94 |
| Antimony | 20 | 30 | 0.00002 | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | |
| Arsenic | 20 | 30 | 0.00002 | 0.0011 | 0.0010 | 1.9 | 0.0020 | 0.0021 | -6 | 0.00022 | 0.00022 | 0 | 0.00022 | 0.00024 | -9 |
| Barium | 20 | 30 | 0.00002 | 0.016 | 0.017 | -5 | 0.021 | 0.023 | -6 | 0.0072 | 0.0076 | -6 | 0.0071 | 0.0100 | -34 |
| Beryllium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Bismuth | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Boron | 20 | 30 | 0.0050 | 0.014 | 0.014 | -4 | *<0.0050* | *<0.0050* | | *<0.0050* | *<0.0050* | | *<0.0050* | *<0.0050* | |
| Cadmium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Calcium | 20 | 30 | 0.010 | 15 | 15 | -2 | 29 | 29 | 0 | 6.6 | 6.4 | 2.9 | 7.0 | 7.1 | -1 |
| Chromium | 20 | 30 | 0.00010 | *<0.00010* | 0.00036 | | 0.00035 | *<0.00010* | | *<0.00010* | 0.00066 | | *<0.00010* | 0.00033 | |
| Cobalt | 20 | 30 | 0.00001 | 0.00005 | 0.00005 | 7.8 | 0.00003 | 0.00003 | 3.7 | 0.00001 | 0.00001 | -10 | 0.00001 | 0.00002 | **-68** |
| Copper | 20 | 30 | 0.00005 | 0.0017 | 0.00081 | 73 | 0.00064 | 0.00066 | -4 | 0.00067 | 0.00061 | 8.9 | 0.00075 | 0.00084 | -11 |
| Iron | 20 | 30 | 0.0010 | 0.065 | 0.065 | 0.31 | 0.043 | 0.045 | -4 | 0.013 | 0.011 | 13 | 0.012 | 0.021 | -50 |
| Lead | 20 | 30 | 0.00001 | 0.00006 | 0.00002 | **108** | 0.00002 | 0.00002 | -18 | 0.00001 | *<0.000010* | | *<0.000010* | 0.00004 | |
| Lithium | 20 | 30 | 0.00050 | 0.0017 | 0.0015 | 13 | 0.0061 | 0.0061 | 0.16 | 0.00063 | 0.00062 | 1.6 | 0.00064 | 0.00064 | 0 |
| Magnesium | 20 | 30 | 0.0040 | 2.9 | 2.5 | 12 | 3.4 | 3.6 | -5 | 1.1 | 1.1 | 0 | 1.1 | 1.1 | -4 |
| Manganese | 20 | 30 | 0.00005 | 0.011 | 0.011 | 0 | 0.0067 | 0.0067 | 0.45 | 0.0028 | 0.0028 | -0.36 | 0.0027 | 0.0031 | -13 |
| Mercury | 20 | 30 | 0.00050 | 0.00072 | 0.00075 | -4 | 0.00054 | 0.00065 | -18 | *<0.00050* | *<0.00050* | | *<0.00050* | 0.00056 | |
| Molybdenum | 20 | 30 | 0.00005 | 0.00046 | 0.00043 | 7.2 | 0.00020 | 0.00021 | -2 | 0.00006 | 0.00007 | -14 | 0.00007 | 0.00007 | -4 |
| Nickel | 20 | 30 | 0.00005 | 0.00078 | 0.00080 | -2 | 0.00065 | 0.00068 | -4 | 0.00036 | 0.00036 | 0.28 | 0.00038 | 0.00041 | -9 |
| Potassium | 20 | 30 | 0.020 | 1.3 | 1.3 | 3.8 | 1.7 | 1.7 | -2 | 0.88 | 0.89 | -1 | 0.90 | 0.93 | -4 |
| Selenium | 20 | 30 | 0.00004 | *<0.000040* | 0.00005 | | *<0.000040* | 0.00005 | | *<0.000040* | *<0.000040* | | *<0.000040* | *<0.000040* | |
| Silver | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | 0.00001 | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Sodium | 20 | 30 | 0.020 | 9.1 | 7.4 | 21 | 6.3 | 6.4 | -2 | 4.4 | 4.5 | -0.90 | 4.7 | 4.8 | -2 |
| Strontium | 20 | 30 | 0.00002 | 0.080 | 0.069 | 15 | 0.17 | 0.18 | -4 | 0.035 | 0.036 | -4 | 0.034 | 0.033 | 1.5 |
| Thallium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Tin | 20 | 30 | 0.00002 | 0.00005 | *<0.000020* | | *<0.000020* | 0.00008 | | 0.00003 | *<0.000020* | | *<0.000020* | 0.00003 | |
| Titanium | 20 | 30 | 0.00005 | 0.00030 | 0.00030 | -0.33 | *<0.000050* | *<0.000050* | | 0.00009 | 0.00010 | -4 | *<0.00015* | 0.00039 | |
| Uranium | 20 | 30 | 0.00000 | 0.00006 | 0.00006 | 0.98 | 0.00004 | 0.00004 | 0 | 0.00001 | 0.00001 | -2 | 0.00001 | 0.00001 | -9 |
| Vanadium | 20 | 30 | 0.00005 | 0.00008 | 0.00008 | 1.2 | *<0.000050* | *<0.000050* | | *<0.000050* | *<0.000050* | | *<0.000050* | *<0.000050* | |
| Zinc | 20 | 30 | 0.00050 | 0.0011 | *<0.00050* | | *<0.00050* | *<0.00050* | | 0.00056 | *<0.00050* | | 0.00053 | 0.0025 | **-131** |
| **Dissolved Metals (mg/L)** | | | | | | | | | | | | | | | |
| Aluminum | 20 | 30 | 0.0010 | 0.0025 | 0.0024 | 4.1 | 0.0023 | 0.0015 | **42** | 0.0018 | 0.0020 | -11 | 0.0018 | 0.0021 | -15 |
| Antimony | 20 | 30 | 0.00002 | *<0.000020* | *<0.000020* | | 0.00002 | *<0.000020* | | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | |
| Arsenic | 20 | 30 | 0.00002 | 0.00090 | 0.00089 | 0.56 | 0.0018 | 0.0019 | -2 | 0.00021 | 0.00019 | 11 | 0.00018 | 0.00022 | -22 |
| Barium | 20 | 30 | 0.00002 | 0.017 | 0.017 | 1.8 | 0.022 | 0.022 | 1.8 | 0.0072 | 0.0071 | 2.1 | 0.0074 | 0.0074 | 0.13 |
| Beryllium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Bismuth | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Boron | 20 | 30 | 0.0050 | 0.015 | 0.014 | 2.1 | *<0.0050* | *<0.0050* | | *<0.0050* | *<0.0050* | | *<0.0050* | *<0.0050* | |
| Cadmium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Calcium | 20 | 30 | 0.010 | 15 | 15 | 5.4 | 28 | 28 | 0 | 6.7 | 6.6 | 2.3 | 7.0 | 7.0 | -0.86 |
| Chromium | 20 | 30 | 0.00010 | *<0.00010* | 0.00031 | | *<0.00010* | *<0.00010* | | *<0.00010* | 0.00060 | | 0.00016 | *<0.00010* | |
| Cobalt | 20 | 30 | 0.00001 | 0.00002 | 0.00002 | 8.5 | 0.00002 | 0.00002 | 6.4 | 0.00001 | *<0.0000050* | | 0.00001 | 0.00001 | **-98** |
| Copper | 20 | 30 | 0.00005 | 0.00077 | 0.00079 | -2 | 0.00064 | 0.00067 | -4 | 0.00068 | 0.00061 | 11 | 0.00064 | 0.00063 | 0.94 |
| Iron | 20 | 30 | 0.0010 | 0.022 | 0.028 | -22 | 0.018 | 0.019 | -4 | 0.0063 | 0.0032 | **65** | 0.0027 | 0.0029 | -7 |
| Lead | 20 | 30 | 0.00001 | *<0.000010* | 0.00001 | | *<0.000010* | *<0.000010* | | 0.00002 | *<0.000010* | | 0.00012 | *<0.000010* | |
| Lithium | 20 | 30 | 0.00050 | 0.0017 | 0.0014 | 16 | 0.0061 | 0.0059 | 2.5 | 0.00062 | 0.00061 | 1.6 | 0.00063 | 0.00068 | -8 |
| Magnesium | 20 | 30 | 0.0040 | 2.9 | 2.7 | 9.3 | 3.6 | 3.6 | -0.28 | 1.1 | 1.1 | 0 | 1.1 | 1.2 | -5 |
| Manganese | 20 | 30 | 0.00005 | 0.0011 | 0.00089 | 16 | 0.0015 | 0.0015 | -1 | 0.00063 | 0.00050 | 23 | 0.00046 | 0.00052 | -13 |
| Mercury | 20 | 30 | 0.00050 | 0.00056 | 0.00069 | -21 | *<0.00050* | 0.00059 | | *<0.00050* | *<0.00050* | | *<0.00050* | 0.00051 | |
| Molybdenum | 20 | 30 | 0.00005 | 0.00045 | 0.00047 | -5 | 0.00021 | 0.00021 | -1 | 0.00008 | 0.00007 | 17 | 0.00007 | 0.00029 | **-124** |
| Nickel | 20 | 30 | 0.00005 | 0.00077 | 0.00075 | 2.9 | 0.00068 | 0.00066 | 3.3 | 0.00037 | 0.00036 | 4.7 | 0.00037 | 0.00037 | 0.27 |
| Potassium | 20 | 30 | 0.020 | 1.4 | 1.3 | 6.1 | 1.7 | 1.7 | 2.4 | 0.90 | 0.90 | -0.45 | 0.92 | 0.95 | -4 |
| Selenium | 20 | 30 | 0.00004 | 0.00005 | *<0.000040* | | *<0.000040* | *<0.000040* | | *<0.000040* | *<0.000040* | | *<0.000040* | *<0.000040* | |
| Silver | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Sodium | 20 | 30 | 0.020 | 9.3 | 7.5 | 21 | 6.5 | 6.3 | 3.6 | 4.3 | 4.6 | -6 | 4.8 | 5.3 | -9 |
| Strontium | 20 | 30 | 0.00002 | 0.079 | 0.071 | 10 | 0.17 | 0.18 | -2 | 0.037 | 0.036 | 1.4 | 0.032 | 0.032 | 2.2 |
| Thallium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Tin | 20 | 30 | 0.00002 | 0.00004 | 0.00003 | **36** | *<0.000020* | 0.00002 | | 0.00008 | *<0.000020* | | *<0.000020* | 0.00004 | |
| Titanium | 20 | 30 | 0.00005 | *<0.000050* | 0.00006 | | *<0.000050* | *<0.000050* | | 0.00008 | *<0.000050* | | *<0.000050* | *<0.000050* | |
| Uranium | 20 | 30 | 0.00000 | 0.00006 | 0.00006 | 1.4 | 0.00004 | 0.00004 | 1.4 | 0.00001 | 0.00001 | -7 | 0.00001 | 0.00001 | -16 |
| Vanadium | 20 | 30 | 0.00005 | 0.00005 | *<0.000050* | | *<0.000050* | *<0.000050* | | *<0.000050* | *<0.000050* | | *<0.000050* | 0.00022 | |
| Zinc | 20 | 30 | 0.00050 | 0.00071 | *<0.00050* | | *<0.00050* | 0.00061 | | 0.0028 | *<0.00050* | | 0.00065 | 0.0015 | **-76** |
| **Radiological Parameters (Water)** | | | | | | | | | | | | | | | |
| Ra-226 (Bq/L) | 20 | 30 | 0.0048 | - | - | | - | - | | *<0.0068* | *<0.0096* | | - | - | |

**Notes:**

RPD = Relative Percent Difference (%) = ((original - duplicate) / (original + duplicate)/2) x 100.

RPDs are calculated when both samples are above detection.

The data quality objective (DQO) for field duplicates is an RPD of 1.5X the laboratory RPD.

| | |
|---|---|
| **Bolded RPDs** | RPD values exceeded but < 10 x MDL. |
| Shaded RPDs | RPD values exceeded and > 10 x MDL. |

- = no measurement

*Italicized numbers are below detection limits.*

Table A-3. Field QA/QC summary for water quality, Meliadine AEMP, 2019.

| Analyte | Month Lab RPD Values | DQO RPD Values | Sept MDLs | September Meliadine Lake MEL-01-01 | Meliadine Lake DUP-MEL-SEP-01 | RPD | Meliadine Lake MEL-02-01 | Meliadine Lake DUP-MEL-SEP-02 | RPD |
|---|---|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | | | |
| Conductivity (µS/cm) | 10 | 15 | 1.0 | 87 | 88 | -0.69 | 77 | 76 | 1.2 |
| Hardness (mg/L) | | 40 | 0.20 | 24 | 24 | -3 | 22 | 21 | 2.3 |
| pH (Laboratory) | | 40 | 0.10 | 7.1 | 7.2 | -1 | 7.2 | 7.2 | 0.55 |
| Total Suspended Solids (mg/L) | | 40 | 1.0 | 1.6 | 1.0 | **46** | *<1.0* | *<1.0* | |
| Total Dissolved Solids (mg/L) | 20 | 30 | 4.0 | 50 | 57 | -13 | 50 | 48 | 4.1 |
| Turbidity (NTU) | 15 | 23 | 0.10 | 0.76 | 0.64 | 17 | 0.28 | 0.32 | -13 |
| **Anions and Nutrients (mg/L)** | | | | | | | | | |
| Alkalinity, Total (as $CaCO_3$) | 20 | 30 | 1.0 | 21 | 20 | 4.0 | 20 | 20 | 1.0 |
| Alkalinity, Bicarbonate | | 40 | 1.2 | 25 | 24 | 3.7 | 25 | 24 | 0.82 |
| Alkalinity, Carbonate | | 40 | 0.60 | *<0.60* | *<0.60* | | *<0.60* | *<0.60* | |
| Alkalinity, Hydroxide | | 40 | 0.34 | *<0.34* | *<0.34* | | *<0.34* | *<0.34* | |
| Ammonia, Total (as N) | 20 | 30 | | | | | | | |
| Bromide (Br) | 20 | 30 | | | | | | | |
| Chloride (Cl) | 20 | 30 | 0.10 | 13 | 13 | 0.80 | 9.9 | 9.9 | -0.40 |
| Fluoride (F) | 20 | 30 | 0.020 | 0.028 | 0.026 | 7.4 | 0.028 | 0.028 | 0 |
| Nitrate (as N) | 20 | 30 | 0.0050 | 0.018 | 0.030 | **-52** | 0.0074 | *<0.0050* | |
| Nitrite (as N) | 20 | 30 | 0.0010 | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | |
| Total Kjeldahl Nitrogen | 20 | 30 | 0.050 | 0.20 | 0.23 | -12 | 0.22 | 0.20 | 11 |
| Total Nitrogen | | 40 | | | | | | | |
| Phosphorus (P)-Total | 20 | 30 | 0.0010 | 0.0041 | 0.0041 | 0 | 0.0034 | 0.0090 | **-90** |
| Sulfate ($SO_4$) | 20 | 30 | 0.30 | 4.5 | 4.3 | 3.4 | 3.9 | 3.9 | 0.51 |
| **Cyanides (mg/L)** | | | | | | | | | |
| Total Cyanide | 20 | 30 | 0.0010 | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | |
| Free Cyanide | 20 | 30 | 0.0010 | *<0.0010* | *<0.0010* | | *<0.0010* | *<0.0010* | |
| **Organic / Inorganic Carbon (mg/L)** | | | | | | | | | |
| Dissolved Organic Carbon | 20 | 30 | 0.50 | 3.1 | 2.7 | 12 | 2.5 | *<0.50* | |
| Total Organic Carbon | 20 | 30 | 0.50 | 2.8 | 3.0 | -6 | 2.5 | 2.5 | 2.4 |
| **Total Metals (mg/L)** | | | | | | | | | |
| Aluminum | 20 | 30 | 0.0010 | 0.011 | 0.011 | 0.91 | 0.0048 | 0.0093 | -64 |
| Antimony | 20 | 30 | 0.00002 | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | |
| Arsenic | 20 | 30 | 0.00002 | 0.00048 | 0.00045 | 6.7 | 0.00026 | 0.00028 | -5 |
| Barium | 20 | 30 | 0.00002 | 0.0074 | 0.0079 | -6 | 0.0076 | 0.0075 | 1.8 |
| Beryllium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Bismuth | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Boron | 20 | 30 | 0.0050 | 0.0057 | 0.0060 | -5 | *<0.0050* | *<0.0050* | |
| Cadmium | 20 | 30 | 0.00001 | 0.00001 | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Calcium | 20 | 30 | 0.010 | 7.5 | 7.7 | -3 | 7.0 | 7.1 | -0.85 |
| Chromium | 20 | 30 | 0.00010 | *<0.00010* | 0.00034 | | *<0.00010* | *<0.00010* | |
| Cobalt | 20 | 30 | 0.00001 | 0.00003 | 0.00003 | 9.0 | 0.00001 | 0.00001 | -2 |
| Copper | 20 | 30 | 0.00005 | 0.00079 | 0.00076 | 4.5 | 0.0019 | 0.00078 | 84 |
| Iron | 20 | 30 | 0.0010 | 0.034 | 0.032 | 7.0 | 0.017 | 0.019 | -7 |
| Lead | 20 | 30 | 0.00001 | 0.00002 | 0.00001 | **47** | 0.00001 | 0.00001 | 0 |
| Lithium | 20 | 30 | 0.00050 | 0.0012 | 0.0012 | -3 | 0.00082 | 0.00083 | -1 |
| Magnesium | 20 | 30 | 0.0040 | 1.4 | 1.4 | -1 | 1.2 | 1.2 | 0.83 |
| Manganese | 20 | 30 | 0.00005 | 0.0040 | 0.0041 | -2 | 0.0028 | 0.0029 | -4 |
| Mercury | 20 | 30 | 0.00050 | 0.00056 | *<0.00050* | | *<0.00050* | *<0.00050* | |
| Molybdenum | 20 | 30 | 0.00005 | 0.00009 | 0.00010 | -2 | 0.00008 | 0.00007 | 1.3 |
| Nickel | 20 | 30 | 0.00005 | 0.00063 | 0.00060 | 4.7 | 0.00046 | 0.00046 | 0 |
| Potassium | 20 | 30 | 0.020 | 1.00 | 1.00 | -0.30 | 0.93 | 0.93 | -0.32 |
| Selenium | 20 | 30 | 0.00004 | *<0.000040* | *<0.000040* | | 0.00006 | *<0.000040* | |
| Silver | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Sodium | 20 | 30 | 0.020 | 5.9 | 5.8 | 1.4 | 4.9 | 4.8 | 1.0 |
| Strontium | 20 | 30 | 0.00002 | 0.045 | 0.047 | -4 | 0.036 | 0.035 | 2.5 |
| Thallium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Tin | 20 | 30 | 0.00002 | 0.00002 | *<0.000020* | | *<0.000020* | *<0.000020* | |
| Titanium | 20 | 30 | 0.00005 | 0.00069 | 0.00056 | 21 | 0.00026 | 0.00023 | 14 |
| Uranium | 20 | 30 | 0.00000 | 0.00002 | 0.00002 | -3 | 0.00001 | 0.00002 | -8 |
| Vanadium | 20 | 30 | 0.00005 | *<0.000050* | *<0.000050* | | *<0.000050* | *<0.000050* | |
| Zinc | 20 | 30 | 0.00050 | 0.00079 | *<0.00050* | | 0.00051 | *<0.00050* | |
| **Dissolved Metals (mg/L)** | | | | | | | | | |
| Aluminum | 20 | 30 | 0.0010 | 0.0025 | 0.0024 | 4.1 | 0.0016 | 0.0013 | 21 |
| Antimony | 20 | 30 | 0.00002 | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | |
| Arsenic | 20 | 30 | 0.00002 | 0.00042 | 0.00042 | -2 | 0.00024 | 0.00027 | -12 |
| Barium | 20 | 30 | 0.00002 | 0.0072 | 0.0074 | -3 | 0.0072 | 0.0070 | 2.4 |
| Beryllium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Bismuth | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Boron | 20 | 30 | 0.0050 | 0.0058 | 0.0055 | 5.3 | *<0.0050* | *<0.0050* | |
| Cadmium | 20 | 30 | 0.00001 | 0.00004 | 0.00002 | **67** | *<0.0000050* | *<0.0000050* | |
| Calcium | 20 | 30 | 0.010 | 7.3 | 7.7 | -4 | 6.9 | 6.8 | 2.6 |
| Chromium | 20 | 30 | 0.00010 | 0.00044 | 0.00028 | **44** | 0.00036 | 0.00045 | -22 |
| Cobalt | 20 | 30 | 0.00001 | 0.00001 | 0.00001 | **34** | 0.00001 | 0.00001 | -6 |
| Copper | 20 | 30 | 0.00005 | 0.0010 | 0.00092 | 10.0 | 0.00068 | 0.00073 | -7 |
| Iron | 20 | 30 | 0.0010 | 0.0071 | 0.0069 | 2.9 | 0.0056 | 0.0047 | 17 |
| Lead | 20 | 30 | 0.00001 | 0.00002 | *<0.000010* | | *<0.000010* | *<0.000010* | |
| Lithium | 20 | 30 | 0.00050 | 0.0011 | 0.0011 | 0.93 | 0.00075 | 0.00076 | -1 |
| Magnesium | 20 | 30 | 0.0040 | 1.3 | 1.3 | 0 | 1.1 | 1.1 | 1.8 |
| Manganese | 20 | 30 | 0.00005 | 0.00035 | 0.00027 | 26 | 0.00032 | 0.00032 | 0.31 |
| Mercury | 20 | 30 | 0.00050 | *<0.00050* | *<0.00050* | | *<0.00050* | *<0.00050* | |
| Molybdenum | 20 | 30 | 0.00005 | 0.00009 | 0.00009 | 0 | 0.00007 | 0.00007 | -7 |
| Nickel | 20 | 30 | 0.00005 | 0.00058 | 0.00057 | 1.9 | 0.00044 | 0.00045 | -1 |
| Potassium | 20 | 30 | 0.020 | 0.98 | 0.98 | -0.20 | 0.92 | 0.91 | 1.3 |
| Selenium | 20 | 30 | 0.00004 | *<0.000040* | *<0.000040* | | *<0.000040* | 0.00004 | |
| Silver | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Sodium | 20 | 30 | 0.020 | 6.0 | 5.9 | 0.34 | 5.0 | 4.8 | 3.3 |
| Strontium | 20 | 30 | 0.00002 | 0.043 | 0.044 | -4 | 0.035 | 0.035 | -2 |
| Thallium | 20 | 30 | 0.00001 | *<0.0000050* | *<0.0000050* | | *<0.0000050* | *<0.0000050* | |
| Tin | 20 | 30 | 0.00002 | *<0.000020* | *<0.000020* | | *<0.000020* | *<0.000020* | |
| Titanium | 20 | 30 | 0.00005 | 0.00007 | *<0.000050* | | *<0.000050* | *<0.000050* | |
| Uranium | 20 | 30 | 0.00000 | 0.00001 | 0.00001 | 1.4 | 0.00001 | 0.00001 | 1.5 |
| Vanadium | 20 | 30 | 0.00005 | *<0.000050* | *<0.000050* | | *<0.000050* | *<0.000050* | |
| Zinc | 20 | 30 | 0.00050 | 0.0017 | 0.00052 | **104** | 0.00081 | *<0.00050* | |
| **Radiological Parameters (Water)** | | | | | | | | | |
| Ra-226 (Bq/L) | 20 | 30 | 0.0066 | *<0.0068* | 0.0075 | | - | - | |

**Notes:**
RPD = Relative Percent Difference (%) = ((original - duplicate) / (original + duplicate)/2) x 100.
RPDs are calculated when both samples are above detection.
The data quality objective (DQO) for field duplicates is an RPD of 1.5X the laboratory RPD.

| | |
|---|---|
| **Bolded RPDs** | RPD values exceeded but < 10 x MDL. |
| Shaded RPDs | RPD values exceeded and > 10 x MDL. |

- = no measurement
*Italicized numbers are below detection limits.*

**Table A-4. Water chemistry field duplicate RPDs greater than QA/QC DQO's for Meliadine AEMP, 2019.**

| Month | February | July | August | September |
|---|---|---|---|---|
| **Parameter** | | | | |
| **Physical Tests** | | | | |
| Total Suspended Solids (mg/L) | | | | 1 |
| **Anions and Nutrients (mg/L)** | | | | |
| Ammonia, Total (as N) | | 2 | 3 | |
| Nitrate (as N) | | | 2 | 1 |
| Total Kjeldahl Nitrogen | 1 | 1 | 1 | |
| Total Nitrogen | 1 | | | |
| Phosphorus (P)-Total | 1 | 1 | | 1 |
| **Total Metals (mg/L)** | | | | |
| Aluminum | 1 | 1 | 2 * | 1 |
| Barium | | | 1 | |
| Cobalt | | | 1 | |
| Copper | | | 1 | 1 |
| Iron | | | 1 | |
| Lead | 1 | | 1 | 1 |
| Tin | | 2 | | |
| Zinc | | 2 | 1 | |
| **Dissolved Metals (mg/L)** | | | | |
| Aluminum | 1 | 1 | 1 | |
| Cadmium | | | | 1 |
| Chromium | | | | 1 |
| Cobalt | | | 1 | 1 |
| Iron | 1 | | 1 | |
| Lead | 1 | 1 | | |
| Mercury | | 1 | | |
| Molybdenum | 1 | | 1 | |
| Tin | | 2 | 1 | |
| Zinc | | 2 | 1 | 1 |

Notes:

Shaded squares mean one or more RPD was >10-times DL.

* Only one sample with an RPD > 10-times DL.

# A.3 PHYTOPLANKTON

## A.3.1 QA/QC Methods

An overview of the QA/QC methods in 2019 for the phytoplankton component of the AEMP is provided below; refer to the 2016 AEMP Design Plan (Golder 2016) for a complete description.

### A.3.1.1 Field

In 2019, water samples for phytoplankton, chlorophyll-a and depth-integrated nutrients (DIN) were collected during the August sampling event. Standard procedures were used to collect water samples at a target depth for analysis of each parameter (Golder, 2018). Sampling gear was thoroughly rinsed between sampling areas to ensure that there was no inadvertent introduction (i.e., cross-contamination) from one area to another.

Chlorophyll-a collection - Water samples are typically filtered within 6 hours of collection, however, due to a sample collection error, samples from MEL-01 and MEL-03 were stored in the fridge for up to 2 days before filtering. The effect of delaying the time to filtering the samples is uncertain, and therefore the samples from MEL-01 and MEL-03 were flagged.

**Table A-1** summarizes sample integrity observations (e.g., broken sample containers, mislabeled containers), cooler temperature upon delivery to the lab, and parameters that exceeded the recommended hold-time for analysis.

#### Field Duplicates

Quality control procedures implemented during field operations during the August 2019 sampling event in Meliadine Lake included the collection of duplicate phytoplankton samples, triplicate chlorophyll-a samples and duplicate depth-integrated nutrient (DIN) water samples, all using the same methods and collected at the same time as respective field samples.

**Phytoplankton** - Four field duplicate phytoplankton samples were collected during the August sampling event at randomly selected stations and submitted *blind* to ALS for analysis in order to assess sampling variability and sample homogeneity. RPDs were calculated for field and laboratory duplicates by comparing the original sample and the duplicate result for total density and total biomass. RPD values were also calculated for the major taxa groups, but these results are not relied on for QC purposes because of the tendency for small differences in abundance/biomass between the original and the duplicate to cause large differences in the RPD. Thus, we evaluate the quality of these data based on total density and total biomass both

for field and laboratory duplicates. For field duplicates, an RPD of 50% for total density and biomass concentrations is considered acceptable.

**Chlorophyll-a** – Triplicate samples of chlorophyll-a were collected in 2019. In 2018, no RPDs were calculated due to the samples being collected in triplicate, however, in 2019 RPDs were calculated for each triplicate sample and an RPD of 50% is considered acceptable.

**Depth-Integrated-Nutrients (DIN)** – Duplicate DIN samples were collected in in 2019. Duplicates represented approximately 10% of the total number of DIN samples collected for analysis. All duplicates were submitted *blind* to ALS for analysis. Field QA/QC methods for DIN samples were the same as the methods used for surface water (**Section A.2.1.1**).

For more information regarding the handling of field duplicates refer to **Section A.2.1.1**.

### A.3.1.2 Laboratory

Water samples collected in 2019 for depth integrated nutrient (DIN) analyses were submitted to the University of Alberta Biogeochemical Analytical Service Laboratory (BASL). Water samples collected in 2019 for chlorophyll-a analyses were submitted to ALS. Both BASL and ALS laboratories have CALA accreditation. Finally, samples collected for taxonomic analysis of phytoplankton were submitted to Plankton-R-Us Inc., a reputable taxonomic laboratory. Overall, the reliability of the analytical results is considered high.

As stated in **Section A.2.1.1**, the first step in the QC program involves documenting any issues with the sample submission. This step applies to all sampling components (e.g., chlorophyll-a, DIN samples and phytoplankton). Plankton-R-Us reports sample integrity concerns via email.

**Phytoplankton** - As a measure of laboratory QA/QC on the enumeration method replicate counts were performed on 10% of the samples. Replicate samples were randomly chosen and processed at different times from the original analysis to reduce bias (Golder 2018). The laboratory replicate is a new aliquot (10 mL) from the sample jar and is counted from the start in the same manner as the original aliquot (10 mL) taken from the jar. Laboratory QC results were reviewed in order to determine any Phytoplankton laboratory DQOs did not change in 2019. An RPD of 25% for total density and biomass concentrations is considered acceptable for laboratory replicates.

**Chlorophyll-a** - Data were checked for errors or omissions as was done in 2018 (Golder). Inconsistent results were clarified with the analytical laboratory and any errors were flagged.

**Depth-integrated Nutrients** – Laboratory QA/QC methods for DIN samples were the same as the methods used for surface water (**Section A.2.1.2**). RPDs were calculated in the same way outlined in **Section A.2.1.1**. In previous years, nutrient parameters were analyzed at both

Winnipeg and Edmonton ALS locations. As of 2020, nutrient analyses will be performed at the Edmonton location.

# A.4 RESULTS AND DISCUSSION

As described in **Section A.2**, extensive quality assurance (QA) measures were used to minimize deviations from the program's data quality objectives (DQOs). This section presents the results of both the QA and QC testing conducted for the phytoplankton portion of the AEMP program to verify data quality relative to the DQOs. The QA/QC results present below for the 2019 AEMP program are summarized in **Section 3** of the main report.

## A.4.1 Field Results

### A.4.1.1 Sample Shipping and Handling

All water for chlorophyll-a and DIN analysis as well as phytoplankton samples arrived thawed and at room temperature, despite being shipped in coolers full of ice packs. Keeping the water samples frozen, particularly during summer months is a recurring challenge for this program given the logistics of shipping samples from Nunavut to the respective laboratories in a timely fashion.

For the DIN samples, there were a few occurrences of hold-time exceedances prior to sample receipt by ALS for parameters that tends to exceed hold-times (i.e., nitrite, nitrate and ortho phosphate dissolved, see **Section A.2.1.1**). Furthermore, there was one instance in which the CoC was unclear for TKN and ammonia.

The sample shipping and handling QA/QC for water samples in 2019 was acceptable, with only minor sample integrity issues identified by ALS. The logistics, distances, and general challenges of collecting and shipping samples from a remote mine in Nunavut meant that hold times were exceeded for several parameters/analytes but the impact on results is considered negligible.

### A.4.1.2 Field Duplicates

Results of the RPD analysis for phytoplankton, chlorophyll-a and DIN parameters are presented in **Table A-5**, **Table A-7** and **Table A-8** are discussed below:

**Phytoplankton** - All of the field duplicate RPD's for total biomass and density met the DQOs indicating very good replicability in sample collection. See **Table A-5** for the complete phytoplankton and biomass field duplicate results, including RPDs calculated for major taxa groups.

**Chlorophyll-a** – Approximately one third of the replicates collected at each station exceeded the DQO outlined in **Section A.3.1.2** (**Table A-7**). No sample integrity issues were identified by the laboratory, however chlorophyll-a data was flagged as questionable in 2019 based on lower concentrations in 2019 across all sampling areas compared to previous years. In the August sampling event MF-Millipore membrane filters with a pore size of 0.45 µm filter type were used rather than the Whatman glass fiber type C filter (nominal pore size 1.2 µm) used in previous years. The different filter types are the suspected cause of lower than usual chlorophyll-a concentrations in 2019 relative to previous years. The results, while uniformly lower than previous years, were within the range of concentrations in the literature. The data were given a cautionary flag, but were not excluded from analysis in **Section 7**.

although uniformly lower concentrations in 2019 relative to previous years were potentially related to a different filter material used in the 2019 program. Refer to the main document for details regarding uncertainty in the accuracy of the 2019 chlorophyll-a concentrations due to sample collection issues and hold-time exceedances during shipping.

**DIN** – For most parameters, the concentrations fell below detection limit and therefore RPDs were not calculated. For the RPDs that were calculated there were only two RPDs that did not meet the laboratory DQOs. In one field duplicate the RPD for dissolved phosphorus exceeded the DQO with concentrations greater than 10-times the MDL. In the same field duplicate, the RPD for TKN exceeded the DQO with concentrations close to the MDL. In both field duplicates, the RPDs for total phosphorus exceeded the DQO (**Table A-8**). In one of the field duplicates, some analytes were omitted for analysis due to a misunderstanding of the submitted CoC report. In order to ensure all analytes are included for subsequent years, Azimuth requested that ALS provide an update CoC for the AEMP that explicitly states what samples bottles (and corresponding analyses) are sent to the different ALS locations. The updated CoC has a unique location code that identifies which analyses are done at Winnipeg, Edmonton, Vancouver, and Fort Collins.

### A.4.2 Laboratory Results

**Phytoplankton** - The DQOs for laboratory duplicates for phytoplankton are ±25% RPD. In 2019 no laboratory duplicates were above ±25% for total biomass or density. Therefore, data in 2019 was considered very high quality.

**Chlorophyll-a** – There were no issues reported by BASL. For field blanks, the laboratory only reported concentrations of chlorophyll-a below the detection limit (i.e., 0.04 µg/L).

**DIN** -For one sample, silica ($SiO_2$) was flagged since the matrix spike could not be calculated due to high analyte background in the sample. All other laboratory QC measures met the DQO's

including the method blanks, the matrix spikes and laboratory control samples. Overall, the results do not affect the interpretation of the 2019 water quality data.

### A.4.3 QA/QC Summary

The field and laboratory QA/QC phytoplankton, chlorophyll-a and DIN results in 2019 were very good. This indicates very good replicability and sample handling in the field and in the laboratory:

**Sample Integrity** –Samples reported at ambient temperatures received at the laboratory and reflect the challenges with shipping from a remote mine site. Likewise hold time exceedances for parameters and analytes with short hold times are unavoidable but are not considered likely to impact data analysis and interpretation.

**Blanks** – All chlorophyll-a laboratory blanks results were below the reported detection limit. Blanks were not included for phytoplankton or DIN samples. Blank results for 2019 indicated reliable sample handling and that cross-contamination related to sampling equipment is unlikely.

**Field Duplicates** – The 2019 field duplicate results were good with only a few occurrences of the calculated RPDs not meeting DQOs.

**Laboratory QC Assessment** –the laboratory QC assessment completed by ALS indicated the 2019 data were typically within the established DQOs. In the few instances where a DQO was exceeded, the lab concluded the results were reliable and fit for use in the phytoplankton assessment.

# PHYTOPLANKTON QA/QC TABLES

**Table A-5. Field QA/QC data for phytoplankton, Meliadine AEMP, August 2019.**

| Field QA | DATE | Phytoplankton Biomass (mg/m³) | | | | | | | Taxa Richness | Simpson's Diversity |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | TOTAL | | |
| MEL-0302-PC | 9-Aug-19 | 0 | 7.9 | 201.9 | 13.3 | 5.5 | 14.9 | 243.4 | 43.0 | 0.77 |
| DUP-03-PC | 9-Aug-19 | 0 | 6.9 | 159.1 | 24.0 | 9.5 | 9.2 | 208.8 | 38.0 | 0.75 |
| ***RPD (%)*** | | | 14.1 | 23.7 | **-57.7** | **-54.4** | 47.1 | 15.3 | 12.3 | 3 |
| MEL-0405-PC | 14-Aug-19 | 0 | 10.7 | 187.3 | 13.6 | 7.8 | 6.6 | 225.9 | 39.0 | 0.68 |
| DUP-04-PC | 14-Aug-19 | 0 | 7.2 | 174.2 | 14.6 | 9.1 | 13.4 | 218.6 | 40.0 | 0.78 |
| ***RPD (%)*** | | | 38.9 | 7.3 | -7.2 | -15.8 | **-68.7** | 3.3 | -2.5 | -13 |

| Field QA | DATE | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | TOTAL |
| MEL-0302-PC | 9-Aug-19 | 0 | 65456 | 1749312 | 159248 | 24352 | 2000 | 2000368.00 |
| DUP-03-PC | 9-Aug-19 | 0 | 87408 | 1411264 | 152280 | 60472 | 2600 | 1714024.00 |
| ***RPD (%)*** | | | -29 | 21 | 4 | **-85** | -26 | 15.4 |
| MEL-0405-PC | 14-Aug-19 | 0 | 88008 | 1661904 | 98992 | 80024 | 800 | 1929728.00 |
| DUP-04-PC | 14-Aug-19 | 0 | 87608 | 1581480 | 112960 | 74040 | 1000 | 1857088.00 |
| ***RPD (%)*** | | | 0 | 5 | -13 | 8 | -22 | 3.8 |

**Notes:**

RPD = Relative Percent Difference (%) = ((original - duplicate) / (original + duplicate)/2) x 100.

**Bolded RPD values exceed 50%.**

RPDs have not been calculated for cases where one or both of the samples is "0".

**Table A-6. Laboratory QA/QC data for phytoplankton, Meliadine AEMP, August 2019.**

| Area-Replicate | Date | Phytoplankton Biomass (mg/m³) | | | | | | | Taxa Richness |
|---|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** | |
| MEL -0108 - PC | 8-Aug-19 | 0 | 19.3 | 319.7 | 30.1 | 27.7 | 40.2 | 437.3 | 48.0 |
| MEL -0108R - PC | 8-Aug-19 | 0 | 27.8 | 329.1 | 31.7 | 27.2 | 44.8 | 460.8 | 49.0 |
| ***RPD (%)*** | | **40** | **-36** | -3 | -5 | 2 | -11 | -5 | -2 |
| MEL -0301 - PC | 9-Aug-19 | 0 | 3.2 | 154.2 | 19.9 | 6.7 | 25.3 | 209.3 | 40.0 |
| MEL -0301R - PC | 9-Aug-19 | 0 | 3.2 | 171.2 | 16.8 | 7.3 | 17.9 | 216.4 | 42.0 |
| ***RPD (%)*** | | | 2 | -10 | 17 | -9 | **34** | -3 | -5 |
| MEL -0505 - PC | 16-Aug-19 | 2 | 1.6 | 162.8 | 17.5 | 8.8 | 13.6 | 206.2 | 43.0 |
| MEL -0505R - PC | 16-Aug-19 | 0 | 2.7 | 160.4 | 26.7 | 11.3 | 16.2 | 217.3 | 40.0 |
| ***RPD (%)*** | | **NA** | **-49** | 1 | **-42** | -24 | -18 | -5 | 7 |

| Area-Replicate | Date | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| MEL -0108 - PC | 8-Aug-19 | 600 | 239472 | 2715368 | 176464 | 69672 | 5600 | 3207176.00 |
| MEL -0108R - PC | 8-Aug-19 | 400 | 332064 | 2664880 | 137744 | 56504 | 5400 | 3196992.00 |
| ***RPD (%)*** | | **40** | **-32** | 1.9 | 25 | 21 | 4 | 0 |
| MEL -0301 - PC | 9-Aug-19 | 0 | 122728 | 1281952 | 105176 | 37720 | 3000 | 1550576.00 |
| MEL -0301R - PC | 9-Aug-19 | 0 | 194368 | 1311888 | 111760 | 31536 | 2200 | 1651752.00 |
| ***RPD (%)*** | | | **-45** | -2.3 | -6 | 18 | **31** | -6 |
| MEL -0505 - PC | 16-Aug-19 | 28936 | 29936 | 1676472 | 107176 | 87408 | 2400 | 1932328.00 |
| MEL -0505R - PC | 16-Aug-19 | 0 | 51488 | 1620355 | 169832 | 109160 | 2400 | 1953235.20 |
| ***RPD (%)*** | | | **-53** | 3.4 | **-45** | -22 | 0 | -1 |

**Notes:**

RPD = Relative Percent Difference (%) = ((original - duplicate) / (original + duplicate)/2) x 100.

**Bolded RPD values exceed 25%.**

RPDs have not been calculated for cases where one or both of the samples is "0".

**Table A-7. Field QA/QC summary for chlorophyll-a (µg/L), Meliadine AEMP, 2019.**

| Analyte | Chlorophyll-a (µg/L) | | | | | |
|---|---|---|---|---|---|---|
| Month | August | | | | | |
| Replicate | Meliadine Lake | | | Meliadine Lake | | |
| | MEL-03-02-PC | AUG-DUP-03-PC | **RPD** | MEL-04-05-PC | AUG-DUP-04-PC | **RPD** |
| 1 | 0.03 | 0.02 | 40.0 | 0.28 | 0.14 | **66.7** |
| 2 | 0.12 | 0.06 | **66.7** | 0.13 | 0.11 | 16.7 |
| 3 | 0.02 | 0.08 | **-120.0** | 0.21 | 0.18 | 15.4 |

**Notes:**

RPD = Relative Percent Difference (%) = ((original - duplicate) / (original + duplicate)/2) x 100.

RPDs are calculated when both samples are above detection.

The data quality objective (DQO) for field duplicates is an RPD of 50%.

Table A-8. Field QA/QC summary for depth integrated water quality field duplicate samples, Meliadine AEMP, 2019.

| Month | | | August | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Lab RPD Values | DQO RPD Values | Aug MDLs | Meliadine Lake MEL-03-02-PC | Meliadine Lake AUG-DUP-03-PC | RPD | Aug MDLs | Meliadine Lake MEL-04-05-PC | Meliadine Lake AUG-DUP-04-PC | RPD |
| **Anions and Nutrients (mg/L)** | | | | | | | | | | |
| Ammonia, Total (as N) | 20 | 30 | 0.010 | *<0.010* | *<0.010* | | 0.0050 | 0.0089 | *<0.0050* | |
| Nitrate and Nitrite as N | | 40 | 0.070 | *<0.070* | *<0.070* | | 0.070 | *<0.070* | *<0.070* | |
| Nitrate (as N) | 20 | 30 | 0.020 | 0.026 | *<0.020* | | 0.020 | *<0.020* | *<0.020* | |
| Nitrite (as N) | 20 | 30 | 0.010 | *<0.010* | *<0.010* | | 0.010 | *<0.010* | *<0.010* | |
| Total Kjeldahl Nitrogen | 20 | 30 | 0.20 | *<0.20* | *<0.20* | | 0.050 | 0.29 | 0.19 | **42** |
| Total Nitrogen | 20 | 30 | 0.20 | *<0.20* | *<0.20* | | - | - | - | |
| Diss. Kjeldahl Nitrogen | 20 | 30 | 0.20 | *<0.20* | *<0.20* | | - | - | - | |
| Orthophosphate-Dissolved (as P) | 20 | 30 | 0.0010 | *<0.0010* | *<0.0010* | | - | - | - | |
| Phosphorus (P)-Total Dissolved | 20 | 30 | 0.0010 | 0.0080 | 0.019 | -79 | - | - | - | |
| Phosphorus (P)-Total | 20 | 30 | 0.0010 | 0.0053 | 0.011 | -72 | 0.0030 | 0.010 | 0.018 | -51 |
| Silica, Reactive (as $SiO_2$) | 20 | 30 | 0.010 | 0.22 | 0.22 | 2.3 | - | - | - | |
| **Organic / Inorganic Carbon (mg/L)** | | | | | | | | | | |
| Dissolved Organic Carbon | 20 | 30 | 0.50 | 2.6 | 2.8 | -10 | 0.50 | 2.1 | 2.1 | -2 |
| Total Organic Carbon | 20 | 30 | 0.50 | 2.6 | 2.6 | -2 | 0.50 | 2.3 | 2.3 | 1.3 |

**Notes:**

RPD = Relative Percent Difference (%) = ((original - duplicate) / (original + duplicate)/2) x 100.

RPDs are calculated when both samples are above detection.

The data quality objective (DQO) for field duplicates is an RPD of 1.5X the laboratory RPD.

**Bolded RPDs** RPD values exceeded but < 10 x MDL.

Shaded RPD RPD values exceeded and > 10 x MDL.

- = no measurement

*Italicized numbers are below detection limits.*

Table A-9. QA/QC summary for depth integrated water quality laboratory duplicate samples, Meliadine AEMP, 2019.

| Month | | | | August | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lab RPD Values | DQO RPD Values | Aug MDLs | Meliadine Lake | | | Meliadine Lake | | | Meliadine Lake | | |
| **Analyte** | | | | MEL-01-01-PC | LAB DUP | **RPD** | MEL-03-03-PC | LAB DUP | **RPD** | MEL-05-01-PC | LAB DUP | **RPD** |
| **Anions and Nutrients (mg/L)** | | | | | | | | | | | | |
| Diss. Kjeldahl Nitrogen | 20 | 30 | 0.20 | *<0.20* | *<0.20* | | - | - | | - | - | |
| Orthophosphate-Dissolved (as P) | 20 | 30 | 0.0010 | 0.0029 | 0.0032 | | - | - | | - | - | |
| Phosphorus (P)-Total Dissolved | 20 | 30 | 0.0030 | 0.0131 | 0.0133 | -2 | - | - | | - | - | |
| Silica, Reactive (as $SiO_2$) | 20 | 30 | 0.010 | - | - | | 0.226 | 0.225 | 0.44 | - | - | |
| Nitrate (as N) | 20 | 30 | 0.020 | - | - | | - | - | | *<0.020* | *<0.020* | |
| Nitrite (as N) | 20 | 30 | 0.010 | - | - | | - | - | | *<0.010* | *<0.010* | |

**Notes:**

RPD = Relative Percent Difference (%) = ((original - duplicate) / (original + duplicate)/2) x 100.

RPDs are calculated when both samples are above detection.

The data quality objective (DQO) for field duplicates is an RPD of 1.5X the laboratory RPD.

| | |
|---|---|
| **Bolded RPDs** | RPD values exceeded but < 10 x MDL. |
| Shaded RPD | RPD values exceeded and > 10 x MDL. |

- = no measurement

*Italicized numbers are below detection limits.*

# APPENDIX B
# EFFLUENT CHARACTERIZATION, 2019

# Appendix B1
# MEL-14 Effluent Quality, 2019

Table B1-1: MEL-14 Late June and July laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 2019-06-24 | 2019-07-09 | 2019-07-15 | 2019-07-25 | 2019-07-30 | Late June & July | |
|---|---|---|---|---|---|---|---|---|
| Location | | MEL-14 | MEL-14 | MEL-14 | MEL-14 | MEL-14 | | |
| FIELD_SDG | | B9H6488 | B9J1427 | B9J7572 | B9K9242 | B9L2327 | Total volume = 30,614 m3 | |
| **Parameter** | **Unit** | | | | | | N<DL | Average |
| Conventional Parameters | | | | | | | | |
| Hardness, as CaCO3 (T) | mg/L | 342 | 361 | 297 | 289 | 260 | 0 | 309.8 |
| Total alkalinity, as CaCO3 | mg/L | 12 | 13 | 16 | 25 | 22 | 0 | 17.6 |
| Total dissolved solids | mg/L | 915 | 1190 | 1190 | 935 | 1090 | 0 | 1064 |
| Total suspended solids | mg/L | 3 | 4 | < 1 | 2 | 8 | 1 | 3.6 |
| Total organic carbon | mg/L | 4.8 | 5.2 | 5.1 | 4.4 | 3.1 | 0 | 4.52 |
| Dissolved organic carbon | mg/L | 4.4 | 4.4 | 4.7 | 4 | 2.8 | 0 | 4.06 |
| Major Ions | | | | | | | | |
| Bicarbonate, as CaCO3 | mg/L | 12 | 13 | 16 | 25 | 22 | 0 | 17.6 |
| Calcium | mg/L | 92.8 | 109 | 82.7 | 82.9 | 73.4 | 0 | 88.16 |
| Carbonate, as CaCO3 | mg/L | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 5 | 1 |
| Chloride | mg/L | 450 | 500 | 470 | 440 | 410 | 0 | 454 |
| Cyanide | mg/L | 0.013\|0.0019 | 0.0014 | < 0.0010 | 0.0014 | 0.0014 | 1 | 0.00142 |
| Magnesium | mg/L | 23 | 26.3 | 20.9 | 22.6 | 20.1 | 0 | 22.58 |
| Potassium | mg/L | 12.2 | 14.3 | 12.7 | 12.5 | 12.5 | 0 | 12.84 |
| Sodium | mg/L | 169 | 192 | 184 | 184 | 179 | 0 | 181.6 |
| Sulphate | mg/L | 52 | 56 | 53 | 55 | 44 | 0 | 52 |
| Silica | mg/L | 0.86 | 0.99 | 0.92 | 0.82 | 0.42 | 0 | 0.802 |
| Cyanide (free) | mg/L | 0.0014 | 0.0014 | < 0.0010 | < 0.0010 | 0.001 | 2 | 0.00116 |
| Nutrients | | | | | | | | |
| Nitrate | mg/L | 11.8 | 13.2 | 13.8 | 13.7 | 11.1 | 0 | 12.72 |
| Nitrite | mg/L | 0.21 | 0.373 | 0.347 | 0.402 | 0.366 | 0 | 0.3396 |
| Nitrate + nitrite | mg/L | 12 | 13.6 | 14.1 | 14.1 | 11.4 | 0 | 13.04 |
| Total ammonia | mg/L | 4.2 | 3.7 | 4.5 | 4.9 | 5.6 | 0 | 4.58 |
| Total Kjeldahl nitrogen | mg/L | 4.2 | 4.3 | 5.5 | 5.1 | 5.2 | 0 | 4.86 |
| Total phosphorus | mg/L | 0.021 | 0.027 | 0.025 | < 0.020 | < 0.020 | 2 | 0.0226 |
| Orthophosphate | mg/L | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | 5 | 0.01 |
| Total Metals | | | | | | | | |
| Aluminum | mg/L | 0.174 | 0.452 | 0.18 | 0.0915 | 0.0734 | 0 | 0.19418 |
| Antimony | mg/L | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 | 5 | 0.0005 |
| Arsenic | mg/L | 0.00248 | 0.00243 | 0.00179 | 0.00148 | 0.00113 | 0 | 0.001862 |
| Barium | mg/L | 0.0516 | 0.0519 | 0.0434 | 0.0463 | 0.0379 | 0 | 0.04622 |
| Beryllium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 5 | 0.0001 |
| Bismuth | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 5 | 0.001 |
| Boron | mg/L | 0.229 | 0.283 | 0.349 | 0.324 | 0.363 | 0 | 0.3096 |
| Cadmium | mg/L | 0.000016 | 0.000021 | 0.000018 | 0.000015 | < 0.000010 | 1 | 0.000016 |
| Calcium | mg/L | 96.6 | 105 | 84.3 | 79.6 | 71.7 | 0 | 87.44 |
| Chromium | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 5 | 0.001 |
| Cobalt | mg/L | 0.00075 | 0.00083 | 0.00068 | 0.00059 | 0.00024 | 0 | 0.000618 |
| Copper | mg/L | 0.00132 | 0.00139 | 0.00103 | 0.00094 | < 0.00050 | 1 | 0.001036 |
| Iron | mg/L | 0.119 | 0.24 | 0.11 | 0.091 | 2.37 | 0 | 0.586 |
| Lead | mg/L | 0.00026 | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 4 | 0.000212 |
| Lithium | mg/L | 0.0676 | 0.0771 | 0.0754 | 0.0624 | 0.0675 | 0 | 0.07 |
| Magnesium | mg/L | 24.6 | 24.2 | 20.9 | 21.8 | 19.7 | 0 | 22.24 |
| Manganese | mg/L | 0.033 | 0.0798 | 0.0253 | 0.0117 | 0.0648 | 0 | 0.04292 |
| Mercury | mg/L | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | 5 | 0.00001 |
| Molybdenum | mg/L | 0.0015 | 0.0016 | 0.0013 | 0.0012 | < 0.0010 | 1 | 0.00132 |
| Nickel | mg/L | 0.0034 | 0.0034 | 0.0027 | 0.0028 | 0.0018 | 0 | 0.00282 |
| Potassium | mg/L | 12.9 | 14.2 | 12.6 | 11.9 | 11.6 | 0 | 12.64 |
| Selenium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 5 | 0.0001 |
| Silicon | mg/L | 0.475 | 0.58 | 0.455 | 0.427 | 0.214 | 0 | 0.4302 |
| Silver | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | 5 | 0.00002 |
| Sodium | mg/L | 177 | 192 | 185 | 174 | 179 | 0 | 181.4 |
| Strontium | mg/L | 1.96 | 2.15 | 1.9 | 1.84 | 1.63 | 0 | 1.896 |
| Sulphur | mg/L | 22.2 | 24.4 | 18.2 | 18.3 | 16.5 | 0 | 19.92 |
| Thallium | mg/L | 0.000024 | 0.000028 | 0.000031 | 0.000027 | 0.000013 | 0 | 0.0000246 |
| Tin | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 5 | 0.005 |
| Titanium | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 5 | 0.005 |
| Uranium | mg/L | < 0.00010 | 0.0002 | 0.00024 | 0.00023 | 0.00013 | 1 | 0.00018 |
| Vanadium | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 5 | 0.005 |
| Zinc | mg/L | < 0.0050 | 0.0067 | < 0.0050 | < 0.0050 | 0.0066 | 3 | 0.00566 |
| Zirconium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 5 | 0.0001 |
| Dissolved Metals | | | | | | | | |
| Aluminum | mg/L | 0.0335 | 0.0316 | 0.0527 | 0.0377 | 0.0243 | 0 | 0.03596 |
| Antimony | mg/L | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 | 5 | 0.0005 |
| Arsenic | mg/L | 0.0023 | 0.00216 | 0.00163 | 0.00155 | 0.00096 | 0 | 0.00172 |
| Barium | mg/L | 0.0516 | 0.0557 | 0.0424 | 0.0483 | 0.0369 | 0 | 0.04698 |
| Beryllium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 5 | 0.0001 |
| Bismuth | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 5 | 0.001 |
| Boron | mg/L | 0.231 | 0.274 | 0.333 | 0.349 | 0.361 | 0 | 0.3096 |
| Cadmium | mg/L | 0.000014 | 0.00002 | 0.000013 | 0.000015 | < 0.000010 | 1 | 0.0000144 |
| Chromium | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 5 | 0.001 |
| Cobalt | mg/L | 0.00069 | 0.00085 | 0.00065 | 0.0006 | < 0.00020 | 1 | 0.000598 |
| Copper | mg/L | 0.00115 | 0.00129 | 0.00095 | 0.00089 | < 0.00020 | 1 | 0.000896 |
| Iron | mg/L | 0.0901 | 0.173 | 0.0717 | 0.0587 | 0.0098 | 0 | 0.08066 |
| Lead | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 5 | 0.0002 |
| Lithium | mg/L | 0.0674 | 0.0821 | 0.0735 | 0.0665 | 0.0674 | 0 | 0.07138 |
| Manganese | mg/L | 0.0274 | 0.0695 | 0.0193 | 0.0105 | 0.0531 | 0 | 0.03596 |
| Mercury | mg/L | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | 5 | 0.00001 |
| Molybdenum | mg/L | 0.0015 | 0.0015 | 0.0012 | 0.0013 | < 0.0010 | 1 | 0.0013 |
| Nickel | mg/L | 0.0033 | 0.0034 | 0.0026 | 0.0028 | 0.0014 | 0 | 0.0027 |

Table B1-1: MEL-14 Late June and July laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 2019-06-24 | 2019-07-09 | 2019-07-15 | 2019-07-25 | 2019-07-30 | Late June & July | |
|---|---|---|---|---|---|---|---|---|
| Location | | MEL-14 | MEL-14 | MEL-14 | MEL-14 | MEL-14 | | |
| FIELD_SDG | | B9H6488 | B9J1427 | B9J7572 | B9K9242 | B9L2327 | Total volume = 30,614 m3 | |
| **Parameter** | **Unit** | | | | | | N<DL | Average |
| Selenium | mg/L | 0.0001 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 4 | 0.0001 |
| Silicon | mg/L | 0.444 | 0.561 | 0.433 | 0.417 | 0.211 | 0 | 0.4132 |
| Silver | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | 5 | 0.00002 |
| Strontium | mg/L | 1.92 | 2.27 | 1.84 | 1.89 | 1.5 | 0 | 1.884 |
| Sulphur | mg/L | 20.3 | 23.8 | 18.8 | 19.2 | 18.4 | 0 | 20.1 |
| Thallium | mg/L | 0.000026 | 0.000029 | 0.00003 | 0.00003 | 0.000013 | 0 | 0.0000256 |
| Tin | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 5 | 0.005 |
| Titanium | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 5 | 0.005 |
| Uranium | mg/L | < 0.00010 | < 0.00010 | 0.00019 | 0.00022 | 0.00011 | 2 | 0.000144 |
| Vanadium | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 5 | 0.005 |
| Zinc | mg/L | < 0.0050 | 0.0071 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.00542 |
| Zirconium | mg/L | < 0.00010 | 0.0001 | < 0.00010 | < 0.00010 | < 0.00010 | 4 | 0.0001 |
| Volatile Organics | | | | | | | | |
| Benzene | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 5 | 0.0002 |
| Ethylbenzene | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 5 | 0.0002 |
| Toluene | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 5 | 0.0002 |
| Xylenes | mg/L | < 0.00040 | < 0.00040 | < 0.00040 | < 0.00040 | < 0.00040 | 5 | 0.0004 |
| m,p-Xylenes | mg/L | < 0.00040 | < 0.00040 | < 0.00040 | < 0.00040 | < 0.00040 | 5 | 0.0004 |
| o-Xylene | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 5 | 0.0002 |
| F1 (C6-C10)-BTEX | mg/L | < 0.025 | < 0.025 | < 0.025 | < 0.025 | < 0.025 | 5 | 0.025 |
| F1 (C6-C10) | mg/L | < 0.025 | < 0.025 | < 0.025 | < 0.025 | < 0.025 | 5 | 0.025 |
| F2 (C10-C16) | mg/L | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 5 | 0.1 |
| F3 (C16-C34) | mg/L | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 5 | 0.2 |
| F4 (C34-C50) | mg/L | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 5 | 0.2 |
| | | | | | | | | |
| Toxicity | | | | | | | | |
| Daphnia 48 h static acute test - LC50 | mg/L | > 100 | > 100 | - | - | - | | |
| Aerobic heterotrophic bacteria | CFU/100mL | 3100 | 39000 | 20000 | 1140 | - | | |
| Escherichia coli | CFU/100mL | < 2 | < 2 | < 2 | < 2 | - | | |
| Atypical colonies | CFU/100mL | 4000 | 4900 | 12800 | 1300 | - | | |
| Total Coliform | CFU/100mL | 900 | 1800 | < 100 | < 100 | - | | |
| Daphnia 48 h Static Acute Test - EC50 | mg/L | > 100 | > 100 | - | - | - | | |
| LC50 (96h) - Rainbow Trout | mg/L | > 100 | > 100 | - | - | - | | |
| Concentration of effluent causing biomass inhibition in 25% of Lemna | mg/L | - | > 97.0 | - | - | - | | |
| Concentration of effluent causing frond number inhibition in 25% of Lemna | mg/L | - | > 97.0 | - | - | - | | |
| Toxic Unit - Daphnia Magnia | mg/L | < 1 | < 1 | - | - | - | | |
| Toxic Unit - Rainbow Trout | mg/L | < 1 | < 1 | - | - | - | | |
| WQTC12-Radionuclides | | | | | | | | |
| Radium-226 | Bq/l | 0.3 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.064 |

< Indicates parameter was below laboratory equipment detection limit.

> Indicates parameter detected above equipment analytical range.

- Chemical not analyzed or criteria not defined.

Output generated by GalReport.

Table B1-2: MEL-14 August laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 2019-08-06 | 2019-08-13 | 2019-08-20 | 2019-08-29 | August | |
|---|---|---|---|---|---|---|---|
| Location | | MEL-14 | MEL-14 | MEL-14 | MEL-14 | | |
| FIELD_SDG | | B9M0110 | B9M5838 | B9N3261 | B9O3972 | Total volume = 107,540 m3 | |
| **Parameter** | **Unit** | | | | | N<DL | Average (n=4) |
| WQTC02-Conventional Parameters | | | | | | | |
| Hardness, as CaCO3 (T) | mg/L | 232 | 293 | 388 | 441 | 0 | 338.5 |
| Total alkalinity, as CaCO3 | mg/L | 18 | 22 | 51 | 46 | 0 | 34.25 |
| Total dissolved solids | mg/L | 1070 | 1130 | 1310 | 1170 | 0 | 1170 |
| Total suspended solids | mg/L | 2 | 2 | 7 | 4 | 0 | 3.75 |
| Total organic carbon | mg/L | 3.3 | 3.7 | 13 | 12 | 0 | 8 |
| Dissolved organic carbon | mg/L | 2.8 | 3.7 | 11 | 10 | 0 | 6.875 |
| WQTC03-Major Ions | | | | | | | |
| Bicarbonate, as CaCO3 | mg/L | 18 | 22 | 50 | 46 | 0 | 34 |
| Calcium | mg/L | 66.2 | 75.4 | 108 | 109 | 0 | 89.65 |
| Carbonate, as CaCO3 | mg/L | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 4 | 1 |
| Chloride | mg/L | 370 | 410 | 460 | 470 | 0 | 427.5 |
| Cyanide | mg/L | 0.0011 | 0.0011 | 0.0018 | 0.0014 | 0 | 0.00135 |
| Magnesium | mg/L | 16.7 | 20 | 28.8 | 28.8 | 0 | 23.575 |
| Potassium | mg/L | 11.7 | 11 | 12.9 | 12.9 | 0 | 12.125 |
| Sodium | mg/L | 162 | 162 | 181 | 177 | 0 | 170.5 |
| Sulphate | mg/L | 39 | 50 | 63 | 69 | 0 | 55.25 |
| Silica | mg/L | 0.43 | 0.53 | 0.7 | 0.75 | 0 | 0.6025 |
| Cyanide (free) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 4 | 0.001 |
| WQTC04-Nutrients and Chlorophyll a | | | | | | | |
| Nitrate | mg/L | 13.6 | 12.9 | 11.1 | 11.5 | 0 | 12.275 |
| Nitrite | mg/L | 0.573 | 0.753 | 0.738 | 0.726 | 0 | 0.6975 |
| Nitrate + nitrite | mg/L | 14.2 | 13.7 | 11.8 | 12.3 | 0 | 13 |
| Total ammonia | mg/L | 3.8 | 3.2 | 2.8 | 2.6 | 0 | 3.1 |
| Total Kjeldahl nitrogen | mg/L | 4.1 | 3.3 | 3.6 | 2.9 | 0 | 3.475 |
| Total phosphorus | mg/L | < 0.020 | < 0.020 | 0.025 | 0.023 | 2 | 0.022 |
| Orthophosphate | mg/L | < 0.010 | < 0.010 | < 0.010 | < 0.010 | 4 | 0.01 |
| WQTC06-Total Metals | | | | | | | |
| Aluminum | mg/L | 0.0674 | 0.0992 | 0.529 | 0.515 | 0 | 0.30265 |
| Antimony | mg/L | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 | 4 | 0.0005 |
| Arsenic | mg/L | 0.0009 | 0.00116 | 0.00206 | 0.00199 | 0 | 0.0015275 |
| Barium | mg/L | 0.0378 | 0.0519 | 0.068 | 0.0724 | 0 | 0.057525 |
| Beryllium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 4 | 0.0001 |
| Bismuth | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 4 | 0.001 |
| Boron | mg/L | 0.392 | 0.323 | 0.175 | 0.181 | 0 | 0.26775 |
| Cadmium | mg/L | 0.000012 | 0.000012 | 0.000016 | 0.000013 | 0 | 0.00001325 |
| Calcium | mg/L | 64.9 | 82.2 | 108 | 118 | 0 | 93.275 |
| Chromium | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 4 | 0.001 |
| Cobalt | mg/L | 0.00034 | 0.00037 | 0.0005 | 0.00043 | 0 | 0.00041 |
| Copper | mg/L | 0.00062 | 0.00065 | 0.00149 | 0.00116 | 0 | 0.00098 |
| Iron | mg/L | 0.133 | 0.049 | 0.085 | 0.095 | 0 | 0.0905 |
| Lead | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | 0.00022 | 3 | 0.000205 |
| Lithium | mg/L | 0.0557 | 0.0526 | 0.0498 | 0.0545 | 0 | 0.05315 |
| Magnesium | mg/L | 17 | 21.4 | 29.1 | 35.8 | 0 | 25.825 |
| Manganese | mg/L | 0.0093 | 0.0056 | 0.023 | 0.0165 | 0 | 0.0136 |
| Mercury | mg/L | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | 4 | 0.00001 |
| Molybdenum | mg/L | < 0.0010 | 0.001 | 0.0015 | 0.0015 | 1 | 0.00125 |
| Nickel | mg/L | 0.0022 | 0.0025 | 0.0038 | 0.0033 | 0 | 0.00295 |
| Potassium | mg/L | 10.5 | 12 | 12.8 | 13.5 | 0 | 12.2 |
| Selenium | mg/L | < 0.00010 | < 0.00010 | 0.00013 | 0.00012 | 2 | 0.0001125 |
| Silicon | mg/L | 0.238 | 0.266 | 0.419 | 0.475 | 0 | 0.3495 |
| Silver | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | 4 | 0.00002 |
| Sodium | mg/L | 161 | 171 | 186 | 193 | 0 | 177.75 |
| Strontium | mg/L | 1.37 | 1.85 | 2.05 | 2.26 | 0 | 1.8825 |
| Sulphur | mg/L | 14.3 | 18.8 | 24.1 | 26.3 | 0 | 20.875 |
| Thallium | mg/L | 0.000023 | 0.000026 | 0.000039 | 0.000027 | 0 | 0.00002875 |
| Tin | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Titanium | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Uranium | mg/L | 0.00018 | 0.00017 | 0.00046 | 0.00035 | 0 | 0.00029 |
| Vanadium | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Zinc | mg/L | 0.0055 | < 0.0050 | < 0.0050 | < 0.0050 | 3 | 0.005125 |
| Zirconium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 4 | 0.0001 |
| WQTC07-Dissolved Metals | | | | | | | |
| Aluminum | mg/L | 0.0272 | 0.0323 | 0.112 | 0.0641 | 0 | 0.0589 |
| Antimony | mg/L | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 | 4 | 0.0005 |
| Arsenic | mg/L | 0.00087 | 0.00104 | 0.00188 | 0.00167 | 0 | 0.001365 |
| Barium | mg/L | 0.0389 | 0.0456 | 0.0685 | 0.0677 | 0 | 0.055175 |
| Beryllium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 4 | 0.0001 |
| Bismuth | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 4 | 0.001 |
| Boron | mg/L | 0.406 | 0.341 | 0.181 | 0.181 | 0 | 0.27725 |
| Cadmium | mg/L | 0.000018 | < 0.000010 | 0.000013 | 0.000014 | 1 | 0.00001375 |
| Chromium | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 4 | 0.001 |
| Cobalt | mg/L | 0.00035 | 0.00037 | 0.00047 | 0.0004 | 0 | 0.0003975 |
| Copper | mg/L | 0.00067 | 0.0006 | 0.00129 | 0.00107 | 0 | 0.0009075 |

Table B1-2: MEL-14 August laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 2019-08-06 | 2019-08-13 | 2019-08-20 | 2019-08-29 | August | |
|---|---|---|---|---|---|---|---|
| Location | | MEL-14 | MEL-14 | MEL-14 | MEL-14 | | |
| FIELD_SDG | | B9M0110 | B9M5838 | B9N3261 | B9O3972 | Total volume = 107,540 m3 | |
| **Parameter** | **Unit** | | | | | N<DL | Average (n=4) |
| Iron | mg/L | 0.152 | 0.0538 | 0.036 | 0.0349 | 0 | 0.069175 |
| Lead | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 4 | 0.0002 |
| Lithium | mg/L | 0.0571 | 0.054 | 0.0542 | 0.0581 | 0 | 0.05585 |
| Manganese | mg/L | 0.0105 | 0.0053 | 0.0105 | 0.0069 | 0 | 0.0083 |
| Mercury | mg/L | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | 4 | 0.00001 |
| Molybdenum | mg/L | 0.0061 | < 0.0010 | 0.0098 | 0.0014 | 1 | 0.004575 |
| Nickel | mg/L | 0.0023 | 0.0024 | 0.0036 | 0.0032 | 0 | 0.002875 |
| Selenium | mg/L | < 0.00010 | < 0.00010 | 0.00012 | 0.00011 | 2 | 0.0001075 |
| Silicon | mg/L | 0.256 | 0.247 | 0.415 | 0.42 | 0 | 0.3345 |
| Silver | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | 4 | 0.00002 |
| Strontium | mg/L | 1.29 | 1.63 | 2.01 | 2.18 | 0 | 1.7775 |
| Sulphur | mg/L | 15.9 | 17.8 | 25 | 25 | 0 | 20.925 |
| Thallium | mg/L | 0.000024 | 0.000024 | 0.000032 | 0.000029 | 0 | 0.00002725 |
| Tin | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Titanium | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Uranium | mg/L | 0.00017 | 0.00013 | 0.00044 | 0.00027 | 0 | 0.0002525 |
| Vanadium | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Zinc | mg/L | 0.0075 | < 0.0050 | < 0.0050 | < 0.0050 | 3 | 0.005625 |
| Zirconium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 4 | 0.0001 |
| WQTC08-Volatile Organics | | | | | | | |
| Benzene | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 4 | 0.0002 |
| Ethylbenzene | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 4 | 0.0002 |
| Toluene | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 4 | 0.0002 |
| Xylenes | mg/L | < 0.00040 | < 0.00040 | < 0.00040 | < 0.00040 | 4 | 0.0004 |
| m,p-Xylenes | mg/L | < 0.00040 | < 0.00040 | < 0.00040 | < 0.00040 | 4 | 0.0004 |
| o-Xylene | mg/L | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 | 4 | 0.0002 |
| F1 (C6-C10)-BTEX | mg/L | < 0.025 | < 0.025 | < 0.025 | < 0.025 | 4 | 0.025 |
| F1 (C6-C10) | mg/L | < 0.025 | < 0.025 | < 0.025 | < 0.025 | 4 | 0.025 |
| F2 (C10-C16) | mg/L | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 4 | 0.1 |
| F3 (C16-C34) | mg/L | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 4 | 0.2 |
| F4 (C34-C50) | mg/L | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 4 | 0.2 |
| | | | | | | | |
| WQTC11-Toxicity | | | | | | | |
| Daphnia 48 h static acute test - LC50 | mg/L | > 100 | - | - | - | | |
| Aerobic heterotrophic bacteria | CFU/100mL | 1 180 | 1220 | 1320 | - | | |
| Escherichia coli | CFU/100mL | 2 | < 2 | 8 | - | | |
| Atypical colonies | CFU/100mL | 1 600 | 1150 | 8400 | - | | |
| Total Coliform | CFU/100mL | < 10 | 10 | < 100 | - | | |
| Daphnia 48 h Static Acute Test - EC50 | mg/L | > 100 | - | - | - | | |
| LC50 (96h) - Rainbow Trout | mg/L | > 100 | - | - | - | | |
| Concentration of effluent causing biomass inhibition in 25% of Lemna | mg/L | - | > 97.0 | - | - | | |
| Concentration of effluent causing frond number inhibition in 25% of Lemna | mg/L | - | > 97.0 | - | - | | |
| Toxic Unit - Daphnia Magnia | mg/L | - | - | - | - | | |
| Toxic Unit - Rainbow Trout | mg/L | - | - | - | - | | |
| WQTC12-Radionuclides | | | | | | | |
| Radium-226 | Bq/l | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 4 | 0.005 |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Table B1-3: MEL-14 September laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 2019-09-03 | 2019-09-07 | 2019-09-12 | 2019-09-12 | 2019-09-13 | 2019-09-17 | 2019-09-24 | September | |
|---|---|---|---|---|---|---|---|---|---|---|
| Location | | MEL-14 | MEL-14 | MEL-14 | MEL-14 | MEL-14 | MEL-14 | MEL-14 | | |
| FIELD_SDG | | B9O6583 | B9P4256 | B9Q2018 | B9P8919 | | B9Q3637 | B9R1304 | Total volume = 157,912 m3 | |
| **Parameter** | **Unit** | | | | | | | | N<DL | Average (n=4) |
| WQTC02-Conventional Parameters | | | | | | | | | | |
| Hardness, as CaCO3 (T) | mg/L | 460 | - | - | 422 | - | 399 | 462 | 0 | 435.75 |
| Total alkalinity, as CaCO3 | mg/L | 47 | - | - | 51 | - | 25 | 46 | 0 | 42.25 |
| Total dissolved solids | mg/L | 1300 | 1360 | 1430 | 1400 | - | 1290 | 1320 | 0 | 1350 |
| Total suspended solids | mg/L | 5 | - | - | 3 | - | 2 | 3 | 0 | 3.25 |
| Total organic carbon | mg/L | 12 | - | - | 12 | - | 4.3 | 11 | 0 | 9.825 |
| Dissolved organic carbon | mg/L | 10 | - | - | 11 | - | 4 | 11 | 0 | 9 |
| WQTC03-Major Ions | | | | | | | | | | |
| Bicarbonate, as CaCO3 | mg/L | 47 | - | - | 51 | - | 25 | 46 | 0 | 42.25 |
| Calcium | mg/L | 125 | - | - | 128 | - | 108 | 125 | 0 | 121.5 |
| Carbonate, as CaCO3 | mg/L | < 1.0 | - | - | < 1.0 | - | < 1.0 | < 1.0 | 4 | 1 |
| Chloride | mg/L | 530 | - | - | 550 | - | 530 | 510 | 0 | 530 |
| Cyanide | mg/L | 0.0021 | - | - | < 0.0010 | - | < 0.0010 | 0.0016 | 2 | 0.001425 |
| Magnesium | mg/L | 33.5 | - | - | 32.7 | - | 29.8 | 31.1 | 0 | 31.775 |
| Potassium | mg/L | 14.3 | - | - | 14.7 | - | 14.7 | 14 | 0 | 14.425 |
| Sodium | mg/L | 201 | - | - | 205 | - | 236 | 201 | 0 | 210.75 |
| Sulphate | mg/L | 82 | - | - | 90 | - | 75 | 84 | 0 | 82.75 |
| Silica | mg/L | 1.2 | - | - | 1.2 | - | 0.81 | 1.9 | 0 | 1.2775 |
| Cyanide (free) | mg/L | 0.001 | - | - | 0.001 | - | < 0.0010 | < 0.0010 | 2 | 0.001 |
| WQTC04-Nutrients and Chlorophyll a | | | | | | | | | | |
| Nitrate | mg/L | 12.3 | - | - | 13.5 | - | 13.7 | 11.6 | 0 | 12.775 |
| Nitrite | mg/L | 0.595 | - | - | 0.585 | - | 0.464 | 0.434 | 0 | 0.5195 |
| Nitrate + nitrite | mg/L | 12.9 | - | - | 14.1 | - | 14.1 | 12 | 0 | 13.275 |
| Total ammonia | mg/L | 3.4 | - | - | 3.5 | - | 3.6 | 3.9 | 0 | 3.6 |
| Total Kjeldahl nitrogen | mg/L | 4.2 | - | - | 4.2 | - | 3.3 | 3.6 | 0 | 3.825 |
| Total phosphorus | mg/L | < 0.020 | - | - | < 0.020 | - | < 0.020 | 0.024 | 3 | 0.021 |
| Orthophosphate | mg/L | < 0.010 | - | - | 0.019 | - | < 0.010 | < 0.010 | 3 | 0.01225 |
| WQTC06-Total Metals | | | | | | | | | | |
| Aluminum | mg/L | 0.543 | - | - | 0.254 | - | 0.0774 | 0.166 | 0 | 0.2601 |
| Antimony | mg/L | < 0.0025 | - | - | < 0.00050 | - | < 0.00050 | < 0.00050 | 4 | 0.001 |
| Arsenic | mg/L | 0.002 | - | - | 0.00207 | - | 0.00119 | 0.00193 | 0 | 0.0017975 |
| Barium | mg/L | 0.0726 | - | - | 0.0727 | - | 0.053 | 0.0724 | 0 | 0.067675 |
| Beryllium | mg/L | < 0.00050 | - | - | < 0.00010 | - | < 0.00010 | < 0.00010 | 4 | 0.0002 |
| Bismuth | mg/L | < 0.0050 | - | - | < 0.0010 | - | < 0.0010 | < 0.0010 | 4 | 0.002 |
| Boron | mg/L | < 0.25 | - | - | 0.184 | - | 0.327 | 0.315 | 1 | 0.269 |
| Cadmium | mg/L | < 0.000050 | - | - | 0.000016 | - | 0.000019 | 0.000022 | 1 | 0.00002675 |
| Calcium | mg/L | 128 | - | - | 120 | - | 112 | 131 | 0 | 122.75 |
| Chromium | mg/L | < 0.0050 | - | - | < 0.0010 | - | < 0.0010 | < 0.0010 | 4 | 0.002 |
| Cobalt | mg/L | < 0.0010 | - | - | 0.00051 | - | 0.00043 | 0.00053 | 1 | 0.0006175 |
| Copper | mg/L | < 0.0025 | - | - | 0.00088 | - | 0.00065 | 0.00084 | 1 | 0.0012175 |
| Iron | mg/L | 0.122 | - | - | 0.106 | - | 0.276 | 0.052 | 0 | 0.139 |
| Lead | mg/L | < 0.0010 | - | - | < 0.00020 | - | < 0.00020 | < 0.00020 | 4 | 0.0004 |
| Lithium | mg/L | 0.058 | - | - | 0.0541 | - | 0.0681 | 0.0671 | 0 | 0.061825 |
| Magnesium | mg/L | 33.9 | - | - | 29.8 | - | 28.7 | 32.6 | 0 | 31.25 |
| Manganese | mg/L | 0.0394 | - | - | 0.0342 | - | 0.0338 | 0.0539 | 0 | 0.040325 |
| Mercury | mg/L | < 0.00001 | - | - | < 0.00001 | - | < 0.00001 | < 0.00001 | 4 | 0.00001 |
| Molybdenum | mg/L | < 0.0050 | - | - | 0.0018 | - | 0.0011 | 0.0019 | 1 | 0.00245 |
| Nickel | mg/L | < 0.0050 | - | - | 0.0036 | - | 0.0034 | 0.0042 | 1 | 0.00405 |
| Potassium | mg/L | 13.9 | - | - | 15.1 | - | 14.3 | 14.5 | 0 | 14.45 |
| Selenium | mg/L | < 0.00050 | - | - | 0.00011 | - | 0.00011 | 0.00014 | 1 | 0.000215 |
| Silicon | mg/L | 0.677 | - | - | 0.606 | - | 0.419 | 1.08 | 0 | 0.6955 |
| Silver | mg/L | < 0.00010 | - | - | < 0.000020 | - | < 0.000020 | < 0.000020 | 4 | 0.00004 |
| Sodium | mg/L | 201 | - | - | 190 | - | 227 | 224 | 0 | 210.5 |
| Strontium | mg/L | 2.04 | - | - | 1.96 | - | 2.18 | 2.25 | 0 | 2.1075 |
| Sulphur | mg/L | 28.5 | - | - | 31.3 | - | 26.4 | 32.4 | 0 | 29.65 |
| Thallium | mg/L | < 0.000050 | - | - | < 0.000010 | - | 0.000022 | 0.000024 | 2 | 0.0000265 |
| Tin | mg/L | < 0.025 | - | - | < 0.0050 | - | < 0.0050 | < 0.0050 | 4 | 0.01 |
| Titanium | mg/L | < 0.025 | - | - | < 0.0050 | - | < 0.0050 | < 0.0050 | 4 | 0.01 |
| Uranium | mg/L | < 0.00050 | - | - | 0.00026 | - | 0.00034 | 0.00035 | 1 | 0.0003625 |
| Vanadium | mg/L | < 0.025 | - | - | < 0.0050 | - | < 0.0050 | < 0.0050 | 4 | 0.01 |
| Zinc | mg/L | < 0.025 | - | - | < 0.0050 | - | < 0.0050 | 0.0059 | 3 | 0.010225 |
| Zirconium | mg/L | < 0.00050 | - | - | < 0.00010 | - | < 0.00010 | < 0.00010 | 4 | 0.0002 |
| WQTC07-Dissolved Metals | | | | | | | | | | |
| Aluminum | mg/L | 0.0584 | - | - | 0.0427 | - | 0.028 | 0.0355 | 0 | 0.04115 |
| Antimony | mg/L | < 0.00050 | - | - | < 0.00050 | - | < 0.00050 | < 0.00050 | 4 | 0.0005 |
| Arsenic | mg/L | 0.00176 | - | - | 0.0022 | - | 0.00114 | 0.00177 | 0 | 0.0017175 |
| Barium | mg/L | 0.0745 | - | - | 0.0784 | - | 0.0506 | 0.0683 | 0 | 0.06795 |
| Beryllium | mg/L | < 0.00010 | - | - | < 0.00010 | - | < 0.00010 | < 0.00010 | 4 | 0.0001 |
| Bismuth | mg/L | < 0.0010 | - | - | < 0.0010 | - | < 0.0010 | < 0.0010 | 4 | 0.001 |
| Boron | mg/L | 0.196 | - | - | 0.188 | - | 0.35 | 0.302 | 0 | 0.259 |
| Cadmium | mg/L | 0.000019 | - | - | 0.000014 | - | 0.000019 | 0.000021 | 0 | 0.00001825 |
| Chromium | mg/L | < 0.0010 | - | - | < 0.0010 | - | < 0.0010 | < 0.0010 | 4 | 0.001 |
| Cobalt | mg/L | 0.00059 | - | - | 0.00056 | - | 0.00037 | 0.00049 | 0 | 0.0005025 |
| Copper | mg/L | 0.00101 | - | - | 0.00087 | - | 0.00059 | 0.00069 | 0 | 0.00079 |
| Iron | mg/L | 0.1 | - | - | 0.0698 | - | 0.0435 | 0.0339 | 0 | 0.0618 |
| Lead | mg/L | 0.00036 | - | - | < 0.00020 | - | < 0.00020 | < 0.00020 | 3 | 0.00024 |
| Lithium | mg/L | 0.0564 | - | - | 0.0541 | - | 0.0657 | 0.0615 | 0 | 0.059425 |
| Manganese | mg/L | 0.0335 | - | - | 0.0316 | - | 0.0128 | 0.0426 | 0 | 0.030125 |
| Mercury | mg/L | < 0.00001 | - | - | < 0.00001 | - | < 0.00001 | < 0.00001 | 4 | 0.00001 |
| Molybdenum | mg/L | 0.0054 | - | - | 0.0021 | - | 0.0011 | 0.0018 | 0 | 0.0026 |
| Nickel | mg/L | 0.0039 | - | - | 0.0039 | - | 0.0032 | 0.0039 | 0 | 0.003725 |
| Selenium | mg/L | 0.00014 | - | - | 0.00012 | - | 0.0001 | 0.00015 | 0 | 0.0001275 |
| Silicon | mg/L | 0.635 | - | - | 0.575 | - | 0.48 | 1.01 | 0 | 0.675 |
| Silver | mg/L | < 0.000020 | - | - | < 0.000020 | - | < 0.000020 | < 0.000020 | 4 | 0.00002 |
| Strontium | mg/L | 2.33 | - | - | 2.42 | - | 2.24 | 2.17 | 0 | 2.29 |
| Sulphur | mg/L | 31 | - | - | 30 | - | 30.1 | 31.7 | 0 | 30.7 |
| Thallium | mg/L | 0.000027 | - | - | 0.000011 | - | 0.000024 | 0.000024 | 0 | 0.0000215 |
| Tin | mg/L | < 0.0050 | - | - | < 0.0050 | - | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Titanium | mg/L | < 0.0050 | - | - | < 0.0050 | - | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Uranium | mg/L | 0.0003 | - | - | 0.00029 | - | 0.00035 | 0.00032 | 0 | 0.000315 |
| Vanadium | mg/L | < 0.0050 | - | - | < 0.0050 | - | < 0.0050 | < 0.0050 | 4 | 0.005 |
| Zinc | mg/L | 0.0107 | - | - | < 0.0050 | - | < 0.0050 | < 0.0050 | 3 | 0.006425 |
| Zirconium | mg/L | < 0.00010 | - | - | < 0.00010 | - | < 0.00010 | < 0.00010 | 4 | 0.0001 |
| WQTC08-Volatile Organics | | | | | | | | | | |
| Benzene | mg/L | < 0.00020 | - | - | < 0.00020 | - | < 0.00020 | < 0.00020 | 4 | 0.0002 |

Table B1-3: MEL-14 September laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 2019-09-03 | 2019-09-07 | 2019-09-12 | 2019-09-12 | 2019-09-13 | 2019-09-17 | 2019-09-24 | September | |
|---|---|---|---|---|---|---|---|---|---|---|
| Location | | MEL-14 | MEL-14 | MEL-14 | MEL-14 | MEL-14 | MEL-14 | MEL-14 | | |
| FIELD_SDG | | B9O6583 | B9P4256 | B9Q2018 | B9P8919 | | B9Q3637 | B9R1304 | Total volume = 157,912 m3 | |
| **Parameter** | **Unit** | | | | | | | | N<DL | Average (n=4) |
| Ethylbenzene | mg/L | < 0.00020 | - | - | < 0.00020 | - | < 0.00020 | < 0.00020 | 4 | 0.0002 |
| Toluene | mg/L | < 0.00020 | - | - | < 0.00020 | - | < 0.00020 | < 0.00020 | 4 | 0.0002 |
| Xylenes | mg/L | < 0.00040 | - | - | < 0.00040 | - | < 0.00040 | < 0.00040 | 4 | 0.0004 |
| m,p-Xylenes | mg/L | < 0.00040 | - | - | < 0.00040 | - | < 0.00040 | < 0.00040 | 4 | 0.0004 |
| o-Xylene | mg/L | < 0.00020 | - | - | < 0.00020 | - | < 0.00020 | < 0.00020 | 4 | 0.0002 |
| F1 (C6-C10)-BTEX | mg/L | < 0.025 | - | - | < 0.025 | - | < 0.025 | < 0.025 | 4 | 0.025 |
| F1 (C6-C10) | mg/L | < 0.025 | - | - | < 0.025 | - | < 0.025 | < 0.025 | 4 | 0.025 |
| F2 (C10-C16) | mg/L | < 0.1 | - | - | < 0.1 | - | < 0.1 | < 0.1 | 4 | 0.1 |
| F3 (C16-C34) | mg/L | < 0.2 | - | - | < 0.2 | - | < 0.2 | < 0.2 | 4 | 0.2 |
| F4 (C34-C50) | mg/L | < 0.2 | - | - | < 0.2 | - | < 0.2 | < 0.2 | 4 | 0.2 |
| | | | | | | | | | | |
| WQTC11-Toxicity | | | | | | | | | | |
| Daphnia 48 h static acute test - LC50 | mg/L | - | - | - | - | - | - | - | | |
| Aerobic heterotrophic bacteria | CFU/100 mL | 100 | - | - | 2580 | - | 1700 | - | | |
| Escherichia coli | CFU/100 mL | < 2 | - | - | < 2 | - | 2 | - | | |
| Atypical colonies | CFU/100 mL | 400 | - | - | 3400 | - | 9000 | - | | |
| Total Coliform | CFU/100 mL | 880 | - | - | < 100 | - | 3500 | - | | |
| Daphnia 48 h Static Acute Test - EC50 | mg/L | - | - | - | - | - | - | - | | |
| LC50 (96h) - Rainbow Trout | mg/L | - | - | - | - | - | - | - | | |
| Concentration of effluent causing biomass inhibition in 25% of Lemna | mg/L | - | - | - | - | - | - | - | | |
| Concentration of effluent causing frond number inhibition in 25% of Lemna | mg/L | - | - | - | - | - | - | - | | |
| Toxic Unit - Daphnia Magnia | mg/L | - | - | - | - | - | - | - | | |
| Toxic Unit - Rainbow Trout | mg/L | - | - | - | - | - | - | - | | |
| WQTC12-Radionuclides | | | | | | | | | | |
| Radium-226 | Bq/l | < 0.0050 | - | - | < 0.0050 | - | < 0.0050 | < 0.0050 | 4 | 0.005 |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Table B1-4: MEL-14 October laboratory chemistry data, Meliadine Lake AEMP 2019.

| | | | | |
|---|---|---|---|---|
| | **Sample Date** | 2019-10-01 | October | |
| | **Location** | MEL-14 | | |
| | **FIELD_SDG** | B9R7358 | Total volume = 10,707 | |
| **Parameter** | **Unit** | | N<DL | Conc. (n=1) |
| WQTC02-Conventional Parameters | | | | |
| Hardness, as CaCO3 (T) | mg/L | 422 | 0 | 422 |
| Total alkalinity, as CaCO3 | mg/L | 24 | 0 | 24 |
| Total dissolved solids | mg/L | 860 | 0 | 860 |
| Total suspended solids | mg/L | 2 | 0 | 2 |
| Total organic carbon | mg/L | 3.6 | 0 | 3.6 |
| Dissolved organic carbon | mg/L | 3.6 | 0 | 3.6 |
| WQTC03-Major Ions | | | | |
| Bicarbonate, as CaCO3 | mg/L | 24 | 0 | 24 |
| Calcium | mg/L | 108 | 0 | 108 |
| Carbonate, as CaCO3 | mg/L | < 1.0 | 1 | 1 |
| Chloride | mg/L | 530 | 0 | 530 |
| Cyanide | mg/L | < 0.0010 | 1 | 0.001 |
| Magnesium | mg/L | 28 | 0 | 28 |
| Potassium | mg/L | 14.1 | 0 | 14.1 |
| Sodium | mg/L | 214 | 0 | 214 |
| Sulphate | mg/L | 74 | 0 | 74 |
| Silica | mg/L | 0.68 | 0 | 0.68 |
| Cyanide (free) | mg/L | < 0.0010 | 1 | 0.001 |
| WQTC04-Nutrients and Chlorophyll a | | | | |
| Nitrate | mg/L | 13.6 | 0 | 13.6 |
| Nitrite | mg/L | 0.366 | 0 | 0.366 |
| Nitrate + nitrite | mg/L | 14 | 0 | 14 |
| Total ammonia | mg/L | 4 | 0 | 4 |
| Total Kjeldahl nitrogen | mg/L | 4.3 | 0 | 4.3 |
| Total phosphorus | mg/L | < 0.020 | 1 | 0.02 |
| Orthophosphate | mg/L | < 0.010 | 1 | 0.01 |
| WQTC06-Total Metals | | | | |
| Aluminum | mg/L | 0.117 | 0 | 0.117 |
| Antimony | mg/L | < 0.00050 | 1 | 0.0005 |
| Arsenic | mg/L | 0.00104 | 0 | 0.00104 |
| Barium | mg/L | 0.0554 | 0 | 0.0554 |
| Beryllium | mg/L | < 0.00010 | 1 | 0.0001 |
| Bismuth | mg/L | < 0.0010 | 1 | 0.001 |
| Boron | mg/L | 0.353 | 0 | 0.353 |
| Cadmium | mg/L | 0.000025 | 0 | 0.000025 |
| Calcium | mg/L | 124 | 0 | 124 |
| Chromium | mg/L | < 0.0010 | 1 | 0.001 |
| Cobalt | mg/L | 0.00052 | 0 | 0.00052 |
| Copper | mg/L | 0.00072 | 0 | 0.00072 |
| Iron | mg/L | 0.08 | 0 | 0.08 |
| Lead | mg/L | < 0.00020 | 1 | 0.0002 |
| Lithium | mg/L | 0.0822 | 0 | 0.0822 |
| Magnesium | mg/L | 27.5 | 0 | 27.5 |
| Manganese | mg/L | 0.038 | 0 | 0.038 |
| Mercury | mg/L | < 0.00001 | 1 | 0.00001 |
| Molybdenum | mg/L | 0.0014 | 0 | 0.0014 |
| Nickel | mg/L | 0.0034 | 0 | 0.0034 |
| Potassium | mg/L | 15.3 | 0 | 15.3 |
| Selenium | mg/L | 0.00014 | 0 | 0.00014 |
| Silicon | mg/L | 0.659 | 0 | 0.659 |
| Silver | mg/L | < 0.000020 | 1 | 0.00002 |
| Sodium | mg/L | 215 | 0 | 215 |
| Strontium | mg/L | 2.15 | 0 | 2.15 |
| Sulphur | mg/L | 32.7 | 0 | 32.7 |
| Thallium | mg/L | 0.000024 | 0 | 0.000024 |
| Tin | mg/L | < 0.0050 | 1 | 0.005 |
| Titanium | mg/L | < 0.0050 | 1 | 0.005 |
| Uranium | mg/L | 0.00028 | 0 | 0.00028 |
| Vanadium | mg/L | < 0.0050 | 1 | 0.005 |
| Zinc | mg/L | 0.0145 | 0 | 0.0145 |
| Zirconium | mg/L | < 0.00010 | 1 | 0.0001 |
| WQTC07-Dissolved Metals | | | | |
| Aluminum | mg/L | 0.0192 | 0 | 0.0192 |
| Antimony | mg/L | < 0.00050 | 1 | 0.0005 |
| Arsenic | mg/L | 0.00084 | 0 | 0.00084 |
| Barium | mg/L | 0.0499 | 0 | 0.0499 |
| Beryllium | mg/L | < 0.00010 | 1 | 0.0001 |
| Bismuth | mg/L | < 0.0010 | 1 | 0.001 |
| Boron | mg/L | 0.339 | 0 | 0.339 |
| Cadmium | mg/L | 0.000023 | 0 | 0.000023 |
| Chromium | mg/L | < 0.0010 | 1 | 0.001 |

Table B1-4: MEL-14 October laboratory chemistry data, Meliadine Lake AEMP 2019.

| | | | | |
|---|---|---|---|---|
| | **Sample Date** | 2019-10-01 | October | |
| | **Location** | MEL-14 | | |
| | **FIELD_SDG** | B9R7358 | Total volume = 10,707 | |
| **Parameter** | **Unit** | | N<DL | Conc. (n=1) |
| Cobalt | mg/L | 0.00048 | 0 | 0.00048 |
| Copper | mg/L | 0.00068 | 0 | 0.00068 |
| Iron | mg/L | 0.0444 | 0 | 0.0444 |
| Lead | mg/L | < 0.00020 | 1 | 0.0002 |
| Lithium | mg/L | 0.07 | 0 | 0.07 |
| Manganese | mg/L | 0.0309 | 0 | 0.0309 |
| Mercury | mg/L | < 0.00001 | 1 | 0.00001 |
| Molybdenum | mg/L | 0.0012 | 0 | 0.0012 |
| Nickel | mg/L | 0.0034 | 0 | 0.0034 |
| Selenium | mg/L | 0.00012 | 0 | 0.00012 |
| Silicon | mg/L | 0.529 | 0 | 0.529 |
| Silver | mg/L | < 0.000020 | 1 | 0.00002 |
| Strontium | mg/L | 2.07 | 0 | 2.07 |
| Sulphur | mg/L | 28.4 | 0 | 28.4 |
| Thallium | mg/L | 0.000022 | 0 | 0.000022 |
| Tin | mg/L | < 0.0050 | 1 | 0.005 |
| Titanium | mg/L | < 0.0050 | 1 | 0.005 |
| Uranium | mg/L | 0.00025 | 0 | 0.00025 |
| Vanadium | mg/L | < 0.0050 | 1 | 0.005 |
| Zinc | mg/L | 0.0132 | 0 | 0.0132 |
| Zirconium | mg/L | < 0.00010 | 1 | 0.0001 |
| WQTC08-Volatile Organics | | | | |
| Benzene | mg/L | < 0.00020 | 1 | 0.0002 |
| Ethylbenzene | mg/L | < 0.00020 | 1 | 0.0002 |
| Toluene | mg/L | < 0.00020 | 1 | 0.0002 |
| Xylenes | mg/L | < 0.00040 | 1 | 0.0004 |
| m,p-Xylenes | mg/L | < 0.00040 | 1 | 0.0004 |
| o-Xylene | mg/L | < 0.00020 | 1 | 0.0002 |
| F1 (C6-C10)-BTEX | mg/L | < 0.025 | 1 | 0.025 |
| F1 (C6-C10) | mg/L | < 0.025 | 1 | 0.025 |
| F2 (C10-C16) | mg/L | < 0.1 | 1 | 0.1 |
| F3 (C16-C34) | mg/L | < 0.2 | 1 | 0.2 |
| F4 (C34-C50) | mg/L | < 0.2 | 1 | 0.2 |
| | | | | |
| WQTC11-Toxicity | | | | |
| Daphnia 48 h static acute test - LC50 | mg/L | > 100 | | |
| Aerobic heterotrophic bacteria | CFU/100mL | - | | |
| Escherichia coli | CFU/100mL | - | | |
| Atypical colonies | CFU/100mL | - | | |
| Total Coliform | CFU/100mL | - | | |
| Daphnia 48 h Static Acute Test - EC50 | mg/L | > 100 | | |
| LC50 (96h) - Rainbow Trout | mg/L | > 100 | | |
| Concentration of effluent causing biomass inhibition in 25% of Lemna | mg/L | > 97.0 | | |
| Concentration of effluent causing frond number inhibition in 25% of Lemna | mg/L | > 97.0 | | |
| Toxic Unit - Daphnia Magnia | mg/L | - | | |
| Toxic Unit - Rainbow Trout | mg/L | - | | |
| WQTC12-Radionuclides | | | | |
| Radium-226 | Bq/l | < 0.0050 | 1 | 0.005 |

< Indicates parameter was below laboratory equipment detection limit.

> Indicates parameter detected above equipment analytical range.

- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

# Appendix B2
# MEL-13 Water Quality, 2019

Table B2-1: MEL-13 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 2019-07-14 | 2019-07-14 | 2019-08-10 | 2019-08-18 | 2019-08-18 | 2019-09-18 |
|---|---|---|---|---|---|---|---|
| | Location | MEL-13 | MEL-13 | MEL-13 | MEL-13 | MEL-13 | MEL-13 |
| | FIELD_SDG | B9J9465 | B9K5125 | B9M5881 | B9N2989 | B9N2989 | B9Q6869 |
| **Parameter** | **Unit** | | | | | | |
| **WQTC02-Conventional Parameters** | | | | | | | |
| pH | pH units | 7.45 | - | 7.26 | 7.59 | 5.93 | 7.56 |
| Specific conductivity | umhos/cm | 79 | - | 84 | 86 | 1.0 | 90 |
| Hardness, as CaCO3 (D) | mg/L | 21.7 | - | 23.0 | 23.0 | < 0.50 | 23.7 |
| Hardness, as CaCO3 (T) | mg/L | 22.4 | - | 22.4 | 23.1 | < 0.5 | 25.7 |
| Total alkalinity, as CaCO3 | mg/L | 14 | - | 16 | 16 | < 1.0 | 16 |
| Total dissolved solids | mg/L | 65 | - | 45 | 70 | < 10 | 55 |
| Total suspended solids | mg/L | < 1 | - | 1 | 1 | < 1 | 1 |
| Total organic carbon | mg/L | 3.0 | - | 3.0 | 3.2 | < 0.50 | 3.2 |
| Dissolved organic carbon | mg/L | 2.7 | - | 3.0 | 2.6 | < 0.50 | 2.9 |
| Turbidity | NTU | 0.3 | - | < 0.1 | 0.2 | < 0.1 | 0.2 |
| Dissolved Oxygen | mg/L | 9.73 | - | 11.6 | 10.3 | 10.6 | 9.77 |
| **WQTC03-Major Ions** | | | | | | | |
| Bicarbonate, as CaCO3 | mg/L | 14 | - | 16 | 16 | < 1.0 | 16 |
| Calcium | mg/L | 6.72 | - | 7.12 | 7.12 | < 0.050 | 7.30 |
| Carbonate, as CaCO3 | mg/L | < 1.0 | - | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Chloride | mg/L | 11 | - | 12 | 12 | < 1.0 | 13 |
| Cyanide | mg/L | < 0.0010\|< 0.0050 | - | < 0.0050\|0.0011 | < 0.0050\|0.0021 | < 0.0050\|0.0021 | 0.0016\|< 0.0050 |
| Magnesium | mg/L | 1.20 | - | 1.28 | 1.27 | < 0.050 | 1.34 |
| Potassium | mg/L | 0.876 | - | 0.935 | 0.930 | < 0.050 | 0.969 |
| Sodium | mg/L | 4.73 | - | 5.07 | 5.03 | < 0.050 | 5.53 |
| Sulphate | mg/L | 3.8 | - | 3.6 | 3.3 | < 1.0 | 3.8 |
| Silica | mg/L | 0.42 | - | 0.80 | 0.31 | < 0.050 | 0.26 |
| Cyanide (free) | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| **WQTC04-Nutrients and Chlorophyll a** | | | | | | | |
| Nitrate | mg/L | < 0.10 | - | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Nitrite | mg/L | < 0.010 | - | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Nitrate + nitrite | mg/L | < 0.10 | - | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total ammonia | mg/L | < 0.050 | - | 0.13 | 0.22 | < 0.050 | 0.055 |
| Total Kjeldahl nitrogen | mg/L | 0.15 | - | 0.37 | 0.18 | < 0.10 | 0.16 |
| Total phosphorus | mg/L | < 0.020 | - | < 0.020 | < 0.020 | < 0.020 | 0.025 |
| Orthophosphate | mg/L | < 0.010 | - | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| **WQTC05-General Organics** | | | | | | | |
| Total oil and grease | mg/L | - | - | - | - | - | - |
| **WQTC06-Total Metals** | | | | | | | |
| Aluminum | mg/L | 0.0057 | - | 0.0051 | 0.0055 | < 0.0030 | 0.0115 |
| Antimony | mg/L | < 0.00050 | - | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 |
| Arsenic | mg/L | 0.00029 | - | 0.00033 | 0.00039 | < 0.00010 | 0.00043 |
| Barium | mg/L | 0.0079 | - | 0.0071 | 0.0074 | < 0.0010 | 0.0078 |
| Beryllium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Bismuth | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Boron | mg/L | < 0.05 | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Cadmium | mg/L | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Calcium | mg/L | 6.99 | - | 6.86 | 7.15 | < 0.05 | 7.9 |
| Chromium | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Cobalt | mg/L | < 0.00020 | - | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 |
| Copper | mg/L | 0.00065 | - | 0.00066 | 0.00072 | < 0.00050 | 0.00084 |
| Iron | mg/L | 0.036 | - | 0.023 | 0.023 | < 0.01 | 0.031 |
| Lead | mg/L | < 0.00020 | - | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 |
| Lithium | mg/L | < 0.0020 | - | < 0.0020 | < 0.0020 | < 0.0020 | < 0.0020 |
| Magnesium | mg/L | 1.21 | - | 1.27 | 1.28 | < 0.05 | 1.44 |
| Manganese | mg/L | 0.0179 | - | 0.0045 | 0.0050 | < 0.0010 | 0.0035 |
| Mercury | mg/L | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 |
| Molybdenum | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Nickel | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Potassium | mg/L | 0.893 | - | 0.901 | 0.984 | < 0.05 | 1.05 |
| Selenium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Silicon | mg/L | 0.24 | - | 0.184 | 0.2 | < 0.1 | 0.153 |
| Silver | mg/L | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Sodium | mg/L | 4.9 | - | 5.01 | 5.17 | < 0.05 | 5.88 |
| Strontium | mg/L | 0.0391 | - | 0.0376 | 0.0394 | < 0.0010 | 0.0459 |
| Sulphur | mg/L | < 3 | - | < 3 | < 3 | < 3 | < 3 |
| Thallium | mg/L | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Tin | mg/L | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Titanium | mg/L | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Uranium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Vanadium | mg/L | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Zinc | mg/L | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Zirconium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| **WQTC07-Dissolved Metals** | | | | | | | |
| Aluminum | mg/L | < 0.0030 | - | < 0.0030 | < 0.0030 | < 0.0030 | < 0.0030 |
| Antimony | mg/L | < 0.00050 | - | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 |
| Arsenic | mg/L | 0.00027 | - | 0.00034 | 0.00037 | < 0.00010 | 0.00039 |
| Barium | mg/L | 0.0074 | - | 0.0073 | 0.0072 | < 0.0010 | 0.0072 |
| Beryllium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Bismuth | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Boron | mg/L | < 0.05 | - | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Cadmium | mg/L | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Chromium | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Cobalt | mg/L | < 0.00020 | - | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 |
| Copper | mg/L | 0.00068 | - | 0.00140 | 0.00066 | < 0.00020 | 0.00072 |
| Iron | mg/L | 0.0118 | - | 0.0065 | 0.0085 | < 0.0050 | 0.0051 |
| Lead | mg/L | < 0.00020 | - | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 |
| Lithium | mg/L | < 0.0020 | - | < 0.0020 | < 0.0020 | < 0.0020 | < 0.0020 |
| Manganese | mg/L | 0.0121 | - | < 0.0010 | 0.0013 | < 0.0010 | < 0.0010 |
| Mercury | mg/L | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 |
| Molybdenum | mg/L | 0.0097 | - | < 0.0010 | 0.0020 | < 0.0010 | 0.0027 |
| Nickel | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Selenium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Silicon | mg/L | 0.222 | - | 0.187 | 0.183 | < 0.1 | 0.133 |
| Silver | mg/L | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Strontium | mg/L | 0.0371 | - | 0.0402 | 0.0397 | < 0.0010 | 0.0448 |
| Sulphur | mg/L | < 3.0 | - | < 3.0 | < 3.0 | < 3.0 | < 3.0 |
| Thallium | mg/L | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Tin | mg/L | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Titanium | mg/L | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Uranium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |

Table B2-1: MEL-13 laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 2019-07-14 | 2019-07-14 | 2019-08-10 | 2019-08-18 | 2019-08-18 | 2019-09-18 |
|---|---|---|---|---|---|---|---|
| Location | | MEL-13 | MEL-13 | MEL-13 | MEL-13 | MEL-13 | MEL-13 |
| FIELD_SDG | | B9J9465 | B9K5125 | B9M5881 | B9N2989 | B9N2989 | B9Q6869 |
| **Parameter** | **Unit** | | | | | | |
| Vanadium | mg/L | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Zinc | mg/L | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Zirconium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| **WQTC08-Volatile Organics** | | | | | | | |
| Benzene | mg/L | < 0.00020 | - | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 |
| Ethylbenzene | mg/L | < 0.00020 | - | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 |
| Toluene | mg/L | < 0.00020 | - | < 0.00020 | < 0.00020 | 0.00059 | < 0.00020 |
| Xylenes | mg/L | < 0.00040 | - | < 0.00040 | < 0.00040 | < 0.00040 | < 0.00040 |
| m,p-Xylenes | mg/L | < 0.00040 | - | < 0.00040 | < 0.00040 | < 0.00040 | < 0.00040 |
| o-Xylene | mg/L | < 0.00020 | - | < 0.00020 | < 0.00020 | < 0.00020 | < 0.00020 |
| F1 (C6-C10)-BTEX | mg/L | < 0.025 | - | < 0.025 | < 0.025 | < 0.025 | < 0.025 |
| F1 (C6-C10) | mg/L | < 0.025 | - | < 0.025 | < 0.025 | < 0.025 | < 0.025 |
| F2 (C10-C16) | mg/L | < 0.1 | - | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| F3 (C16-C34) | mg/L | < 0.2 | - | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| F4 (C34-C50) | mg/L | < 0.2 | - | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Reached baseline at C50 | mg/L | YES | - | YES | YES | YES | YES |
| 1,2-Dichloroethane-d4 | mg/L | - | - | - | - | - | - |
| Ethylbenzene-d10 | mg/L | - | - | - | - | - | - |
| 4-Bromofluorobenzene | mg/L | - | - | - | - | - | - |
| 1,4-Difluorobenzene | mg/L | - | - | - | - | - | - |
| o-Terphenyl | mg/L | - | - | - | - | - | - |
| **WQTC12-Radionuclides** | | | | | | | |
| Radium-226 | Bq/l | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |

< Indicates parameter was below laboratory equipment detection limit.

> Indicates parameter detected above equipment analytical range.

- Chemical not analyzed or criteria not defined.

Output generated by GalReport.

# Appendix B3
# Daily Effluent Discharge Volumes from CP1 to Meliadine Lake in 2019

**2019 Meliadine Lake Discharge**

| Date | Total Discharge ($m^3$) | CP1 to Mel Lake ($m^3$) | RO & H19/H20 to Mel Lake ($m^3$) |
|---|---|---|---|
| 8-Jul | 0 | 1147 | -131 |
| 9-Jul | 21 | 1641 | 59 |
| 10-Jul | 1086 | 1953 | 188 |
| 11-Jul | 2240 | 1989 | 223 |
| 12-Jul | 1912 | 1787 | 218 |
| 13-Jul | 2231 | 1950 | 283 |
| 14-Jul | 1817 | 1768 | 217 |
| 15-Jul | 2104 | 1804 | 286 |
| 16-Jul | 1982 | 1754 | 209 |
| 17-Jul | 1364 | 1258 | 207 |
| 18-Jul | 846 | 849 | 106 |
| 19-Jul | 1285 | 1136 | 207 |
| 20-Jul | 1110 | 1054 | 169 |
| 21-Jul | 1404 | 1355 | 155 |
| 22-Jul | 1423 | 1285 | 176 |
| 23-Jul | 1022 | 1045 | 88 |
| 24-Jul | 1049 | 1011 | 117 |
| 25-Jul | 1258 | 1091 | 213 |
| 26-Jul | 344 | 329 | 99 |
| 27-Jul | 1159 | 936 | 234 |
| 28-Jul | 210 | 320 | 151 |
| 29-Jul | 1490 | 1148 | 359 |
| 30-Jul | 1876 | 1314 | 546 |
| 31-Jul | 1380 | 1046 | 322 |
| 1-Aug | 1686 | 1350 | 302 |
| 2-Aug | 1739 | 1472 | 307 |
| 3-Aug | 1349 | 1266 | 168 |
| 4-Aug | 1775 | 1443 | 391 |
| 5-Aug | 1786 | 1408 | 466 |
| 6-Aug | 1895 | 1529 | 452 |
| 7-Aug | 2086 | 1601 | 635 |
| 8-Aug | 1877 | 1505 | 476 |
| 9-Aug | 2223 | 1576 | 641 |
| 10-Aug | 2097 | 1506 | 571 |
| 11-Aug | 2324 | 1594 | 721 |
| 12-Aug | 2328 | 1626 | 677 |
| 13-Aug | 1558 | 1075 | 458 |
| 14-Aug | 16 | 0 | 0 |
| 15-Aug | 17 | 13 | -12 |
| 16-Aug | 17 | 6 | -6 |
| 17-Aug | 16 | 0 | 0 |
| 18-Aug | 1962 | 1086 | 820 |

**2019 Meliadine Lake Discharge**

| Date | Total Discharge ($m^3$) | CP1 to Mel Lake ($m^3$) | RO & H19/H20 to Mel Lake ($m^3$) |
|---|---|---|---|
| 19-Aug | 3499 | 1822 | 1767 |
| 20-Aug | 4309 | 2144 | 2100 |
| 21-Aug | 6026 | 2889 | 3444 |
| 22-Aug | 5345 | 2773 | 2975 |
| 23-Aug | 5510 | 2792 | 3096 |
| 24-Aug | 4410 | 2286 | 2432 |
| 25-Aug | 5697 | 2943 | 3207 |
| 26-Aug | 5827 | 3033 | 3203 |
| 27-Aug | 5968 | 3039 | 3339 |
| 28-Aug | 5823 | 2967 | 3300 |
| 29-Aug | 9960 | 5151 | 4869 |
| 30-Aug | 8503 | 4396 | 4025 |
| 31-Aug | 9914 | 4711 | 5294 |
| 1-Sep | 10054 | 5030 | 5379 |
| 2-Sep | 10126 | 5249 | 5200 |
| 3-Sep | 8209 | 4084 | 4611 |
| 4-Sep | 7746 | 4209 | 3846 |
| 5-Sep | 5460 | 3073 | 2746 |
| 6-Sep | 9307 | 5168 | 4502 |
| 7-Sep | 10956 | 5891 | 5461 |
| 8-Sep | 11412 | 6291 | 5505 |
| 9-Sep | 5705 | 3174 | 2678 |
| 10-Sep | 7113 | 3792 | 3604 |
| 11-Sep | 5712 | 3269 | 2653 |
| 12-Sep | 9936 | 5171 | 5252 |
| 13-Sep | 11233 | 5968 | 5593 |
| 14-Sep | 7275 | 3620 | 3704 |
| 15-Sep | 682 | 772 | 101 |
| 16-Sep | 893 | 957 | 51 |
| 17-Sep | 1175 | 1050 | 260 |
| 18-Sep | 2348 | 1721 | 842 |
| 19-Sep | 2618 | 1818 | 978 |
| 20-Sep | 2300 | 1636 | 800 |
| 21-Sep | 3204 | 2015 | 1364 |
| 22-Sep | 3196 | 2101 | 1235 |
| 23-Sep | 2697 | 1840 | 1111 |
| 24-Sep | 3331 | 2045 | 1468 |
| 25-Sep | 3468 | 2222 | 1470 |
| 26-Sep | 3088 | 1907 | 1342 |
| 27-Sep | 2580 | 1553 | 1218 |
| 28-Sep | 2882 | 1782 | 1280 |
| 29-Sep | 1775 | 1211 | 728 |
| 30-Sep | 1430 | 916 | 509 |
| 1-Oct | 1741 | 1391 | 477 |

**2019 Meliadine Lake Discharge**

| Date | Total Discharge ($m^3$) | CP1 to Mel Lake ($m^3$) | RO & H19/H20 to Mel Lake ($m^3$) |
|---|---|---|---|
| 2-Oct | 2927 | 1606 | 1488 |
| 3-Oct | 2979 | 1786 | 1333 |
| 4-Oct | 2331 | 1856 | 611 |
| 5-Oct | 729 | 654 | 124 |

# Appendix B4
# Sublethal Toxicity Test Results, 2019

AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

August 12, 2019

Martin Theriault
Agnico Eagle Mines Limited - Meliadine Project
Meliadine Division
Rankin Inlet NU
X0C 0G0

Dear Martin,

**Re: Report on Sublethal Toxicity Analysis of Wastewater for MDMER - July 2019**

Enclosed are the reports for sublethal testing conducted on the sample of Mel-14d collected 2019-07-09 . Data are presented in electronic format.

Sublethal toxicity reporting for facilities subject to the MDMER has been modernized in the new Mining Effluent Reporting System (MERS). As part of our services, for a fee, we would be pleased to enter this sublethal toxicity information on your behalf via SWIM/MERS. In an email to reporter@aquatox.ca, please provide an 'ECCC Key', which is supplied to you by SWIM (Single Window Information Manager). In addition, you must have your facility information registered, and you must create a report (Information Related to Effluent and Water Quality Monitoring Studies) in MERS.

We will notify you by email once data entry has been completed, however you are responsible for final submission of the data, as we do not have permissions to release the report.

If you have any questions about the results, do not hesitate to contact me.

Sincerely,
**AQUATOX TESTING & CONSULTING INC.**

Nancy Kreager
Project Manager

NK/jl

AQUATOX
AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

# TOXICITY TEST REPORT

*Lemna minor*
EPS 1/RM/37


Work Order : 239745
Sample Number : 59893

## SAMPLE IDENTIFICATION

| | | | |
|---|---|---|---|
| Company : | Agnico Eagle Mines Limited - Meliadine Project | | |
| Location : | Rankin Inlet NU | Date Collected : | 2019-07-09 |
| Substance : | Mel-14d | Time Collected : | 06:41 |
| Sampling Method : | Grab | Date Received : | 2019-07-12 |
| Sampled By : | C. DeForge/ R. Shwandt | Time Received : | 15:35 |
| Temp. on arrival : | 23.0°C | Date Tested : | 2019-07-12 |
| Sample Description : | Clear, colourless, moderate odour. | | |
| Test Method : | Test for Measuring the Inhibition of Growth using the Freshwater Macrophyte, *Lemna minor*. Method Development and Application Section, Environmental Technology Centre, Environment Canada. Ottawa, Ontario. Report EPS 1/RM/37, 2nd ed. (January 2007) with deviation(s) as noted below. | | |

## TEST RESULTS

| Effect | Value | 95% Confidence Limits | Statistical Method |
|---|---|---|---|
| IC25 (Weight) | >97.0% | - | Nonlinear Regression (CETIS) a |
| IC25 (Frond Production) | >97.0% | - | - |

The results reported relate only to the sample tested and as received.

## POTASSIUM CHLORIDE REFERENCE TOXICANT DATA

| | | | |
|---|---|---|---|
| Date Tested : | 2019-07-24 | Statistical Method : | Non-Linear Regression (CETIS)[a] |
| Analyst(s) : | RK | Historical Mean IC25 : | 2.23 g/L |
| Test Duration : | 7 days | Warning Limits (± 2SD) : | 1.59 - 3.13 g/L |
| IC25 (Frond Production) : | 2.61 g/L | Growth Medium : | Modified APHA |
| 95% Confidence Limits : | 2.20 - 3.01 g/L | | |

The reference toxicant test was performed under the same experimental conditions as those used with the test sample.

## TEST CONDITIONS

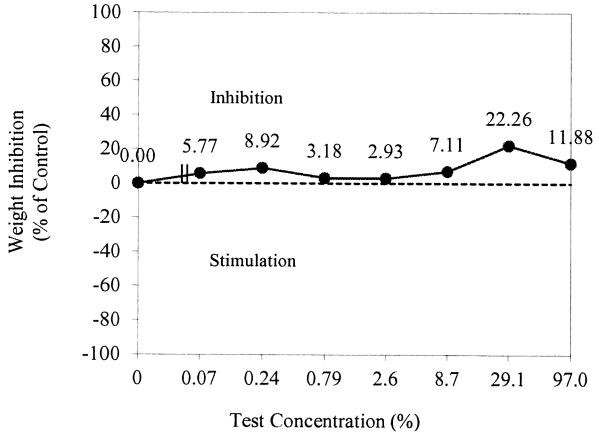
| | | | |
|---|---|---|---|
| Test Organism : | *Lemna minor* L., Strain 7730 | Test Type : | Static (no sub-samples required) |
| Organism Batch : | Lm19-07 | Control/Dilution Medium : | Modified APHA |
| Culture Origin : | UTCC 492 | Medium Preparation Water : | Distilled Water |
| Test Organism Source : | Axenic in-house culture | Source of Water : | Morning Mist |
| Culture Medium : | Modified Hoaglands E+ | Medium Preparation Chemicals : | Modified APHA stocks A, B, C (10 mL/L) |
| Age (on Test Day 0) : | 10 days | Nutrient Spiking of Sample : | Modified APHA stocks A, B, C (10 mL/L) |
| Health Criteria (in APHA) : | 17-fold frond increase in 7 days | Replicates per Concentration : | 4 |
| Organism Acclimation : | 25 h in APHA medium | Test Volume per Replicate : | 100 mL |
| Inoculum (Test Day 0) : | 2 plants (3 fronds per plant) | Test Vessel : | 210 mL glass jar |
| Sample Filtration : | 1 µm (Whatman GF/C) | Depth of Test Solution : | 4.0 cm |
| Sample Pre-aeration : | 20 min. at ≤100 bubbles/min. | Photoperiod/Light Intensity : | Continuous, 5100 - 5520 lux |
| pH Adjustment : | None | Test Method Deviation(s) : | See 'Comments' |
| Hardness Adjustment : | None | | |

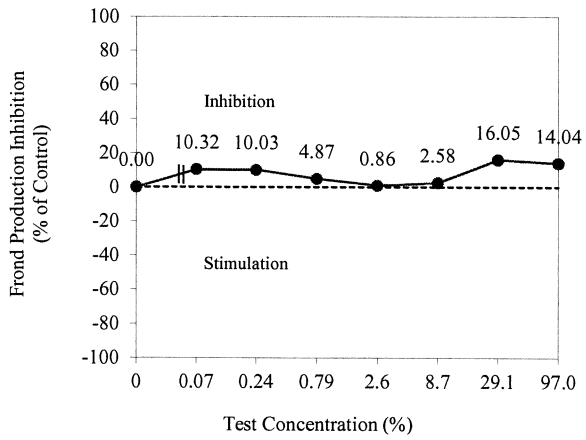
## COMMENTS

•All test validity criteria as specified in the test method cited above were satisfied.
Noted Deviation(s) : Acclimation of test organisms exceeded the maximum of 24 hours allowed by the test method. Organisms were acclimated for 25 hours. Testing was conducted with the knowledge and consent of the client.

Work Order : 239745
Sample Number : 59893

*Lemna minor* Growth Inhibition




## TEST MONITORING

| | | | |
|---|---|---|---|
| Initiation Date : | 2019-07-12 | Termination Date : | 2019-07-19 |
| Intitiation Time : | 17:20 | Termination Time : | 15:45 |
| Initiated By : | RK/NK | Terminated By : | NK/RK |

### Temperature Monitoring

| Test Day | Date | Temperature (°C) |
|---|---|---|
| 0 (unmodified sample) | 2019-07-12 | 24.0 |
| 0 | 2019-07-12 | 26.0 |
| 1 | 2019-07-13 | 26.0 |
| 2 | 2019-07-14 | 26.0 |
| 3 | 2019-07-15 | 25.0 |
| 4 | 2019-07-16 | 25.0 |
| 5 | 2019-07-17 | 25.0 |
| 6 | 2019-07-18 | 25.5 |
| 7 | 2019-07-19 | 24.5 |

### pH Monitoring

| Concentration (%) | Day 0 | Day 7 |
|---|---|---|
| 100 (unmodified sample) | 6.7 | – |
| Control | 8.2 | 8.5 |
| 0.07 | 8.2 | 8.6 |
| 0.24 | – | – |
| 0.79 | – | – |
| 2.6 | 8.2 | 8.6 |
| 8.7 | – | – |
| 29.1 | – | – |
| 97.0 | 7.9 | 8.3 |

"–" = not required

## REFERENCES

[a] CETIS™, © 2000-2018. V.1.9.4.7. Comprehensive Environmental Toxicity Information System. Tidepool Scientific Software, LLC, McKinleyville, CA 95519 [Program on disk and printed User's Guide].

[b] Grubbs, F.E., 1969. Procedures for detecting outlying observations in samples. *Technometrics,* 11:1-21.

***Date :*** 2019-08-12 *yyyy-mm-dd*

***Approved By:*** Nancy Hughes *Project Manager*

Work Order : 239745
Sample Number : 59893

## *Lemna minor* Frond Increase

| Test Concentration (%) | Replicate | Frond Count Day 0* | Frond Count Day 7 | Frond Increase | Mean Frond Increase | Standard Deviation | CV (%) | Frond/Root Appearance (Day 7) |
|---|---|---|---|---|---|---|---|---|
| Control | A | 6 | 89 | 83 | 87.25 | 8.26 | 9.5 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 95 | 89 | | | | |
| | C | 6 | 104 | 98 | | | | |
| | D | 6 | 85 | 79 | | | | |
| 0.07 | A | 6 | 83 | 77 | 78.25 | 1.89 | 2.4 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 87 | 81 | | | | |
| | C | 6 | 84 | 78 | | | | |
| | D | 6 | 83 | 77 | | | | |
| 0.24 | A | 6 | 82 | 76 | 78.50 | 5.69 | 7.2 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 82 | 76 | | | | |
| | C | 6 | 81 | 75 | | | | |
| | D | 6 | 93 | 87 | | | | |
| 0.79 | A | 6 | 88 | 82 | 83.00 | 5.77 | 7.0 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 96 | 90 | | | | |
| | C | 6 | 90 | 84 | | | | |
| | D | 6 | 82 | 76 | | | | |
| 2.6 | A | 6 | 94 | 88 | 86.50 | 8.10 | 9.4 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 84 | 78 | | | | |
| | C | 6 | 89 | 83 | | | | |
| | D | 6 | 103 | 97 | | | | |
| 8.7 | A | 6 | 83 | 77 | 85.00 | 6.27 | 7.4 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 93 | 87 | | | | |
| | C | 6 | 90 | 84 | | | | |
| | D | 6 | 98 | 92 | | | | |
| 29.1 | A | 6 | 82 | 76 | 73.25 | 7.27 | 9.9 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 86 | 80 | | | | |
| | C | 6 | 69 | 63 | | | | |
| | D | 6 | 80 | 74 | | | | |
| 97.0 | A | 6 | 80 | 74 | 75.00 | 2.58 | 3.4 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 78 | 72 | | | | |
| | C | 6 | 82 | 76 | | | | |
| | D | 6 | 84 | 78 | | | | |

**NOTES:** *No unusual appearance or treatment of culture prior to testing. Test inoculated with healthy plants.
•No stimulation of frond increase compared to the control was observed at any test level.
•A 15.5-fold increase in frond number was observed in the control over the testing period.
•No outlying data points were detected according to Grubbs Test[b].

"–" = not available/not required

Test Data Reviewed By : AW
Date : 2019-08-09

Work Order : 239745
Sample Number : 59893

## *Lemna minor* Frond Weight Data

| Test Concentration (%) | Replicate | Dry Weight of Fronds (mg) | Treatment Mean Dry Weight (mg) | Standard Deviation |
|---|---|---|---|---|
| Control | A | 8.02 | 8.19 | 0.59 |
| | B | 8.94 | | |
| | C | 8.26 | | |
| | D | 7.53 | | |
| 0.07 | A | 7.16 | 7.72 | 0.37 |
| | B | 7.94 | | |
| | C | 7.88 | | |
| | D | 7.88 | | |
| 0.24 | A | 7.57 | 7.46 | 0.47 |
| | B | 7.19 | | |
| | C | 7.00 | | |
| | D | 8.07 | | |
| 0.79 | A | 7.67 | 7.93 | 0.51 |
| | B | 8.67 | | |
| | C | 7.84 | | |
| | D | 7.53 | | |
| 2.6 | A | 8.23 | 7.95 | 0.59 |
| | B | 7.25 | | |
| | C | 7.72 | | |
| | D | 8.59 | | |
| 8.7 | A | 7.25 | 7.61 | 0.29 |
| | B | 7.50 | | |
| | C | 7.77 | | |
| | D | 7.90 | | |
| 29.1 | A | 6.83 | 6.37 | 0.39 |
| | B | 6.53 | | |
| | C | 5.96 | | |
| | D | 6.14 | | |
| 97.0 | A | 7.17 | 7.22 | 0.16 |
| | B | 7.08 | | |
| | C | 7.17 | | |
| | D | 7.44 | | |

NOTES :
- No stimulation of weight compared to the control was observed at any test level.
- No outlying data points were detected according to Grubbs Test (CETIS)[a].

"–" = not available/not required

Test Data Reviewed By : JC
Date : 2019-08-09

# CHAIN OF CUSTODY RECORD

AQUATOX

AquaTox Work Order No: 039745


**Shipping Address:** AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road,
Puslinch, Ontario, Canada
N0B2J0

**Voice:** (519) 763-4412 **Fax:** (519) 763-4419


| | |
|---|---|
| P.O. Number: | 64699 |
| Field Sampler Name (print): | Casandra DeForge / Randy Shwandt |
| Signature: | |
| Affiliation: | Agnico Eagle Mines Ltd - Meliadine Division |
| Sample Storage (prior to shipping): | Shipped immediately after |
| Custody Relinquished by: | Sampling Casandra DeForge |
| Date/Time Shipped: | 2019-07-09 |

| | |
|---|---|
| Client: | Agnico Eagle Mines Limited<br>Meliadine Project<br>Rankin Inlet, Nunavut, Canada<br>X0C 0G0 |
| Phone: | (819) 759-3555 (ext 3996) |
| Fax: | |
| Contact: | Dan Gorton or Sean Arruda |

| Sample Identification | | | | | Analyses Requested | | | | | | | | | | Sample Method and Volume | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Collected (yyyy-mm-dd) | Time Collected (e.g. 14:30, 24 hr clock) | Sample Name | AquaTox Sample Number | Temp. on arrival | Rainbow Trout Single Concentration | Rainbow Trout LC50 | *Daphnia magna* Single Concentration | *Daphnia magna* LC50 | Fathead Minnow Survival & Growth | *Ceriodaphnia dubia* Survival & Reproduction | *Lemna minor* Growth | *Pseudokirchneriella subcapitata* Growth | RISS Data Entry | Other (please specify below) | Grab | Composite | # of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.) |
| 2019-07-09 | 06:41 | Mel-14d | 59893 | 23.0 | | | | | | | X | | | | X | | 4L |
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**For Lab Use Only**

| | |
|---|---|
| Received By: | MW/TA |
| Date: | 2019-07-10 |
| Time: | 15:35 |
| Storage Location: | |
| Storage Temp.(°C) | |

NK

Please list any special requests or instructions:

AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

September 11, 2019

Martin Theriault
Agnico Eagle Mines Limited - Meliadine Project
Meliadine Division
Rankin Inlet NU
X0C 0G0

Dear Martin,

**Re: Report on Sublethal Toxicity Analysis of Wastewater for MDMER - August 2019**

Enclosed are the reports for sublethal testing conducted on the sample of MEL-14d collected 2019-08-13. Data are presented in electronic format.

Sublethal toxicity reporting for facilities subject to the MDMER has been modernized in the new Mining Effluent Reporting System (MERS). As part of our services, for a fee, we would be pleased to enter this sublethal toxicity information on your behalf via SWIM/MERS. In an email to reporter@aquatox.ca, please provide an 'ECCC Key', which is supplied to you by SWIM (Single Window Information Manager). In addition, you must have your facility information registered, and you must create a report (Information Related to Effluent and Water Quality Monitoring Studies) in MERS.

We will notify you by email once data entry has been completed, however you are responsible for final submission of the data, as we do not have permissions to release the report.

If you have any questions about the results, do not hesitate to contact me.

Sincerely,
**AQUATOX TESTING & CONSULTING INC.**

Nancy Kreager
Project Manager

NK/jl

AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

# TOXICITY TEST REPORT

*Lemna minor*
EPS 1/RM/37


Work Order : 240044
Sample Number : 60334

## SAMPLE IDENTIFICATION

| | | | |
|---|---|---|---|
| Company : | Agnico Eagle Mines Limited - Meliadine Project | | |
| Location : | Rankin Inlet NU | Date Collected : | 2019-08-13 |
| Substance : | MEL-14d | Time Collected : | 07:15 |
| Sampling Method : | Grab | Date Received : | 2019-08-16 |
| Sampled By : | B. Hodgins | Time Received : | 09:45 |
| Temp. on arrival : | 19.0°C | Date Tested : | 2019-08-16 |
| Sample Description : | Clear, colourless, odourless. | | |

Test Method : Test for Measuring the Inhibition of Growth using the Freshwater Macrophyte, *Lemna minor*. Method Development and Application Section, Environmental Technology Centre, Environment Canada. Ottawa, Ontario. Report EPS 1/RM/37, 2nd ed. (January 2007).

## TEST RESULTS

| Effect | Value | 95% Confidence Limits | Statistical Method |
|---|---|---|---|
| IC25 (Weight) | >97.0% | - | - |
| IC25 (Frond Production) | >97.0% | - | - |

The results reported relate only to the sample tested and as received.

## POTASSIUM CHLORIDE REFERENCE TOXICANT DATA

| | | | |
|---|---|---|---|
| Date Tested : | 2019-08-22 | Statistical Method : | Non-Linear Regression (CETIS)[a] |
| Analyst(s) : | MJT, AS | Historical Mean IC25 : | 2.25 g/L |
| Test Duration : | 7 days | Warning Limits (± 2SD) : | 1.59 - 3.18 g/L |
| IC25 (Frond Production) : | 1.99 g/L | Growth Medium : | Modified APHA |
| 95% Confidence Limits : | 1.63 - 2.36 g/L | | |

The reference toxicant test was performed under the same experimental conditions as those used with the test sample.

## TEST CONDITIONS

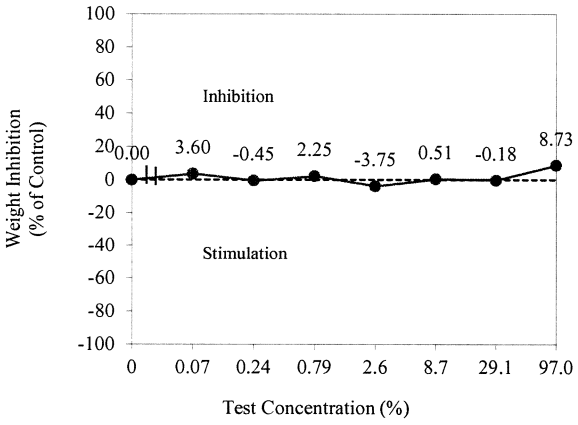
| | | | |
|---|---|---|---|
| Test Organism : | *Lemna minor* L., Strain 7730 | Test Type : | Static (no sub-samples required) |
| Organism Batch : | Lm19-08 | Control/Dilution Medium : | Modified APHA |
| Culture Origin : | UTCC 492 | Medium Preparation Water : | Distilled Water |
| Test Organism Source : | Axenic in-house culture | Source of Water : | Morning Mist |
| Culture Medium : | Modified Hoaglands E+ | Medium Preparation Chemicals : | Modified APHA stocks A, B, C (10 mL/L) |
| Age (on Test Day 0) : | 10 days | Nutrient Spiking of Sample : | Modified APHA stocks A, B, C (10 mL/L) |
| Health Criteria (in APHA) : | 23.33-fold frond increase in 7 days | Replicates per Concentration : | 4 |
| Organism Acclimation : | 21:05 h in APHA medium | Test Volume per Replicate : | 100 mL |
| Inoculum (Test Day 0) : | 2 plants (3 fronds per plant) | Test Vessel : | 210 mL glass jar |
| Sample Filtration : | 1 µm (Whatman GF/C) | Depth of Test Solution : | 4.0 cm |
| Sample Pre-aeration : | 20 min. at ≤100 bubbles/min. | Photoperiod/Light Intensity : | Continuous, 4900 - 5410 lux |
| pH Adjustment : | None | Test Method Deviation(s) : | None |
| Hardness Adjustment : | None | | |

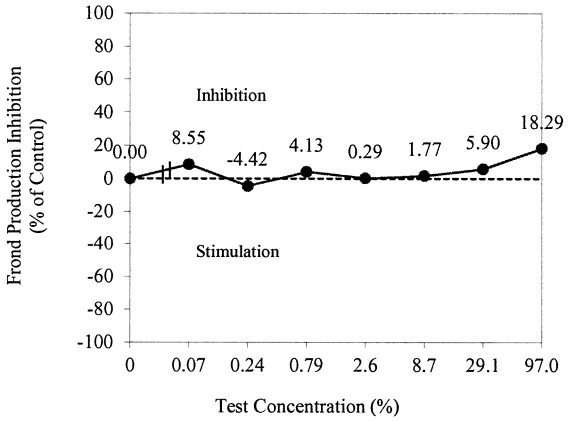
## COMMENTS

•All test validity criteria as specified in the test method cited above were satisfied.

Work Order : 240044
Sample Number : 60334

*Lemna minor* Growth Inhibition




## TEST MONITORING

Initiation Date : 2019-08-16
Intitiation Time : 12:50
Initiated By : MDH

Termination Date : 2019-08-23
Termination Time : 15:00
Terminated By : MJT

### Temperature Monitoring

| Test Day | Date | Temperature (°C) |
|---|---|---|
| 0 (unmodified sample) | 2019-08-16 | 25.0 |
| 0 | 2019-08-16 | 25.0 |
| 1 | 2019-08-17 | 25.0 |
| 2 | 2019-08-18 | 25.0 |
| 3 | 2019-08-19 | 25.0 |
| 4 | 2019-08-20 | 24.5 |
| 5 | 2019-08-21 | 24.5 |
| 6 | 2019-08-22 | 24.5 |
| 7 | 2019-08-23 | 24.5 |

### pH Monitoring

| Concentration (%) | Day 0 | Day 7 |
|---|---|---|
| 100 (unmodified sample) | 7.1 | – |
| Control | 8.3 | 8.3 |
| 0.07 | 8.3 | 8.5 |
| 0.24 | – | – |
| 0.79 | – | – |
| 2.6 | 8.3 | 8.9 |
| 8.7 | – | – |
| 29.1 | – | – |
| 97.0 | 7.8 | 9.6 |

"–" = not required

## REFERENCES

[a] CETIS™, © 2000-2018. V.1.9.4.7. Comprehensive Environmental Toxicity Information System. Tidepool Scientific Software, LLC, McKinleyville, CA 95519 [Program on disk and printed User's Guide].

***Date :*** 2019-09-11
*yyyy-mm-dd*

***Approved By:*** Nancy Krieger
*Project Manager*

Work Order : 240044
Sample Number : 60334

## *Lemna minor* Frond Increase

| Test Concentration (%) | Replicate | Frond Count Day 0* | Frond Count Day 7 | Frond Increase | Mean Frond Increase | Standard Deviation | CV (%) | Frond/Root Appearance (Day 7) |
|---|---|---|---|---|---|---|---|---|
| Control | A | 6 | 72 | 66 | 84.75 | 17.17 | 20.3 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 85 | 79 | | | | |
| | C | 6 | 93 | 87 | | | | |
| | D | 6 | 113 | 107 | | | | |
| 0.07 | A | 6 | 87 | 81 | 77.50 | 8.50 | 11.0 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 71 | 65 | | | | |
| | C | 6 | 86 | 80 | | | | |
| | D | 6 | 90 | 84 | | | | |
| 0.24 | A | 6 | 109 | 103 | 88.50 | 10.02 | 11.3 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 86 | 80 | | | | |
| | C | 6 | 91 | 85 | | | | |
| | D | 6 | 92 | 86 | | | | |
| 0.79 | A | 6 | 89 | 83 | 81.25 | 8.81 | 10.8 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 81 | 75 | | | | |
| | C | 6 | 99 | 93 | | | | |
| | D | 6 | 80 | 74 | | | | |
| 2.6 | A | 6 | 90 | 84 | 84.50 | 6.61 | 7.8 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 92 | 86 | | | | |
| | C | 6 | 98 | 92 | | | | |
| | D | 6 | 82 | 76 | | | | |
| 8.7 | A | 6 | 79 | 73 | 83.25 | 8.26 | 9.9 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 88 | 82 | | | | |
| | C | 6 | 99 | 93 | | | | |
| | D | 6 | 91 | 85 | | | | |
| 29.1 | A | 6 | 93 | 87 | 79.75 | 5.12 | 6.4 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 85 | 79 | | | | |
| | C | 6 | 84 | 78 | | | | |
| | D | 6 | 81 | 75 | | | | |
| 97.0 | A | 6 | 68 | 62 | 69.25 | 11.30 | 16.3 | Fronds healthy, appearance normal in all replicates. |
| | B | 6 | 78 | 72 | | | | |
| | C | 6 | 90 | 84 | | | | |
| | D | 6 | 65 | 59 | | | | |

**NOTES:** *No unusual appearance or treatment of culture prior to testing. Test inoculated with healthy plants.

•No significant stimulation ($\alpha$=0.05) of frond increase was detected by ANOVA-Dunnett Multiple Comparison Test (CETIS)[a] at any test level compared to the control.

•A 15.1-fold increase in frond number was observed in the control over the testing period.

•No outlying data points were detected according to Grubbs Test (CETIS)[a].

"–" = not available/not required

Test Data Reviewed By : _____
Date : 2019-09-11

Work Order : 240044
Sample Number : 60334

## *Lemna minor* Frond Weight Data

| Test Concentration (%) | Replicate | Dry Weight of Fronds (mg) | Treatment Mean Dry Weight (mg) | Standard Deviation |
|---|---|---|---|---|
| Control | A | 6.48 | 8.33 | 1.44 |
| | B | 8.12 | | |
| | C | 8.78 | | |
| | D | 9.94 | | |
| 0.07 | A | 8.22 | 8.03 | 0.35 |
| | B | 7.56 | | |
| | C | 7.97 | | |
| | D | 8.37 | | |
| 0.24 | A | 9.53 | 8.37 | 0.89 |
| | B | 7.56 | | |
| | C | 7.80 | | |
| | D | 8.58 | | |
| 0.79 | A | 7.98 | 8.14 | 0.98 |
| | B | 7.33 | | |
| | C | 9.55 | | |
| | D | 7.71 | | |
| 2.6 | A | 8.15 | 8.64 | 0.39 |
| | B | 8.51 | | |
| | C | 8.94 | | |
| | D | 8.97 | | |
| 8.7 | A | 7.26 | 8.29 | 0.82 |
| | B | 8.11 | | |
| | C | 9.19 | | |
| | D | 8.59 | | |
| 29.1 | A | 8.79 | 8.34 | 0.31 |
| | B | 8.30 | | |
| | C | 8.23 | | |
| | D | 8.06 | | |
| 97.0 | A | 7.03 | 7.60 | 1.61 |
| | B | 7.76 | | |
| | C | 9.73 | | |
| | D | 5.89 | | |

NOTES :

•No significant stimulation ($\alpha$=0.05) of frond weight was detected by ANOVA-Dunnett Multiple Comparison Test (CETIS)[a] at any test level compared to the control.

•No outlying data points were detected according to Grubbs Test (CETIS)[a].

"–" = not available/not required

Test Data Reviewed By : _____
Date : 2019-09-11

# CHAIN OF CUSTODY RECORD

AQUATOX

AquaTox Work Order No: 240044

**Shipping Address:** AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road,
Puslinch, Ontario, Canada
N0B2J0

**Voice:** (519) 763-4412 **Fax:** (519) 763-4419

P.O. Number: 644699

Field Sampler Name (print): *

Signature:

Affiliation: Agnico Eagle Mines Ltd. - Meliadine Division

Sample Storage (prior to shipping): Shipped immediately after sampling

Custody Relinquished by:

Date/Time Shipped:

**Client:** Agnico Eagle Mines Limited
Meliadine Project
Rankin Inlet, Nunavut, Canada
X0C 0G0

**Phone:** 819-759-3555 ext 3996

**Fax:**

**Contact:** Dan Gorton or Sean Arruda

| Sample Identification | | | | | Analyses Requested | | | | | | | | | | Sample Method and Volume | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Collected (yyyy-mm-dd) | Time Collected (e.g. 14:30, 24 hr clock) | Sample Name | AquaTox Sample Number | Temp. on arrival | Rainbow Trout Single Concentration | Rainbow Trout LC50 | *Daphnia magna* Single Concentration | *Daphnia magna* LC50 | Fathead Minnow Survival & Growth | *Ceriodaphnia dubia* Survival & Reproduction | *Lemna minor* Growth | *Pseudokirchneriella subcapitata* Growth | RISS Data Entry | Other (please specify below) | Grab | Composite | # of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.) |
| 2019-08-13 | 7:15 | MEL-14d | 60334 | 19.0 | | | | | | | ✓ | | | | ✓ | | 2L |
| | | | | | | | | | | | | | | | | | |
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**For Lab Use Only**

Received By: KP/AS

Date: 2019-08-16

Time: 9:45

Storage Location:

Storage Temp.(°C)

NK

Please list any special requests or instructions:

* Field Sampler name Bethany Hodgins as per client email (NK) 2019-08-16

AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

November 27, 2019

Martin Theriault
Agnico Eagle Mines Limited - Meliadine Project
Meliadine Division
Rankin Inlet NU
X0C 0G0

Dear Martin,

**Re: Report on Sublethal Toxicity Analysis of Wastewater for MDMER - October 2019**

Enclosed are the reports for sublethal testing conducted on the sample of MEL-14d collected 2019-10-01. Data are presented in electronic format.

Sublethal toxicity reporting for facilities subject to the MDMER has been modernized in the new Mining Effluent Reporting System (MERS). As part of our services, for a fee, we would be pleased to enter this sublethal toxicity information on your behalf via SWIM/MERS. In an email to reporter@aquatox.ca, please provide an 'ECCC Key', which is supplied to you by SWIM (Single Window Information Manager). In addition, you must have your facility information registered, and you must create a report (Information Related to Effluent and Water Quality Monitoring Studies) in MERS.

We will notify you by email once data entry has been completed, however you are responsible for final submission of the data, as we do not have permissions to release the report.

If you have any questions about the results, do not hesitate to contact me.

Sincerely,
**AQUATOX TESTING & CONSULTING INC.**

Martina Rendas
Project Manager

MR/jl

AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
Tel. (519) 763-4412
Fax. (519) 763-4419

# TOXICITY TEST REPORT

*Lemna minor*
EPS 1/RM/37


Work Order : 240444
Sample Number : 60909

## SAMPLE IDENTIFICATION

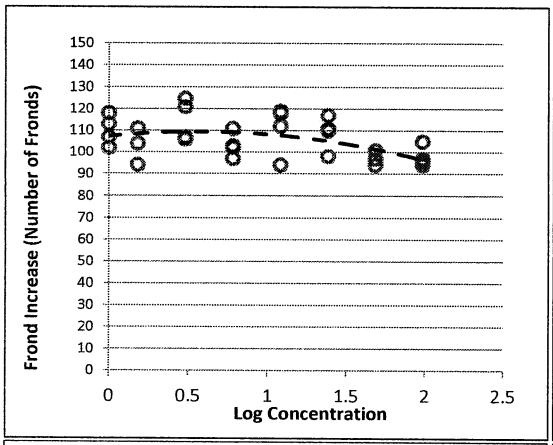
| | | | |
|---|---|---|---|
| Company : | Agnico Eagle Mines Limited - Meliadine Project | Date Collected : | 2019-10-01 |
| Location : | Rankin Inlet NU | Time Collected : | 6:00 |
| Substance : | MEL-14d | Date Received : | 2019-10-03 |
| Sampling Method : | Grab | Time Received : | 10:00 |
| Sampled By : | R. Schwandt/D. Mornin | Temperature on Receipt : | 8.0 °C |
| Sample Description : | Clear, colourless, odourless. | Date Tested : | 2019-10-03 |

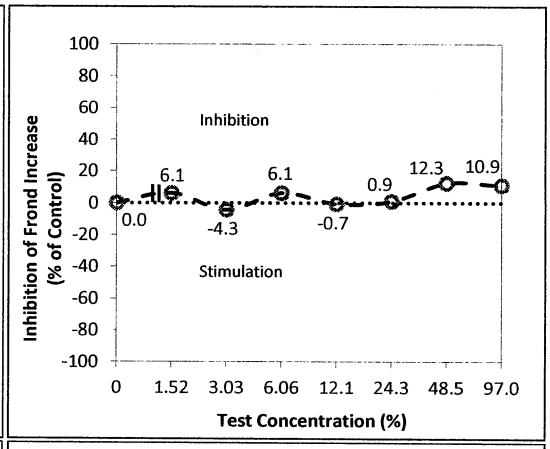
Test Method : Test for Measuring the Inhibition of Growth using the Freshwater Macrophyte, *Lemna minor*. Method Development and Application Section, Environmental Technology Centre, Environment Canada. Ottawa, Ontario. Report EPS 1/RM/37, 2nd ed. (January 2007).

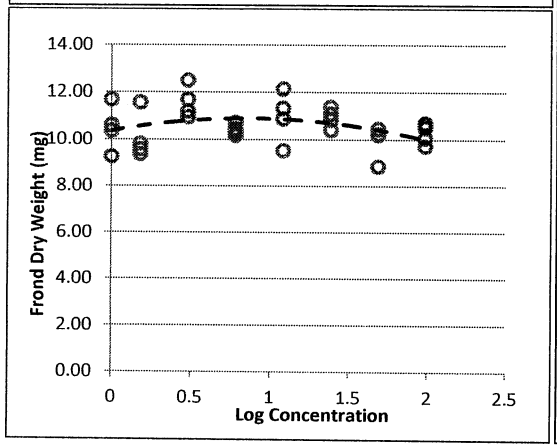
## 7-DAY TEST RESULTS

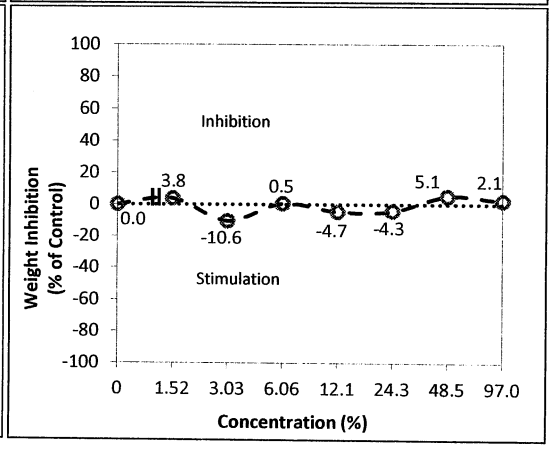
| Effect | Value | 95% Confidence Limits | Statistical Method |
|---|---|---|---|
| IC25 (Frond Increase) | >97.0% | – | – |
| IC25 (Dry Weight) | >97.0% | – | – |

The results reported relate only to the sample tested and as received.




## COMMENTS

•All test validity criteria as specified in the test method cited above were satisfied.

*Date :* 2019-11-27
*yyyy-mm-dd*

*Approved By :* _____
*Project Manager*

Work Order : 240444
Sample Number : 60909

## TEST ORGANISM

| | | | |
|---|---|---|---|
| Test Organism : | *Lemna minor* L., Strain 7730 | Age (on Test Day 0) : | 9 days |
| Organism Batch : | Lm19-09 | Inoculum (Test Day 0) : | 2 plants (3 fronds per plant) |
| Culture Origin : | UTCC 492 | Culture Medium : | Modified Hoaglands E+ |
| Test Organism Source : | Axenic in-house culture | Health Criteria (in APHA) : | 16.3-fold frond increase in 7 days |
| Organism Acclimation : | 22:05 hours (in APHA medium) | | |

No unusual appearance or treatment of culture prior to testing. Test inoculated with healthy plants.

## TEST CONDITIONS

| | | | |
|---|---|---|---|
| Test Type : | Static (no sub-samples required) | Sample Pre-aeration : | 20 min. at ≤100 bubbles/min. |
| Control/Dilution Medium : | Modified APHA | pH Adjustment : | None |
| Source of Water : | Morning Mist | Hardness Adjustment : | None |
| Medium Preparation Water : | Distilled Water | Replicates per Concentration : | 4 |
| Medium Preparation Chemicals : | Modified APHA [2] | Test Volume per Replicate : | 100 mL |
| Nutrient Spiking of Sample : | Modified APHA [2] | Test Vessel : | 200 mL glass jar |
| Initial pH (100% sample) : | 7.6 | Depth of Test Solution : | 4.0 cm |
| Initial temperature (100% sample) : | 25 °C | Photoperiod/Light Intensity : | Continuous, 4200 - 4780 lux |
| Sample Filtration : | 1 µm (Whatman GF/C) | Test Method Deviation(s) : | None |

[2]stocks A, B, C (10 mL/L)

## REFERENCE TOXICANT DATA

| | | | |
|---|---|---|---|
| Date Tested : | 2019-10-17 | Statistical Method : | Non-Linear Regression[1] (CETIS)[a] |
| Analyst(s) : | RK, MDH | Historical Mean IC25 : | 2.25 g/L |
| Test Duration : | 7 days | Warning Limits (± 2SD) : | 1.60 - 3.15 g/L |
| IC25 (Frond Production) : | 2.46 g/L | Growth Medium : | Modified APHA |
| 95% Confidence Limits : | 2.06 - 2.85 g/L | | |

[1]Box-Cox weighting (CETIS)[a] was applied

The reference toxicity test was performed under the same experimental conditions as those used with the test sample.

## TEST MONITORING

| | | | |
|---|---|---|---|
| Intitiation Time : | 14:25 | Termination Time : | 14:25 |
| Initiated By : | AS | Terminated By : | MDH |

| Test Day : | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|
| Date : | | 2019-10-03 | 2019-10-04 | 2019-10-05 | 2019-10-06 | 2019-10-07 | 2019-10-08 | 2019-10-09 | 2019-10-10 |
| Temperature (° C) : | | 26.5 | 25.0 | 26.0 | 26.0 | 26.5 | 26.0 | 26.0 | 26.5 |
| pH | Control | 8.4 | – | – | – | – | – | – | 8.6 |
| | 1.52 | 8.3 | – | – | – | – | – | – | 8.6 |
| | 3.03 | - | – | – | – | – | – | – | - |
| | 6.06 | - | – | – | – | – | – | – | - |
| | 12.13 | 8.2 | – | – | – | – | – | – | 8.6 |
| | 24.25 | - | – | – | – | – | – | – | - |
| | 48.5 | - | – | – | – | – | – | – | - |
| | 97 | 7.9 | – | – | – | – | – | – | 8.6 |

"–" = not required

## REFERENCES

[a] CETIS™, © 2000-2013. V.1.8.7.17. Comprehensive Environmental Toxicity Information System. Tidepool Scientific Software, LLC, McKinleyville, CA 95519 [Program on disk and printed User's Guide].

Work Order : 240444
Sample Number : 60909

## DAY 7 FROND COUNT DATA

| Test Concentration % | Replicate | Frond Count | Frond Increase | Mean Frond Increase | Standard Deviation | Stimulation (%) | Frond/Root Appearance |
|---|---|---|---|---|---|---|---|
| Control | A | 119 | 113 | 110.00 | 7.0 | – | Fronds healthy, appearance normal in all replicates. |
| | B | 113 | 107 | | | | |
| | C | 108 | 102 | | | | |
| | D | 124 | 118 | | | | |
| 1.52 | A | 110 | 104 | 103.25 | 7.0 | -6.1 | Fronds healthy, appearance normal in all replicates. |
| | B | 110 | 104 | | | | |
| | C | 117 | 111 | | | | |
| | D | 100 | 94 | | | | |
| 3.03 | A | 127 | 121 | 114.75 | 9.7 | 4.3 | Fronds healthy, appearance normal in all replicates. |
| | B | 112 | 106 | | | | |
| | C | 131 | 125 | | | | |
| | D | 113 | 107 | | | | |
| 6.06 | A | 117 | 111 | 103.25 | 5.8 | -6.1 | Fronds healthy, appearance normal in all replicates. |
| | B | 103 | 97 | | | | |
| | C | 109 | 103 | | | | |
| | D | 108 | 102 | | | | |
| 12.13 | A | 100 | 94 | 110.75 | 11.6 | 0.7 | Fronds healthy, appearance normal in all replicates. |
| | B | 124 | 118 | | | | |
| | C | 118 | 112 | | | | |
| | D | 125 | 119 | | | | |
| 24.25 | A | 123 | 117 | 109.00 | 8.0 | -0.9 | Fronds healthy, appearance normal in all replicates. |
| | B | 116 | 110 | | | | |
| | C | 104 | 98 | | | | |
| | D | 117 | 111 | | | | |
| 48.5 | A | 103 | 97 | 96.50 | 3.3 | -12.3 | Fronds healthy, appearance normal in all replicates. |
| | B | 107 | 101 | | | | |
| | C | 100 | 94 | | | | |
| | D | 100 | 94 | | | | |
| 97.0 | A | 111 | 105 | 98.00 | 4.8 | -10.9 | Fronds healthy, appearance normal in all replicates. |
| | B | 103 | 97 | | | | |
| | C | 102 | 96 | | | | |
| | D | 100 | 94 | | | | |

**NOTES:** •No statistically significant stimulation ($\alpha$=0.05) was detected by ANOVA-Dunnett Multiple Comparison Test (CETIS)[a] at any test level compared to the control.

•A 18.3-fold increase in frond number was observed in the control over the testing period.

•No outlying data points were detected according to Grubbs Test (CETIS)[a].

"–" = not available/not required

Test Data Reviewed By : AW
Date : 2019-11-15

Work Order : 240444
Sample Number : 60909

## DAY 7 FROND WEIGHT DATA

| Test Concentration % | Replicate | Dry Weight of Fronds (mg) | Treatment Mean Dry Weight (mg) | Standard Deviation | Stimulation (%) |
|---|---|---|---|---|---|
| Control | A | 10.36 | 10.47 | 1.0 | – |
| | B | 10.60 | | | |
| | C | 9.25 | | | |
| | D | 11.67 | | | |
| 1.52 | A | 9.57 | 10.07 | 1.0 | -3.8 |
| | B | 9.81 | | | |
| | C | 11.55 | | | |
| | D | 9.36 | | | |
| 3.03 | A | 11.67 | 11.58 | 0.7 | 10.6 |
| | B | 10.95 | | | |
| | C | 12.49 | | | |
| | D | 11.19 | | | |
| 6.06 | A | 10.17 | 10.42 | 0.2 | -0.5 |
| | B | 10.33 | | | |
| | C | 10.45 | | | |
| | D | 10.71 | | | |
| 12.13 | A | 9.52 | 10.96 | 1.1 | 4.7 |
| | B | 12.13 | | | |
| | C | 10.87 | | | |
| | D | 11.32 | | | |
| 24.25 | A | 11.37 | 10.93 | 0.4 | 4.3 |
| | B | 11.09 | | | |
| | C | 10.41 | | | |
| | D | 10.83 | | | |
| 48.5 | A | 10.46 | 9.94 | 0.7 | -5.1 |
| | B | 10.21 | | | |
| | C | 10.24 | | | |
| | D | 8.84 | | | |
| 97.0 | A | 10.51 | 10.25 | 0.4 | -2.1 |
| | B | 10.69 | | | |
| | C | 10.06 | | | |
| | D | 9.72 | | | |

**NOTES :**

•No statistically significant stimulation ($\alpha$=0.05) was detected by ANOVA-Dunnett Multiple Comparison Test (CETIS)[a] at any test level compared to the control.

•No outlying data points were detected according to Grubbs Test (CETIS)[a].

"–" = not available/not required

Test Data Reviewed By : AW
Date : 2019-11-15

# CHAIN OF CUSTODY RECORD

AQUATOX

AquaTox Work Order No: 240444


**Shipping Address:** AquaTox Testing & Consulting Inc.
B-11 Nicholas Beaver Road,
Puslinch, Ontario, Canada
N0B2J0

**Voice:** (519) 763-4412 **Fax:** (519) 763-4419


| | |
|---|---|
| P.O. Number: | 644699 |
| Field Sampler Name (print): | Randy Schwandt/ Daphne Mornin |
| Signature: | |
| Affiliation: | Agnico Eagle Mines Ltd. - Meliadine Division |
| Sample Storage (prior to shipping): | Shipped immediately after sampling |
| Custody Relinquished by: | |
| Date/Time Shipped: | 2019-10-01 |

**Client:** Agnico Eagle Mines Limited
Meliadine Project
Rankin Inlet, Nunavut, Canada
X0C 0G0

**Phone:** 819-759-3555 ext 3996

**Fax:**

**Contact:** Dan Gorton or Sean Arruda

| Sample Identification | | | | | Analyses Requested | | | | | | | | | | Sample Method and Volume | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Collected (yyyy-mm-dd) | Time Collected (e.g. 14:30, 24 hr clock) | Sample Name | AquaTox Sample Number | Temp. on arrival | Rainbow Trout Single Concentration | Rainbow Trout LC50 | *Daphnia magna* Single Concentration | *Daphnia magna* LC50 | Fathead Minnow Survival & Growth | *Ceriodaphnia dubia* Survival & Reproduction | *Lemna minor* Growth | *Pseudokirchneriella subcapitata* Growth | RISS Data Entry | Other (please specify below) | Grab | Composite | # of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.) |
| 2019-10-01 | 6:00 | MEL-14d | 60909 | 8.0 | | | | | | | ✓ | | | | ✓ | | 2L |
| | | | | | | | | | | | | | | | | | |
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**For Lab Use Only**

| | |
|---|---|
| Received By: | SN/GE/CG/AW |
| Date: | 2019-10-03 |
| Time: | 10:00 |
| Storage Location: | |
| Storage Temp.(°C) | |

NK

Please list any special requests or instructions:
TOXICOLOGY analysis required

ADD ON CERTIFICATE GPS LOCATION 63*02'15.5" 92*13'06.3"

# APPENDIX C
# MELIADINE LAKE – SUPPORTING FIGURES AND TABLES

# Appendix C1
# Meliadine Lake Water Chemistry – Boxplots

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**Figure C1-1. Field pH in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

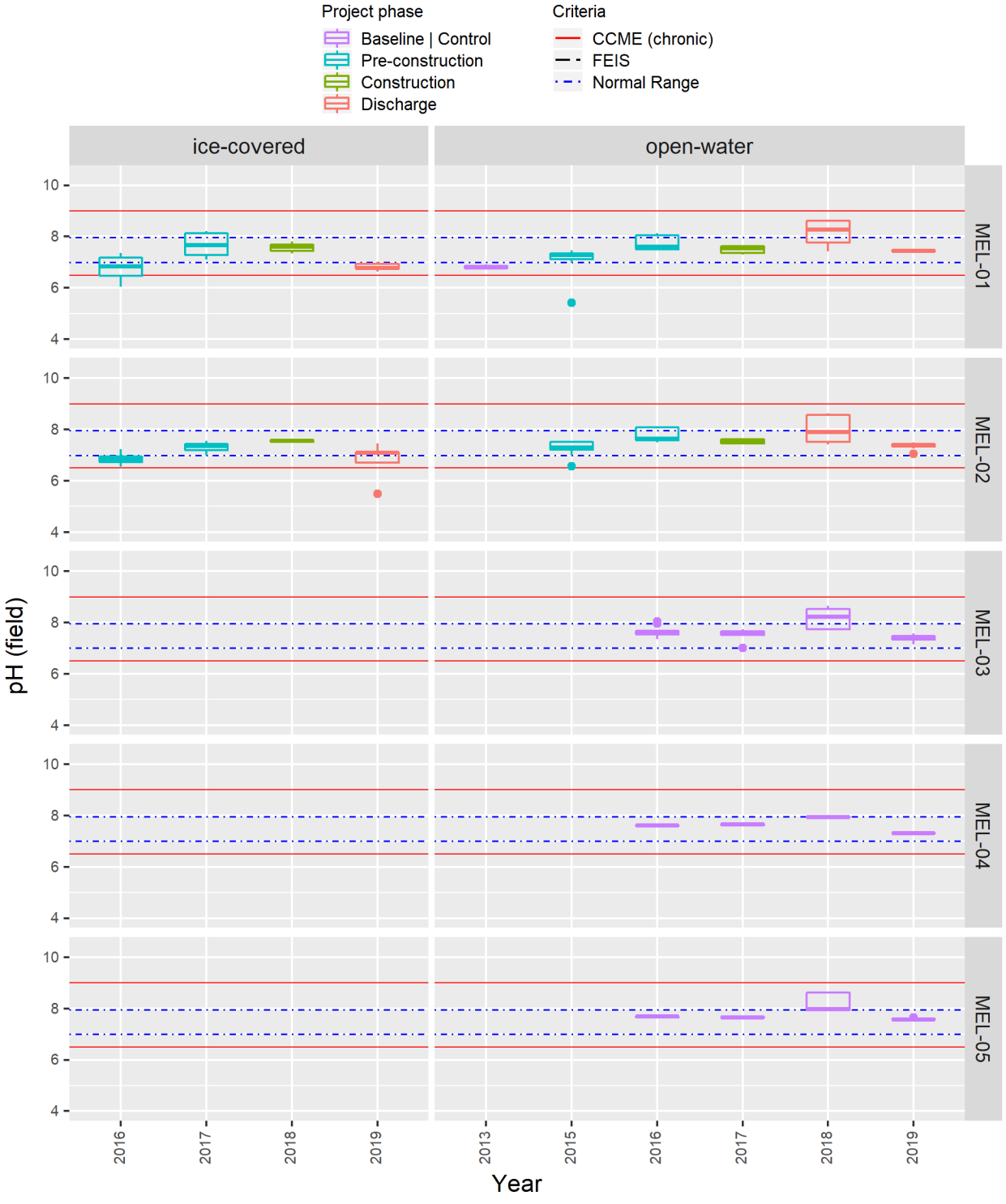


**Figure C1-2. Specific conductivity (µS/cm) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

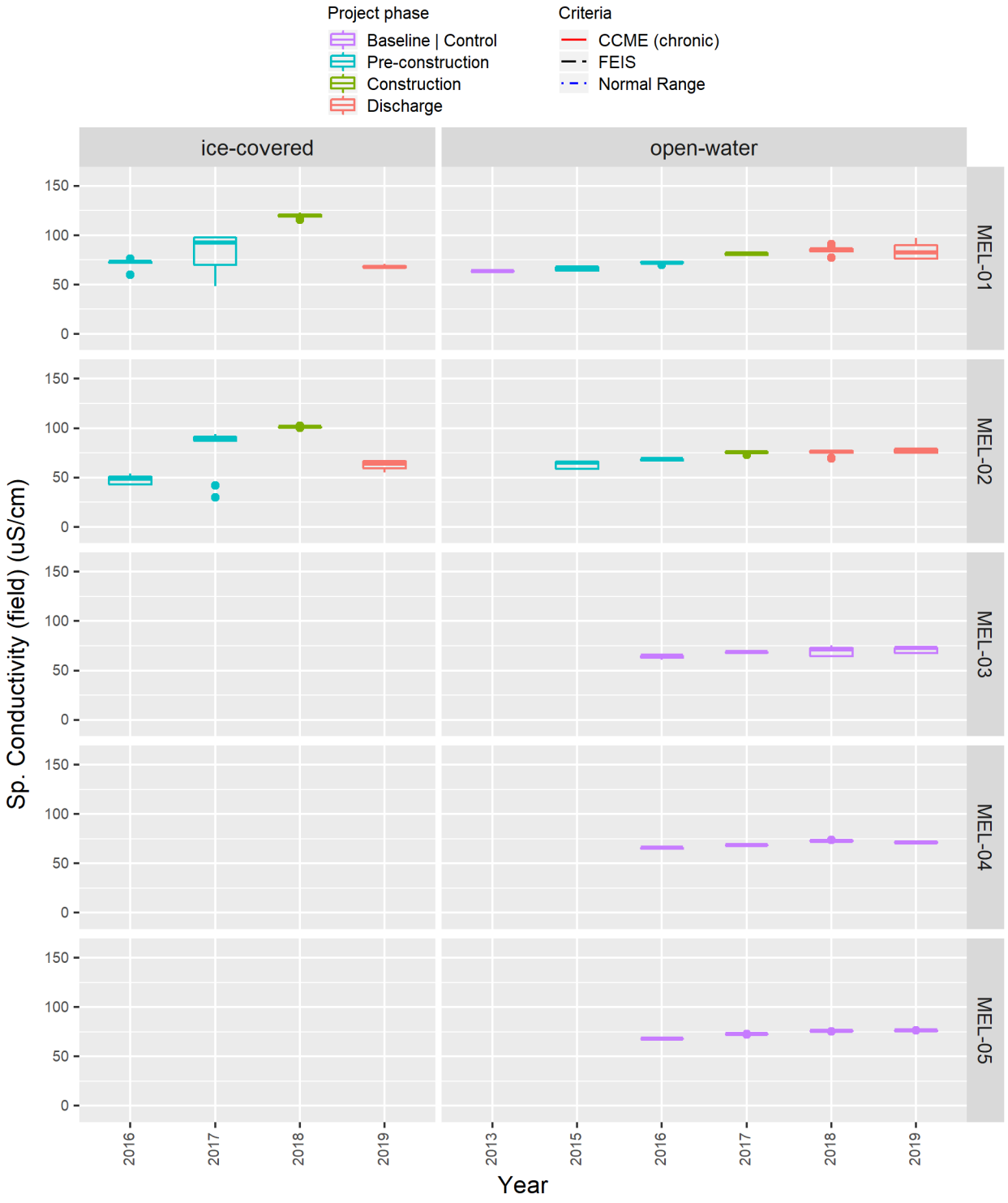


**Figure C1-3. Lab-measured conductivity (µS/cm) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

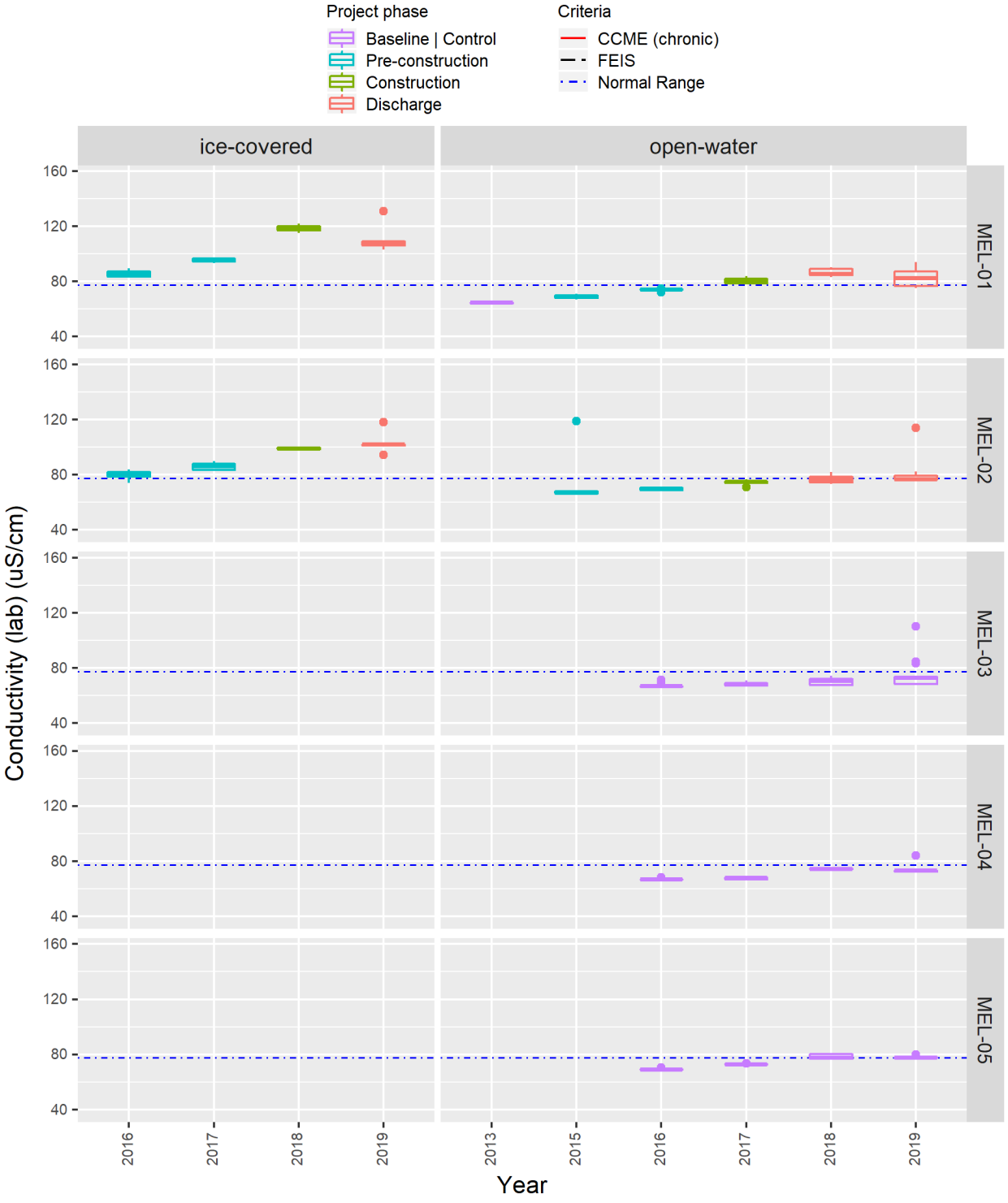


**Figure C1-4. Hardness (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

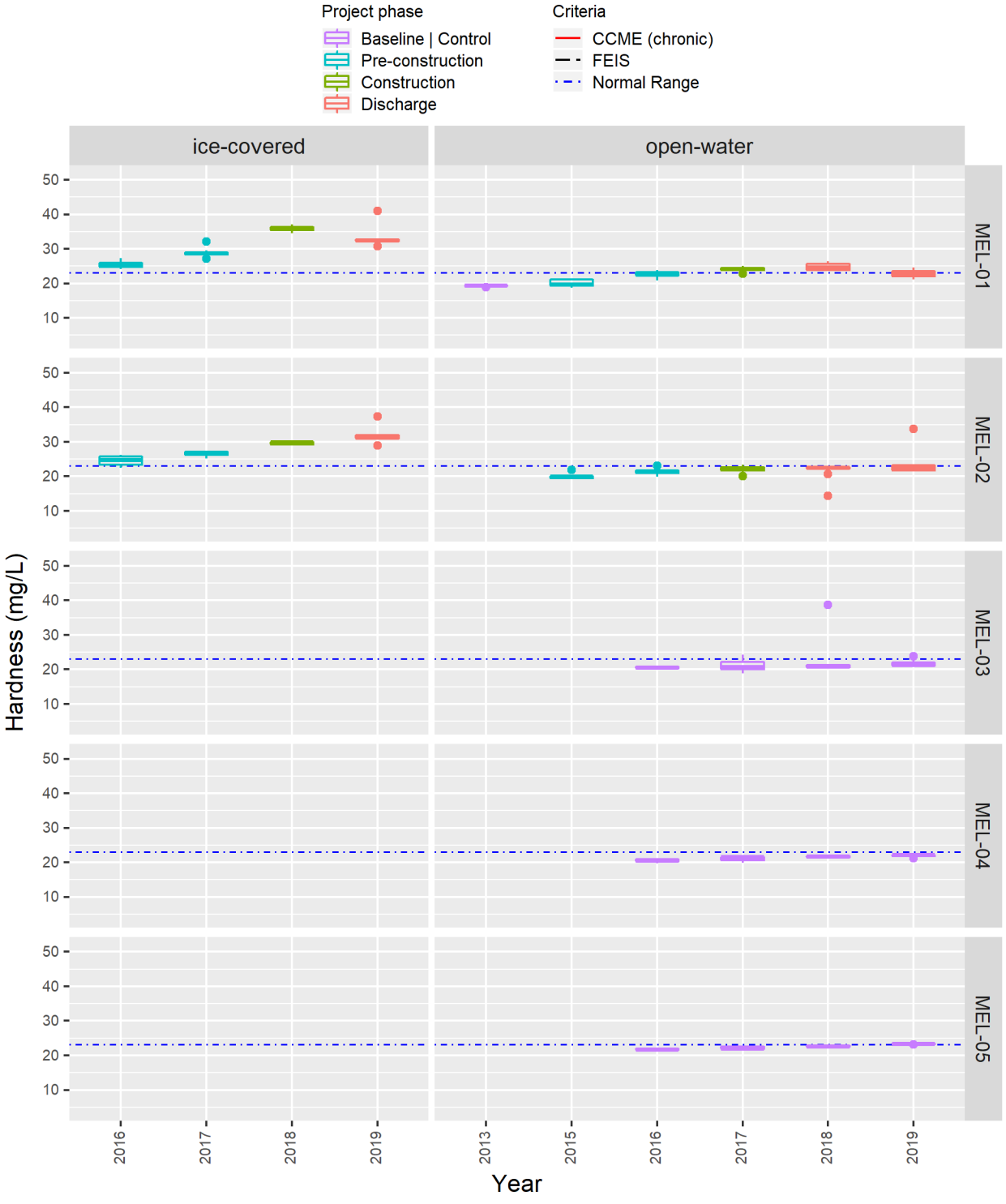


**Figure C1-5. Lab measured pH in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

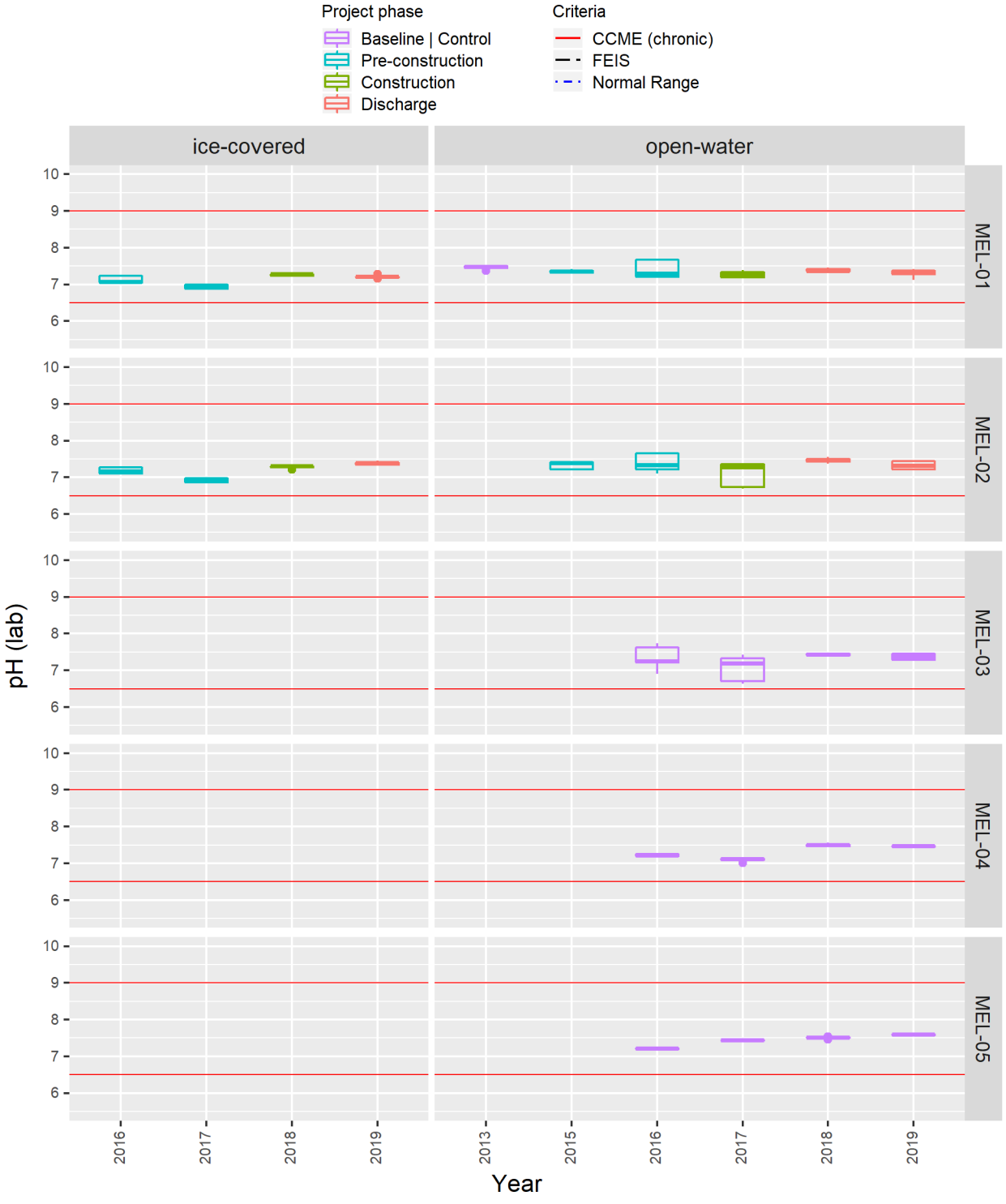


**Figure C1-6. Total dissolved solids (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

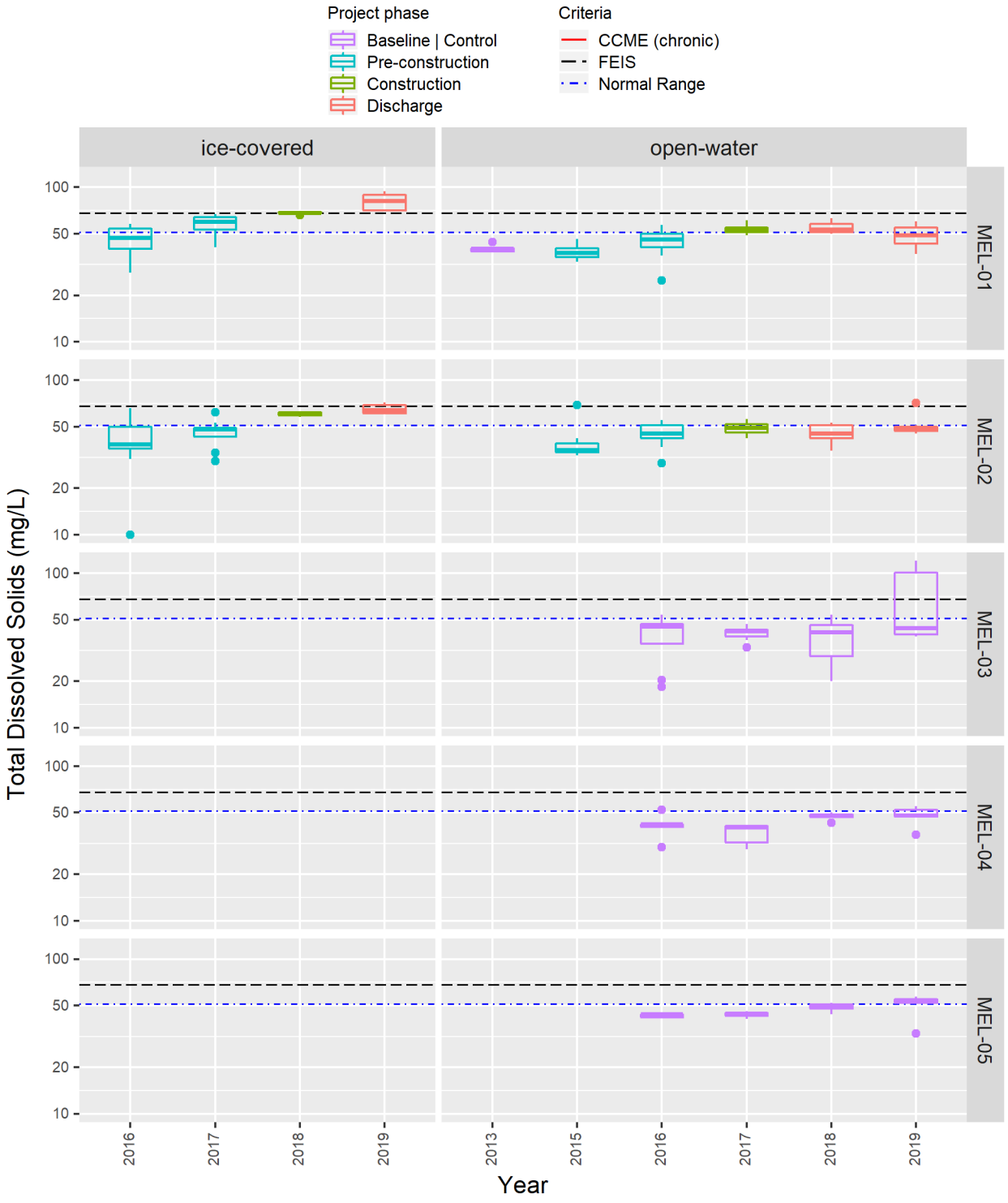


**Figure C1-7. Calculated total dissolved solids (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

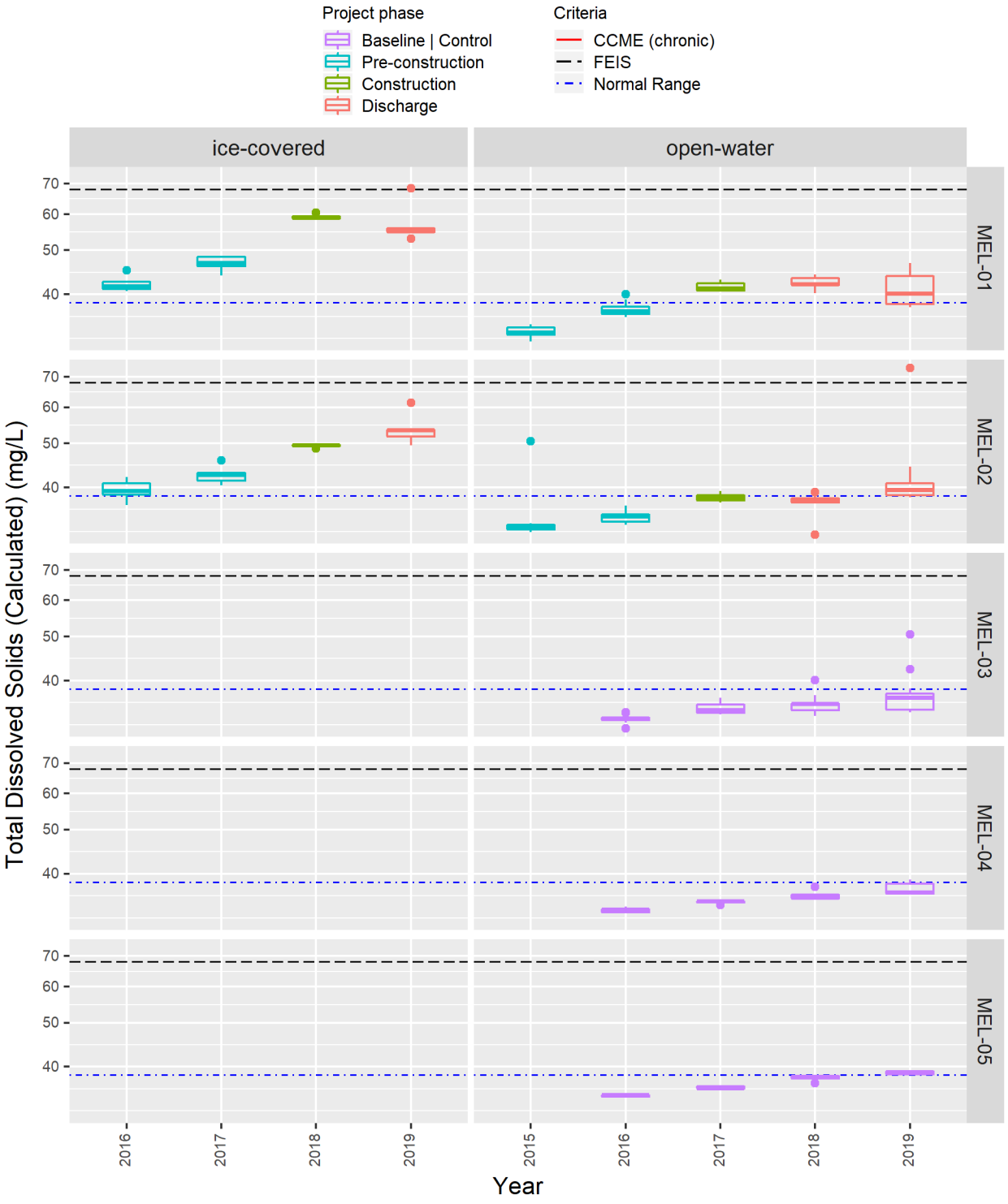


**Figure C1-8. Total suspended solids (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

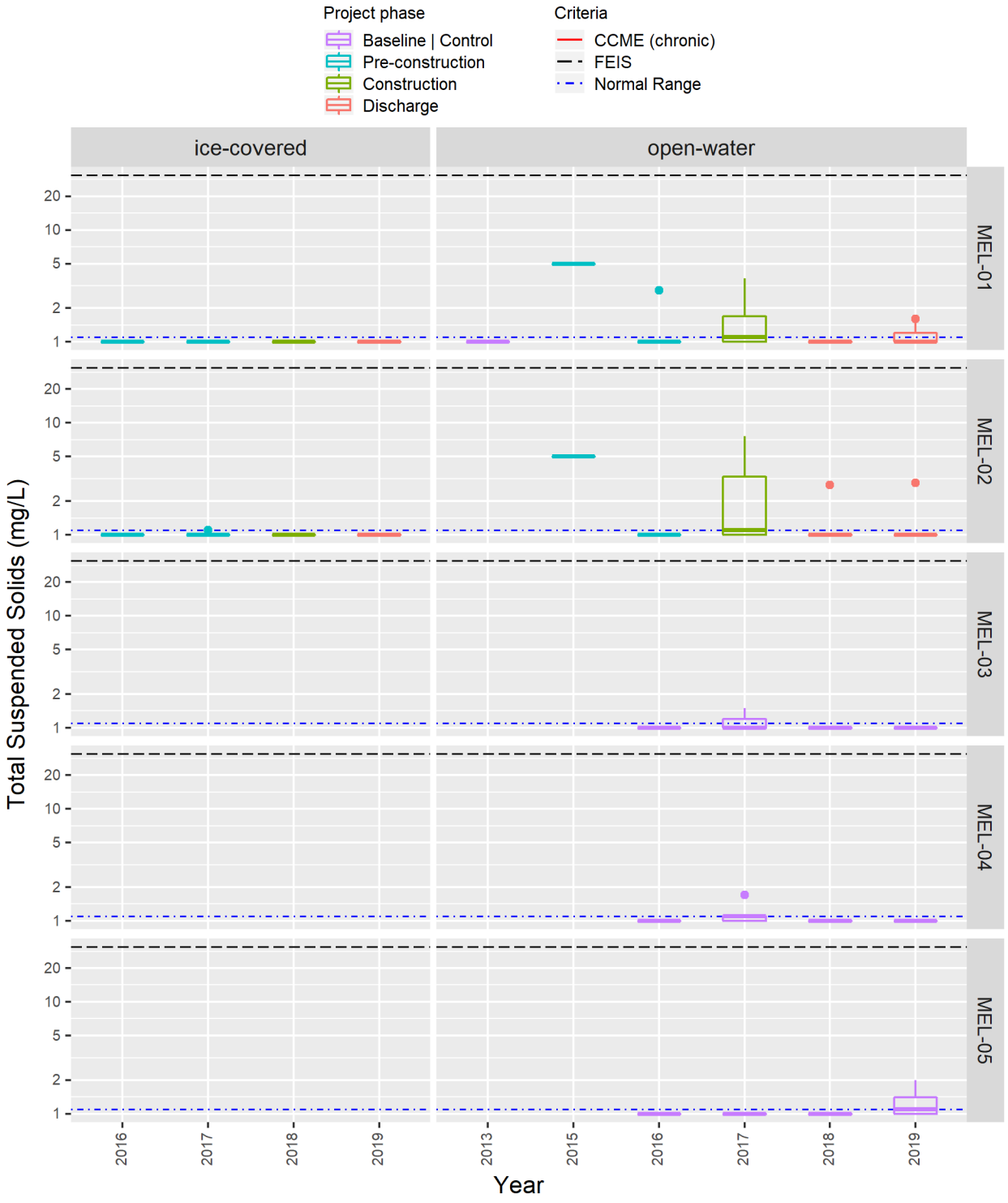


**Figure C1-9. Lab measured turbidity (NTU) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

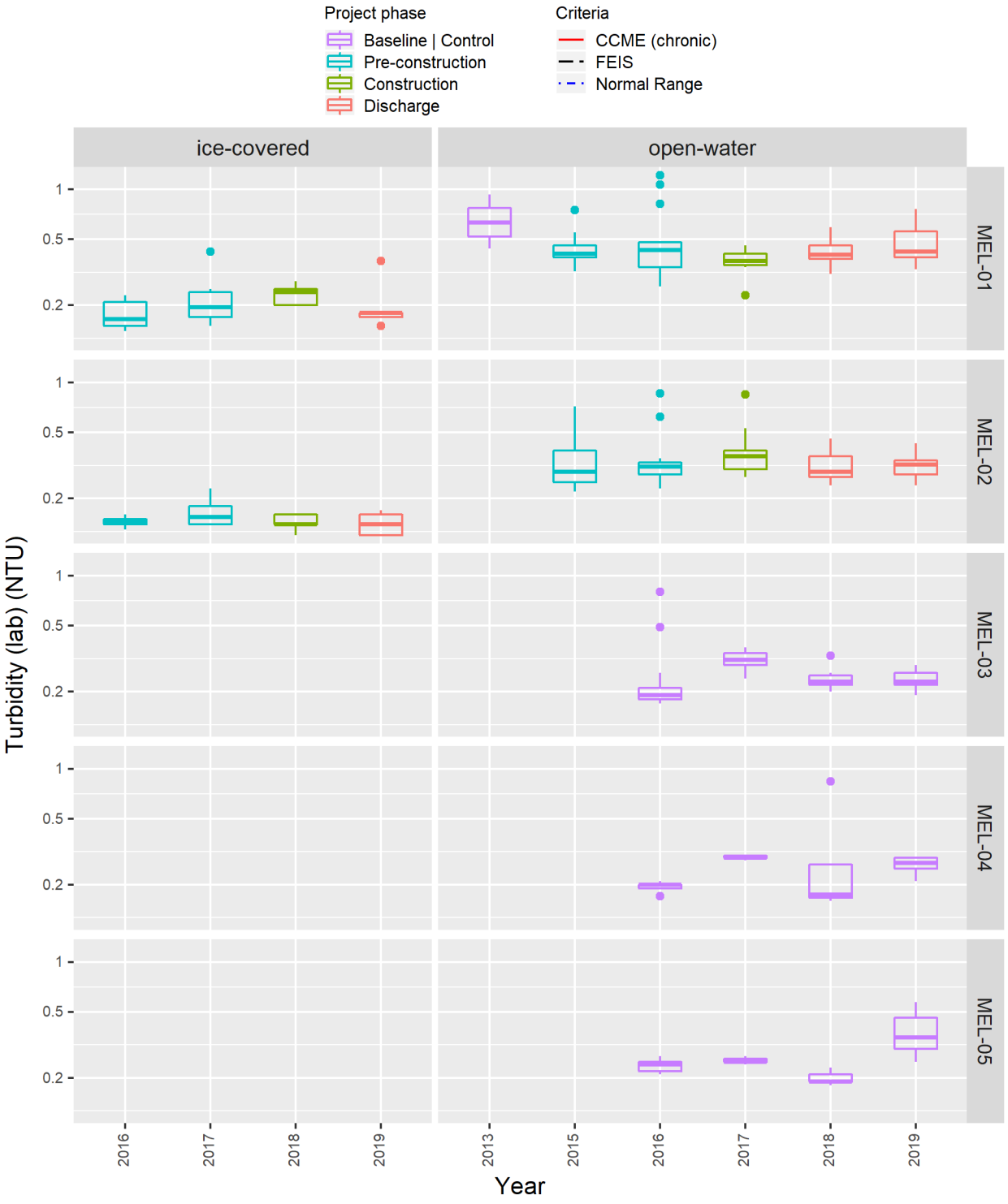


**Figure C1-10. Bicarbonate alkalinity (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

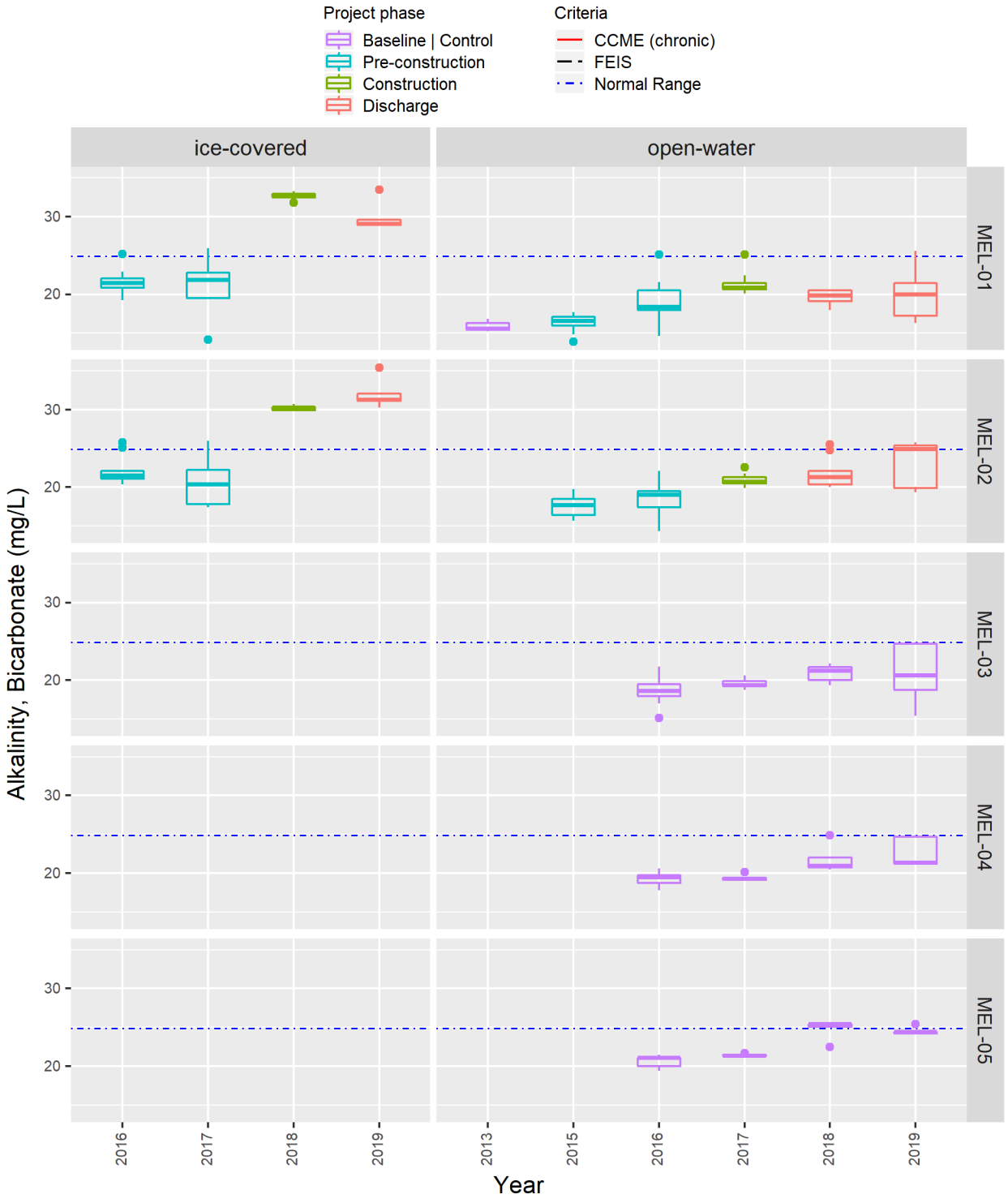


**Figure C1-11. Total alkalinity (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

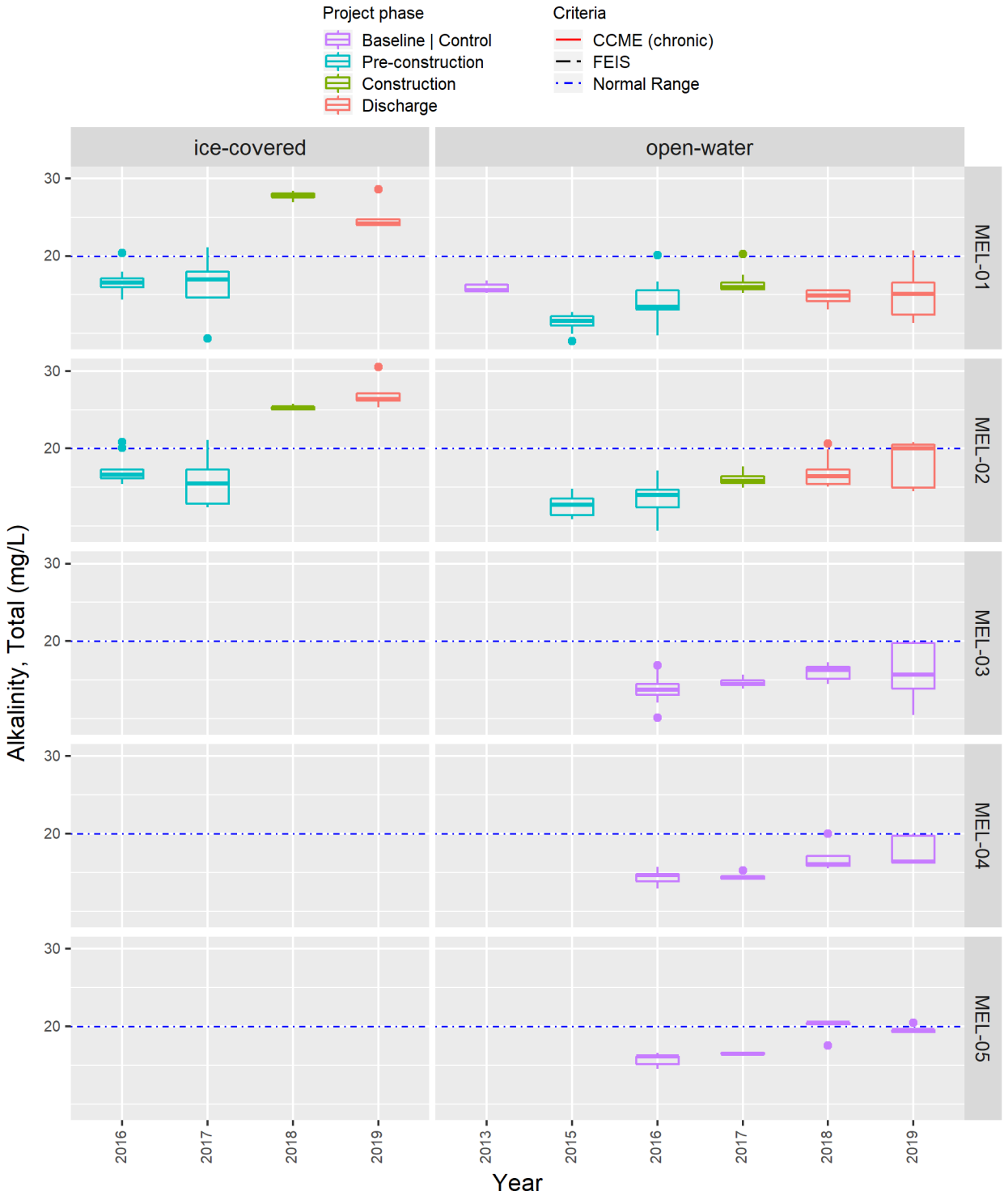


**Figure C1-12. Total calcium (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

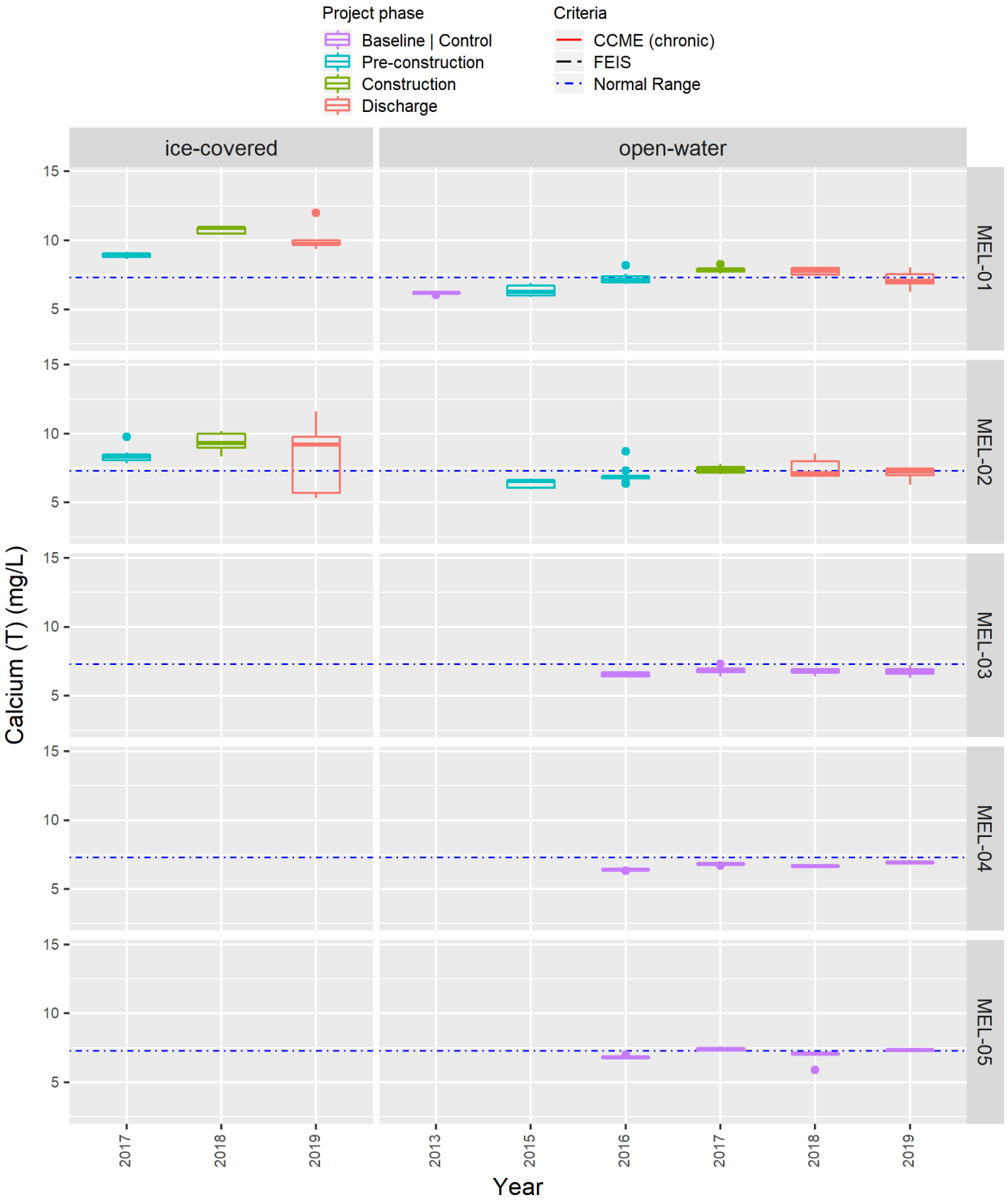


**Figure C1-13. Total magnesium (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

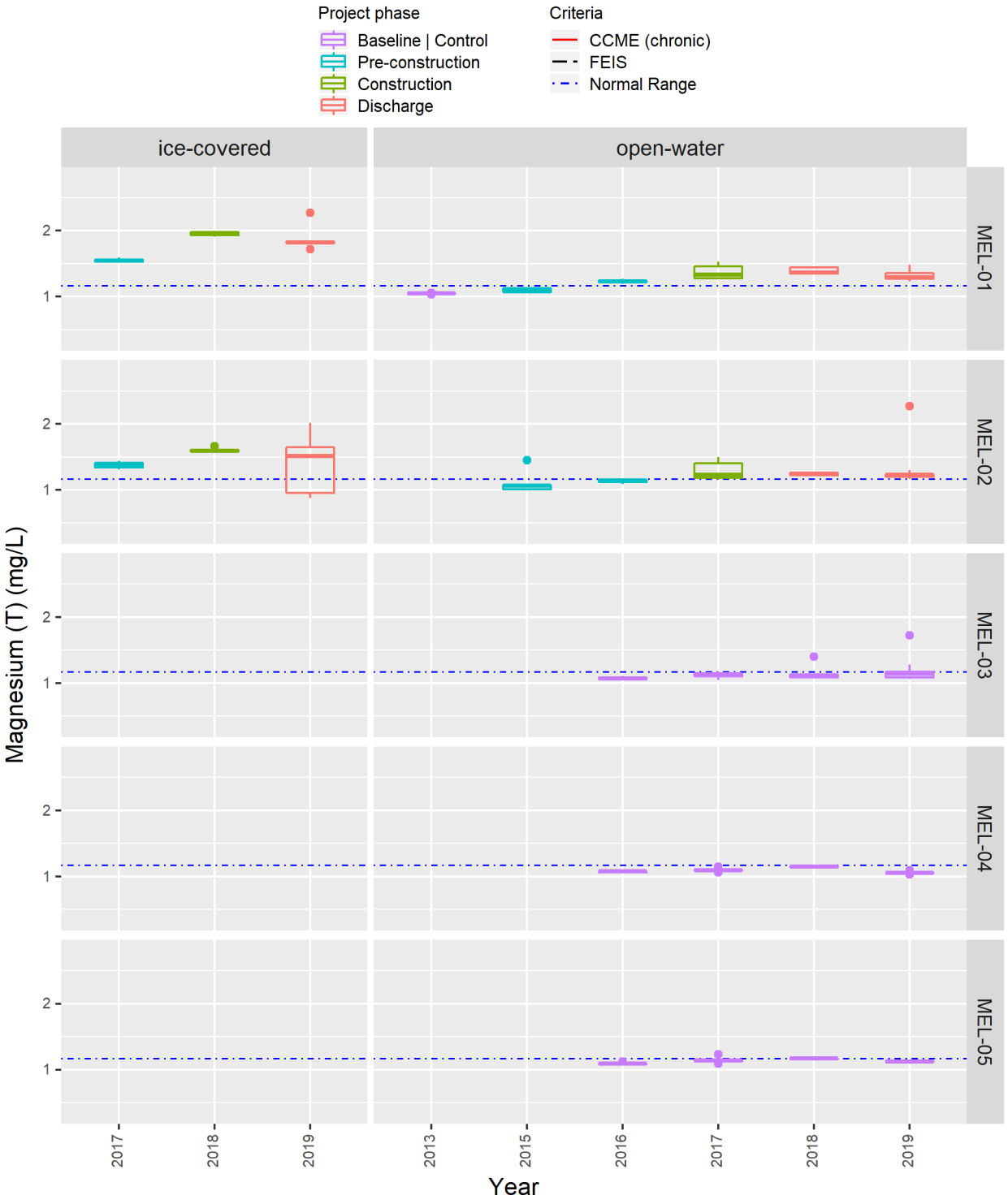


**Figure C1-14. Total potassium (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

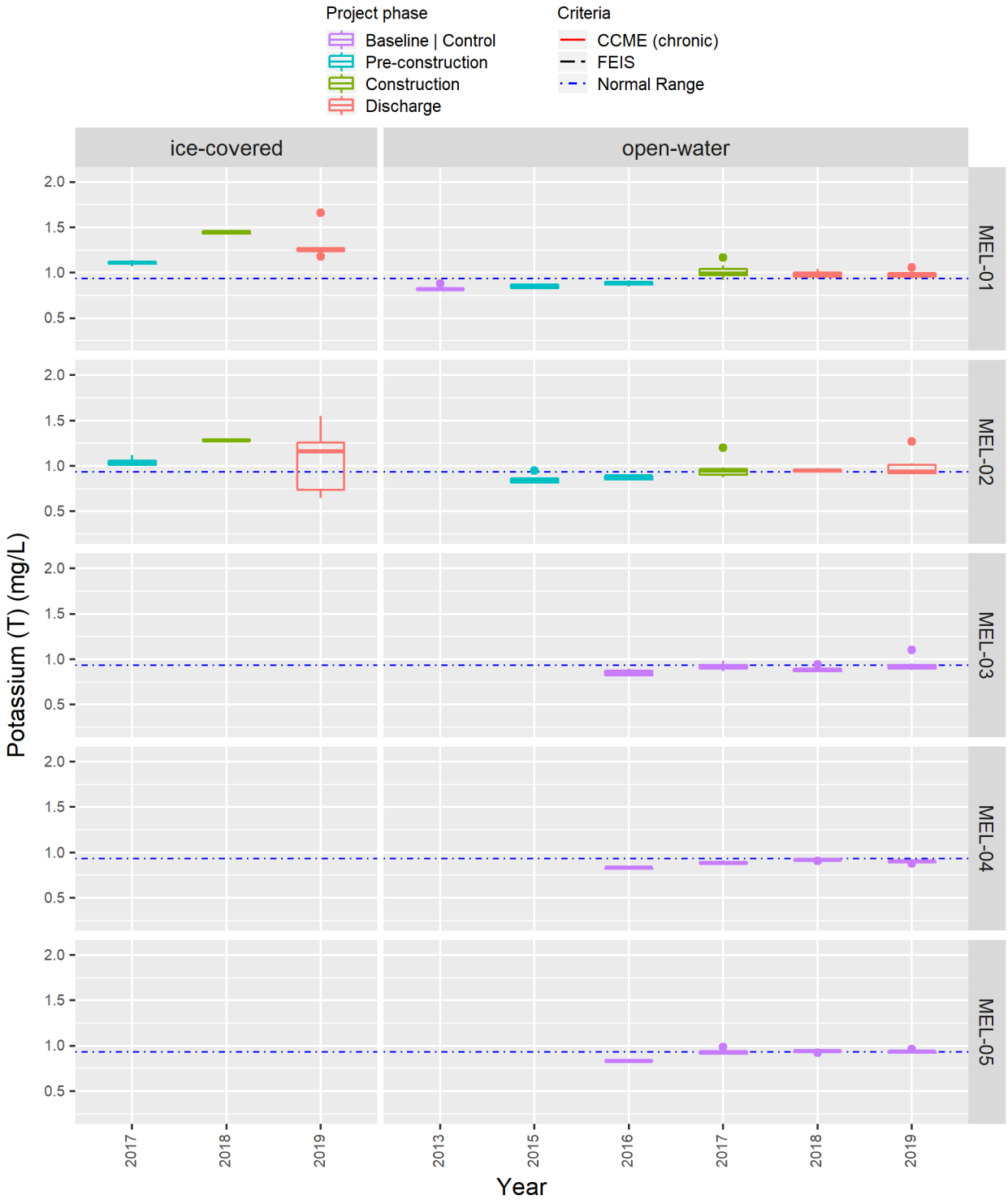


**Figure C1-15. Total sodium (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

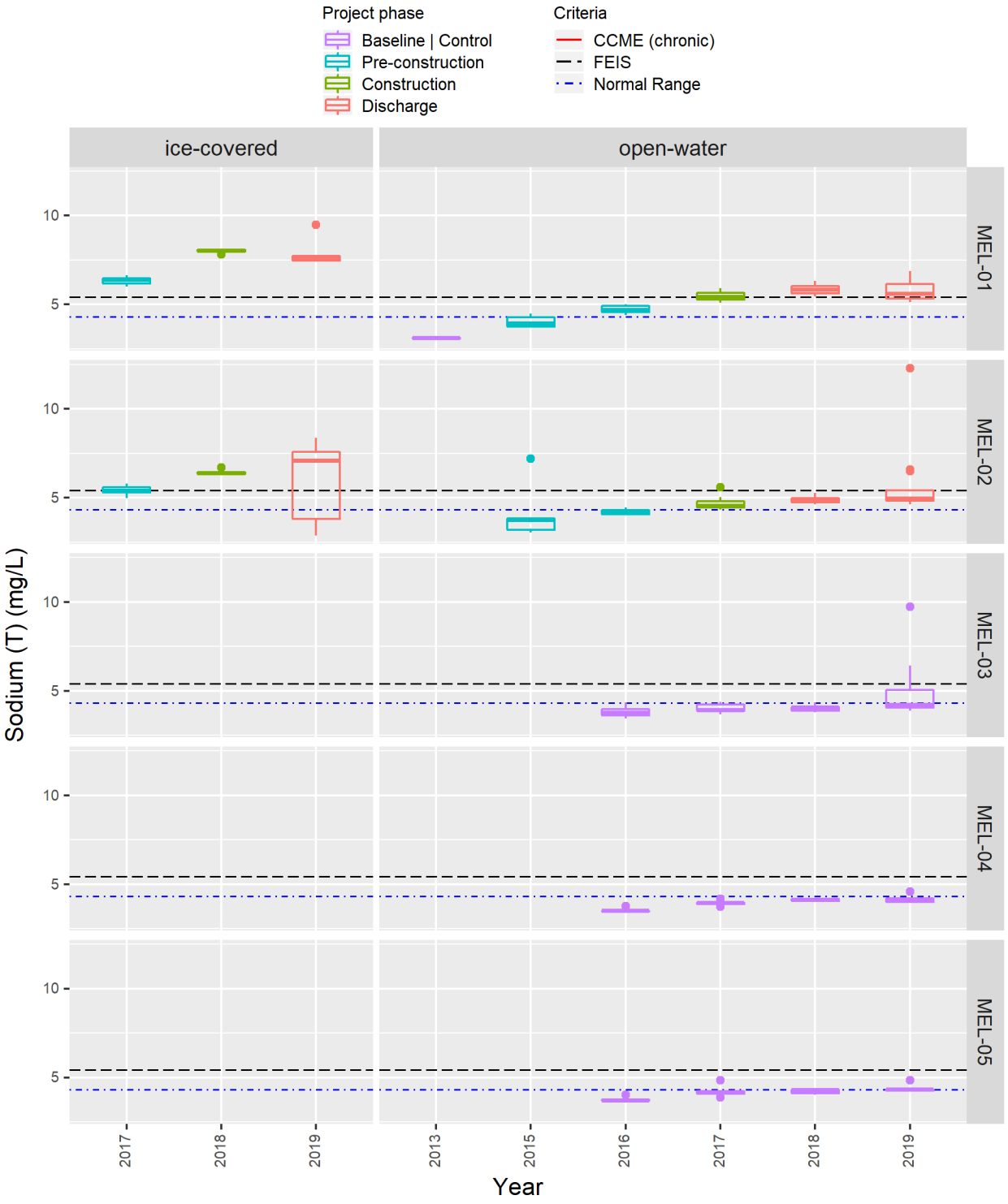


**Figure C1-16. Chloride (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

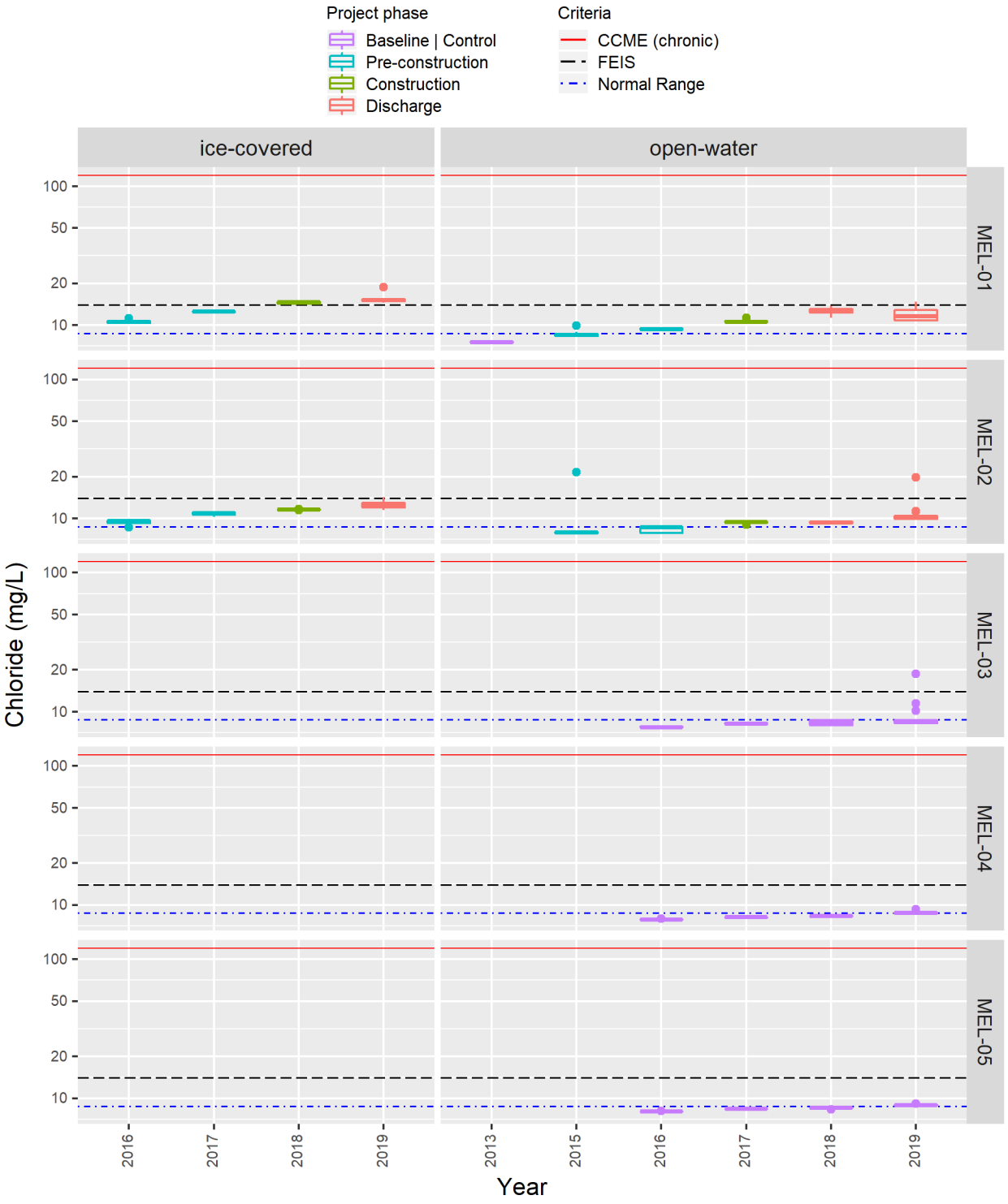


**Figure C1-17. Fluoride (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

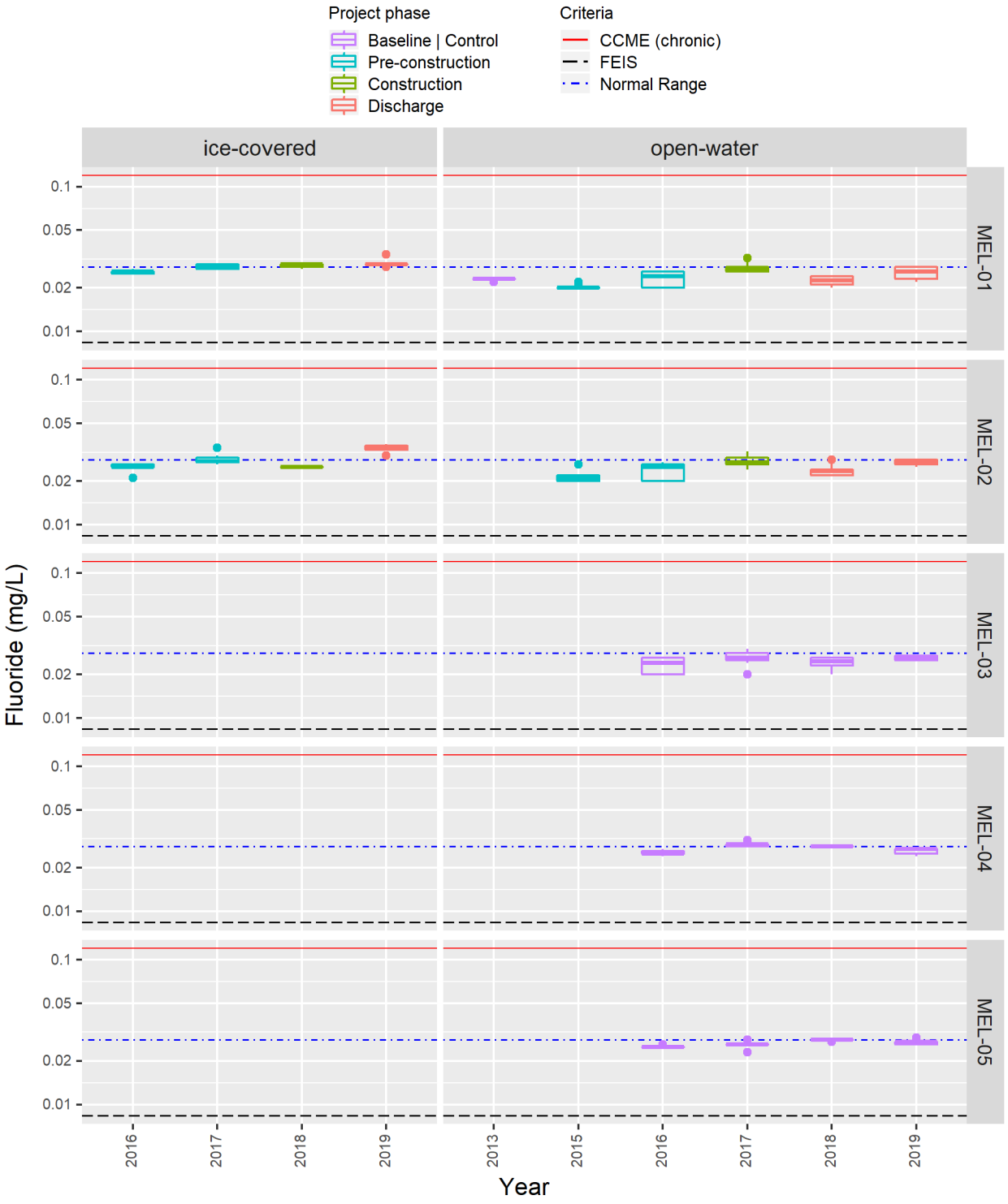


**Figure C1-18. Ammonia (as nitrogen) (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

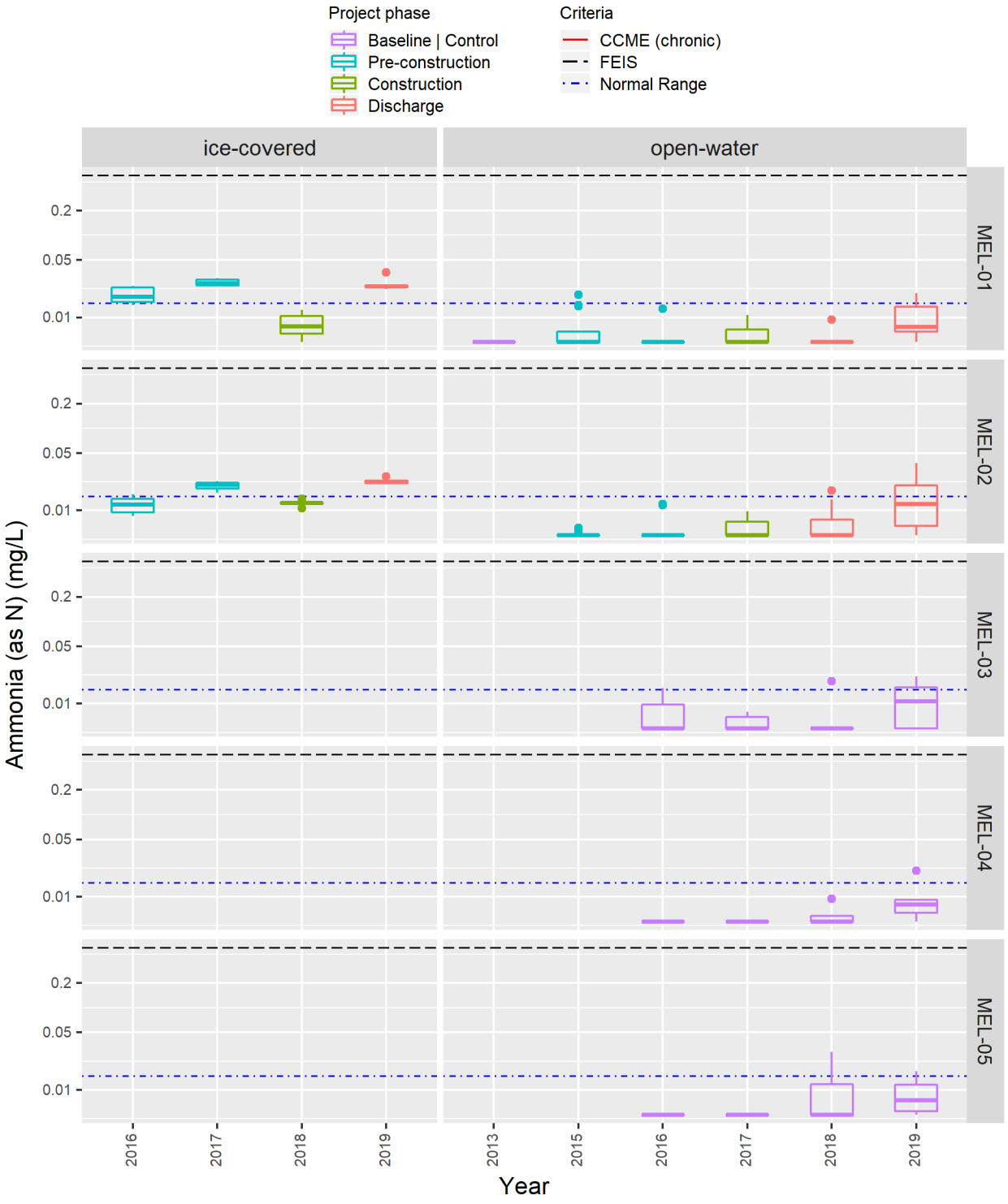


**Figure C1-19. Nitrate (as nitrogen) (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

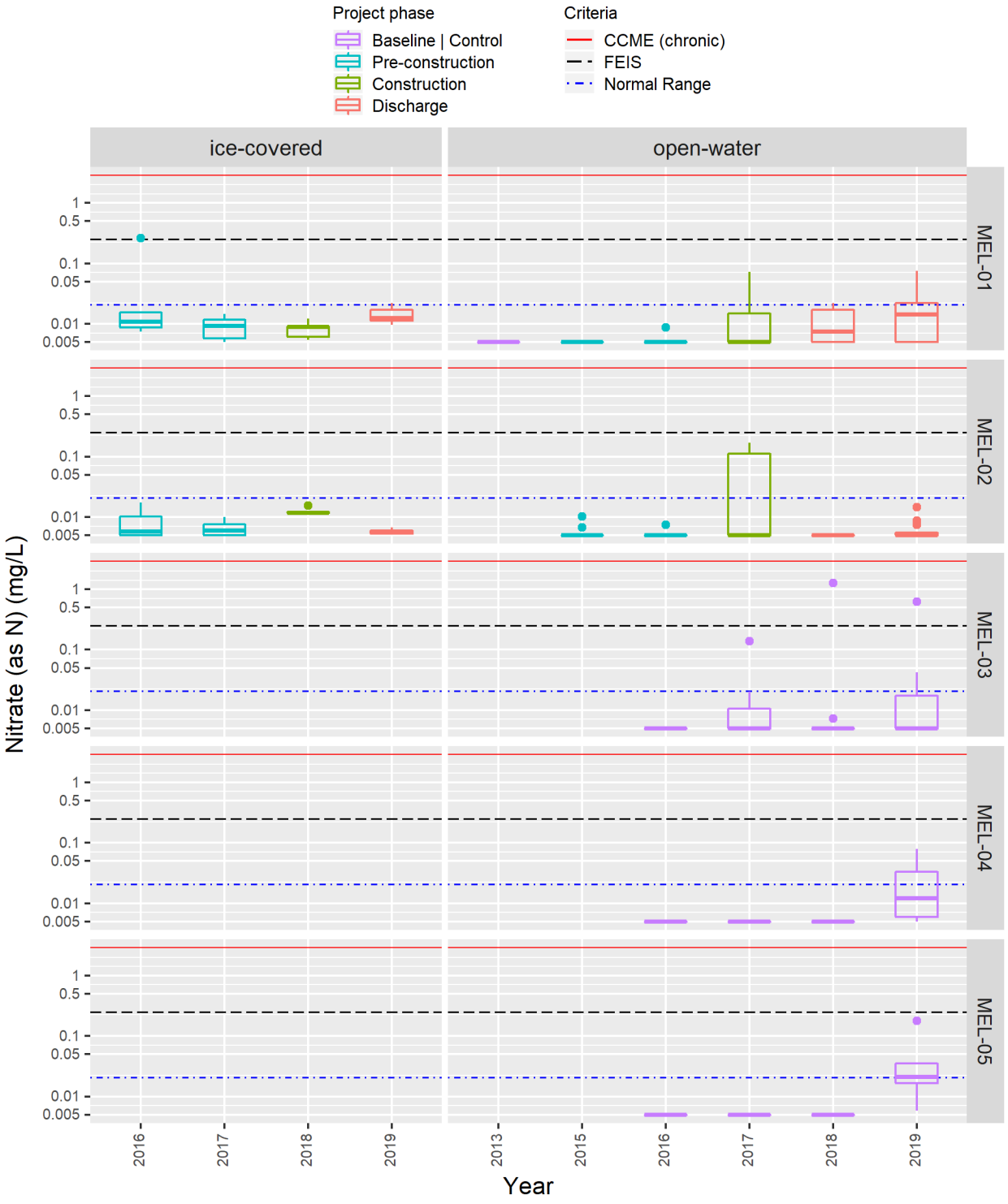


**Figure C1-20. Nitrate and nitrite (as nitrogen) (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

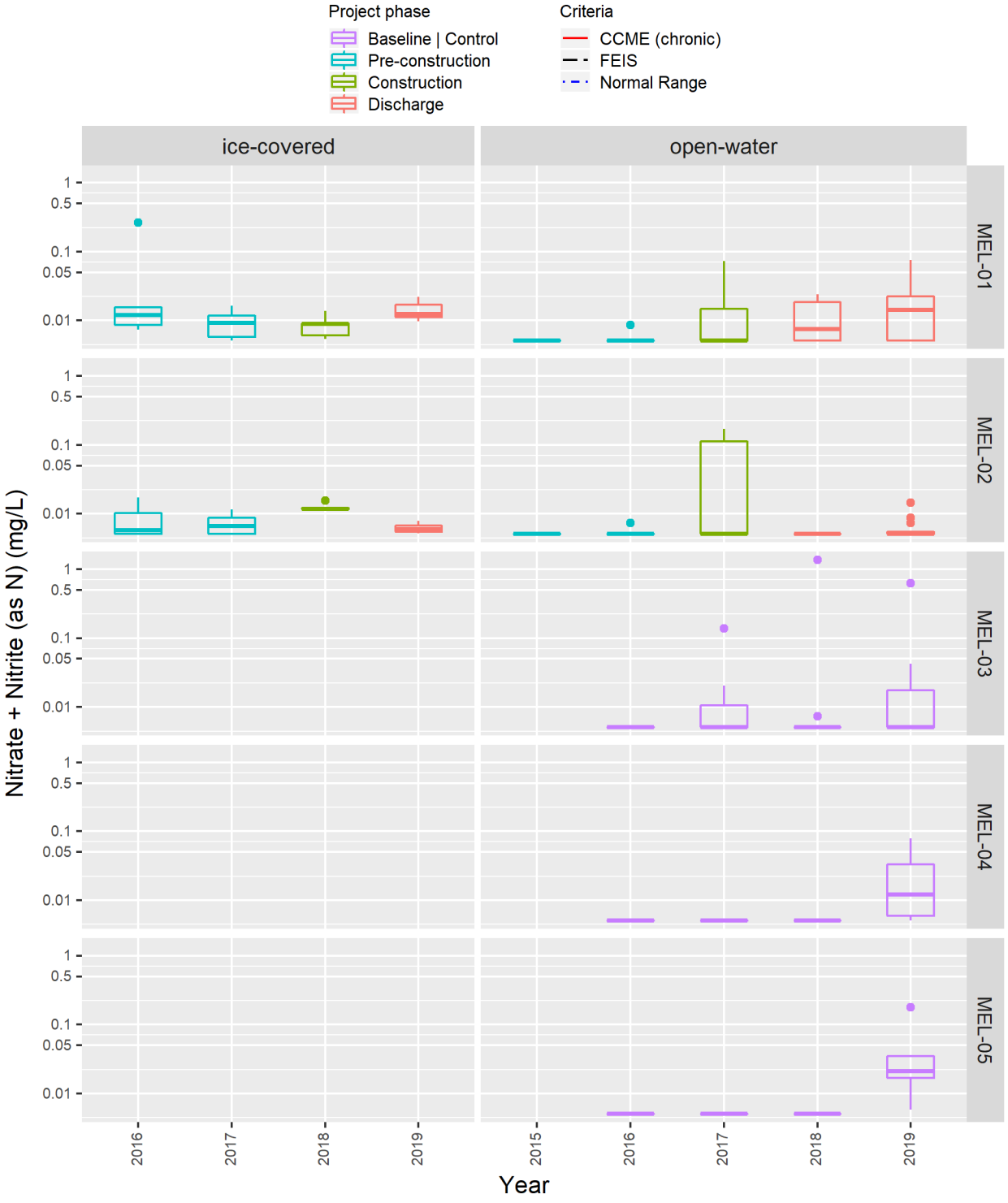


**Figure C1-21. Total Kjeldahl nitrogen (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

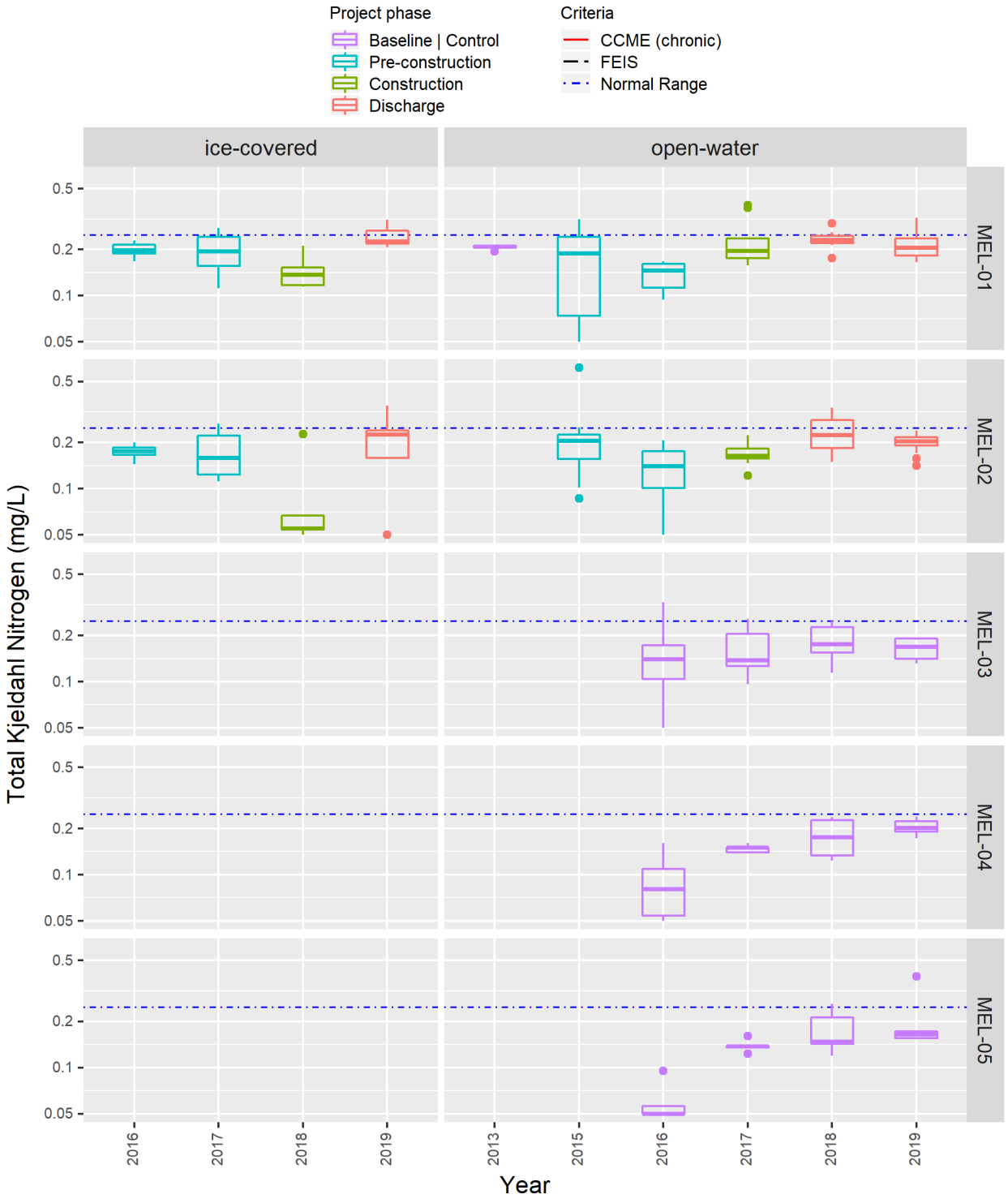


**Figure C1-22. Sulphate (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

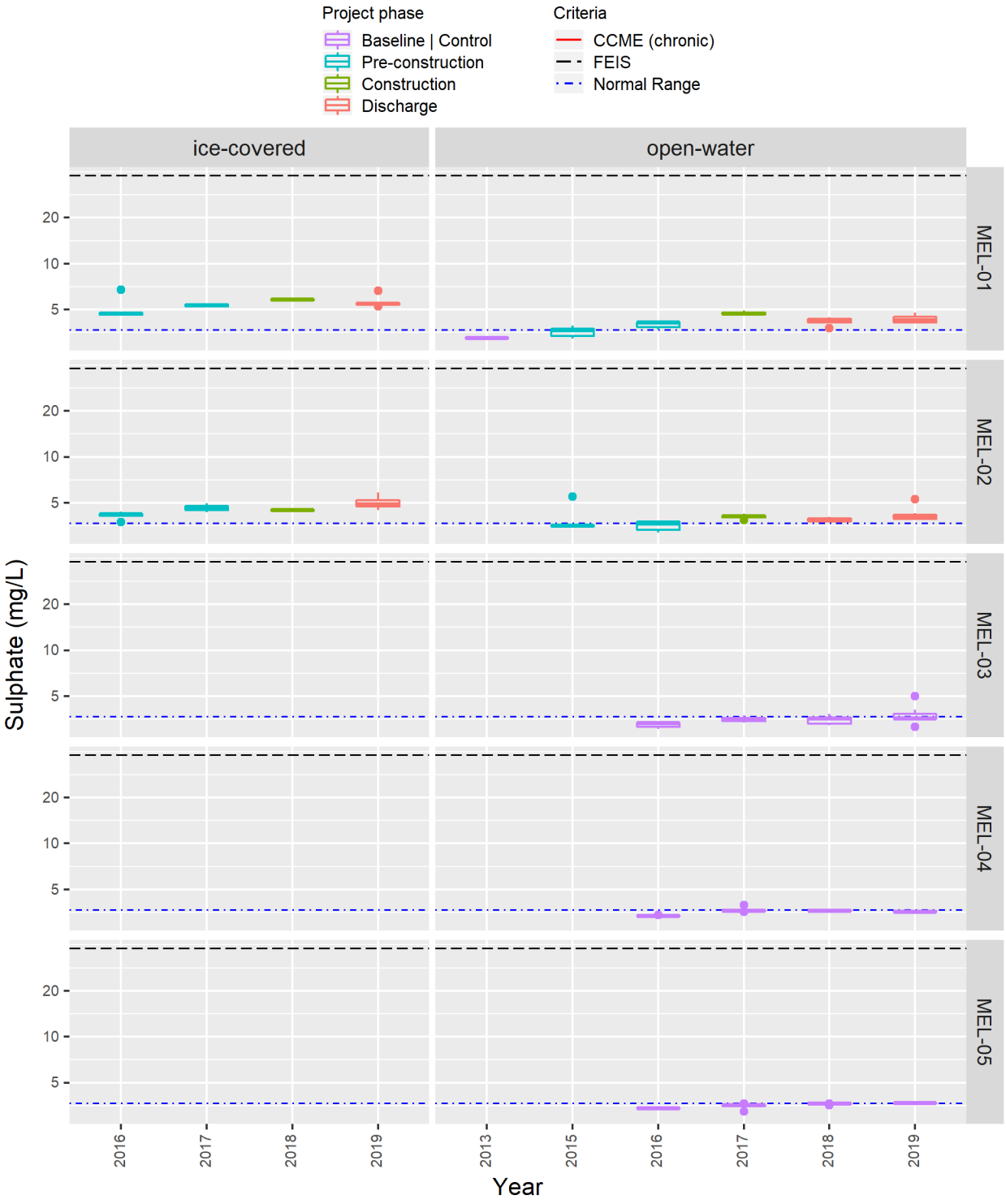


**Figure C1-23. Total phosphorus (mg/) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

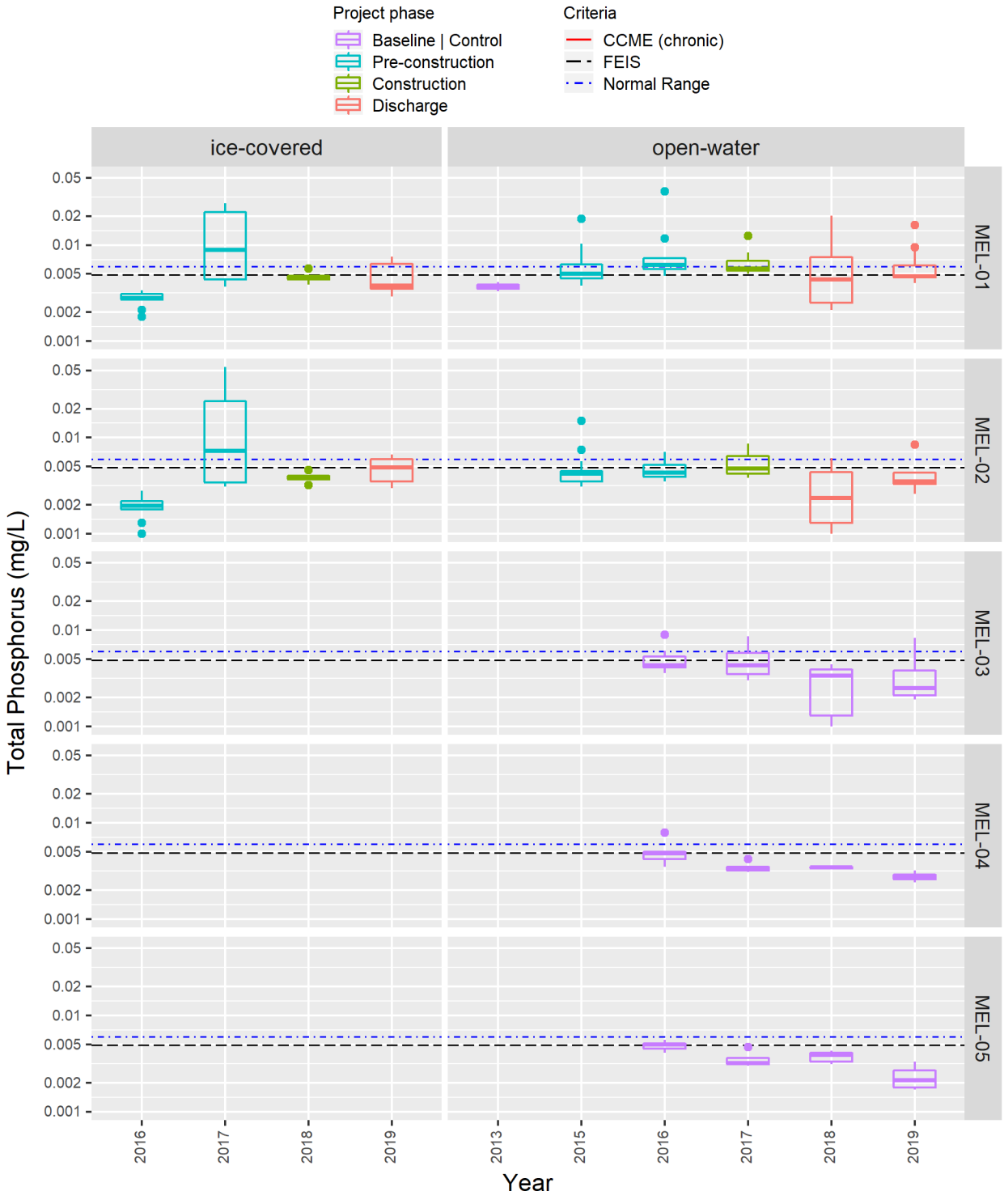


**Figure C1-24. Dissolved organic carbon (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

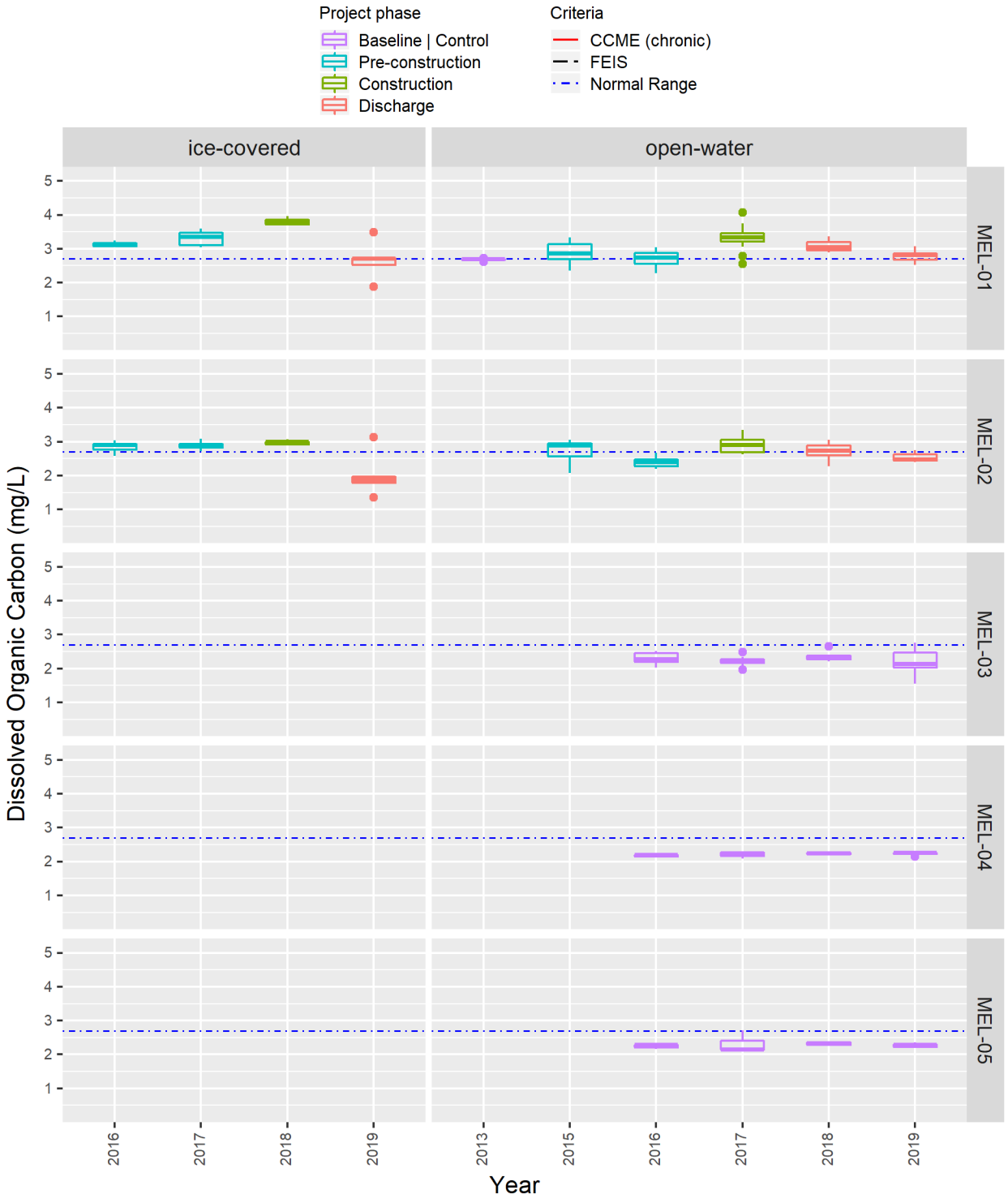


**Figure C1-25. Total organic carbon (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

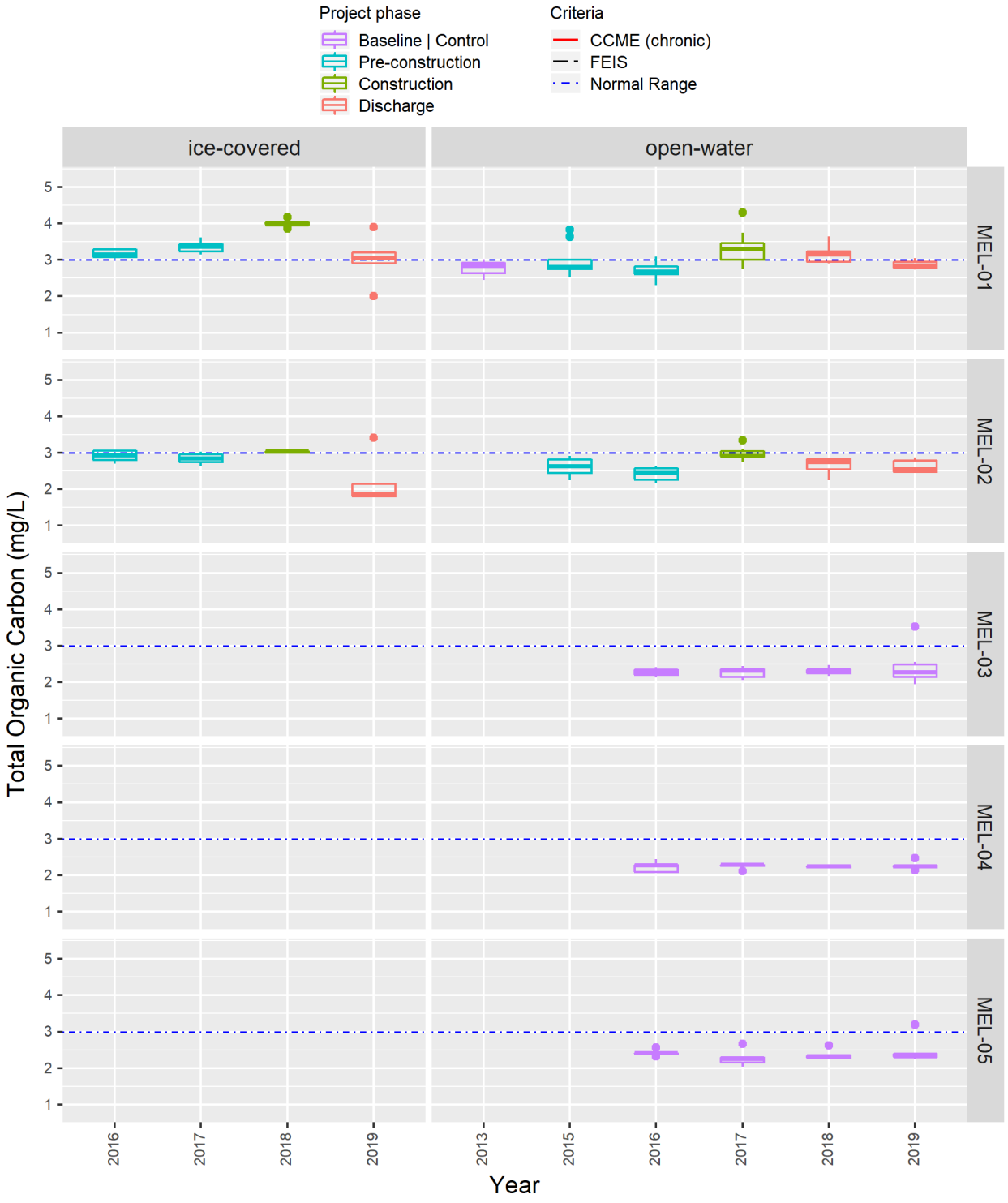


**Figure C1-26. Total aluminum (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

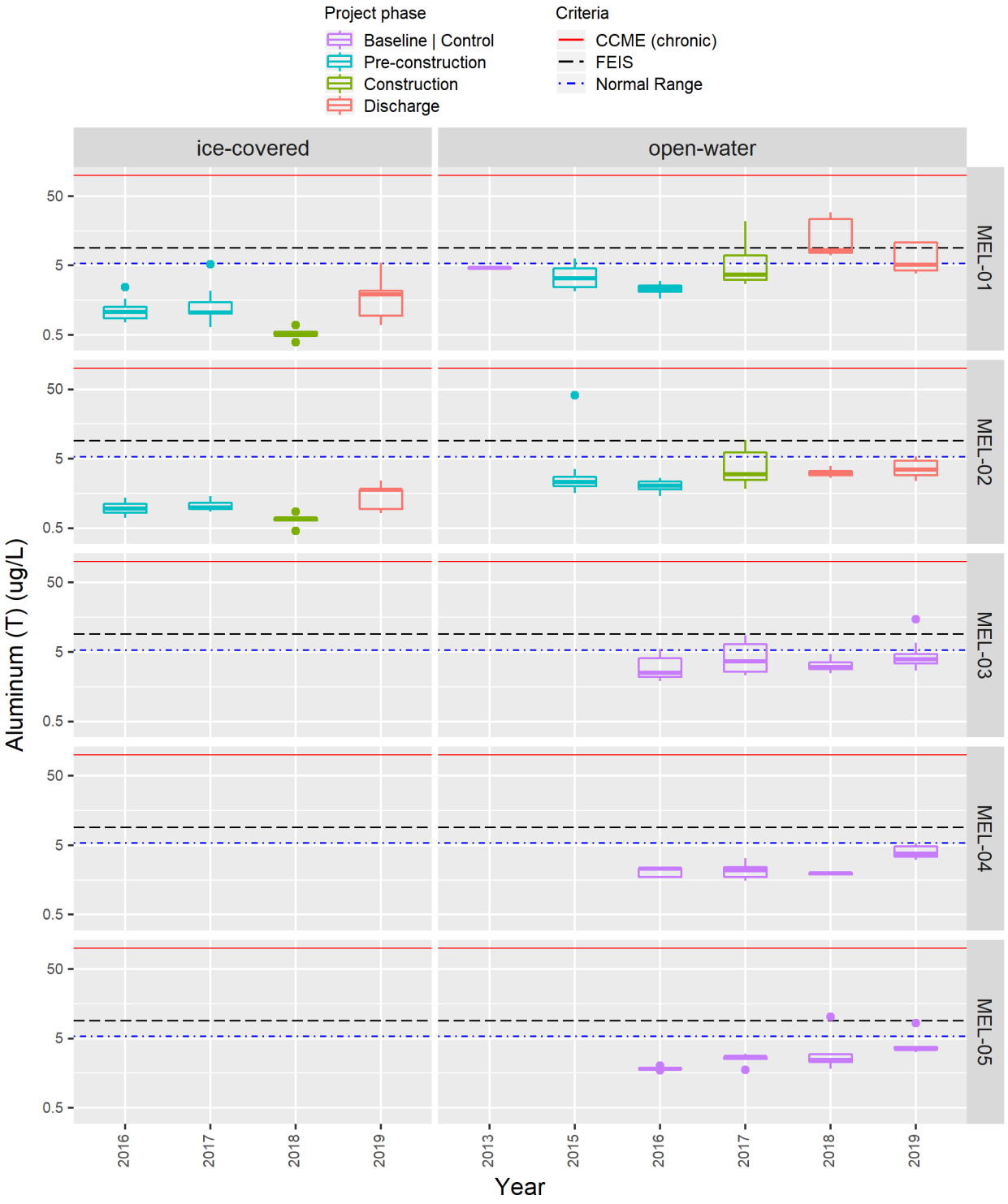


**Figure C1-27. Total antimony (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

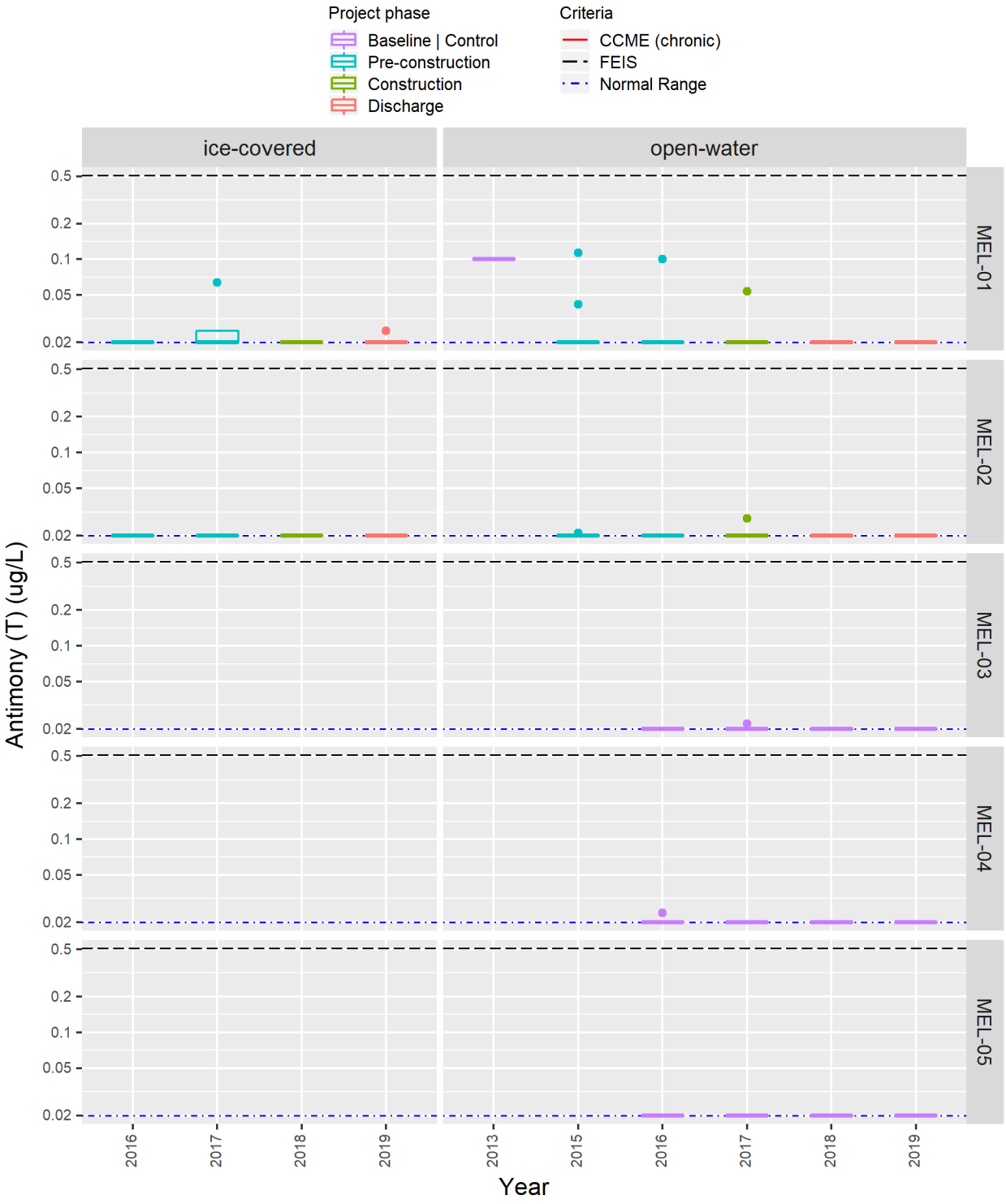


**Figure C1-28. Total arsenic (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

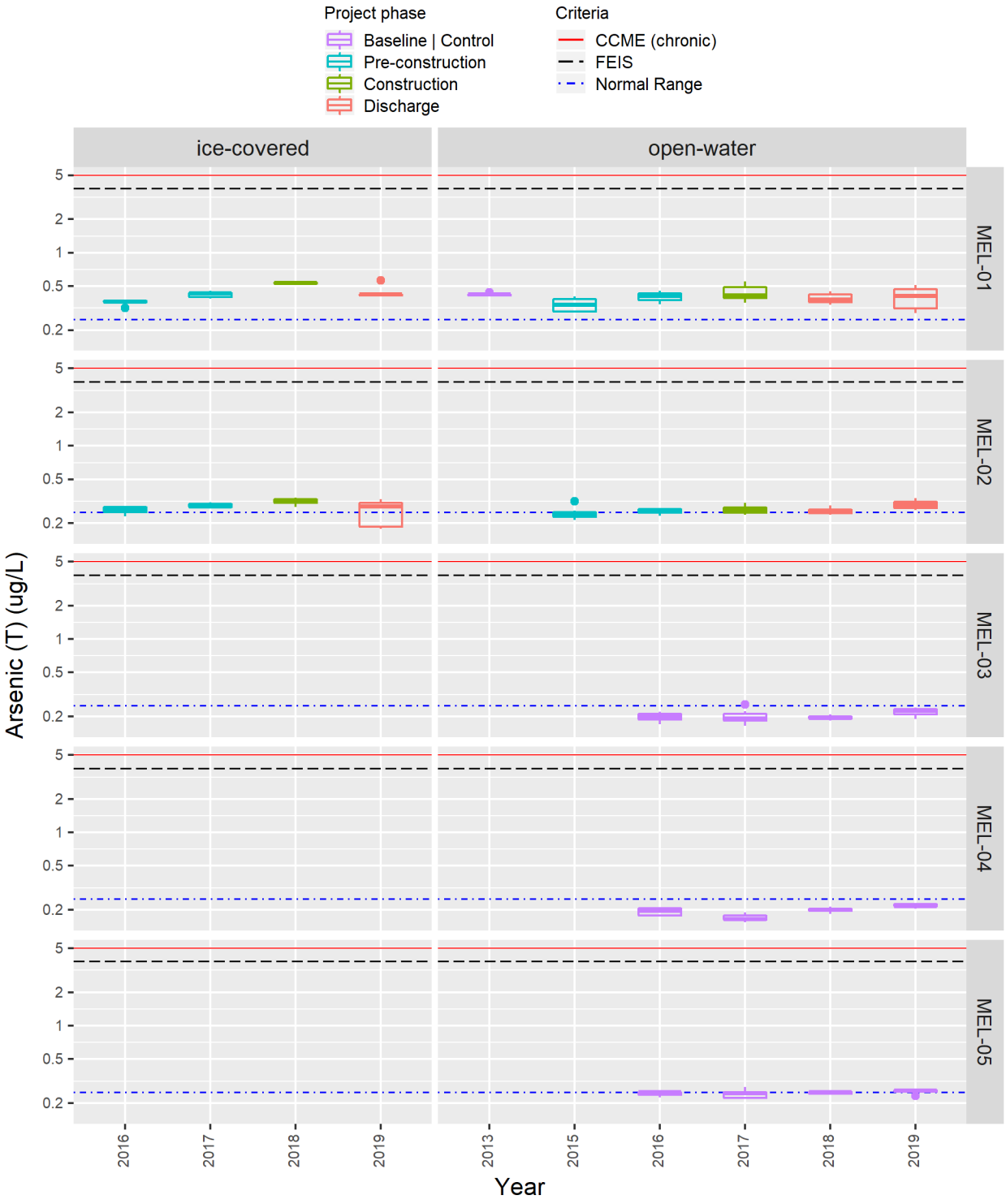


**Figure C1-29. Total barium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

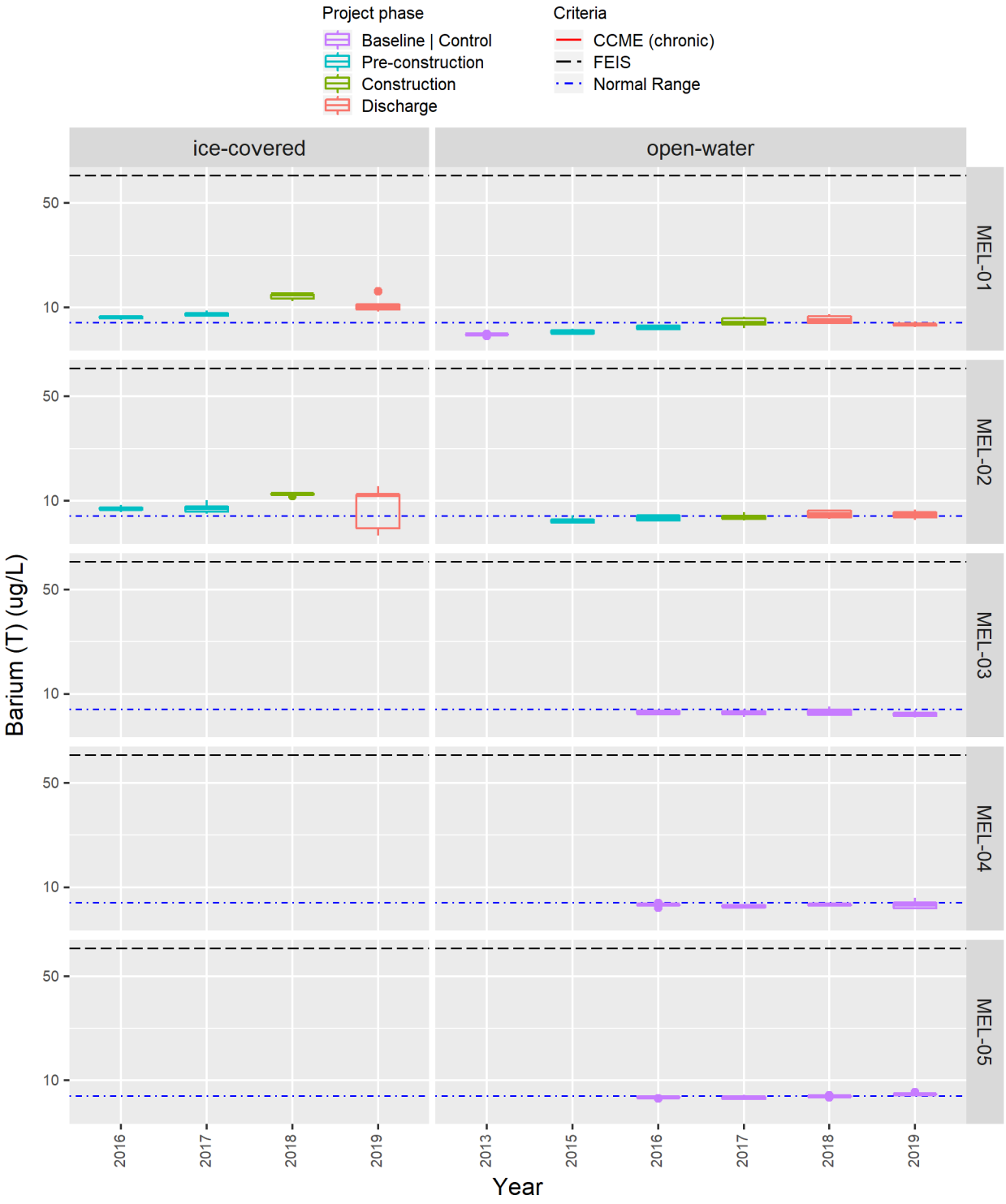


**Figure C1-30. Total beryllium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

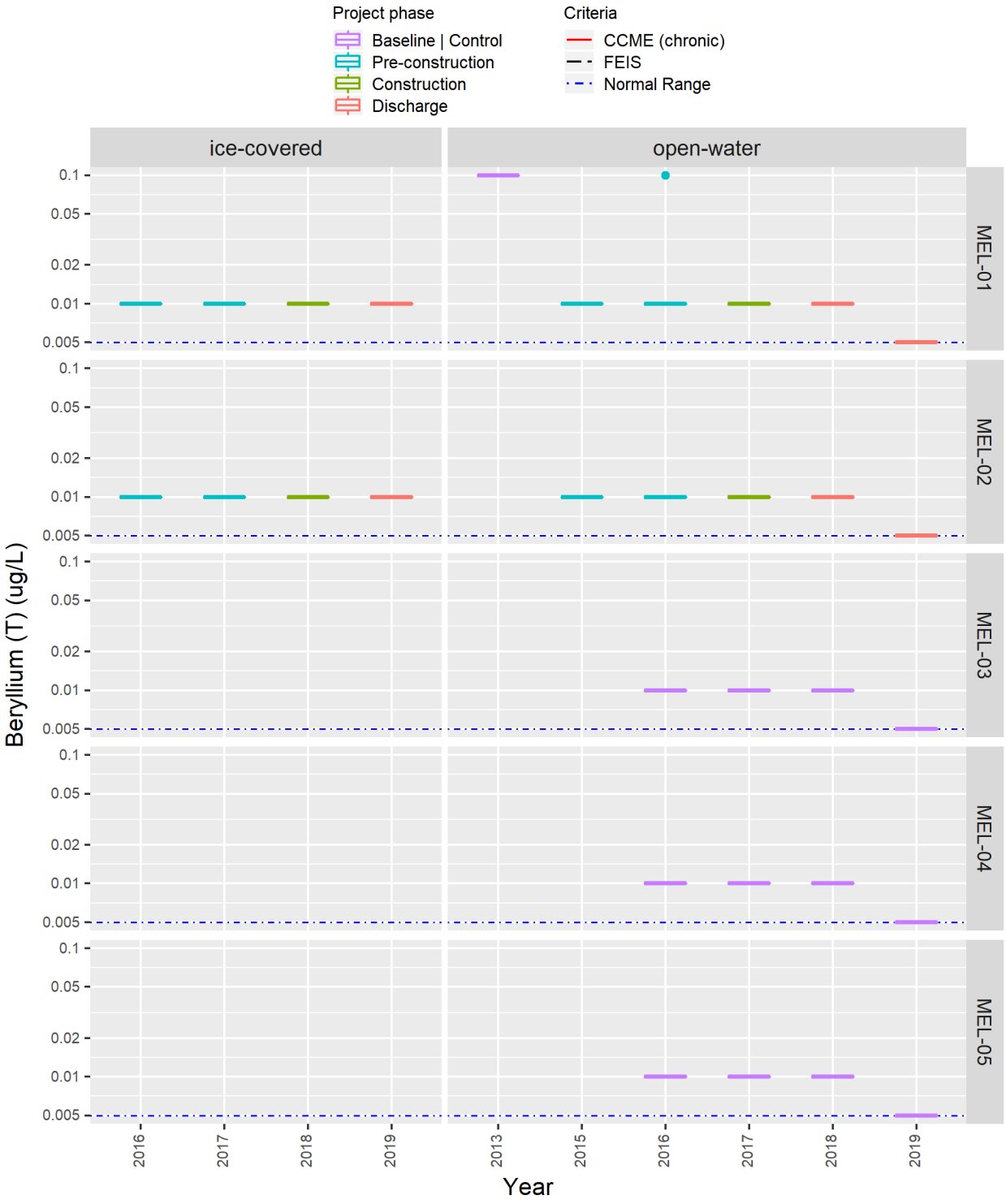


**Figure C1-31. Total bismuth (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

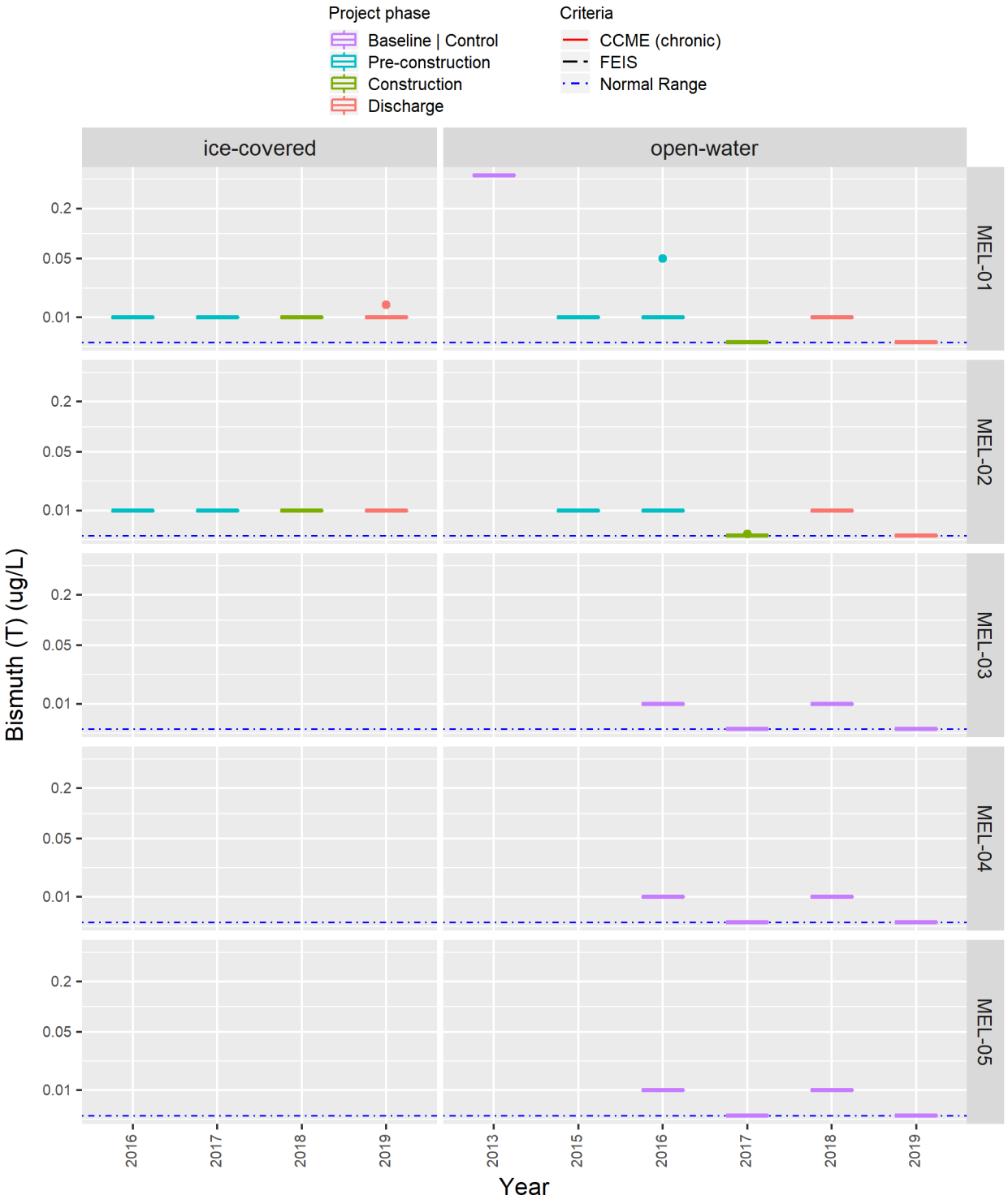


**Figure C1-32. Total boron (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

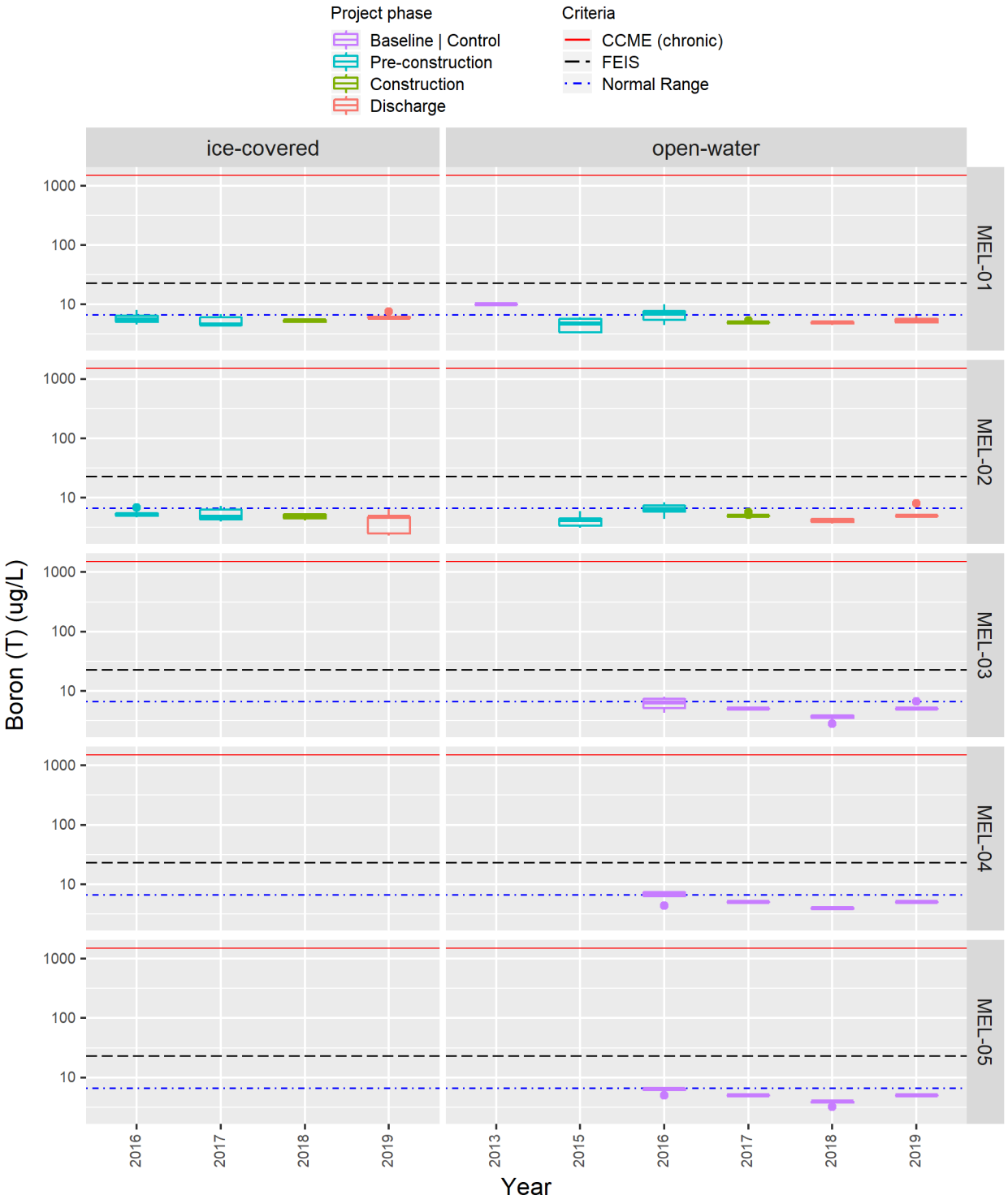


**Figure C1-33. Total cadmium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

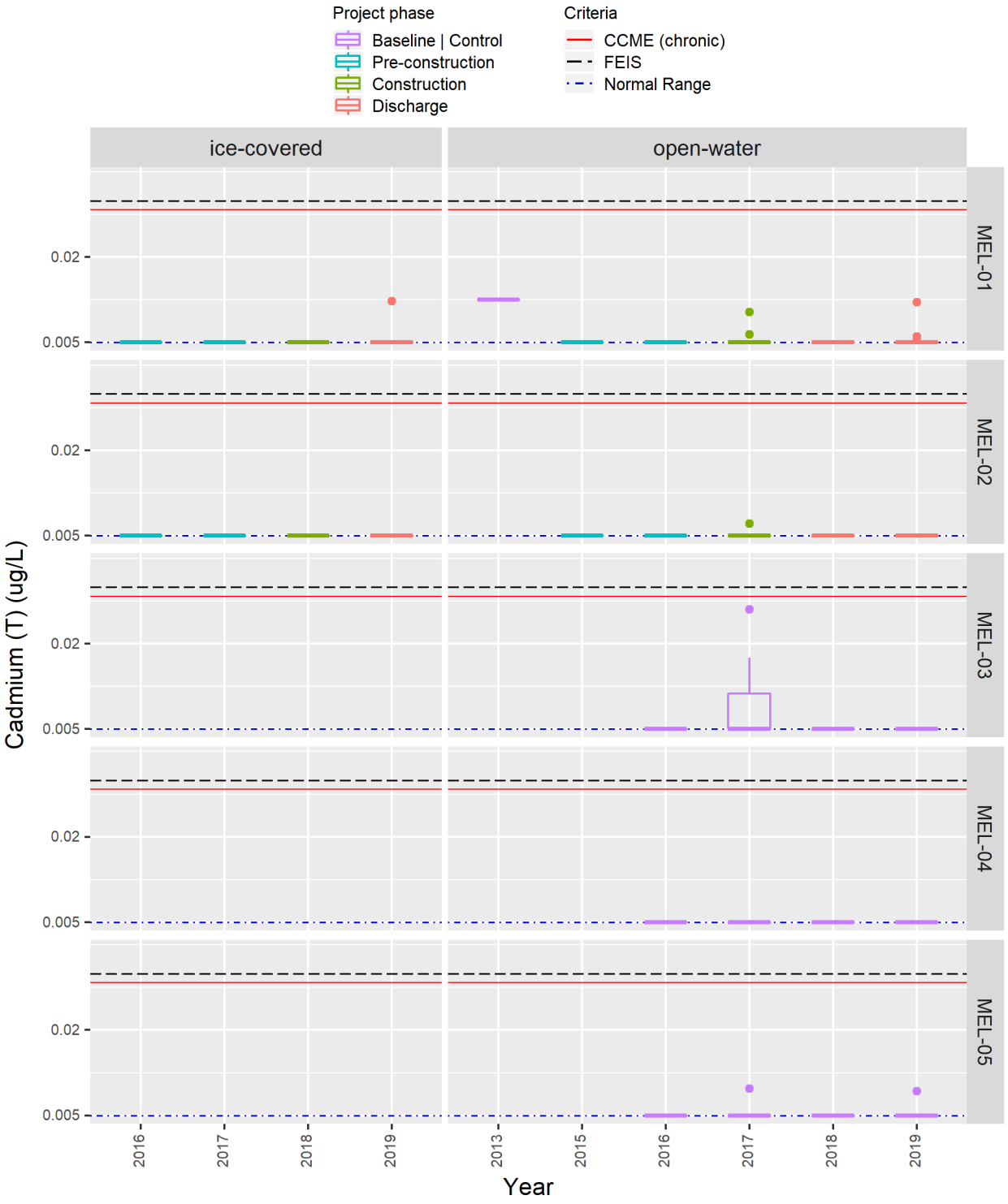


**Figure C1-34. Total chromium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

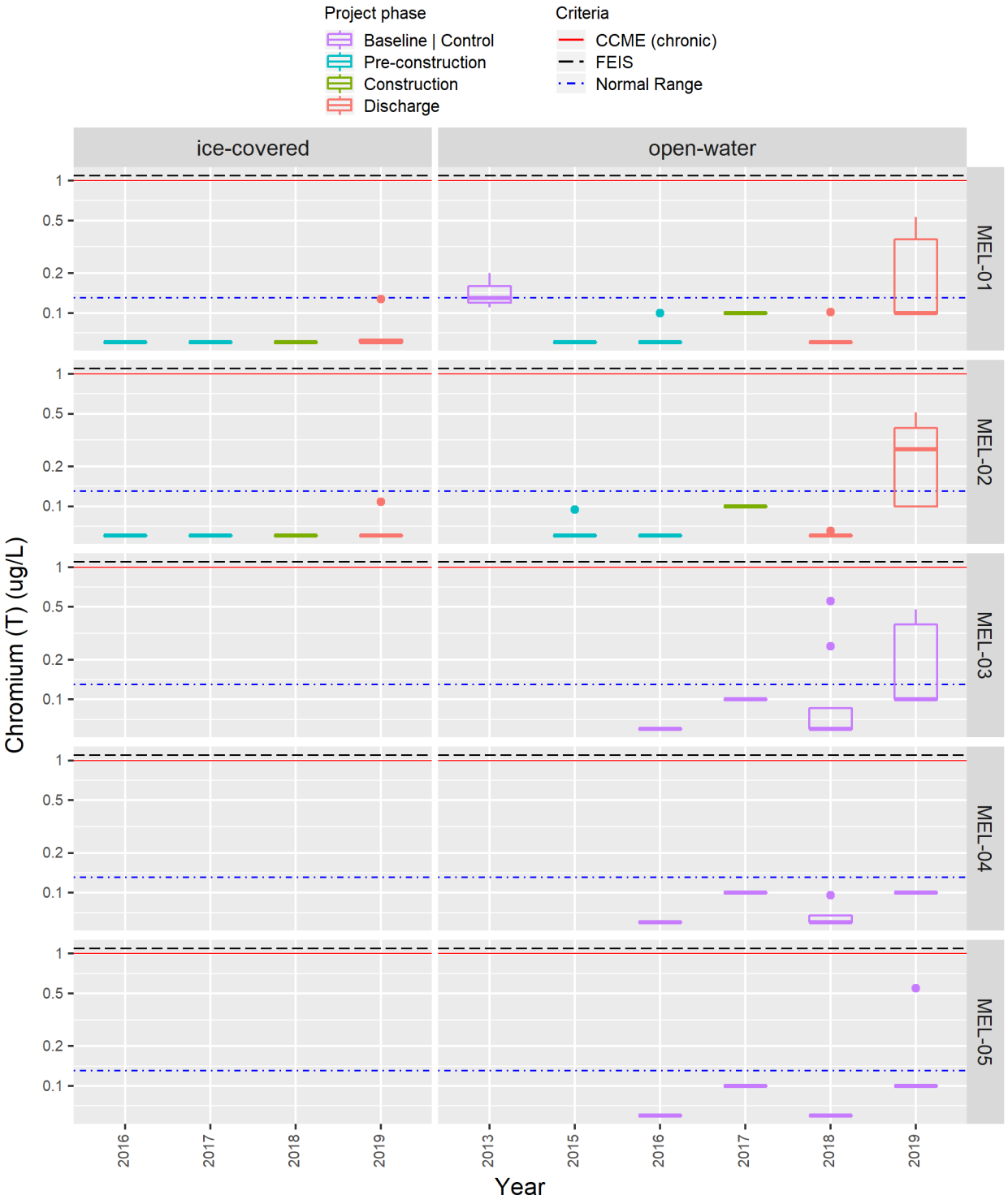


**Figure C1-35. Total cobalt (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

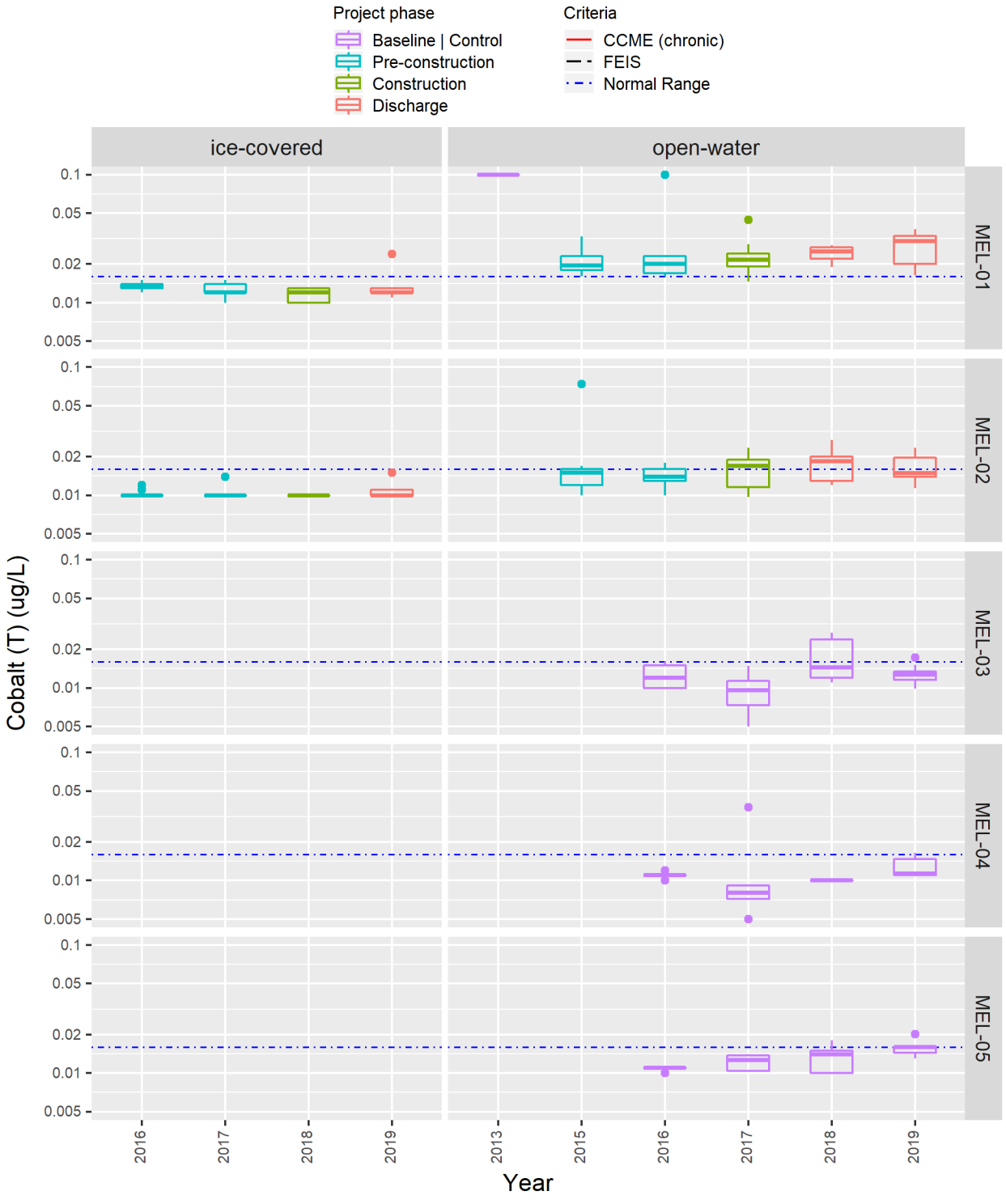


**Figure C1-36. Total copper (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

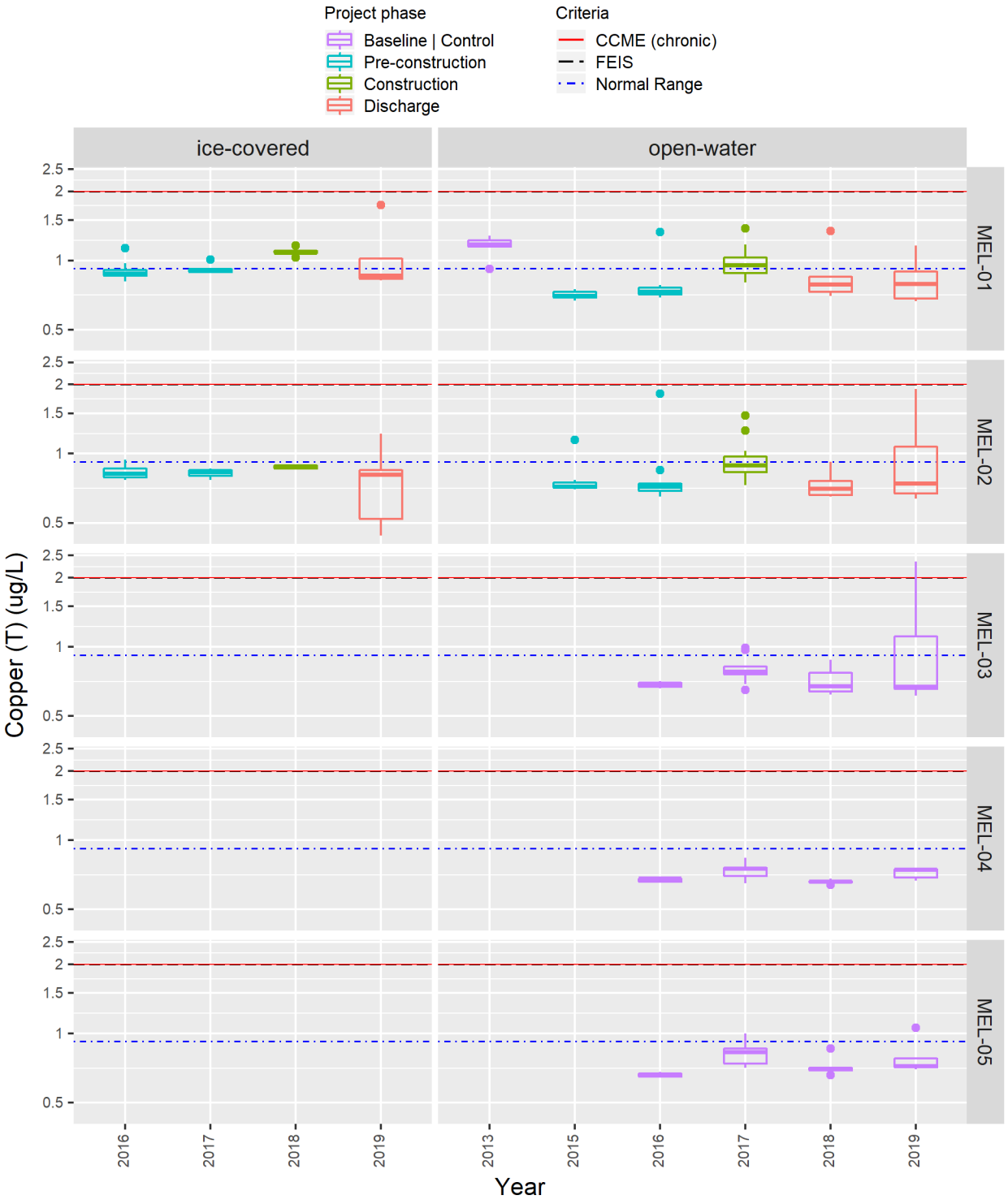


**Figure C1-37. Total iron (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

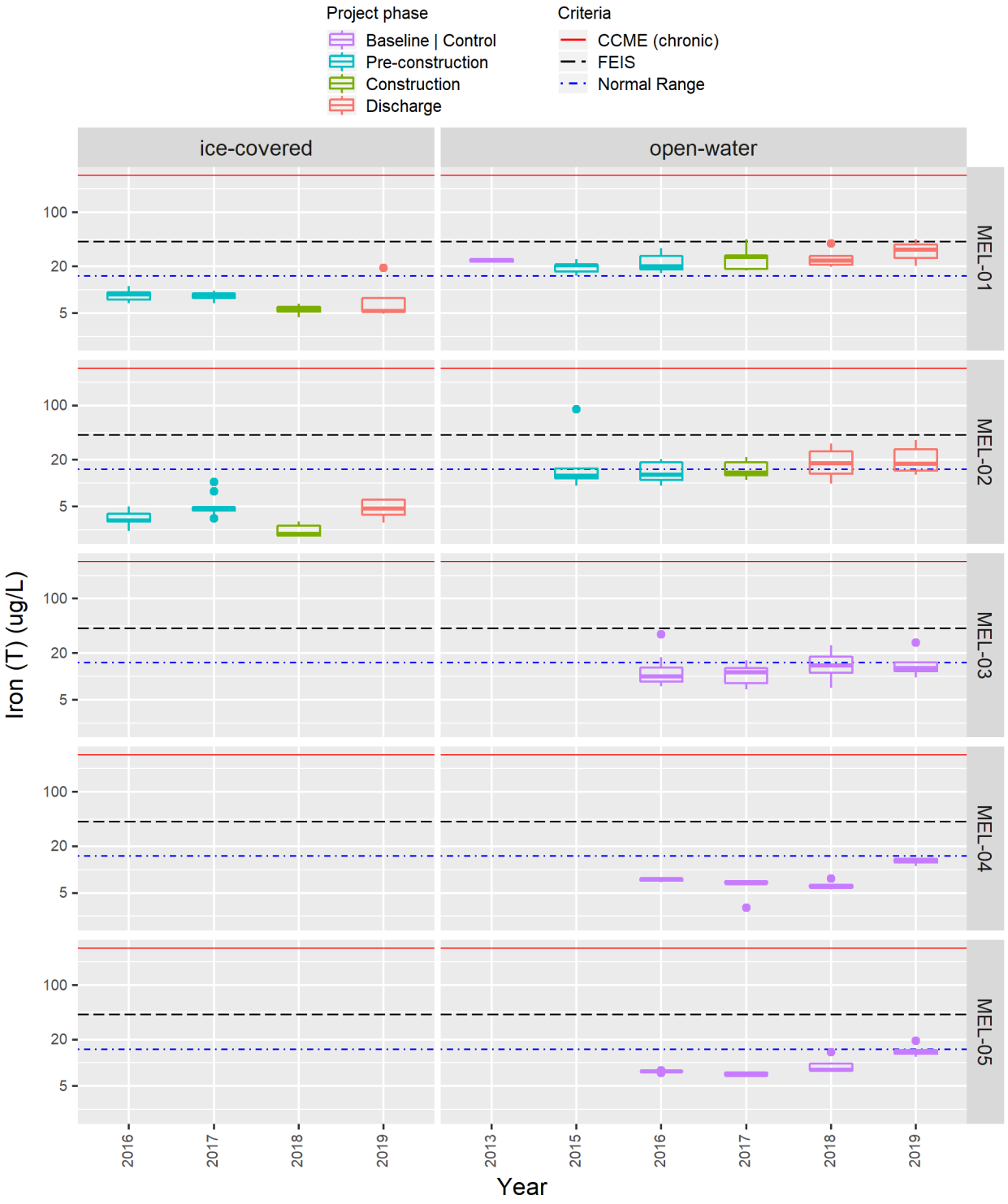


**Figure C1-38. Total lead (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

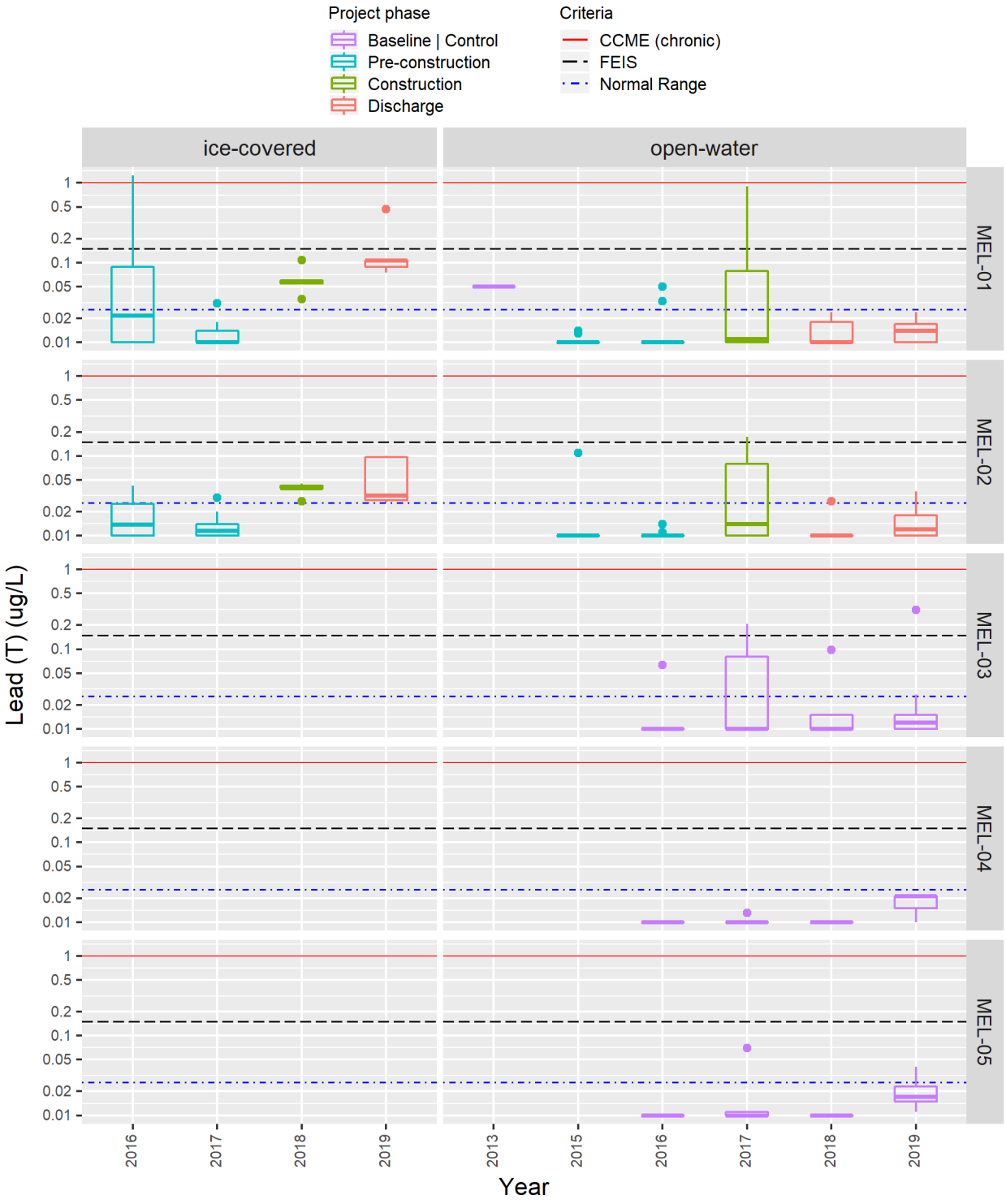


**Figure C1-39. Total lithium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

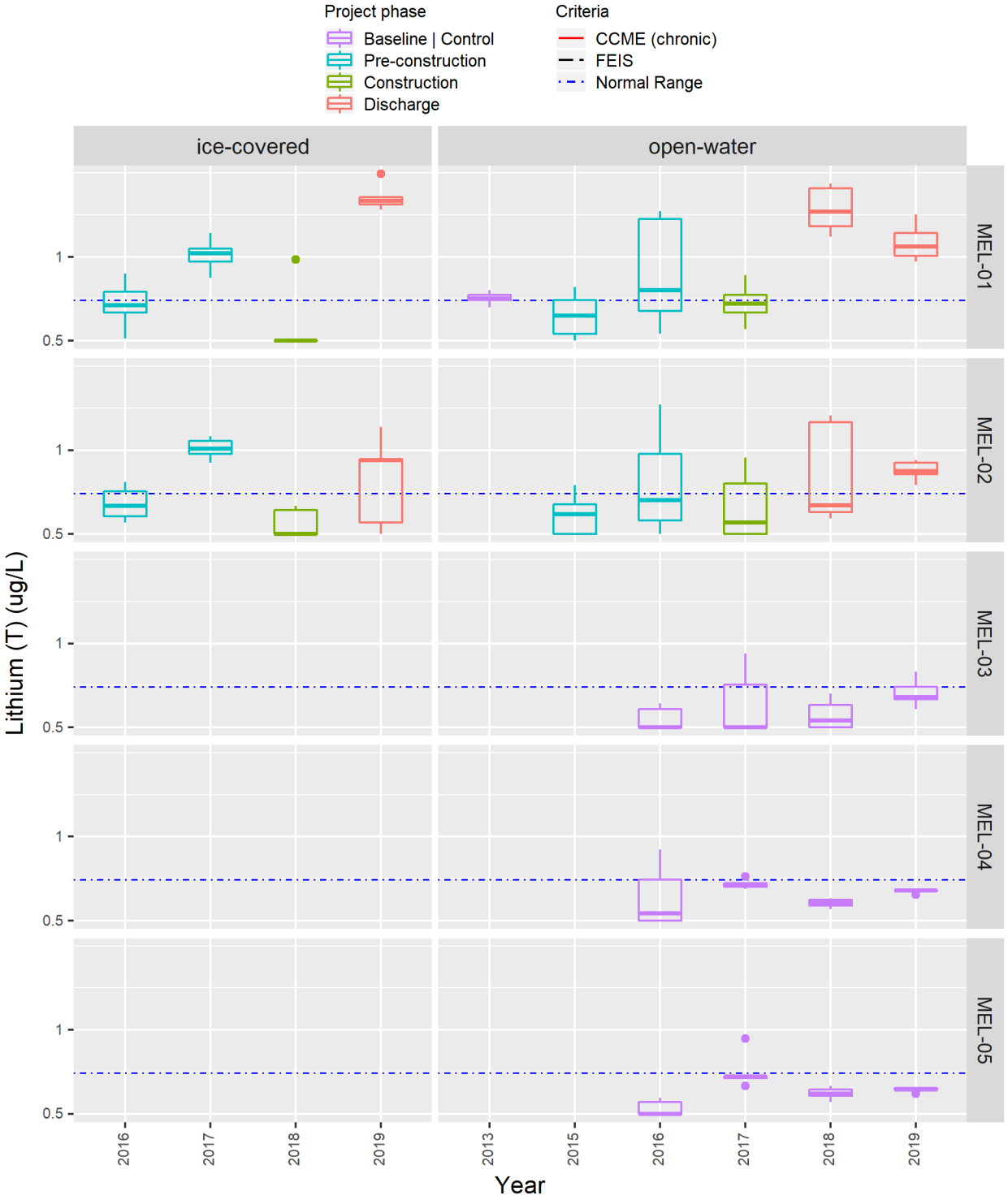


**Figure C1-40. Total manganese (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

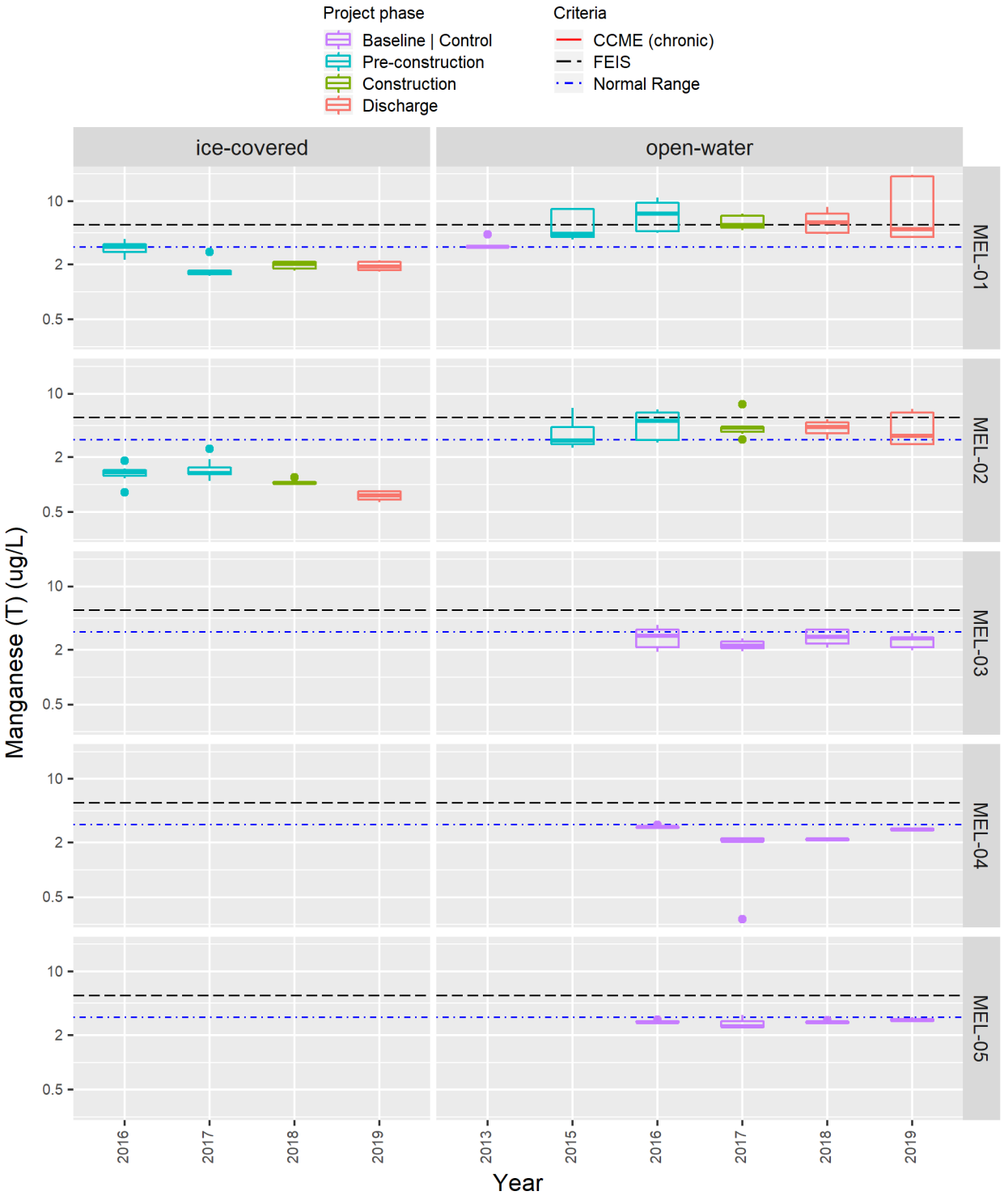


**Figure C1-41. Total mercury (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

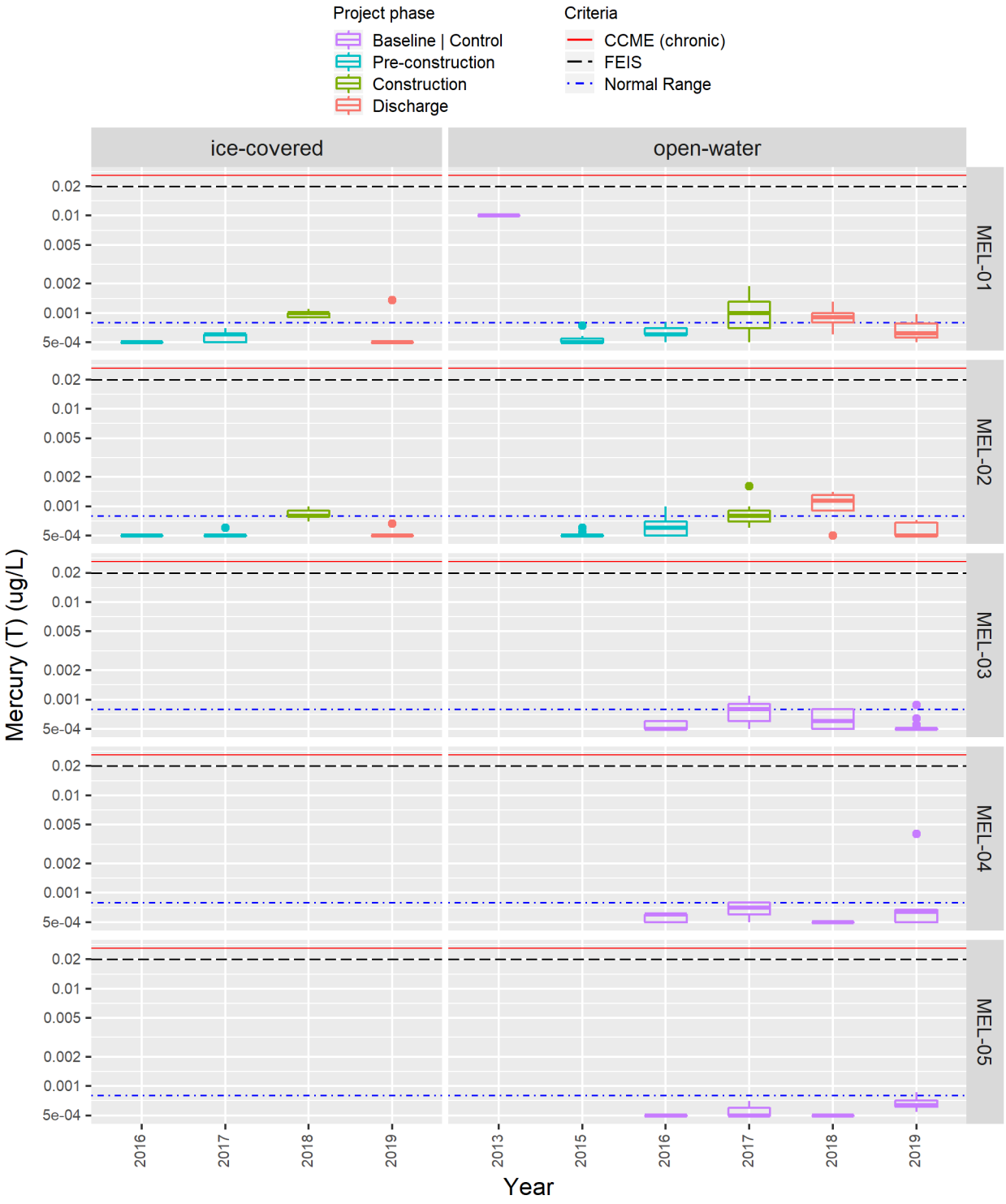


**Figure C1-42. Total molybdenum (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

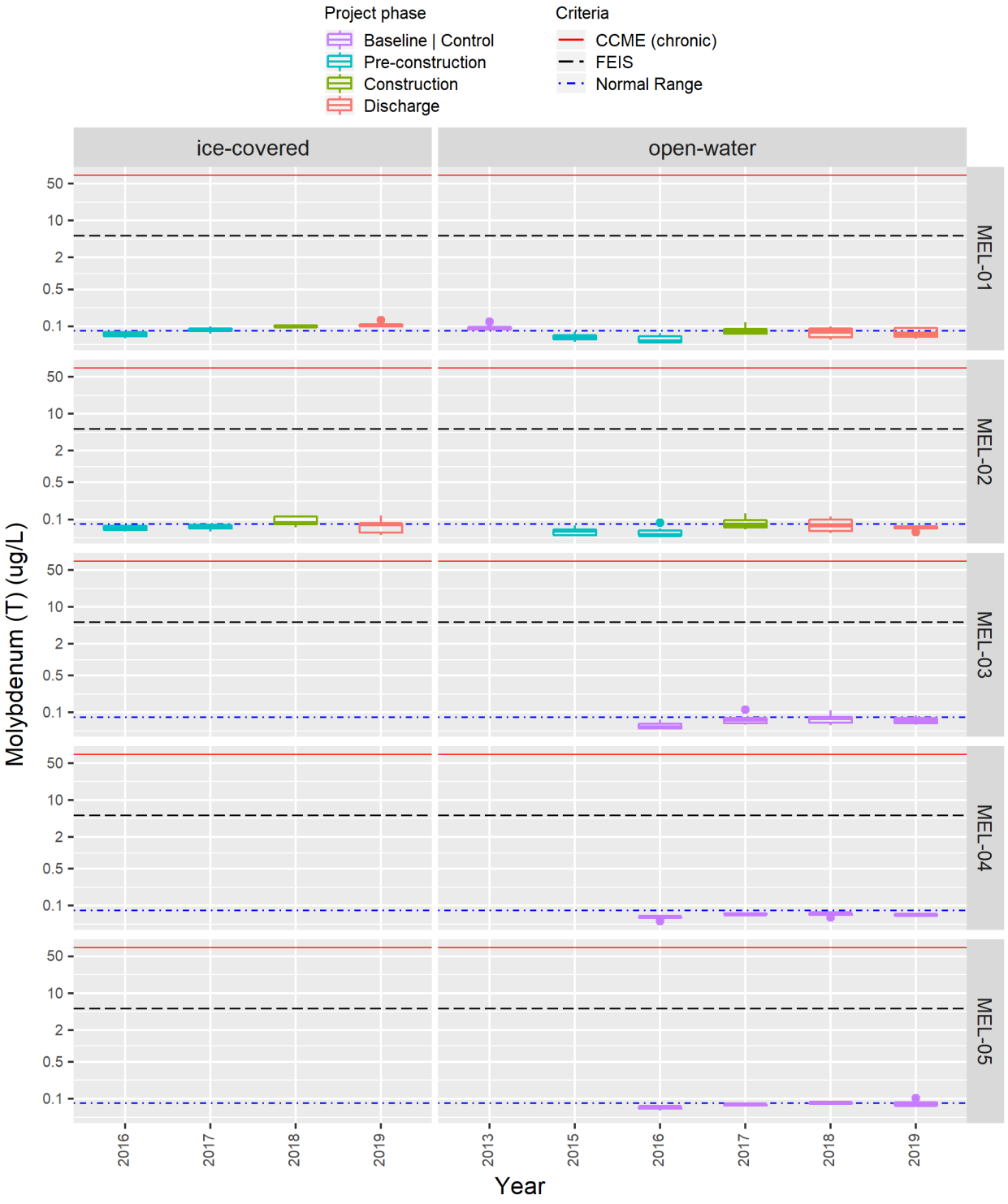


**Figure C1-43. Total nickel (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

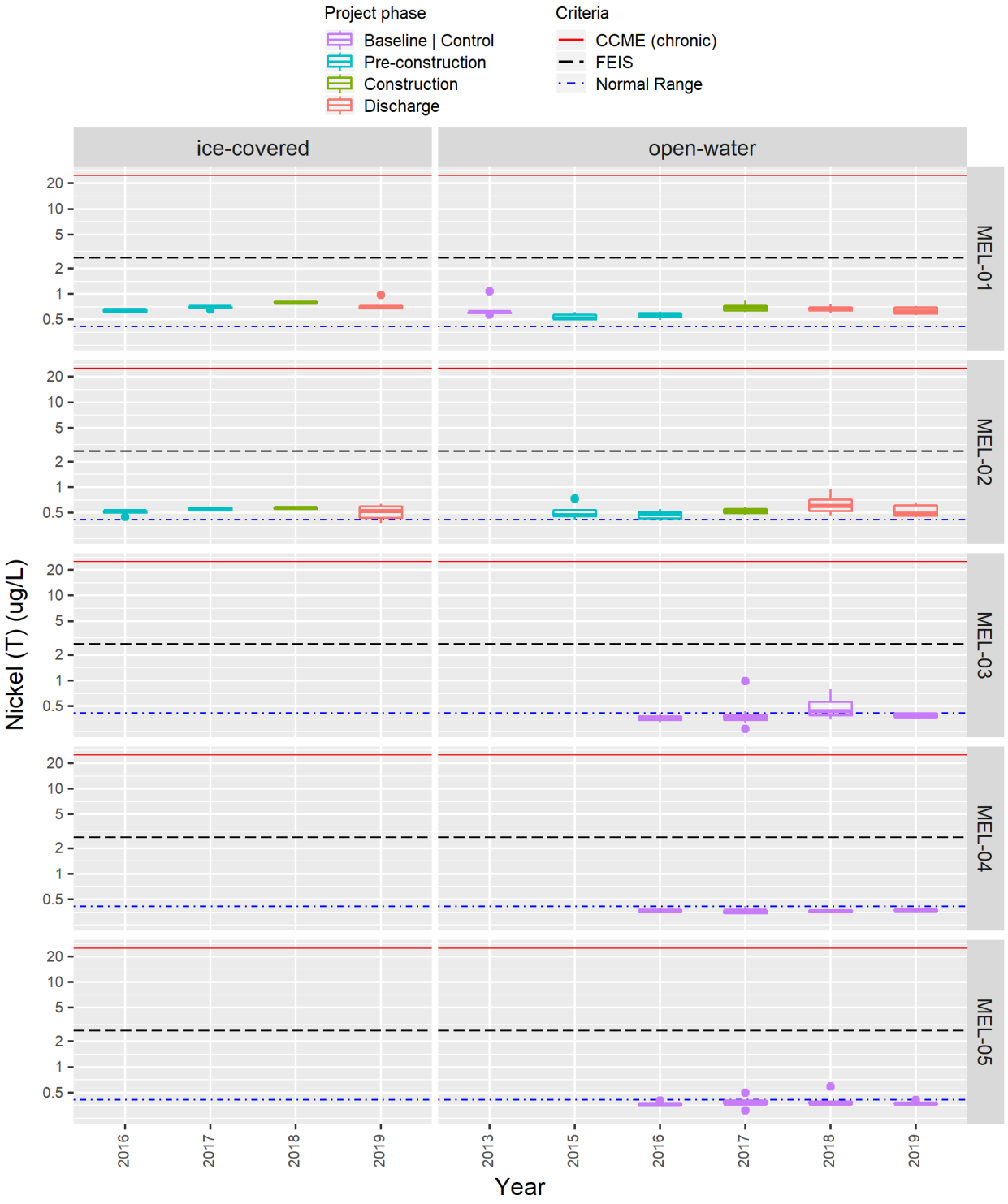


**Figure C1-44. Total selenium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

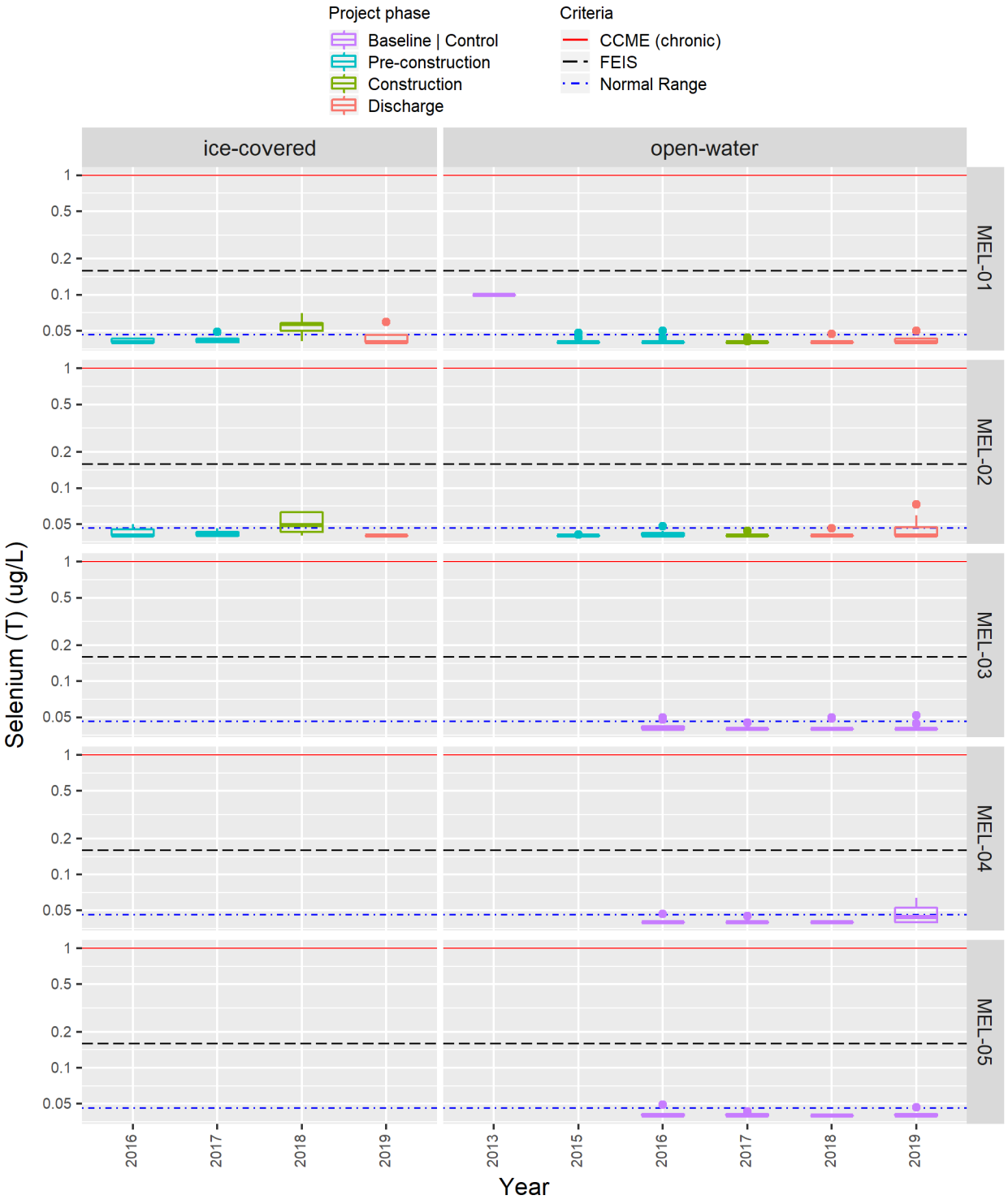


**Figure C1-45. Total silver (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

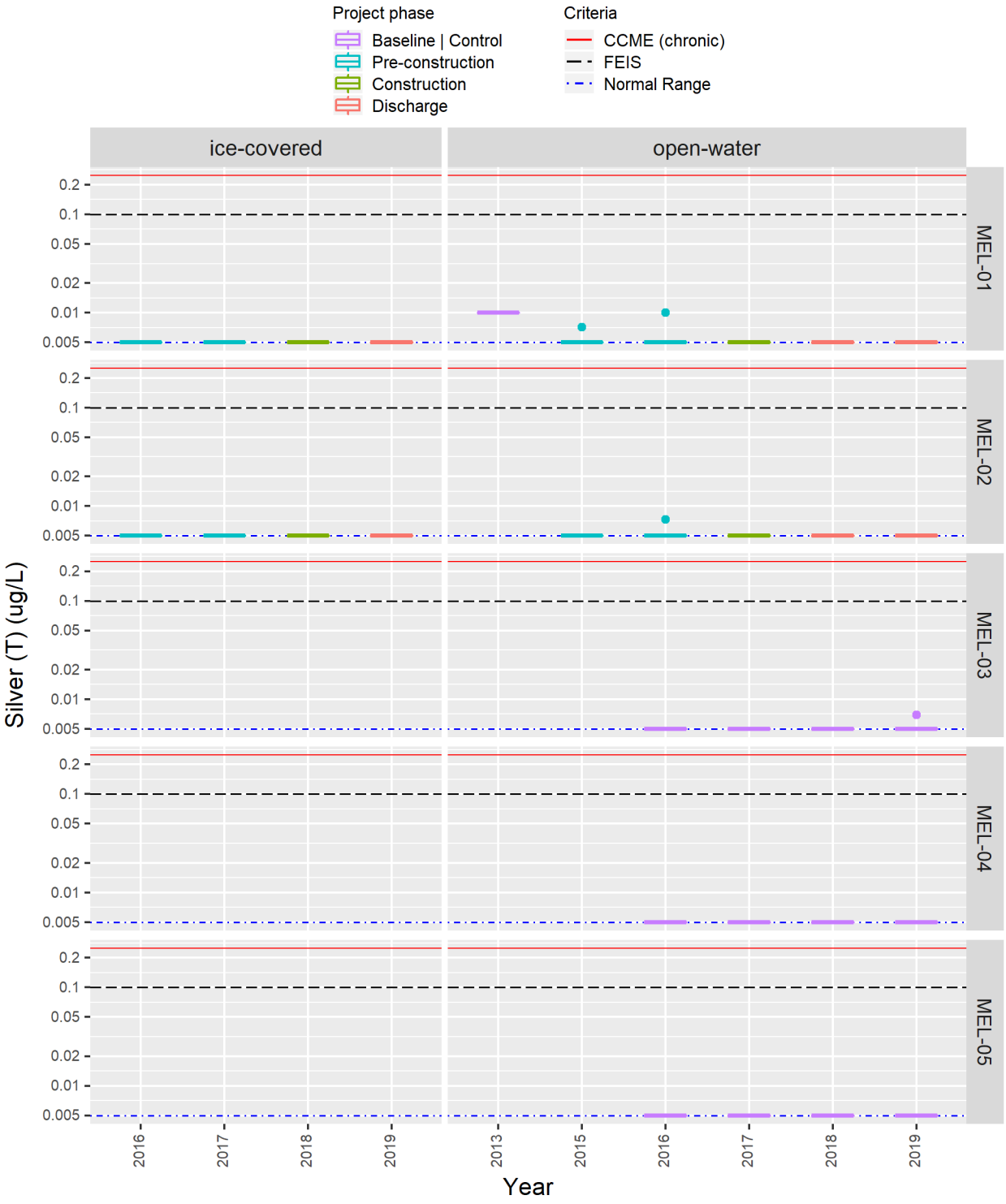


**Figure C1-46. Total strontium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

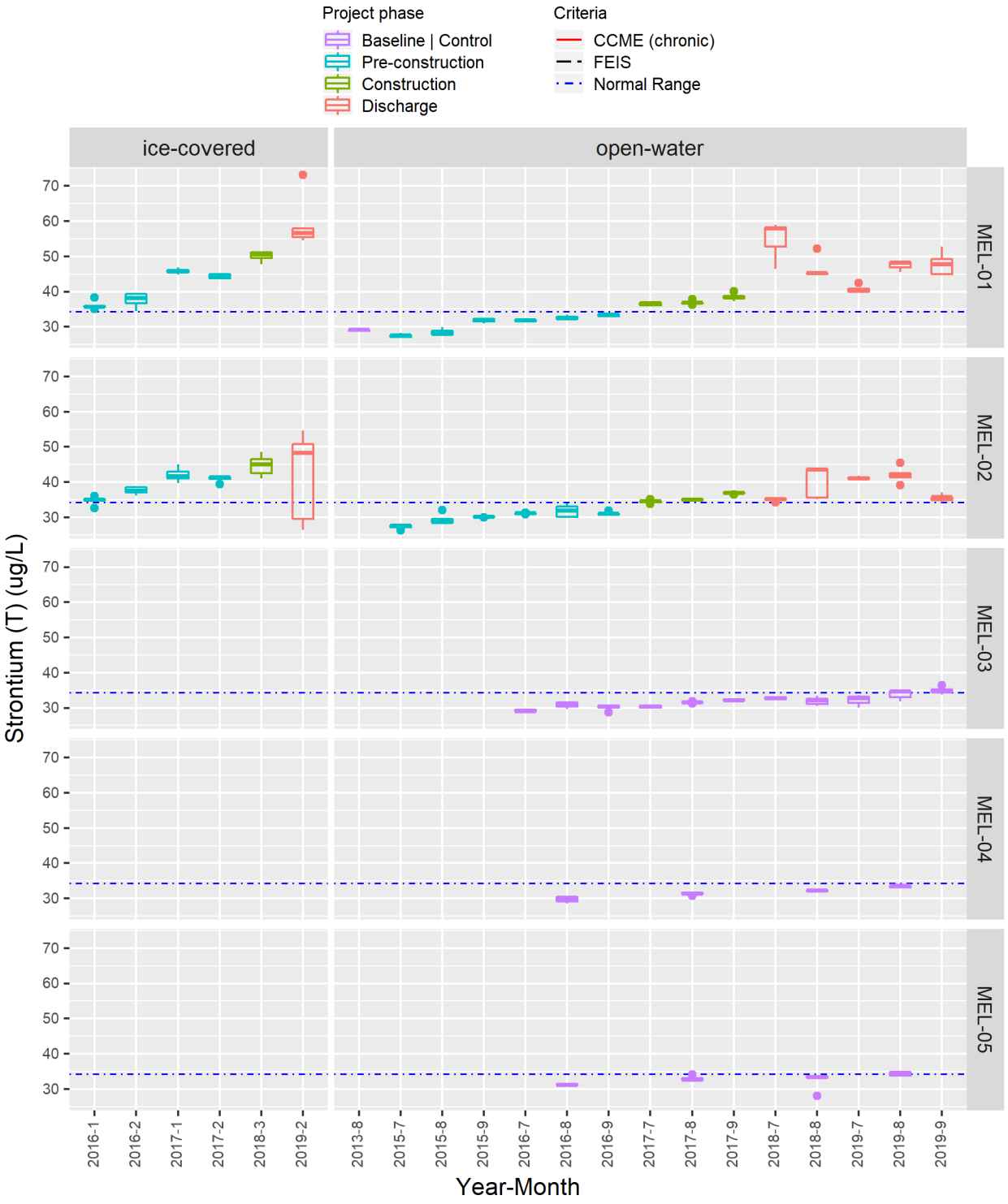


**Figure C1-47. Total thallium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

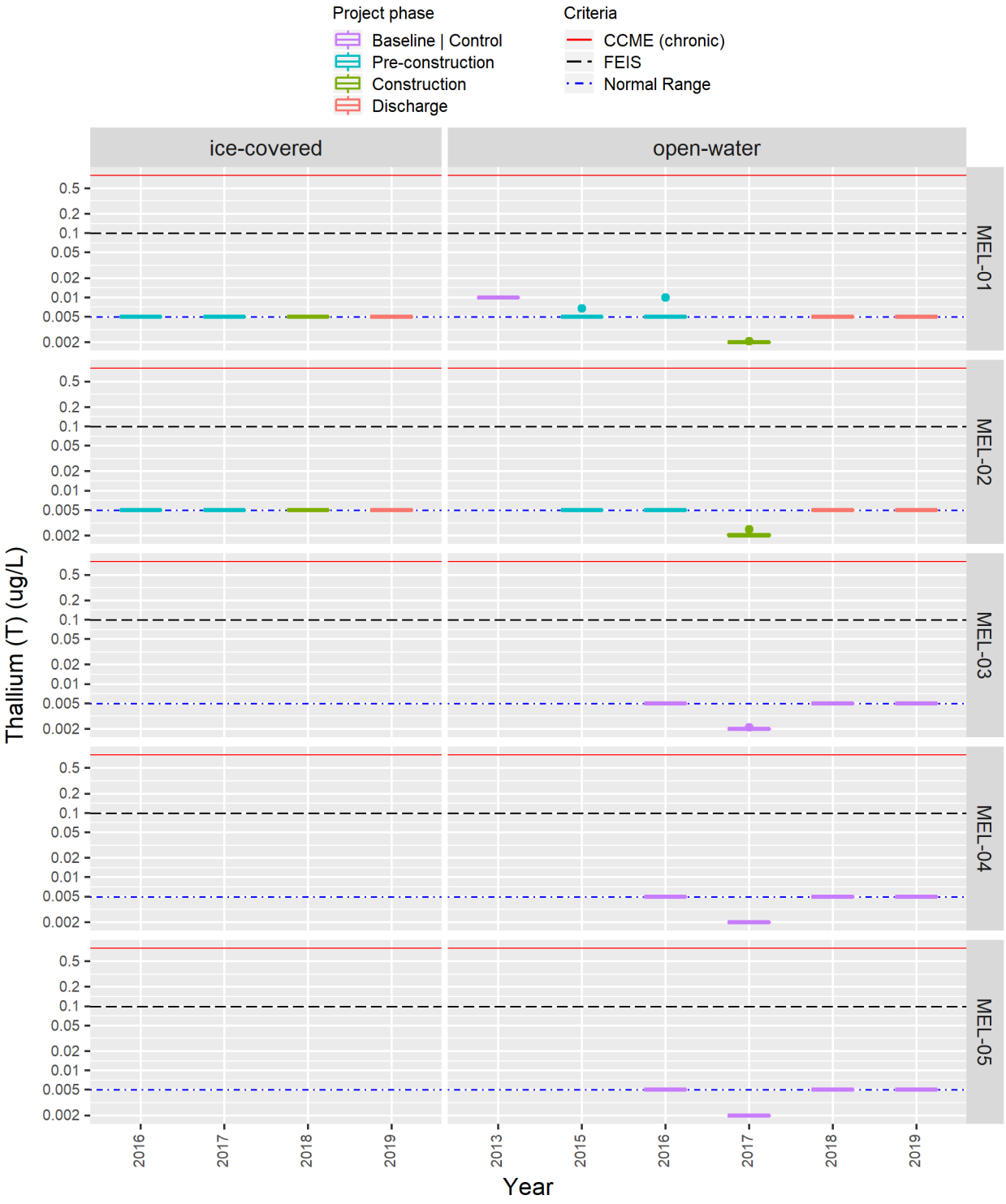


**Figure C1-48. Total tin (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

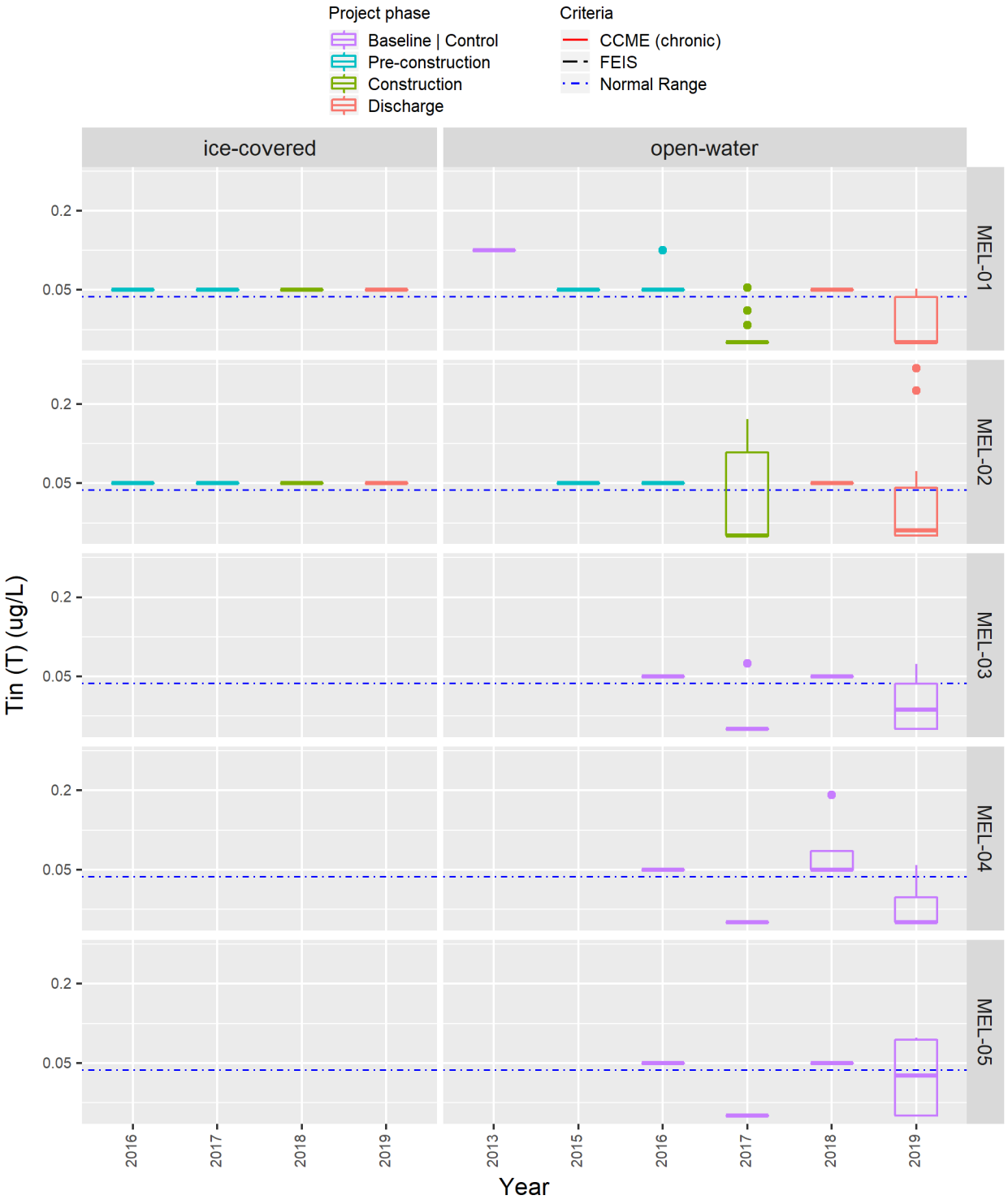


**Figure C1-49. Total titanium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

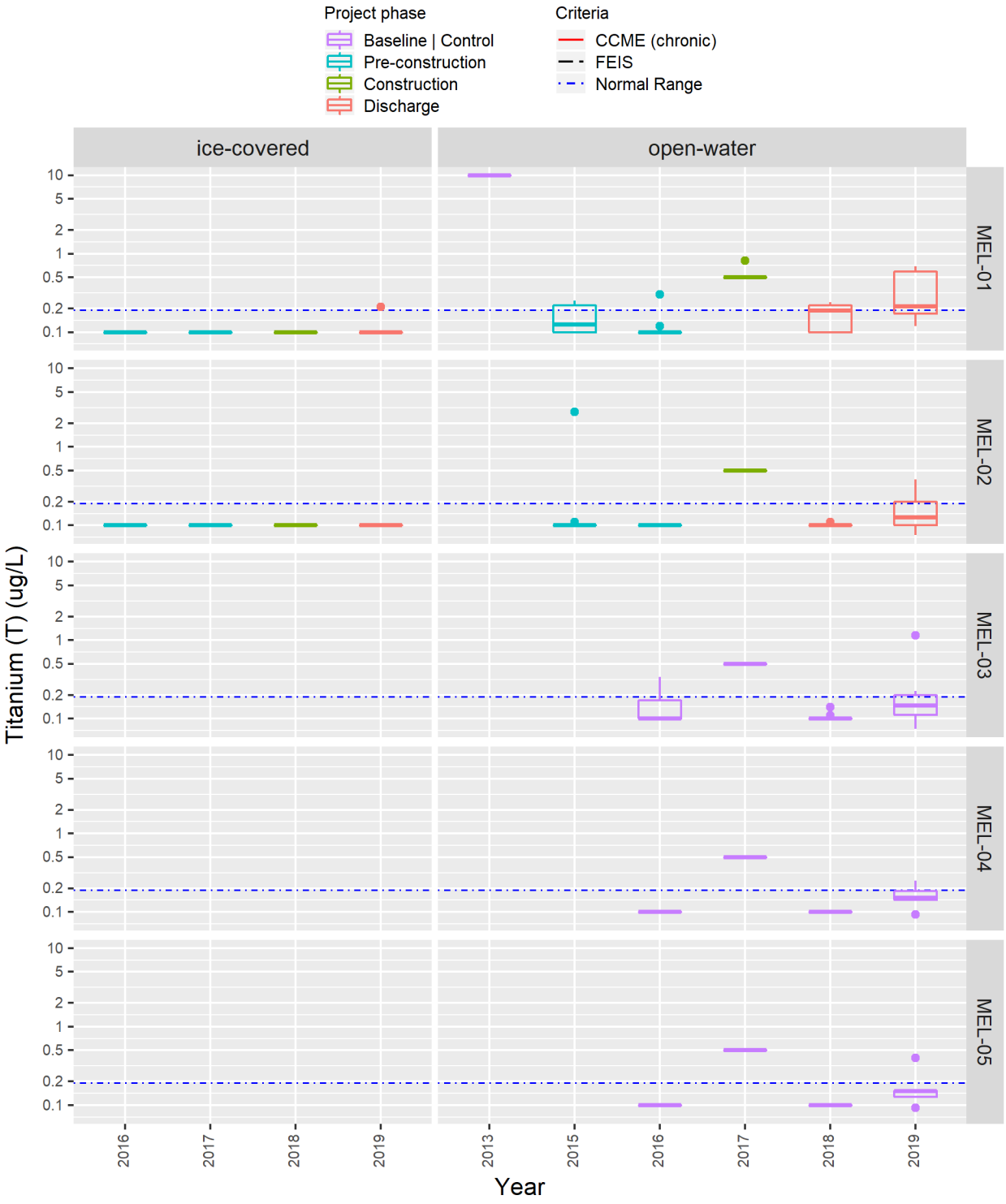


**Figure C1-50. Total uranium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

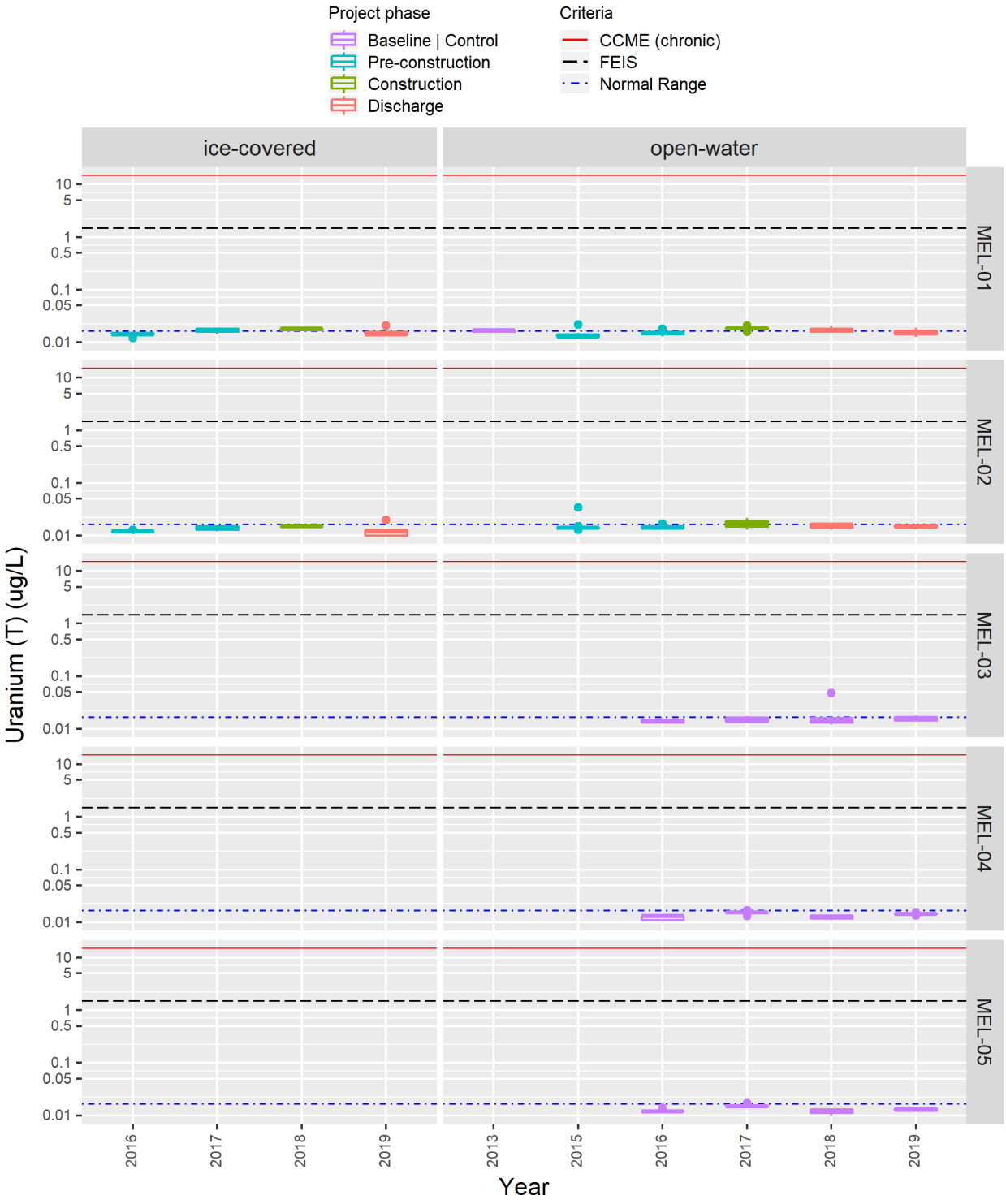


**Figure C1-51. Total vanadium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

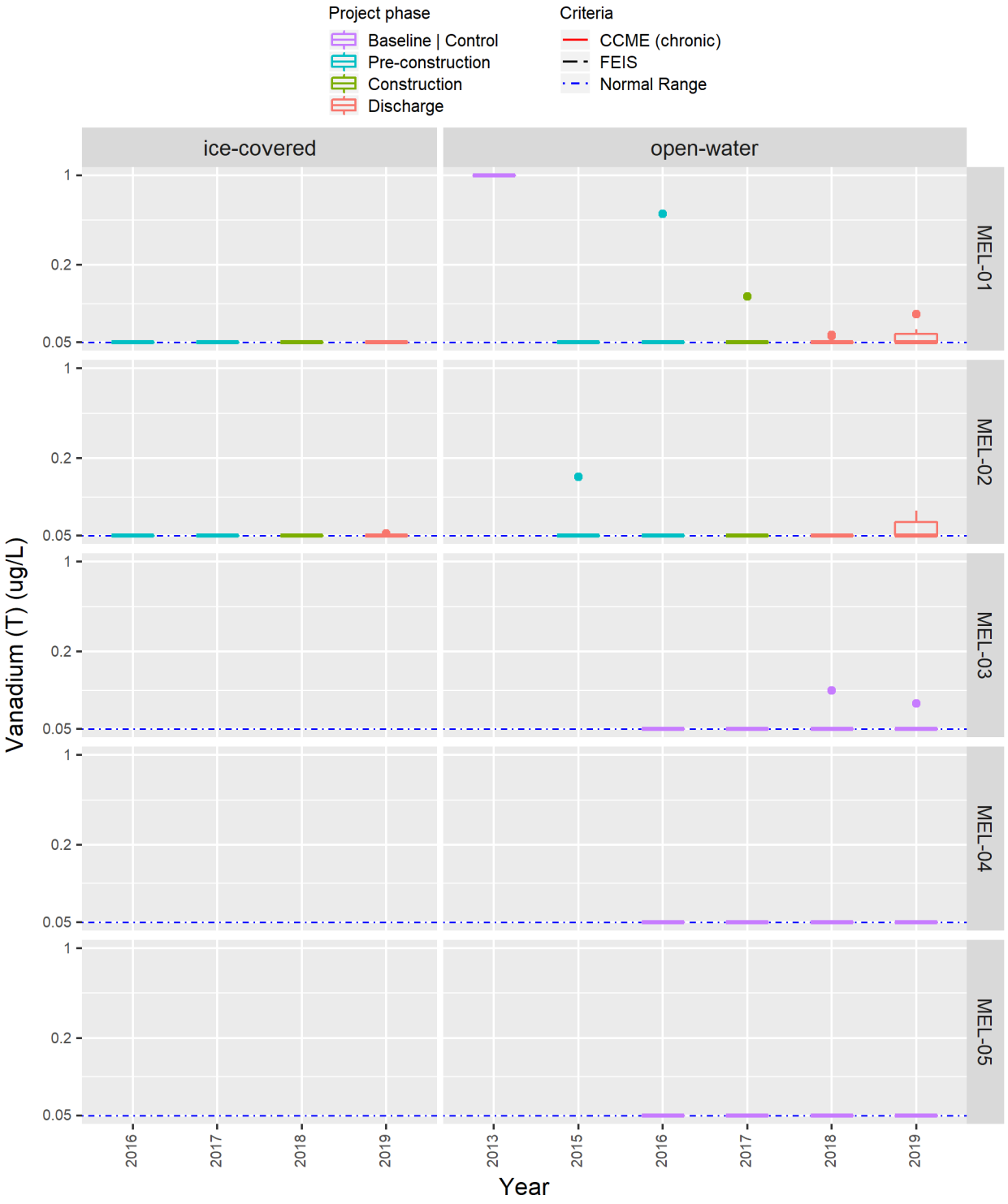


**Figure C1-52. Total zinc (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

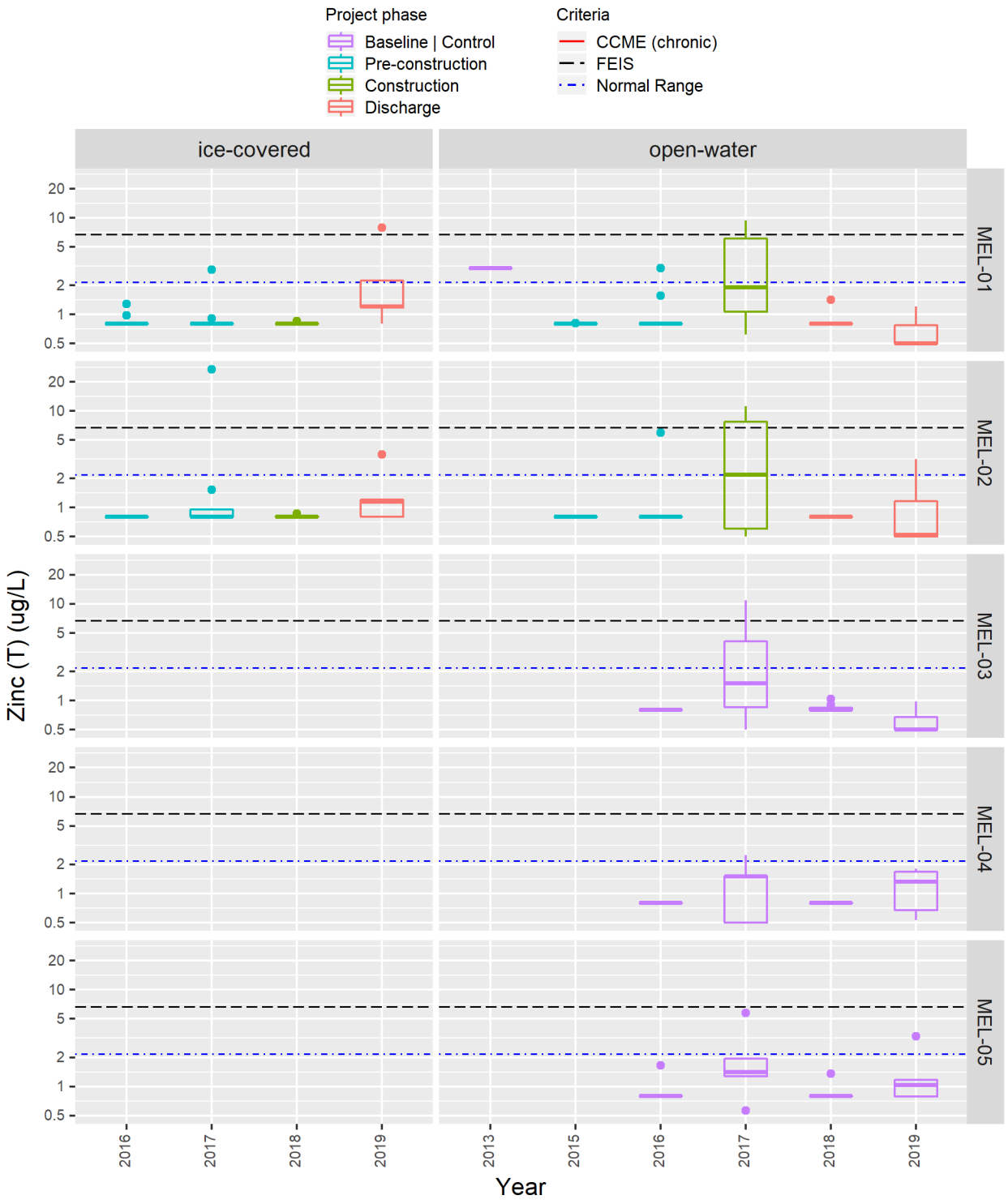


**Figure C1-53. Dissolved manganese (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

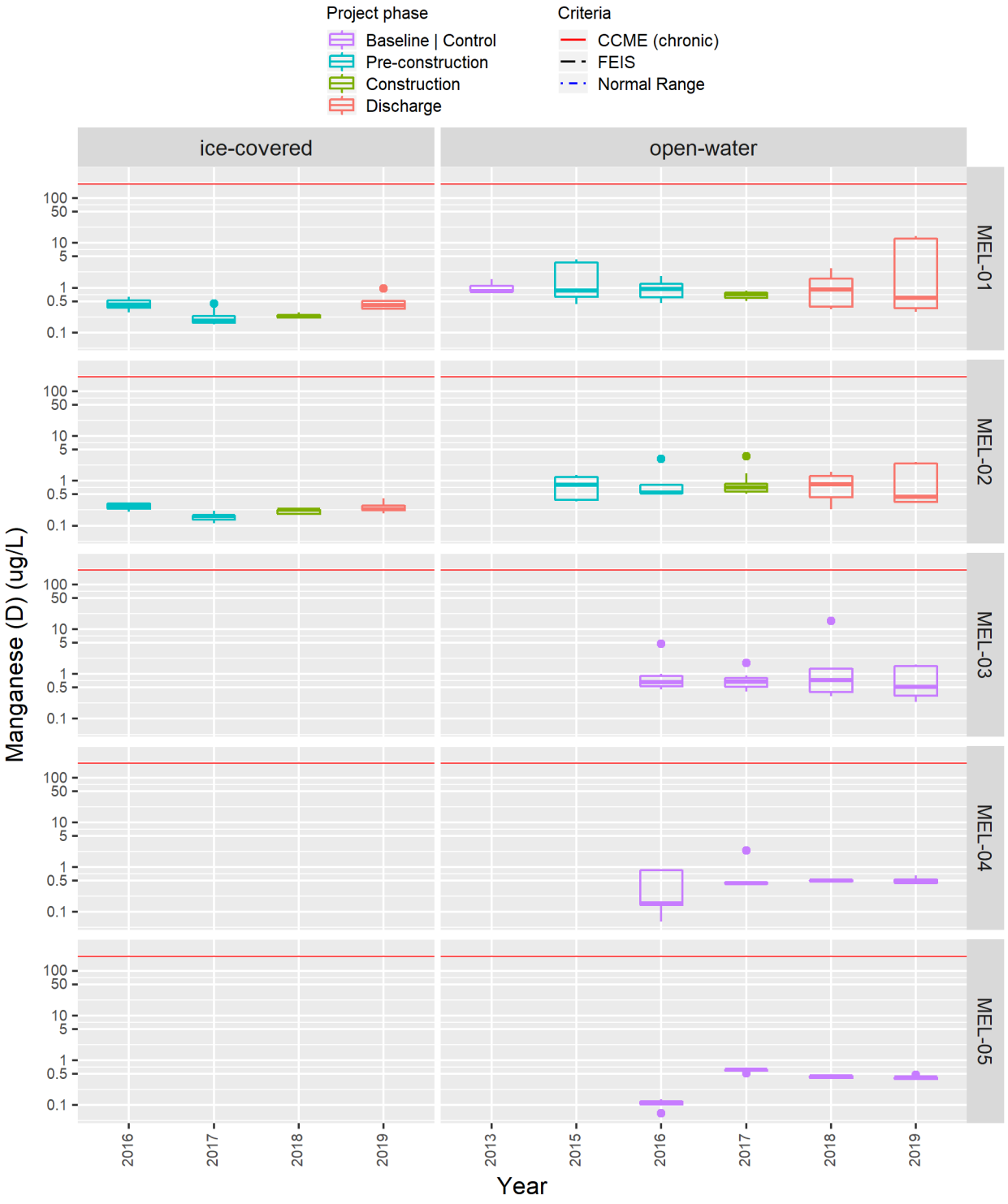
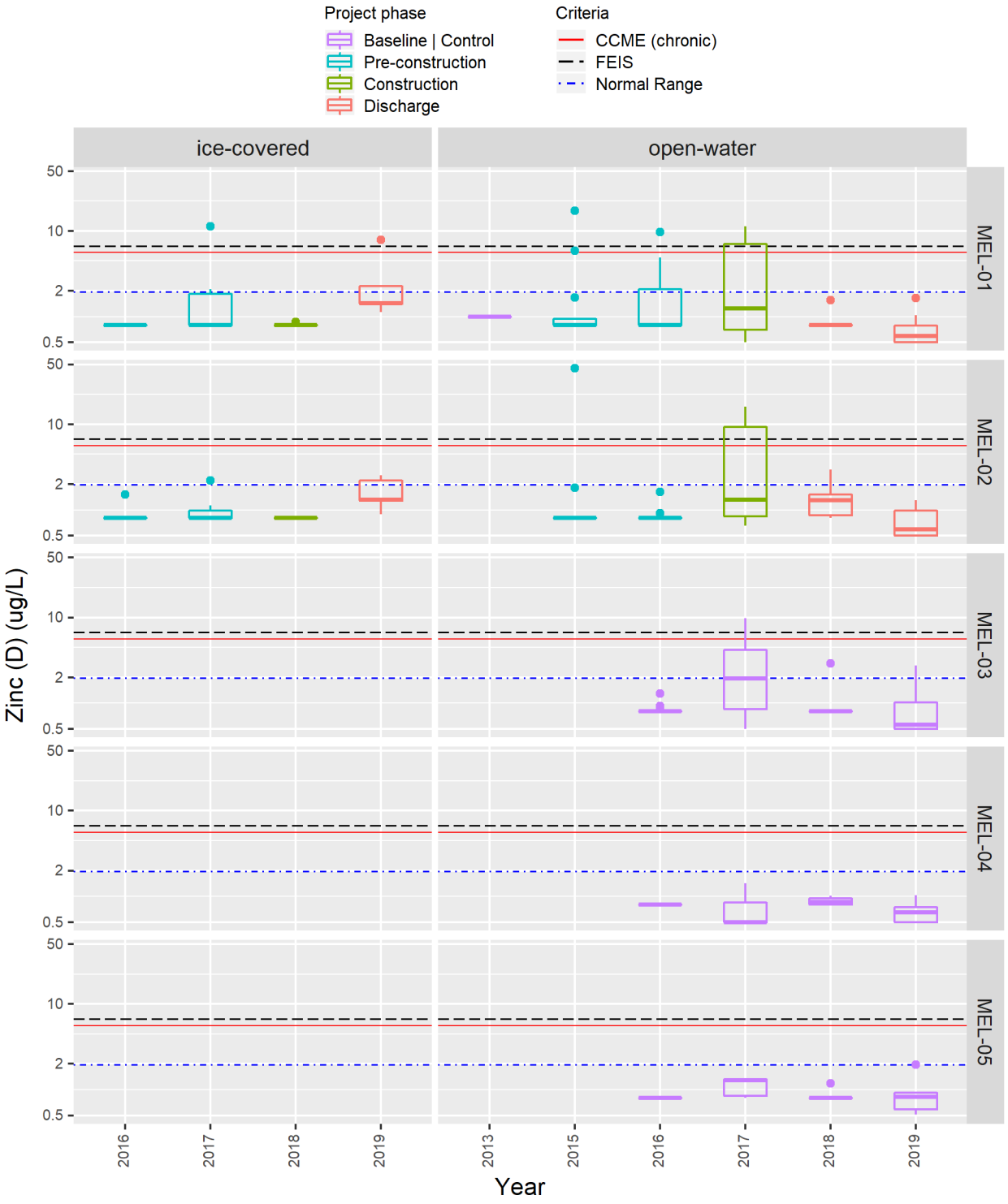


**Figure C1-54. Dissolved zinc (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).



# Appendix C2
# Meliadine Lake Water Chemistry – Scatter Plots

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**Figure C2-1. Specific conductivity (µS/cm) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

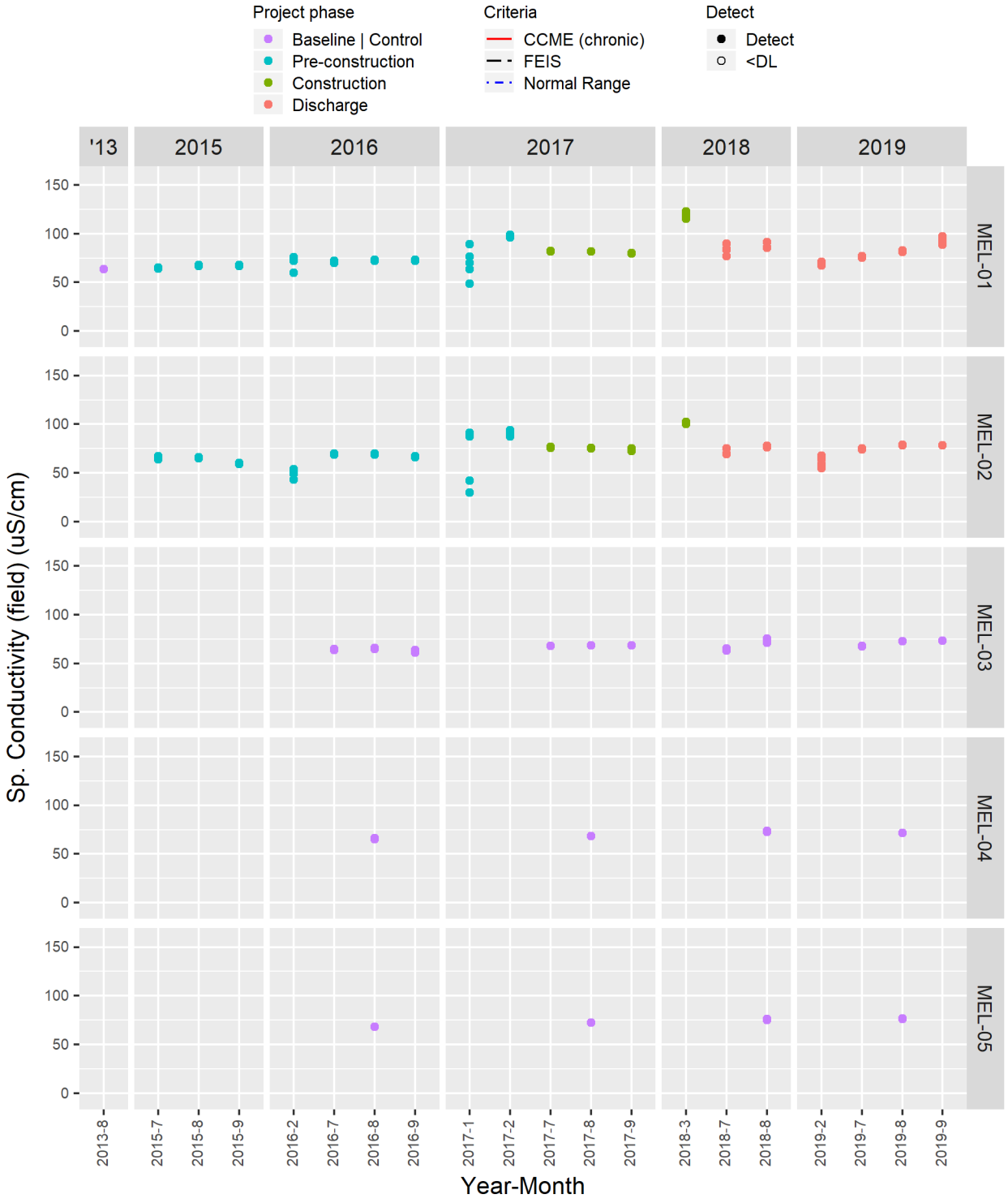


**Figure C2-2. Field pH in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

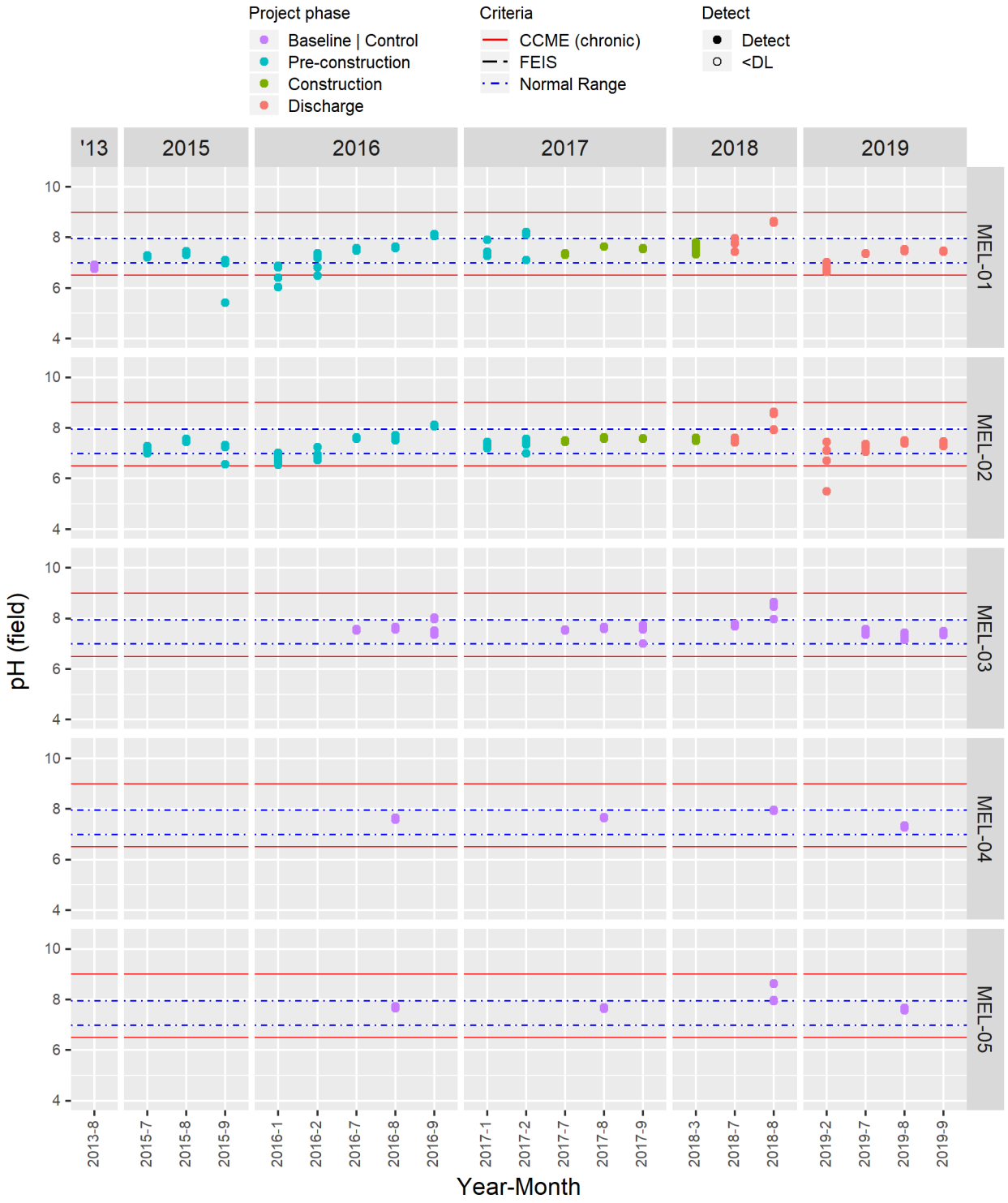


**Figure C2-3. Lab-measured conductivity (µS/cm) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

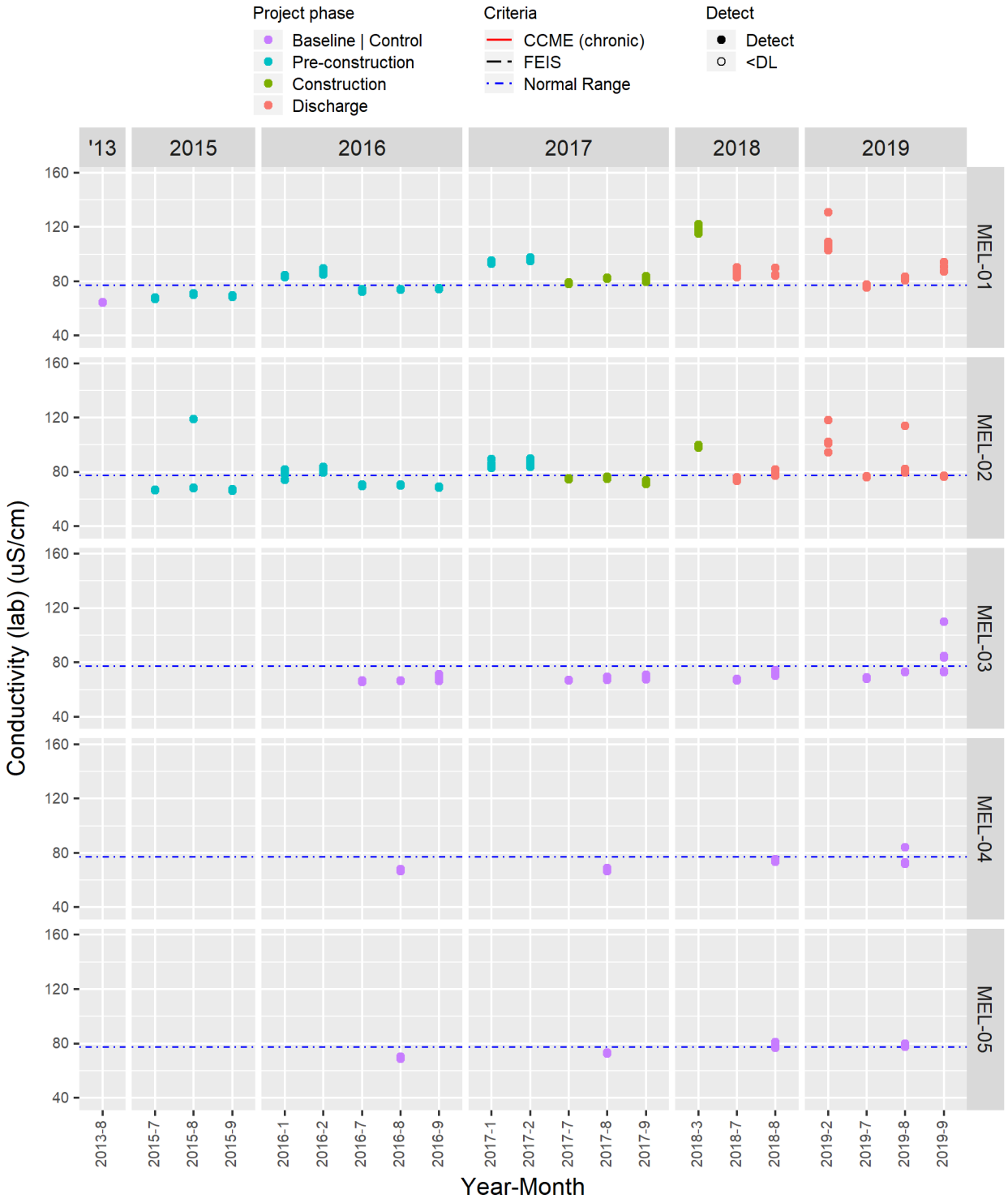


**Figure C2-4. Hardness (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

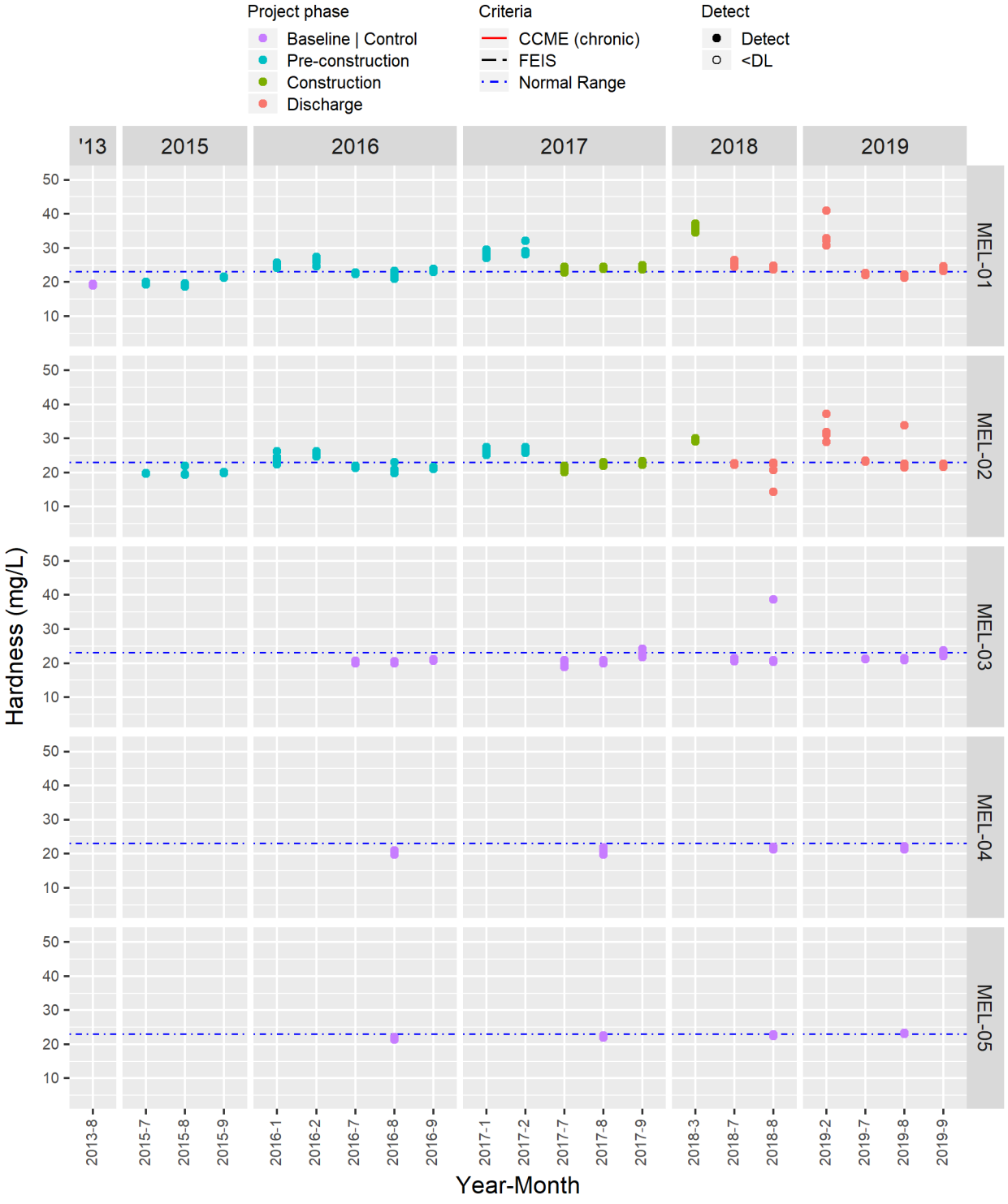


**Figure C2-5. Lab measured pH in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

**Figure C2-6. Total dissolved solids (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

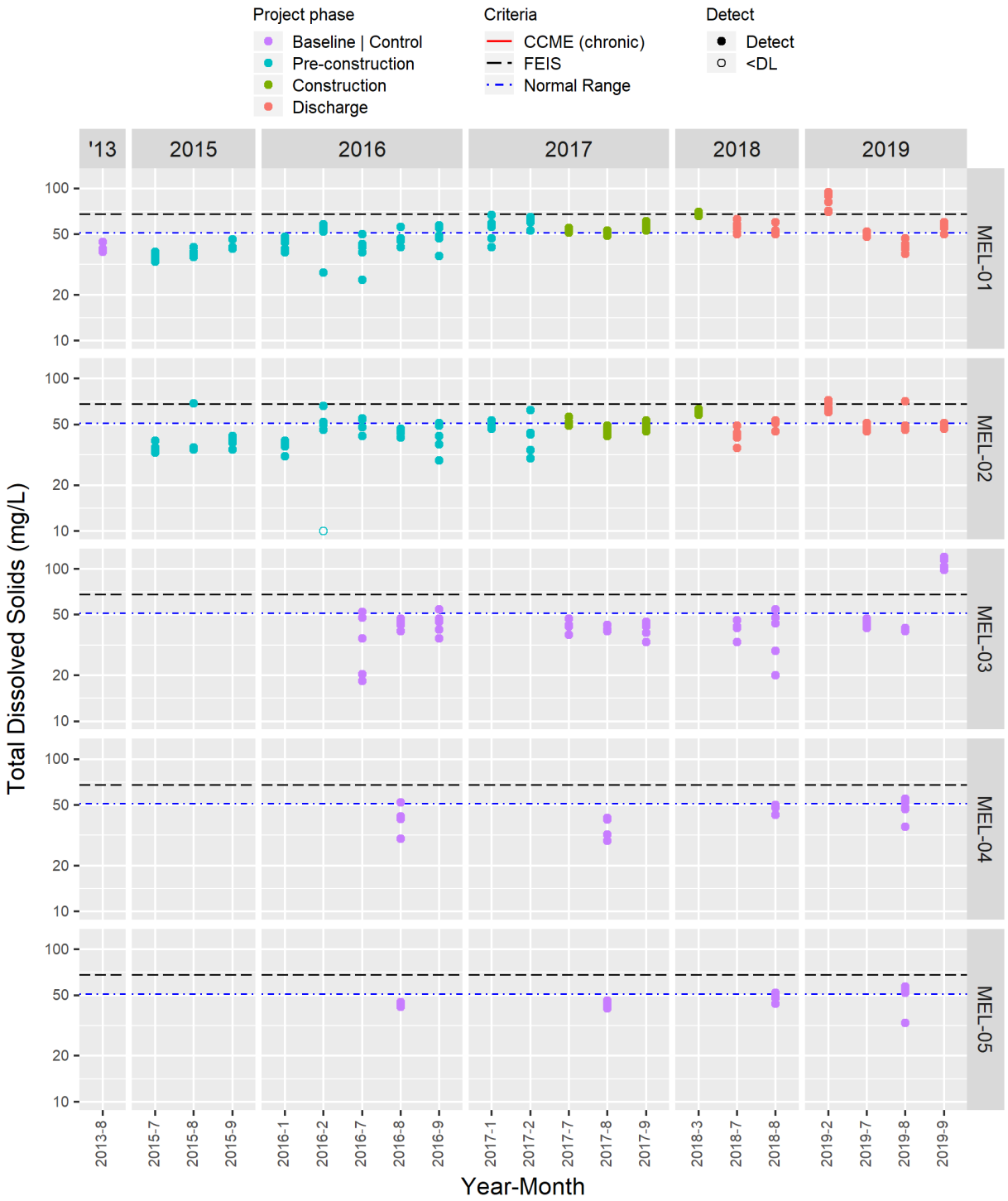


**Figure C2-7. Calculated total dissolved solids (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

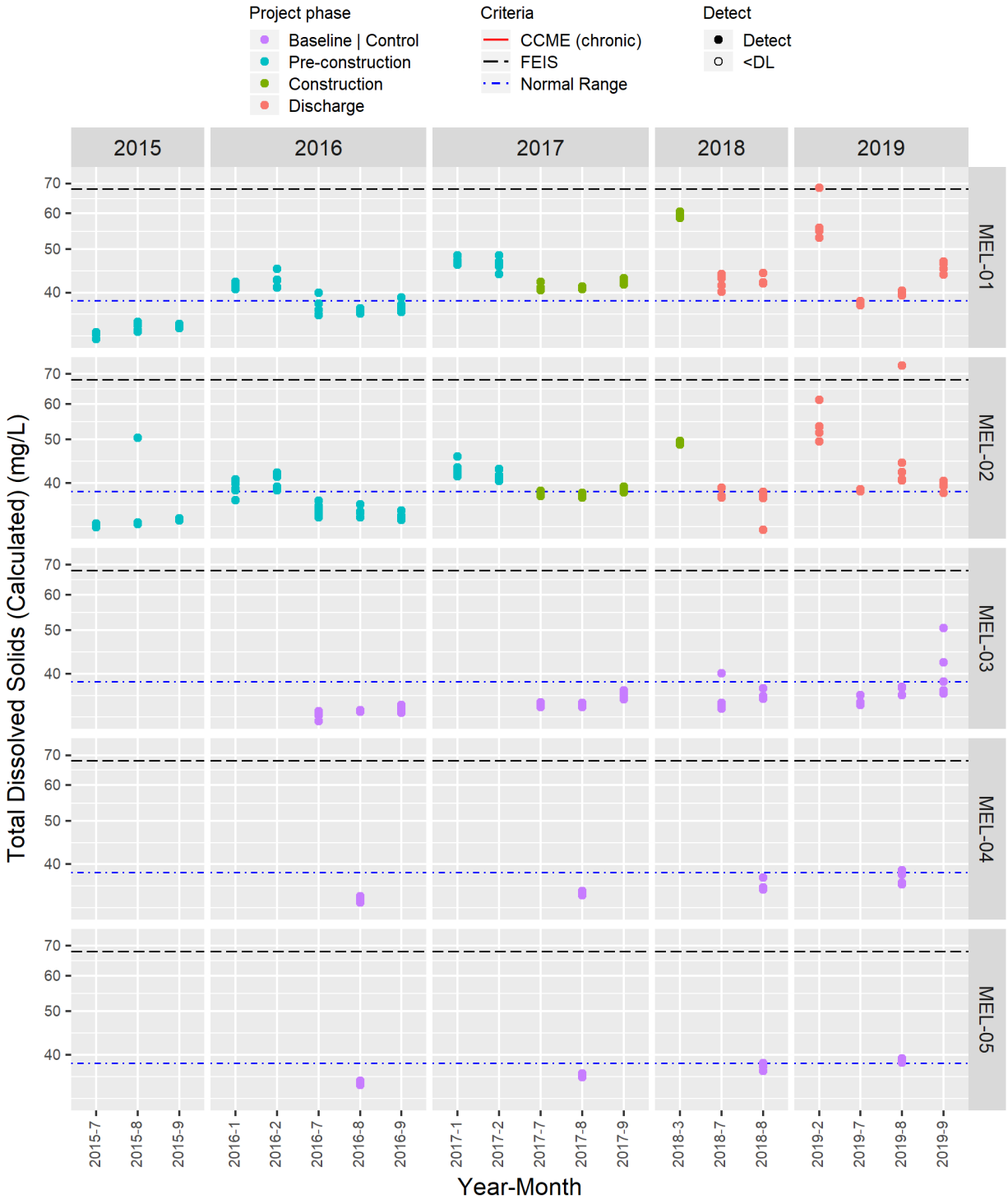


**Figure C2-8. Total suspended solids (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

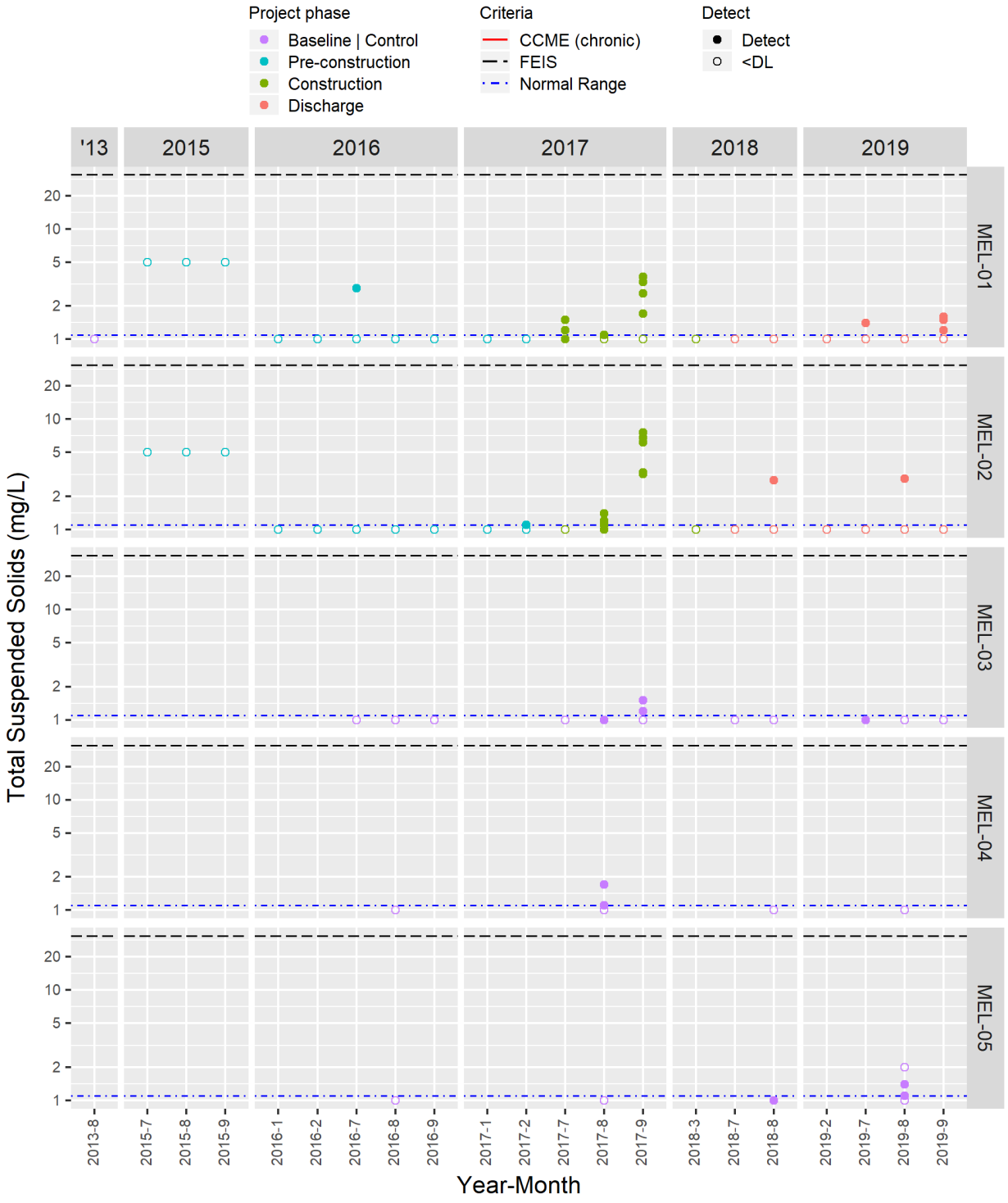


**Figure C2-9. Lab measured turbidity (NTU) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

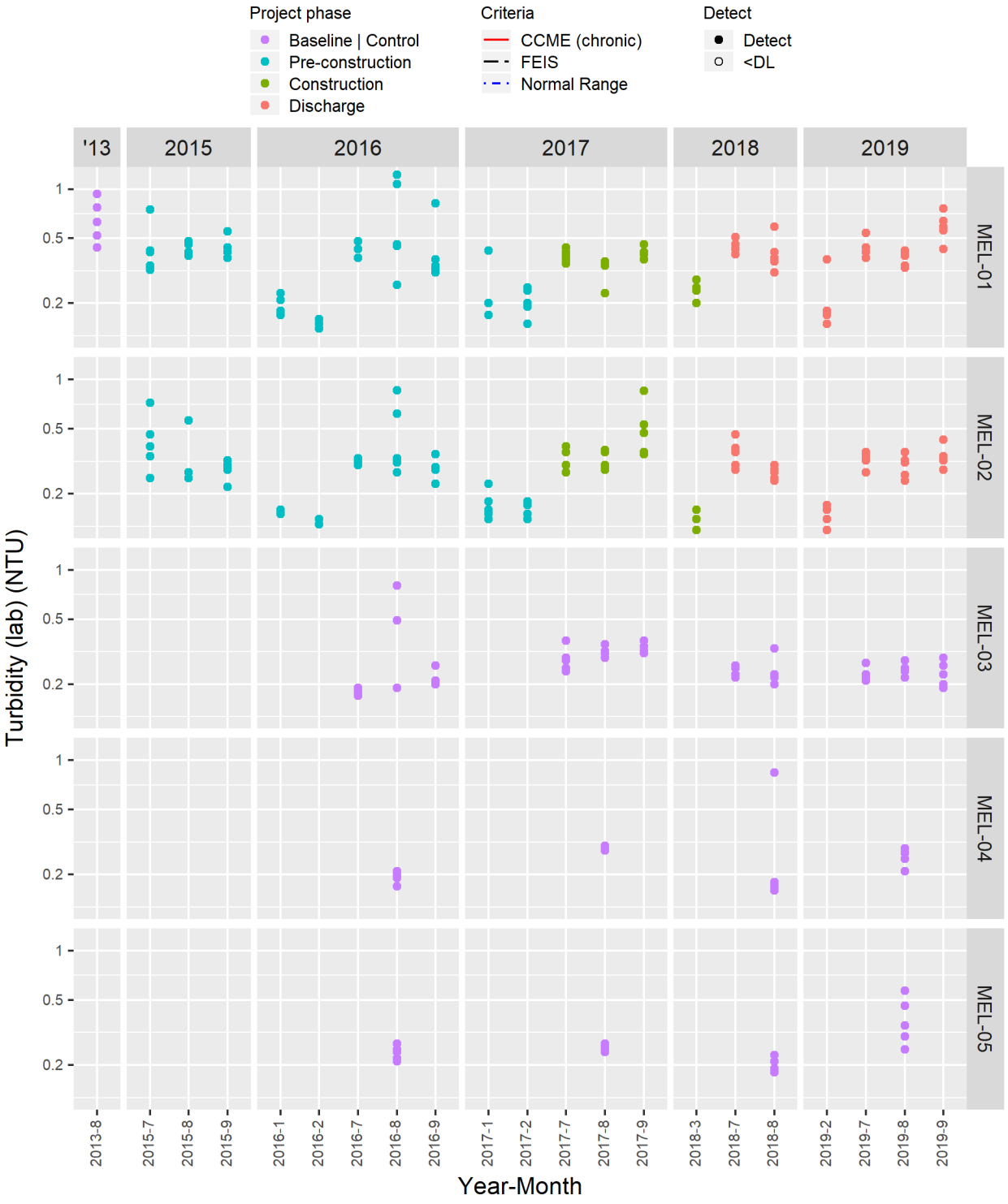


**Figure C2-10. Bicarbonate alkalinity (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

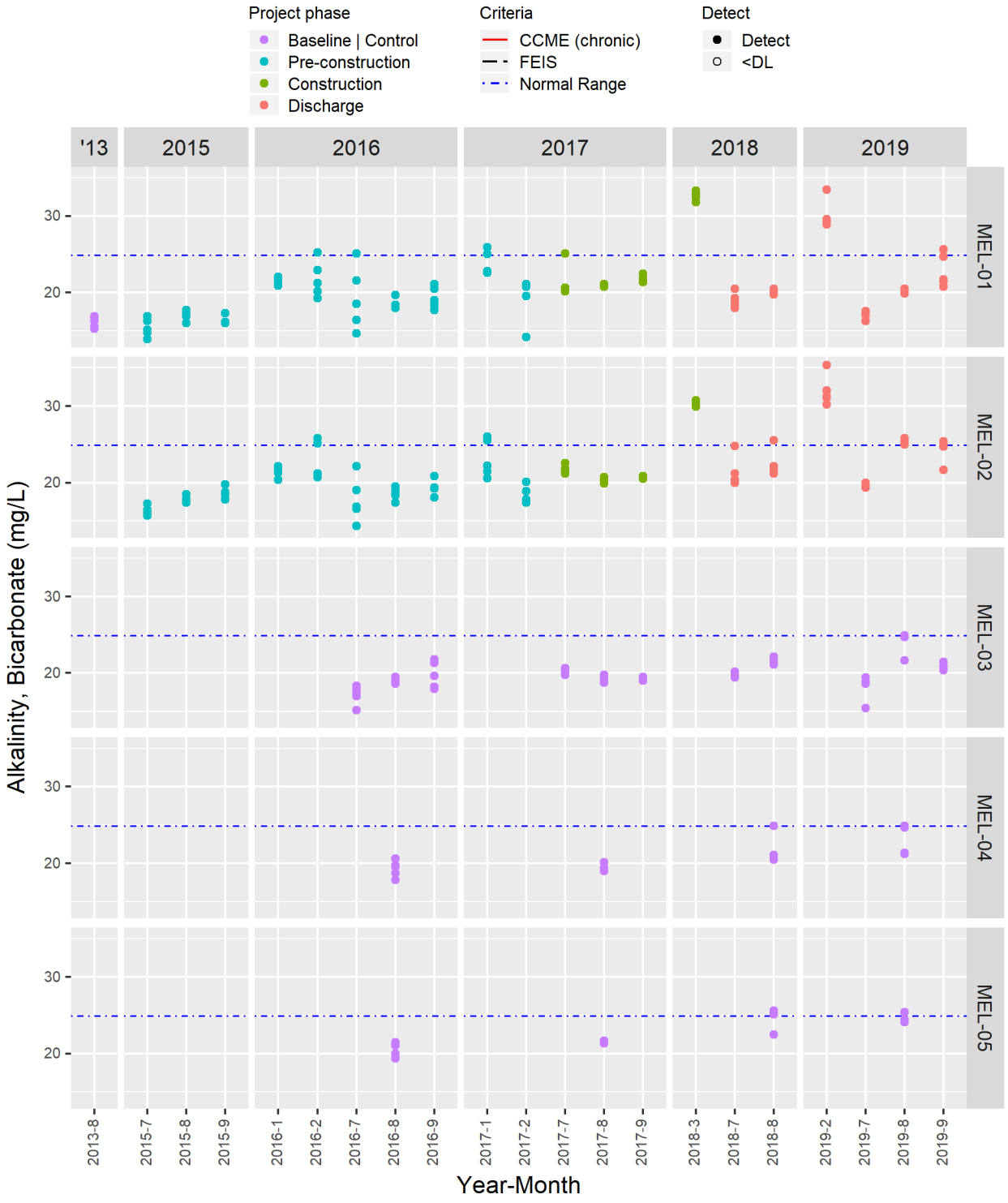


**Figure C2-11. Total alkalinity (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

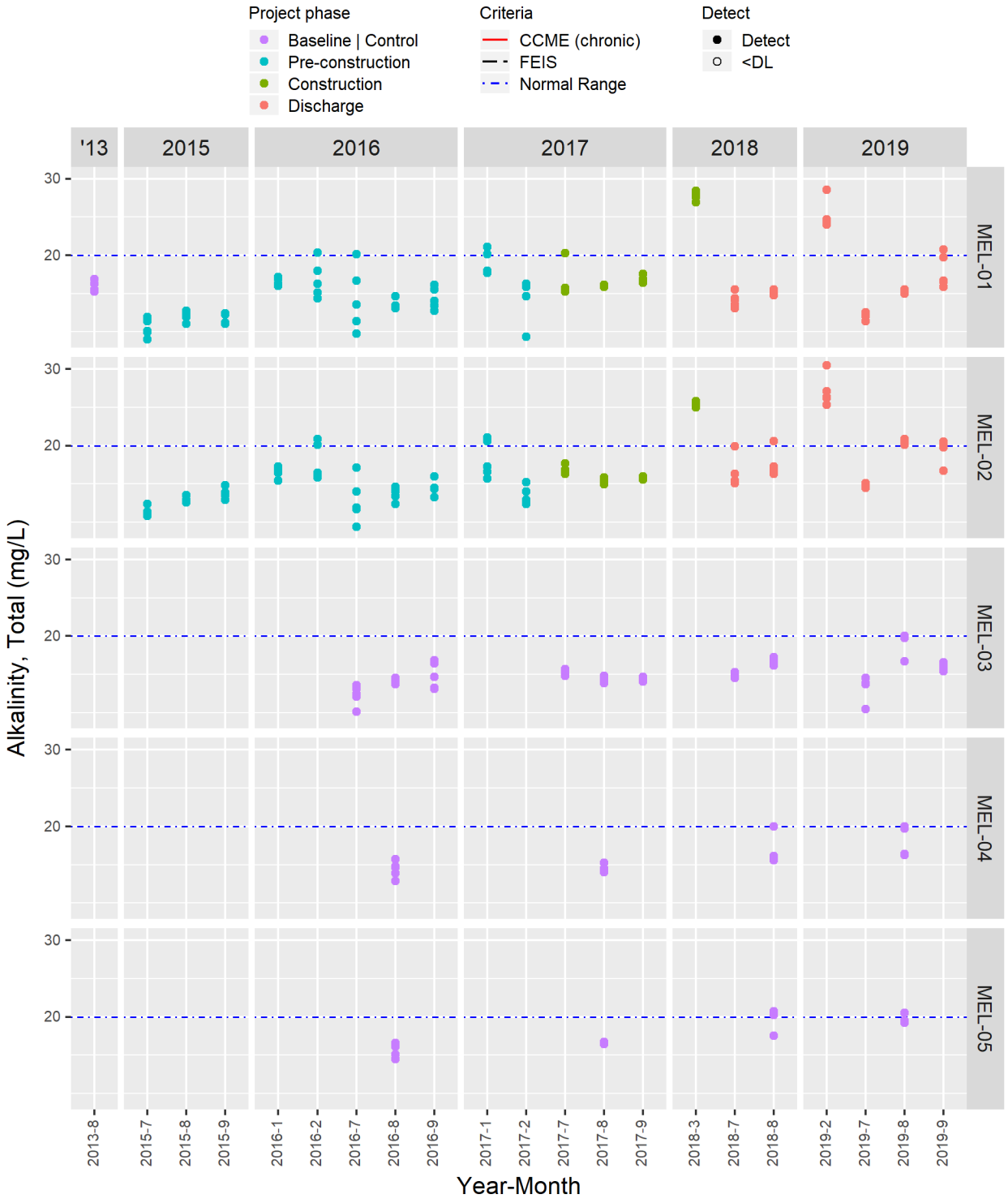


**Figure C2-12. Total calcium (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

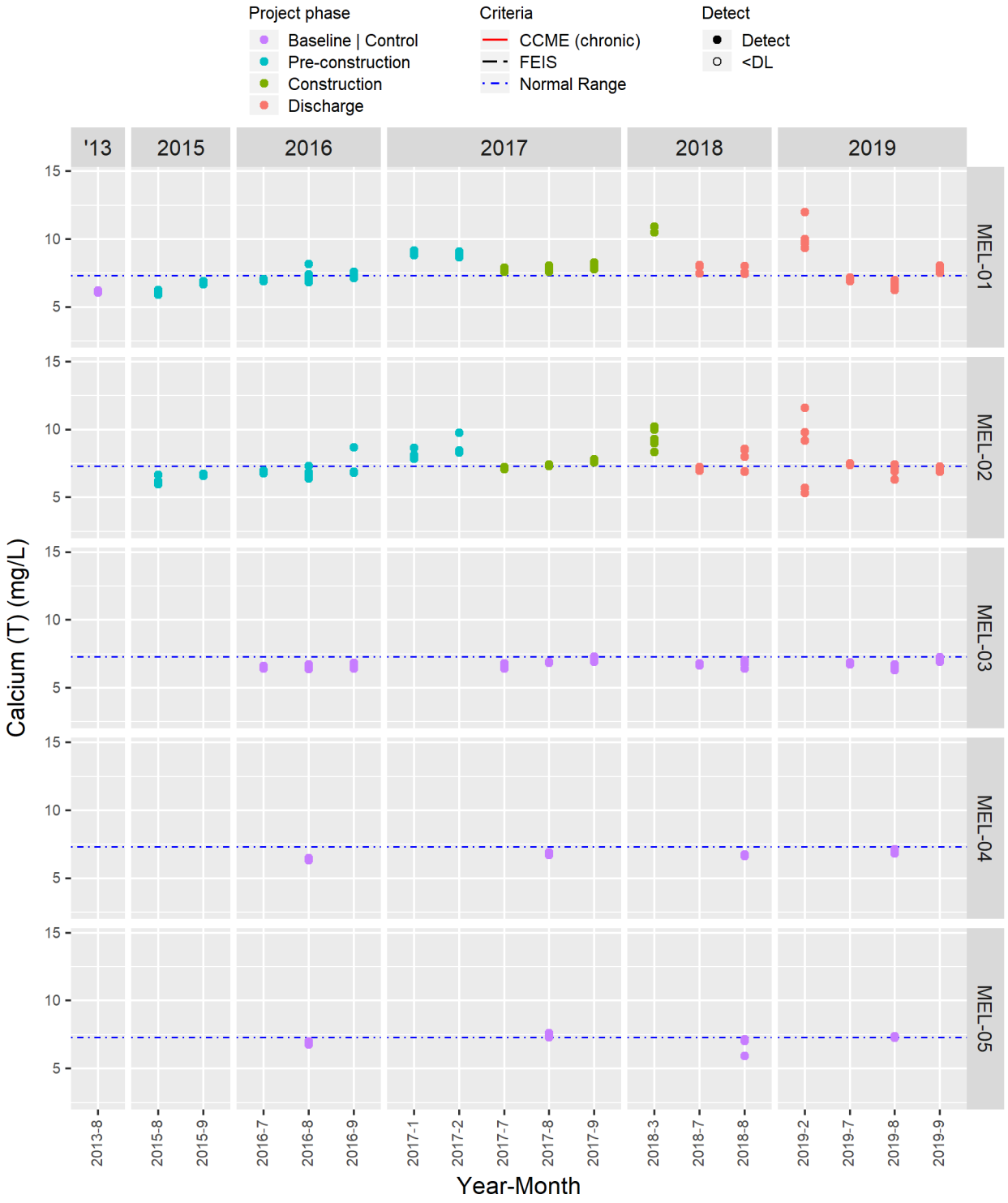


**Figure C2-13. Total magnesium (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

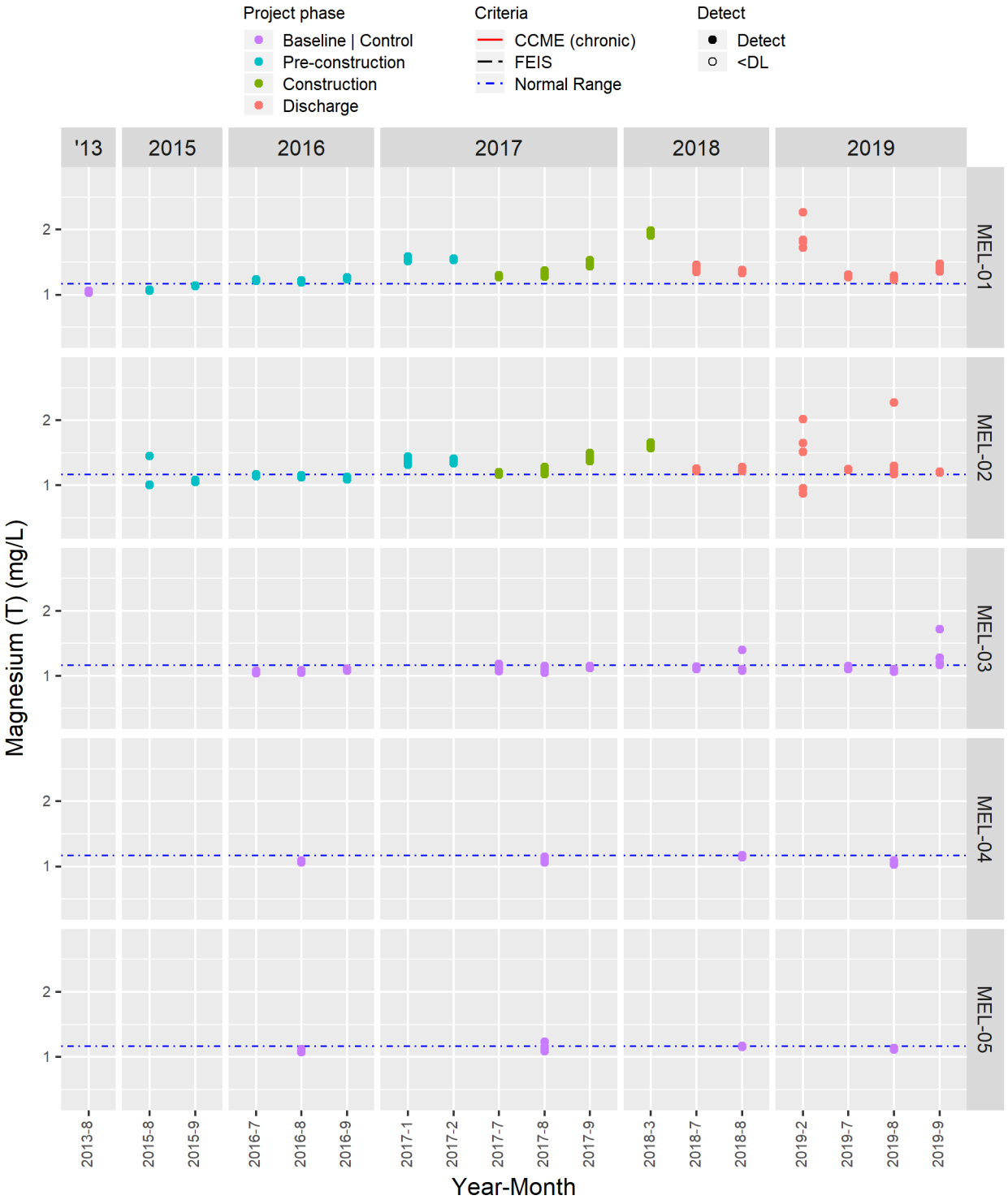


**Figure C2-14. Total potassium (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

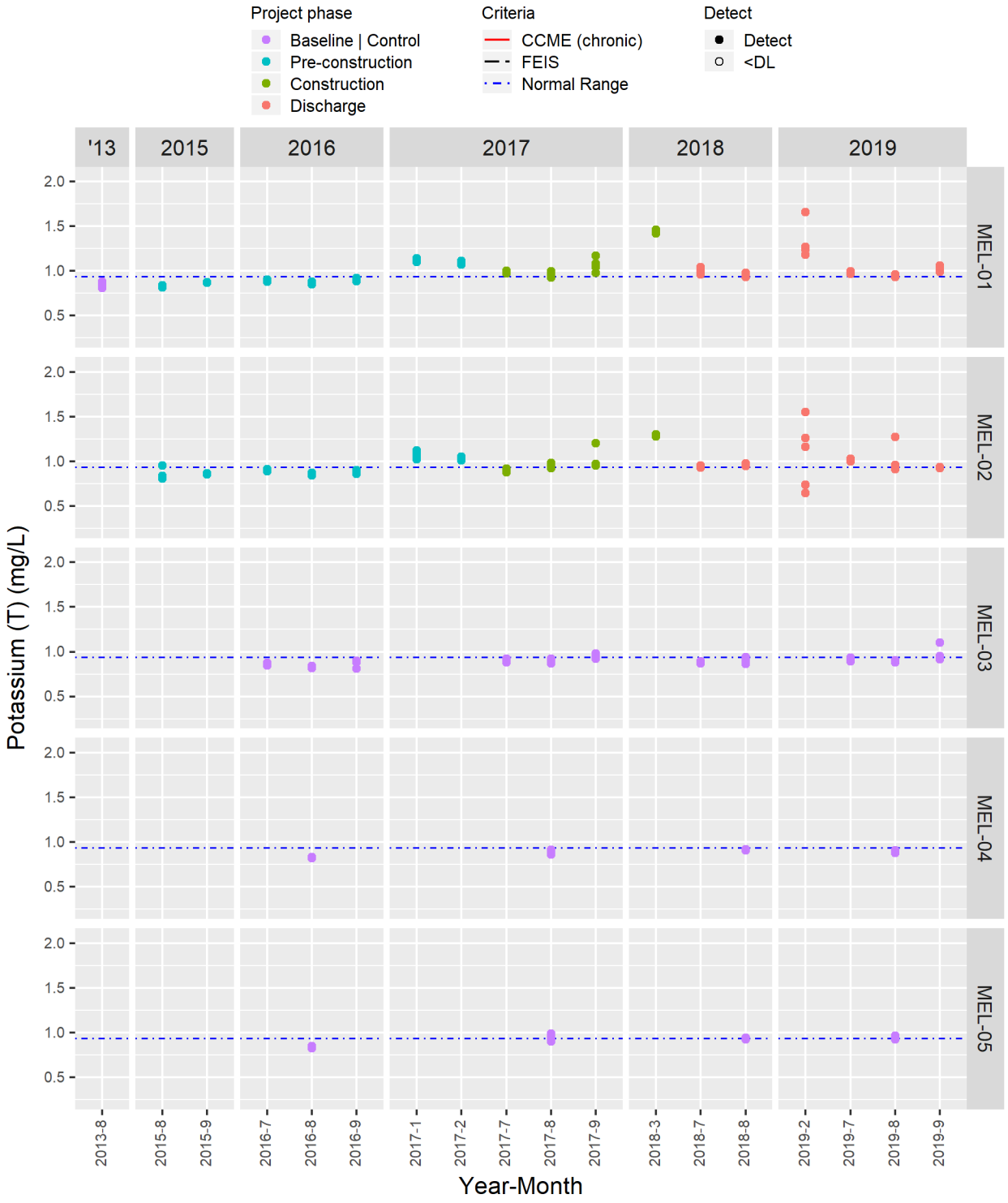


**Figure C2-15. Total sodium (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

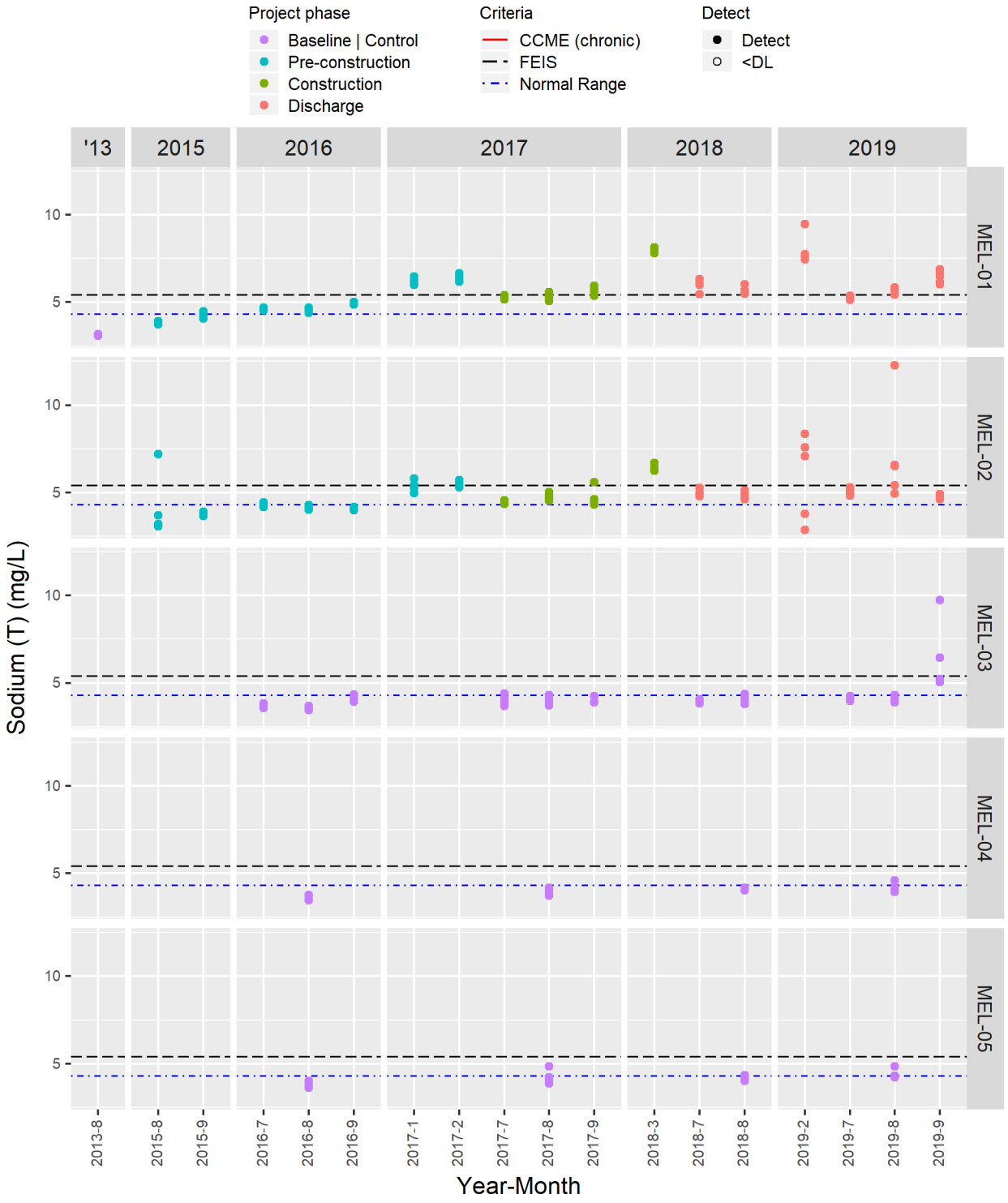


**Figure C2-16. Chloride (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

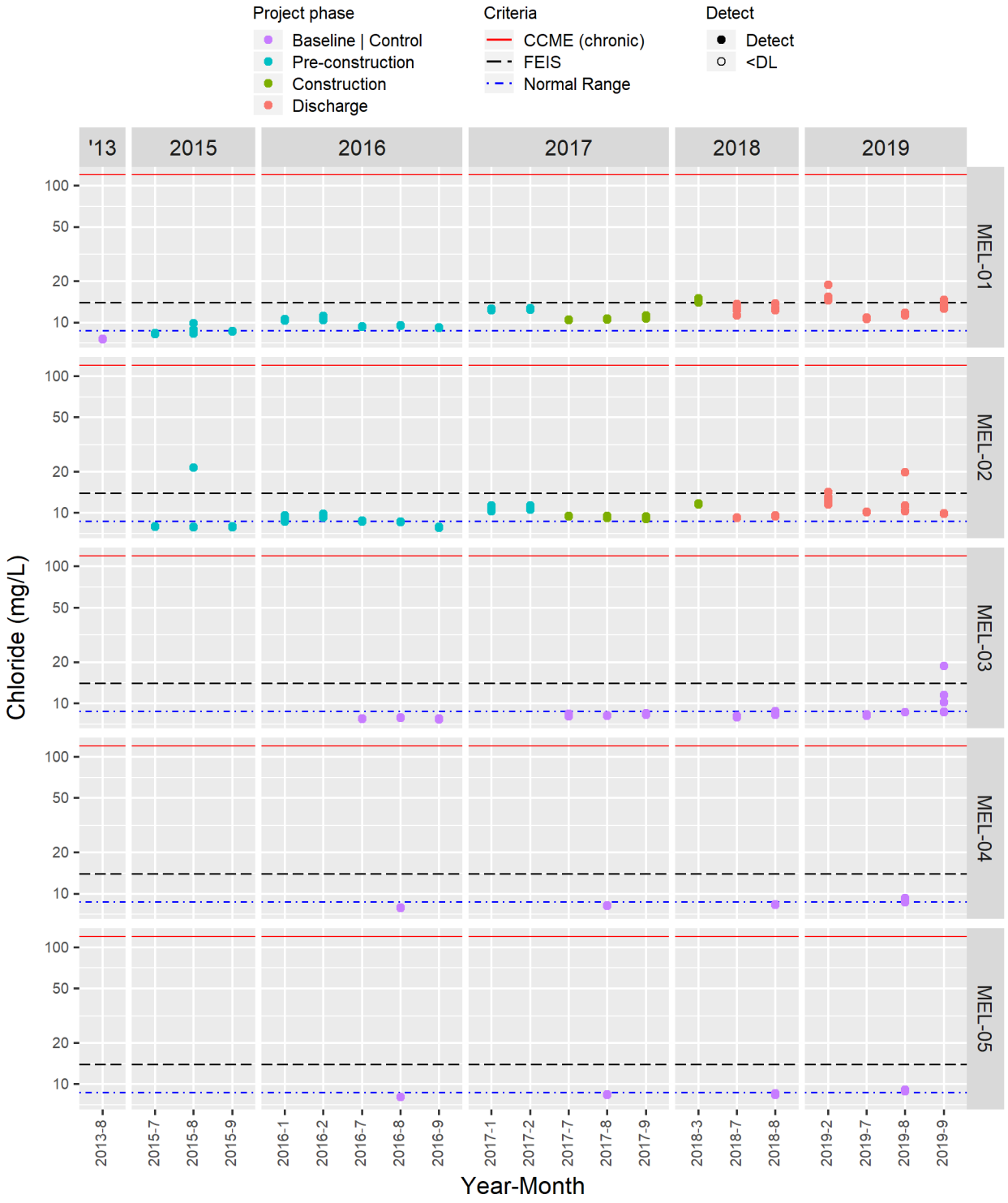


**Figure C2-17. Fluoride (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

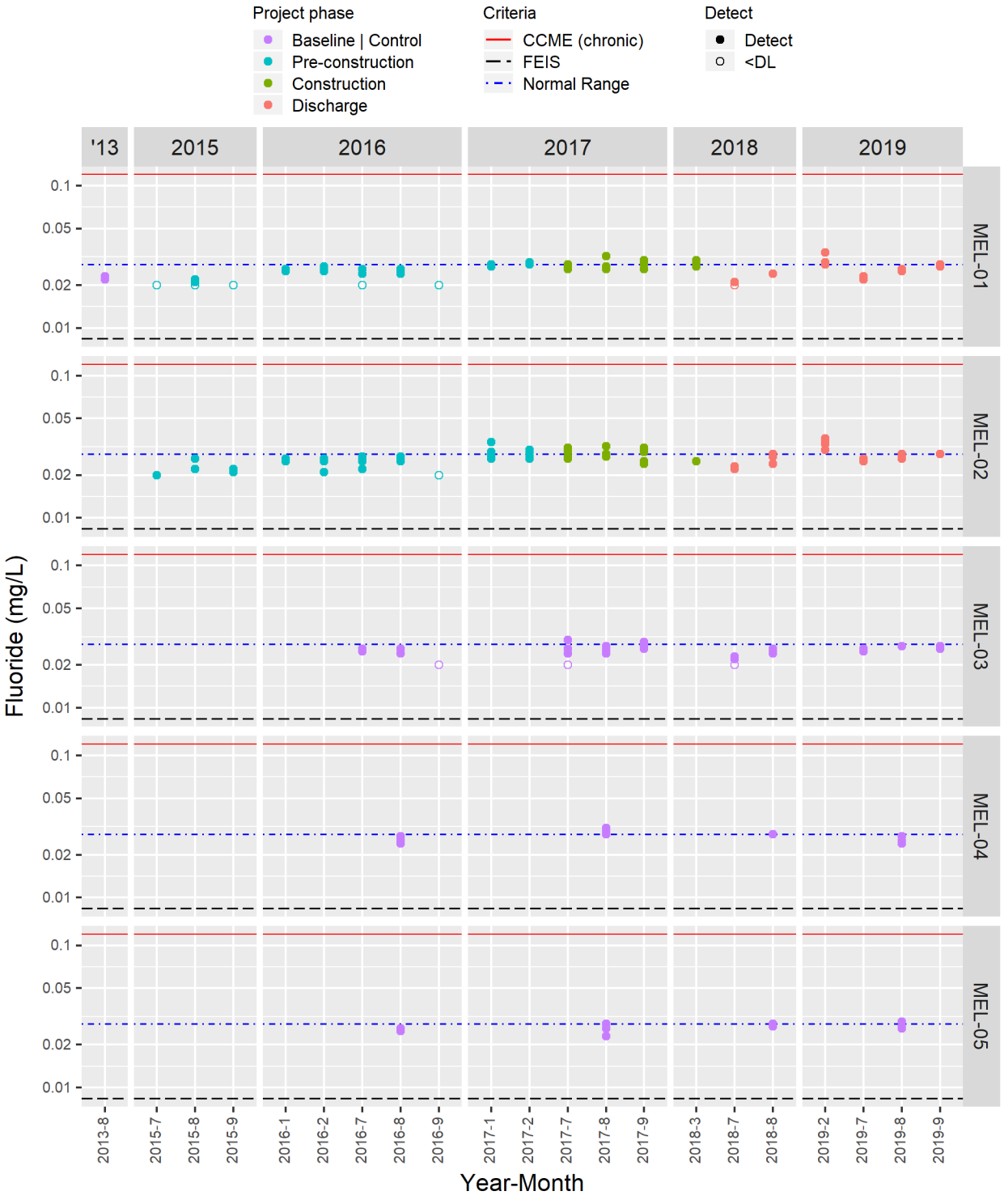


**Figure C2-18. Ammonia (as nitrogen) (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01). Ammonia samples were not collected from MEL-01 and MEL-02 in September 2019.

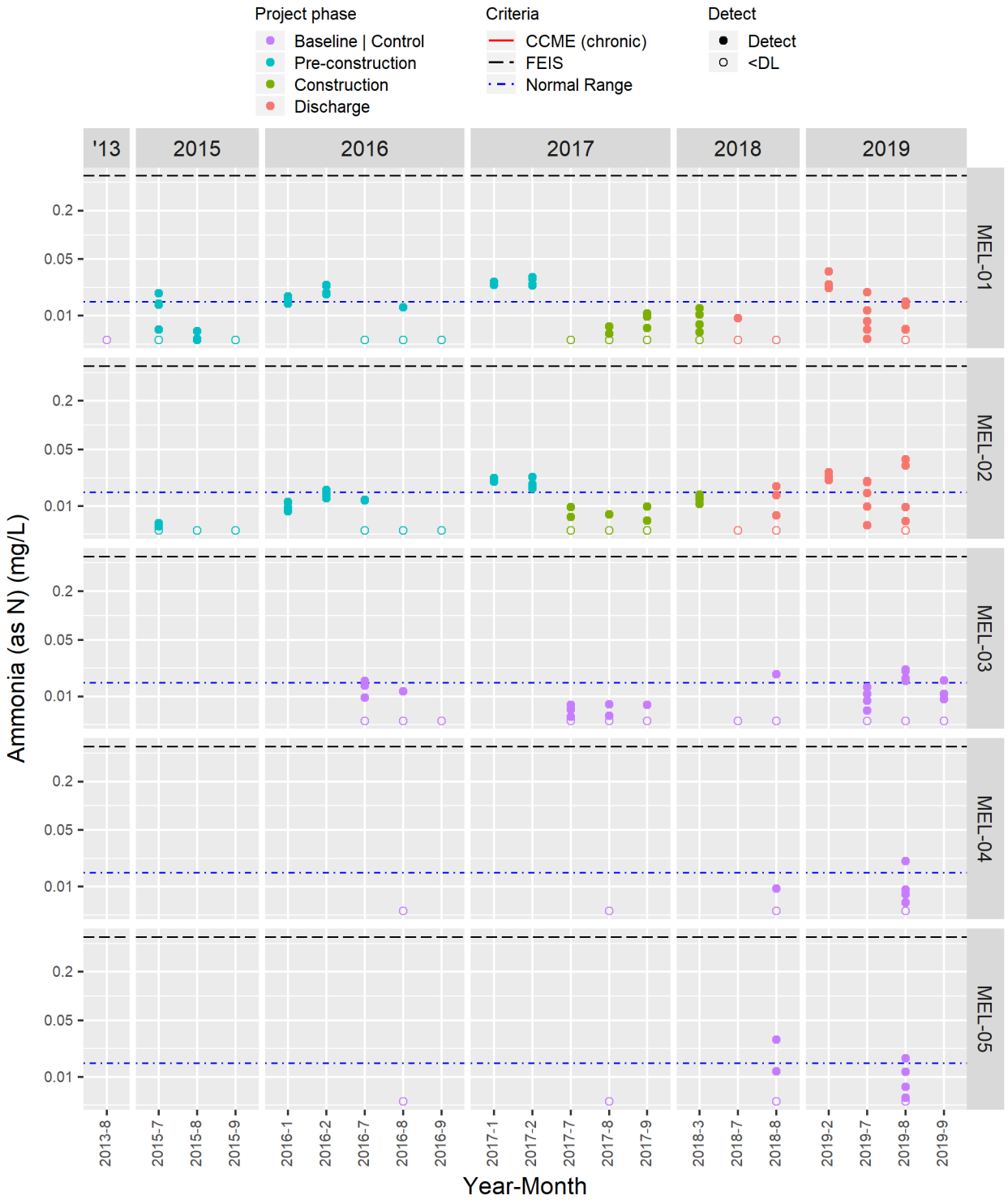


**Figure C2-19. Nitrate (as N) (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

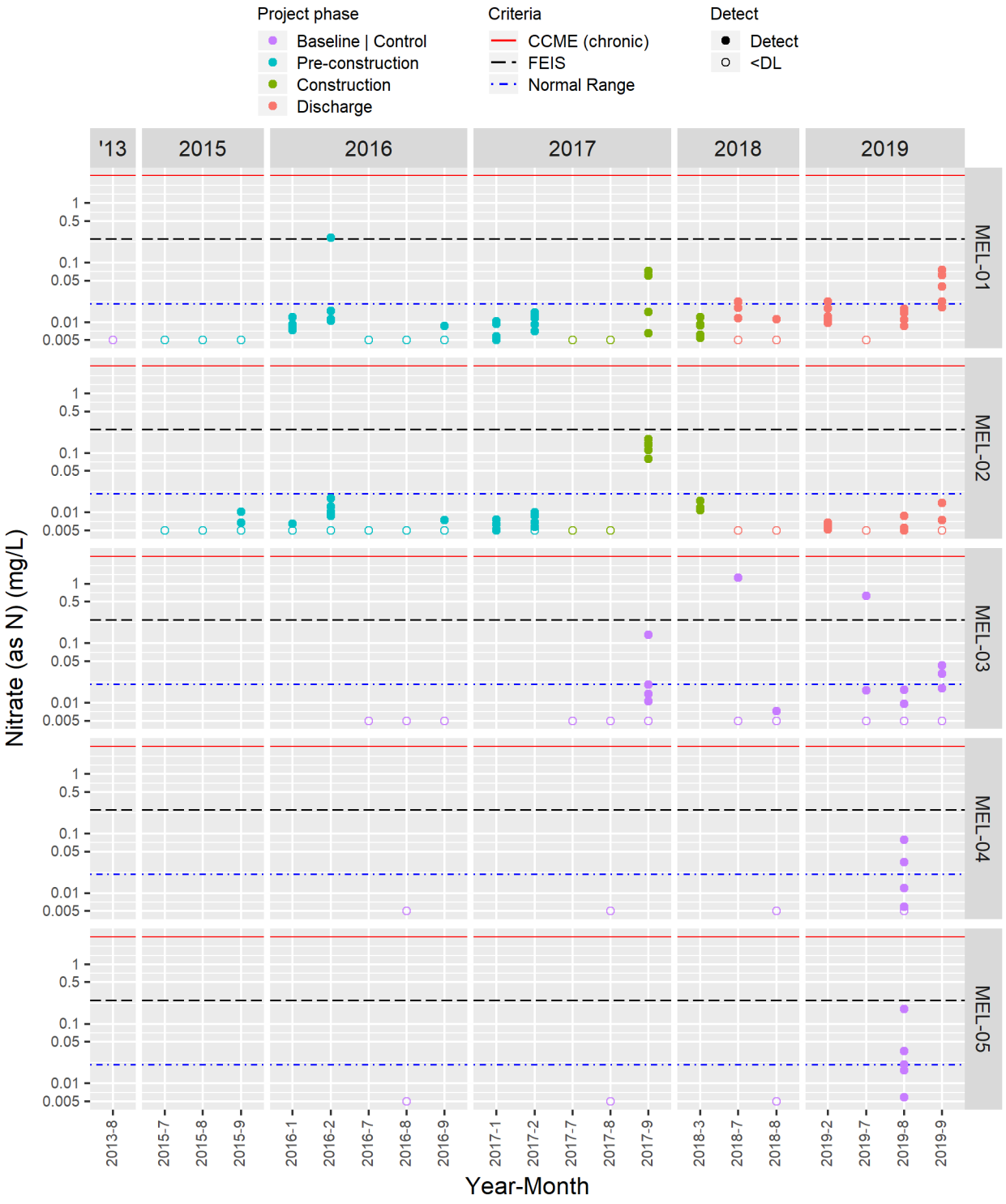


**Figure C2-20. Nitrate and nitrite (as N) (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

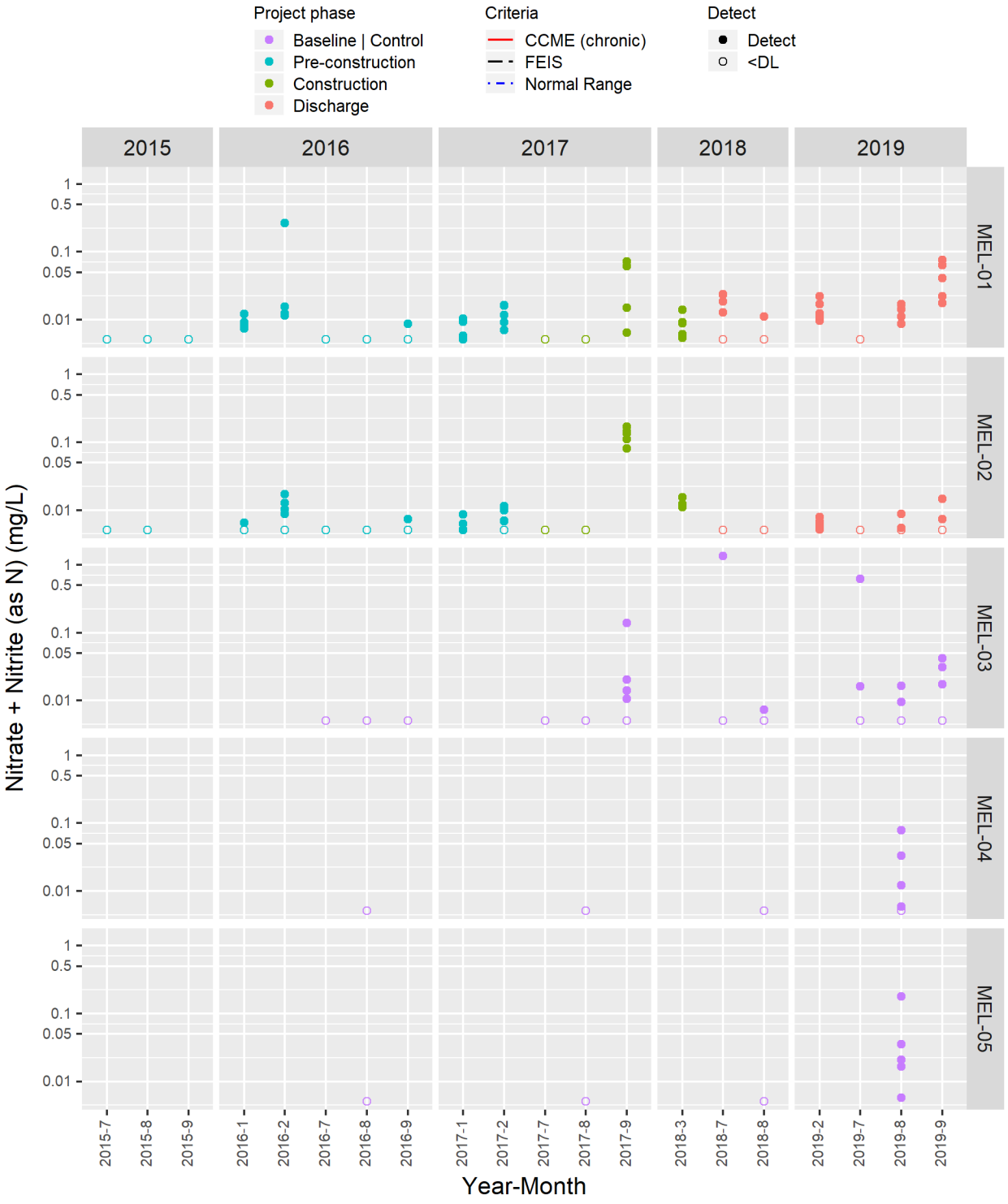


**Figure C2-21. Total Kjeldahl nitrogen (TKN; mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

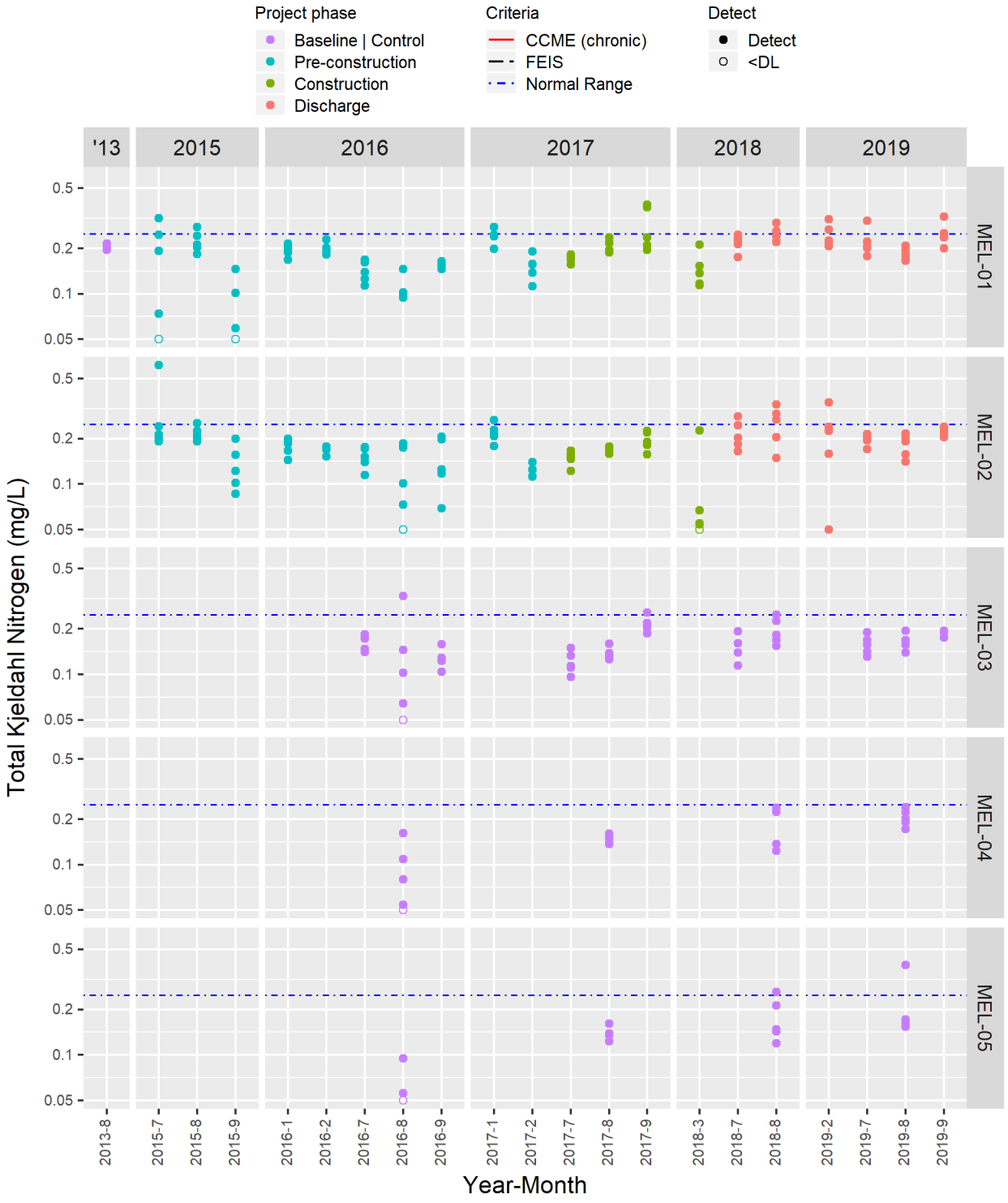


**Figure C2-22. Sulphate (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

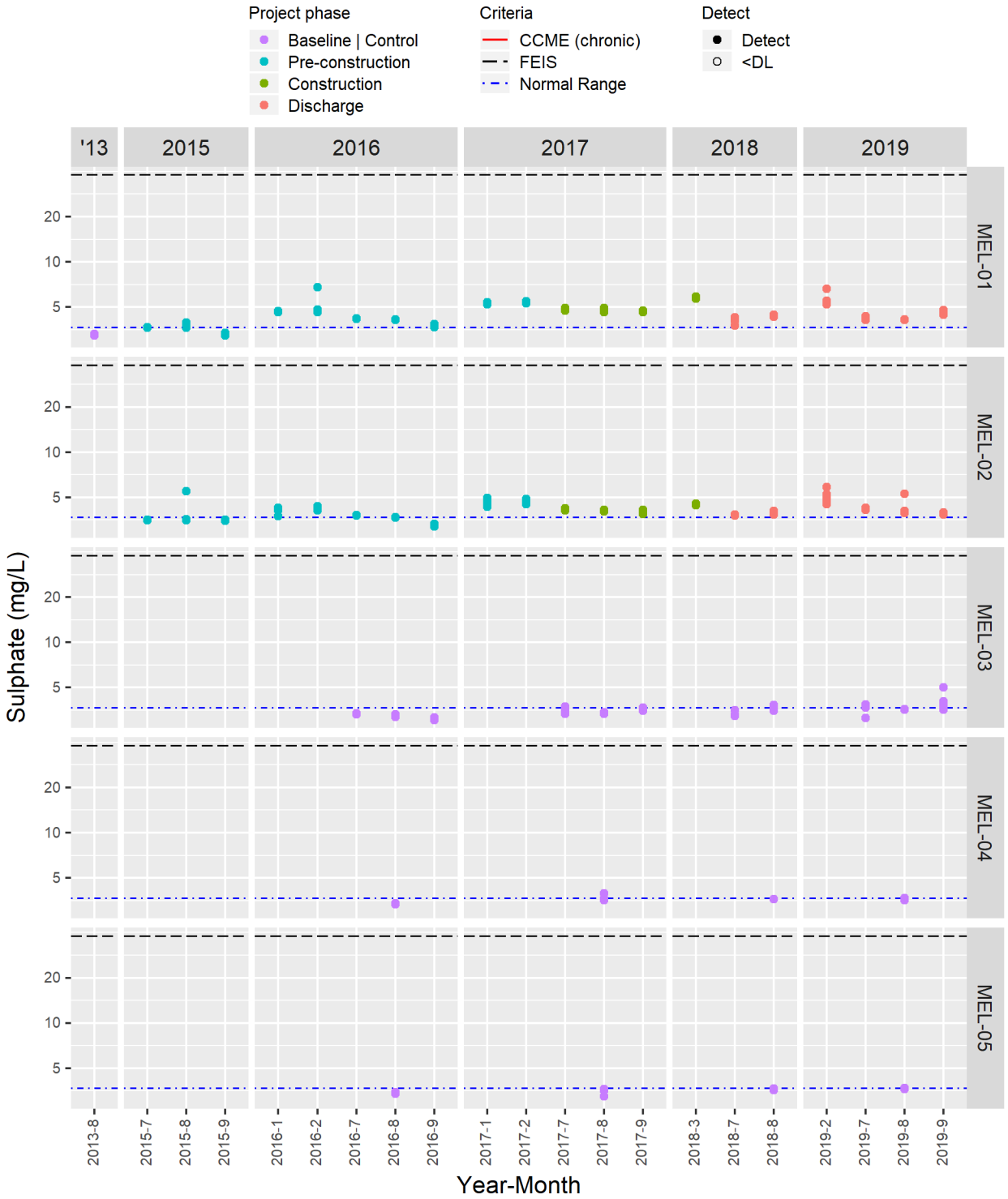


**Figure C2-23. Total phosphorus (mg/) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

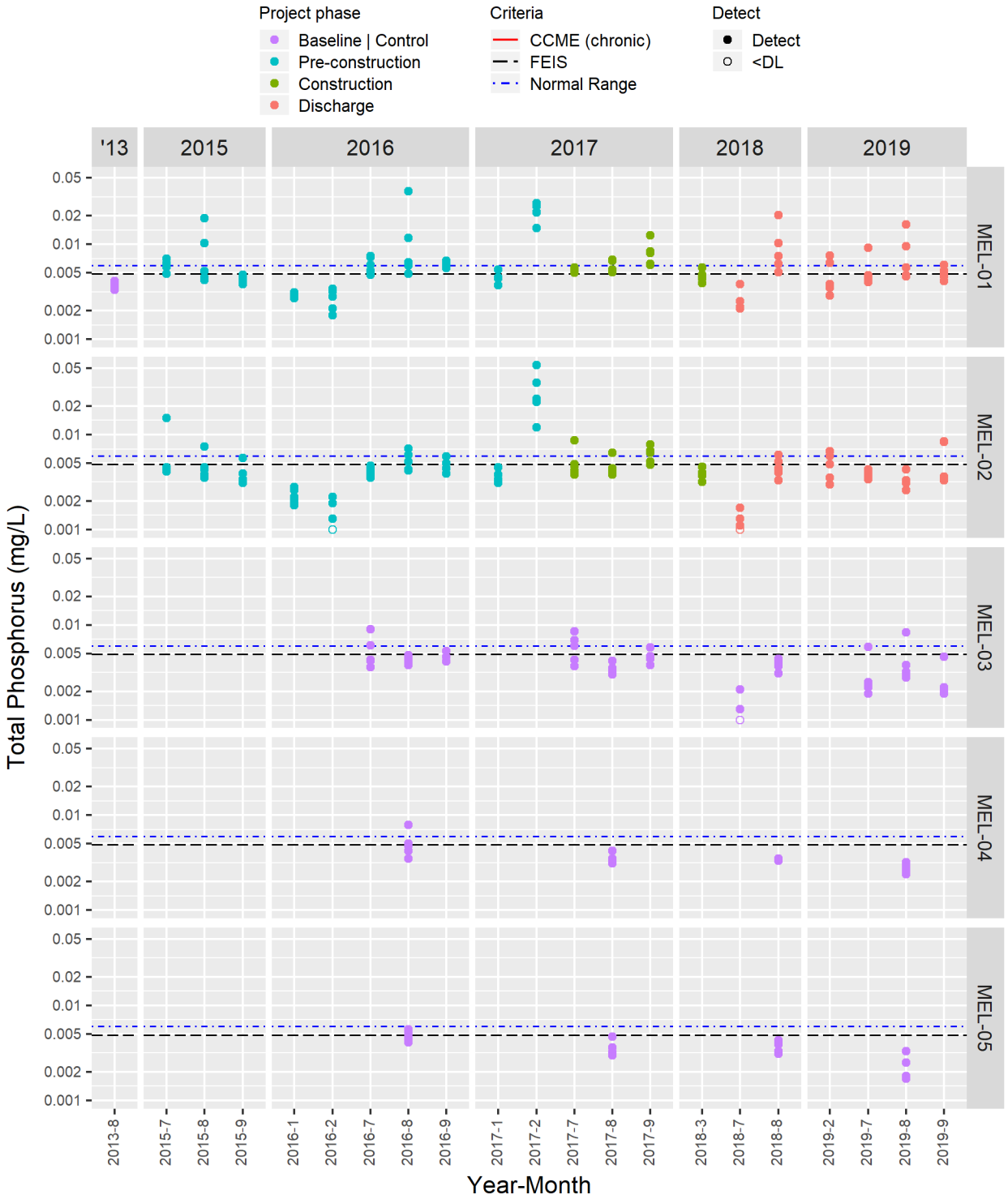


**Figure C2-24. Dissolved organic carbon (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

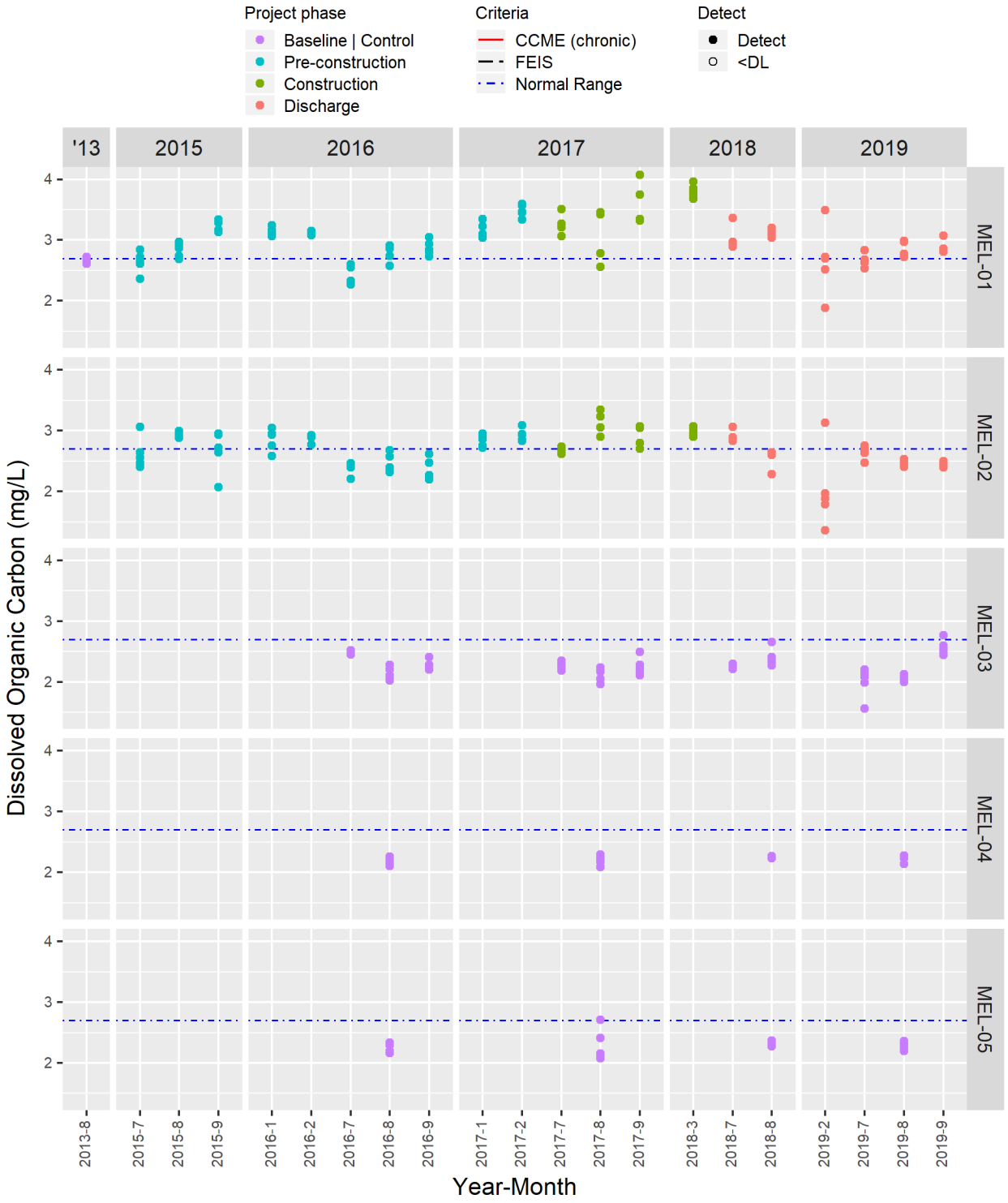


**Figure C2-25. Total organic carbon (mg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

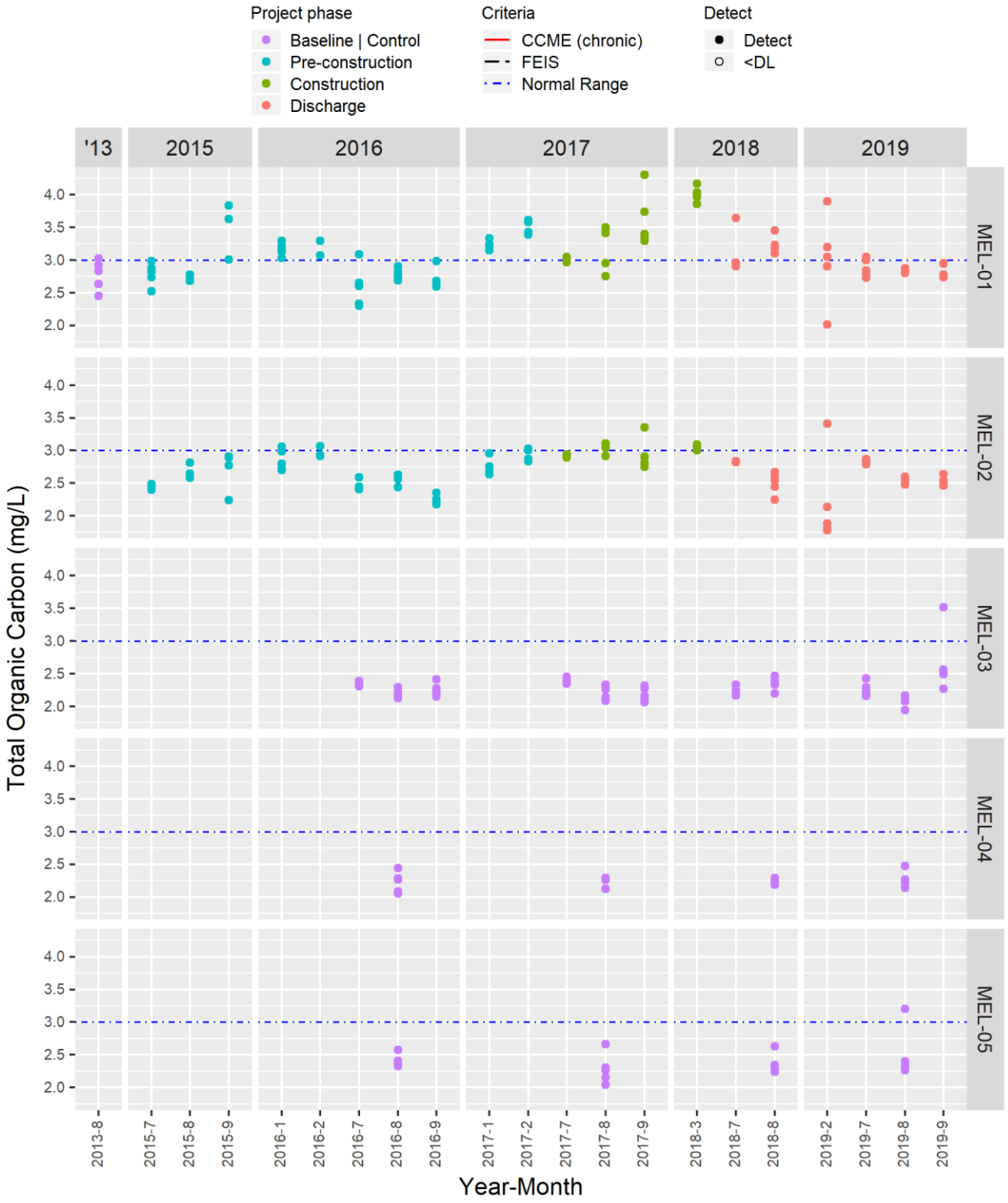


**Figure C2-26. Total aluminum (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

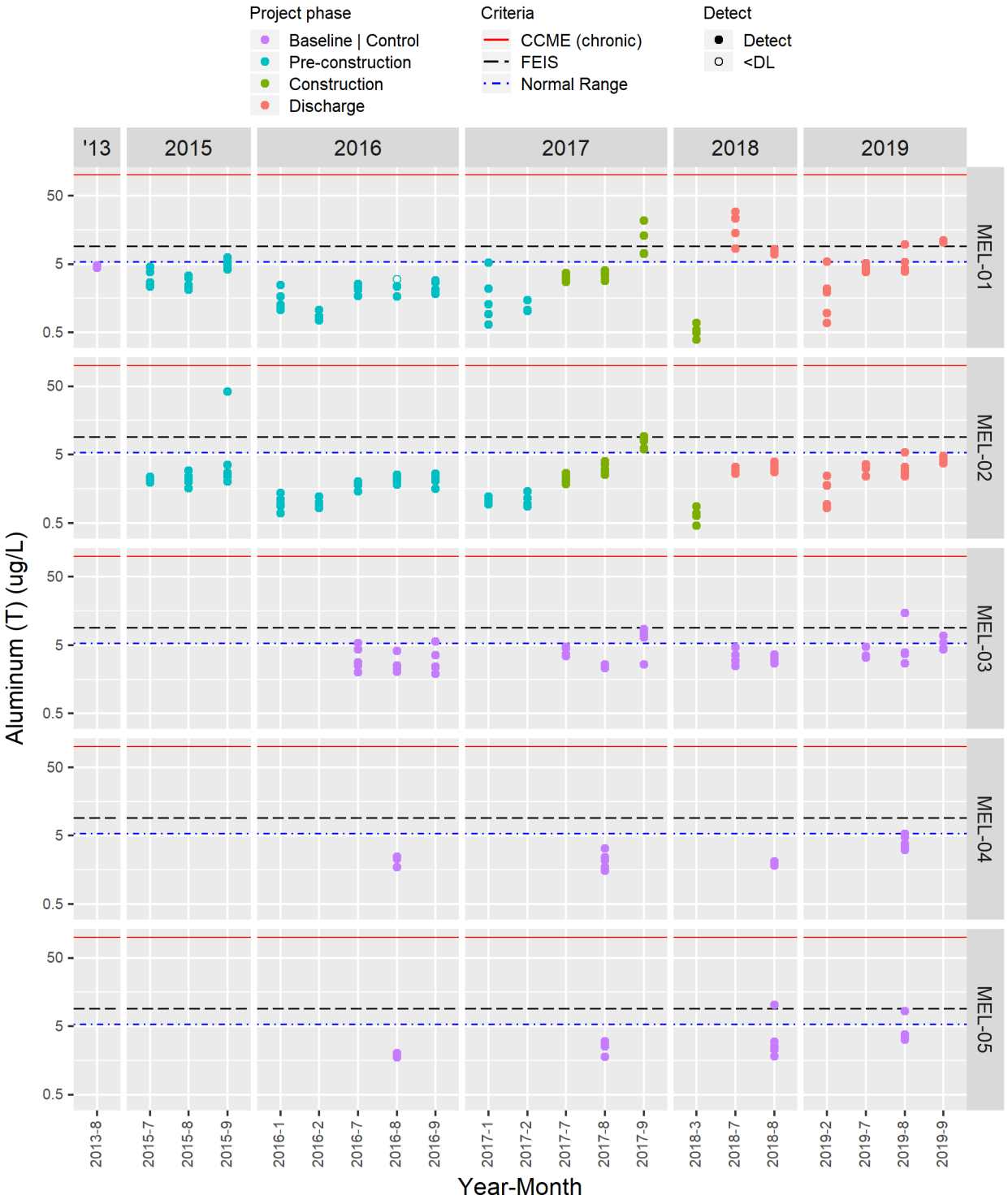


**Figure C2-27. Total antimony (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01). The normal range for antimony is equal to the current detection limit.

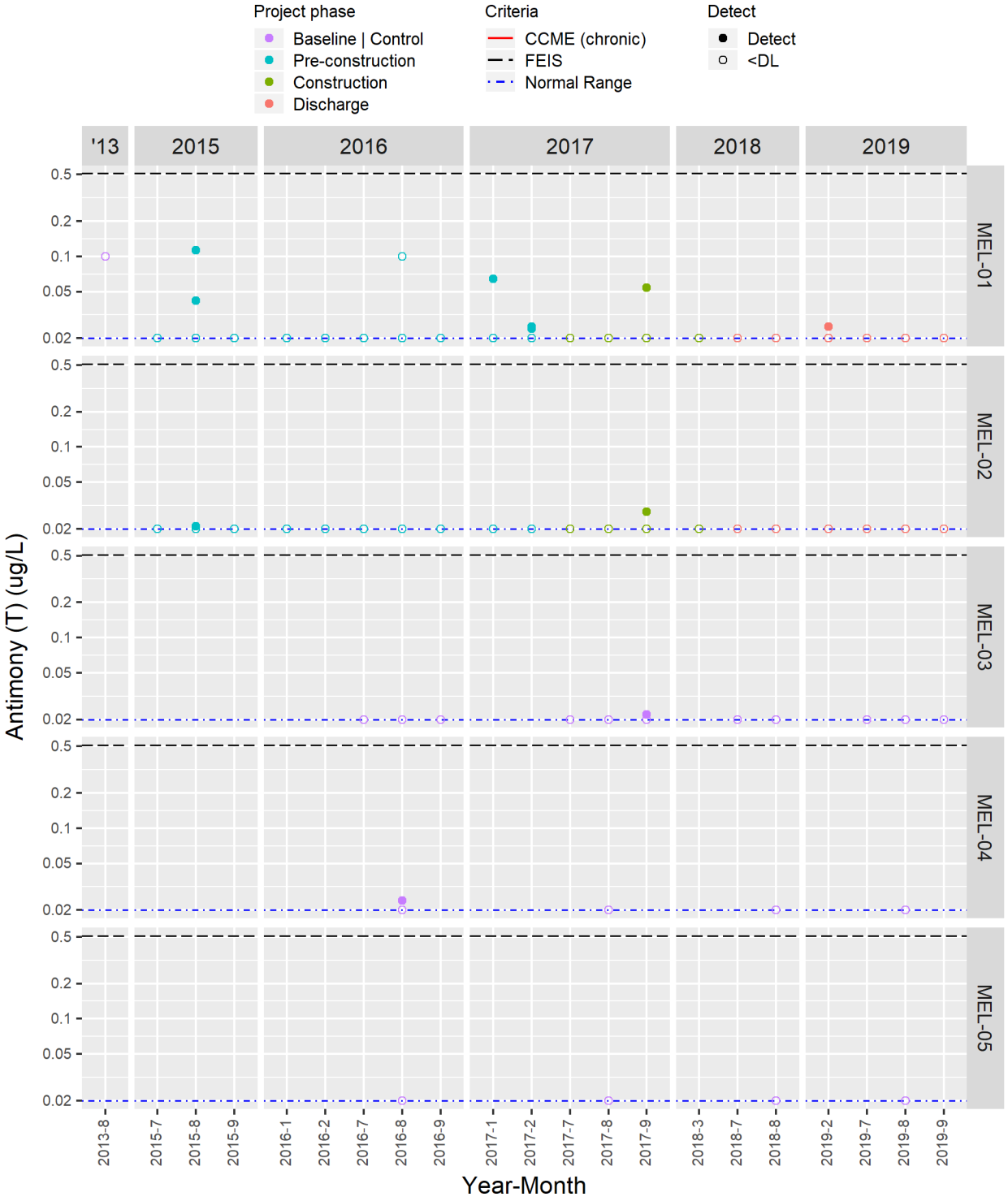


**Figure C2-28. Total arsenic (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

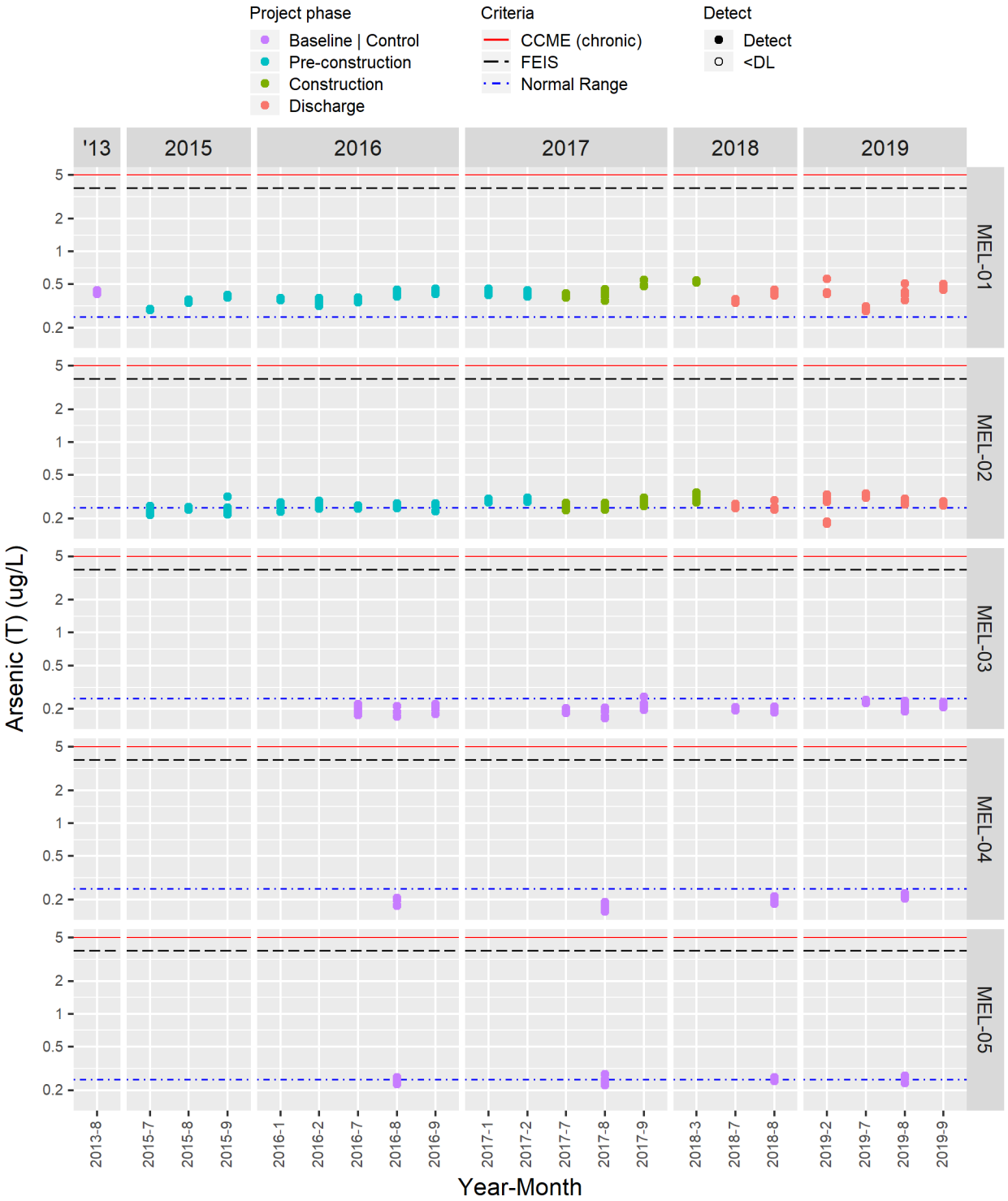


**Figure C2-29. Total barium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

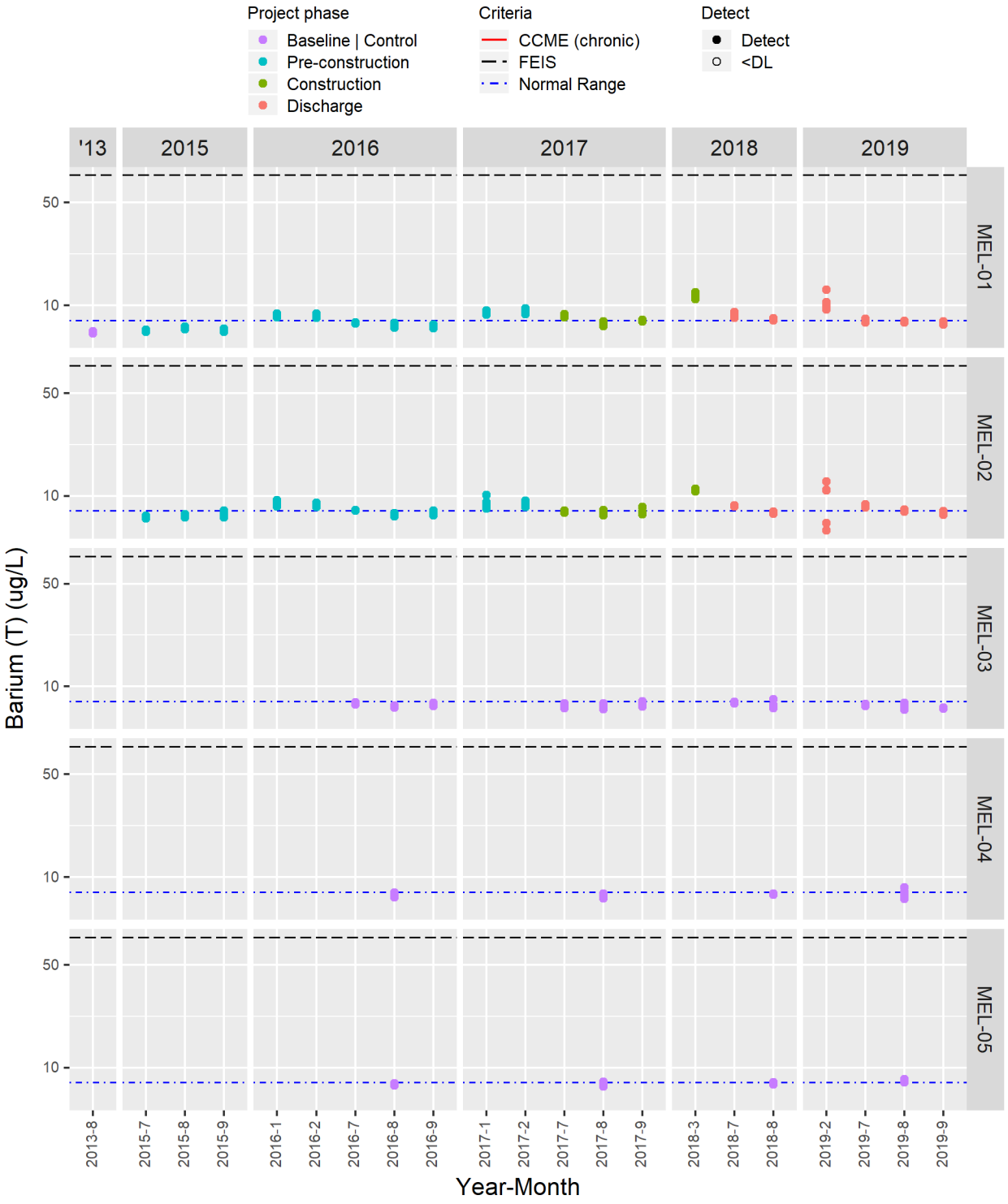


**Figure C2-30. Total beryllium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01). The normal range for beryllium is equal to the current detection limit.

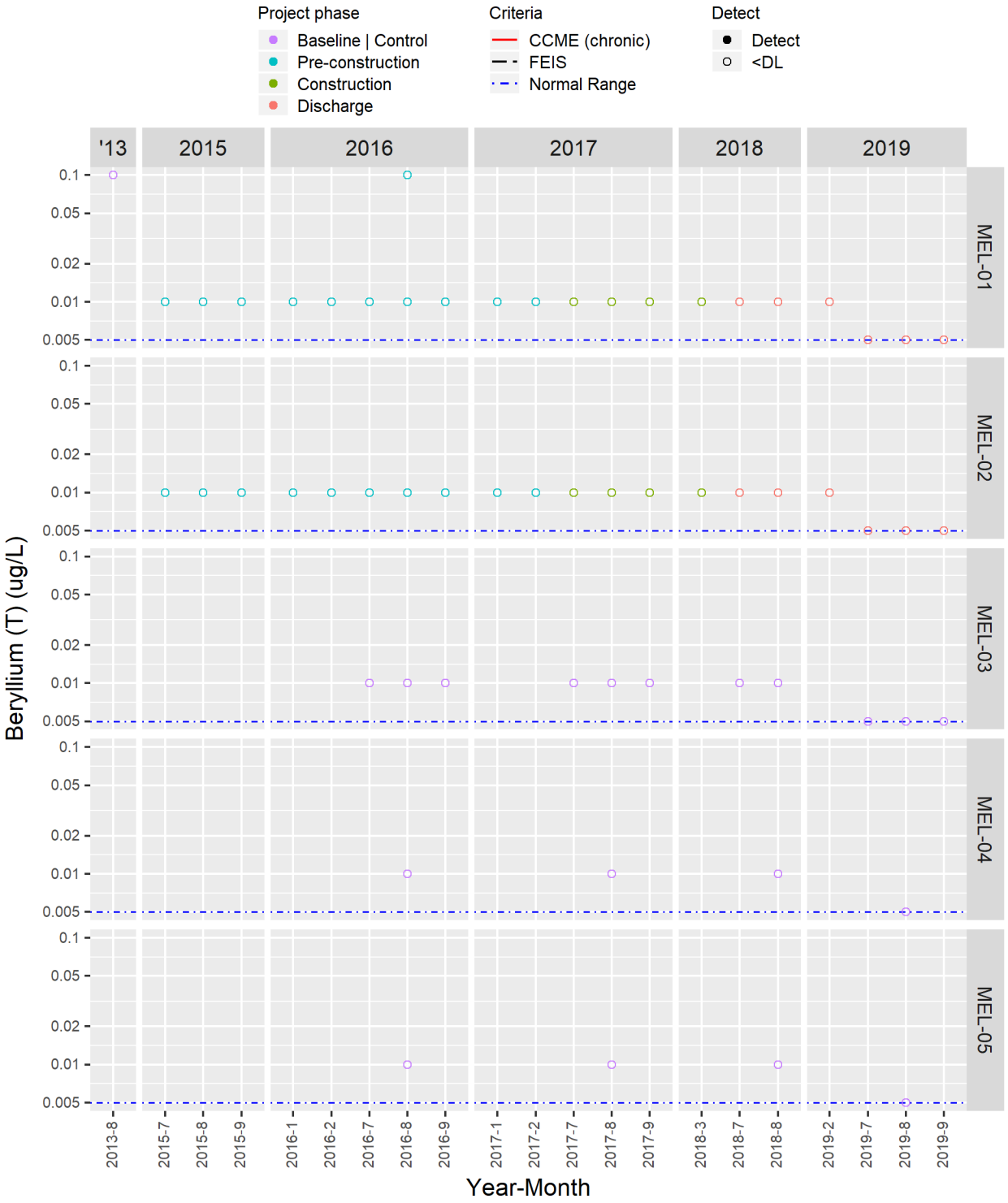


**Figure C2-31. Total bismuth (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01). The normal range for bismuth is equal to the current detection limit.

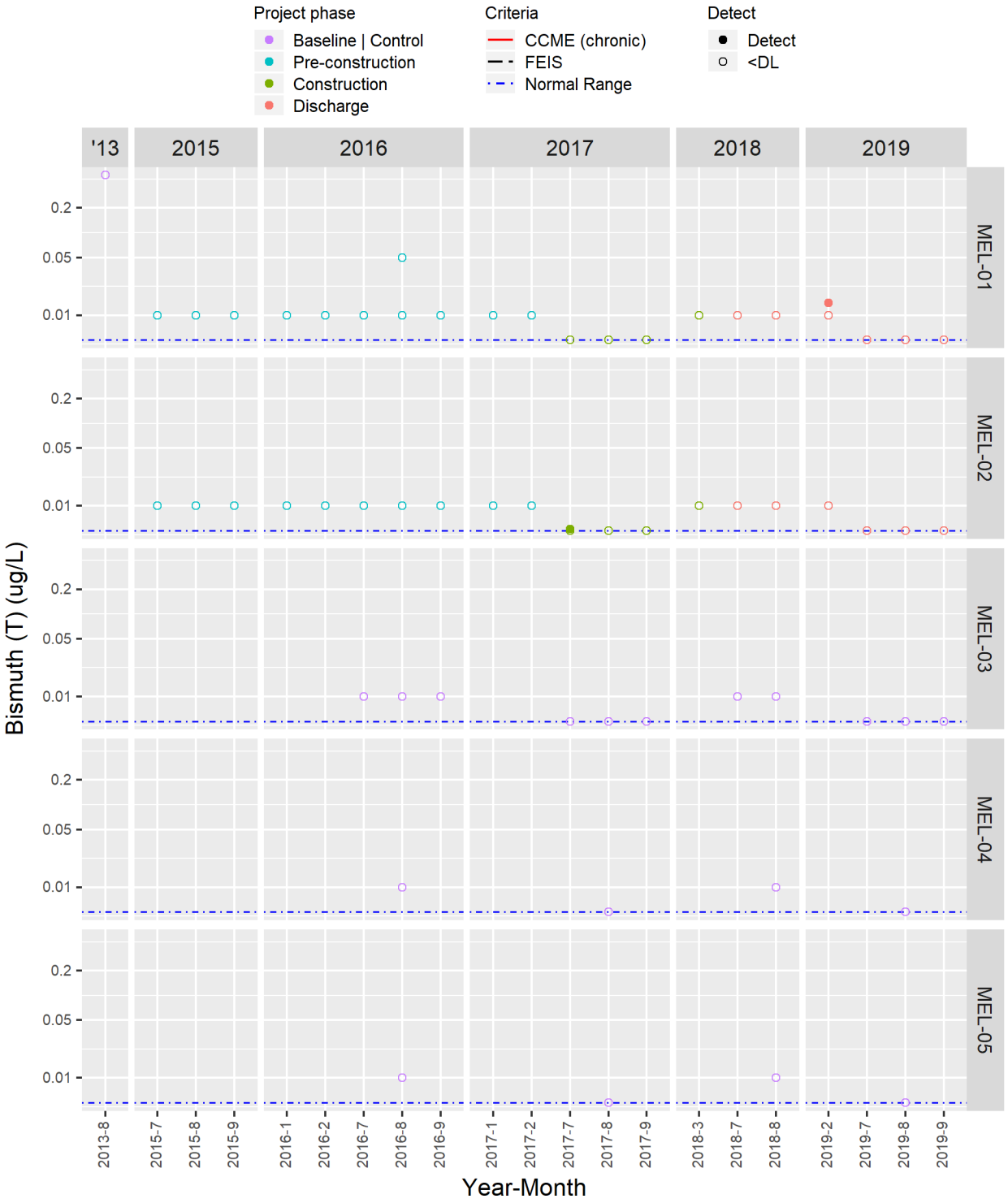


**Figure C2-32. Total boron (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

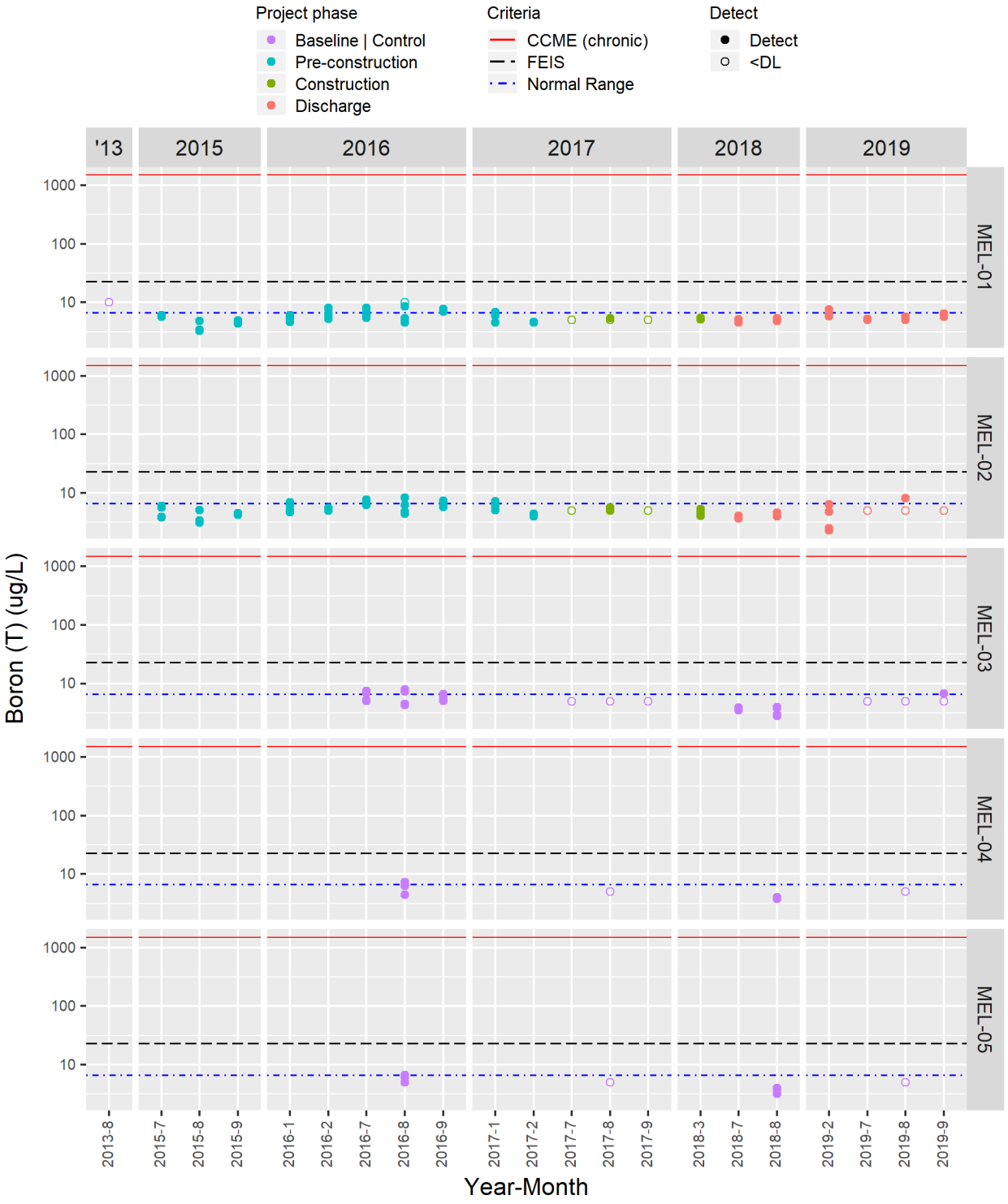


**Figure C2-33. Total cadmium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01). The normal range for cadmium is equal to the current detection limit.

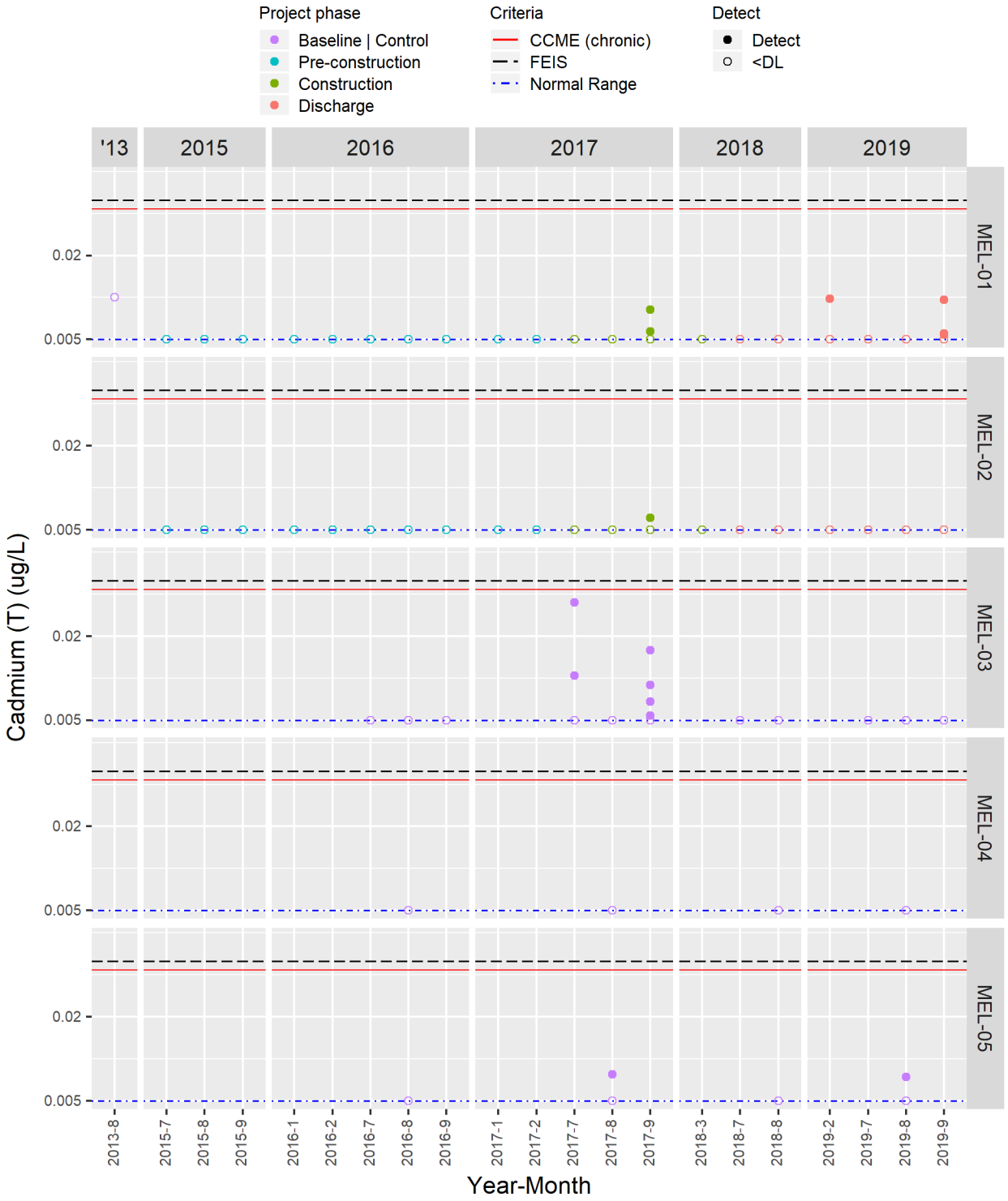


**Figure C2-34. Total chromium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

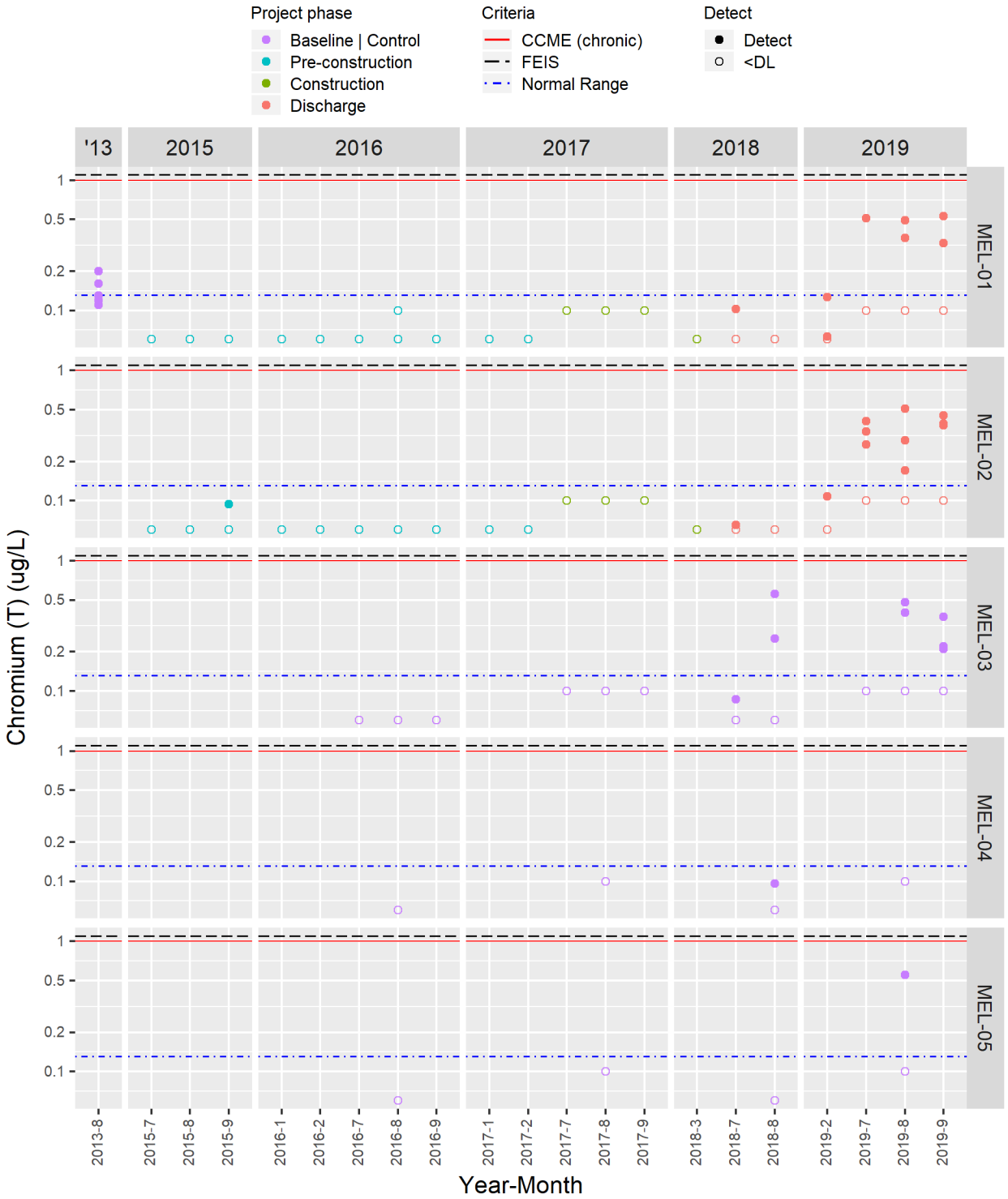


**Figure C2-35. Total cobalt (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

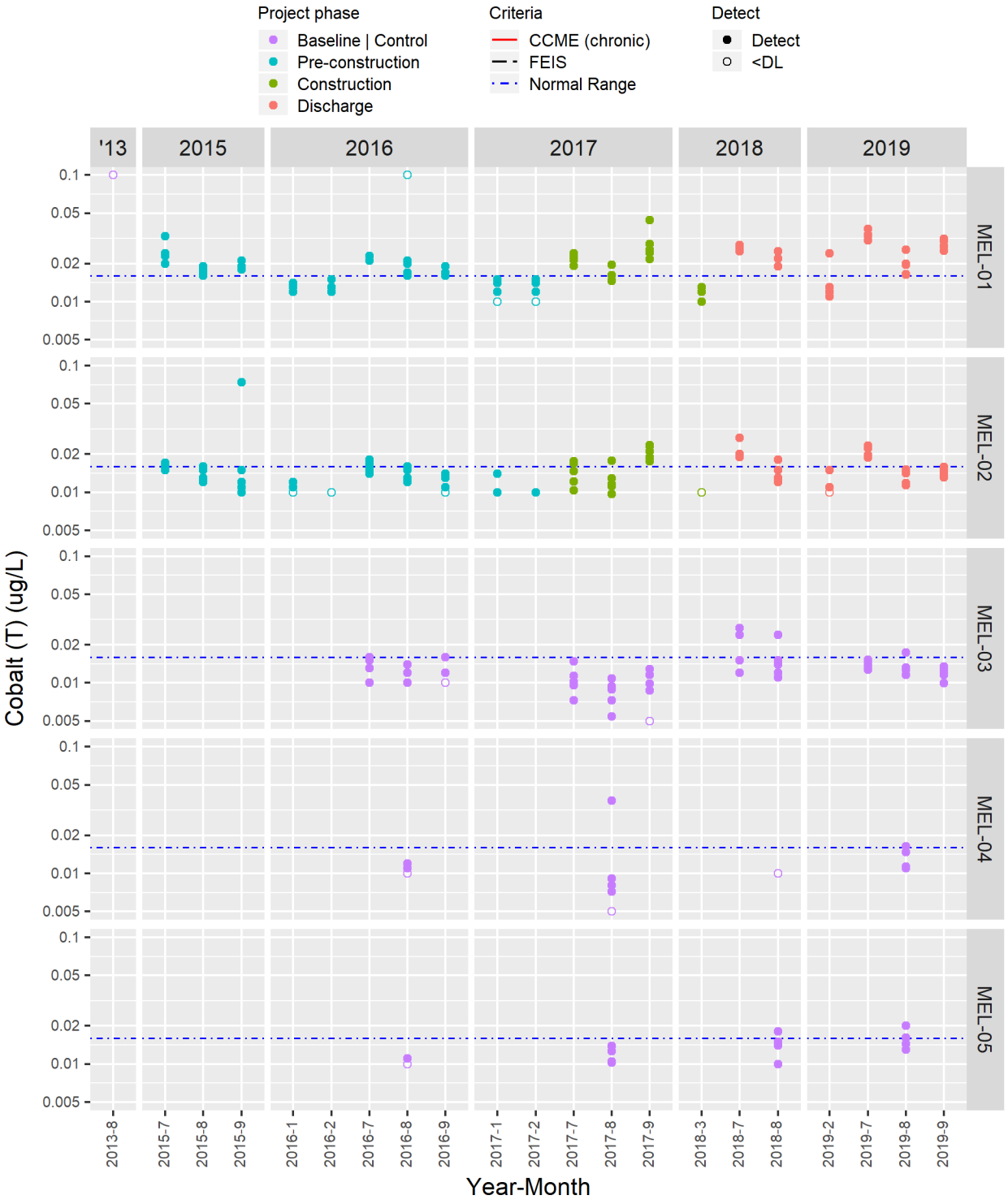


**Figure C2-36. Total copper (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

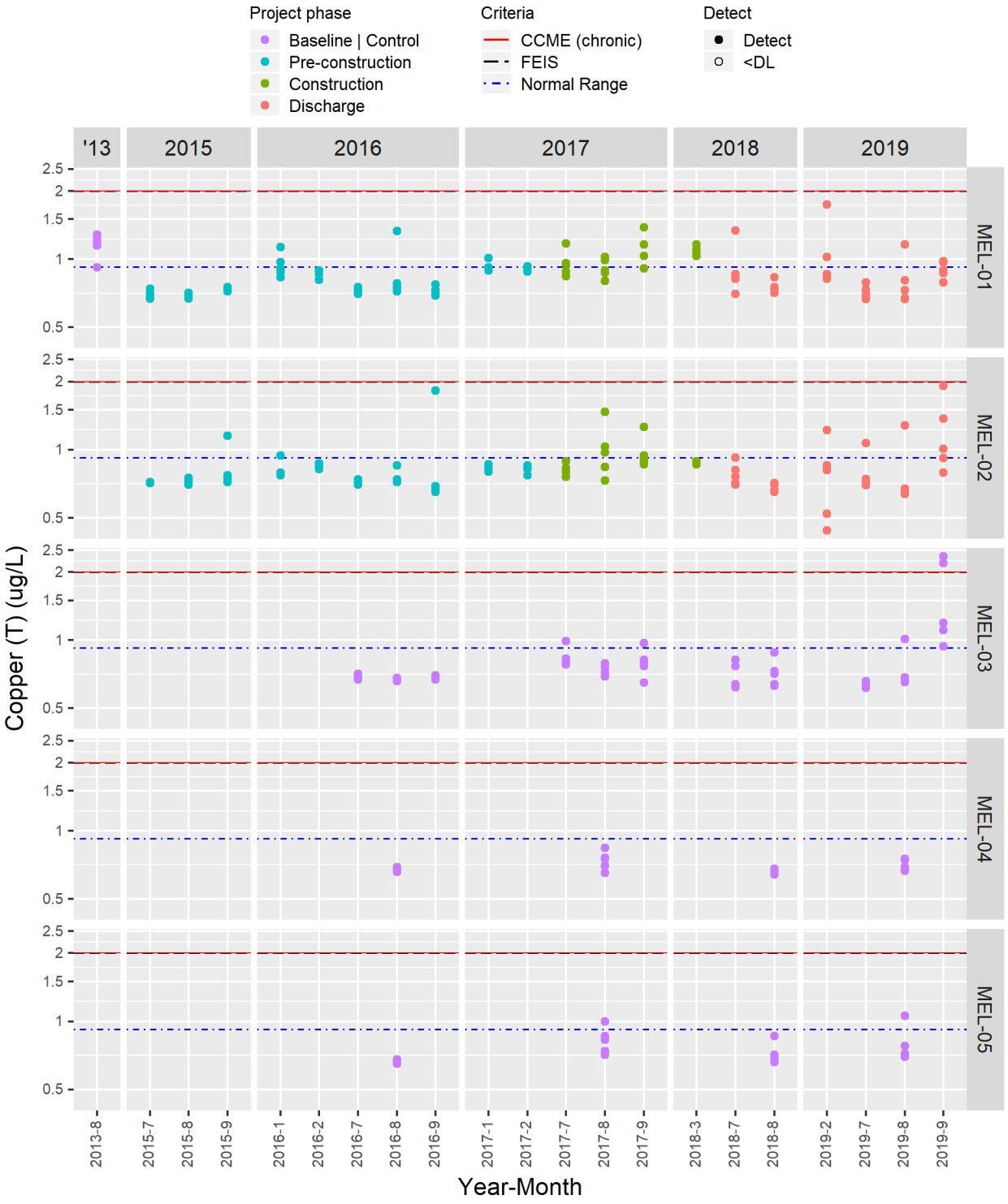


**Figure C2-37. Total iron (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

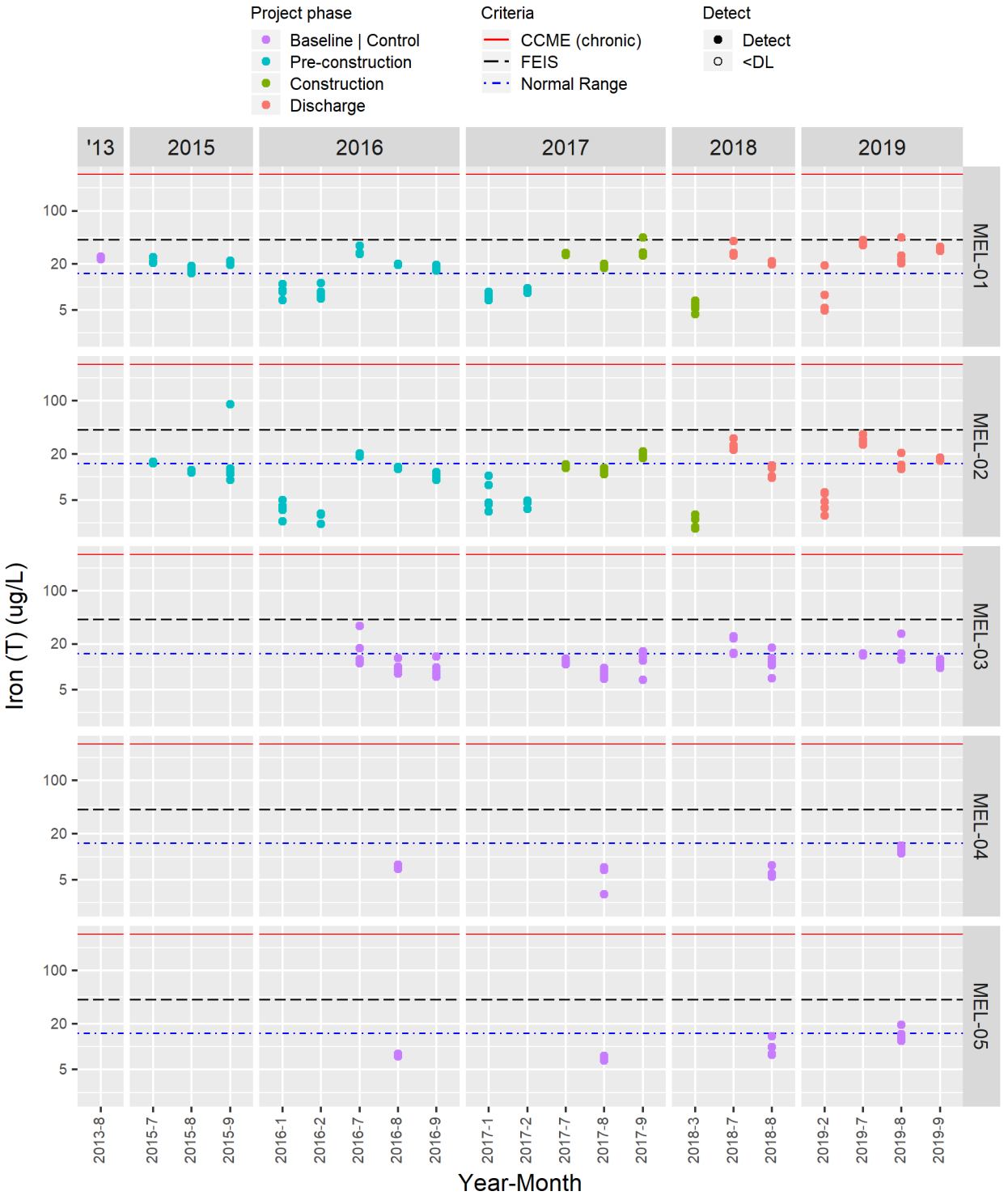


**Figure C2-38. Total lead (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

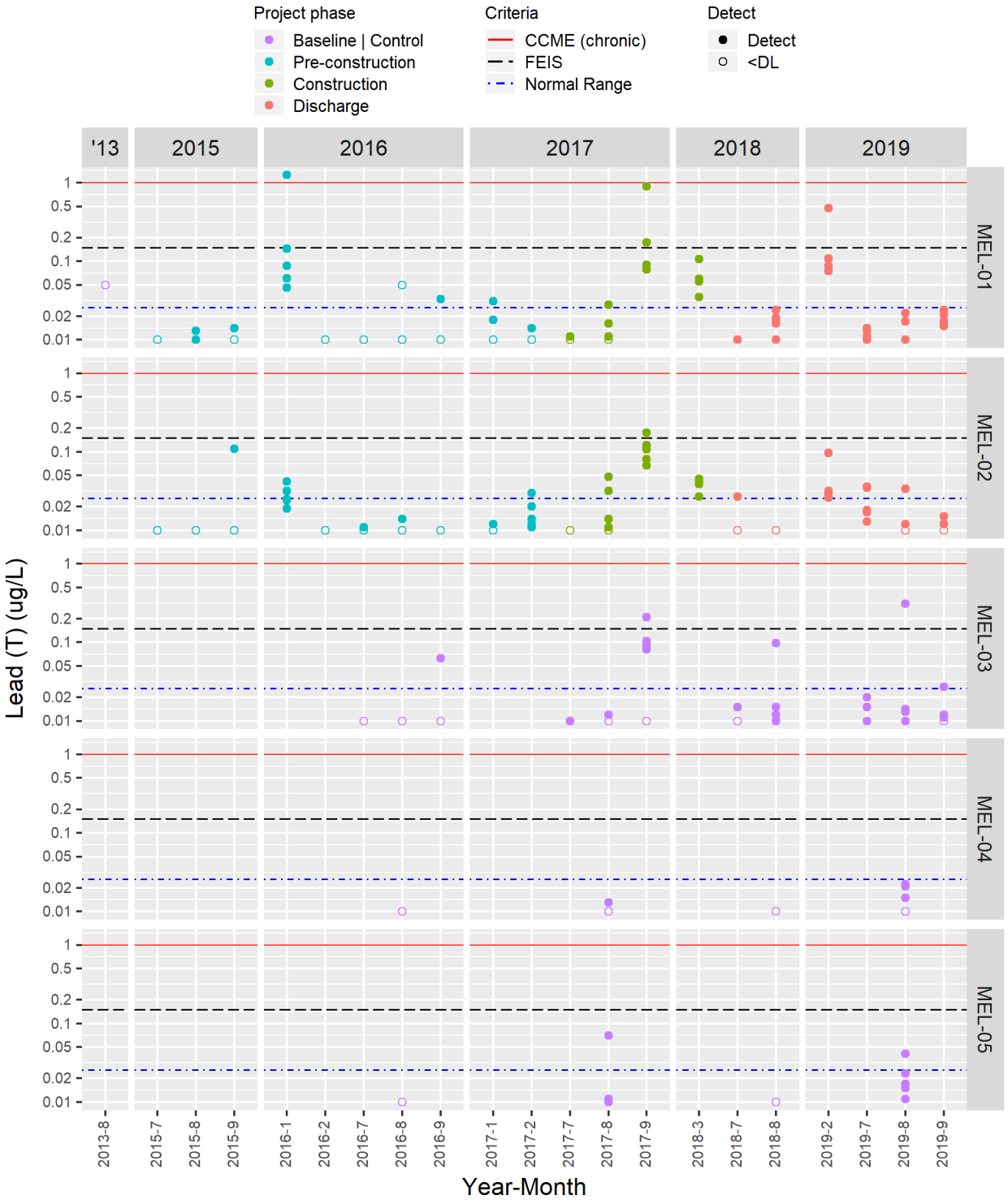


**Figure C2-39. Total lithium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

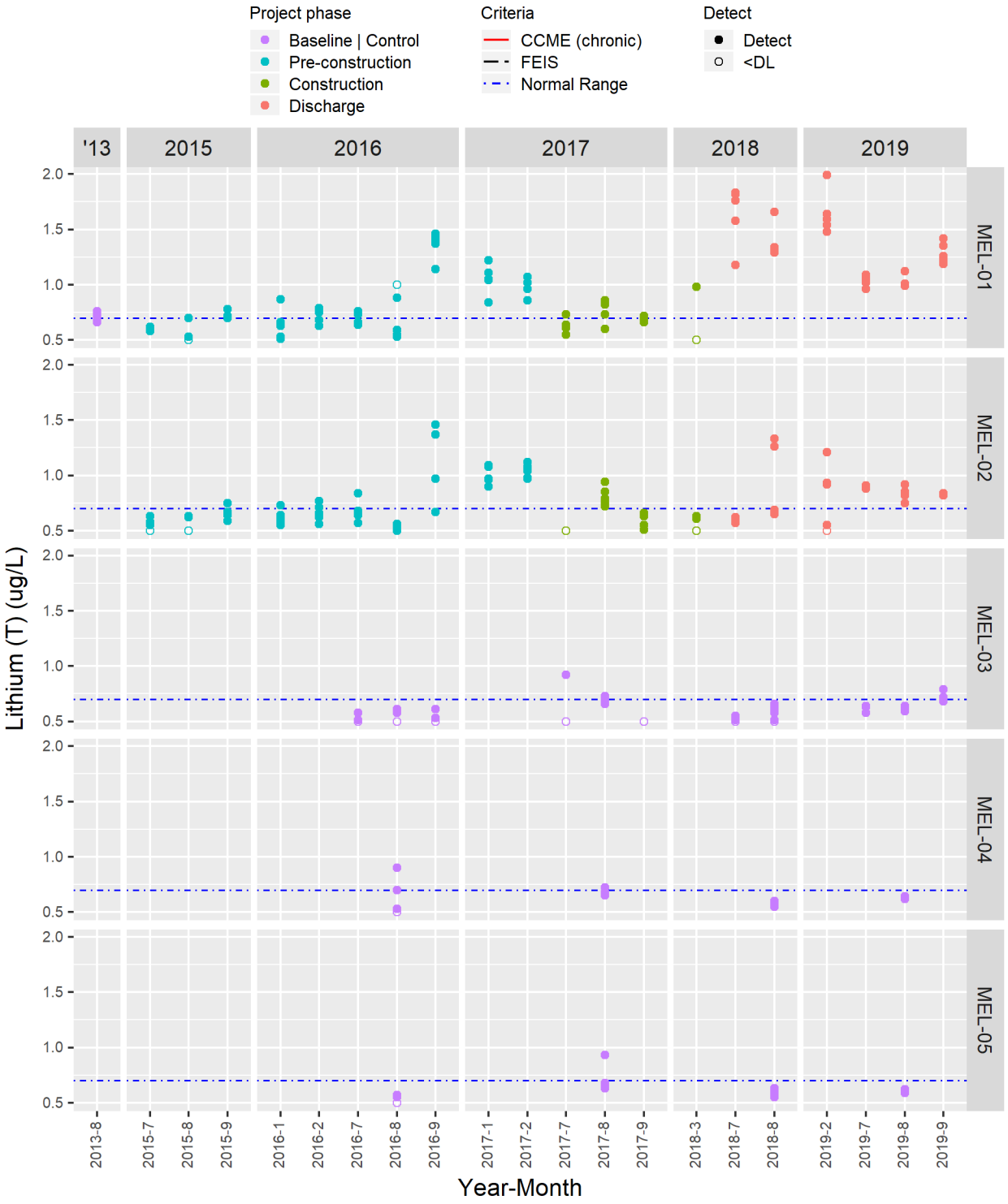


**Figure C2-40. Total manganese (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

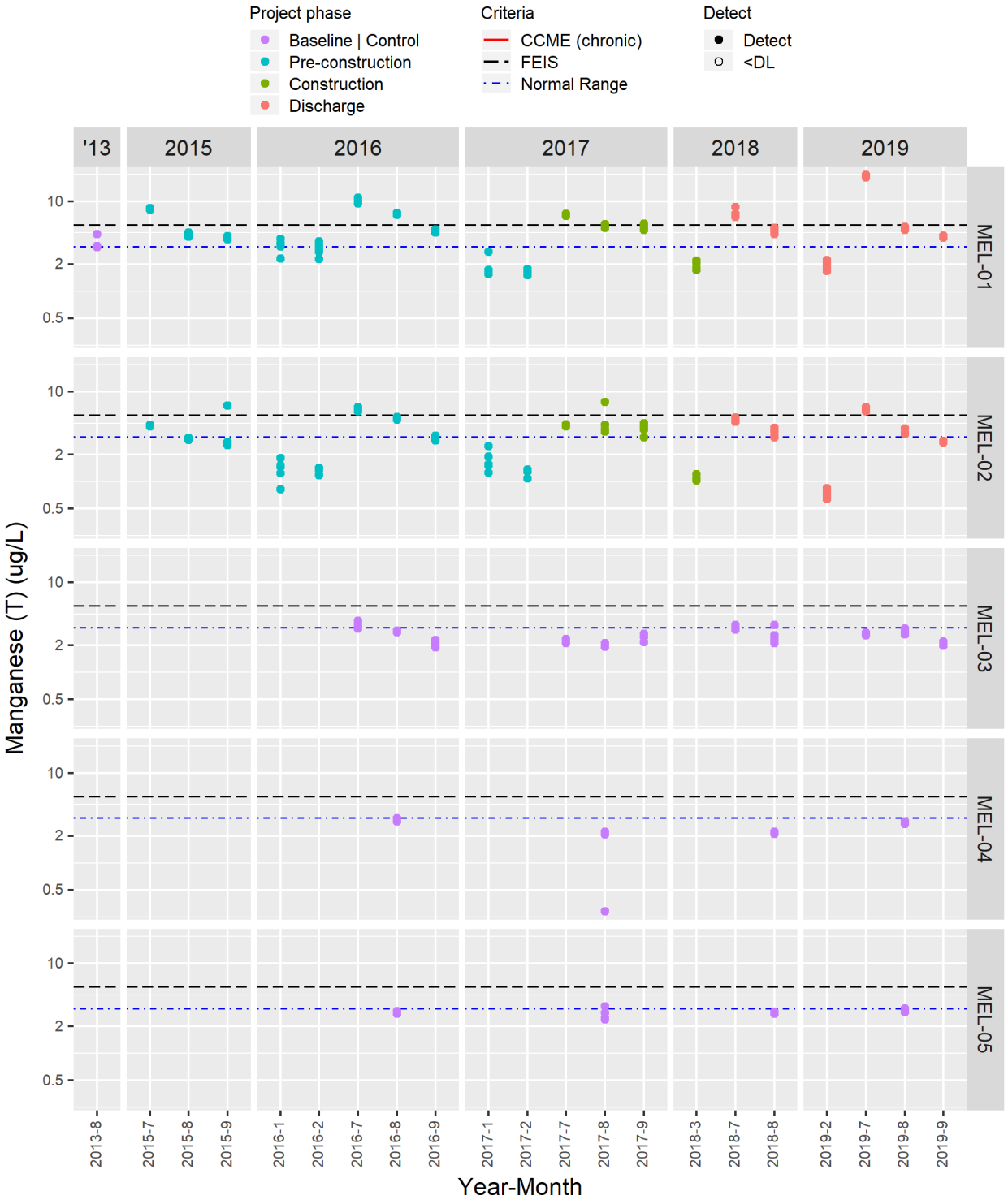


**Figure C2-41. Total mercury (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

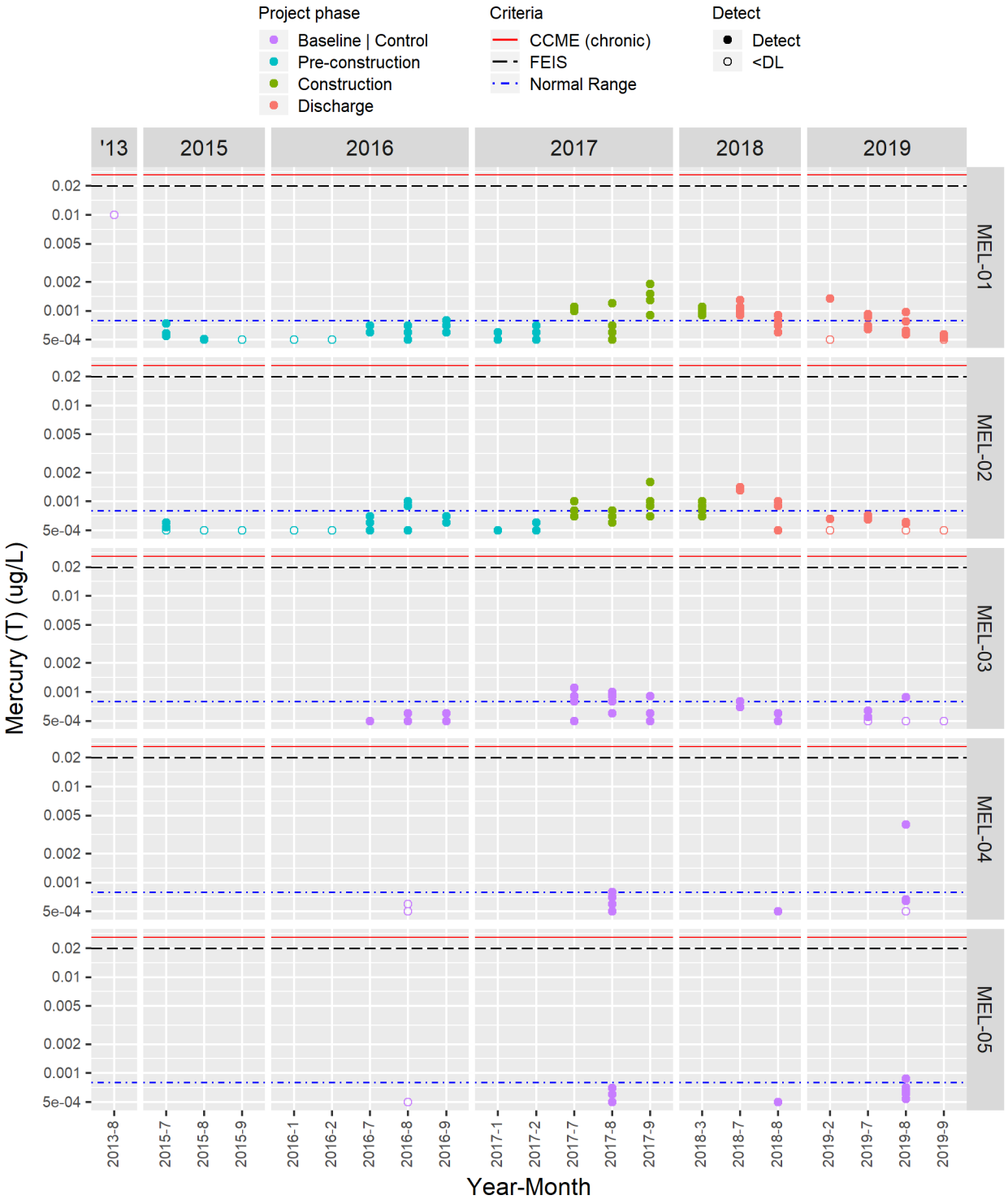


**Figure C2-42. Total molybdenum (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

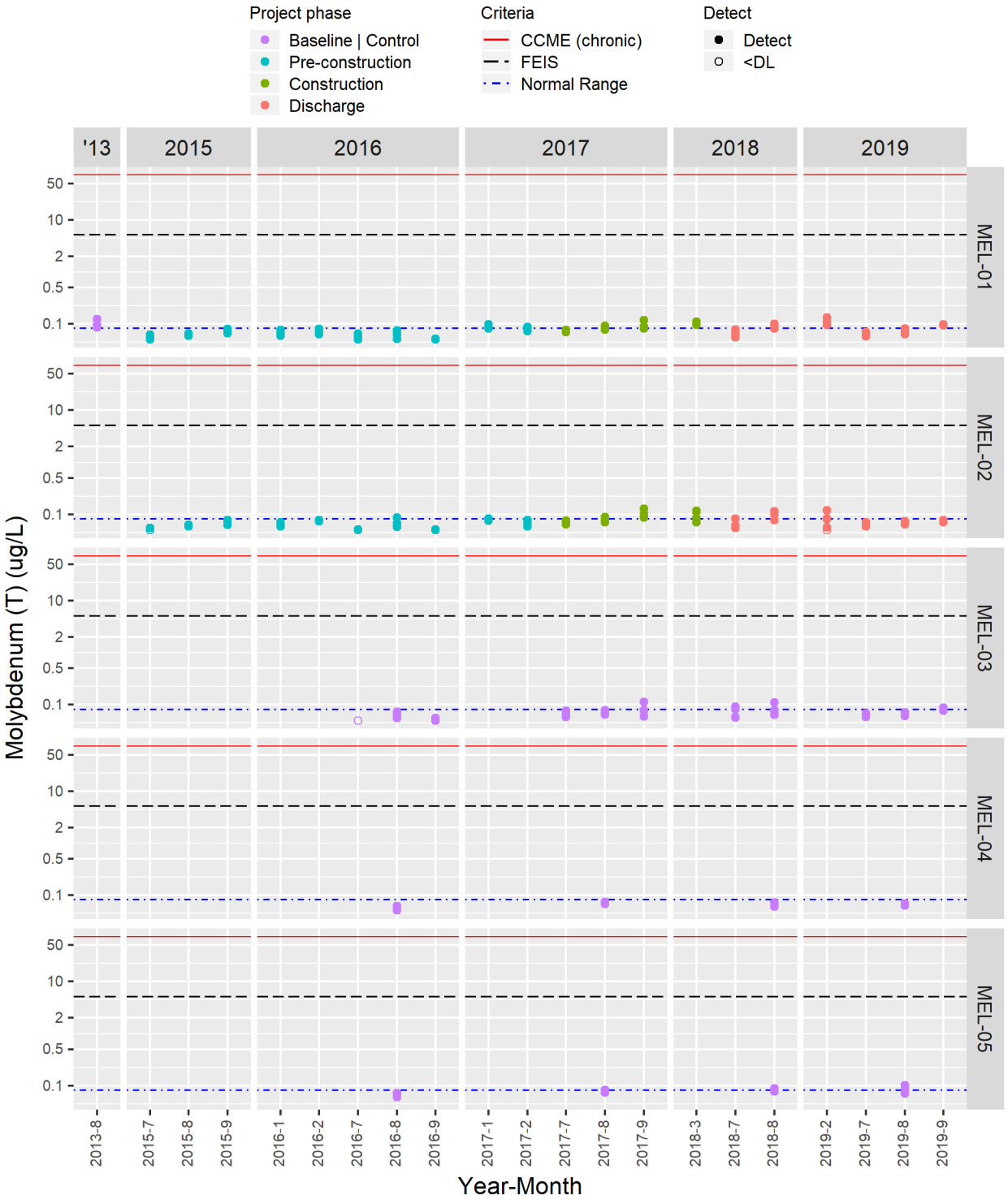


**Figure C2-43. Total nickel (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

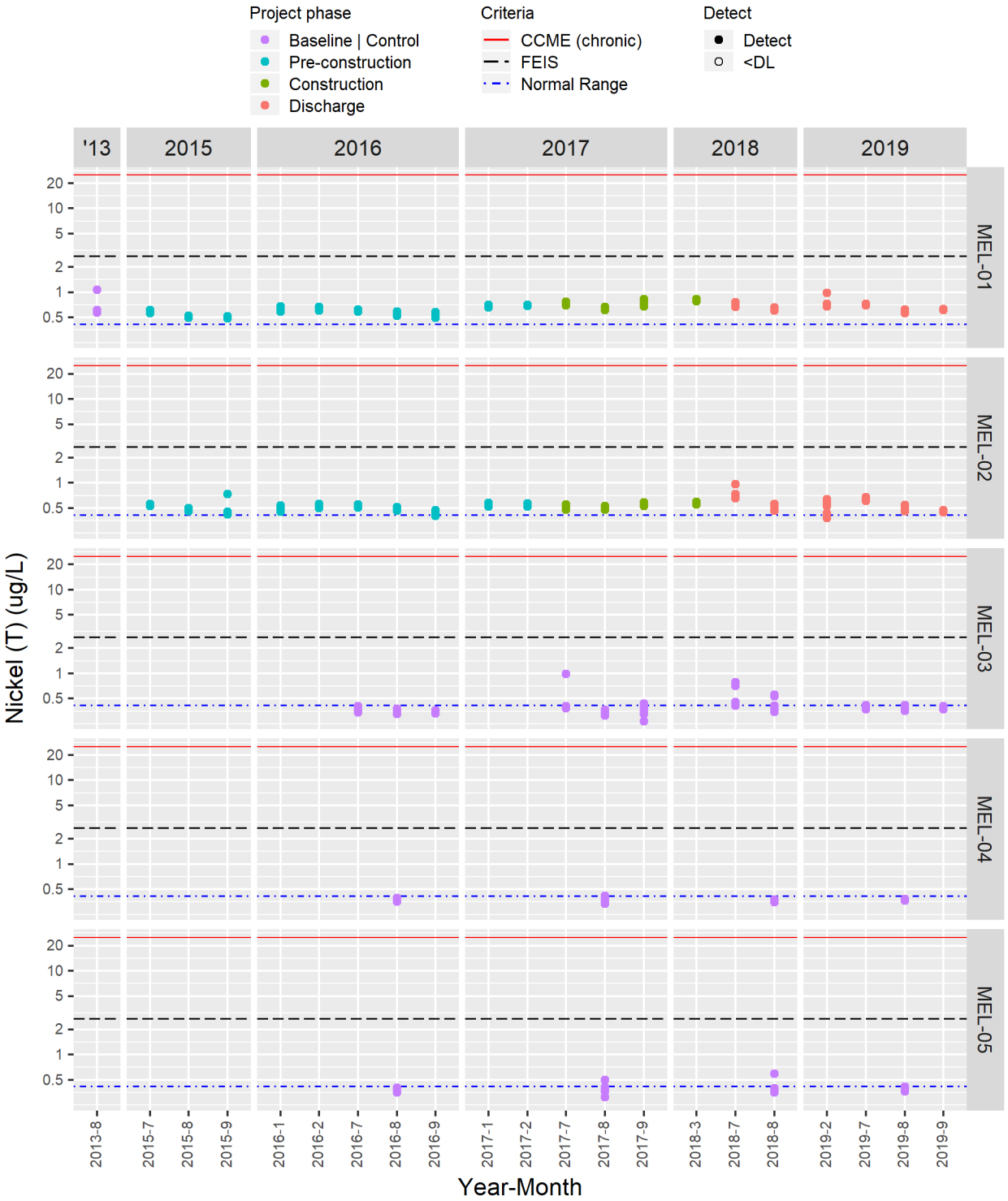


**Figure C2-44. Total selenium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

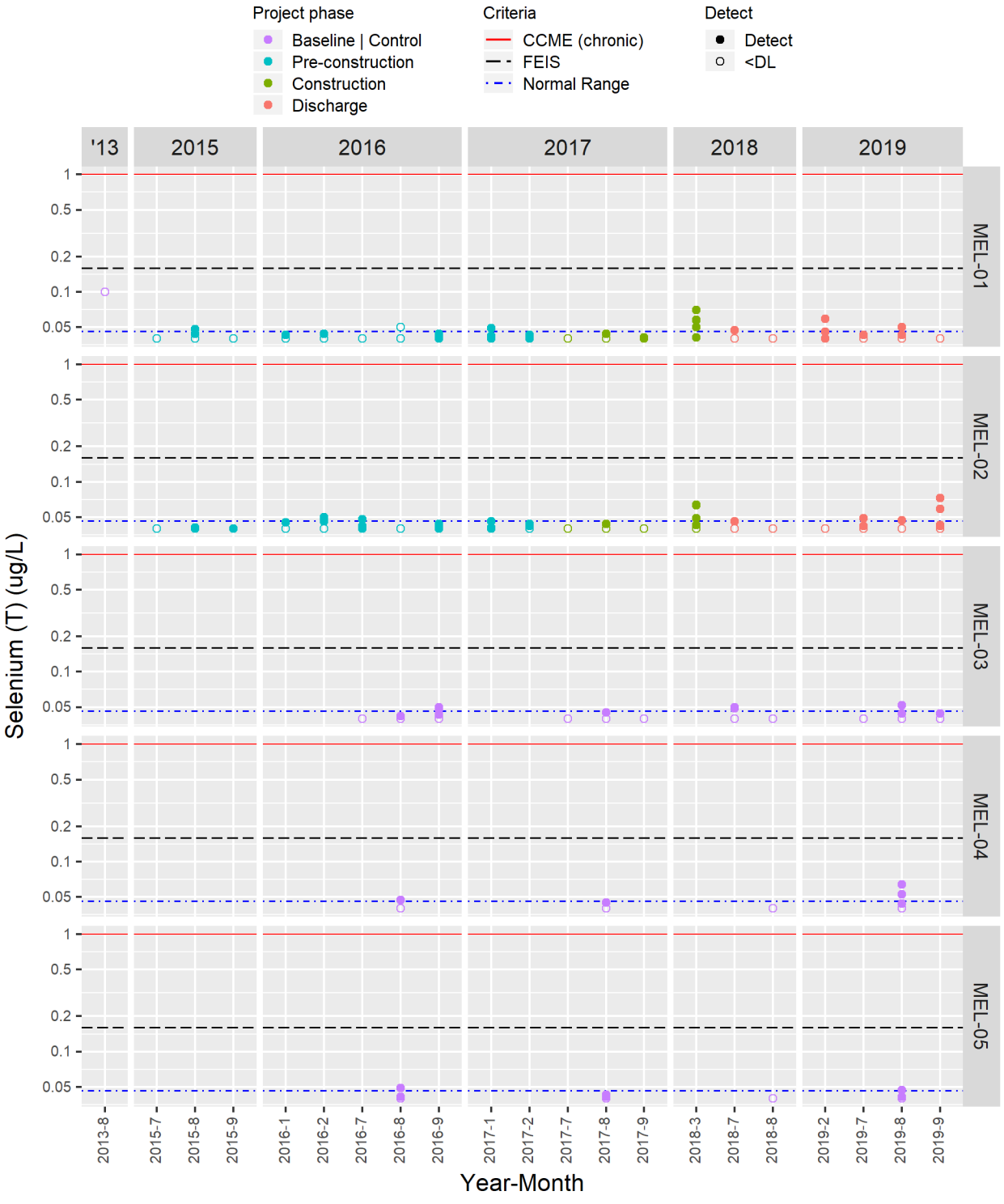


**Figure C2-45. Total silver (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01). The normal range for silver is equal to the current detection limit.

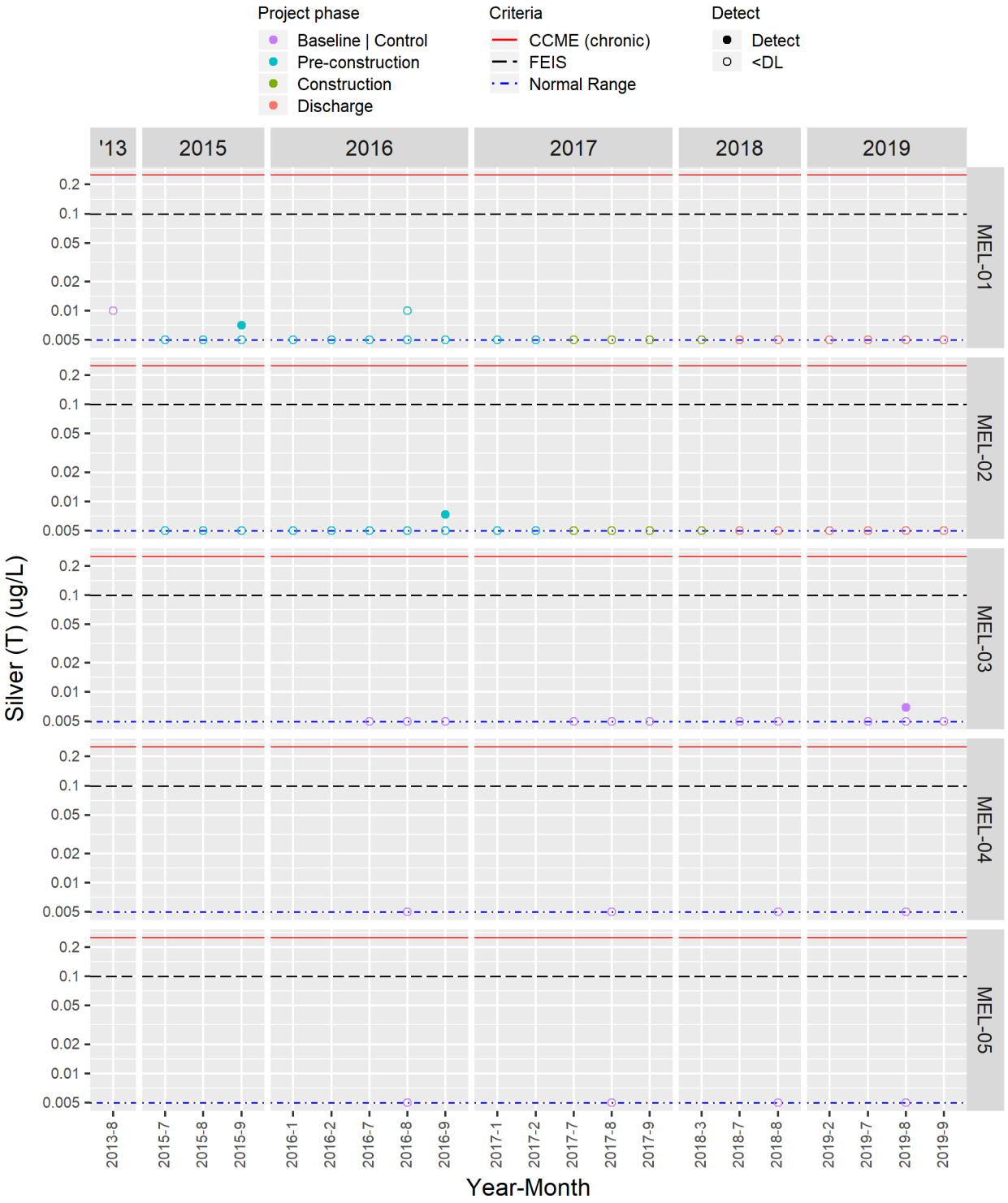


**Figure C2-46. Total strontium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

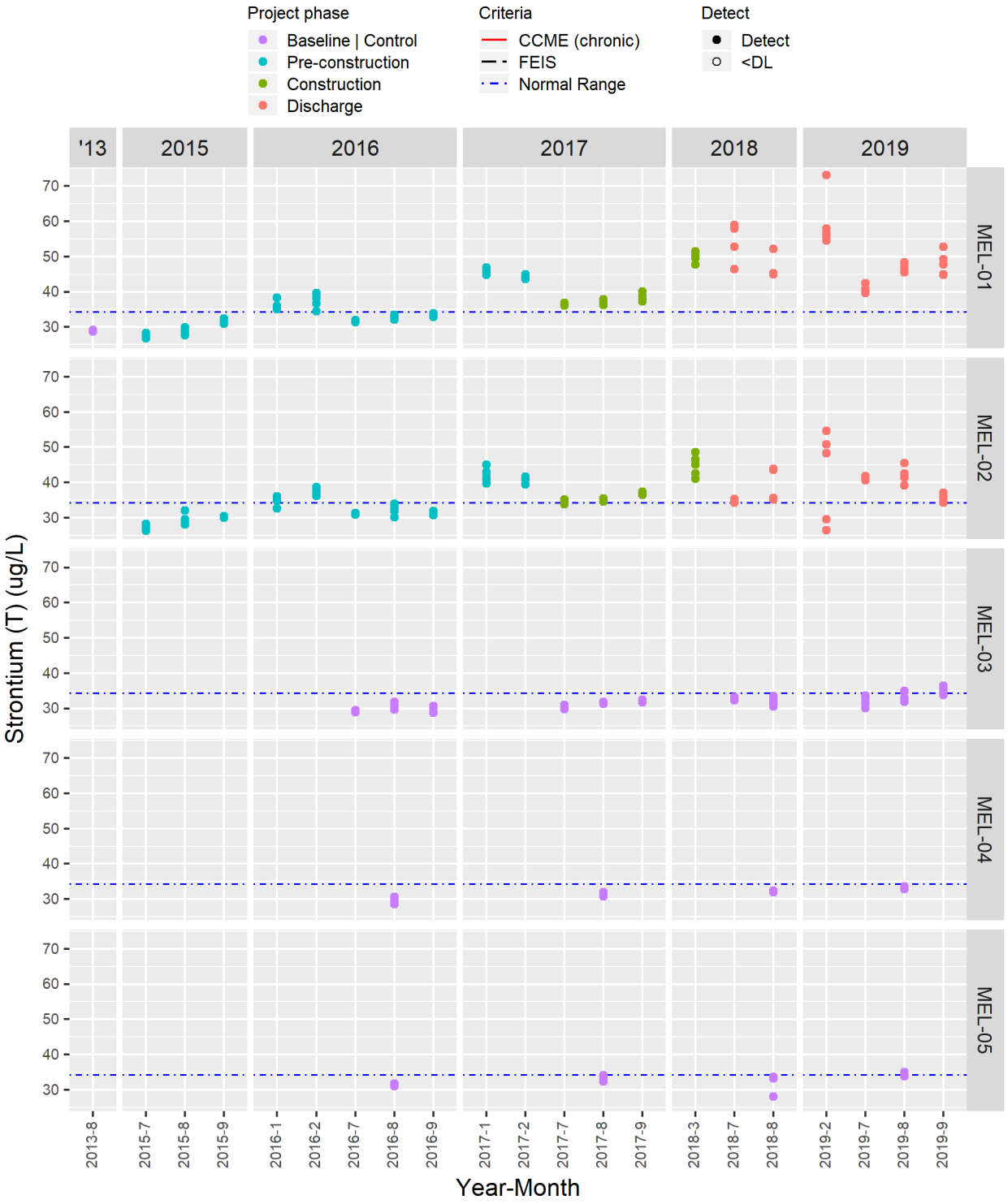


**Figure C2-47. Total thallium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01). The normal range for thallium is equal to the current detection limit.

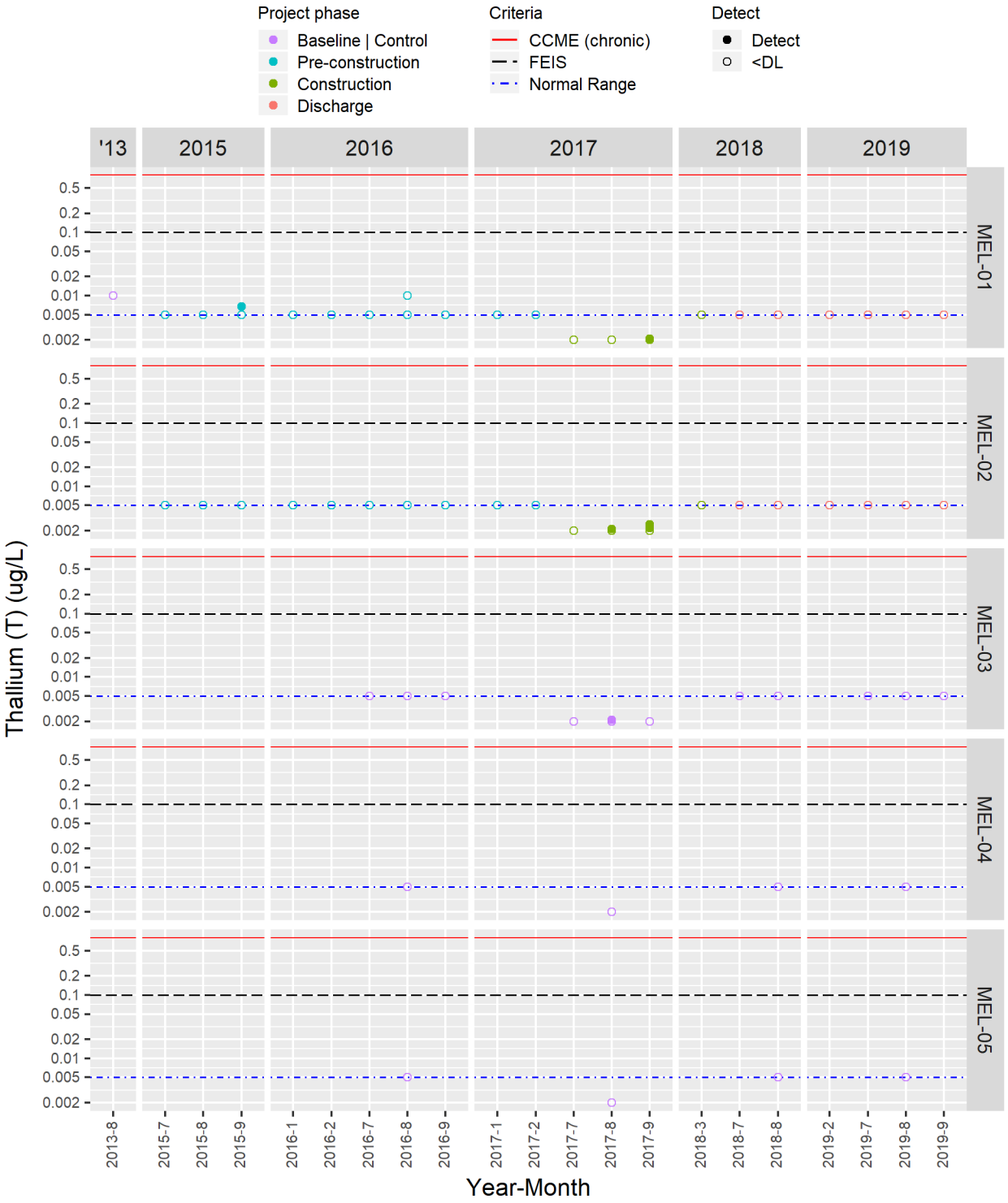


**Figure C2-48. Total tin (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).
The normal range for tin is equal to the current detection limit.

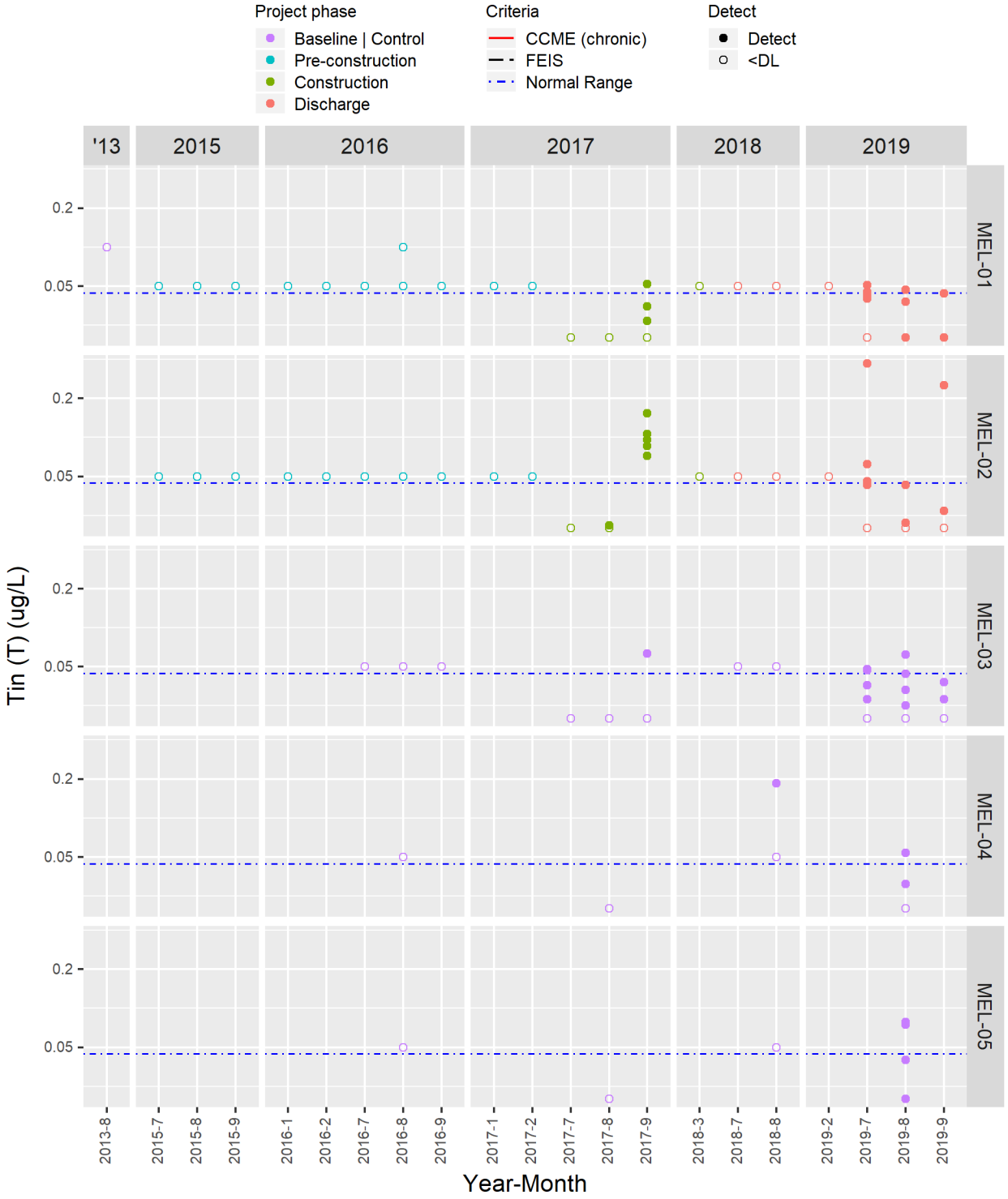


**Figure C2-49. Total titanium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

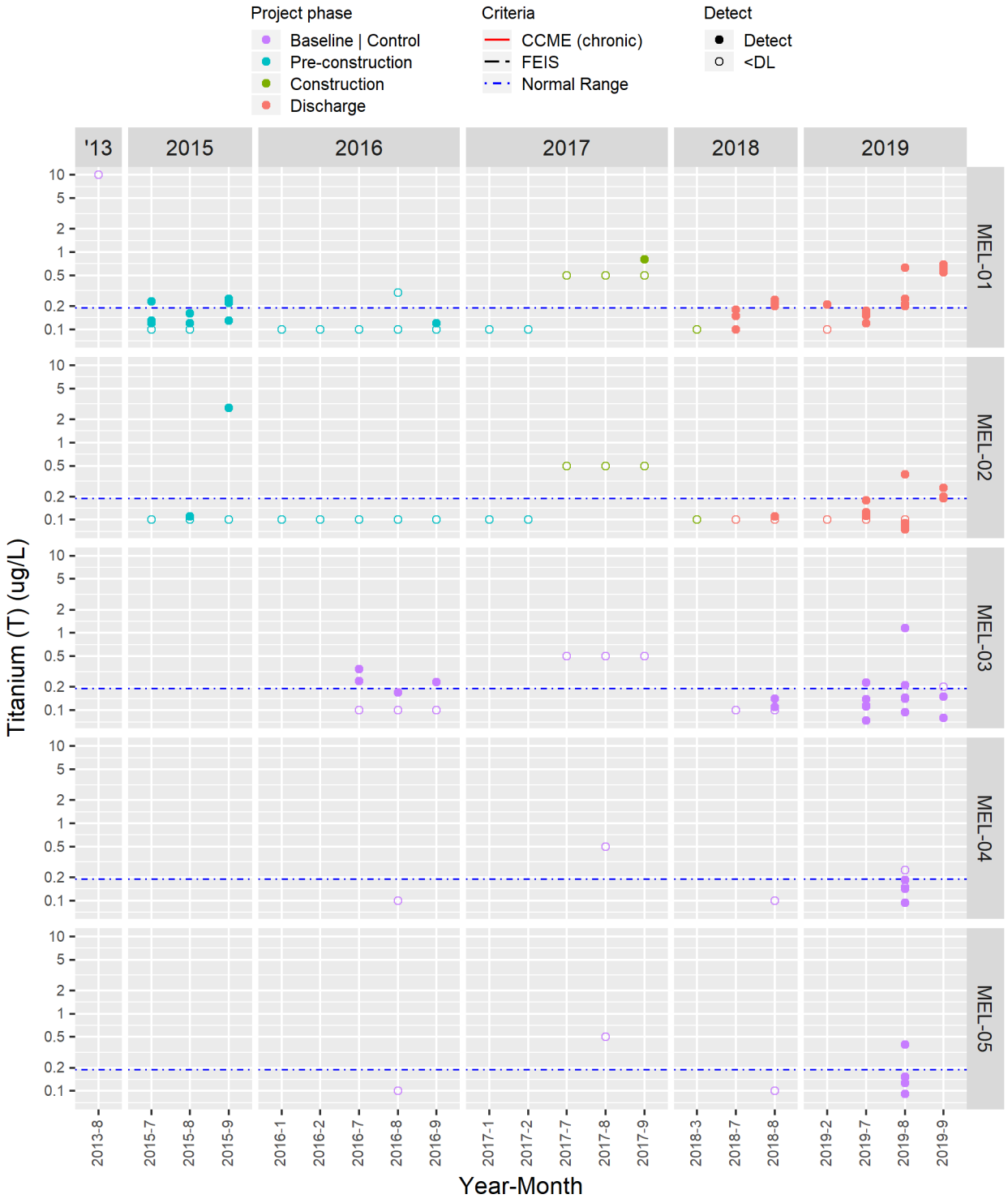


**Figure C2-50. Total uranium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

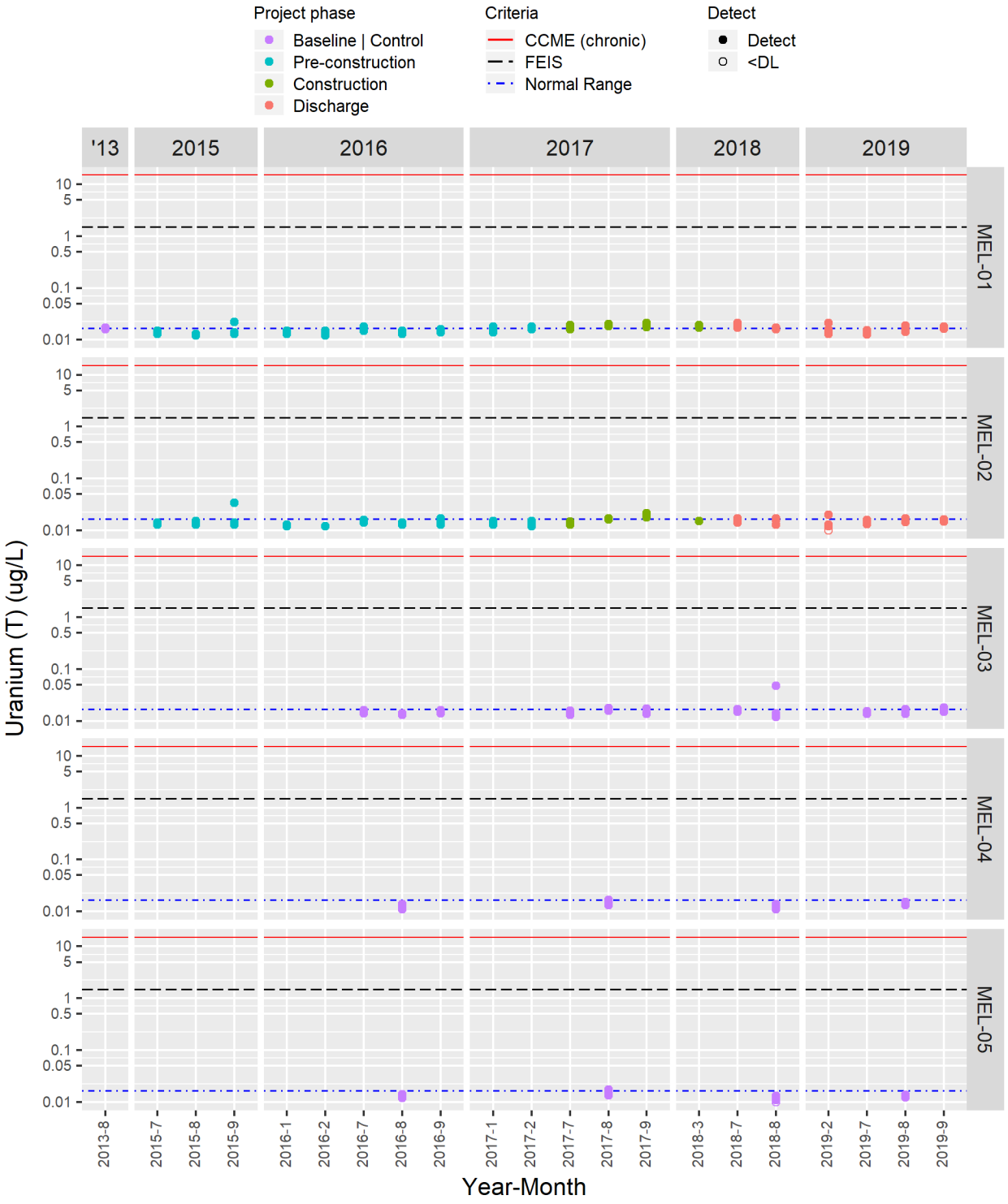


**Figure C2-51. Total vanadium (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01). The normal range for vanadium is equal to the current detection limit.

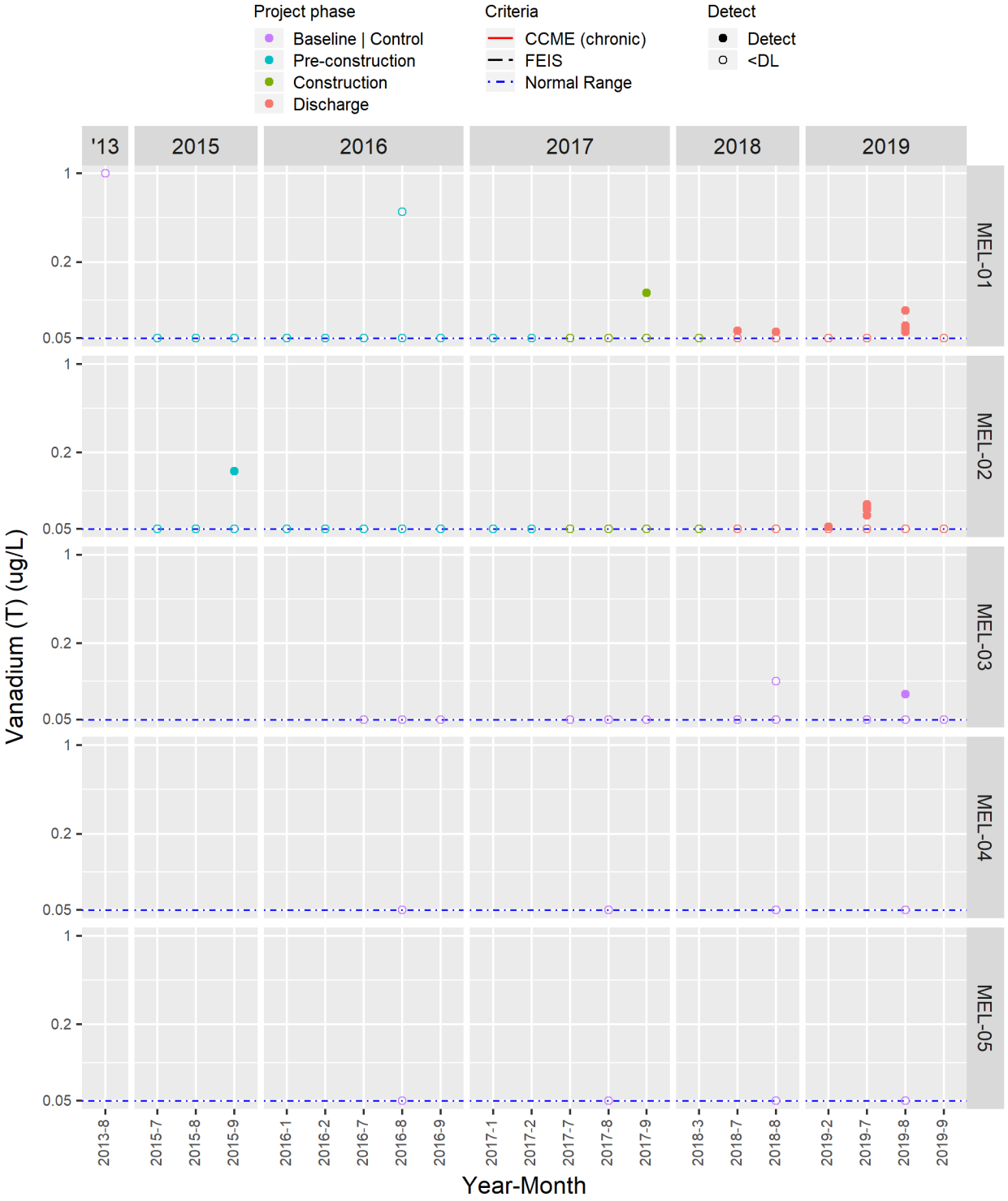


**Figure C2-52. Total zinc (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

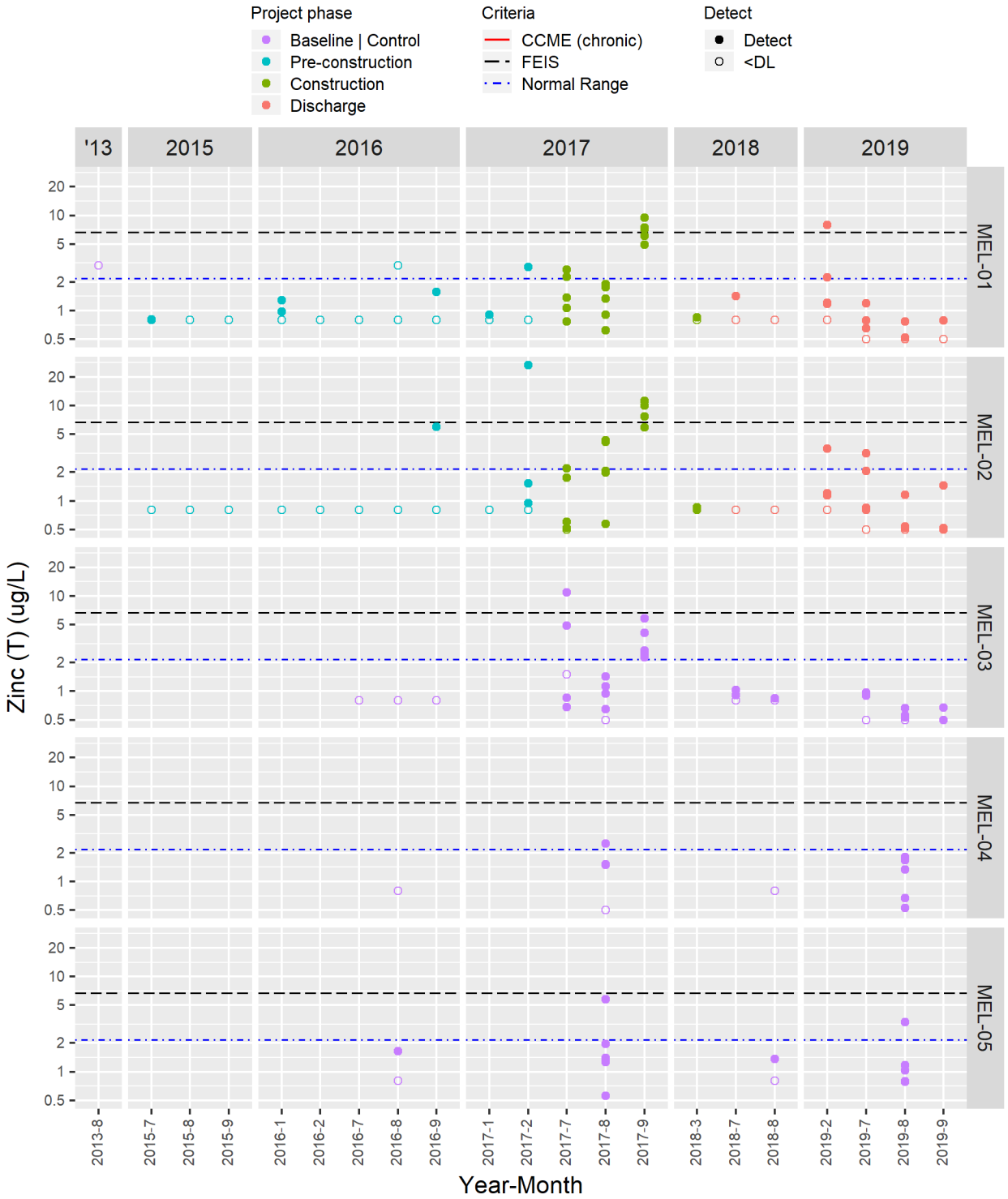


**Figure C2-53. Dissolved manganese (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).

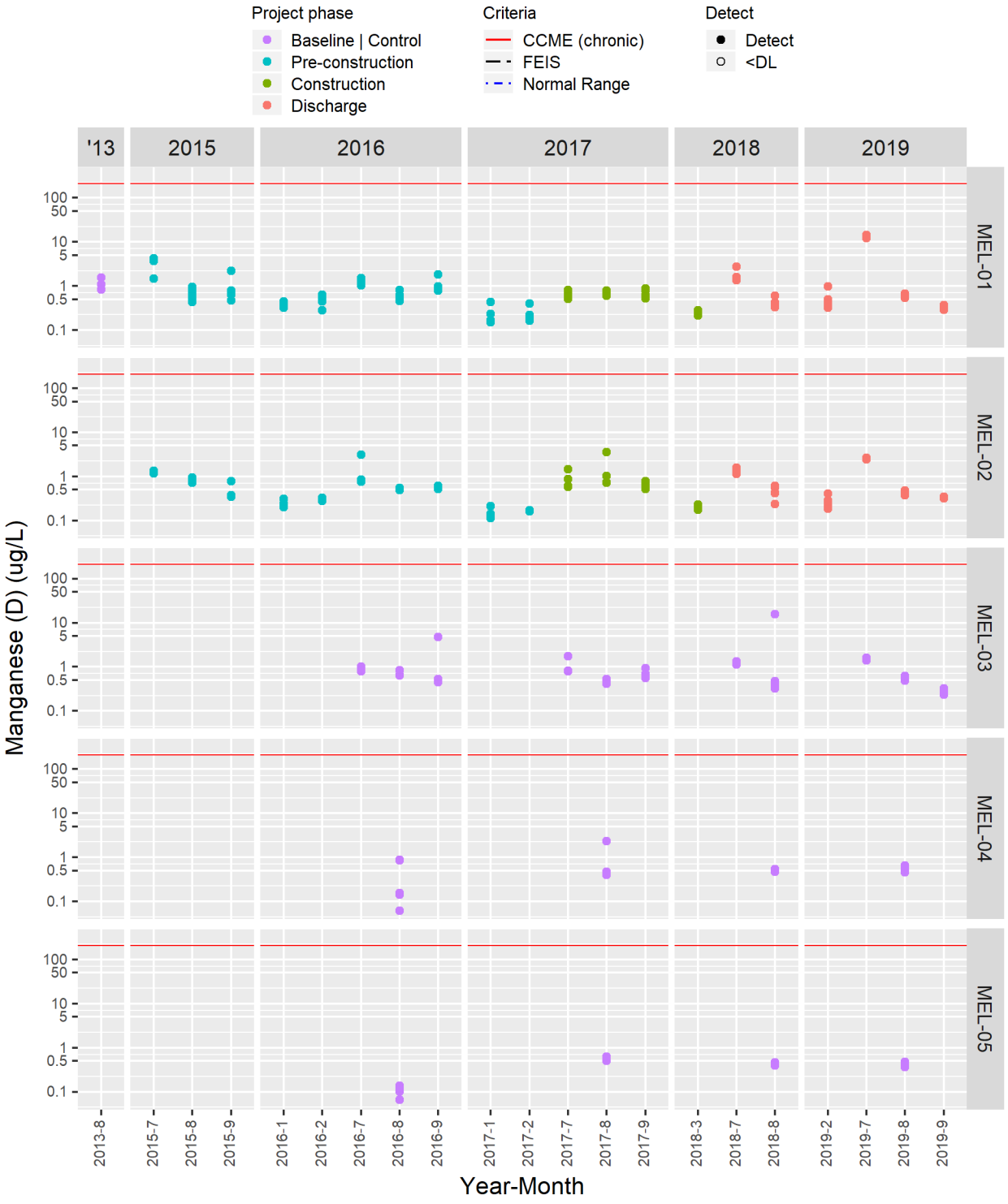
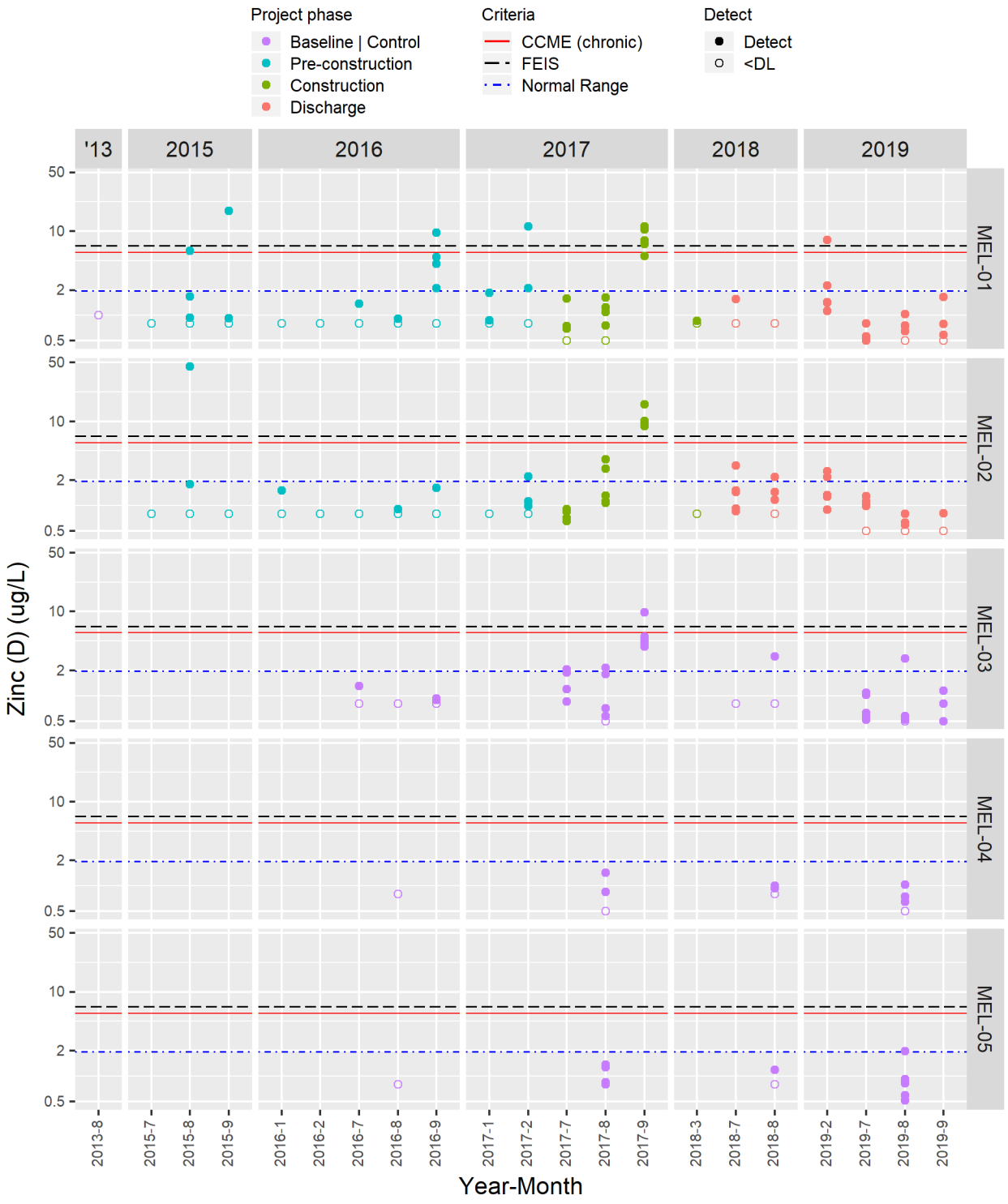


**Figure C2-54. Dissolved zinc (µg/L) in water samples from the Meliadine study areas since 2013.**

Notes: FEIS predictions (where applicable) represent predicted water quality at the edge of the mixing zone in the near-field area (MEL-01).
The CCME guideline for dissolved zinc is hardness-dependent. The redline corresponds to the lowest calculated guideline in 2019.
The sample from MEL-01 in February was below the hardness-dependent guideline of 9.6 µg/L for that sample.



# Appendix C3
# Meliadine Lake Water Chemistry Results, 2019

Appendix C3 Table: MEL-01 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen | Turbidity |
| | | | pH units | uS/cm | °C | mg/L | % | NTU |
| 14/02/2019 | MEL-01-08 | 1-2 m | 6.75 | 83.8 | 0.18 | 17.16 | - | 0 |
| 14/02/2019 | MEL-01-08 | 2-3 m | 6.72 | 73.8 | 2.04 | 14.12 | - | 0 |
| 14/02/2019 | MEL-01-08 | 3-4 m | 6.69 | 72.1 | 2.34 | 13.53 | - | 0 |
| 14/02/2019 | MEL-01-08 | 4-5 m | 6.64 | 71 | 2.6 | 12.71 | - | 0 |
| 14/02/2019 | MEL-01-08 | 5-6 m | 6.59 | 69.3 | 2.8 | 12.07 | - | 0 |
| 14/02/2019 | MEL-01-08 | 6-7 m | 6.54 | 68 | 3.02 | 11.64 | - | 0 |
| 14/02/2019 | MEL-01-08 | 7-8 m | 6.46 | 67.5 | 3.09 | 12.41 | - | 0 |
| | | | | | | | | |
| 14/02/2019 | MEL-01-07 | 1-2 m | 6.86 | 81.5 | 0.51 | 15.84 | - | 0 |
| 14/02/2019 | MEL-01-07 | 2-3 m | 6.84 | 72.3 | 1.85 | 13.73 | - | 0 |
| 14/02/2019 | MEL-01-07 | 3-4 m | 6.77 | 68.7 | 2.84 | 11.27 | - | 0 |
| 14/02/2019 | MEL-01-07 | 4-5 m | 6.77 | 67.3 | 3.06 | 9.07 | - | 0 |
| 14/02/2019 | MEL-01-07 | 5-6 m | 6.84 | 66.8 | 3.21 | 6.9 | - | 0 |
| 14/02/2019 | MEL-01-07 | 6-7 m | 6.85 | 67.2 | 3.25 | 3.63 | - | 0 |
| 14/02/2019 | MEL-01-07 | 7-8 m | - | - | - | - | - | 0 |
| | | | | | | | | |
| 14/02/2019 | MEL-01-06 | 1-2 m | 6.96 | 80.4 | 0.51 | 15.65 | - | 0 |
| 14/02/2019 | MEL-01-06 | 2-3 m | 6.97 | 71.3 | 1.91 | 14.54 | - | 0 |
| 14/02/2019 | MEL-01-06 | 3-4 m | 6.96 | 68.5 | 2.53 | 13.92 | - | 0 |
| 14/02/2019 | MEL-01-06 | 4-5 m | 6.94 | 67.9 | 2.68 | 13.28 | - | 0 |
| 14/02/2019 | MEL-01-06 | 5-6 m | 6.95 | 66.9 | 2.91 | 11.56 | - | 0 |
| 14/02/2019 | MEL-01-06 | 6-7 m | 6.96 | 65.6 | 3.1 | 11.14 | - | 0 |
| 14/02/2019 | MEL-01-06 | 7-8 m | 7 | 66.3 | 3.17 | 11.38 | - | 0 |
| | | | | | | | | |
| 14/02/2019 | MEL-01-01 | 1-2 m | 6.81 | 70.4 | 2.5 | 12.62 | - | - |
| 14/02/2019 | MEL-01-01 | 2-3 m | 6.78 | 69.3 | 2.75 | 11.24 | - | - |
| 14/02/2019 | MEL-01-01 | 3-4 m | 6.76 | 68.5 | 2.97 | 10.26 | - | - |
| 14/02/2019 | MEL-01-01 | 4-5 m | 6.75 | 67.4 | 3.13 | 9.27 | - | - |
| 14/02/2019 | MEL-01-01 | 5-6 m | 6.76 | 66.8 | 3.2 | 8.85 | - | - |
| 14/02/2019 | MEL-01-01 | 6-7 m | 6.76 | 66.5 | 3.26 | 8.22 | - | - |
| 14/02/2019 | MEL-01-01 | 7-8 m | 6.77 | 65.8 | 3.39 | 8.02 | - | - |
| | | | | | | | | |
| 14/02/2019 | MEL-01-09 | 1-2 m | 7.01 | 80.6 | 0.61 | 14.48 | - | 0 |
| 14/02/2019 | MEL-01-09 | 2-3 m | 7.02 | 71.7 | 2.18 | 13.46 | - | 0 |
| 14/02/2019 | MEL-01-09 | 3-4 m | 7.02 | 69.9 | 2.47 | 12.82 | - | 0 |
| 14/02/2019 | MEL-01-09 | 4-5 m | 7.02 | 69.1 | 2.71 | 12.23 | - | 0 |
| 14/02/2019 | MEL-01-09 | 5-6 m | 7.02 | 68.5 | 2.91 | 11.22 | - | 0 |
| 14/02/2019 | MEL-01-09 | 6-7 m | 7.01 | 69 | 3 | 10.46 | - | 0 |
| 14/02/2019 | MEL-01-09 | 7-8 m | - | - | - | - | - | 0 |
| | | | | | | | | |
| 12/07/2019 | MEL-01-01 | 0.5-1 m | - | 75.3 | 6.1 | 12.2 | 98.1 | - |
| 12/07/2019 | MEL-01-01 | 0-1 m | - | 75.3 | 6.2 | 12.2 | 98.2 | - |
| 12/07/2019 | MEL-01-01 | 10-11 m | - | 75.6 | 5.7 | - | - | - |
| 12/07/2019 | MEL-01-01 | 2-3 m | - | 75.3 | 6.2 | 12.1 | 98.1 | - |
| 12/07/2019 | MEL-01-01 | 3-4 m | - | 75.2 | 6.2 | 12.1 | 98 | - |
| 12/07/2019 | MEL-01-01 | 4-5 m | - | 75.3 | 6.1 | 12.1 | 97.9 | - |
| 12/07/2019 | MEL-01-01 | 5-6 m | - | 75.5 | 6.1 | 12.1 | 97.8 | - |
| 12/07/2019 | MEL-01-01 | 6-7 m | - | 75.3 | 6.1 | 12.1 | 97.6 | - |
| 12/07/2019 | MEL-01-01 | 7-8 m | - | 75.1 | 6 | 12.1 | 97.5 | - |
| 12/07/2019 | MEL-01-01 | 8-9 m | - | 75.4 | 5.9 | 12.1 | 96.9 | - |
| 12/07/2019 | MEL-01-01 | 9-10 m | - | 75.5 | 5.7 | 12.1 | 97 | - |
| | | | | | | | | |
| 12/07/2019 | MEL-01-06 | 0-1 m | - | 75.3 | 6.4 | 12.1 | 98.5 | - |
| 12/07/2019 | MEL-01-06 | 10-11 m | - | 75.9 | 6 | 12.1 | 97.1 | - |
| 12/07/2019 | MEL-01-06 | 1-1 m | - | 75.2 | 6.3 | 12.1 | 98.4 | - |
| 12/07/2019 | MEL-01-06 | 11-12 m | - | 75.4 | 5.9 | 12 | 96.2 | - |
| 12/07/2019 | MEL-01-06 | 1-2 m | - | 75.4 | 6.4 | 12.1 | 98.4 | - |
| 12/07/2019 | MEL-01-06 | 2-3 m | - | 75.3 | 6.3 | 12.1 | 98.2 | - |
| 12/07/2019 | MEL-01-06 | 3-4 m | - | 75.4 | 6.3 | 12.1 | 98.2 | - |
| 12/07/2019 | MEL-01-06 | 4-5 m | - | 75.3 | 6.2 | 12.1 | 98.1 | - |
| 12/07/2019 | MEL-01-06 | 5-6 m | - | 75.1 | 6.2 | 12.1 | 97.9 | - |
| 12/07/2019 | MEL-01-06 | 6-7 m | - | 75.3 | 6.2 | 12.1 | 97.9 | - |
| 12/07/2019 | MEL-01-06 | 7-8 m | - | 75.1 | 6.2 | 12.1 | 97.8 | - |
| 12/07/2019 | MEL-01-06 | 8-9 m | - | 75.1 | 6.2 | 12.1 | 97.7 | - |
| 12/07/2019 | MEL-01-06 | 9-10 m | - | 75.1 | 6.1 | 12.1 | 97.5 | - |
| | | | | | | | | |
| 14/07/2019 | MEL-01-08 | 0.5-1 m | - | 76.1 | 7.52 | 12 | 100.1 | - |
| 14/07/2019 | MEL-01-08 | 0-1 m | 7.34 | 76.5 | 7.49 | 12 | 100.1 | - |
| 14/07/2019 | MEL-01-08 | 1-2 m | - | 76.3 | 7.47 | 12.01 | 100.1 | - |
| 14/07/2019 | MEL-01-08 | 2-3 m | - | 76.3 | 7.45 | 12.01 | 100 | - |

Appendix C3 Table: MEL-01 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen | Turbidity |
| | | | pH units | uS/cm | °C | mg/L | % | NTU |
| 14/07/2019 | MEL-01-08 | 3-4 m | 7.35 | 76.2 | 7.45 | 11.99 | 99.9 | - |
| 14/07/2019 | MEL-01-08 | 4-5 m | - | 76.4 | 7.45 | 11.98 | 99.8 | - |
| 14/07/2019 | MEL-01-08 | 5-6 m | - | 76.3 | 7.41 | 11.97 | 99.6 | - |
| 14/07/2019 | MEL-01-08 | 6-7 m | - | 76.5 | 7.39 | 11.95 | 99.5 | - |
| 14/07/2019 | MEL-01-08 | 7-8 m | - | 76.8 | 7.34 | 11.93 | 99.1 | - |
| 14/07/2019 | MEL-01-08 | 8-9 m | - | 76.9 | 7.24 | 11.9 | 98.6 | - |
| | | | | | | | | |
| 14/07/2019 | MEL-01-07 | 0.5-1 m | - | 76.8 | 7.45 | 12.02 | 100.1 | - |
| 14/07/2019 | MEL-01-07 | 0-1 m | 7.36 | 76.9 | 7.46 | 12.01 | 100.1 | - |
| 14/07/2019 | MEL-01-07 | 1-2 m | - | 76.8 | 7.46 | 12.01 | 100 | - |
| 14/07/2019 | MEL-01-07 | 2-3 m | - | 77.3 | 7.45 | 12 | 100 | - |
| 14/07/2019 | MEL-01-07 | 3-4 m | - | 76.8 | 7.44 | 11.99 | 99.9 | - |
| 14/07/2019 | MEL-01-07 | 4-5 m | 7.38 | 76.9 | 7.2 | 11.98 | 99.8 | - |
| 14/07/2019 | MEL-01-07 | 5-6 m | - | 77 | 7.43 | 11.97 | 99.7 | - |
| 14/07/2019 | MEL-01-07 | 6-7 m | - | 76.9 | 7.41 | 11.97 | 99.6 | - |
| 14/07/2019 | MEL-01-07 | 7-8 m | - | 76.9 | 7.4 | 11.96 | 99.6 | - |
| 14/07/2019 | MEL-01-07 | 8-9 m | - | 76.7 | 7.39 | 11.96 | 99.5 | - |
| | | | | | | | | |
| 14/07/2019 | MEL-01-09 | 0.5-1 m | - | 76.5 | 7.6 | 11.98 | 100.2 | - |
| 14/07/2019 | MEL-01-09 | 0-1 m | 7.36 | 76.6 | 7.62 | 11.97 | 100.1 | - |
| 14/07/2019 | MEL-01-09 | 1-2 m | - | 76.5 | 7.61 | 11.97 | 100.1 | - |
| 14/07/2019 | MEL-01-09 | 2-3 m | - | 76.5 | 7.56 | 11.98 | 100.1 | - |
| 14/07/2019 | MEL-01-09 | 3-4 m | - | 76.4 | 7.54 | 11.97 | 99.9 | - |
| 14/07/2019 | MEL-01-09 | 4-5 m | 7.36 | 76.4 | 7.5 | 11.96 | 99.8 | - |
| 14/07/2019 | MEL-01-09 | 5-6 m | - | 76.5 | 7.48 | 11.97 | 99.8 | - |
| 14/07/2019 | MEL-01-09 | 6-7 m | - | 76.4 | 7.41 | 11.95 | 99.5 | - |
| 14/07/2019 | MEL-01-09 | 7-8 m | - | 76.3 | 7.32 | 11.94 | 99.1 | - |
| | | | | | | | | |
| 08/08/2019 | MEL-01-01 | 0-1 m | 7.68 | 82.4 | 12.08 | 10.27 | 99 | - |
| 08/08/2019 | MEL-01-01 | 1-1 m | 7.61 | 82.4 | 12.06 | 10.44 | 100.3 | - |
| 08/08/2019 | MEL-01-01 | 1-2 m | 7.59 | 82.1 | 12.07 | 10.52 | 101 | - |
| 08/08/2019 | MEL-01-01 | 2-3 m | 7.55 | 82.3 | 12.06 | 10.56 | 101.4 | - |
| 08/08/2019 | MEL-01-01 | 3-4 m | 7.54 | 82.3 | 12.02 | 10.56 | 101.3 | - |
| 08/08/2019 | MEL-01-01 | 4-5 m | 7.53 | 82.3 | 12.04 | 10.56 | 101.4 | - |
| 08/08/2019 | MEL-01-01 | 5-6 m | 7.53 | 82.3 | 12.01 | 10.57 | 101.4 | - |
| 08/08/2019 | MEL-01-01 | 6-7 m | 7.53 | 82.2 | 12.02 | 10.57 | 101.4 | - |
| 08/08/2019 | MEL-01-01 | 7-8 m | 7.52 | 82.3 | 12 | 10.57 | 101.4 | - |
| 08/08/2019 | MEL-01-01 | 8-9 m | 7.52 | 82.4 | 12 | 10.57 | 101.3 | - |
| 08/08/2019 | MEL-01-01 | 9-10 m | 7.52 | 82.4 | 11.99 | 10.57 | 101.3 | - |
| | | | | | | | | |
| 08/08/2019 | MEL-01-09 | 0.5-1 m | 7.52 | 82.6 | 12.09 | 10.46 | 100.7 | - |
| 08/08/2019 | MEL-01-09 | 0-1 m | 7.55 | 82.6 | 12.1 | 10.26 | 102 | - |
| 08/08/2019 | MEL-01-09 | 1-2 m | 7.54 | 82.6 | 12.09 | 10.54 | 101.5 | - |
| 08/08/2019 | MEL-01-09 | 2-3 m | 7.49 | 82.5 | 12.09 | 10.58 | 101.6 | - |
| 08/08/2019 | MEL-01-09 | 3-4 m | 7.48 | 82.3 | 12.08 | 10.59 | 101.8 | - |
| 08/08/2019 | MEL-01-09 | 4-5 m | 7.48 | 82.6 | 12.08 | 10.59 | 101.8 | - |
| 08/08/2019 | MEL-01-09 | 5-6 m | 7.48 | 82.6 | 12.08 | 10.6 | 101.8 | - |
| 08/08/2019 | MEL-01-09 | 6-7 m | 7.48 | 82.6 | 12.08 | 10.59 | 101.8 | - |
| 08/08/2019 | MEL-01-09 | 7-8 m | 7.48 | 82.6 | 12.08 | 10.59 | 101.8 | - |
| | | | | | | | | |
| 08/08/2019 | MEL-01-07 | 0.5-1 m | 7.53 | 82.2 | 12.23 | 10.36 | 100 | - |
| 08/08/2019 | MEL-01-07 | 0-1 m | 7.55 | 82.2 | 12.25 | 10.14 | 98 | - |
| 08/08/2019 | MEL-01-07 | 1-2 m | 7.51 | 82.1 | 12.23 | 10.47 | 100.9 | - |
| 08/08/2019 | MEL-01-07 | 2-3 m | 7.5 | 82.3 | 12.19 | 10.53 | 101.4 | - |
| 08/08/2019 | MEL-01-07 | 3-4 m | 7.5 | 82.2 | 12.17 | 10.57 | 101.8 | - |
| 08/08/2019 | MEL-01-07 | 4-5 m | 7.49 | 82.3 | 12.15 | 10.58 | 101.8 | - |
| 08/08/2019 | MEL-01-07 | 5-6 m | 7.48 | 82.3 | 12.12 | 10.58 | 101.7 | - |
| 08/08/2019 | MEL-01-07 | 6-7 m | 7.48 | 82.3 | 12.14 | 10.58 | 101.7 | - |
| 08/08/2019 | MEL-01-07 | 7-8 m | 7.48 | 82.3 | 12.13 | 10.57 | 101.7 | - |
| 08/08/2019 | MEL-01-07 | 8-9 m | 7.48 | 82.2 | 12.15 | 10.57 | 101.7 | - |
| | | | | | | | | |
| 08/08/2019 | MEL-01-08 | 0.5-1 m | 7.48 | 81.1 | 12.09 | 10.41 | 100.2 | - |
| 08/08/2019 | MEL-01-08 | 0-1 m | 7.46 | 81 | 12.1 | 10.04 | 98.5 | - |
| 08/08/2019 | MEL-01-08 | 1-2 m | 7.47 | 81.1 | 12.09 | 10.49 | 100.9 | - |
| 08/08/2019 | MEL-01-08 | 2-3 m | 7.48 | 81.1 | 12.09 | 10.32 | 99.5 | - |
| 08/08/2019 | MEL-01-08 | 3-4 m | 7.47 | 80.8 | 12.09 | 10.43 | 100.2 | - |
| 08/08/2019 | MEL-01-08 | 4-5 m | 7.46 | 81.1 | 12.09 | 10.48 | 100.7 | - |
| 08/08/2019 | MEL-01-08 | 5-6 m | 7.46 | 80.9 | 12.09 | 10.5 | 100.9 | - |
| 08/08/2019 | MEL-01-08 | 6-7 m | 7.46 | 81.1 | 12.09 | 10.52 | 101.1 | - |
| 08/08/2019 | MEL-01-08 | 7-8 m | 7.47 | 81.1 | 12.09 | 10.53 | 101.2 | - |

Appendix C3 Table: MEL-01 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen | Turbidity |
| | | | pH units | uS/cm | °C | mg/L | % | NTU |
| 08/08/2019 | MEL-01-08 | 8-9 m | 7.47 | 81.1 | 12.09 | 10.54 | 101.3 | - |
| | | | | | | | | |
| 08/08/2019 | MEL-01-06 | 0-1 m | 7.44 | 81.4 | 12.11 | 10.39 | 100 | - |
| 08/08/2019 | MEL-01-06 | 10-11 m | 7.47 | 81.2 | 12.1 | 10.57 | 101.6 | - |
| 08/08/2019 | MEL-01-06 | 1-1 m | 7.45 | 81.4 | 12.11 | 10.43 | 100.3 | - |
| 08/08/2019 | MEL-01-06 | 1-2 m | 7.44 | 81.3 | 12.11 | 10.47 | 100.7 | - |
| 08/08/2019 | MEL-01-06 | 2-3 m | 7.45 | 81.4 | 12.11 | 10.5 | 101 | - |
| 08/08/2019 | MEL-01-06 | 3-4 m | 7.45 | 81.3 | 12.11 | 10.53 | 101.2 | - |
| 08/08/2019 | MEL-01-06 | 4-5 m | 7.45 | 81.2 | 12.11 | 10.55 | 101.4 | - |
| 08/08/2019 | MEL-01-06 | 5-6 m | 7.45 | 81.2 | 12.1 | 10.56 | 101.5 | - |
| 08/08/2019 | MEL-01-06 | 6-7 m | 7.47 | 81.2 | 12.11 | 10.56 | 101.5 | - |
| 08/08/2019 | MEL-01-06 | 7-8 m | 7.47 | 81.1 | 12.11 | 10.56 | 101.5 | - |
| 08/08/2019 | MEL-01-06 | 8-9 m | 7.47 | 81 | 12.1 | 10.57 | 101.5 | - |
| 08/08/2019 | MEL-01-06 | 9-10 m | 7.47 | 81.2 | 12.1 | 10.57 | 101.6 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-01-01 | 0-1 m | 7.53 | 89.4 | 6.51 | 13.25 | 109.5 | - |
| 06/09/2019 | MEL-01-01 | 1-1 m | 7.54 | 89.5 | 6.5 | 13.26 | 109.5 | - |
| 06/09/2019 | MEL-01-01 | 1-2 m | 7.51 | 89.4 | 6.5 | 13.28 | 109.7 | - |
| 06/09/2019 | MEL-01-01 | 2-3 m | 7.51 | 89 | 6.49 | 13.37 | 110.4 | - |
| 06/09/2019 | MEL-01-01 | 3-4 m | 7.48 | 88.9 | 6.49 | 13.39 | 110.5 | - |
| 06/09/2019 | MEL-01-01 | 4-5 m | 7.48 | 88.8 | 6.5 | 13.43 | 110.8 | - |
| 06/09/2019 | MEL-01-01 | 5-6 m | 7.47 | 89 | 6.49 | 13.46 | 111 | - |
| 06/09/2019 | MEL-01-01 | 6-7 m | 7.47 | 89.1 | 6.49 | 13.47 | 111.2 | - |
| 06/09/2019 | MEL-01-01 | 7-8 m | 7.47 | 89 | 6.49 | 13.48 | 111.3 | - |
| 06/09/2019 | MEL-01-01 | 8-9 m | 7.46 | 88.9 | 6.49 | 13.49 | 111.4 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-01-09 | 0-1 m | 7.48 | 89.4 | 6.55 | 13.3 | 109.9 | - |
| 06/09/2019 | MEL-01-09 | 1-1 m | 7.47 | 89.4 | 6.55 | 13.27 | 109.8 | - |
| 06/09/2019 | MEL-01-09 | 1-2 m | 7.47 | 89.4 | 6.54 | 13.28 | 109.8 | - |
| 06/09/2019 | MEL-01-09 | 2-3 m | 7.46 | 89.7 | 6.55 | 13.3 | 109.9 | - |
| 06/09/2019 | MEL-01-09 | 3-4 m | 7.45 | 90 | 6.53 | 13.31 | 110 | - |
| 06/09/2019 | MEL-01-09 | 4-5 m | 7.44 | 89.8 | 6.52 | 13.34 | 110.2 | - |
| 06/09/2019 | MEL-01-09 | 5-6 m | 7.44 | 89.9 | 6.5 | 13.35 | 110.2 | - |
| 06/09/2019 | MEL-01-09 | 6-7 m | 7.44 | 89.9 | 6.5 | 13.35 | 110.3 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-01-07 | 0-1 m | 7.47 | 90.3 | 6.57 | 13.28 | 109.9 | - |
| 06/09/2019 | MEL-01-07 | 1-1 m | 7.46 | 90.4 | 6.55 | 13.3 | 110 | - |
| 06/09/2019 | MEL-01-07 | 1-2 m | 7.46 | 90.3 | 6.54 | 13.28 | 109.8 | - |
| 06/09/2019 | MEL-01-07 | 2-3 m | 7.45 | 90.5 | 6.54 | 13.31 | 110 | - |
| 06/09/2019 | MEL-01-07 | 3-4 m | 7.44 | 90.4 | 6.52 | 13.31 | 110 | - |
| 06/09/2019 | MEL-01-07 | 4-5 m | 7.43 | 90.1 | 6.52 | 13.32 | 110.1 | - |
| 06/09/2019 | MEL-01-07 | 5-6 m | 7.43 | 90.4 | 6.52 | 13.37 | 110.1 | - |
| 06/09/2019 | MEL-01-07 | 6-7 m | 7.43 | 90.8 | 6.51 | 13.33 | 110.1 | - |
| 06/09/2019 | MEL-01-07 | 7-8 m | 7.43 | 90.7 | 6.5 | 13.33 | 110.1 | - |
| 06/09/2019 | MEL-01-07 | 8-9 m | 7.42 | 96 | 6.5 | 13.33 | 110 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-01-06 | 0-1 m | 7.46 | 95.8 | 6.59 | 13.33 | 110.3 | - |
| 06/09/2019 | MEL-01-06 | 1-1 m | 7.45 | 95 | 6.6 | 13.3 | 110.1 | - |
| 06/09/2019 | MEL-01-06 | 1-2 m | 7.44 | 97 | 6.6 | 13.29 | 110.1 | - |
| 06/09/2019 | MEL-01-06 | 2-3 m | 7.44 | 96 | 6.59 | 13.32 | 110.3 | - |
| 06/09/2019 | MEL-01-06 | 3-4 m | 7.42 | 97.2 | 6.6 | 13.32 | 110.3 | - |
| 06/09/2019 | MEL-01-06 | 4-5 m | 7.43 | 97.2 | 6.59 | 13.33 | 110.3 | - |
| 06/09/2019 | MEL-01-06 | 5-6 m | 7.43 | 97.5 | 6.58 | 13.34 | 110.4 | - |
| 06/09/2019 | MEL-01-06 | 6-7 m | 7.43 | 97.7 | 6.59 | 13.35 | 110.5 | - |
| 06/09/2019 | MEL-01-06 | 7-8 m | 7.44 | 95.8 | 6.53 | 13.37 | 110.5 | - |
| 06/09/2019 | MEL-01-06 | 8-9 m | 7.43 | 97.2 | 6.51 | 13.37 | 110.5 | - |
| 06/09/2019 | MEL-01-06 | 9-10 m | 7.42 | 103.7 | 6.51 | 13.37 | 110.4 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-01-08 | 0-1 m | 7.47 | 93.5 | 6.54 | 13.33 | 110.4 | - |
| 06/09/2019 | MEL-01-08 | 1-1 m | 7.47 | 93.4 | 6.63 | 13.31 | 110.2 | - |
| 06/09/2019 | MEL-01-08 | 1-2 m | 7.47 | 93.2 | 6.61 | 13.31 | 110.2 | - |
| 06/09/2019 | MEL-01-08 | 2-3 m | 7.45 | 93 | 6.6 | 13.31 | 110.2 | - |
| 06/09/2019 | MEL-01-08 | 3-4 m | 7.44 | 93.6 | 6.59 | 13.32 | 110.2 | - |
| 06/09/2019 | MEL-01-08 | 4-5 m | 7.44 | 93.9 | 6.58 | 13.23 | 110.2 | - |
| 06/09/2019 | MEL-01-08 | 5-6 m | 7.44 | 95 | 6.55 | 13.33 | 110.2 | - |
| 06/09/2019 | MEL-01-08 | 6-7 m | 7.45 | 96.8 | 6.54 | 13.34 | 110.3 | - |
| 06/09/2019 | MEL-01-08 | 7-8 m | 7.44 | 98.3 | 6.54 | 13.35 | 110.3 | - |

- Chemical not analyzed or criteria not defined.

Output generated by GalReport.

Appendix C3 Table: MEL-01 laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 14/02/2019 | 14/02/2019 | 14/02/2019 | 14/02/2019 | 14/02/2019 | 12/07/2019 | 12/07/2019 | 14/07/2019 | 14/07/2019 | 14/07/2019 | 08/08/2019 | 08/08/2019 | 08/08/2019 | 08/08/2019 | 08/08/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | MEL-01-08 | MEL-01-07 | MEL-01-06 | MEL-01-01 | MEL-01-09 | MEL-01-01 | MEL-01-06 | MEL-01-07 | MEL-01-08 | MEL-01-09 | MEL-01-01 | MEL-01-09 | MEL-01-07 | MEL-01-08 | MEL-01-06 | MEL-01-01 | MEL-01-09 | MEL-01-07 | MEL-01-06 | MEL-01-08 |
| FIELD_SDG | | L2235701 | L2235701 | L2235701 | L2235701 | L2235701 | L2314029 | L2314029 | L2314029 | L2314029 | L2314029 | L2330132 | L2330132 | L2330132 | L2330132 | L2330132 | L2346699 | L2346699 | L2346699 | L2346699 | L2346699 |
| **Parameter** | **Unit** | | | | | | | | | | | | | | | | | | | | |
| **WQTC02-Conventional Parameters** | | | | | | | | | | | | | | | | | | | | | |
| pH | pH units | 7.28 | 7.21 | 7.21 | 7.16 | 7.19 | 7.27 | 7.22 | 7.3 | 7.24 | 7.28 | 7.39 | 7.41 | 7.39 | 7.37 | 7.38 | 7.12 | 7.34 | 7.31 | 7.32 | 7.35 |
| Specific conductivity | umhos/cm | 131 | 106 | 103 | 107 | 109 | 75.3 | 75.2 | 76.2 | 77.5 | 76.8 | 82.4 | 82.8 | 83.4 | 81.5 | 80.7 | 87.1 | 87.2 | 87.4 | 94 | 90.8 |
| Hardness, as CaCO3 (N) | mg/L | 41 | 32.4 | 30.7 | 32.3 | 32.8 | 22.1 | 22.1 | 22.6 | 22.7 | 22.6 | - | - | - | - | - | - | 23.2 | 24.4 | - | 24.2 |
| Hardness, as CaCO3 (N) | none | - | - | - | - | - | - | - | - | - | - | 22.2 | 22.1 | 21.5 | 21.9 | 21.2 | 23.6 | - | - | 24.6 | - |
| Total alkalinity, as CaCO3 | mg/L | 28.3 | 23.5 | 23.5 | 23.7 | 24.2 | 14.5 | 14.1 | 14.7 | 14.7 | 14.8 | 16.7 | 16.6 | 16.4 | 16.3 | 16.3 | 20.6 | 17.5 | 16.9 | 17.4 | 19.8 |
| Total dissolved solids | mg/L | 94 | 70 | 71 | 89 | 81 | 51 | 52 | 48 | 48 | 49 | 40 | 43 | 47 | 37 | 41 | 50 | 60 | 58 | 55 | 59 |
| Total dissolved solids (calc) | mg/L | 68.4 | 54.8 | 53 | 55 | 55.8 | 37.7 | 37.5 | 38 | 38.1 | 38.3 | 40.4 | 40.4 | 40.1 | 39.6 | 39.4 | 45.1 | 43.9 | 43.8 | 46.9 | 46.4 |
| Total suspended solids | mg/L | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1.6 | 1.5 | < 1.0 | 1.2 | < 1.0 |
| Total organic carbon | mg/L | 3.9 | 2.01 | 3.2 | 3.05 | 2.9 | 2.73 | 2.84 | 3.05 | 3 | 2.8 | 2.84 | 2.8 | 2.87 | 2.85 | 2.8 | 2.77 | 2.74 | 2.95 | 2.78 | 2.94 |
| Dissolved organic carbon | mg/L | 3.49 | 1.88 | 2.7 | 2.52 | 2.72 | 2.83 | 2.68 | 2.63 | 2.53 | 2.68 | 2.99 | 2.77 | 2.97 | 2.72 | 2.76 | 3.07 | 2.83 | 2.81 | 2.85 | 2.86 |
| Turbidity | NTU | 0.37 | 0.18 | 0.15 | 0.17 | 0.18 | 0.54 | 0.44 | 0.38 | 0.41 | 0.41 | 0.42 | 0.4 | 0.34 | 0.39 | 0.33 | 0.76 | 0.59 | 0.56 | 0.64 | 0.43 |
| **WQTC03-Major Ions** | | | | | | | | | | | | | | | | | | | | | |
| Bicarbonate | mg/L | 34.5 | 28.7 | 28.7 | 28.9 | 29.5 | 17.7 | 17.2 | 17.9 | 17.9 | 18.1 | 20.4 | 20.3 | 20 | 19.9 | 19.9 | 25.1 | 21.4 | 20.6 | 21.2 | 24.2 |
| Calcium | mg/L | 12.5 | 9.93 | 9.44 | 9.87 | 10 | 6.8 | 6.8 | 6.94 | 6.96 | 6.98 | 6.9 | 6.84 | 6.62 | 6.76 | 6.5 | 7.32 | 7.17 | 7.61 | 7.52 | 7.46 |
| Carbonate | mg/L | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 |
| Chloride | mg/L | 18.8 | 14.9 | 14.5 | 15.1 | 15.4 | 10.6 | 10.6 | 10.8 | 10.7 | 10.9 | 11.6 | 11.8 | 11.7 | 11.3 | 11.4 | 12.6 | 13 | 12.8 | 14.7 | 13.7 |
| Cyanide | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Fluoride | mg/L | 0.034 | 0.029 | 0.028 | 0.029 | 0.029 | 0.022 | 0.022 | 0.023 | 0.023 | 0.022 | 0.026 | 0.026 | 0.025 | 0.025 | 0.026 | 0.028 | 0.028 | 0.027 | 0.028 | 0.028 |
| Hydroxide | mg/L | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 |
| Magnesium | mg/L | 2.4 | 1.83 | 1.72 | 1.86 | 1.88 | 1.25 | 1.25 | 1.28 | 1.29 | 1.26 | 1.21 | 1.21 | 1.21 | 1.23 | 1.21 | 1.29 | 1.3 | 1.31 | 1.4 | 1.34 |
| Potassium | mg/L | 1.69 | 1.25 | 1.17 | 1.26 | 1.26 | 0.949 | 0.949 | 0.968 | 0.978 | 0.961 | 0.95 | 0.944 | 0.941 | 0.95 | 0.943 | 0.98 | 0.988 | 0.986 | 1.02 | 0.985 |
| Sodium | mg/L | 9.37 | 7.27 | 6.77 | 7.15 | 7.13 | 5 | 5.04 | 5.03 | 5.12 | 5.05 | 5.45 | 5.42 | 5.54 | 5.37 | 5.45 | 5.96 | 6.35 | 6.06 | 6.68 | 6.31 |
| Sulphate | mg/L | 6.63 | 5.42 | 5.23 | 5.44 | 5.5 | 4.34 | 4.33 | 4.09 | 4.23 | 4.26 | 4.12 | 4.14 | 4.13 | 4.1 | 4.09 | 4.45 | 4.49 | 4.52 | 4.78 | 4.56 |
| Reactive silica, as SiO2 | mg/L | 0.407 | 0.374 | 0.394 | 0.422 | 0.455 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cyanide (free) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Cyanide (WAD) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Ion Ratio (+/-) | % | 103 | 98.8 | 94.6 | 97.4 | 96.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ion Ratio (+/-) | mg/L | - | - | - | - | - | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC | Low EC |
| **WQTC04-Nutrients and Chlorophyll a** | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 0.0097 | 0.0124 | 0.0112 | 0.0171 | 0.0222 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 0.0169 | 0.0167 | 0.0143 | 0.0087 | 0.0111 | 0.0177 | 0.0223 | 0.0755 | 0.0619 | 0.0395 |
| Nitrite | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 0.0023 | 0.0013 |
| Nitrate + nitrite | mg/L | 0.0097 | 0.0124 | 0.0112 | 0.0171 | 0.0222 | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 | 0.0169 | 0.0167 | 0.0143 | 0.0087 | 0.0111 | 0.0177 | 0.0223 | 0.0755 | 0.0642 | 0.0408 |
| Total ammonia | mg/L | 0.0351 | 0.0234 | 0.0239 | 0.0244 | 0.0221 | 0.0052 | 0.0116 | 0.0196 | 0.0086 | 0.0067 | 0.015 | 0.0067 | 0.0136 | 0.0068 | < 0.0050 | - | - | - | - | - |
| Total Kjeldahl nitrogen | mg/L | 0.312 | 0.265 | 0.225 | 0.219 | 0.207 | 0.222 | 0.205 | 0.177 | 0.303 | 0.201 | 0.208 | 0.165 | 0.171 | 0.182 | 0.195 | 0.2 | 0.236 | 0.251 | 0.323 | 0.236 |
| Total nitrogen | mg/L | 0.322 | 0.277 | 0.236 | 0.236 | 0.229 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total phosphorus | mg/L | 0.0076 | 0.0035 | 0.0029 | 0.0038 | 0.0064 | 0.004 | 0.0092 | 0.0047 | 0.0042 | 0.0046 | 0.0047 | 0.0057 | 0.0162 | 0.0046 | 0.0095 | 0.0041 | 0.0046 | 0.0051 | 0.0053 | 0.0061 |
| Dissolved phosphorus | mg/L | 0.004 | 0.0031 | 0.0025 | 0.0018 | 0.002 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| Orthophosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **WQTC06-Total Metals** | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.00545 | 0.00193 | 0.00095 | 0.00069 | 0.00217 | 0.0044 | 0.0038 | 0.0044 | 0.0051 | 0.0045 | 0.0039 | 0.0041 | 0.0096 | 0.0053 | 0.0042 | 0.011 | 0.0109 | 0.0111 | 0.0108 | 0.0103 |
| Antimony | mg/L | 0.000025 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.000562 | 0.000422 | 0.000409 | 0.00041 | 0.00042 | 0.000314 | 0.000296 | 0.000284 | 0.000315 | 0.000308 | 0.000401 | 0.000428 | 0.000508 | 0.000406 | 0.000356 | 0.000479 | 0.000446 | 0.000503 | 0.000469 | 0.000461 |
| Barium | mg/L | 0.0128 | 0.00965 | 0.00939 | 0.0101 | 0.0105 | 0.00763 | 0.00767 | 0.00766 | 0.00772 | 0.00808 | 0.00783 | 0.00771 | 0.00783 | 0.0077 | 0.00767 | 0.0074 | 0.00746 | 0.00754 | 0.00776 | 0.00748 |
| Beryllium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | 0.000014 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | 0.0076 | 0.006 | 0.0058 | 0.0059 | 0.0062 | 0.005 | < 0.0050 | 0.0052 | 0.0051 | < 0.0050 | 0.0053 | 0.0057 | 0.0057 | 0.005 | 0.0051 | 0.0057 | 0.0061 | 0.0057 | 0.0064 | 0.0064 |
| Cadmium | mg/L | 0.0000098 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | 0.0000096 | 0.0000054 | < 0.0000050 | 0.0000055 | < 0.0000050 |
| Calcium | mg/L | 12 | 9.71 | 9.35 | 9.74 | 9.99 | 6.97 | 6.89 | 7.16 | 7.14 | 7.06 | 6.26 | 6.96 | 6.96 | 6.65 | 6.42 | 7.54 | 7.83 | 7.51 | 8.03 | 8 |
| Cesium | mg/L | - | - | - | - | - | 0.0000063 | 0.000006 | 0.0000068 | 0.0000068 | 0.000006 | 0.0000094 | 0.0000109 | 0.0000111 | 0.0000065 | 0.0000083 | 0.0000103 | 0.0000106 | 0.0000114 | 0.0000128 | 0.0000116 |
| Chromium | mg/L | 0.000127 | 0.000063 | < 0.000060 | < 0.000060 | < 0.000060 | < 0.00010 | 0.00051 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 0.00036 | < 0.00010 | < 0.00010 | 0.00049 | < 0.00010 | 0.00033 | 0.00053 | < 0.00010 | < 0.00010 |
| Cobalt | mg/L | 0.000024 | 0.000012 | 0.000012 | 0.000011 | 0.000013 | 0.0000337 | 0.0000333 | 0.0000337 | 0.0000304 | 0.0000376 | 0.0000195 | 0.0000163 | 0.0000257 | 0.00002 | 0.0000165 | 0.0000302 | 0.0000275 | 0.0000315 | 0.0000311 | 0.0000252 |
| Copper | mg/L | 0.00174 | 0.00086 | 0.00082 | 0.00083 | 0.00102 | 0.000681 | 0.000665 | 0.000789 | 0.000731 | 0.000695 | 0.000666 | 0.000728 | 0.000804 | 0.00116 | 0.000671 | 0.00079 | 0.000866 | 0.000977 | 0.000897 | 0.000969 |
| Gallium | mg/L | - | - | - | - | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0191 | 0.0053 | 0.0049 | 0.0052 | 0.0078 | 0.0411 | 0.0391 | 0.038 | 0.0381 | 0.0354 | 0.0257 | 0.0204 | 0.045 | 0.0226 | 0.0219 | 0.0339 | 0.0324 | 0.0328 | 0.0298 | 0.0303 |
| Lanthanum | mg/L | - | - | - | - | - | 0.000033 | 0.000034 | 0.000031 | 0.00003 | 0.000036 | 0.000026 | 0.000028 | 0.000067 | 0.00003 | 0.000034 | 0.000046 | 0.00005 | 0.000052 | 0.000043 | 0.000047 |
| Lead | mg/L | 0.000471 | 0.000106 | 0.000108 | 0.000075 | 0.000088 | 0.000011 | < 0.000010 | 0.000013 | 0.000014 | 0.00001 | 0.00001 | 0.00001 | 0.000022 | 0.000017 | < 0.000010 | 0.000021 | 0.000024 | 0.000017 | 0.000015 | 0.000016 |
| Lithium | mg/L | 0.00199 | 0.00159 | 0.00148 | 0.00154 | 0.00164 | 0.00104 | 0.00102 | 0.00109 | 0.00105 | 0.00096 | 0.00099 | 0.00112 | 0.00112 | 0.00101 | 0.001 | 0.00119 | 0.00126 | 0.00122 | 0.00142 | 0.00135 |
| Magnesium | mg/L | 2.27 | 1.81 | 1.72 | 1.82 | 1.84 | 1.27 | 1.27 | 1.31 | 1.3 | 1.27 | 1.23 | 1.29 | 1.27 | 1.27 | 1.24 | 1.36 | 1.36 | 1.37 | 1.48 | 1.43 |
| Manganese | mg/L | 0.00175 | 0.00168 | 0.0019 | 0.00214 | 0.00222 | 0.0196 | 0.019 | 0.0187 | 0.0185 | 0.0193 | 0.00477 | 0.00493 | 0.00519 | 0.00491 | 0.005 | 0.00403 | 0.00394 | 0.00412 | 0.00395 | 0.00403 |
| Mercury | mg/L | 0.000001135 | < 0.000000050 | < 0.000000050 | < 0.000000050 | < 0.000000050 | 0.000000087 | 0.000000092 | 0.0000007 | 0.000000064 | 0.000000068 | 0.000000078 | 0.000000097 | 0.000000062 | 0.000000057 | 0.000000057 | 0.000000056 | < 0.000000050 | 0.000000057 | 0.000000052 | < 0.000000050 |
| Molybdenum | mg/L | 0.000131 | 0.000105 | 0.000108 | 0.000095 | 0.000099 | 0.000059 | 0.000058 | 0.000058 | 0.000069 | 0.000063 | 0.000074 | 0.000073 | 0.000072 | 0.000082 | 0.000063 | 0.000093 | 0.000097 | 0.000098 | 0.000097 | 0.000093 |
| Nickel | mg/L | 0.000977 | 0.000672 | 0.000701 | 0.000678 | 0.000731 | 0.000706 | 0.000694 | 0.000698 | 0.000726 | 0.000707 | 0.000562 | 0.000591 | 0.000618 | 0.000586 | 0.000582 | 0.000626 | 0.000609 | 0.000618 | 0.000629 | 0.000615 |
| Niobium | mg/L | - | - | - | - | - | < 0.00010 | < 0.00011 | < 0.00012 | < 0.00013 | < 0.00014 | < 0.00015 | < 0.00016 | < 0.00017 | < 0.00018 | < 0.00019 | < 0.00020 | < 0.00021 | < 0.00022 | < 0.00023 | < 0.00024 |
| Potassium | mg/L | 1.66 | 1.25 | 1.18 | 1.24 | 1.27 | 0.974 | 0.971 | 0.99 | 0.998 | 0.969 | 0.931 | 0.962 | 0.957 | 0.946 | 0.94 | 0.995 | 0.991 | 0.994 | 1.06 | 1.02 |
| Rhenium | mg/L | - | - | - | - | - | < 0.0000050 | < 0.0000051 | < 0.0000052 | < 0.0000053 | < 0.0000054 | < 0.0000055 | < 0.0000056 | < 0.0000057 | < 0.0000058 | < 0.0000059 | < 0.0000060 | < 0.0000061 | < 0.0000062 | < 0.0000063 | < 0.0000064 |
| Rubidium | mg/L | - | - | - | - | - | 0.00132 | 0.0013 | 0.00133 | 0.00132 | 0.00137 | 0.00138 | 0.00138 | 0.00138 | 0.00136 | 0.00136 | 0.0014 | 0.0014 | 0.00134 | 0.00144 | 0.00144 |
| Selenium | mg/L | 0.000059 | < 0.000040 | < 0.000040 | 0.000046 | 0.00004 | 0.000043 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | 0.000043 | 0.000043 | 0.00005 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 |
| Silicon | mg/L | - | - | - | - | - | 0.253 | 0.276 | 0.261 | 0.274 | 0.26 | 0.193 | 0.201 | 0.208 | 0.207 | 0.212 | 0.188 | 0.206 | 0.203 | 0.218 | 0.193 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Sodium | mg/L | 9.29 | 7.04 | 7.02 | 7.18 | 7.31 | 5.09 | 5.24 | 5.21 | 5.26 | 5.19 | 5.31 | 5.61 | 5.55 | 5.42 | 5.34 | 5.86 | 5.77 | 6.13 | 6.49 | 6.3 |
| Strontium | mg/L | 0.0731 | 0.0554 | 0.0546 | 0.0566 | 0.0579 | 0.0405 | 0.0397 | 0.0425 | 0.0408 | 0.04 | 0.0468 | 0.0482 | 0.0483 | 0.0483 | 0.0456 | 0.0449 | 0.0448 | 0.0478 | 0.0528 | 0.0493 |
| Sulphur | mg/L | - | - | - | - | - | 1.35 | 1.32 | 1.31 | 1.39 | 1.44 | 1.4 | 1.59 | 1.65 | 1.49 | 1.52 | 1.61 | 1.55 | 1.74 | 1.9 | 1.71 |
| Tantalum | mg/L | - | - | - | - | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |

Appendix C3 Table: MEL-01 laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 14/02/2019 | 14/02/2019 | 14/02/2019 | 14/02/2019 | 14/02/2019 | 12/07/2019 | 12/07/2019 | 14/07/2019 | 14/07/2019 | 14/07/2019 | 08/08/2019 | 08/08/2019 | 08/08/2019 | 08/08/2019 | 08/08/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | MEL-01-08 | MEL-01-07 | MEL-01-06 | MEL-01-01 | MEL-01-09 | MEL-01-01 | MEL-01-06 | MEL-01-07 | MEL-01-08 | MEL-01-09 | MEL-01-01 | MEL-01-09 | MEL-01-07 | MEL-01-08 | MEL-01-06 | MEL-01-01 | MEL-01-09 | MEL-01-07 | MEL-01-06 | MEL-01-08 |
| FIELD_SDG | | L2235701 | L2235701 | L2235701 | L2235701 | L2235701 | L2314029 | L2314029 | L2314029 | L2314029 | L2314029 | L2330132 | L2330132 | L2330132 | L2330132 | L2330132 | L2346699 | L2346699 | L2346699 | L2346699 | L2346699 |
| **Parameter** | **Unit** | | | | | | | | | | | | | | | | | | | | |
| Tellurium | mg/L | - | - | - | - | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | - | - | - | - | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | 0.000051 | < 0.000020 | 0.00004 | 0.000042 | 0.000045 | 0.00002 | < 0.000020 | 0.000047 | 0.000038 | < 0.000020 | 0.00002 | < 0.000020 | < 0.000020 | < 0.000020 | 0.000044 |
| Titanium | mg/L | 0.00021 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 0.000175 | 0.000159 | 0.000171 | 0.000152 | 0.00012 | 0.000199 | 0.000213 | 0.000625 | 0.000248 | 0.000209 | 0.000692 | 0.000595 | 0.00065 | 0.000545 | 0.000558 |
| Tungsten | mg/L | - | - | - | - | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | 0.000016 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.000021 | 0.000014 | 0.000013 | 0.000014 | 0.000016 | 0.0000127 | 0.0000142 | 0.0000133 | 0.0000153 | 0.0000135 | 0.0000148 | 0.0000151 | 0.0000188 | 0.0000162 | 0.0000143 | 0.0000165 | 0.0000169 | 0.0000164 | 0.0000181 | 0.0000162 |
| Vanadium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | 0.000058 | 0.000056 | 0.000083 | 0.000063 | 0.000062 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | - | - | - | - | - | 0.0000075 | 0.0000086 | 0.0000089 | 0.0000077 | 0.0000059 | 0.0000083 | 0.000006 | 0.0000151 | 0.0000065 | 0.0000073 | 0.0000096 | 0.0000108 | 0.0000085 | 0.0000091 | 0.0000094 |
| Zinc | mg/L | 0.00795 | 0.00223 | 0.00118 | < 0.00080 | 0.00121 | 0.00079 | < 0.00050 | 0.00065 | 0.0012 | < 0.00050 | < 0.00050 | < 0.00050 | 0.00052 | 0.00077 | < 0.00050 | 0.00079 | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 |
| Zirconium | mg/L | - | - | - | - | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC07-Dissolved Metals** | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.00104 | 0.00101 | 0.00076 | 0.00077 | 0.00066 | 0.0024 | 0.0016 | 0.0025 | 0.0017 | 0.0014 | 0.0018 | 0.0019 | 0.0029 | 0.0019 | 0.0015 | 0.0025 | 0.0022 | 0.0029 | 0.0031 | 0.0027 |
| Antimony | mg/L | 0.000029 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.000536 | 0.000432 | 0.000372 | 0.00041 | 0.000415 | 0.000283 | 0.000265 | 0.000276 | 0.000279 | 0.00028 | 0.000332 | 0.000381 | 0.000367 | 0.000346 | 0.000357 | 0.000416 | 0.000381 | 0.000394 | 0.000415 | 0.000375 |
| Barium | mg/L | 0.0128 | 0.0101 | 0.00967 | 0.0104 | 0.0103 | 0.00739 | 0.00746 | 0.00778 | 0.00764 | 0.00771 | 0.00733 | 0.00737 | 0.00752 | 0.00734 | 0.00703 | 0.00719 | 0.00746 | 0.00723 | 0.00761 | 0.00711 |
| Beryllium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | 0.0000071 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | 0.0077 | 0.0062 | 0.0059 | 0.0062 | 0.006 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 0.0053 | 0.0053 | 0.005 | < 0.0050 | < 0.0050 | 0.0058 | 0.005 | 0.005 | 0.0055 | 0.0052 |
| Cadmium | mg/L | 0.0000098 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | 0.0000416 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Cesium | mg/L | - | - | - | - | - | < 0.0000050 | 0.0000072 | 0.0000071 | < 0.0000050 | 0.0000054 | 0.0000091 | 0.0000086 | 0.0000075 | 0.0000075 | 0.0000061 | 0.0000162 | 0.0000065 | 0.0000087 | 0.0000093 | 0.0000069 |
| Chromium | mg/L | 0.000742 | < 0.000060 | < 0.000060 | 0.000061 | < 0.000060 | < 0.00010 | < 0.00010 | < 0.00010 | 0.00044 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 0.00046 | 0.00044 | < 0.00010 | 0.00027 | < 0.00010 | 0.00026 |
| Cobalt | mg/L | 0.000024 | < 0.000010 | < 0.000010 | < 0.000010 | 0.00001 | 0.0000196 | 0.0000169 | 0.0000183 | 0.000015 | 0.0000157 | 0.000009 | 0.0000082 | 0.0000076 | 0.0000086 | 0.0000081 | 0.0000121 | 0.0000089 | 0.0000102 | 0.0000116 | 0.0000105 |
| Copper | mg/L | 0.00151 | 0.00079 | 0.00077 | 0.00084 | 0.00082 | 0.00085 | 0.00081 | 0.000759 | 0.000843 | 0.000785 | 0.000848 | 0.000765 | 0.000817 | 0.000741 | 0.000705 | 0.00102 | 0.000693 | 0.000754 | 0.000704 | 0.000675 |
| Gallium | mg/L | - | - | - | - | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0133 | 0.0025 | 0.0021 | 0.0035 | 0.0048 | 0.0139 | 0.0121 | 0.0132 | 0.0115 | 0.0118 | 0.0065 | 0.0063 | 0.0085 | 0.0062 | 0.0052 | 0.0071 | 0.0067 | 0.0067 | 0.0069 | 0.0065 |
| Lanthanum | mg/L | - | - | - | - | - | 0.00002 | 0.000018 | 0.000018 | 0.000019 | 0.000017 | < 0.000010 | < 0.000010 | 0.000012 | < 0.000010 | < 0.000010 | 0.000018 | 0.000018 | 0.000017 | 0.000016 | 0.000016 |
| Lead | mg/L | 0.000305 | 0.000093 | 0.000101 | 0.000081 | 0.000061 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | 0.000015 | < 0.000010 | < 0.000010 | 0.000022 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Lithium | mg/L | 0.00199 | 0.00155 | 0.00147 | 0.00148 | 0.00149 | 0.00098 | 0.001 | 0.00101 | 0.001 | 0.001 | 0.00103 | 0.00105 | 0.00101 | 0.00098 | 0.00094 | 0.00108 | 0.00108 | 0.00112 | 0.00125 | 0.00119 |
| Manganese | mg/L | 0.000968 | 0.000337 | 0.000322 | 0.000414 | 0.000501 | 0.0145 | 0.0145 | 0.0124 | 0.0124 | 0.0123 | 0.000582 | 0.000663 | 0.000656 | 0.000594 | 0.000544 | 0.000353 | 0.000288 | 0.000341 | 0.000369 | 0.000329 |
| Mercury | mg/L | 0.00000081 | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 | 0.00000086 | 0.00000059 | 0.00000053 | 0.00000053 | < 0.00000050 | 0.0000006 | < 0.00000050 | 0.00000059 | 0.00000051 | 0.00000059 | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 |
| Molybdenum | mg/L | 0.000153 | 0.000339 | 0.000117 | 0.000106 | 0.000123 | 0.000063 | 0.000054 | 0.000064 | 0.000063 | 0.000066 | 0.000073 | 0.000074 | 0.000072 | 0.000069 | 0.000071 | 0.000085 | 0.00008 | 0.000083 | 0.000091 | 0.000087 |
| Nickel | mg/L | 0.000897 | 0.000692 | 0.000644 | 0.000749 | 0.000782 | 0.000706 | 0.0007 | 0.00071 | 0.000692 | 0.000675 | 0.000551 | 0.000563 | 0.000555 | 0.000552 | 0.000552 | 0.000581 | 0.000577 | 0.000568 | 0.00059 | 0.000554 |
| Niobium | mg/L | - | - | - | - | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Rhenium | mg/L | - | - | - | - | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Rubidium | mg/L | - | - | - | - | - | 0.0013 | 0.00129 | 0.00131 | 0.00133 | 0.00128 | 0.00133 | 0.00133 | 0.00129 | 0.00133 | 0.00132 | 0.00136 | 0.00138 | 0.00137 | 0.00142 | 0.00137 |
| Selenium | mg/L | 0.000046 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 |
| Silicon | mg/L | - | - | - | - | - | 0.252 | 0.24 | 0.245 | 0.247 | 0.248 | 0.175 | 0.204 | 0.192 | 0.197 | 0.177 | 0.172 | 0.172 | 0.169 | 0.186 | 0.175 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Strontium | mg/L | 0.0734 | 0.0562 | 0.0544 | 0.0565 | 0.057 | 0.041 | 0.0389 | 0.0419 | 0.0415 | 0.0418 | 0.043 | 0.0418 | 0.0434 | 0.0418 | 0.0417 | 0.0426 | 0.0438 | 0.0448 | 0.0515 | 0.0469 |
| Sulphur | mg/L | - | - | - | - | - | 1.27 | 1.2 | 1.31 | 1.18 | 1.18 | 1.27 | 1.41 | 1.32 | 1.21 | 1.28 | 1.48 | 1.56 | 1.43 | 1.58 | 1.35 |
| Tantalum | mg/L | - | - | - | - | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | - | - | - | - | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | - | - | - | - | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | 0.000047 | 0.000034 | 0.000037 | 0.000038 | < 0.000020 | 0.000062 | 0.000036 | 0.000243 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | 0.000022 | < 0.000020 |
| Titanium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.000050 | < 0.000050 | 0.000053 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | 0.000071 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Tungsten | mg/L | - | - | - | - | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.000022 | 0.000014 | 0.000014 | 0.000016 | 0.000015 | 0.0000117 | 0.0000114 | 0.0000127 | 0.0000121 | 0.0000132 | 0.0000125 | 0.0000123 | 0.0000128 | 0.0000127 | 0.0000107 | 0.0000142 | 0.0000148 | 0.000015 | 0.0000154 | 0.0000148 |
| Vanadium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | - | - | - | - | - | 0.000006 | 0.0000066 | 0.0000078 | 0.0000068 | 0.000005 | 0.000006 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | 0.0000059 | 0.0000051 | 0.0000076 | < 0.0000050 | 0.0000059 |
| Zinc | mg/L | 0.00792 | 0.00227 | 0.00142 | 0.00144 | 0.00113 | 0.00052 | 0.00056 | < 0.00050 | 0.0008 | < 0.00050 | 0.00076 | 0.00065 | 0.00075 | 0.00104 | < 0.00050 | 0.00165 | < 0.00050 | 0.00079 | 0.00059 | < 0.00050 |
| Zirconium | mg/L | - | - | - | - | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC12-Radionuclides** | | | | | | | | | | | | | | | | | | | | | |
| Radium-226 | Bq/l | < 0.0053 | < 0.0052 | < 0.0089 | < 0.0097 | < 0.0046 | < 0.0057 | < 0.0078 | < 0.0070 | < 0.0078 | < 0.0087 | < 0.0078 | < 0.0056 | < 0.0084 | < 0.0072 | < 0.0073 | < 0.0068 | < 0.0076 | < 0.0089 | < 0.0083 | < 0.0078 |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Appendix C3 Table: MEL-02 in-situ data, Meliadine Lake AEMP 2019

| Sample Date | Location | Sample Depth | Field Measurement | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen | Turbidity |
| | | | pH units | uS/cm | °C | mg/L | % | NTU |
| 16/02/2019 | MEL-02-06 | | - | - | - | - | - | - |
| 16/02/2019 | MEL-02-06 | 1-2 m | 6.14 | 72.8 | 0.34 | 17.3 | - | 0 |
| 16/02/2019 | MEL-02-06 | 2-3 m | 6.11 | 67.1 | 0.9 | 16.49 | - | 0 |
| 16/02/2019 | MEL-02-06 | 3-4 m | 6.08 | 62 | 1.62 | 16.4 | - | 0 |
| 16/02/2019 | MEL-02-06 | 4-5 m | 5.5 | 59.3 | 2.04 | 13.61 | - | 0 |
| 16/02/2019 | MEL-02-06 | 5-6 m | 5.87 | 58.3 | 2.23 | 13.48 | - | 0 |
| 16/02/2019 | MEL-02-06 | 6-7 m | 5.8 | 57.5 | 2.28 | 13.64 | - | 0 |
| 22/02/2019 | MEL-02-02 | | - | - | - | - | - | - |
| 22/02/2019 | MEL-02-02 | 1-2 m | 6.39 | 47.5 | 0.02 | 19.6 | - | - |
| 22/02/2019 | MEL-02-02 | 2-3 m | 6.56 | 70.5 | 0.56 | 21.01 | - | - |
| 22/02/2019 | MEL-02-02 | 3-4 m | 6.64 | 66.7 | 1.32 | 21.31 | - | - |
| 22/02/2019 | MEL-02-02 | 4-5 m | 6.7 | 64.2 | 1.77 | 21.44 | - | - |
| 22/02/2019 | MEL-02-02 | 5-6 m | 6.74 | 62.6 | 2.09 | 21.21 | - | - |
| 22/02/2019 | MEL-02-02 | 6-7 m | 6.75 | 61.8 | 2.31 | 20.73 | - | - |
| 22/02/2019 | MEL-02-02 | 7-8 m | 6.77 | 60.5 | 2.51 | 20.16 | - | - |
| 22/02/2019 | MEL-02-02 | 8-9 m | 6.75 | 59.2 | 2.68 | 18.9 | - | - |
| 22/02/2019 | MEL-02-02 | 9-10 m | 6.69 | 58.9 | 2.83 | 16.42 | - | - |
| | | | | | | | | |
| 22/02/2019 | MEL-02-03 | 1-2 m | 7.11 | 33.2 | 0.17 | 19.56 | - | - |
| 22/02/2019 | MEL-02-03 | 2-3 m | 7.09 | 34.3 | 0.67 | 20.31 | - | - |
| 22/02/2019 | MEL-02-03 | 3-4 m | 7.11 | 40.4 | 1.37 | 19.76 | - | - |
| 22/02/2019 | MEL-02-03 | 4-5 m | 7.12 | 55 | 1.78 | 19.42 | - | - |
| 22/02/2019 | MEL-02-03 | 5-6 m | 6.98 | 62.9 | 2.15 | 16.34 | - | - |
| 22/02/2019 | MEL-02-03 | 6-7 m | 6.96 | 62.3 | 2.18 | 15.94 | - | - |
| 22/02/2019 | MEL-02-03 | 7-8 m | 6.95 | 61.3 | 2.51 | 15.35 | - | - |
| 22/02/2019 | MEL-02-03 | 8-9 m | 6.91 | 60.8 | 2.58 | 14.16 | - | - |
| | | | | | | | | |
| 22/02/2019 | MEL-02-05 | | - | - | - | - | - | - |
| 22/02/2019 | MEL-02-05 | 1-2 m | 7.17 | 60.5 | 0.02 | 20.16 | - | - |
| 22/02/2019 | MEL-02-05 | 2-3 m | 7.16 | 70.8 | 0.65 | 19.83 | - | - |
| 22/02/2019 | MEL-02-05 | 3-4 m | 7.12 | 69.2 | 1.2 | 19.83 | - | - |
| 22/02/2019 | MEL-02-05 | 4-5 m | 7.1 | 66.8 | 1.68 | 19.64 | - | - |
| 22/02/2019 | MEL-02-05 | 5-6 m | 7.09 | 64.9 | 2.02 | 19.14 | - | - |
| 22/02/2019 | MEL-02-05 | 6-7 m | 7.07 | 62.3 | 2.36 | 18.59 | - | - |
| 22/02/2019 | MEL-02-05 | 7-8 m | 7.05 | 61.1 | 2.55 | 17.63 | - | - |
| | | | | | | | | |
| 22/02/2019 | MEL-02-08 | | - | - | - | - | - | - |
| 22/02/2019 | MEL-02-08 | 1-2 m | 7.57 | 46.4 | 0.02 | 19.84 | - | - |
| 22/02/2019 | MEL-02-08 | 2-3 m | 7.49 | 73.9 | 0.59 | 19.86 | - | - |
| 22/02/2019 | MEL-02-08 | 3-4 m | 7.46 | 71.1 | 1.08 | 19.71 | - | - |
| 22/02/2019 | MEL-02-08 | 4-5 m | 7.45 | 67.8 | 1.75 | 19.37 | - | - |
| 22/02/2019 | MEL-02-08 | 5-6 m | 7.49 | 65.7 | 2.04 | 18.68 | - | - |
| 22/02/2019 | MEL-02-08 | 6-7 m | 7.67 | 64.4 | 2.31 | 18.16 | - | - |
| 22/02/2019 | MEL-02-08 | 7-8 m | 7.41 | 63.5 | 2.43 | 17.2 | - | - |
| | | | | | | | | |
| 13/07/2019 | MEL-02-01 | 0.5-1 m | - | 74.6 | 7.2 | 12.13 | 100.4 | - |
| 13/07/2019 | MEL-02-01 | 0-1 m | - | 74.8 | 7.2 | 12.13 | 100.4 | - |
| 13/07/2019 | MEL-02-01 | 1-2 m | - | 74.8 | 7.2 | 12.13 | 100.5 | - |
| 13/07/2019 | MEL-02-01 | 2-3 m | - | 74.8 | 7.18 | 12.13 | 100.4 | - |
| 13/07/2019 | MEL-02-01 | 3-4 m | - | 74.6 | 7.19 | 12.12 | 100.3 | - |
| 13/07/2019 | MEL-02-01 | 4-5 m | 7.05 | 74.8 | 7.17 | 12.12 | 100.3 | - |
| 13/07/2019 | MEL-02-01 | 5-6 m | - | 74.6 | 7.17 | 12.1 | 100.1 | - |
| 13/07/2019 | MEL-02-01 | 6-7 m | - | 74.7 | 7.17 | 12.09 | 100 | - |
| 13/07/2019 | MEL-02-01 | 7-8 m | - | 74.8 | 7.17 | 12.08 | 99.9 | - |
| 13/07/2019 | MEL-02-01 | 8-9 m | - | 74.7 | 7.16 | 12.07 | 99.9 | - |
| 13/07/2019 | MEL-02-01 | | - | - | - | - | - | - |
| | | | | | | | | |
| 13/07/2019 | MEL-02-02 | 0.5-1 m | - | 74.9 | 7.06 | 12.18 | 100.5 | - |
| 13/07/2019 | MEL-02-02 | 0-1 m | 7.17 | 75 | 7.07 | 12.19 | 100.6 | - |
| 13/07/2019 | MEL-02-02 | 10-11 m | - | 74.8 | 7 | 12.11 | 99.8 | - |

Appendix C3 Table: MEL-02 in-situ data, Meliadine Lake AEMP 2019

| Sample Date | Location | Sample Depth | Field Measurement | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen | Turbidity |
| | | | pH units | uS/cm | °C | mg/L | % | NTU |
| 13/07/2019 | MEL-02-02 | 1-2 m | - | 74.8 | 7.04 | 12.19 | 100.5 | - |
| 13/07/2019 | MEL-02-02 | 2-3 m | - | 74.9 | 7.06 | 12.18 | 100.5 | - |
| 13/07/2019 | MEL-02-02 | 3-4 m | - | 74.9 | 7.04 | 12.17 | 100.3 | - |
| 13/07/2019 | MEL-02-02 | 4-5 m | 7.25 | 74.8 | 7.05 | 12.15 | 100.3 | - |
| 13/07/2019 | MEL-02-02 | 5-6 m | - | 74.9 | 7.05 | 12.15 | 100.2 | - |
| 13/07/2019 | MEL-02-02 | 6-7 m | - | 74.9 | 7.03 | 12.13 | 100.1 | - |
| 13/07/2019 | MEL-02-02 | 7-8 m | - | 74.8 | 7 | 12.13 | 100 | - |
| 13/07/2019 | MEL-02-02 | 8-9 m | - | 74.8 | 7.03 | 12.13 | 100 | - |
| 13/07/2019 | MEL-02-02 | 9-10 m | - | 75 | 7.02 | 12.12 | 99.9 | - |
| | | | | | | | | |
| 13/07/2019 | MEL-02-03 | 0.5-1 m | - | 74.8 | 7.7 | 12.07 | 101 | - |
| 13/07/2019 | MEL-02-03 | 0-1 m | 7.29 | 74.8 | 7.7 | 12.07 | 101.3 | - |
| 13/07/2019 | MEL-02-03 | 10-11 m | - | 74.8 | 7.2 | 12.09 | 100.1 | - |
| 13/07/2019 | MEL-02-03 | 11-12 m | - | 75 | 7.2 | 12.09 | 100 | - |
| 13/07/2019 | MEL-02-03 | 1-2 m | - | 74.9 | 7.3 | 12.12 | 100.9 | - |
| 13/07/2019 | MEL-02-03 | 2-3 m | - | 74.8 | 7.4 | 12.1 | 100.5 | - |
| 13/07/2019 | MEL-02-03 | 3-4 m | - | 74.8 | 7.4 | 12.09 | 100.6 | - |
| 13/07/2019 | MEL-02-03 | 4-5 m | 7.33 | 74.9 | 7.3 | 12.09 | 100.3 | - |
| 13/07/2019 | MEL-02-03 | 5-6 m | - | 74.9 | 7.3 | 12.11 | 100.6 | - |
| 13/07/2019 | MEL-02-03 | 6-7 m | - | 74.8 | 7.2 | 12.1 | 100.2 | - |
| 13/07/2019 | MEL-02-03 | 7-8 m | - | 74.8 | 7.2 | 12.11 | 100.2 | - |
| 13/07/2019 | MEL-02-03 | 8-9 m | - | 75 | 7.2 | 12.11 | 100.2 | - |
| 13/07/2019 | MEL-02-03 | 9-10 m | - | 74.8 | 7.2 | 12.1 | 100.1 | - |
| | | | | | | | | |
| 13/07/2019 | MEL-02-04 | | - | - | - | - | - | - |
| 13/07/2019 | MEL-02-04 | 0.5-1 m | - | 74.3 | 7.9 | 11.99 | 100.9 | - |
| 13/07/2019 | MEL-02-04 | 0-1 m | 7.31 | 74.2 | 7.8 | 11.99 | 100.8 | - |
| 13/07/2019 | MEL-02-04 | 1-2 m | - | 74.4 | 7.9 | 11.98 | 100.8 | - |
| 13/07/2019 | MEL-02-04 | 2-3 m | - | 74.2 | 7.8 | 11.98 | 100.8 | - |
| 13/07/2019 | MEL-02-04 | 3-4 m | - | 74.2 | 7.8 | 11.97 | 100.7 | - |
| 13/07/2019 | MEL-02-04 | 4-5 m | 7.37 | 74.2 | 7.8 | 11.97 | 100.6 | - |
| 13/07/2019 | MEL-02-04 | 5-6 m | - | 74.4 | 7.8 | 11.97 | 100.6 | - |
| 13/07/2019 | MEL-02-04 | 6-7 m | - | 74.2 | 7.8 | 11.98 | 100.6 | - |
| 13/07/2019 | MEL-02-04 | 7-8 m | - | 74.2 | 7.7 | 11.98 | 100.5 | - |
| | | | | | | | | |
| 10/08/2019 | MEL-02-01 | 0-1 m | 7.39 | 78.7 | 12.39 | 11.08 | 105.3 | - |
| 10/08/2019 | MEL-02-01 | 1-1 m | 7.38 | 78.6 | 12.39 | 11.08 | 105.3 | - |
| 10/08/2019 | MEL-02-01 | 1-2 m | 7.38 | 78.7 | 12.39 | 11.1 | 105.5 | - |
| 10/08/2019 | MEL-02-01 | 2-3 m | 7.38 | 78.8 | 12.39 | 11.11 | 105.6 | - |
| 10/08/2019 | MEL-02-01 | 3-4 m | 7.41 | 78.7 | 12.35 | 11.2 | 106.3 | - |
| 10/08/2019 | MEL-02-01 | 4-5 m | 7.4 | 78.6 | 12.32 | 11.2 | 106.3 | - |
| 10/08/2019 | MEL-02-01 | 5-6 m | 7.4 | 78.6 | 12.28 | 11.22 | 106.3 | - |
| 10/08/2019 | MEL-02-01 | 6-7 m | 7.41 | 78.6 | 12.26 | 11.22 | 106.3 | - |
| 10/08/2019 | MEL-02-01 | 7-8 m | 7.39 | 78.6 | 12.24 | 11.22 | 106.3 | - |
| | | | | | | | | |
| 10/08/2019 | MEL-02-02 | 0-1 m | 7.55 | 78.5 | 12.41 | 11.02 | 104.8 | - |
| 10/08/2019 | MEL-02-02 | 1-1 m | 7.54 | 78.5 | 12.41 | 11.01 | 104.7 | - |
| 10/08/2019 | MEL-02-02 | 1-2 m | 7.54 | 78.5 | 12.41 | 11.01 | 104.7 | - |
| 10/08/2019 | MEL-02-02 | 2-3 m | 7.54 | 78.4 | 12.4 | 11.02 | 104.8 | - |
| 10/08/2019 | MEL-02-02 | 3-4 m | 7.52 | 78.4 | 12.39 | 11.04 | 104.9 | - |
| 10/08/2019 | MEL-02-02 | 4-5 m | 7.5 | 78.4 | 12.38 | 11.07 | 105.2 | - |
| 10/08/2019 | MEL-02-02 | 5-6 m | 7.49 | 78.5 | 12.38 | 11.08 | 105.2 | - |
| 10/08/2019 | MEL-02-02 | 6-7 m | 7.49 | 78.5 | 12.36 | 11.08 | 105.2 | - |
| 10/08/2019 | MEL-02-02 | 7-8 m | 7.5 | 78.5 | 12.35 | 11.08 | 105.2 | - |
| 10/08/2019 | MEL-02-02 | 8-9 m | 7.5 | 78.4 | 12.33 | 11.08 | 105.2 | - |
| 10/08/2019 | MEL-02-02 | 9-10 m | 7.49 | 78.4 | 12.32 | 11.08 | 105.1 | - |
| | | | | | | | | |
| 10/08/2019 | MEL-02-03 | 0-1 m | 7.4 | 78.7 | 12.5 | 10.86 | 103.5 | - |
| 10/08/2019 | MEL-02-03 | 1-1 m | 7.41 | 78.8 | 12.5 | 10.93 | 104.1 | - |
| 10/08/2019 | MEL-02-03 | 1-2 m | 7.43 | 78.7 | 12.49 | 10.96 | 104.4 | - |

Appendix C3 Table: MEL-02 in-situ data, Meliadine Lake AEMP 2019

| Sample Date | Location | Sample Depth | Field Measurement | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen | Turbidity |
| | | | pH units | uS/cm | °C | mg/L | % | NTU |
| 10/08/2019 | MEL-02-03 | 2-3 m | 7.41 | 78.7 | 12.45 | 10.99 | 104.7 | - |
| 10/08/2019 | MEL-02-03 | 3-4 m | 7.41 | 78.7 | 12.41 | 11.02 | 104.8 | - |
| 10/08/2019 | MEL-02-03 | 4-5 m | 7.41 | 78.7 | 12.39 | 11.03 | 104.8 | - |
| 10/08/2019 | MEL-02-03 | 5-6 m | 7.41 | 78.6 | 12.37 | 11.05 | 105 | - |
| 10/08/2019 | MEL-02-03 | 6-7 m | 7.42 | 78.6 | 12.36 | 11.05 | 105 | - |
| 10/08/2019 | MEL-02-03 | 7-8 m | 7.42 | 78.7 | 12.35 | 11.06 | 105 | - |
| 10/08/2019 | MEL-02-03 | 8-9 m | 7.42 | 78.6 | 12.33 | 11.06 | 105 | - |
| 10/08/2019 | MEL-02-03 | 9-10 m | 7.44 | 78.7 | 12.34 | 11.06 | 104.9 | - |
| | | | | | | | | |
| 10/08/2019 | MEL-02-04 | 0-1 m | 7.36 | 78.9 | 12.63 | 10.96 | 104.7 | - |
| 10/08/2019 | MEL-02-04 | 1-1 m | 7.37 | 78.8 | 12.62 | 10.98 | 104.8 | - |
| 10/08/2019 | MEL-02-04 | 1-2 m | 7.38 | 78.9 | 12.58 | 11 | 104.9 | - |
| 10/08/2019 | MEL-02-04 | 2-3 m | 7.37 | 78.9 | 12.52 | 11.01 | 104.9 | - |
| 10/08/2019 | MEL-02-04 | 3-4 m | 7.38 | 78.8 | 12.46 | 11.03 | 105 | - |
| 10/08/2019 | MEL-02-04 | 4-5 m | 7.38 | 78.8 | 12.44 | 11.04 | 105 | - |
| 10/08/2019 | MEL-02-04 | 5-6 m | 7.38 | 78.7 | 12.43 | 11.04 | 105 | - |
| 10/08/2019 | MEL-02-04 | 6-7 m | 7.39 | 78.8 | 12.43 | 11.05 | 105.1 | - |
| 10/08/2019 | MEL-02-04 | 7-8 m | 7.39 | 78.8 | 12.4 | 11.06 | 105.2 | - |
| 10/08/2019 | MEL-02-04 | 8-9 m | 7.39 | 78.8 | 12.38 | 11.08 | 105.2 | - |
| 10/08/2019 | MEL-02-04 | 9-10 m | 7.39 | 79.2 | 12.3 | 11.08 | 105.2 | - |
| | | | | | | | | |
| 10/08/2019 | MEL-02-05 | 0-1 m | 7.42 | 78.7 | 12.51 | 11.02 | 104.8 | - |
| 10/08/2019 | MEL-02-05 | 1-1 m | 7.43 | 78.7 | 12.51 | 11 | 104.8 | - |
| 10/08/2019 | MEL-02-05 | 1-2 m | 7.42 | 78.8 | 12.51 | 10.99 | 104.8 | - |
| 10/08/2019 | MEL-02-05 | 2-3 m | 7.42 | 78.7 | 12.5 | 10.99 | 104.7 | - |
| 10/08/2019 | MEL-02-05 | 3-4 m | 7.41 | 78.6 | 12.42 | 11.02 | 104.8 | - |
| 10/08/2019 | MEL-02-05 | 4-5 m | 7.43 | 78.6 | 12.36 | 11.04 | 104.8 | - |
| 10/08/2019 | MEL-02-05 | 5-6 m | 7.43 | 78.5 | 12.35 | 11.05 | 104.9 | - |
| 10/08/2019 | MEL-02-05 | 6-7 m | 7.44 | 78.6 | 12.33 | 11.06 | 105 | - |
| 10/08/2019 | MEL-02-05 | 7-8 m | 7.43 | 78.7 | 12.33 | 11.07 | 105.1 | - |
| 10/08/2019 | MEL-02-05 | 8-9 m | 7.45 | 78.7 | 12.36 | 11.09 | 105.1 | - |
| 10/08/2019 | MEL-02-05 | 9-10 m | 7.45 | 78.4 | 12.27 | 11.1 | 105.1 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-02-02 | 0-1 m | 7.48 | 78.3 | 6.68 | 13.31 | 110.3 | - |
| 06/09/2019 | MEL-02-02 | 1-1 m | 7.46 | 78.3 | 6.67 | 13.3 | 110.2 | - |
| 06/09/2019 | MEL-02-02 | 1-2 m | 7.46 | 78.3 | 6.66 | 13.29 | 110.1 | - |
| 06/09/2019 | MEL-02-02 | 2-3 m | 7.45 | 78.3 | 6.62 | 13.29 | 110 | - |
| 06/09/2019 | MEL-02-02 | 3-4 m | 7.44 | 78.3 | 6.61 | 13.29 | 110 | - |
| 06/09/2019 | MEL-02-02 | 4-5 m | 7.44 | 78.3 | 6.6 | 13.3 | 110.1 | - |
| 06/09/2019 | MEL-02-02 | 5-6 m | 7.45 | 78.3 | 6.59 | 13.31 | 110.1 | - |
| 06/09/2019 | MEL-02-02 | 6-7 m | 7.45 | 78.2 | 6.51 | 13.33 | 110.1 | - |
| 06/09/2019 | MEL-02-02 | 7-8 m | 7.45 | 78.3 | 6.49 | 13.34 | 110.1 | - |
| 06/09/2019 | MEL-02-02 | 8-9 m | 7.45 | 78.3 | 6.49 | 13.35 | 110.2 | - |
| 06/09/2019 | MEL-02-02 | 9-10 m | 7.45 | 78.3 | 6.49 | 13.35 | 110.2 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-02-01 | 0-1 m | 7.46 | 78.1 | 6.63 | 13.53 | 111.8 | - |
| 06/09/2019 | MEL-02-01 | 1-1 m | 7.46 | 78.1 | 6.63 | 13.45 | 111.3 | - |
| 06/09/2019 | MEL-02-01 | 1-2 m | 7.45 | 78.1 | 6.63 | 13.37 | 110.7 | - |
| 06/09/2019 | MEL-02-01 | 2-3 m | 7.43 | 78.2 | 6.62 | 13.32 | 110.3 | - |
| 06/09/2019 | MEL-02-01 | 3-4 m | 7.44 | 78.2 | 6.51 | 13.32 | 110.1 | - |
| 06/09/2019 | MEL-02-01 | 4-5 m | 7.44 | 78.2 | 6.52 | 13.34 | 110.2 | - |
| 06/09/2019 | MEL-02-01 | 5-6 m | 7.43 | 78.2 | 6.51 | 13.33 | 110.1 | - |
| 06/09/2019 | MEL-02-01 | 6-7 m | 7.44 | 78.3 | 6.5 | 13.33 | 110 | - |
| 06/09/2019 | MEL-02-01 | 7-8 m | 7.43 | 78.3 | 6.51 | 13.32 | 110 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-02-03 | 0-1 m | 7.29 | 78.1 | 6.81 | 13.28 | 110.6 | - |
| 06/09/2019 | MEL-02-03 | 1-1 m | 7.3 | 78.2 | 6.77 | 13.28 | 110.5 | - |
| 06/09/2019 | MEL-02-03 | 1-2 m | 7.31 | 78.2 | 6.71 | 13.31 | 110.5 | - |
| 06/09/2019 | MEL-02-03 | 2-3 m | 7.29 | 78.2 | 6.71 | 13.32 | 110.6 | - |
| 06/09/2019 | MEL-02-03 | 3-4 m | 7.29 | 78.2 | 6.68 | 13.33 | 110.6 | - |

Appendix C3 Table: MEL-02 in-situ data, Meliadine Lake AEMP 2019

| Sample Date | Location | Sample Depth | Field Measurement | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen | Turbidity |
| | | | pH units | uS/cm | °C | mg/L | % | NTU |
| 06/09/2019 | MEL-02-03 | 4-5 m | 7.29 | 78.2 | 6.66 | 13.34 | 110.6 | - |
| 06/09/2019 | MEL-02-03 | 5-6 m | 7.3 | 78.3 | 6.65 | 13.35 | 110.9 | - |
| 06/09/2019 | MEL-02-03 | 6-7 m | 7.3 | 78.3 | 6.65 | 13.35 | 110.6 | - |
| 06/09/2019 | MEL-02-03 | 7-8 m | 7.31 | 78.3 | 6.65 | 13.35 | 110.6 | - |
| 06/09/2019 | MEL-02-03 | 8-9 m | 7.31 | 78 | 6.64 | 13.35 | 110.6 | - |
| 06/09/2019 | MEL-02-03 | 9-10 m | 7.32 | 78.3 | 6.63 | 13.35 | 110.6 | - |
| | | | | | | | | |
| 06/09/2019 | MEL-02-04 | 0-1 m | 7.5 | 78.2 | 6.71 | 13.3 | 110.3 | - |
| 06/09/2019 | MEL-02-04 | 1-1 m | 7.5 | 78.2 | 6.71 | 13.29 | 110.3 | - |
| 06/09/2019 | MEL-02-04 | 1-2 m | 7.48 | 78.2 | 6.65 | 13.29 | 110.2 | - |
| 06/09/2019 | MEL-02-04 | 2-3 m | 7.45 | 78.4 | 6.64 | 13.29 | 110.2 | - |
| 06/09/2019 | MEL-02-04 | 3-4 m | 7.46 | 78.5 | 6.61 | 13.3 | 110.2 | - |
| 06/09/2019 | MEL-02-04 | 4-5 m | 7.46 | 78.5 | 6.58 | 13.31 | 110.2 | - |
| 06/09/2019 | MEL-02-04 | 5-6 m | 7.46 | 78.4 | 6.62 | 13.31 | 110.2 | - |
| 06/09/2019 | MEL-02-04 | 6-7 m | 7.47 | 78.7 | 6.49 | 13.36 | 110.3 | - |
| 06/09/2019 | MEL-02-04 | 7-8 m | 7.46 | 79 | 6.46 | 13.37 | 110.3 | - |
| 06/09/2019 | MEL-02-04 | 8-9 m | 7.46 | 79.5 | 6.45 | 13.38 | 110.3 | - |

- Chemical not analyzed or criteria not defined.

Output generated by GalReport.

Appendix C3 Table: MEL-02 laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 16/02/2019 | 22/02/2019 | 22/02/2019 | 22/02/2019 | 22/02/2019 | 13/07/2019 | 13/07/2019 | 13/07/2019 | 13/07/2019 | 14/07/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | MEL-02-06 | MEL-02-02 | MEL-02-03 | MEL-02-05 | MEL-02-08 | MEL-02-01 | MEL-02-02 | MEL-02-04 | MEL-02-03 | MEL-02-05 | MEL-02-01 | MEL-02-01 | MEL-02-02 | MEL-02-02 | MEL-02-03 | MEL-02-03 | MEL-02-04 | MEL-02-04 | MEL-02-05 | MEL-02-05 | MEL-02-01 | MEL-02-05 | MEL-02-03 | MEL-02-04 | MEL-02-02 |
| FIELD_SDG | | L2235701 | L2239278 | L2239278 | L2239278 | L2239278 | L2314029 | L2314029 | L2314029 | L2314029 | L2314029 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2346699 | L2346699 | L2346699 | L2346699 | L2346699 |
| **Parameter** | **Unit** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **WQTC02-Conventional Parameters** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pH | pH units | 7.45 | 7.38 | 7.34 | 7.35 | 7.40 | 7.28 | 7.28 | 7.32 | 7.33 | 7.31 | 7.45 | - | 7.44 | - | 7.46 | - | 7.44 | - | 7.46 | - | 7.23 | 7.22 | 7.19 | 7.22 | 7.22 |
| Specific conductivity | umhos/cm | 118 | 102 | 94.5 | 101 | 102 | 76.8 | 76.8 | 75.9 | 76.8 | 76.2 | 114 | - | 82.3 | - | 79.3 | - | 82.3 | - | 79.4 | - | 76.9 | 76.5 | 76.5 | 76.8 | 77.1 |
| Hardness, as CaCO3 (N) | mg/L | | 31.9 | - | - | - | 23.2 | 23.5 | 23.2 | 23.4 | 23.2 | - | - | - | - | - | - | - | - | - | - | 21.9 | 21.7 | 21.6 | 21.9 | 22.6 |
| Hardness, as CaCO3 (N) | none | 37.3 | - | 29.0 | 31.1 | 31.2 | - | - | - | - | - | 33.8 | - | 22.6 | - | 21.8 | - | 22.0 | - | 21.5 | - | - | - | - | - | - |
| Total alkalinity, as CaCO3 | mg/L | 30.6 | 26.7 | 24.8 | 25.9 | 25.7 | 16.0 | 16.1 | 16.3 | 16.4 | 16.2 | 20.7 | - | 20.5 | - | 20.1 | - | 20.4 | - | 20.3 | - | 20.1 | 17.5 | 20.0 | 19.8 | 20.4 |
| Total dissolved solids | mg/L | 61.3\|69 | 53.5\|72 | 49.5\|61 | 51.8\|64 | 53.4\|60 | 38.3\|45 | 38.5\|48 | 38.5\|51 | 38.8\|49 | 38.7\|50 | 73.1\|71 | - | 44.4\|46 | - | 40.8\|48 | - | 42.3\|46 | - | 40.5\|49 | - | 39.9\|50 | 38.0\|49 | 39.4\|47 | 39.5\|51 | 40.4\|49 |
| Total dissolved solids (calculated) | mg/L | 61.3 | 53.5 | 49.5 | 51.8 | 53.4 | 38.3 | 38.5 | 38.5 | 38.8 | 38.7 | 73.1 | - | 44.4 | - | 40.8 | - | 42.3 | - | 40.5 | - | 39.9 | 38.0 | 39.4 | 39.5 | 40.4 |
| Total suspended solids | mg/L | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | - | 2.9 | - | < 1.0 | - | < 1.0 | - | < 1.0 | - | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total organic carbon | mg/L | 3.41 | 2.14 | 1.88 | 1.80 | 1.78 | 2.87 | 2.83 | 2.81 | 2.79 | 2.79 | 2.55 | 2.79 | 2.48 | 2.98 | 2.54 | 2.82 | 2.48 | 3.22 | 2.60 | 2.99 | 2.54 | 2.49 | 2.48 | 2.46 | 2.64 |
| Dissolved organic carbon | mg/L | 3.13 | 1.97 | 1.88 | 1.79 | 1.36 | 2.66 | 2.69 | 2.75 | 2.63 | 2.47 | 2.48 | 3.06 | 2.49 | 3.10 | 2.53 | 2.87 | 2.41 | 3.14 | 2.40 | 3.16 | 2.45 | 2.44 | 2.48 | 2.50 | 2.39 |
| Turbidity | NTU | 0.16 | 0.14 | 0.12 | 0.12 | 0.17 | 0.32 | 0.34 | 0.27 | 0.36 | 0.33 | 0.36 | - | 0.26 | - | 0.24 | - | 0.31 | - | 0.32 | - | 0.28 | 0.32 | 0.32 | 0.43 | 0.34 |
| **WQTC03-Major Ions** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bicarbonate | mg/L | 37.3 | 32.6 | 30.3 | 31.6 | 31.4 | 19.5 | 19.6 | 19.9 | 20.0 | 19.8 | 25.3 | - | 25.0 | - | 24.5 | - | 24.9 | - | 24.8 | - | 24.5 | 21.4 | 24.4 | 24.2 | 24.9 |
| Calcium | mg/L | 11.6 | 10.1 | 9.11 | 9.70 | 9.82 | 7.27 | 7.39 | 7.26 | 7.31 | 7.25 | 7.76 | - | 6.68 | - | 6.73 | - | 6.78 | - | 6.69 | - | 6.93 | 6.86 | 6.84 | 6.97 | 7.23 |
| Carbonate | mg/L | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 |
| Chloride | mg/L | 14.2 | 12.6 | 11.5 | 12.0 | 13.0 | 10.1 | 10.1 | 10.2 | 10.2 | 10.2 | 19.8 | - | 11.2 | - | 10.3 | - | 11.3 | - | 10.4 | - | 9.89 | 9.85 | 9.91 | 9.91 | 9.91 |
| Cyanide | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 0.0014 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | - | 0.0010 | - | 0.0012 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Fluoride | mg/L | 0.036 | 0.034 | 0.030 | 0.033 | 0.035 | 0.025 | 0.025 | 0.025 | 0.026 | 0.026 | 0.028 | - | 0.027 | - | 0.027 | - | 0.026 | - | 0.027 | - | 0.028 | 0.028 | 0.028 | 0.028 | 0.028 |
| Hydroxide | mg/L | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 |
| Magnesium | mg/L | 2.02 | 1.64 | 1.52 | 1.69 | 1.63 | 1.22 | 1.23 | 1.23 | 1.24 | 1.24 | 3.49 | - | 1.44 | - | 1.20 | - | 1.22 | - | 1.16 | - | 1.12 | 1.11 | 1.11 | 1.09 | 1.12 |
| Potassium | mg/L | 1.52 | 1.27 | 1.18 | 1.24 | 1.25 | 0.992 | 1.00 | 0.996 | 1.01 | 1.00 | 1.62 | - | 1.02 | - | 0.945 | - | 0.954 | - | 0.927 | - | 0.923 | 0.916 | 0.908 | 0.908 | 0.899 |
| Sodium | mg/L | 7.65 | 6.94 | 6.78 | 6.79 | 6.98 | 4.87 | 4.98 | 4.86 | 4.98 | 5.03 | 22.7 | - | 7.65 | - | 5.56 | - | 5.66 | - | 5.13 | - | 4.97 | 4.84 | 4.72 | 4.79 | 4.92 |
| Sulphate | mg/L | 5.85 | 4.90 | 4.50 | 4.75 | 5.22 | 4.26 | 4.14 | 4.19 | 4.21 | 4.19 | 5.29 | - | 4.06 | - | 3.93 | - | 4.06 | - | 3.94 | - | 3.90 | 3.85 | 3.88 | 3.92 | 3.97 |
| Reactive silica, as SiO2 | mg/L | 0.316 | 0.365 | 0.306 | 0.314 | 0.309 | - | - | - | - | - | - | 0.276 | - | 0.273 | - | 0.271 | - | 0.279 | - | 0.282 | - | - | - | - | - |
| Cyanide (free) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | 0.0011 | - | 0.0012 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 0.0011 |
| Cyanide (WAD) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Ion Ratio (+/-) | % | 98.3 | 98.1 | - | 99.4 | 96.9 | - | - | - | - | - | 157 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ion Ratio (+/-) | mg/L | - | - | Low EC | - | - | Low EC | Low EC | Low EC | Low EC | Low EC | - | - | Low EC | - | Low EC | - | Low EC | - | Low EC | - | Low EC | Low EC | Low EC | Low EC | Low EC |
| **WQTC04-Nutrients and Chlorophyll a** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 0.0055 | 0.0067 | 0.0060 | 0.0052 | 0.0053 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 0.0055 | 0.023 | < 0.0050 | 0.021 | 0.0088 | < 0.020 | 0.0050 | < 0.020 | < 0.0050 | < 0.020 | 0.0074 | < 0.0050 | < 0.0050 | < 0.0050 | 0.0146 |
| Nitrite | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | 0.0026 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Nitrate + nitrite | mg/L | 0.0055 | 0.0067 | 0.0060 | 0.0052 | 0.0079 | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 | 0.0055 | < 0.070 | < 0.0051 | < 0.070 | 0.0088 | < 0.070 | < 0.0051 | < 0.070 | < 0.0051 | < 0.070 | 0.0074 | < 0.0051 | < 0.0051 | < 0.0051 | 0.0146 |
| Total ammonia | mg/L | 0.0261 | 0.0210 | 0.0221 | 0.0230 | 0.0215 | 0.0198 | 0.0058 | 0.0203 | 0.0098 | 0.0145 | 0.0380 | 0.031 | 0.0318 | 0.014 | < 0.0050 | < 0.010 | 0.0097 | < 0.010 | 0.0065 | < 0.010 | - | - | - | - | - |
| Total Kjeldahl nitrogen | mg/L | 0.347 | 0.240 | 0.225 | 0.050 | 0.159 | 0.195 | 0.204 | 0.214 | 0.194 | 0.170 | 0.201 | < 0.20\|< 0.20 | 0.191 | < 0.20\|< 0.20 | 0.157 | < 0.20\|< 0.20 | 0.216 | 0.21\|< 0.20 | 0.141 | < 0.20\|< 0.20 | 0.224 | 0.217 | 0.228 | 0.205 | 0.240 |
| Total nitrogen | mg/L | 0.353 | 0.247 | 0.231 | 0.056 | 0.167 | - | - | - | - | - | - | < 0.20 | - | < 0.20 | - | < 0.20 | - | 0.21 | - | < 0.20 | - | - | - | - | - |
| Total phosphorus | mg/L | 0.0035 | 0.0060 | 0.0067 | 0.0049 | 0.0030 | < 0.050\|0.0034 | < 0.050\|0.0043 | < 0.050\|0.0040 | < 0.050\|0.0036 | < 0.050\|0.0035 | < 0.050\|0.0033 | 0.0059 | < 0.050\|0.0026 | 0.0194 | < 0.050\|0.0031 | 0.0053 | < 0.050\|0.0033 | 0.0110 | < 0.050\|0.0043 | 0.0042 | < 0.050\|0.0034 | < 0.050\|0.0033 | < 0.050\|0.0036 | < 0.050\|0.0084 | < 0.050\|0.0085 |
| Dissolved phosphorus | mg/L | 0.0025 | 0.0054 | 0.0040 | 0.0019 | 0.0021 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | 0.0037 | < 0.050 | 0.0013 | < 0.050 | 0.0037 | < 0.050 | 0.0034 | < 0.050 | 0.0011 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| Orthophosphate | mg/L | - | - | - | - | - | - | - | - | - | - | - | < 0.0010 | - | 0.0017 | - | < 0.0010 | - | 0.0013 | - | < 0.0010 | - | - | - | - | - |
| **WQTC06-Total Metals** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.00243 | 0.00177 | 0.00082 | 0.00178 | 0.00094 | 0.0036 | 0.0032 | 0.0024 | 0.0035 | 0.0031 | 0.0054 | - | 0.0024 | - | 0.0026 | - | 0.0033 | - | 0.0029 | - | 0.0048 | 0.0047 | 0.0042 | 0.0047 | 0.0037 |
| Antimony | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.000307 | 0.000178 | 0.000284 | 0.000186 | 0.000330 | 0.000339 | 0.000308 | 0.000314 | 0.000332 | 0.000314 | 0.000298 | - | 0.000302 | - | 0.000274 | - | 0.000269 | - | 0.000294 | - | 0.000262 | 0.000274 | 0.000286 | 0.000284 | 0.000283 |
| Barium | mg/L | 0.0125 | 0.00583 | 0.0110 | 0.00653 | 0.0109 | 0.00833 | 0.00837 | 0.00869 | 0.00841 | 0.00872 | 0.00781 | - | 0.00801 | - | 0.00804 | - | 0.00797 | - | 0.00797 | - | 0.00764 | 0.00770 | 0.00771 | 0.00745 | 0.00787 |
| Beryllium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Bismuth | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Boron | mg/L | 0.0064 | 0.0023 | 0.0048 | 0.0025 | 0.0048 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 0.0081 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Cadmium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Calcium | mg/L | 11.6 | 5.33 | 9.19 | 5.69 | 9.78 | 7.45 | 7.48 | 7.49 | 7.48 | 7.38 | 7.41 | - | 6.31 | - | 7.00 | - | 6.94 | - | 7.26 | - | 6.99 | 7.27 | 6.88 | 7.11 | 6.99 |
| Cesium | mg/L | - | - | - | - | - | 0.0000080 | 0.0000067 | 0.0000065 | 0.0000061 | 0.0000074 | 0.0000081 | - | 0.0000070 | - | 0.0000071 | - | 0.0000066 | - | 0.0000068 | - | 0.0000076 | 0.0000085 | 0.0000075 | 0.0000082 | 0.0000077 |
| Chromium | mg/L | < 0.000060 | < 0.000060 | < 0.000060 | 0.000108 | < 0.000060 | < 0.00010 | 0.00027 | 0.00034 | < 0.00010 | 0.00041 | < 0.00010 | - | 0.00017 | - | 0.00029 | - | 0.00051 | - | < 0.00010 | - | < 0.00010 | 0.00039 | 0.00038 | 0.00045 | < 0.00010 |
| Cobalt | mg/L | 0.000015 | < 0.000010 | < 0.000010 | < 0.000010 | 0.000011 | 0.0000196 | 0.0000234 | 0.0000196 | 0.0000223 | 0.0000188 | 0.0000145 | - | 0.0000151 | - | 0.0000114 | - | 0.0000118 | - | 0.0000141 | - | 0.0000141 | 0.0000149 | 0.0000139 | 0.0000158 | 0.0000131 |
| Copper | mg/L | 0.00122 | 0.00044 | 0.00085 | 0.00052 | 0.00081 | 0.00107 | 0.000742 | 0.000698 | 0.000713 | 0.000724 | 0.00128 | - | 0.000636 | - | 0.000672 | - | 0.000665 | - | 0.000655 | - | 0.00191 | 0.00101 | 0.000916 | 0.00137 | 0.000791 |
| Gallium | mg/L | - | - | - | - | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0061 | 0.0047 | 0.0031 | 0.0063 | 0.0039 | 0.0310 | 0.0360 | 0.0264 | 0.0298 | 0.0274 | 0.0207 | - | 0.0127 | - | 0.0139 | - | 0.0134 | - | 0.0145 | - | 0.0174 | 0.0164 | 0.0179 | 0.0176 | 0.0172 |
| Lanthanum | mg/L | - | - | - | - | - | 0.000028 | 0.000030 | 0.000030 | 0.000030 | 0.000031 | 0.000021 | - | 0.000021 | - | 0.000018 | - | 0.000021 | - | 0.000022 | - | 0.000030 | 0.000033 | 0.000030 | 0.000031 | 0.000033 |
| Lead | mg/L | 0.000097 | 0.000032 | 0.000096 | 0.000028 | 0.000026 | 0.000036 | 0.000017 | 0.000013 | 0.000018 | 0.000035 | 0.000034 | - | < 0.000010 | - | < 0.000010 | - | 0.000012 | - | < 0.000010 | - | 0.000012 | < 0.000010 | < 0.000010 | 0.000015 | < 0.000010 |
| Lithium | mg/L | 0.00121 | < 0.00050 | 0.00092 | 0.00055 | 0.00093 | 0.00090 | 0.00090 | 0.00089 | 0.00091 | 0.00088 | 0.00092 | - | 0.00075 | - | 0.00082 | - | 0.00082 | - | 0.00085 | - | 0.00082 | 0.00083 | 0.00083 | 0.00084 | 0.00082 |
| Magnesium | mg/L | 2.02 | 0.877 | 1.51 | 0.952 | 1.65 | 1.23 | 1.23 | 1.24 | 1.25 | 1.23 | 2.27 | - | 1.30 | - | 1.24 | - | 1.17 | - | 1.18 | - | 1.21 | 1.21 | 1.20 | 1.20 | 1.19 |
| Manganese | mg/L | 0.000757 | 0.000641 | 0.000842 | 0.000682 | 0.000846 | 0.00679 | 0.00663 | 0.00607 | 0.00662 | 0.00622 | 0.00389 | - | 0.00336 | - | 0.00346 | - | 0.00339 | - | 0.00343 | - | 0.00280 | 0.00274 | 0.00272 | 0.00284 | 0.00274 |
| Mercury | mg/L | 0.00000066 | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 | 0.00000072 | 0.00000068 | 0.00000068 | 0.00000065 | 0.00000069 | 0.00000061 | - | < 0.00000050 | - | < 0.00000050 | - | 0.00000059 | - | < 0.00000050 | - | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 |
| Molybdenum | mg/L | 0.000119 | < 0.000050 | 0.000081 | 0.000056 | 0.000083 | 0.000070 | 0.000068 | 0.000071 | 0.000066 | 0.000058 | 0.000069 | - | 0.000068 | - | 0.000068 | - | 0.000065 | - | 0.000073 | - | 0.000075 | 0.000073 | 0.000074 | 0.000077 | 0.000070 |
| Nickel | mg/L | 0.000635 | 0.000379 | 0.000527 | 0.000434 | 0.000591 | 0.000670 | 0.000612 | 0.000616 | 0.000638 | 0.000621 | 0.000540 | - | 0.000457 | - | 0.000489 | - | 0.000486 | - | 0.000503 | - | 0.000462 | 0.000452 | 0.000474 | 0.000463 | 0.000445 |
| Niobium | mg/L | - | - | - | - | - | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 |
| Potassium | mg/L | 1.55 | 0.647 | 1.16 | 0.735 | 1.26 | 1.02 | 1.01 | 1.00 | 1.03 | 1.00 | 1.27 | - | 0.961 | - | 0.933 | - | 0.914 | - | 0.913 | - | 0.929 | 0.925 | 0.923 | 0.936 | 0.922 |
| Rhenium | mg/L | - | - | - | - | - | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 |
| Rubidium | mg/L | - | - | - | - | - | 0.00139 | 0.00138 | 0.00139 | 0.00139 | 0.00136 | 0.00146 | - | 0.00138 | - | 0.00135 | - | 0.00135 | - | 0.00137 | - | 0.00139 | 0.00134 | 0.00135 | 0.00131 | 0.00135 |
| Selenium | mg/L | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | 0.000042 | 0.000049 | < 0.000040 | < 0.000040 | < 0.000040 | - | < 0.000040 | - | < 0.000040 | - | 0.000047 | - | < 0.000040 | - | 0.000059 | 0.000043 | 0.000042 | 0.000073 | < 0.000040 |
| Silicon | mg/L | - | - | - | - | - | 0.171 | 0.183 | 0.186 | 0.188 | 0.163 | 0.151 | - | 0.133 | - | 0.146 | - | 0.164 | - | 0.138 | - | 0.173 | 0.145 | 0.167 | 0.141 | 0.159 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Sodium | mg/L | 7.97 | 3.72 | 6.68 | 4.23 | 7.14 | 5.21 | 4.92 | 4.97 | 5.10 | 4.88 | 13.7 | - | 6.16 | - | 5.29 | - | 6.22 | - | 4.96 | - | 4.88 | 4.94 | 4.76 | 4.92 | 4.74 |
| Strontium | mg/L | 0.0546 | 0.0265 | 0.0483 | 0.0296 | 0.0508 | 0.0418 | 0.0409 | 0.0406 | 0.0414 | 0.0410 | 0.0455 | - | 0.0423 | - | 0.0426 | - | 0.0414 | - | 0.0392 | - | 0.0358 | 0.0342 | 0.0358 | 0.0348 | 0.0371 |
| Sulphur | mg/L | - | - | - | - | - | 1.44 | 1.48 | 1.48 | 1.50 | 1.47 | 2.02 | - | 1.49 | - | 1.33 | - | 1.69 | - | 1.36 | - | 1.50 | 1.40 | 1.34 | 1.57 | 1.65 |
| Tantalum | mg/L | - | - | - | - | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | - | - | - | - | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | - | - | - | - | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | 0.000372 | 0.000043 | < 0.000020 | 0.000062 | 0.000046 | 0.000043 | - | < 0.000020 | - | < 0.000020 | - | 0.000022 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | 0.000253 | 0.000027 |
| Titanium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | 0.000113 | < 0.00010 | 0.000179 | 0.000116 | 0.000126 | 0.000387 | - | 0.000075 | - | 0.000090 | - | 0.000082 | - | < 0.00010 | - | 0.000260 | 0.000195 | < 0.00020 | 0.000199 | 0.000191 |
| Tungsten | mg/L | - | - | - | - | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.000020 | < 0.000010 | 0.000012 | < 0.000010 | 0.000013 | 0.0000133 | 0.0000142 | 0.0000157 | 0.0000141 | 0.0000143 | 0.0000169 | - | 0.0000149 | - | 0.0000146 | - | 0.0000148 | - | 0.0000164 | - | 0.0000147 | 0.0000150 | 0.0000153 | 0.0000153 | 0.0000163 |
| Vanadium | mg/L | < 0.000050 | < 0.000050 | 0.000052 | < 0.000050 | < 0.000050 | < 0.000050 | 0.000064 | 0.000078 | 0.000075 | 0.000071 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | - | - | - | - | - | 0.0000081 | 0.0000062 | 0.0000076 | 0.0000069 | 0.0000090 | 0.0000079 | - | 0.0000051 | - | < 0.0000050 | - | 0.0000061 | - | < 0.0000050 | - | 0.0000065 | 0.0000059 | 0.0000068 | 0.0000067 | 0.0000100 |
| Zinc | mg/L | 0.00354 | < 0.00080 | 0.00120 | 0.00114 | < 0.00080 | 0.00316 | 0.00085 | < 0.00050 | 0.00080 | 0.00207 | 0.00116 | - | < 0.00050 | - | < 0.00050 | - | 0.00054 | - | 0.00052 | - | 0.00051 | < 0.00050 | < 0.00050 | 0.00146 | 0.00052 |
| Zirconium | mg/L | - | - | - | - | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC07-Dissolved Metals** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.00078 | 0.00040 | 0.00071 | < 0.00030 | 0.00030 | 0.0017 | 0.0018 | 0.0020 | 0.0021 | 0.0017 | 0.0018 | - | 0.0017 | - | 0.0013 | - | 0.0015 | - | 0.0015 | - | 0.0016 | 0.0016 | 0.0016 | 0.0018 | 0.0020 |
| Antimony | mg/L | < 0.000020 | 0.000022 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.000338 | 0.000299 | 0.000274 | 0.000281 | 0.000295 | 0.000258 | 0.000274 | 0.000275 | 0.000271 | 0.000261 | 0.000267 | - | 0.000271 | - | 0.000270 | - | 0.000264 | - | 0.000245 | - | 0.000239 | 0.000256 | 0.000262 | 0.000280 | 0.000255 |
| Barium | mg/L | 0.0123 | 0.0113 | 0.0100 | 0.0107 | 0.0109 | 0.00838 | 0.00833 | 0.00826 | 0.00835 | 0.00856 | 0.00763 | - | 0.00749 | - | 0.00754 | - | 0.00744 | - | 0.00758 | - | 0.00720 | 0.00738 | 0.00719 | 0.00709 | 0.00709 |
| Beryllium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | 0.0063 | 0.0051 | 0.0047 | 0.0051 | 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | 0.0122 | - | 0.0053 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |

Appendix C3 Table: MEL-02 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 16/02/2019 | 22/02/2019 | 22/02/2019 | 22/02/2019 | 22/02/2019 | 13/07/2019 | 13/07/2019 | 13/07/2019 | 13/07/2019 | 14/07/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 10/08/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 | 06/09/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Location | MEL-02-06 | MEL-02-02 | MEL-02-03 | MEL-02-05 | MEL-02-08 | MEL-02-01 | MEL-02-02 | MEL-02-04 | MEL-02-03 | MEL-02-05 | MEL-02-01 | MEL-02-01 | MEL-02-02 | MEL-02-02 | MEL-02-03 | MEL-02-03 | MEL-02-04 | MEL-02-04 | MEL-02-05 | MEL-02-05 | MEL-02-01 | MEL-02-05 | MEL-02-03 | MEL-02-04 | MEL-02-02 |
| | FIELD_SDG | L2235701 | L2239278 | L2239278 | L2239278 | L2239278 | L2314029 | L2314029 | L2314029 | L2314029 | L2314029 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2346699 | L2346699 | L2346699 | L2346699 | L2346699 |
| **Parameter** | **Unit** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cadmium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Cesium | mg/L | - | - | - | - | - | 0.0000068 | 0.0000067 | 0.0000066 | 0.0000069 | 0.0000068 | 0.0000078 | - | 0.0000073 | - | 0.0000075 | - | 0.0000071 | - | 0.0000076 | - | 0.0000061 | 0.0000063 | 0.0000058 | 0.0000064 | 0.0000064 |
| Chromium | mg/L | < 0.000060 | < 0.000060 | < 0.000060 | < 0.000060 | < 0.000060 | < 0.00010 | 0.00039 | 0.00033 | < 0.00010 | 0.00048 | < 0.00010 | - | 0.00037 | - | 0.00022 | - | < 0.00010 | - | 0.00023 | - | 0.00036 | 0.00025 | 0.00030 | < 0.00010 | < 0.00010 |
| Cobalt | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | 0.0000072 | 0.0000073 | 0.0000116 | 0.0000078 | 0.0000109 | 0.0000053 | - | 0.0000060 | - | 0.0000059 | - | 0.0000051 | - | 0.0000057 | - | 0.0000061 | 0.0000077 | 0.0000061 | 0.0000071 | 0.0000064 |
| Copper | mg/L | 0.00115 | 0.00080 | 0.00083 | 0.00074 | 0.00077 | 0.000708 | 0.000882 | 0.000687 | 0.000835 | 0.000697 | 0.000636 | - | 0.000637 | - | 0.000653 | - | 0.000664 | - | 0.000634 | - | 0.000681 | 0.000652 | 0.000831 | 0.000658 | 0.000678 |
| Gallium | mg/L | - | - | - | - | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0029 | 0.0020 | 0.0039 | 0.0020 | 0.0017 | 0.0105 | 0.0123 | 0.0110 | 0.0160 | 0.0119 | 0.0047 | - | 0.0059 | - | 0.0043 | - | 0.0047 | - | 0.0045 | - | 0.0056 | 0.0045 | 0.0049 | 0.0051 | 0.0049 |
| Lanthanum | mg/L | - | - | - | - | - | 0.000018 | 0.000019 | 0.000017 | 0.000020 | 0.000018 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | 0.000016 | 0.000015 | 0.000017 | 0.000018 | 0.000013 |
| Lead | mg/L | 0.000053 | 0.000033 | 0.000056 | 0.000012 | 0.000013 | 0.000012 | 0.000076 | < 0.000010 | 0.000041 | < 0.000010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Lithium | mg/L | 0.00104 | 0.00090 | 0.00083 | 0.00086 | 0.00094 | 0.00086 | 0.00087 | 0.00085 | 0.00086 | 0.00084 | 0.00103 | - | 0.00080 | - | 0.00078 | - | 0.00077 | - | 0.00076 | - | 0.00075 | 0.00074 | 0.00077 | 0.00078 | 0.00078 |
| Manganese | mg/L | 0.000405 | 0.000283 | 0.000233 | 0.000219 | 0.000186 | 0.00252 | 0.00265 | 0.00246 | 0.00266 | 0.00246 | 0.000446 | - | 0.000472 | - | 0.000379 | - | 0.000446 | - | 0.000399 | - | 0.000319 | 0.000332 | 0.000338 | 0.000342 | 0.000348 |
| Mercury | mg/L | 0.00000052 | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 | 0.00000058 | 0.00000060 | 0.00000054 | 0.00000086 | 0.00000064 | 0.00000071 | - | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 |
| Molybdenum | mg/L | 0.000112 | 0.000115 | 0.00315 | 0.000090 | 0.000104 | 0.000068 | 0.000063 | 0.000061 | 0.000073 | 0.000059 | 0.000082 | - | 0.000080 | - | 0.000077 | - | 0.000073 | - | 0.000074 | - | 0.000066 | 0.000072 | 0.000071 | 0.000071 | 0.000067 |
| Nickel | mg/L | 0.000625 | 0.000560 | 0.000607 | 0.000553 | 0.000571 | 0.000593 | 0.000623 | 0.000620 | 0.000631 | 0.000594 | 0.000464 | - | 0.000474 | - | 0.000453 | - | 0.000460 | - | 0.000467 | - | 0.000440 | 0.000458 | 0.000448 | 0.000460 | 0.000448 |
| Niobium | mg/L | - | - | - | - | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Rhenium | mg/L | - | - | - | - | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Rubidium | mg/L | - | - | - | - | - | 0.00139 | 0.00135 | 0.00137 | 0.00137 | 0.00137 | 0.00153 | - | 0.00133 | - | 0.00131 | - | 0.00133 | - | 0.00132 | - | 0.00133 | 0.00131 | 0.00131 | 0.00135 | 0.00128 |
| Selenium | mg/L | 0.000062 | < 0.000040 | 0.000051 | < 0.000040 | 0.000044 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | - | < 0.000040 | - | < 0.000040 | - | < 0.000040 | - | < 0.000040 | - | < 0.000040 | < 0.000040 | 0.000044 | < 0.000040 | < 0.000040 |
| Silicon | mg/L | - | - | - | - | - | 0.157 | 0.162 | 0.160 | 0.165 | 0.158 | 0.124 | - | 0.145 | - | 0.130 | - | 0.135 | - | 0.120 | - | 0.137 | 0.139 | 0.123 | 0.142 | 0.121 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Strontium | mg/L | 0.0550 | 0.0486 | 0.0457 | 0.0469 | 0.0478 | 0.0392 | 0.0400 | 0.0392 | 0.0385 | 0.0387 | 0.0488 | - | 0.0398 | - | 0.0367 | - | 0.0363 | - | 0.0371 | - | 0.0345 | 0.0350 | 0.0348 | 0.0362 | 0.0351 |
| Sulphur | mg/L | - | - | - | - | - | 1.39 | 1.43 | 1.42 | 1.61 | 1.50 | 2.93 | - | 1.55 | - | 1.36 | - | 1.31 | - | 1.22 | - | 1.28 | 1.44 | 1.32 | 1.26 | 1.19 |
| Tantalum | mg/L | - | - | - | - | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | - | - | - | - | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | - | - | - | - | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | 0.000055 | 0.000035 | 0.000025 | 0.000112 | < 0.000020 | 0.000024 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | 0.000023 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Titanium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.000050 | < 0.000050 | 0.000091 | < 0.000050 | < 0.000050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Tungsten | mg/L | - | - | - | - | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.000017 | 0.000015 | 0.000014 | 0.000012 | 0.000010 | 0.0000135 | 0.0000128 | 0.0000133 | 0.0000117 | 0.0000116 | 0.0000205 | - | 0.0000127 | - | 0.0000118 | - | 0.0000122 | - | 0.0000114 | - | 0.0000137 | 0.0000142 | 0.0000141 | 0.0000144 | 0.0000143 |
| Vanadium | mg/L | < 0.000050 | < 0.000050 | 0.000051 | 0.000051 | < 0.000050 | < 0.000050 | < 0.000050 | 0.000057 | 0.000055 | 0.000053 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | - | - | - | - | - | 0.0000054 | 0.0000073 | < 0.0000050 | 0.0000066 | 0.0000058 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | 0.0000054 | 0.0000062 | 0.0000051 |
| Zinc | mg/L | 0.00255 | 0.00219 | 0.00127 | 0.00089 | 0.00132 | 0.00103 | 0.00098 | 0.00130 | 0.00112 | < 0.00050 | 0.00063 | - | < 0.00050 | - | < 0.00050 | - | 0.00059 | - | 0.00080 | - | 0.00081 | < 0.00050 | < 0.00050 | < 0.00050 | < 0.00050 |
| Zirconium | mg/L | - | - | - | - | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC12-Radionuclides** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Radium-226 | Bq/l | < 0.0066 | < 0.0065 | < 0.0060 | < 0.0082 | 0.0039 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Appendix C3 Table: MEL-03 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 13/07/2019 | MEL-03-03 | 0.5-1 m | - | 67.6 | 8 | 11.97 | 101 |
| 13/07/2019 | MEL-03-03 | 0-1 m | 7.41 | 67.7 | 8 | 11.97 | 101.1 |
| 13/07/2019 | MEL-03-03 | 10-11 m | - | 67.2 | 5.9 | 12.32 | 98.6 |
| 13/07/2019 | MEL-03-03 | 1-2 m | - | 67.5 | 8 | 11.98 | 101.1 |
| 13/07/2019 | MEL-03-03 | 2-3 m | - | 67.6 | 7.8 | 12.02 | 100.9 |
| 13/07/2019 | MEL-03-03 | 3-4 m | - | 67.9 | 7.4 | 12.06 | 100.4 |
| 13/07/2019 | MEL-03-03 | 4-5 m | 7.45 | 67.8 | 7.1 | 12.09 | 99.9 |
| 13/07/2019 | MEL-03-03 | 5-6 m | - | 67.8 | 6.9 | 12.12 | 99.7 |
| 13/07/2019 | MEL-03-03 | 6-7 m | - | 67.3 | 6.1 | 12.29 | 98.9 |
| 13/07/2019 | MEL-03-03 | 7-8 m | - | 67.4 | 6 | 12.31 | 98.8 |
| 13/07/2019 | MEL-03-03 | 8-9 m | - | 67.2 | 5.9 | 12.3 | 98.7 |
| 13/07/2019 | MEL-03-03 | 9-10 m | - | 67.2 | 5.9 | 12.3 | 98.6 |
| | | | | | | | |
| 14/07/2019 | MEL-03-01 | | 7.49 | 67.8 | 8 | - | 101.4 |
| 14/07/2019 | MEL-03-01 | 0-1 m | 7.49 | 67.8 | 8 | 12 | 101.4 |
| 14/07/2019 | MEL-03-01 | 1-1 m | - | 67.7 | 8.1 | 11.99 | 101.4 |
| 14/07/2019 | MEL-03-01 | 1-2 m | - | 67.7 | 8.1 | 11.98 | 101.4 |
| 14/07/2019 | MEL-03-01 | 2-3 m | - | 67.7 | 8 | 11.98 | 101.2 |
| 14/07/2019 | MEL-03-01 | 3-4 m | - | 67.7 | 7.9 | 11.98 | 100.9 |
| 14/07/2019 | MEL-03-01 | 4-5 m | 7.58 | 67.7 | 7.4 | 12.04 | 100.3 |
| 14/07/2019 | MEL-03-01 | 5-6 m | - | 67.8 | 7.2 | 12.09 | 100.1 |
| 14/07/2019 | MEL-03-01 | 6-7 m | - | 67.8 | 6.9 | 12.12 | 99.7 |
| | | | | | | | |
| 14/07/2019 | MEL-03-02 | 0.5-1 m | - | 67.5 | 8.2 | 11.95 | 101.4 |
| 14/07/2019 | MEL-03-02 | 0-1 m | 7.38 | 67.6 | 8.2 | 11.94 | 101.4 |
| 14/07/2019 | MEL-03-02 | 1-2 m | - | 67.5 | 8.2 | 11.94 | 101.4 |
| 14/07/2019 | MEL-03-02 | 2-3 m | - | 67.8 | 7.8 | 12 | 100.8 |
| 14/07/2019 | MEL-03-02 | 3-4 m | - | 67.8 | 7.7 | 12.02 | 100.8 |
| 14/07/2019 | MEL-03-02 | 4-5 m | 7.35 | 67.7 | 7.7 | 12.02 | 100.6 |
| 14/07/2019 | MEL-03-02 | 5-6 m | - | 67.7 | 7.2 | 12.05 | 99.8 |
| 14/07/2019 | MEL-03-02 | 6-7 m | - | 67.7 | 6.6 | 12.14 | 99.1 |
| 14/07/2019 | MEL-03-02 | 7-8 m | - | 67.5 | 6.5 | 12.16 | 98.9 |
| 14/07/2019 | MEL-03-02 | 8-9 m | - | 67.3 | 6 | 12.25 | 98.4 |
| | | | | | | | |
| 14/07/2019 | MEL-03-04 | 0.5-1 m | - | 67.1 | 9.4 | 11.64 | 101.6 |
| 14/07/2019 | MEL-03-04 | 0-1 m | 7.5 | 67 | 9.4 | 11.63 | 101.5 |
| 14/07/2019 | MEL-03-04 | 1-2 m | - | 67 | 9.4 | 11.65 | 101.7 |
| 14/07/2019 | MEL-03-04 | 2-3 m | - | 67 | 9.1 | 11.66 | 101.5 |
| 14/07/2019 | MEL-03-04 | 3-4 m | - | 67.3 | 8.9 | 11.75 | 101.4 |
| 14/07/2019 | MEL-03-04 | 4-5 m | 7.49 | 67.7 | 7.7 | 11.73 | 99.4 |
| 14/07/2019 | MEL-03-04 | 5-6 m | - | 68 | 7.5 | 12.09 | 100.7 |
| 14/07/2019 | MEL-03-04 | 6-7 m | - | 67.9 | 7.4 | 12.07 | 100.4 |
| 14/07/2019 | MEL-03-04 | 7-8 m | - | 67.7 | 6.6 | 12.14 | 99.2 |
| 14/07/2019 | MEL-03-04 | 8-9 m | - | 67.4 | 6.3 | 12.18 | 98.7 |
| | | | | | | | |
| 14/07/2019 | MEL-03-05 | 0.5-1 m | - | 66.7 | 9.9 | 11.51 | 101.7 |
| 14/07/2019 | MEL-03-05 | 0-1 m | 7.49 | 66.6 | 9.9 | 11.51 | 101.7 |
| 14/07/2019 | MEL-03-05 | 1-2 m | - | 66.7 | 9.9 | 11.52 | 101.7 |
| 14/07/2019 | MEL-03-05 | 2-3 m | - | 66.9 | 9.7 | 11.51 | 101.4 |
| 14/07/2019 | MEL-03-05 | 3-4 m | - | 67.4 | 9.3 | 11.52 | 100.7 |
| 14/07/2019 | MEL-03-05 | 4-5 m | 7.48 | 67.7 | 8.7 | 11.6 | 100.5 |
| 14/07/2019 | MEL-03-05 | 5-6 m | - | 68 | 8.4 | 11.8 | 100.9 |

Appendix C3 Table: MEL-03 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 14/07/2019 | MEL-03-05 | 6-7 m | - | 68.1 | 8.2 | 11.84 | 100.7 |
| 14/07/2019 | MEL-03-05 | 7-8 m | - | 68.4 | 7.9 | 11.97 | 101 |
| 14/07/2019 | MEL-03-05 | 8-9 m | - | 68.4 | 7.7 | 12.05 | 101.3 |
| 14/07/2019 | MEL-03-05 | | - | - | - | - | - |
| | | | | | | | |
| 09/08/2019 | MEL-03-01 | | 7.43 | 72.9 | 12.14 | 10.08 | 94.8 |
| 09/08/2019 | MEL-03-01 | | 7.43 | 72.9 | 12.14 | - | 94.8 |
| 09/08/2019 | MEL-03-01 | 0.5-1 m | 7.42 | 73 | 12.14 | 10.62 | 73 |
| 09/08/2019 | MEL-03-01 | 0-1 m | 7.43 | 72.9 | 12.14 | 10.08 | 72.9 |
| 09/08/2019 | MEL-03-01 | 1-2 m | 7.44 | 72.9 | 12.16 | 10.87 | 72.9 |
| 09/08/2019 | MEL-03-01 | 2-3 m | 7.43 | 72.9 | 12.15 | 10.89 | 72.9 |
| 09/08/2019 | MEL-03-01 | 3-4 m | 7.44 | 72.8 | 12.09 | 10.89 | 72.8 |
| 09/08/2019 | MEL-03-01 | 4-5 m | 7.44 | 72.8 | 12.08 | 10.9 | 72.8 |
| 09/08/2019 | MEL-03-01 | 5-6 m | 7.47 | 72.8 | 12.01 | 10.92 | 72.8 |
| 09/08/2019 | MEL-03-01 | 6-7 m | 7.48 | 72.7 | 11.95 | 10.95 | 72.7 |
| | | | | | | | |
| 09/08/2019 | MEL-03-02 | 0.5-1 m | 7.09 | 72.7 | 12.01 | 10.77 | 101.4 |
| 09/08/2019 | MEL-03-02 | 0-1 m | 7.04 | 72.6 | 12.01 | 10.42 | 98 |
| 09/08/2019 | MEL-03-02 | 1-2 m | 7.12 | 72.6 | 12.02 | 10.89 | 102.5 |
| 09/08/2019 | MEL-03-02 | 2-3 m | 7.12 | 72.7 | 12.02 | 10.92 | 102.9 |
| 09/08/2019 | MEL-03-02 | 3-4 m | 7.13 | 72.7 | 12.01 | 10.96 | 103.3 |
| 09/08/2019 | MEL-03-02 | 4-5 m | 7.16 | 72.7 | 11.98 | 11.01 | 103.7 |
| 09/08/2019 | MEL-03-02 | 5-6 m | 7.18 | 72.8 | 12.01 | 11.02 | 103.8 |
| 09/08/2019 | MEL-03-02 | 6-7 m | 7.2 | 72.7 | 11.99 | 11.03 | 103.9 |
| 09/08/2019 | MEL-03-02 | 7-8 m | 7.21 | 72.8 | 11.98 | 11.04 | 103.9 |
| | | | | | | | |
| 09/08/2019 | MEL-03-03 | 0-1 m | 7.29 | 72.8 | 12.04 | 10.49 | 98.7 |
| 09/08/2019 | MEL-03-03 | 10-11 m | 7.37 | 72.9 | 11.82 | 11.04 | 103.5 |
| 09/08/2019 | MEL-03-03 | 1-1 m | 7.28 | 72.8 | 12.04 | 10.61 | 99.6 |
| 09/08/2019 | MEL-03-03 | 1-2 m | 7.28 | 73 | 12.01 | 10.75 | 101.2 |
| 09/08/2019 | MEL-03-03 | 2-3 m | 7.29 | 72.9 | 11.98 | 10.89 | 102.5 |
| 09/08/2019 | MEL-03-03 | 3-4 m | 7.29 | 72.9 | 11.98 | 10.93 | 102.8 |
| 09/08/2019 | MEL-03-03 | 4-5 m | 7.31 | 72.8 | 11.99 | 10.96 | 103.1 |
| 09/08/2019 | MEL-03-03 | 5-6 m | 7.31 | 72.9 | 11.96 | 10.97 | 103.2 |
| 09/08/2019 | MEL-03-03 | 6-7 m | 7.31 | 72.9 | 11.94 | 10.99 | 103.3 |
| 09/08/2019 | MEL-03-03 | 7-8 m | 7.33 | 73 | 11.9 | 10.99 | 103.3 |
| 09/08/2019 | MEL-03-03 | 8-9 m | 7.34 | 73 | 11.84 | 11 | 103.3 |
| 09/08/2019 | MEL-03-03 | 9-10 m | 7.36 | 72.9 | 11.82 | 11.02 | 103.4 |
| | | | | | | | |
| 09/08/2019 | MEL-03-04 | 0-1 m | 7.43 | 72.9 | 12.03 | 10.86 | 102.4 |
| 09/08/2019 | MEL-03-04 | 1-1 m | 7.43 | 72.8 | 12.03 | 10.91 | 102.8 |
| 09/08/2019 | MEL-03-04 | 1-2 m | 7.41 | 72.8 | 12.02 | 10.93 | 102.9 |
| 09/08/2019 | MEL-03-04 | 2-3 m | 7.41 | 72.8 | 12.03 | 10.95 | 103.2 |
| 09/08/2019 | MEL-03-04 | 3-4 m | 7.41 | 72.9 | 12.02 | 10.96 | 103.3 |
| 09/08/2019 | MEL-03-04 | 4-5 m | 7.41 | 72.8 | 12.01 | 10.99 | 103.5 |
| 09/08/2019 | MEL-03-04 | 5-6 m | 7.42 | 72.8 | 12 | 10.99 | 103.5 |
| 09/08/2019 | MEL-03-04 | 6-7 m | 7.42 | 72.9 | 11.99 | 11 | 103.6 |
| 09/08/2019 | MEL-03-04 | 7-8 m | 7.43 | 72.8 | 11.99 | 11.01 | 103.6 |
| | | | | | | | |
| 09/08/2019 | MEL-03-05 | 0-1 m | 7.35 | 72.9 | 12.26 | 10.73 | 101.5 |
| 09/08/2019 | MEL-03-05 | 1-1 m | 7.35 | 72.7 | 12.25 | 10.75 | 101.9 |
| 09/08/2019 | MEL-03-05 | 1-2 m | 7.35 | 72.8 | 12.28 | 10.77 | 102.1 |

Appendix C3 Table: MEL-03 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 09/08/2019 | MEL-03-05 | 2-3 m | 7.34 | 72.8 | 12.27 | 10.81 | 102.3 |
| 09/08/2019 | MEL-03-05 | 3-4 m | 7.33 | 72.9 | 12.25 | 10.84 | 102.7 |
| 09/08/2019 | MEL-03-05 | 4-5 m | 7.34 | 72.8 | 12.25 | 10.87 | 102.9 |
| 09/08/2019 | MEL-03-05 | 5-6 m | 7.34 | 72.8 | 12.24 | 10.91 | 103.2 |
| 09/08/2019 | MEL-03-05 | 6-7 m | 7.36 | 72.8 | 12.18 | 10.97 | 103.6 |
| 09/08/2019 | MEL-03-05 | 7-8 m | 7.37 | 72.9 | 12.13 | 11.01 | 103.9 |
| | | | | | | | |
| 14/08/2019 | MEL-03-01 | | 7.11 | 71.4 | 13.6 | - | 104.6 |
| | | | | | | | |
| 14/09/2019 | MEL-03-04 | 0-1 m | 7.3 | 73.1 | 7.93 | 12.1 | 103.7 |
| 14/09/2019 | MEL-03-04 | 1-1 m | 7.32 | - | 7.92 | 12.25 | 105.2 |
| 14/09/2019 | MEL-03-04 | 1-2 m | 7.3 | 73.2 | 7.93 | 12.39 | 105.9 |
| 14/09/2019 | MEL-03-04 | 2-3 m | 7.33 | 73 | 7.88 | 12.48 | 106.6 |
| 14/09/2019 | MEL-03-04 | 3-4 m | 7.33 | 73.1 | 7.87 | 12.57 | 107.5 |
| 14/09/2019 | MEL-03-04 | 4-5 m | 7.34 | 73.1 | 7.87 | 12.63 | 107.9 |
| 14/09/2019 | MEL-03-04 | 5-6 m | 7.34 | 73.1 | 7.85 | 12.66 | 108 |
| 14/09/2019 | MEL-03-04 | 6-7 m | 7.35 | 73.2 | 7.83 | 12.66 | 108.1 |
| 14/09/2019 | MEL-03-04 | 7-8 m | 7.36 | 73.2 | 7.75 | 12.69 | 108.1 |
| | | | | | | | |
| 14/09/2019 | MEL-03-05 | 0-1 m | 7.4 | 73.1 | 7.82 | 12 | 102.6 |
| 14/09/2019 | MEL-03-05 | 1-1 m | 7.39 | - | 7.82 | 12.17 | 103.8 |
| 14/09/2019 | MEL-03-05 | 1-2 m | 7.39 | 73 | 7.81 | 12.31 | 105 |
| 14/09/2019 | MEL-03-05 | 2-3 m | 7.39 | 73.2 | 7.81 | 12.44 | 106.2 |
| 14/09/2019 | MEL-03-05 | 3-4 m | 7.4 | 73.2 | 7.81 | 12.48 | 106.5 |
| 14/09/2019 | MEL-03-05 | 4-5 m | 7.39 | 73.1 | 7.81 | 12.48 | 106.5 |
| 14/09/2019 | MEL-03-05 | 5-6 m | 7.4 | 73.1 | 7.81 | 12.49 | 106.6 |
| 14/09/2019 | MEL-03-05 | 6-7 m | 7.4 | 73.2 | 7.79 | 12.5 | 106.6 |
| 14/09/2019 | MEL-03-05 | 7-8 m | 7.4 | 73.3 | 7.78 | 12.51 | 106.6 |
| 14/09/2019 | MEL-03-01 | | 7.46 | 73.1 | 7.8 | - | 104 |
| | | | | | | | |
| 14/09/2019 | MEL-03-01 | 0-1 m | 7.46 | 73.1 | 7.8 | 12.2 | 104 |
| 14/09/2019 | MEL-03-01 | 1-1 m | 7.47 | 73.2 | 7.8 | 12.24 | 104.4 |
| 14/09/2019 | MEL-03-01 | 1-2 m | 7.45 | 73.1 | 7.79 | 12.25 | 104.5 |
| 14/09/2019 | MEL-03-01 | 2-3 m | 7.45 | 73.1 | 7.79 | 12.29 | 104.8 |
| 14/09/2019 | MEL-03-01 | 3-4 m | 7.45 | 73.2 | 7.76 | 12.33 | 105.1 |
| 14/09/2019 | MEL-03-01 | 4-5 m | 7.43 | 73.1 | 7.77 | 12.35 | 105.3 |
| 14/09/2019 | MEL-03-01 | 5-6 m | 7.44 | 73.1 | 7.75 | 12.37 | 105.4 |
| 14/09/2019 | MEL-03-01 | 6-7 m | 7.46 | 73.2 | 7.68 | 12.39 | 105.4 |
| | | | | | | | |
| 14/09/2019 | MEL-03-02 | 0-1 m | 7.5 | 73.1 | 7.78 | 11.9 | 101.8 |
| 14/09/2019 | MEL-03-02 | 1-1 m | 7.5 | - | 7.78 | 12.24 | 104.4 |
| 14/09/2019 | MEL-03-02 | 1-2 m | 7.5 | 73 | 7.77 | 12.31 | 105 |
| 14/09/2019 | MEL-03-02 | 2-3 m | 7.49 | 73.1 | 7.77 | 12.34 | 105.2 |
| 14/09/2019 | MEL-03-02 | 3-4 m | 7.48 | 73.1 | 7.76 | 12.35 | 105.2 |
| 14/09/2019 | MEL-03-02 | 4-5 m | 7.48 | 73.2 | 7.76 | 12.36 | 105.3 |
| 14/09/2019 | MEL-03-02 | 5-6 m | 7.48 | 73.1 | 7.75 | 12.37 | 105.4 |
| 14/09/2019 | MEL-03-02 | 6-7 m | 7.48 | 73.2 | 7.76 | 12.37 | 105.4 |
| 14/09/2019 | MEL-03-02 | 7-8 m | 7.48 | 73.2 | 7.76 | 12.37 | 105.4 |
| | | | | | | | |
| 14/09/2019 | MEL-03-03 | 0-1 m | 7.52 | 73.2 | 7.8 | 11.9 | 102.7 |
| 14/09/2019 | MEL-03-03 | 10-11 m | 7.5 | 73.1 | 7.72 | 12.35 | 105.1 |
| 14/09/2019 | MEL-03-03 | 1-1 m | 7.51 | 73.2 | 7.78 | 12.27 | 104.7 |

Appendix C3 Table: MEL-03 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 14/09/2019 | MEL-03-03 | 1-2 m | 7.51 | 73.1 | 7.79 | 12.32 | 105 |
| 14/09/2019 | MEL-03-03 | 2-3 m | 7.5 | 73.1 | 7.77 | 12.32 | 105 |
| 14/09/2019 | MEL-03-03 | 3-4 m | 7.49 | 73.2 | 7.77 | 12.33 | 105.1 |
| 14/09/2019 | MEL-03-03 | 4-5 m | 7.49 | 73.1 | 7.77 | 12.33 | 105.2 |
| 14/09/2019 | MEL-03-03 | 5-6 m | 7.49 | 72.9 | 7.76 | 12.34 | 105.2 |
| 14/09/2019 | MEL-03-03 | 6-7 m | 7.49 | 73.1 | 7.76 | 12.35 | 105.1 |
| 14/09/2019 | MEL-03-03 | 7-8 m | 7.49 | 73.1 | 7.75 | 12.34 | 105.1 |
| 14/09/2019 | MEL-03-03 | 8-9 m | 7.49 | 73.2 | 7.75 | 12.34 | 105.1 |
| 14/09/2019 | MEL-03-03 | 9-10 m | 7.49 | - | 7.74 | 12.34 | 105.1 |

- Chemical not analyzed or criteria not defined.

Output generated by GalReport.

Appendix C3 Table: MEL-03 laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 13/07/2019 | 14/07/2019 | 14/07/2019 | 14/07/2019 | 14/07/2019 | 14/07/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 14/08/2019 | 14/08/2019 | 14/09/2019 | 14/09/2019 | 14/09/2019 | 14/09/2019 | 14/09/2019 | 14/09/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | MEL-03-02 | MEL-03-01 | MEL-03-01 | MEL-03-03 | MEL-03-04 | MEL-03-05 | MEL-03-01 | MEL-03-01 | MEL-03-01 | MEL-03-02 | MEL-03-02 | MEL-03-03 | MEL-03-03 | MEL-03-04 | MEL-03-04 | MEL-03-05 | MEL-03-05 | MEL-03-01 | MEL-03-01 | MEL-03-04 | MEL-03-05 | MEL-03-01 | MEL-03-01 | MEL-03-02 | MEL-03-03 |
| FIELD_SDG | | L2314029 | B9J9536 | L2314029 | L2314029 | L2314029 | L2314029 | B9M7538 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | | B9N0057 | L2351036 | L2351036 | B9Q2056 | L2351036 | L2351036 | L2351036 |
| **Parameter** | **Unit** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **WQTC02-Conventional Parameters** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pH | pH units | 7.32 | 7.63 | 7.35 | 7.34 | 7.37 | 7.38 | 7.47 | 7.45 | - | 7.46 | - | 7.46 | - | 7.44 | - | 7.45 | - | - | 7.56 | 7.27 | 7.28 | 7.53 | 7.40 | 7.26 | 7.29 |
| Specific conductivity | umhos/cm | 69.0 | 71 | 67.8 | 68.1 | 68.2 | 68.0 | 73 | 72.8 | - | 73.1 | - | 73.2 | - | 72.9 | - | 72.8 | - | - | 73 | 110 | 83.5 | 74 | 84.6 | 73.5 | 72.8 |
| Hardness, as CaCO3 (D) | mg/L | - | 20.1 | - | - | - | - | 21.7 | - | - | - | - | - | - | - | - | - | - | - | 21.4 | - | - | 21.7 | - | - | - |
| Hardness, as CaCO3 (T) | mg/L | - | 21.3 | - | - | - | - | 21 | - | - | - | - | - | - | - | - | - | - | - | 20.7 | - | - | 21.5 | - | - | - |
| Hardness, as CaCO3 (N) | mg/L | 21.2 | - | 21.1 | 21.1 | 21.3 | 21.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hardness, as CaCO3 (N) | none | - | - | - | - | - | - | - | 21.0 | - | 21.3 | - | 21.3 | - | 21.5 | - | 20.9 | - | - | - | 23.1 | 23.8 | - | 22.0 | 22.3 | 22.0 |
| Total alkalinity, as CaCO3 | mg/L | 13.6 | 16 | 16.0 | 15.6 | 15.6 | 15.5 | 16 | 19.9 | - | 17.5 | - | 20.0 | - | 19.8 | - | 20.0 | - | - | 17 | 16.8 | 16.6 | 16 | 17.4 | 17.0 | 16.8 |
| Total dissolved solids | mg/L | 35.8\|47 | 50 | 34.1\|43 | 34.4\|45 | 34.3\|44 | 34.5\|41 | 55 | 37.3\|41 | - | 35.8\|40 | - | 37.2\|39 | - | 37.4\|39 | - | 37.2\|39 | - | - | 50 | 50.5\|120 | 42.4\|104 | 45 | 38.4\|114 | 36.7\|101 | 36.1\|98 |
| Total dissolved solids (calculated) | mg/L | 35.8 | - | 34.1 | 34.4 | 34.3 | 34.5 | - | 37.3 | - | 35.8 | - | 37.2 | - | 37.4 | - | 37.2 | - | - | - | 50.5 | 42.4 | - | 38.4 | 36.7 | 36.1 |
| Total suspended solids | mg/L | < 1.0 | < 1 | < 1.0 | < 1.0 | < 1.0 | 1.0 | 2 | < 1.0 | - | < 1.0 | - | < 1.0 | - | < 1.0 | - | < 1.0 | - | - | 1 | < 1.0 | < 1.0 | < 1 | < 1.0 | < 1.0 | < 1.0 |
| Total organic carbon | mg/L | 2.29 | 2.4 | 2.43 | 2.16 | 2.22 | 2.29 | 2.3 | 1.94 | 2.46 | 2.14 | 2.56 | 2.17 | 2.64 | 2.13 | 2.49 | 2.08 | 2.51 | - | 2.3 | 2.56 | 2.49 | 2.5 | 3.52 | 2.49 | 2.27 |
| Dissolved organic carbon | mg/L | 1.56 | 2.2 | 1.99 | 2.20 | 2.08 | 2.14 | 2.0 | 2.02 | 2.59 | 2.13 | 2.55 | 2.06 | 2.45 | 2.00 | 2.44 | 2.09 | 2.46 | - | 2.0 | 2.44 | 2.77 | 2.3 | 2.54 | 2.60 | 2.47 |
| Turbidity | NTU | 0.23 | 0.1 | 0.23 | 0.27 | 0.22 | 0.21 | < 0.1 | 0.24 | - | 0.22 | - | 0.28 | - | 0.25 | - | 0.25 | - | - | 0.1 | 0.26 | 0.29 | < 0.1 | 0.23 | 0.19 | 0.20 |
| Dissolved Oxygen | mg/L | - | 9.79 | - | - | - | - | 11.0 | - | - | - | - | - | - | - | - | - | - | - | 10.2 | - | - | 10.3 | - | - | - |
| **WQTC03-Major Ions** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bicarbonate | mg/L | 16.6 | - | 19.5 | 19.0 | 19.0 | 18.9 | - | 24.3 | - | 21.4 | - | 24.4 | - | 24.2 | - | 24.4 | - | - | - | 20.5 | 20.3 | - | 21.2 | 20.7 | 20.5 |
| Bicarbonate, as CaCO3 | mg/L | - | 16 | - | - | - | - | 16 | - | - | - | - | - | - | - | - | - | - | - | 17 | - | - | 16 | - | - | - |
| Calcium | mg/L | 6.69 | 6.39 | 6.64 | 6.64 | 6.69 | 6.60 | 6.81 | 6.55 | - | 6.70 | - | 6.73 | - | 6.77 | - | 6.55 | - | - | 6.75 | 6.98 | 7.12 | 6.82 | 6.94 | 6.97 | 6.96 |
| Carbonate | mg/L | < 0.60 | - | < 0.60 | < 0.60 | < 0.60 | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | - | - | - | < 0.60 | < 0.60 | - | < 0.60 | < 0.60 | < 0.60 |
| Carbonate, as CaCO3 | mg/L | - | < 1.0 | - | - | - | - | < 1.0 | - | - | - | - | - | - | - | - | - | - | - | < 1.0 | - | - | < 1.0 | - | - | - |
| Chloride | mg/L | 8.24 | 7.6 | 8.29 | 8.18 | 8.14 | 8.16 | 8.6 | 8.58 | - | 8.59 | - | 8.58 | - | 8.60 | - | 8.58 | - | - | 8.7 | 18.8 | 11.5 | 9.1 | 10.2 | 8.68 | 8.59 |
| Cyanide | mg/L | 0.0012 | < 0.0010\|< 0.0050 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010\|< 0.0050 | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | - | 0.0032\|< 0.0050 | < 0.0010 | < 0.0010 | < 0.0010\|< 0.0050 | < 0.0010 | < 0.0010 | < 0.0010 |
| Fluoride | mg/L | 0.025 | - | 0.026 | 0.025 | 0.025 | 0.025 | - | 0.027 | - | 0.027 | - | 0.027 | - | 0.027 | - | 0.027 | - | - | - | 0.027 | 0.026 | - | 0.026 | 0.027 | 0.026 |
| Hydroxide | mg/L | < 0.34 | - | < 0.34 | < 0.34 | < 0.34 | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | - | - | - | < 0.34 | < 0.34 | - | < 0.34 | < 0.34 | < 0.34 |
| Magnesium | mg/L | 1.10 | 1.00 | 1.11 | 1.11 | 1.11 | 1.12 | 1.14 | 1.12 | - | 1.11 | - | 1.10 | - | 1.12 | - | 1.11 | - | - | 1.12 | 1.39 | 1.46 | 1.13 | 1.14 | 1.17 | 1.11 |
| Potassium | mg/L | 0.892 | 0.804 | 0.908 | 0.901 | 0.912 | 0.912 | 0.856 | 0.910 | - | 0.896 | - | 0.887 | - | 0.900 | - | 0.897 | - | - | 0.853 | 0.969 | 1.01 | 0.889 | 0.898 | 0.907 | 0.885 |
| Sodium | mg/L | 4.26 | 4.00 | 4.36 | 4.28 | 4.38 | 4.52 | 4.40 | 4.51 | - | 4.34 | - | 4.34 | - | 4.48 | - | 4.47 | - | - | 4.31 | 7.08 | 7.17 | 4.47 | 4.83 | 5.19 | 4.90 |
| Sulphate | mg/L | 3.68 | 3.2 | 3.14 | 3.84 | 3.70 | 3.85 | 2.8 | 3.58 | - | 3.58 | - | 3.57 | - | 3.58 | - | 3.58 | - | - | 2.8 | 5.01 | 4.06 | 3.4 | 3.81 | 3.58 | 3.57 |
| Silica | mg/L | - | 0.16 | - | - | - | - | 0.22 | - | - | - | - | - | - | - | - | - | - | - | 0.17 | - | - | 0.18 | - | - | - |
| Reactive silica, as SiO2 | mg/L | - | - | - | - | - | - | - | - | 0.223 | - | 0.222 | - | 0.226 | - | 0.221 | - | 0.219 | - | - | - | - | - | - | - | - |
| Cyanide (free) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Cyanide (WAD) | mg/L | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | - | - | < 0.0010 | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 |
| Ion Ratio (+/-) | % | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 81.6 | - | - | - | - | - |
| Ion Ratio (+/-) | mg/L | Low EC | - | Low EC | Low EC | Low EC | Low EC | - | Low EC | - | Low EC | - | Low EC | - | Low EC | - | Low EC | - | - | - | - | Low EC | - | Low EC | Low EC | Low EC |
| **WQTC04-Nutrients and Chlorophyll a** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 0.627 | < 0.10 | < 0.0050 | 0.0163 | < 0.0050 | < 0.0050 | < 0.10 | 0.0096 | < 0.020 | 0.0166 | 0.026 | < 0.0050 | < 0.020 | < 0.0050 | < 0.020 | < 0.0050 | 0.023 | - | < 0.10 | 0.0423 | 0.0310 | < 0.10 | 0.0174 | < 0.0050 | < 0.0050 |
| Nitrite | mg/L | < 0.0010 | < 0.010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | - | < 0.010 | < 0.0010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Nitrate + nitrite | mg/L | 0.627 | < 0.10 | < 0.0051 | 0.0163 | < 0.0051 | < 0.0051 | < 0.10 | 0.0096 | < 0.070 | 0.0166 | < 0.070 | < 0.0051 | < 0.070 | < 0.0051 | < 0.070 | < 0.0051 | < 0.070 | - | < 0.10 | 0.0423 | 0.0310 | < 0.10 | 0.0174 | < 0.0051 | < 0.0051 |
| Total ammonia | mg/L | 0.0130 | < 0.050 | 0.0107 | < 0.0050 | 0.0067 | 0.0089 | 0.13 | 0.0206 | < 0.010 | 0.0168 | < 0.010 | < 0.0050 | 0.016 | 0.0154 | < 0.010 | 0.0214 | < 0.010 | - | < 0.050 | < 0.0050 | < 0.0050 | < 0.050 | 0.0107 | 0.0158 | 0.0092 |
| Total Kjeldahl nitrogen | mg/L | 0.169 | 0.14 | 0.190 | 0.131 | 0.157 | 0.141 | 0.19 | 0.139 | < 0.20\|< 0.20 | 0.157 | < 0.20\|< 0.20 | 0.139 | < 0.20\|< 0.20 | 0.168 | < 0.20\|< 0.20 | 0.194 | < 0.20\|< 0.20 | - | 0.18 | 0.175 | 0.175 | 0.16 | 0.191 | 0.194 | 0.191 |
| Total nitrogen | mg/L | - | - | - | - | - | - | - | - | < 0.20 | - | < 0.20 | - | < 0.20 | - | < 0.20 | - | < 0.20 | - | - | - | - | - | - | - | - |
| Total phosphorus | mg/L | < 0.050\|0.0024 | < 0.020 | < 0.050\|0.0025 | < 0.050\|0.0022 | < 0.050\|0.0019 | < 0.050\|0.0059 | < 0.020 | < 0.050\|0.0028 | 0.0101 | < 0.050\|0.0029 | 0.0053 | < 0.050\|0.0038 | 0.0139 | < 0.050\|0.0083 | 0.0120 | < 0.050\|0.0032 | 0.0133 | - | < 0.020 | < 0.050\|0.0022 | < 0.050\|0.0021 | < 0.020 | < 0.050\|0.0020 | < 0.050\|0.0019 | < 0.050\|0.0046 |
| Dissolved phosphorus | mg/L | < 0.050 | - | < 0.050 | < 0.050 | < 0.050 | < 0.050 | - | < 0.050 | 0.0095 | < 0.050 | 0.0080 | < 0.050 | 0.0138 | < 0.050 | 0.0201 | < 0.050 | 0.0200 | - | - | < 0.050 | < 0.050 | - | < 0.050 | < 0.050 | < 0.050 |
| Orthophosphate | mg/L | - | < 0.010 | - | - | - | - | < 0.010 | - | 0.0228 | - | < 0.0010 | - | 0.0073 | - | 0.0100 | - | 0.0103 | - | < 0.010 | - | - | < 0.010 | - | - | - |
| **WQTC06-Total Metals** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.0035 | 0.0049 | 0.0034 | 0.0047 | 0.0033 | 0.0034 | 0.0125 | 0.0037 | - | 0.0027 | - | 0.0038 | - | 0.0147 | - | 0.0039 | - | - | 0.0037 | 0.0054 | 0.0045 | 0.0066 | 0.0044 | 0.0068 | 0.0043 |
| Antimony | mg/L | < 0.000020 | < 0.00050 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.00050 | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | - | < 0.00050 | < 0.000020 | < 0.000020 | < 0.00050 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.000227 | 0.00020 | 0.000242 | 0.000227 | 0.000234 | 0.000233 | 0.00018 | 0.000227 | - | 0.000218 | - | 0.000191 | - | 0.000237 | - | 0.000200 | - | - | 0.00019 | 0.000208 | 0.000218 | 0.00020 | 0.000232 | 0.000210 | 0.000226 |
| Barium | mg/L | 0.00736 | 0.0074 | 0.00733 | 0.00750 | 0.00738 | 0.00759 | 0.0075 | 0.00694 | - | 0.00720 | - | 0.00775 | - | 0.00730 | - | 0.00759 | - | - | 0.0078 | 0.00712 | 0.00707 | 0.0075 | 0.00707 | 0.00719 | 0.00718 |
| Beryllium | mg/L | < 0.0000050 | < 0.00010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.00010 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.00010 | < 0.0000050 | < 0.0000050 | < 0.00010 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | < 0.0010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0010 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.0010 | < 0.0000050 | < 0.0000050 | < 0.0010 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | < 0.0050 | < 0.05 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.05 | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | - | < 0.05 | 0.0067 | < 0.0050 | < 0.05 | < 0.0050 | < 0.0050 | < 0.0050 |
| Cadmium | mg/L | < 0.0000050 | < 0.0000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000010 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.0000010 | < 0.0000050 | < 0.0000050 | < 0.0000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Calcium | mg/L | 6.82 | 6.77 | 6.83 | 6.83 | 6.86 | 6.70 | 6.63 | 6.45 | - | 6.60 | - | 6.57 | - | 6.31 | - | 6.71 | - | - | 6.52 | 7.24 | 7.08 | 6.72 | 6.93 | 7.03 | 6.89 |
| Cesium | mg/L | 0.0000077 | - | 0.0000068 | 0.0000077 | 0.0000077 | 0.0000076 | - | 0.0000080 | - | 0.0000063 | - | 0.0000085 | - | 0.0000097 | - | 0.0000076 | - | - | - | 0.0000097 | 0.0000083 | - | 0.0000088 | 0.0000083 | 0.0000099 |
| Chromium | mg/L | < 0.00010 | < 0.0010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.0010 | 0.00040 | - | < 0.00010 | - | 0.00048 | - | < 0.00010 | - | < 0.00010 | - | - | < 0.0010 | 0.00037 | < 0.00010 | < 0.0010 | 0.00021 | 0.00037 | 0.00022 |
| Cobalt | mg/L | 0.0000133 | < 0.00020 | 0.0000130 | 0.0000143 | 0.0000152 | 0.0000127 | < 0.00020 | 0.0000115 | - | 0.0000127 | - | 0.0000116 | - | 0.0000173 | - | 0.0000132 | - | - | < 0.00020 | 0.0000118 | 0.0000134 | < 0.00020 | 0.0000125 | 0.0000116 | 0.0000099 |
| Copper | mg/L | 0.000657 | 0.00062 | 0.000646 | 0.000615 | 0.000660 | 0.000658 | 0.00062 | 0.000662 | - | 0.000670 | - | 0.000653 | - | 0.00101 | - | 0.000684 | - | - | 0.00060 | 0.000941 | 0.00111 | 0.00080 | 0.00219 | 0.00119 | 0.00235 |
| Gallium | mg/L | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | - | - | < 0.000050 | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0145 | 0.014 | 0.0144 | 0.0151 | 0.0150 | 0.0140 | 0.014 | 0.0151 | - | 0.0127 | - | 0.0124 | - | 0.0273 | - | 0.0127 | - | - | 0.011 | 0.0116 | 0.0109 | 0.014 | 0.0103 | 0.0126 | 0.0097 |
| Lanthanum | mg/L | 0.000019 | - | 0.000021 | 0.000022 | 0.000022 | 0.000024 | - | 0.000021 | - | 0.000015 | - | 0.000017 | - | 0.000066 | - | 0.000020 | - | - | - | 0.000025 | 0.000026 | - | 0.000022 | 0.000023 | 0.000021 |
| Lead | mg/L | 0.000015 | < 0.00020 | 0.000015 | < 0.000010 | 0.000020 | 0.000010 | < 0.00020 | 0.000013 | - | 0.000014 | - | < 0.000010 | - | 0.000312 | - | 0.000010 | - | - | < 0.00020 | 0.000027 | 0.000011 | < 0.00020 | 0.000011 | 0.000012 | < 0.000010 |
| Lithium | mg/L | 0.00064 | < 0.0020 | 0.00063 | 0.00064 | 0.00063 | 0.00058 | < 0.0020 | 0.00063 | - | 0.00063 | - | 0.00059 | - | 0.00064 | - | 0.00060 | - | - | < 0.0020 | 0.00079 | 0.00070 | < 0.0020 | 0.00072 | 0.00070 | 0.00068 |
| Magnesium | mg/L | 1.14 | 1.06 | 1.14 | 1.15 | 1.14 | 1.10 | 1.07 | 1.08 | - | 1.09 | - | 1.06 | - | 1.10 | - | 1.07 | - | - | 1.06 | 1.72 | 1.17 | 1.14 | 1.28 | 1.20 | 1.17 |
| Manganese | mg/L | 0.00271 | 0.0026 | 0.00267 | 0.00276 | 0.00269 | 0.00258 | 0.0025 | 0.00267 | - | 0.00278 | - | 0.00287 | - | 0.00305 | - | 0.00264 | - | - | 0.0024 | 0.00213 | 0.00197 | 0.0022 | 0.00209 | 0.00220 | 0.00201 |
| Mercury | mg/L | < 0.00000050 | 0.00001\|< 0.00005 | 0.00000064 | < 0.00000050 | < 0.00000050 | 0.00000055 | 0.00001\|< 0.00005 | 0.00000088 | - | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | - | - | 0.00001\|< 0.00005 | < 0.00000050 | < 0.00000050 | < 0.00001 | < 0.00000050 | < 0.00000050 | < 0.00000050 |
| Molybdenum | mg/L | 0.000063 | < 0.0010 | 0.000069 | 0.000069 | 0.000058 | 0.000063 | < 0.0010 | 0.000066 | - | 0.000061 | - | 0.000063 | - | 0.000072 | - | 0.000064 | - | - | < 0.0010 | 0.000088 | 0.000081 | < 0.0010 | 0.000079 | 0.000077 | 0.000082 |
| Nickel | mg/L | 0.000415 | < 0.0010 | 0.000403 | 0.000412 | 0.000407 | 0.000371 | < 0.0010 | 0.000355 | - | 0.000359 | - | 0.000375 | - | 0.000418 | - | 0.000379 | - | - | < 0.0010 | 0.000390 | 0.000374 | < 0.0010 | 0.000379 | 0.000409 | 0.000374 |
| Niobium | mg/L | 0.00010\|< 0.00010 | - | 0.00010\|< 0.00010 | 0.00010\|< 0.00010 | 0.00010\|< 0.00010 | 0.00010\|< 0.00010 | - | 0.00010\|< 0.00010 | - | 0.00010\|< 0.00010 | - | 0.00010\|< 0.00010 | - | 0.00010\|< 0.00010 | - | 0.00010\|< 0.00010 | - | - | - | 0.00010\|< 0.00010 | 0.00010\|< 0.00010 | - | 0.00010\|< 0.00010 | 0.00010\|< 0.00010 | 0.00010\|< 0.00010 |
| Potassium | mg/L | 0.925 | 0.858 | 0.928 | 0.934 | 0.936 | 0.895 | 0.88 | 0.889 | - | 0.882 | - | 0.899 | - | 0.896 | - | 0.904 | - | - | 0.826 | 1.10 | 0.917 | 0.882 | 0.951 | 0.936 | 0.918 |
| Rhenium | mg/L | 0000050\|< 0.00005 | - | 0000050\|< 0.00005 | 0000050\|< 0.00005 | 0000050\|< 0.00005 | 0000050\|< 0.00005 | 0000050\|< 0.00005 | - | 0000050\|< 0.00005 | - | 0000050\|< 0.00005 | - | 0000050\|< 0.00005 | - | 0000050\|< 0.00005 | - | 0000050\|< 0.00005 | - | - | - | 0000050\|< 0.00005 | 0000050\|< 0.00005 | - | 0000050\|< 0.00005 | 0000050\|< 0.00005 | 0000050\|< 0.00005 |
| Rubidium | mg/L | 0.00127 | - | 0.00128 | 0.00128 | 0.00128 | 0.00128 | - | 0.00128 | - | 0.00130 | - | 0.00129 | - | 0.00131 | - | 0.00131 | - | - | - | 0.00132 | 0.00130 | - | 0.00132 | 0.00128 | 0.00132 |
| Selenium | mg/L | < 0.000040 | < 0.00010 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.00010 | < 0.000040 | - | < 0.000040 | - | 0.000052 | - | < 0.000040 | - | 0.000044 | - | - | < 0.00010 | < 0.000040 | < 0.000040 | < 0.00010 | < 0.000040 | < 0.000040 | 0.000044 |
| Silicon | mg/L | 0.123 | 0.106 | 0.117 | 0.117 | 0.119 | 0.102 | 0.11 | 0.119 | - | 0.116 | - | 0.124 | - | 0.142 | - | 0.098 | - | - | 0.106 | 0.120 | 0.108 | 0.109 | 0.117 | 0.111 | 0.121 |
| Silver | mg/L | < 0.0000050 | < 0.000020 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.000020 | < 0.0000050 | - | 0.0000069 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.000020 | < 0.0000050 | < 0.0000050 | < 0.000020 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Sodium | mg/L | 4.35 | 4.21 | 4.48 | 4.46 | 4.51 | 4.40 | 4.04 | 4.41 | - | 4.44 | - | 4.28 | - | 4.54 | - | 4.29 | - | - | 4.04 | 9.63 | 5.03 | 4.49 | 6.10 | 5.15 | 5.04 |
| Strontium | mg/L | 0.0314 | 0.0320 | 0.0332 | 0.0328 | 0.0336 | 0.0301 | 0.0309 | 0.0349 | - | 0.0348 | - | 0.0331 | - | 0.0347 | - | 0.0319 | - | - | 0.0304 | 0.0365 | 0.0352 | 0.0316 | 0.0346 | 0.0346 | 0.0338 |
| Sulphur | mg/L | 1.40 | < 3 | 1.16 | 1.18 | 1.24 | 1.07 | < 3 | 1.30 | - | 1.11 | - | 1.30 | - | 1.20 | - | 0.99 | - | - | < 3 | 1.67 | 1.38 | < 3 | 1.43 | 1.42 | 1.63 |
| Tantalum | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | - | - | < 0.00010 | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | - | - | < 0.000020 | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000010 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.0000010 | < 0.0000050 | < 0.0000050 | < 0.0000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | - | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | 0.000036 | < 0.0050 | 0.000047 | < 0.000020 | 0.000048 | 0.000028 | < 0.0050 | 0.000025 | - | 0.000033 | - | < 0.000020 | - | 0.000062 | - | 0.000044 | - | - | < 0.0050 | 0.000028 | 0.000038 | < 0.0050 | < 0.000020 | < 0.000020 | < 0.000020 |
| Titanium | mg/L | 0.000111 | < 0.0050 | 0.000138 | 0.000226 | 0.000115 | 0.000074 | < 0.0050 | 0.000212 | - | 0.000094 | - | 0.000141 | - | 0.00115 | - | 0.000146 | - | - | < 0.0050 | < 0.00015 | 0.000080 | < 0.0050 | 0.000151 | < 0.00020 | < 0.00015 |
| Tungsten | mg/L | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | - | - | < 0.000010 | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.0000152 | < 0.00010 | 0.0000148 | 0.0000144 | 0.0000139 | 0.0000138 | < 0.00010 | 0.0000151 | - | 0.0000137 | - | 0.0000146 | - | 0.0000163 | - | 0.0000167 | - | - | < 0.00010 | 0.0000179 | 0.0000174 | < 0.00010 | 0.0000164 | 0.0000175 | 0.0000151 |
| Vanadium | mg/L | < 0.000050 | < 0.0050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.0050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | 0.000079 | - | < 0.000050 | - | - | < 0.0050 | < 0.000050 | < 0.000050 | < 0.0050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | 0.0000055 | - | < 0.0000050 | < 0.0000050 | 0.0000056 | 0.0000077 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | 0.0000149 | - | < 0.0000050 | - | - | - | < 0.0000050 | 0.0000052 | - | < 0.0000050 | 0.0000050 | 0.0000050 |
| Zinc | mg/L | 0.00097 | < 0.0050 | 0.00092 | < 0.00050 | 0.00090 | < 0.00050 | < 0.0050 | < 0.00050 | - | 0.00056 | - | < 0.00050 | - | 0.00053 | - | 0.00066 | - | - | < 0.0050 | 0.00067 | < 0.00050 | < 0.0050 | 0.00050 | < 0.00050 | < 0.00050 |
| Zirconium | mg/L | < 0.000010 | < 0.00010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.00010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | - | < 0.00010 | < 0.000010 | < 0.000010 | < 0.00010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC07-Dissolved Metals** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.0037 | < 0.0030 | 0.0046 | 0.0030 | 0.0021 | 0.0031 | 0.0035 | 0.0014 | - | 0.0018 | - | 0.0018 | - | 0.0014 | - | 0.0017 | - | - | < 0.0030 | 0.0021 | 0.0019 | 0.0035 | 0.0020 | 0.0022 | 0.0023 |
| Antimony | mg/L | < 0.000020 | < 0.00050 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.00050 | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | - | < 0.00050 | < 0.000020 | < 0.000020 | < 0.00050 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.000173 | 0.00020 | 0.000180 | 0.000190 | 0.000211 | 0.000200 | 0.00021 | 0.000235 | - | 0.000214 | - | 0.000199 | - | 0.000207 | - | 0.000193 | - | - | 0.00018 | 0.000226 | 0.000218 | 0.00021 | 0.000213 | 0.000196 | 0.000204 |

Appendix C3 Table: MEL-03 laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 13/07/2019 | 14/07/2019 | 14/07/2019 | 14/07/2019 | 14/07/2019 | 14/07/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 | 14/08/2019 | 14/08/2019 | 14/09/2019 | 14/09/2019 | 14/09/2019 | 14/09/2019 | 14/09/2019 | 14/09/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | MEL-03-02 | MEL-03-01 | MEL-03-01 | MEL-03-03 | MEL-03-04 | MEL-03-05 | MEL-03-01 | MEL-03-01 | MEL-03-01 | MEL-03-02 | MEL-03-02 | MEL-03-03 | MEL-03-03 | MEL-03-04 | MEL-03-04 | MEL-03-05 | MEL-03-05 | MEL-03-01 | MEL-03-01 | MEL-03-04 | MEL-03-05 | MEL-03-01 | MEL-03-01 | MEL-03-02 | MEL-03-03 |
| FIELD_SDG | | L2314029 | B9J9536 | L2314029 | L2314029 | L2314029 | L2314029 | B9M7538 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | L2330132 | L2330135 | | B9N0057 | L2351036 | L2351036 | B9Q2056 | L2351036 | L2351036 | L2351036 |
| **Parameter** | **Unit** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barium | mg/L | 0.00726 | 0.0072 | 0.00714 | 0.00735 | 0.00723 | 0.00720 | 0.0073 | 0.00695 | - | 0.00722 | - | 0.00743 | - | 0.00710 | - | 0.00719 | - | - | 0.0073 | 0.00691 | 0.00666 | 0.0073 | 0.00680 | 0.00684 | 0.00688 |
| Beryllium | mg/L | < 0.0000050 | < 0.00010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.00010 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.00010 | < 0.0000050 | < 0.0000050 | < 0.00010 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | < 0.0010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0010 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.0010 | < 0.0000050 | < 0.0000050 | < 0.0010 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | < 0.0050 | < 0.05 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.05 | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | - | < 0.05 | 0.0052 | 0.0056 | < 0.05 | < 0.0050 | < 0.0050 | < 0.0050 |
| Cadmium | mg/L | < 0.0000050 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.000010 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.000010 | < 0.0000050 | 0.0000052 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Cesium | mg/L | 0.0000084 | - | 0.0000070 | 0.0000089 | 0.0000070 | 0.0000070 | - | 0.0000085 | - | 0.0000085 | - | 0.0000066 | - | 0.0000076 | - | 0.0000073 | - | - | - | 0.0000095 | 0.0000107 | - | 0.0000083 | 0.0000074 | 0.0000100 |
| Chromium | mg/L | 0.00042 | < 0.0010 | < 0.00010 | 0.00045 | 0.00042 | 0.00049 | < 0.0010 | 0.00048 | - | < 0.00010 | - | 0.00049 | - | < 0.00010 | - | < 0.00010 | - | - | < 0.0010 | < 0.00010 | 0.00016 | < 0.0010 | 0.00024 | 0.00026 | 0.00020 |
| Cobalt | mg/L | 0.0000089 | < 0.00020 | 0.0000077 | 0.0000061 | 0.0000064 | 0.0000088 | < 0.00020 | 0.0000063 | - | 0.0000099 | - | < 0.0000050 | - | < 0.0000050 | - | 0.0000054 | - | - | < 0.00020 | 0.0000055 | 0.0000057 | < 0.00020 | 0.0000057 | < 0.0000050 | 0.0000059 |
| Copper | mg/L | 0.000863 | 0.00062 | 0.000616 | 0.000803 | 0.000781 | 0.000861 | 0.00058 | 0.000683 | - | 0.000677 | - | 0.000614 | - | 0.000626 | - | 0.000627 | - | - | 0.00056 | 0.000694 | 0.00110 | 0.00066 | 0.000707 | 0.000768 | 0.000640 |
| Gallium | mg/L | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | - | - | < 0.000050 | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0052 | 0.0059 | 0.0055 | 0.0055 | 0.0053 | 0.0083 | < 0.0050 | 0.0040 | - | 0.0063 | - | 0.0036 | - | 0.0031 | - | 0.0040 | - | - | < 0.0050 | 0.0038 | 0.0039 | < 0.0050 | 0.0039 | 0.0036 | 0.0030 |
| Lanthanum | mg/L | 0.000016 | - | 0.000013 | 0.000015 | 0.000014 | 0.000016 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | - | - | 0.000012 | 0.000012 | - | 0.000011 | 0.000013 | 0.000012 |
| Lead | mg/L | < 0.000010 | < 0.00020 | < 0.000010 | 0.000012 | < 0.000010 | < 0.000010 | < 0.00020 | < 0.000010 | - | 0.000015 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | - | < 0.00020 | < 0.000010 | < 0.000010 | < 0.00020 | < 0.000010 | < 0.000010 | < 0.000010 |
| Lithium | mg/L | 0.00059 | < 0.0020 | 0.00060 | 0.00060 | 0.00061 | 0.00060 | < 0.0020 | 0.00061 | - | 0.00062 | - | 0.00060 | - | 0.00064 | - | 0.00061 | - | - | < 0.0020 | 0.00071 | 0.00075 | < 0.0020 | 0.00070 | 0.00068 | 0.00067 |
| Manganese | mg/L | 0.00156 | 0.0015 | 0.00151 | 0.00161 | 0.00151 | 0.00142 | < 0.0010 | 0.000490 | - | 0.000627 | - | 0.000512 | - | 0.000495 | - | 0.000522 | - | - | < 0.0010 | 0.000286 | 0.000324 | < 0.0010 | 0.000266 | 0.000328 | 0.000237 |
| Mercury | mg/L | < 0.00000050 | - | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | - | < 0.00000050 | - | - | - | < 0.00000050 | < 0.00000050 | < 0.00001 | < 0.00000050 | 0.00000062 | < 0.00000050 |
| Molybdenum | mg/L | 0.000070 | < 0.0010 | 0.000066 | 0.000069 | 0.000070 | 0.000067 | < 0.0010 | 0.000149 | - | 0.000081 | - | 0.000080 | - | 0.000081 | - | 0.000068 | - | - | < 0.0010 | 0.000086 | 0.000085 | < 0.0010 | 0.000079 | 0.000077 | 0.000078 |
| Nickel | mg/L | 0.000442 | < 0.0010 | 0.000394 | 0.000415 | 0.000421 | 0.000441 | < 0.0010 | 0.000385 | - | 0.000373 | - | 0.000364 | - | 0.000387 | - | 0.000348 | - | - | < 0.0010 | 0.000342 | 0.000362 | < 0.0010 | 0.000342 | 0.000381 | 0.000334 |
| Niobium | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | - | - | < 0.00010 | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 |
| Rhenium | mg/L | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | - | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Rubidium | mg/L | 0.00122 | - | 0.00123 | 0.00125 | 0.00124 | 0.00126 | - | 0.00135 | - | 0.00131 | - | 0.00134 | - | 0.00131 | - | 0.00129 | - | - | - | 0.00136 | 0.00133 | - | 0.00132 | 0.00133 | 0.00127 |
| Selenium | mg/L | < 0.000040 | < 0.00010 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.00010 | < 0.000040 | - | < 0.000040 | - | < 0.000040 | - | 0.000044 | - | 0.000041 | - | - | < 0.00010 | < 0.000040 | < 0.000040 | < 0.00010 | < 0.000040 | < 0.000040 | 0.000046 |
| Silicon | mg/L | 0.106 | < 0.1 | 0.109 | 0.111 | 0.109 | 0.106 | 0.101 | 0.109 | - | 0.109 | - | 0.109 | - | 0.110 | - | 0.104 | - | - | 0.102 | 0.112 | 0.113 | < 0.1 | 0.110 | 0.108 | 0.108 |
| Silver | mg/L | < 0.0000050 | < 0.000020 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.000020 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.000020 | < 0.0000050 | < 0.0000050 | < 0.000020 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Strontium | mg/L | 0.0326 | 0.0295 | 0.0318 | 0.0321 | 0.0326 | 0.0318 | 0.0313 | 0.0367 | - | 0.0366 | - | 0.0313 | - | 0.0353 | - | 0.0355 | - | - | 0.0306 | 0.0386 | 0.0375 | 0.0320 | 0.0368 | 0.0357 | 0.0357 |
| Sulphur | mg/L | 1.15 | < 3.0 | 1.16 | 1.23 | 1.12 | 1.11 | < 3.0 | 1.08 | - | 1.19 | - | 1.11 | - | 1.21 | - | 1.20 | - | - | < 3.0 | 1.64 | 1.50 | < 3.0 | 1.24 | 1.44 | 1.38 |
| Tantalum | mg/L | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | - | - | < 0.00010 | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | - | - | < 0.000020 | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.000010 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.000010 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | - | < 0.0000050 | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | 0.000026 | < 0.0050 | 0.000049 | 0.000051 | 0.000025 | 0.000027 | < 0.0050 | 0.000024 | - | 0.000080 | - | < 0.000020 | - | 0.000035 | - | 0.000033 | - | - | < 0.0050 | < 0.000020 | < 0.000020 | < 0.0050 | < 0.000020 | 0.000027 | < 0.000020 |
| Titanium | mg/L | < 0.000050 | < 0.0050 | < 0.000050 | < 0.000050 | 0.000052 | 0.000057 | < 0.0050 | < 0.000050 | - | 0.000077 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | - | < 0.0050 | < 0.000050 | 0.000054 | < 0.0050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Tungsten | mg/L | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | - | - | < 0.000010 | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.0000134 | < 0.00010 | 0.0000136 | 0.0000130 | 0.0000129 | 0.0000147 | < 0.00010 | 0.0000142 | - | 0.0000129 | - | 0.0000148 | - | 0.0000133 | - | 0.0000137 | - | - | < 0.00010 | 0.0000153 | 0.0000153 | < 0.00010 | 0.0000146 | 0.0000154 | 0.0000134 |
| Vanadium | mg/L | < 0.000050 | < 0.0050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.0050 | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | - | < 0.0050 | < 0.000050 | < 0.000050 | < 0.0050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | 0.0000057 | - | < 0.0000050 | 0.0000061 | < 0.0000050 | 0.0000054 | - | < 0.0000050 | - | 0.0000065 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | - | - | 0.0000055 | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Zinc | mg/L | 0.00108 | < 0.0050 | 0.00056 | 0.00102 | 0.00062 | 0.00052 | < 0.0050 | 0.00057 | - | 0.00276 | - | 0.00052 | - | < 0.00050 | - | < 0.00050 | - | - | < 0.0050 | 0.00114 | 0.00080 | < 0.0050 | < 0.00050 | 0.00050 | < 0.00050 |
| Zirconium | mg/L | < 0.000010 | < 0.00010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.00010 | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | - | < 0.00010 | < 0.000010 | < 0.000010 | < 0.00010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC08-Volatile Organics** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | mg/L | - | < 0.00020 | - | - | - | - | < 0.00020 | - | - | - | - | - | - | - | - | - | - | - | < 0.00020 | - | - | < 0.00020 | - | - | - |
| Ethylbenzene | mg/L | - | < 0.00020 | - | - | - | - | < 0.00020 | - | - | - | - | - | - | - | - | - | - | - | < 0.00020 | - | - | < 0.00020 | - | - | - |
| Toluene | mg/L | - | < 0.00020 | - | - | - | - | < 0.00020 | - | - | - | - | - | - | - | - | - | - | - | < 0.00020 | - | - | < 0.00020 | - | - | - |
| Xylenes | mg/L | - | < 0.00040 | - | - | - | - | < 0.00040 | - | - | - | - | - | - | - | - | - | - | - | < 0.00040 | - | - | < 0.00040 | - | - | - |
| m,p-Xylenes | mg/L | - | < 0.00040 | - | - | - | - | < 0.00040 | - | - | - | - | - | - | - | - | - | - | - | < 0.00040 | - | - | < 0.00040 | - | - | - |
| o-Xylene | mg/L | - | < 0.00020 | - | - | - | - | < 0.00020 | - | - | - | - | - | - | - | - | - | - | - | < 0.00020 | - | - | < 0.00020 | - | - | - |
| F1 (C6-C10)-BTEX | mg/L | - | < 0.025 | - | - | - | - | < 0.025 | - | - | - | - | - | - | - | - | - | - | - | < 0.025 | - | - | < 0.025 | - | - | - |
| F1 (C6-C10) | mg/L | - | < 0.025 | - | - | - | - | < 0.025 | - | - | - | - | - | - | - | - | - | - | - | < 0.025 | - | - | < 0.025 | - | - | - |
| F2 (C10-C16) | mg/L | - | < 0.1 | - | - | - | - | < 0.1 | - | - | - | - | - | - | - | - | - | - | - | < 0.1 | - | - | < 0.1 | - | - | - |
| F3 (C16-C34) | mg/L | - | < 0.2 | - | - | - | - | < 0.2 | - | - | - | - | - | - | - | - | - | - | - | < 0.2 | - | - | < 0.2 | - | - | - |
| F4 (C34-C50) | mg/L | - | < 0.2 | - | - | - | - | < 0.2 | - | - | - | - | - | - | - | - | - | - | - | < 0.2 | - | - | < 0.2 | - | - | - |
| Reached baseline at C50 | mg/L | - | YES | - | - | - | - | YES | - | - | - | - | - | - | - | - | - | - | - | YES | - | - | YES | - | - | - |
| 1,2-Dichloroethane-d4 | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ethylbenzene-d10 | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Bromofluorobenzene | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1,4-Difluorobenzene | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| o-Terphenyl | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **WQTC12-Radionuclides** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Radium-226 | Bq/l | < 0.0065 | < 0.0050 | < 0.0072 | < 0.0062 | 0.0059 | < 0.0077 | < 0.0050 | < 0.0055 | - | < 0.0068 | - | < 0.0048 | - | < 0.0070 | - | 0.0073 | - | - | < 0.0050 | < 0.0081 | < 0.0078 | < 0.0050 | < 0.0090 | < 0.0073 | < 0.0092 |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Appendix C3 Table: MEL-04 and MEL-05 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 14/08/2019 | MEL-04-01 | 0-1 m | 7.3 | 71.4 | 11.54 | 11.25 | 104.9 |
| 14/08/2019 | MEL-04-01 | 1-2 m | 7.3 | 71.4 | 11.54 | 11.24 | 104.7 |
| 14/08/2019 | MEL-04-01 | 2-3 m | 7.28 | 71.3 | 11.54 | 11.25 | 104.8 |
| 14/08/2019 | MEL-04-01 | 3-4 m | 7.3 | 71.3 | 11.51 | 11.3 | 105.2 |
| 14/08/2019 | MEL-04-01 | 4-5 m | 7.3 | 71.4 | 11.51 | 11.33 | 105.6 |
| 14/08/2019 | MEL-04-01 | 5-6 m | 7.3 | 71.3 | 11.48 | 11.34 | 105.5 |
| 14/08/2019 | MEL-04-01 | 6-7 m | 7.31 | 71.3 | 11.47 | 11.33 | 105.5 |
| 14/08/2019 | MEL-04-01 | 7-8 m | 7.31 | 71.6 | 11.46 | 11.33 | 105.4 |
| | | | | | | | |
| 14/08/2019 | MEL-04-04 | 0-1 m | 7.34 | 71.9 | 11.6 | 11.22 | 104.7 |
| 14/08/2019 | MEL-04-04 | 1-2 m | 7.33 | 71.5 | 11.59 | 11.21 | 104.6 |
| 14/08/2019 | MEL-04-04 | 2-3 m | 7.31 | 71.5 | 11.57 | 11.21 | 104.6 |
| 14/08/2019 | MEL-04-04 | 3-4 m | 7.31 | 71.5 | 11.58 | 11.22 | 104.7 |
| 14/08/2019 | MEL-04-04 | 4-5 m | 7.31 | 71.5 | 11.57 | 11.23 | 104.8 |
| 14/08/2019 | MEL-04-04 | 5-6 m | 7.31 | 71.5 | 11.56 | 11.25 | 104.9 |
| 14/08/2019 | MEL-04-04 | 6-7 m | 7.31 | 71.4 | 11.56 | 11.26 | 104.9 |
| 14/08/2019 | MEL-04-04 | 7-8 m | 7.32 | 71.5 | 11.45 | 11.28 | 105.2 |
| 14/08/2019 | MEL-04-04 | 8-9 m | 7.33 | 71.5 | 11.43 | 11.28 | 104.9 |
| | | | | | | | |
| 14/08/2019 | MEL-04-05 | 0-1 m | 7.07 | 71.5 | 11.52 | 11.26 | 104.9 |
| 14/08/2019 | MEL-04-05 | 1-2 m | 7.22 | 71.6 | 11.51 | 11.23 | 104.6 |
| 14/08/2019 | MEL-04-05 | 2-3 m | 7.23 | 71.5 | 11.5 | 11.23 | 104.5 |
| 14/08/2019 | MEL-04-05 | 3-4 m | 7.25 | 71.4 | 11.48 | 11.24 | 104.6 |
| 14/08/2019 | MEL-04-05 | 4-5 m | 7.26 | 71.4 | 11.47 | 11.24 | 104.6 |
| 14/08/2019 | MEL-04-05 | 5-6 m | 7.27 | 71.4 | 11.47 | 11.25 | 104.6 |
| 14/08/2019 | MEL-04-05 | 6-7 m | 7.28 | 71.2 | 11.46 | 11.26 | 104.7 |
| 14/08/2019 | MEL-04-05 | 7-8 m | 7.28 | 71.4 | 11.46 | 11.25 | 104.7 |
| 14/08/2019 | MEL-04-05 | 8-9 m | 7.29 | 71.5 | 11.46 | 11.25 | 104.6 |
| | | | | | | | |
| 14/08/2019 | MEL-04-03 | 0-1 m | 7.36 | 71.1 | 11.61 | 11.19 | 104.5 |
| 14/08/2019 | MEL-04-03 | 1-1 m | 7.34 | 71.3 | 11.48 | 11.2 | 104.4 |
| 14/08/2019 | MEL-04-03 | 1-2 m | 7.32 | 71.3 | 11.57 | 11.2 | 104.4 |
| 14/08/2019 | MEL-04-03 | 2-3 m | 7.32 | 71.3 | 11.55 | 11.2 | 104.4 |
| 14/08/2019 | MEL-04-03 | 3-4 m | 7.32 | 71.4 | 11.54 | 11.2 | 104.4 |
| 14/08/2019 | MEL-04-03 | 4-5 m | 7.33 | 71.4 | 11.53 | 11.2 | 104.4 |
| 14/08/2019 | MEL-04-03 | 5-6 m | 7.32 | 71.4 | 11.52 | 11.2 | 104.4 |
| 14/08/2019 | MEL-04-03 | 6-7 m | 7.32 | 71.4 | 11.51 | 11.21 | 104.4 |
| 14/08/2019 | MEL-04-03 | 7-8 m | 7.33 | 71.4 | 11.51 | 11.21 | 104.4 |
| | | | | | | | |
| 14/08/2019 | MEL-04-02 | 0-1 m | 7.37 | 71.5 | 11.67 | 11.23 | 105 |
| 14/08/2019 | MEL-04-02 | 10-11 m | 7.35 | 71.6 | 11.35 | 11.21 | 104 |
| 14/08/2019 | MEL-04-02 | 1-2 m | 7.36 | 71.5 | 11.57 | 11.22 | 104.7 |
| 14/08/2019 | MEL-04-02 | 2-3 m | 7.35 | 71.5 | 11.51 | 11.21 | 104.5 |
| 14/08/2019 | MEL-04-02 | 3-4 m | 7.35 | 71.5 | 11.47 | 11.2 | 104.3 |
| 14/08/2019 | MEL-04-02 | 4-5 m | 7.34 | 71.5 | 11.44 | 11.21 | 104.2 |
| 14/08/2019 | MEL-04-02 | 5-6 m | 7.35 | 71.5 | 11.43 | 11.21 | 104.3 |
| 14/08/2019 | MEL-04-02 | 6-7 m | 7.35 | 71.4 | 11.43 | 11.22 | 104.3 |
| 14/08/2019 | MEL-04-02 | 7-8 m | 7.35 | 71.6 | 11.41 | 11.22 | 104.3 |
| 14/08/2019 | MEL-04-02 | 8-9 m | 7.35 | 71.6 | 11.39 | 11.22 | 104.3 |
| 14/08/2019 | MEL-04-02 | 9-10 m | 7.35 | 71.5 | 11.37 | 11.22 | 104.2 |
| | | | | | | | |
| 16/08/2019 | MEL-05-05 | 0-1 m | 7.64 | 76 | 12.13 | 10.71 | 103.1 |
| 16/08/2019 | MEL-05-05 | 1-1 m | 7.65 | 76 | 12.08 | 10.84 | 104.2 |
| 16/08/2019 | MEL-05-05 | 1-2 m | 7.67 | 76.1 | 12.2 | 10.85 | 104.5 |
| 16/08/2019 | MEL-05-05 | 2-3 m | 7.66 | 76.3 | 12.02 | 10.9 | 104.5 |
| 16/08/2019 | MEL-05-05 | 3-4 m | 7.66 | 76.1 | 11.97 | 10.92 | 104.6 |
| 16/08/2019 | MEL-05-05 | 4-5 m | 7.66 | 76.2 | 11.95 | 10.93 | 104.7 |
| 16/08/2019 | MEL-05-05 | 5-6 m | 7.66 | 76.2 | 11.93 | 10.95 | 104.9 |
| 16/08/2019 | MEL-05-05 | 6-7 m | 7.66 | 76.2 | 11.92 | 10.97 | 105 |
| 16/08/2019 | MEL-05-05 | 7-8 m | 7.66 | 76.2 | 11.88 | 10.98 | 105 |
| 16/08/2019 | MEL-05-05 | 8-9 m | 7.65 | 76.2 | 11.87 | 10.98 | 105 |
| | | | | | | | |
| 16/08/2019 | MEL-05-04 | 0-1 m | 7.66 | 76.3 | 12.29 | 10.82 | 104.5 |
| 16/08/2019 | MEL-05-04 | 10-11 m | 7.56 | 76.4 | 11.74 | 10.85 | 103.3 |
| 16/08/2019 | MEL-05-04 | 1-1 m | 7.65 | 76.2 | 12.24 | 10.83 | 104.4 |
| 16/08/2019 | MEL-05-04 | 1-2 m | 7.63 | 76.3 | 12.2 | 10.84 | 104.4 |

Appendix C3 Table: MEL-04 and MEL-05 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 16/08/2019 | MEL-05-04 | 2-3 m | 7.62 | 76.3 | 12.06 | 10.87 | 104.4 |
| 16/08/2019 | MEL-05-04 | 3-4 m | 7.61 | 76.2 | 11.96 | 10.89 | 104.3 |
| 16/08/2019 | MEL-05-04 | 4-5 m | 7.61 | 76.1 | 11.95 | 10.88 | 104.2 |
| 16/08/2019 | MEL-05-04 | 5-6 m | 7.6 | 76.2 | 11.94 | 10.88 | 104.1 |
| 16/08/2019 | MEL-05-04 | 6-7 m | 7.6 | 76.1 | 11.86 | 10.89 | 104 |
| 16/08/2019 | MEL-05-04 | 7-8 m | 7.59 | 76.2 | 11.82 | 10.88 | 103.9 |
| 16/08/2019 | MEL-05-04 | 8-9 m | 7.59 | 76.1 | 11.81 | 10.88 | 103.8 |
| 16/08/2019 | MEL-05-04 | 9-10 m | 7.58 | 76.1 | 11.77 | 10.86 | 103.6 |
| | | | | | | | |
| 16/08/2019 | MEL-05-03 | 0-1 m | 7.65 | 76.3 | 12.43 | 10.75 | 104.2 |
| 16/08/2019 | MEL-05-03 | 1-1 m | 7.63 | 76.3 | 12.41 | 10.78 | 104.3 |
| 16/08/2019 | MEL-05-03 | 1-2 m | 7.62 | 76.3 | 12.38 | 10.79 | 104.4 |
| 16/08/2019 | MEL-05-03 | 2-3 m | 7.6 | 76.3 | 12.19 | 10.85 | 104.4 |
| 16/08/2019 | MEL-05-03 | 3-4 m | 7.69 | 76.3 | 12.12 | 10.87 | 104.5 |
| 16/08/2019 | MEL-05-03 | 4-5 m | 7.58 | 76.2 | 12.09 | 10.88 | 104.5 |
| 16/08/2019 | MEL-05-03 | 5-6 m | 7.58 | 76.2 | 12.02 | 10.9 | 104.5 |
| 16/08/2019 | MEL-05-03 | 6-7 m | 7.57 | 76.2 | 11.95 | 10.91 | 104.5 |
| 16/08/2019 | MEL-05-03 | 7-8 m | 7.56 | 76.1 | 11.83 | 10.93 | 104.4 |
| 16/08/2019 | MEL-05-03 | 8-9 m | 7.55 | 76.2 | 11.77 | 10.94 | 104.3 |
| | | | | | | | |
| 16/08/2019 | MEL-05-01 | 0-1 m | 7.65 | 76.4 | 12.1 | 10.79 | 103.7 |
| 16/08/2019 | MEL-05-01 | 1-1 m | 7.62 | 76.4 | 12.09 | 10.82 | 103.9 |
| 16/08/2019 | MEL-05-01 | 1-2 m | 7.62 | 76.4 | 12.08 | 10.83 | 103.9 |
| 16/08/2019 | MEL-05-01 | 2-3 m | 7.59 | 76.4 | 12.06 | 10.87 | 104.4 |
| 16/08/2019 | MEL-05-01 | 3-4 m | 7.59 | 76.4 | 12.01 | 10.88 | 104.3 |
| 16/08/2019 | MEL-05-01 | 4-5 m | 7.58 | 76.5 | 11.94 | 10.89 | 104.3 |
| 16/08/2019 | MEL-05-01 | 5-6 m | 7.58 | 76.5 | 11.91 | 10.9 | 104.3 |
| 16/08/2019 | MEL-05-01 | 6-7 m | 7.57 | 76.5 | 11.89 | 10.9 | 104.2 |
| 16/08/2019 | MEL-05-01 | 7-8 m | 7.57 | 76.3 | 11.83 | 10.91 | 104.2 |
| 16/08/2019 | MEL-05-01 | 8-9 m | 7.56 | 76.4 | 11.82 | 10.91 | 104.1 |
| 16/08/2019 | MEL-05-01 | 9-10 m | 7.56 | 76.5 | 11.77 | 10.91 | 104 |
| | | | | | | | |
| 16/08/2019 | MEL-05-02 | 0-1 m | 7.65 | 76.6 | 12.13 | 10.77 | 103.7 |
| 16/08/2019 | MEL-05-02 | 1-1 m | 7.64 | 76.6 | 12.13 | 10.82 | 104.1 |
| 16/08/2019 | MEL-05-02 | 1-2 m | 7.62 | 76.6 | 12.11 | 10.86 | 104.4 |
| 16/08/2019 | MEL-05-02 | 2-3 m | 7.6 | 76.6 | 12.1 | 10.87 | 104.4 |
| 16/08/2019 | MEL-05-02 | 3-4 m | 7.59 | 76.3 | 12 | 10.9 | 104.5 |
| 16/08/2019 | MEL-05-02 | 4-5 m | 7.57 | 76.1 | 11.93 | 10.91 | 104.4 |
| 16/08/2019 | MEL-05-02 | 5-6 m | 7.5 | 76.2 | 11.88 | 10.91 | 104.3 |
| 16/08/2019 | MEL-05-02 | 6-7 m | 7.56 | 76.3 | 11.85 | 10.91 | 104.2 |
| 16/08/2019 | MEL-05-02 | 7-8 m | 7.55 | 76.2 | 11.8 | 10.88 | 103.8 |
| 16/08/2019 | MEL-05-02 | 8-9 m | 7.53 | 76.1 | 11.76 | 10.84 | 103.3 |
| 16/08/2019 | MEL-05-02 | 9-10 m | 7.53 | 76 | 11.76 | 10.82 | 103.2 |

- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Appendix C3 Table: MEL-04 and MEL-05 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 16/08/2019 | 16/08/2019 | 16/08/2019 | 16/08/2019 | 16/08/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Location | MEL-04-05 | MEL-04-05 | MEL-04-01 | MEL-04-01 | MEL-04-04 | MEL-04-04 | MEL-04-03 | MEL-04-03 | MEL-04-02 | MEL-04-02 | MEL-05-05 | MEL-05-04 | MEL-05-03 | MEL-05-01 | MEL-05-02 |
| | FIELD_SDG | L2332618 | L2332591 | L2332618 | L2332591 | L2332618 | L2332591 | L2332618 | L2332591 | L2332618 | L2332591 | L2334497 | L2334497 | L2334497 | L2334497 | L2334497 |
| **Parameter** | **Unit** | | | | | | | | | | | | | | | |
| **WQTC02-Conventional Parameters** | | | | | | | | | | | | | | | | |
| pH | pH units | 7.48 | - | 7.48 | - | 7.47 | - | 7.45 | - | 7.44 | - | 7.61 | 7.59 | 7.58 | 7.63 | 7.55 |
| Specific conductivity | umhos/cm | 84.2 | - | 73.0 | - | 72.2 | - | 73.1 | - | 71.9 | - | 79.8 | 77.4 | 78.1 | 77.5 | 77.6 |
| Hardness, as CaCO3 (N) | mg/L | - | - | 21.9 | - | - | - | - | - | - | - | - | - | - | - | - |
| Hardness, as CaCO3 (N) | none | 22.1 | - | - | - | 21.3 | - | 22.1 | - | 22.2 | - | 23.3 | 23.1 | 23.3 | 23.4 | 23.4 |
| Total alkalinity, as CaCO3 | mg/L | 19.8 | - | 20.0 | - | 17.3 | - | 17.2 | - | 17.2 | - | 20.4 | 19.4 | 19.4 | 19.6 | 19.6 |
| Total dissolved solids | mg/L | 38.8\|52 | - | 38.0\|47 | - | 36.1\|55 | - | 36.4\|36 | - | 36.2\|48 | - | 39.3\|52 | 38.4\|54 | 39.1\|57 | 38.7\|55 | 38.5\|33 |
| Total dissolved solids (calculated) | mg/L | 38.8 | - | 38.0 | - | 36.1 | - | 36.4 | - | 36.2 | - | 39.3 | 38.4 | 39.1 | 38.7 | 38.5 |
| Total suspended solids | mg/L | < 1.0 | - | < 1.0 | - | < 1.0 | - | < 1.0 | - | < 1.0 | - | 1.4 | < 1.0 | 1.1 | < 1.0 | < 2.0 |
| Total organic carbon | mg/L | 2.22 | 2.34 | 2.27 | 2.37 | 2.14 | 2.67 | 2.47 | 2.32 | 2.24 | 2.22 | 3.20 | 2.40 | 2.33 | 2.26 | 2.31 |
| Dissolved organic carbon | mg/L | 2.14 | 2.10 | 2.23 | 2.21 | 2.25 | 2.58 | 2.25 | 2.25 | 2.28 | 2.26 | 2.36 | 2.29 | 2.22 | 2.30 | 2.20 |
| Turbidity | NTU | 0.25 | - | 0.21 | - | 0.27 | - | 0.29 | - | 0.29 | - | 0.57 | 0.46 | 0.25 | 0.30 | 0.35 |
| **WQTC03-Major Ions** | | | | | | | | | | | | | | | | |
| Bicarbonate | mg/L | 24.2 | - | 24.4 | - | 21.1 | - | 21.0 | - | 21.0 | - | 24.9 | 23.6 | 23.7 | 23.9 | 23.9 |
| Calcium | mg/L | 6.95 | - | 6.94 | - | 6.73 | - | 7.03 | - | 7.05 | - | 7.40 | 7.35 | 7.44 | 7.46 | 7.45 |
| Carbonate | mg/L | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | - | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 |
| Chloride | mg/L | 9.30 | - | 8.81 | - | 8.78 | - | 8.65 | - | 8.72 | - | 9.10 | 8.97 | 8.89 | 8.92 | 8.91 |
| Cyanide | mg/L | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | 0.0010 | < 0.0010 |
| Fluoride | mg/L | 0.024 | - | 0.027 | - | 0.025 | - | 0.027 | - | 0.027 | - | 0.029 | 0.027 | 0.026 | 0.026 | 0.027 |
| Hydroxide | mg/L | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | - | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 |
| Magnesium | mg/L | 1.14 | - | 1.11 | - | 1.10 | - | 1.11 | - | 1.11 | - | 1.16 | 1.15 | 1.15 | 1.15 | 1.15 |
| Potassium | mg/L | 0.915 | - | 0.925 | - | 0.918 | - | 0.920 | - | 0.918 | - | 0.967 | 0.954 | 0.926 | 0.944 | 0.940 |
| Sodium | mg/L | 4.82 | - | 4.52 | - | 4.50 | - | 4.44 | - | 4.54 | - | 4.68 | 4.51 | 4.59 | 4.62 | 4.57 |
| Sulphate | mg/L | 3.66 | - | 3.57 | - | 3.62 | - | 3.56 | - | 3.56 | - | 3.69 | 3.68 | 3.64 | 3.66 | 3.66 |
| Cyanide (free) | mg/L | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | 0.0011 | 0.0010 | < 0.0010 | < 0.0010 |
| Cyanide (WAD) | mg/L | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | - | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Ion Ratio (+/-) | mg/L | Low EC | - | Low EC | - | Low EC | - | Low EC | - | Low EC | - | Low EC | Low EC | Low EC | Low EC | Low EC |
| **WQTC04-Nutrients and Chlorophyll a** | | | | | | | | | | | | | | | | |
| Nitrate | mg/L | 0.0332 | < 0.020 | 0.0121 | < 0.020 | 0.0059 | 0.020 | 0.0793 | < 0.020 | < 0.0050 | < 0.020 | 0.0058 | 0.0209 | 0.179 | 0.0351 | 0.0167 |
| Nitrite | mg/L | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Nitrate + nitrite | mg/L | 0.0332 | < 0.070 | 0.0121 | < 0.070 | 0.0059 | < 0.070 | 0.0793 | < 0.070 | < 0.0051 | < 0.070 | 0.0058 | 0.0209 | 0.179 | 0.0351 | 0.0167 |
| Total ammonia | mg/L | 0.0092 | 0.0089 | 0.0080 | 0.0052 | 0.0064 | 0.0075 | 0.0208 | 0.0074 | < 0.0050 | 0.0112 | 0.0170 | 0.0075 | < 0.0050 | 0.0055 | 0.0116 |
| Total Kjeldahl nitrogen | mg/L | 0.222 | 0.285 | 0.172 | 0.225 | 0.191 | 0.269 | 0.239 | 0.205 | 0.202 | 0.300 | 0.392 | 0.156 | 0.172 | 0.154 | 0.164 |
| Total phosphorus | mg/L | < 0.050\|0.0029 | 0.0104 | < 0.050\|0.0026 | 0.0050 | < 0.050\|0.0024 | 0.0147 | < 0.050\|0.0027 | 0.0094 | < 0.050\|0.0032 | 0.0074 | < 0.050\|0.0033 | < 0.050 | < 0.050\|0.0025 | < 0.050\|0.0018 | < 0.050\|0.0017 |
| Dissolved phosphorus | mg/L | < 0.050 | - | < 0.050 | - | < 0.050 | - | < 0.050 | - | < 0.050 | - | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| **WQTC06-Total Metals** | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.0038 | - | 0.0034 | - | 0.0031 | - | 0.0053 | - | 0.0048 | - | 0.0083 | 0.0035 | 0.0032 | 0.0035 | 0.0038 |
| Antimony | mg/L | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.000216 | - | 0.000225 | - | 0.000215 | - | 0.000228 | - | 0.000205 | - | 0.000270 | 0.000263 | 0.000255 | 0.000232 | 0.000260 |
| Barium | mg/L | 0.00710 | - | 0.00724 | - | 0.00762 | - | 0.00846 | - | 0.00788 | - | 0.00833 | 0.00805 | 0.00815 | 0.00792 | 0.00807 |
| Beryllium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Cadmium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | 0.0000074 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Calcium | mg/L | 6.98 | - | 6.92 | - | 6.80 | - | 7.13 | - | 6.88 | - | 7.34 | 7.26 | 7.30 | 7.32 | 7.39 |
| Cesium | mg/L | 0.0000085 | - | 0.0000086 | - | 0.0000090 | - | 0.0000095 | - | 0.0000084 | - | 0.0000084 | 0.0000078 | 0.0000081 | 0.0000079 | 0.0000090 |
| Chromium | mg/L | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | < 0.00010 | 0.00055 | < 0.00010 | < 0.00010 |
| Cobalt | mg/L | 0.0000110 | - | 0.0000113 | - | 0.0000110 | - | 0.0000164 | - | 0.0000147 | - | 0.0000201 | 0.0000144 | 0.0000130 | 0.0000160 | 0.0000161 |
| Copper | mg/L | 0.000753 | - | 0.000745 | - | 0.000667 | - | 0.000689 | - | 0.000747 | - | 0.00106 | 0.000712 | 0.000698 | 0.000719 | 0.000779 |
| Gallium | mg/L | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0123 | - | 0.0133 | - | 0.0110 | - | 0.0138 | - | 0.0139 | - | 0.0193 | 0.0146 | 0.0120 | 0.0130 | 0.0141 |
| Lanthanum | mg/L | 0.000016 | - | 0.000016 | - | 0.000016 | - | 0.000019 | - | 0.000017 | - | 0.000023 | 0.000013 | 0.000014 | 0.000013 | 0.000013 |
| Lead | mg/L | < 0.000010 | - | 0.000015 | - | 0.000022 | - | 0.000021 | - | 0.000021 | - | 0.000041 | 0.000017 | 0.000011 | 0.000015 | 0.000023 |
| Lithium | mg/L | 0.00064 | - | 0.00064 | - | 0.00062 | - | 0.00064 | - | 0.00064 | - | 0.00062 | 0.00061 | 0.00059 | 0.00061 | 0.00062 |
| Magnesium | mg/L | 1.09 | - | 1.05 | - | 1.03 | - | 1.05 | - | 1.05 | - | 1.14 | 1.12 | 1.12 | 1.11 | 1.13 |
| Manganese | mg/L | 0.00271 | - | 0.00284 | - | 0.00275 | - | 0.00288 | - | 0.00278 | - | 0.00317 | 0.00289 | 0.00292 | 0.00287 | 0.00300 |
| Mercury | mg/L | < 0.00000050 | - | < 0.00000050 | - | 0.00000064 | - | 0.00000067 | - | 0.00000401 | - | 0.00000087 | 0.00000071 | 0.00000061 | 0.00000064 | 0.00000054 |
| Molybdenum | mg/L | 0.000067 | - | 0.000063 | - | 0.000070 | - | 0.000065 | - | 0.000068 | - | 0.000102 | 0.000071 | 0.000076 | 0.000076 | 0.000085 |
| Nickel | mg/L | 0.000377 | - | 0.000371 | - | 0.000366 | - | 0.000368 | - | 0.000384 | - | 0.000411 | 0.000367 | 0.000365 | 0.000378 | 0.000371 |
| Niobium | mg/L | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | - | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 |
| Potassium | mg/L | 0.899 | - | 0.906 | - | 0.878 | - | 0.894 | - | 0.902 | - | 0.964 | 0.934 | 0.924 | 0.926 | 0.935 |
| Rhenium | mg/L | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | - | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 |
| Rubidium | mg/L | 0.00130 | - | 0.00126 | - | 0.00128 | - | 0.00133 | - | 0.00130 | - | 0.00139 | 0.00135 | 0.00133 | 0.00135 | 0.00136 |
| Selenium | mg/L | < 0.000040 | - | 0.000053 | - | 0.000064 | - | 0.000044 | - | < 0.000040 | - | < 0.000040 | 0.000041 | < 0.000040 | 0.000047 | < 0.000040 |
| Silicon | mg/L | 0.113 | - | 0.117 | - | 0.117 | - | 0.128 | - | 0.117 | - | 0.123 | 0.120 | 0.117 | 0.123 | 0.118 |
| Silver | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Sodium | mg/L | 4.72 | - | 4.40 | - | 4.31 | - | 4.47 | - | 4.35 | - | 4.90 | 4.55 | 4.55 | 4.50 | 4.51 |
| Strontium | mg/L | 0.0336 | - | 0.0328 | - | 0.0336 | - | 0.0331 | - | 0.0336 | - | 0.0350 | 0.0338 | 0.0344 | 0.0338 | 0.0349 |
| Sulphur | mg/L | 1.18 | - | 1.33 | - | 1.12 | - | 1.23 | - | 1.09 | - | 1.23 | 1.28 | 1.23 | 1.24 | 1.31 |
| Tantalum | mg/L | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |

Appendix C3 Table: MEL-04 and MEL-05 laboratory chemistry data, Meliadine Lake AEMP 2019.

| Sample Date | | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 14/08/2019 | 16/08/2019 | 16/08/2019 | 16/08/2019 | 16/08/2019 | 16/08/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | MEL-04-05 | MEL-04-05 | MEL-04-01 | MEL-04-01 | MEL-04-04 | MEL-04-04 | MEL-04-03 | MEL-04-03 | MEL-04-02 | MEL-04-02 | MEL-05-05 | MEL-05-04 | MEL-05-03 | MEL-05-01 | MEL-05-02 |
| FIELD_SDG | | L2332618 | L2332591 | L2332618 | L2332591 | L2332618 | L2332591 | L2332618 | L2332591 | L2332618 | L2332591 | L2334497 | L2334497 | L2334497 | L2334497 | L2334497 |
| **Parameter** | **Unit** | | | | | | | | | | | | | | | |
| Thorium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | < 0.000020 | - | 0.000054 | - | < 0.000020 | - | < 0.000020 | - | 0.000031 | - | 0.000075 | 0.000040 | < 0.000020 | 0.000020 | 0.000078 |
| Titanium | mg/L | < 0.00015 | - | 0.000143 | - | 0.000093 | - | 0.000185 | - | < 0.00025 | - | 0.000399 | 0.000154 | 0.000092 | < 0.00015 | 0.000127 |
| Tungsten | mg/L | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.0000134 | - | 0.0000145 | - | 0.0000151 | - | 0.0000144 | - | 0.0000144 | - | 0.0000122 | 0.0000124 | 0.0000139 | 0.0000127 | 0.0000136 |
| Vanadium | mg/L | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | 0.0000061 | - | 0.0000054 | - | 0.0000067 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Zinc | mg/L | 0.00053 | - | 0.00067 | - | 0.00181 | - | 0.00167 | - | 0.00133 | - | 0.00331 | 0.00103 | 0.00078 | 0.00117 | 0.00079 |
| Zirconium | mg/L | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC07-Dissolved Metals** | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.0018 | - | 0.0021 | - | 0.0040 | - | 0.0020 | - | 0.0022 | - | 0.0017 | 0.0016 | 0.0017 | 0.0016 | 0.0016 |
| Antimony | mg/L | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.000178 | - | 0.000200 | - | 0.000210 | - | 0.000206 | - | 0.000199 | - | 0.000283 | 0.000245 | 0.000244 | 0.000240 | 0.000246 |
| Barium | mg/L | 0.00744 | - | 0.00743 | - | 0.00736 | - | 0.00734 | - | 0.00748 | - | 0.00773 | 0.00857 | 0.00775 | 0.00779 | 0.00771 |
| Beryllium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | 0.0000123 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | - | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Cadmium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Cesium | mg/L | 0.0000093 | - | 0.0000086 | - | 0.0000088 | - | 0.0000079 | - | 0.0000085 | - | 0.0000094 | 0.0000088 | 0.0000087 | 0.0000082 | 0.0000077 |
| Chromium | mg/L | 0.00016 | - | 0.00024 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | 0.00021 | < 0.00010 |
| Cobalt | mg/L | 0.0000050 | - | < 0.0000050 | - | 0.0000051 | - | 0.0000055 | - | 0.0000051 | - | 0.0000097 | 0.0000072 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Copper | mg/L | 0.000638 | - | 0.000615 | - | 0.000710 | - | 0.000642 | - | 0.000600 | - | 0.000774 | 0.000665 | 0.000634 | 0.000633 | 0.000659 |
| Gallium | mg/L | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0027 | - | 0.0029 | - | 0.0031 | - | 0.0032 | - | 0.0030 | - | 0.0046 | 0.0042 | 0.0034 | 0.0034 | 0.0036 |
| Lanthanum | mg/L | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Lead | mg/L | 0.000122 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Lithium | mg/L | 0.00063 | - | 0.00063 | - | 0.00060 | - | 0.00062 | - | 0.00063 | - | 0.00064 | 0.00064 | 0.00066 | 0.00064 | 0.00065 |
| Manganese | mg/L | 0.000455 | - | 0.000454 | - | 0.000534 | - | 0.000651 | - | 0.000464 | - | 0.000477 | 0.000416 | 0.000415 | 0.000366 | 0.000384 |
| Mercury | mg/L | < 0.00000050 | - | 0.00000051 | - | < 0.00000050 | - | 0.00000052 | - | < 0.00000050 | - | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 | < 0.00000050 |
| Molybdenum | mg/L | 0.000069 | - | 0.000065 | - | 0.000073 | - | 0.000140 | - | 0.000066 | - | 0.000077 | 0.000071 | 0.000081 | 0.000079 | 0.000073 |
| Nickel | mg/L | 0.000373 | - | 0.000368 | - | 0.000358 | - | 0.000384 | - | 0.000369 | - | 0.000373 | 0.000359 | 0.000364 | 0.000365 | 0.000370 |
| Niobium | mg/L | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Rhenium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Rubidium | mg/L | 0.00129 | - | 0.00131 | - | 0.00132 | - | 0.00131 | - | 0.00134 | - | 0.00139 | 0.00141 | 0.00135 | 0.00136 | 0.00137 |
| Selenium | mg/L | < 0.000040 | - | < 0.000040 | - | < 0.000040 | - | < 0.000040 | - | < 0.000040 | - | < 0.000040 | 0.000041 | < 0.000040 | < 0.000040 | < 0.000040 |
| Silicon | mg/L | 0.107 | - | 0.113 | - | 0.100 | - | 0.108 | - | 0.107 | - | 0.103 | 0.106 | 0.102 | 0.114 | 0.134 |
| Silver | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Strontium | mg/L | 0.0322 | - | 0.0320 | - | 0.0325 | - | 0.0323 | - | 0.0320 | - | 0.0339 | 0.0335 | 0.0330 | 0.0333 | 0.0337 |
| Sulphur | mg/L | 1.22 | - | 1.31 | - | 1.26 | - | 1.20 | - | 1.28 | - | 1.31 | 1.21 | 1.20 | 1.25 | 1.31 |
| Tantalum | mg/L | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | - | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | - | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | < 0.000020 | - | < 0.000020 | - | 0.000025 | - | 0.000028 | - | < 0.000020 | - | 0.000067 | 0.000025 | < 0.000020 | < 0.000020 | < 0.000020 |
| Titanium | mg/L | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Tungsten | mg/L | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.0000121 | - | 0.0000124 | - | 0.0000135 | - | 0.0000137 | - | 0.0000137 | - | 0.0000131 | 0.0000126 | 0.0000134 | 0.0000132 | 0.0000149 |
| Vanadium | mg/L | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | - | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | - | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Zinc | mg/L | 0.00065 | - | < 0.00050 | - | 0.00075 | - | 0.00103 | - | < 0.00050 | - | 0.00197 | 0.00082 | 0.00059 | 0.00051 | 0.00092 |
| Zirconium | mg/L | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | - | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

# APPENDIX D
# PENINSULA LAKES – SUPPORTING TABLES

Appendix D Table: Lake A8 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 11/07/2019 | A8-01 | 0.5-1 m | 7.89 | 209.3 | 10.9 | 10.46 | 94.9 |
| 11/07/2019 | A8-01 | 0-0.5 m | 7.9 | 209.3 | 10.9 | 10.33 | 93.5 |
| 11/07/2019 | A8-01 | 1.5-2 m | 7.9 | 210.1 | 10.9 | 10.46 | 94.5 |
| 11/07/2019 | A8-01 | 1-1.5 m | 7.89 | 209.3 | 10.9 | 10.28 | 93.3 |
| 11/07/2019 | A8-01 | 2.5-3 m | 7.9 | 210 | 10.9 | 10.33 | 93.5 |
| 11/07/2019 | A8-01 | 2-2.5 m | 7.9 | 210 | 10.9 | 10.4 | 94.1 |
| | | | | | | | |
| 11/07/2019 | A8-02 | 0.5-1 m | 7.92 | 206.7 | 11.1 | 10.59 | 96.2 |
| 11/07/2019 | A8-02 | 0-0.5 m | 7.92 | 206.5 | 11.1 | 10.56 | 96 |
| 11/07/2019 | A8-02 | 1.5-1.8 m | 7.92 | 206.6 | 11.1 | 10.45 | 95 |
| 11/07/2019 | A8-02 | 1.8-2 m | 7.93 | 206.6 | 11.1 | 10.5 | 95.4 |
| 11/07/2019 | A8-02 | 1-1.5 m | 7.92 | 206.7 | 11.1 | 10.46 | 95 |
| | | | | | | | |
| 11/07/2019 | A8-03 | 0.5-1 m | 7.96 | 195.4 | 11.1 | 10.38 | 94.3 |
| 11/07/2019 | A8-03 | 0-0.5 m | 7.96 | 195.3 | 11.1 | 10.48 | 95.2 |
| 11/07/2019 | A8-03 | 1.5-2 m | 7.96 | 195.2 | 11.1 | 10.33 | 95.2 |
| 11/07/2019 | A8-03 | 1-1.5 m | 7.96 | 195.3 | 11.1 | 10.38 | 94.3 |
| | | | | | | | |
| 12/08/2019 | A8-01 | 0.5-1 m | 8.44 | 223.7 | 11.5 | 10.3 | 95.6 |
| 12/08/2019 | A8-01 | 0-0.5 m | 8.45 | 223.6 | 11.5 | 10.42 | 96 |
| 12/08/2019 | A8-01 | 1.5-2 m | 8.42 | 223.6 | 11.5 | 10.4 | 96 |
| 12/08/2019 | A8-01 | 1-1.5 m | 8.44 | 223.6 | 11.5 | 10.2 | 95 |
| 12/08/2019 | A8-01 | 2-2.5 m | 8.4 | 223.7 | 11.5 | 10.3 | 94.1 |
| | | | | | | | |
| 12/08/2019 | A8-02 | 0.5-1 m | 8.2 | 223.2 | 11.6 | 10.6 | 98.8 |
| 12/08/2019 | A8-02 | 0-0.5 m | 8.21 | 223 | 11.6 | 10.88 | 100 |
| 12/08/2019 | A8-02 | 1.5-2 m | 8.19 | 223 | 11.6 | 10.5 | 97.7 |
| 12/08/2019 | A8-02 | 1-1.5 m | 8.19 | 223.7 | 11.6 | 10.6 | 97.7 |
| 12/08/2019 | A8-02 | 2-2.5 m | 8.19 | 223.1 | 11.6 | 10.5 | 98 |
| | | | | | | | |
| 12/08/2019 | A8-03 | 0.5-1 m | 8.18 | 218.5 | 11.4 | 10.4 | 96.5 |
| 12/08/2019 | A8-03 | 0-0.5 m | 8.18 | 218.3 | 11.4 | 11 | 101 |
| 12/08/2019 | A8-03 | 1.5-2 m | 8.18 | 218.5 | 11.4 | 10.55 | 97 |
| 12/08/2019 | A8-03 | 1-1.5 m | 8.18 | 218.5 | 11.4 | 10.5 | 97 |
| | | | | | | | |

- Chemical not analyzed or criteria not defined.

Output generated by GalReport.

Appendix D Table: Lake A8 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 11/07/2019 | 11/07/2019 | 11/07/2019 | 12/08/2019 | 12/08/2019 | 14/08/2019 |
|---|---|---|---|---|---|---|---|
| | Location | A8-01 | A8-02 | A8-03 | A8-02 | A8-03 | A8-01 |
| | FIELD_SDG | L2314029 | L2314029 | L2314029 | L2332618 | L2332618 | L2332618 |
| **Parameter** | **Unit** | | | | | | |
| **WQTC02-Conventional Parameters** | | | | | | | |
| pH | pH units | 7.72 | 7.74 | 7.76 | 7.76 | 7.81 | 7.74 |
| Specific conductivity | umhos/cm | 206 | 202 | 192 | 219 | 215 | 219 |
| Hardness, as CaCO3 (N) | mg/L | 76.6 | 76.6 | 76.2 | - | - | - |
| Hardness, as CaCO3 (N) | none | - | - | - | 84.4 | 85.2 | 84.4 |
| Total alkalinity, as CaCO3 | mg/L | 38.5 | 39.3 | 43.1 | 42.6 | 47.5 | 42.5 |
| Total dissolved solids | mg/L | 102\|156 | 103\|157 | 97.2\|145 | 111\|159 | 109\|222 | 110\|130 |
| Total dissolved solids (calculated) | mg/L | 102 | 103 | 97.2 | 111 | 109 | 110 |
| Total suspended solids | mg/L | 1.1 | < 1.0 | < 1.0 | 1.2 | 1.3 | < 1.0 |
| Total organic carbon | mg/L | 3.58 | 3.38 | 4.24 | 3.71 | 4.34 | 3.58 |
| Dissolved organic carbon | mg/L | 2.70 | 3.07 | 4.30 | 3.50 | 4.54 | 3.43 |
| Turbidity | NTU | 0.62 | 0.61 | 0.71 | 0.32 | 0.41 | 0.35 |
| **WQTC03-Major Ions** | | | | | | | |
| Bicarbonate | mg/L | 47.0 | 47.9 | 52.6 | 52.0 | 58.0 | 51.9 |
| Calcium | mg/L | 25.0 | 25.1 | 25.2 | 27.9 | 28.2 | 27.8 |
| Carbonate | mg/L | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 |
| Chloride | mg/L | 36.6 | 36.9 | 30.7 | 39.1 | 35.2 | 38.6 |
| Cyanide | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Fluoride | mg/L | 0.026 | 0.027 | 0.028 | 0.029 | 0.035 | 0.029 |
| Hydroxide | mg/L | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 |
| Magnesium | mg/L | 3.42 | 3.35 | 3.25 | 3.60 | 3.60 | 3.63 |
| Potassium | mg/L | 1.59 | 1.57 | 1.50 | 1.69 | 1.67 | 1.71 |
| Sodium | mg/L | 6.02 | 5.90 | 5.25 | 6.41 | 5.96 | 6.54 |
| Sulphate | mg/L | 6.48 | 6.43 | 5.41 | 6.30 | 5.45 | 6.25 |
| Cyanide (free) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | 0.0011 | 0.0012 | < 0.0010 |
| Cyanide (WAD) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Ion Ratio (+/-) | % | 94.8 | 93.3 | 97.3 | 96.3 | 97.5 | 97.3 |
| **WQTC04-Nutrients and Chlorophyll a** | | | | | | | |
| Nitrate | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Nitrite | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Nitrate + nitrite | mg/L | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 |
| Total ammonia | mg/L | 0.0821 | 0.0539 | 0.0087 | 0.0101 | 0.0190 | 0.0127 |
| Total Kjeldahl nitrogen | mg/L | 0.312 | 0.319 | 0.359 | 0.355 | 0.371 | 0.345 |
| Total phosphorus | mg/L | < 0.050\|0.0053 | < 0.050\|0.0039 | < 0.050\|0.0052 | < 0.050\|0.0057 | < 0.050\|0.0079 | < 0.050\|0.0051 |
| Dissolved phosphorus | mg/L | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| **WQTC06-Total Metals** | | | | | | | |
| Aluminum | mg/L | 0.0066 | 0.0057 | 0.0062 | 0.0032 | 0.0070 | 0.0022 |
| Antimony | mg/L | 0.000022 | 0.000021 | 0.000021 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.00280 | 0.00266 | 0.00232 | 0.00210 | 0.00210 | 0.00201 |
| Barium | mg/L | 0.0235 | 0.0237 | 0.0236 | 0.0219 | 0.0221 | 0.0212 |
| Beryllium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Cadmium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Calcium | mg/L | 25.5 | 25.0 | 24.4 | 29.0 | 28.3 | 28.6 |

Appendix D Table: Lake A8 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 11/07/2019 | 11/07/2019 | 11/07/2019 | 12/08/2019 | 12/08/2019 | 14/08/2019 |
|---|---|---|---|---|---|---|---|
| | Location | A8-01 | A8-02 | A8-03 | A8-02 | A8-03 | A8-01 |
| | FIELD_SDG | L2314029 | L2314029 | L2314029 | L2332618 | L2332618 | L2332618 |
| **Parameter** | **Unit** | | | | | | |
| Cesium | mg/L | 0.0000114 | 0.0000107 | 0.0000114 | 0.0000138 | 0.0000140 | 0.0000129 |
| Chromium | mg/L | 0.00040 | < 0.00010 | 0.00057 | 0.00033 | < 0.00010 | 0.00035 |
| Cobalt | mg/L | 0.0000674 | 0.0000594 | 0.0000728 | 0.0000275 | 0.0000425 | 0.0000306 |
| Copper | mg/L | 0.000687 | 0.000621 | 0.000667 | 0.000664 | 0.00109 | 0.000641 |
| Gallium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.118 | 0.114 | 0.146 | 0.0444 | 0.0700 | 0.0428 |
| Lanthanum | mg/L | 0.000031 | 0.000027 | 0.000029 | < 0.000010 | 0.000013 | 0.000011 |
| Lead | mg/L | 0.000091 | 0.000084 | 0.000072 | 0.000017 | 0.000048 | 0.000015 |
| Lithium | mg/L | 0.00612 | 0.00606 | 0.00537 | 0.00610 | 0.00551 | 0.00610 |
| Magnesium | mg/L | 3.49 | 3.36 | 3.38 | 3.53 | 3.46 | 3.39 |
| Manganese | mg/L | 0.0140 | 0.0136 | 0.0184 | 0.00613 | 0.0114 | 0.00670 |
| Mercury | mg/L | 0.00000082 | 0.00000077 | 0.00000095 | 0.00000059 | 0.00000054 | 0.00000054 |
| Molybdenum | mg/L | 0.000173 | 0.000163 | 0.000170 | 0.000218 | 0.000212 | 0.000204 |
| Nickel | mg/L | 0.000839 | 0.000758 | 0.000956 | 0.000662 | 0.000803 | 0.000651 |
| Niobium | mg/L | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 |
| Potassium | mg/L | 1.62 | 1.60 | 1.57 | 1.66 | 1.62 | 1.65 |
| Rhenium | mg/L | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 |
| Rubidium | mg/L | 0.00145 | 0.00141 | 0.00144 | 0.00162 | 0.00165 | 0.00157 |
| Selenium | mg/L | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 |
| Silicon | mg/L | 0.260 | 0.239 | 0.310 | 0.192 | 0.266 | 0.188 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Sodium | mg/L | 5.96 | 5.91 | 5.60 | 6.30 | 5.90 | 6.30 |
| Strontium | mg/L | 0.178 | 0.174 | 0.161 | 0.184 | 0.172 | 0.174 |
| Sulphur | mg/L | 2.25 | 2.24 | 1.89 | 2.24 | 1.98 | 2.45 |
| Tantalum | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | 0.000060 | 0.000044 | 0.000050 | 0.000026 | 0.000036 | < 0.000020 |
| Titanium | mg/L | 0.000305 | 0.000178 | 0.000217 | 0.000072 | < 0.00015 | < 0.000050 |
| Tungsten | mg/L | 0.000071 | 0.000075 | 0.000020 | 0.000055 | 0.000021 | 0.000057 |
| Uranium | mg/L | 0.0000381 | 0.0000365 | 0.0000339 | 0.0000366 | 0.0000351 | 0.0000375 |
| Vanadium | mg/L | 0.000094 | 0.000083 | 0.000094 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | 0.0000053 | 0.0000065 | 0.0000072 | < 0.0000050 | 0.0000063 | 0.0000062 |
| Zinc | mg/L | 0.00104 | 0.00055 | 0.00073 | 0.00066 | 0.00091 | < 0.00050 |
| Zirconium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC07-Dissolved Metals** | | | | | | | |
| Aluminum | mg/L | 0.0024 | 0.0030 | 0.0026 | 0.0018 | 0.0021 | 0.0023 |
| Antimony | mg/L | 0.000023 | 0.000022 | 0.000021 | 0.000021 | < 0.000020 | 0.000020 |
| Arsenic | mg/L | 0.00188 | 0.00190 | 0.00168 | 0.00183 | 0.00180 | 0.00184 |
| Barium | mg/L | 0.0229 | 0.0224 | 0.0225 | 0.0213 | 0.0221 | 0.0223 |
| Beryllium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Cadmium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |

Appendix D Table: Lake A8 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 11/07/2019 | 11/07/2019 | 11/07/2019 | 12/08/2019 | 12/08/2019 | 14/08/2019 |
|---|---|---|---|---|---|---|---|
| | Location | A8-01 | A8-02 | A8-03 | A8-02 | A8-03 | A8-01 |
| | FIELD_SDG | L2314029 | L2314029 | L2314029 | L2332618 | L2332618 | L2332618 |
| Parameter | Unit | | | | | | |
| Cesium | mg/L | 0.0000100 | 0.0000101 | 0.0000100 | 0.0000133 | 0.0000135 | 0.0000132 |
| Chromium | mg/L | < 0.00010 | < 0.00010 | 0.00039 | 0.00042 | < 0.00010 | < 0.00010 |
| Cobalt | mg/L | 0.0000153 | 0.0000173 | 0.0000238 | 0.0000173 | 0.0000212 | 0.0000161 |
| Copper | mg/L | 0.000823 | 0.000689 | 0.000652 | 0.000897 | 0.000693 | 0.000641 |
| Gallium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0386 | 0.0453 | 0.0581 | 0.0140 | 0.0309 | 0.0179 |
| Lanthanum | mg/L | 0.000012 | 0.000011 | 0.000011 | < 0.000010 | < 0.000010 | < 0.000010 |
| Lead | mg/L | 0.000033 | 0.000042 | 0.000031 | 0.000014 | < 0.000010 | < 0.000010 |
| Lithium | mg/L | 0.00586 | 0.00571 | 0.00514 | 0.00593 | 0.00552 | 0.00607 |
| Manganese | mg/L | 0.00183 | 0.00148 | 0.00238 | 0.00112 | 0.00143 | 0.00146 |
| Mercury | mg/L | 0.00000066 | 0.00000054 | 0.00000067 | < 0.00000050 | 0.00000058 | < 0.00000050 |
| Molybdenum | mg/L | 0.000160 | 0.000175 | 0.000163 | 0.000205 | 0.000219 | 0.000207 |
| Nickel | mg/L | 0.000794 | 0.000887 | 0.000901 | 0.000651 | 0.000797 | 0.000683 |
| Niobium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Rhenium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Rubidium | mg/L | 0.00143 | 0.00140 | 0.00138 | 0.00166 | 0.00167 | 0.00166 |
| Selenium | mg/L | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 |
| Silicon | mg/L | 0.237 | 0.227 | 0.280 | 0.179 | 0.268 | 0.187 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Strontium | mg/L | 0.171 | 0.171 | 0.155 | 0.176 | 0.169 | 0.173 |
| Sulphur | mg/L | 2.25 | 2.09 | 1.94 | 2.39 | 2.01 | 2.39 |
| Tantalum | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | 0.000085 | 0.000164 | 0.000088 | < 0.000020 | 0.000041 | < 0.000020 |
| Titanium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Tungsten | mg/L | 0.000056 | 0.000053 | 0.000017 | 0.000050 | 0.000018 | 0.000055 |
| Uranium | mg/L | 0.0000366 | 0.0000350 | 0.0000315 | 0.0000357 | 0.0000331 | 0.0000357 |
| Vanadium | mg/L | 0.000056 | 0.000058 | 0.000063 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | < 0.0000050 | < 0.0000050 | 0.0000062 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Zinc | mg/L | 0.00115 | 0.00109 | 0.00082 | 0.00058 | < 0.00050 | < 0.00050 |
| Zirconium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Appendix D Table: Lake B7 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 13/07/2019 | B7-01 | 0.5-1 m | 7.78 | 158.8 | 12.8 | 9.81 | 93.5 |
| 13/07/2019 | B7-01 | 0-0.5 m | 7.78 | 158.6 | 12.8 | 10.11 | 95.6 |
| 13/07/2019 | B7-01 | 1.4-1.5 m | 158.9 | 9.99 | 12.7 | 93.5 | 7.8 |
| 13/07/2019 | B7-01 | 1-1.5 m | 7.79 | 158.8 | 12.8 | 9.89 | 93.6 |
| | | | | | | | |
| 13/07/2019 | B7-02 | 0.5-1 m | 7.92 | 150.9 | 12.7 | 10.34 | 97.6 |
| 13/07/2019 | B7-02 | 0-0.5 m | 7.92 | 150.9 | 12.7 | 10.45 | 99.1 |
| 13/07/2019 | B7-02 | 1.5-2 m | 7.93 | 150.8 | 12.7 | 10.37 | 98 |
| 13/07/2019 | B7-02 | 1-1.5 m | 7.93 | 150.8 | 12.7 | 10.2 | 96.2 |
| 13/07/2019 | B7-02 | 2-2.5 m | 7.94 | 150.8 | 12.7 | 10.3 | 97.2 |
| | | | | | | | |
| 13/07/2019 | B7-03 | 0.5-1 m | 7.95 | 149.1 | 12.8 | 10.2 | 96.6 |
| 13/07/2019 | B7-03 | 0-0.5 m | 7.95 | 149.2 | 12.8 | 10.43 | 99 |
| 13/07/2019 | B7-03 | 1.5-2 m | 7.95 | 149.3 | 12.8 | 10.24 | 97.2 |
| 13/07/2019 | B7-03 | 1-1.5 m | 7.95 | 149.2 | 12.8 | 10.14 | 95.7 |
| 13/07/2019 | B7-03 | 2.4-2.5 m | 7.95 | 149.4 | 12.8 | 10.29 | 97 |
| 13/07/2019 | B7-03 | 2-2.5 m | 7.95 | 149.3 | 12.8 | 10.2 | 96 |
| | | | | | | | |
| 08/08/2019 | B7-01 | 0.5-1 m | 7.84 | 171.1 | 12.6 | 9.7 | 91 |
| 08/08/2019 | B7-01 | 0-0.5 m | 7.81 | 177.2 | 12.6 | 9.7 | 91 |
| 08/08/2019 | B7-01 | 1.4-1.5 m | 7.88 | 171.1 | 12.6 | 9.72 | 91.5 |
| 08/08/2019 | B7-01 | 1-1.4 m | 7.87 | 171.1 | 12.6 | 9.55 | 90.1 |
| | | | | | | | |
| 08/08/2019 | B7-02 | 0.5-1 m | 7.93 | 169.4 | 12.5 | 9.8 | 92.1 |
| 08/08/2019 | B7-02 | 0-0.5 m | 7.93 | 169.3 | 12.5 | 9.84 | 92.6 |
| 08/08/2019 | B7-02 | 1.5-1.8 m | 7.95 | 109.3 | 12.6 | 9.66 | 91.1 |
| 08/08/2019 | B7-02 | 1-1.5 m | 7.94 | 169.4 | 12.5 | 9.8 | 91.1 |
| | | | | | | | |
| 08/08/2019 | B7-03 | 0.5-1 m | 7.95 | 168.9 | 12.3 | 9.9 | 93.1 |
| 08/08/2019 | B7-03 | 0-0.5 m | 7.94 | 168.9 | 12.3 | 9.89 | 92 |
| 08/08/2019 | B7-03 | 1.5-2 m | 7.96 | 169 | 12.3 | 9.9 | 91.6 |
| 08/08/2019 | B7-03 | 1-1.5 m | 7.96 | 169 | 12.3 | 9.7 | 92 |
| 08/08/2019 | B7-03 | 2-2.4 m | 7.96 | 169 | 12.4 | 9.7 | 91.5 |

- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Appendix D Table: Lake B7 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Sample Date** | 13/07/2019 | 13/07/2019 | 13/07/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 |
| | **Location** | B7-01 | B7-02 | B7-03 | B7-01 | B7-02 | B7-03 |
| | **FIELD_SDG** | L2314029 | L2314029 | L2314029 | L2330132 | L2330132 | L2330132 |
| **Parameter** | **Unit** | | | | | | |
| **WQTC02-Conventional Parameters** | | | | | | | |
| pH | pH units | 7.62 | 7.61 | 7.60 | 7.75 | 7.73 | 7.74 |
| Specific conductivity | umhos/cm | 159 | 150 | 150 | 187 | 174 | 172 |
| Hardness, as CaCO3 (N) | mg/L | 61.2 | 56.6 | 57.1 | - | - | - |
| Hardness, as CaCO3 (N) | none | - | - | - | 69.1 | 63.4 | 62.1 |
| Total alkalinity, as CaCO3 | mg/L | 31.8 | 31.0 | 30.9 | 37.0 | 36.3 | 36.0 |
| Total dissolved solids | mg/L | 79.0\|121 | 75.1\|113 | 75.1\|101 | 97.0\|126 | 87.0\|121 | 84.2\|119 |
| Total dissolved solids (calculated) | mg/L | 79.0 | 75.1 | 75.1 | 97.0 | 87.0 | 84.2 |
| Total suspended solids | mg/L | < 1.0 | < 1.0 | 1.3 | < 1.0 | < 1.0 | < 1.0 |
| Total organic carbon | mg/L | 4.38 | 4.14 | 4.00 | 4.47 | 4.35 | 4.33 |
| Dissolved organic carbon | mg/L | 4.18 | 3.91 | 3.89 | 4.40 | 4.41 | 4.18 |
| Turbidity | NTU | 0.55 | 0.53 | 0.49 | 0.52 | 0.44 | 0.51 |
| **WQTC03-Major Ions** | | | | | | | |
| Bicarbonate | mg/L | 38.8 | 37.8 | 37.7 | 45.1 | 44.3 | 43.9 |
| Calcium | mg/L | 21.0 | 19.4 | 19.6 | 22.8 | 21.4 | 21.2 |
| Carbonate | mg/L | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 |
| Chloride | mg/L | 25.8 | 24.5 | 24.3 | 31.3 | 27.9 | 27.4 |
| Cyanide | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Fluoride | mg/L | 0.025 | 0.024 | 0.025 | 0.030 | 0.029 | 0.029 |
| Hydroxide | mg/L | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 |
| Magnesium | mg/L | 2.10 | 1.98 | 1.98 | 2.93 | 2.44 | 2.24 |
| Potassium | mg/L | 1.34 | 1.29 | 1.29 | 1.62 | 1.47 | 1.38 |
| Sodium | mg/L | 3.87 | 3.63 | 3.64 | 9.80 | 6.08 | 4.45 |
| Sulphate | mg/L | 5.82 | 5.67 | 5.77 | 6.35 | 5.90 | 5.86 |
| Cyanide (free) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Cyanide (WAD) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Ion Ratio (+/-) | % | 95.9 | 92.7 | 93.6 | 105 | 96.0 | 91.1 |
| **WQTC04-Nutrients and Chlorophyll a** | | | | | | | |
| Nitrate | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 | < 0.0050 |
| Nitrite | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Nitrate + nitrite | mg/L | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 | < 0.0051 |
| Total ammonia | mg/L | 0.0162 | 0.0440 | 0.0223 | 0.0108 | 0.0080 | 0.0089 |
| Total Kjeldahl nitrogen | mg/L | 0.349 | 0.386 | 0.322 | 0.302 | 0.303 | 0.312 |
| Total phosphorus | mg/L | < 0.050\|0.0079 | < 0.050\|0.0078 | < 0.050\|0.0081 | < 0.050\|0.0095 | < 0.050\|0.0070 | < 0.050\|0.0051 |
| Dissolved phosphorus | mg/L | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| **WQTC06-Total Metals** | | | | | | | |
| Aluminum | mg/L | 0.0047 | 0.0049 | 0.0053 | 0.0046 | 0.0032 | 0.0041 |
| Antimony | mg/L | 0.000021 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | 0.000026 |
| Arsenic | mg/L | 0.00225 | 0.00182 | 0.00178 | 0.00176 | 0.00156 | 0.00155 |
| Barium | mg/L | 0.0210 | 0.0197 | 0.0194 | 0.0187 | 0.0186 | 0.0187 |
| Beryllium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | 0.0101 | 0.0089 | 0.0089 | 0.0106 | 0.0117 | 0.0091 |

Appendix D Table: Lake B7 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 13/07/2019 | 13/07/2019 | 13/07/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 |
|---|---|---|---|---|---|---|---|
| | Location | B7-01 | B7-02 | B7-03 | B7-01 | B7-02 | B7-03 |
| | FIELD_SDG | L2314029 | L2314029 | L2314029 | L2330132 | L2330132 | L2330132 |
| **Parameter** | **Unit** | | | | | | |
| Cadmium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Calcium | mg/L | 21.1 | 19.8 | 19.7 | 22.0 | 20.8 | 21.5 |
| Cesium | mg/L | 0.0000439 | 0.0000249 | 0.0000242 | 0.0000238 | 0.0000221 | 0.0000226 |
| Chromium | mg/L | 0.00048 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Cobalt | mg/L | 0.0000776 | 0.0000636 | 0.0000596 | 0.0000360 | 0.0000385 | 0.0000354 |
| Copper | mg/L | 0.00103 | 0.000866 | 0.000754 | 0.000938 | 0.000703 | 0.000735 |
| Gallium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0857 | 0.0943 | 0.0785 | 0.0533 | 0.0494 | 0.0535 |
| Lanthanum | mg/L | 0.000034 | 0.000033 | 0.000034 | 0.000020 | 0.000017 | 0.000022 |
| Lead | mg/L | 0.000084 | 0.000074 | 0.000069 | 0.000035 | 0.000022 | 0.000024 |
| Lithium | mg/L | 0.0133 | 0.0126 | 0.0126 | 0.0126 | 0.0122 | 0.0125 |
| Magnesium | mg/L | 2.18 | 2.08 | 2.03 | 2.56 | 2.77 | 2.16 |
| Manganese | mg/L | 0.0116 | 0.0105 | 0.00987 | 0.00505 | 0.00446 | 0.00441 |
| Mercury | mg/L | 0.00000087 | 0.00000086 | 0.00000078 | 0.00000065 | < 0.00000050 | 0.00000053 |
| Molybdenum | mg/L | 0.000158 | 0.000163 | 0.000179 | 0.000188 | 0.000180 | 0.000179 |
| Nickel | mg/L | 0.000970 | 0.000897 | 0.000872 | 0.000833 | 0.000770 | 0.000801 |
| Niobium | mg/L | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 |
| Potassium | mg/L | 1.39 | 1.35 | 1.32 | 1.48 | 1.54 | 1.37 |
| Rhenium | mg/L | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 |
| Rubidium | mg/L | 0.00142 | 0.00140 | 0.00137 | 0.00159 | 0.00158 | 0.00153 |
| Selenium | mg/L | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | 0.000044 |
| Silicon | mg/L | 0.215 | 0.205 | 0.199 | 0.212 | 0.216 | 0.232 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Sodium | mg/L | 3.93 | 3.80 | 3.75 | 7.07 | 9.19 | 4.38 |
| Strontium | mg/L | 0.202 | 0.190 | 0.189 | 0.220 | 0.220 | 0.210 |
| Sulphur | mg/L | 2.18 | 2.16 | 1.89 | 2.49 | 2.51 | 2.14 |
| Tantalum | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | 0.000050 | 0.000068 | 0.000093 | 0.000074 | 0.000025 | 0.000067 |
| Titanium | mg/L | 0.000137 | < 0.00015 | 0.000143 | 0.000140 | 0.000079 | < 0.00015 |
| Tungsten | mg/L | 0.000040 | 0.000033 | 0.000032 | 0.000036 | 0.000035 | 0.000035 |
| Uranium | mg/L | 0.0000235 | 0.0000262 | 0.0000277 | 0.0000233 | 0.0000241 | 0.0000259 |
| Vanadium | mg/L | 0.000085 | 0.000090 | 0.000087 | 0.000059 | 0.000054 | 0.000058 |
| Yttrium | mg/L | 0.0000078 | 0.0000063 | 0.0000084 | 0.0000055 | 0.0000056 | 0.0000059 |
| Zinc | mg/L | 0.00137 | 0.00079 | 0.00082 | 0.00119 | 0.00080 | 0.00052 |
| Zirconium | mg/L | < 0.000010 | < 0.000010 | 0.000032 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC07-Dissolved Metals** | | | | | | | |
| Aluminum | mg/L | 0.0027 | 0.0026 | 0.0022 | 0.0024 | 0.0018 | 0.0014 |
| Antimony | mg/L | 0.000020 | 0.000021 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.00183 | 0.00142 | 0.00143 | 0.00151 | 0.00139 | 0.00127 |
| Barium | mg/L | 0.0203 | 0.0193 | 0.0188 | 0.0181 | 0.0177 | 0.0179 |

Appendix D Table: Lake B7 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sample Date** | | 13/07/2019 | 13/07/2019 | 13/07/2019 | 09/08/2019 | 09/08/2019 | 09/08/2019 |
| **Location** | | B7-01 | B7-02 | B7-03 | B7-01 | B7-02 | B7-03 |
| **FIELD_SDG** | | L2314029 | L2314029 | L2314029 | L2330132 | L2330132 | L2330132 |
| **Parameter** | **Unit** | | | | | | |
| Beryllium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | 0.0097 | 0.0086 | 0.0086 | 0.0128 | 0.0103 | 0.0093 |
| Cadmium | mg/L | < 0.0000050 | 0.0000127 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Cesium | mg/L | 0.0000375 | 0.0000244 | 0.0000220 | 0.0000246 | 0.0000209 | 0.0000220 |
| Chromium | mg/L | 0.00051 | 0.00057 | < 0.00010 | 0.00065 | < 0.00010 | < 0.00010 |
| Cobalt | mg/L | 0.0000219 | 0.0000199 | 0.0000151 | 0.0000206 | 0.0000206 | 0.0000158 |
| Copper | mg/L | 0.00107 | 0.00102 | 0.000801 | 0.00115 | 0.000759 | 0.000717 |
| Gallium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0391 | 0.0329 | 0.0343 | 0.0189 | 0.0208 | 0.0190 |
| Lanthanum | mg/L | 0.000016 | 0.000016 | 0.000017 | < 0.000010 | < 0.000010 | < 0.000010 |
| Lead | mg/L | 0.000047 | 0.000045 | 0.000036 | 0.000018 | 0.000014 | < 0.000010 |
| Lithium | mg/L | 0.0125 | 0.0119 | 0.0118 | 0.0128 | 0.0122 | 0.0120 |
| Manganese | mg/L | 0.00201 | 0.000839 | 0.000831 | 0.000995 | 0.000721 | 0.000432 |
| Mercury | mg/L | 0.00000074 | 0.00000077 | 0.00000083 | 0.00000080 | 0.00000052 | 0.00000086 |
| Molybdenum | mg/L | 0.000171 | 0.000159 | 0.000158 | 0.000181 | 0.000174 | 0.000173 |
| Nickel | mg/L | 0.000908 | 0.000948 | 0.000842 | 0.000851 | 0.000789 | 0.000799 |
| Niobium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Rhenium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Rubidium | mg/L | 0.00140 | 0.00135 | 0.00133 | 0.00163 | 0.00157 | 0.00151 |
| Selenium | mg/L | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 | < 0.000040 |
| Silicon | mg/L | 0.181 | 0.198 | 0.191 | 0.175 | 0.171 | 0.166 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Strontium | mg/L | 0.194 | 0.183 | 0.181 | 0.221 | 0.212 | 0.204 |
| Sulphur | mg/L | 2.14 | 1.99 | 1.82 | 2.62 | 2.29 | 2.00 |
| Tantalum | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | 0.000095 | 0.000116 | 0.000096 | 0.000086 | 0.000025 | 0.000032 |
| Titanium | mg/L | < 0.000050 | < 0.000050 | 0.000063 | < 0.000050 | < 0.000050 | < 0.000050 |
| Tungsten | mg/L | 0.000038 | 0.000031 | 0.000030 | 0.000033 | 0.000030 | 0.000031 |
| Uranium | mg/L | 0.0000229 | 0.0000249 | 0.0000240 | 0.0000253 | 0.0000247 | 0.0000264 |
| Vanadium | mg/L | 0.000065 | 0.000066 | 0.000061 | < 0.000050 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | 0.0000054 | 0.0000051 | 0.0000066 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Zinc | mg/L | 0.00127 | 0.00116 | 0.00180 | 0.00147 | 0.00070 | < 0.00050 |
| Zirconium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | 0.000011 | < 0.000010 | < 0.000010 |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

Appendix D Table: Lake D7 in-situ data, Meliadine Lake AEMP 2019.

| Sample Date | Location | Sample Depth | Field Measurement | | | | |
|---|---|---|---|---|---|---|---|
| | | | pH | Conductivity | Temperature | Dissolved oxygen | Dissolved oxygen |
| | | | pH units | uS/cm | °C | mg/L | % |
| 15/07/2019 | D7-01 | 0.5-1 m | 7.98 | 115.5 | 13.7 | 9.88 | 96.1 |
| 15/07/2019 | D7-01 | 0-0.5 m | 7.96 | 115.8 | 13.7 | 9.86 | 96.6 |
| 15/07/2019 | D7-01 | 1.5-2 m | 8 | 115.8 | 13.7 | 9.73 | 93.9 |
| 15/07/2019 | D7-01 | 1-1.5 m | 8 | 116 | 13.7 | 9.6 | 93.1 |
| | | | | | | | |
| 15/07/2019 | D7-02 | 0.5-1 m | 8.02 | 115.1 | 13.9 | 9.62 | 92.7 |
| 15/07/2019 | D7-02 | 0-0.5 m | 8.03 | 115.2 | 13.9 | 9.71 | 93.6 |
| 15/07/2019 | D7-02 | 1.5-1.8 m | 8.01 | 115.2 | 13.8 | 9.88 | 95.8 |
| 15/07/2019 | D7-02 | 1-1.5 m | 8.02 | 115.1 | 13.8 | 9.74 | 93.7 |
| | | | | | | | |
| 15/07/2019 | D7-03 | 0.5-1 m | 8.02 | 115.3 | 13.8 | 9.77 | 96.4 |
| 15/07/2019 | D7-03 | 0-0.5 m | 8.02 | 115.3 | 13.8 | 9.68 | 93.4 |
| 15/07/2019 | D7-03 | 1.5-2 m | 8.02 | 115.4 | 13.7 | 9.65 | 94.8 |
| 15/07/2019 | D7-03 | 1-1.5 m | 8.02 | 115.3 | 13.8 | 9.81 | 94.8 |
| | | | | | | | |
| 14/08/2019 | D7-01 | 0.5-1 m | 97.97 | 132.1 | 11.3 | 9.84 | 90.4 |
| 14/08/2019 | D7-01 | 0-0.5 m | 7.96 | 132.2 | 11.3 | 10.02 | 92.3 |
| 14/08/2019 | D7-01 | 1.5-2 m | 7.99 | 132.2 | 11.3 | 9.88 | 90.7 |
| 14/08/2019 | D7-01 | 1-1.5 m | 7.98 | 132.2 | 11.3 | 9.78 | 88.5 |
| 14/08/2019 | D7-01 | 2-2.5 m | 7.92 | 132.7 | 11.3 | 9.67 | 88.7 |
| | | | | | | | |
| 14/08/2019 | D7-02 | 0.5-1 m | 8 | 131.6 | 11.5 | 9.94 | 90.7 |
| 14/08/2019 | D7-02 | 0-0.5 m | 8 | 131.7 | 11.5 | 10.08 | 93.3 |
| 14/08/2019 | D7-02 | 1.5-2 m | 8.01 | 131.6 | 11.4 | 9.29 | 84.6 |
| 14/08/2019 | D7-02 | 1-1.5 m | 8 | 31.4 | 11.4 | 9.76 | 87.8 |
| 14/08/2019 | D7-02 | 2-2.5 m | 8.01 | 131.4 | 11.4 | 9.76 | 88.8 |
| | | | | | | | |
| 14/08/2019 | D7-03 | 0.5-1 m | 8 | 131.8 | 11.5 | 8.98 | 82.2 |
| 14/08/2019 | D7-03 | 0-0.5 m | 7.99 | 131.7 | 11.5 | 9.46 | 87.4 |
| 14/08/2019 | D7-03 | 1.5-2 m | 8 | 131.8 | 11.3 | 9.72 | 88.1 |
| 14/08/2019 | D7-03 | 1-1.5 m | 8 | 131.9 | 11.4 | 9.67 | 88 |
| 14/08/2019 | D7-03 | 2-2.5 m | 7.98 | 131.7 | 11.3 | 9.82 | 88.6 |

- Chemical not analyzed or criteria not defined.

Output generated by GalReport.

Appendix D Table: Lake D7 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 15/07/2019 | 15/07/2019 | 15/07/2019 | 12/08/2019 | 14/08/2019 | 14/08/2019 |
|---|---|---|---|---|---|---|---|
| | Location | D7-01 | D7-02 | D7-03 | D7-01 | D7-02 | D7-03 |
| | FIELD_SDG | L2314029 | L2314029 | L2314029 | L2332618 | L2332618 | L2332618 |
| **Parameter** | **Unit** | | | | | | |
| **WQTC02-Conventional Parameters** | | | | | | | |
| pH | pH units | 7.75 | 7.72 | 7.71 | 7.80 | 7.81 | 7.81 |
| Specific conductivity | umhos/cm | 115 | 116 | 116 | 155 | 134 | 135 |
| Hardness, as CaCO3 (N) | mg/L | 43.1 | 42.6 | 42.6 | - | - | - |
| Hardness, as CaCO3 (N) | none | - | - | - | 50.2 | 47.2 | 47.3 |
| Total alkalinity, as CaCO3 | mg/L | 42.5 | 41.9 | 42.1 | 46.2 | 45.4 | 46.4 |
| Total dissolved solids | mg/L | 61.8\|68 | 61.2\|72 | 61.2\|69 | 79.4\|75 | 70.2\|79 | 70.2\|90 |
| Total dissolved solids (calculated) | mg/L | 61.8 | 61.2 | 61.2 | 79.4 | 70.2 | 70.2 |
| Total suspended solids | mg/L | 1.2 | 1.4 | 1.5 | 1.3 | 1.2 | < 1.0 |
| Total organic carbon | mg/L | 4.27 | 4.18 | 4.03 | 4.41 | 4.37 | 4.80 |
| Dissolved organic carbon | mg/L | 3.94 | 3.94 | 3.75 | 4.34 | 4.41 | 4.36 |
| Turbidity | NTU | 0.62 | 0.62 | 0.66 | 0.64 | 0.57 | 0.59 |
| **WQTC03-Major Ions** | | | | | | | |
| Bicarbonate | mg/L | 51.9 | 51.1 | 51.4 | 56.4 | 55.4 | 56.6 |
| Calcium | mg/L | 13.3 | 13.1 | 13.2 | 15.3 | 14.5 | 14.6 |
| Carbonate | mg/L | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 |
| Chloride | mg/L | 8.62 | 8.68 | 8.61 | 17.3 | 11.5 | 11.4 |
| Cyanide | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Fluoride | mg/L | 0.034 | 0.033 | 0.033 | 0.042 | 0.041 | 0.042 |
| Hydroxide | mg/L | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 | < 0.34 |
| Magnesium | mg/L | 2.40 | 2.39 | 2.36 | 2.93 | 2.70 | 2.64 |
| Potassium | mg/L | 1.18 | 1.16 | 1.15 | 1.35 | 1.31 | 1.28 |
| Sodium | mg/L | 6.59 | 6.42 | 6.54 | 9.29 | 8.26 | 7.75 |
| Sulphate | mg/L | 4.19 | 4.27 | 4.00 | 5.25 | 4.55 | 4.55 |
| Cyanide (free) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Cyanide (WAD) | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Ion Ratio (+/-) | % | 99.8 | 98.9 | 99.7 | 94.7 | 101 | 97.7 |
| **WQTC04-Nutrients and Chlorophyll a** | | | | | | | |
| Nitrate | mg/L | < 0.0050 | < 0.0050 | < 0.0050 | 0.0374 | 0.0123 | 0.0258 |
| Nitrite | mg/L | < 0.0010 | < 0.0010 | < 0.0010 | 0.0011 | < 0.0010 | 0.0014 |
| Nitrate + nitrite | mg/L | < 0.0051 | < 0.0051 | < 0.0051 | 0.0386 | 0.0123 | 0.0272 |
| Total ammonia | mg/L | 0.0342 | 0.0061 | 0.0070 | 0.0290 | 0.0173 | 0.0199 |
| Total Kjeldahl nitrogen | mg/L | 0.445 | 0.384 | 0.170 | 0.447 | 0.409 | 0.441 |
| Total phosphorus | mg/L | < 0.050\|0.0089 | < 0.050\|0.0083 | < 0.050\|0.0086 | < 0.050\|0.0098 | < 0.050\|0.0086 | < 0.050\|0.0083 |
| Dissolved phosphorus | mg/L | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| **WQTC06-Total Metals** | | | | | | | |
| Aluminum | mg/L | 0.0079 | 0.0063 | 0.0062 | 0.0057 | 0.0063 | 0.0053 |
| Antimony | mg/L | 0.000022 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.00123 | 0.00124 | 0.00120 | 0.00105 | 0.00101 | 0.000954 |
| Barium | mg/L | 0.0185 | 0.0185 | 0.0181 | 0.0164 | 0.0168 | 0.0167 |
| Beryllium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | 0.0000378 | 0.0000055 | 0.0000071 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Boron | mg/L | 0.0120 | 0.0120 | 0.0123 | 0.0139 | 0.0147 | 0.0150 |
| Cadmium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |

Appendix D Table: Lake D7 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | Sample Date | 15/07/2019 | 15/07/2019 | 15/07/2019 | 12/08/2019 | 14/08/2019 | 14/08/2019 |
|---|---|---|---|---|---|---|---|
| | Location | D7-01 | D7-02 | D7-03 | D7-01 | D7-02 | D7-03 |
| | FIELD_SDG | L2314029 | L2314029 | L2314029 | L2332618 | L2332618 | L2332618 |
| **Parameter** | **Unit** | | | | | | |
| Calcium | mg/L | 13.5 | 13.3 | 13.5 | 15.0 | 15.1 | 15.4 |
| Cesium | mg/L | 0.0000062 | 0.0000054 | 0.0000057 | 0.0000121 | 0.0000126 | 0.0000091 |
| Chromium | mg/L | < 0.00010 | 0.00010 | < 0.00010 | < 0.00010 | 0.00036 | < 0.00010 |
| Cobalt | mg/L | 0.0000500 | 0.0000495 | 0.0000420 | 0.0000520 | 0.0000517 | 0.0000484 |
| Copper | mg/L | 0.000769 | 0.000673 | 0.000646 | 0.00174 | 0.000824 | 0.000780 |
| Gallium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.135 | 0.130 | 0.130 | 0.0648 | 0.0627 | 0.0594 |
| Lanthanum | mg/L | 0.000038 | 0.000037 | 0.000038 | 0.000025 | 0.000028 | 0.000024 |
| Lead | mg/L | 0.000039 | 0.000031 | 0.000037 | 0.000057 | 0.000025 | 0.000017 |
| Lithium | mg/L | 0.00134 | 0.00134 | 0.00134 | 0.00167 | 0.00170 | 0.00159 |
| Magnesium | mg/L | 2.42 | 2.40 | 2.39 | 2.86 | 2.81 | 2.62 |
| Manganese | mg/L | 0.0137 | 0.0114 | 0.0105 | 0.0110 | 0.0119 | 0.0108 |
| Mercury | mg/L | 0.00000099 | 0.00000091 | 0.00000096 | 0.00000072 | 0.00000079 | 0.00000066 |
| Molybdenum | mg/L | 0.000290 | 0.000298 | 0.000305 | 0.000459 | 0.000455 | 0.000445 |
| Nickel | mg/L | 0.000803 | 0.000789 | 0.000793 | 0.000784 | 0.000803 | 0.000767 |
| Niobium | mg/L | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 | < 0.00010\|< 0.00010 |
| Potassium | mg/L | 1.20 | 1.17 | 1.17 | 1.33 | 1.32 | 1.29 |
| Rhenium | mg/L | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 | < 0.0000050\|< 0.0000050 |
| Rubidium | mg/L | 0.000944 | 0.000908 | 0.000929 | 0.00114 | 0.00114 | 0.00111 |
| Selenium | mg/L | < 0.000040 | < 0.000040 | 0.000041 | < 0.000040 | 0.000042 | 0.000044 |
| Silicon | mg/L | 0.128 | 0.128 | 0.133 | 0.134 | 0.138 | 0.139 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Sodium | mg/L | 6.40 | 6.41 | 6.39 | 9.07 | 9.04 | 7.87 |
| Strontium | mg/L | 0.0672 | 0.0663 | 0.0658 | 0.0803 | 0.0836 | 0.0739 |
| Sulphur | mg/L | 1.50 | 1.33 | 1.51 | 1.77 | 1.88 | 1.63 |
| Tantalum | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | 0.0000057 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | 0.000066 | 0.000060 | 0.000080 | 0.000047 | 0.000035 | < 0.000020 |
| Titanium | mg/L | 0.000348 | 0.000325 | 0.000305 | 0.000300 | 0.000330 | 0.000276 |
| Tungsten | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.0000542 | 0.0000566 | 0.0000603 | 0.0000615 | 0.0000645 | 0.0000615 |
| Vanadium | mg/L | 0.000144 | 0.000141 | 0.000141 | 0.000081 | 0.000082 | 0.000079 |
| Yttrium | mg/L | 0.0000097 | 0.0000089 | 0.0000081 | 0.0000076 | 0.0000086 | 0.0000090 |
| Zinc | mg/L | 0.00118 | 0.00057 | 0.00058 | 0.00112 | < 0.00050 | < 0.00050 |
| Zirconium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| **WQTC07-Dissolved Metals** | | | | | | | |
| Aluminum | mg/L | 0.0034 | 0.0029 | 0.0023 | 0.0025 | 0.0026 | 0.0021 |
| Antimony | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Arsenic | mg/L | 0.00100 | 0.000983 | 0.000897 | 0.000899 | 0.000899 | 0.000865 |
| Barium | mg/L | 0.0176 | 0.0174 | 0.0175 | 0.0171 | 0.0166 | 0.0167 |
| Beryllium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Bismuth | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |

Appendix D Table: Lake D7 laboratory chemistry data, Meliadine Lake AEMP 2019.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sample Date** | | 15/07/2019 | 15/07/2019 | 15/07/2019 | 12/08/2019 | 14/08/2019 | 14/08/2019 |
| **Location** | | D7-01 | D7-02 | D7-03 | D7-01 | D7-02 | D7-03 |
| **FIELD_SDG** | | L2314029 | L2314029 | L2314029 | L2332618 | L2332618 | L2332618 |
| **Parameter** | **Unit** | | | | | | |
| Boron | mg/L | 0.0122 | 0.0116 | 0.0121 | 0.0146 | 0.0145 | 0.0144 |
| Cadmium | mg/L | 0.0000060 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Cesium | mg/L | 0.0000051 | 0.0000051 | < 0.0000050 | 0.0000123 | 0.0000087 | 0.0000089 |
| Chromium | mg/L | < 0.00010 | < 0.00010 | 0.00038 | < 0.00010 | < 0.00010 | 0.00019 |
| Cobalt | mg/L | 0.0000228 | 0.0000200 | 0.0000174 | 0.0000234 | 0.0000218 | 0.0000216 |
| Copper | mg/L | 0.000827 | 0.000653 | 0.000618 | 0.000773 | 0.000787 | 0.000767 |
| Gallium | mg/L | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 | < 0.000050 |
| Iron | mg/L | 0.0733 | 0.0574 | 0.0577 | 0.0221 | 0.0202 | 0.0191 |
| Lanthanum | mg/L | 0.000020 | 0.000018 | 0.000017 | 0.000012 | 0.000010 | < 0.000010 |
| Lead | mg/L | 0.000027 | 0.000022 | 0.000020 | < 0.000010 | < 0.000010 | < 0.000010 |
| Lithium | mg/L | 0.00129 | 0.00125 | 0.00127 | 0.00168 | 0.00153 | 0.00151 |
| Manganese | mg/L | 0.00193 | 0.00118 | 0.000876 | 0.00105 | 0.00136 | 0.000994 |
| Mercury | mg/L | 0.00000078 | 0.00000076 | 0.00000080 | 0.00000056 | 0.00000071 | 0.00000060 |
| Molybdenum | mg/L | 0.000304 | 0.000300 | 0.000291 | 0.000445 | 0.000422 | 0.000428 |
| Nickel | mg/L | 0.000777 | 0.000801 | 0.000711 | 0.000769 | 0.000760 | 0.000731 |
| Niobium | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Rhenium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Rubidium | mg/L | 0.000950 | 0.000918 | 0.000918 | 0.00118 | 0.00118 | 0.00111 |
| Selenium | mg/L | < 0.000040 | < 0.000040 | < 0.000040 | 0.000045 | 0.000049 | 0.000042 |
| Silicon | mg/L | 0.129 | 0.117 | 0.124 | 0.126 | 0.113 | 0.130 |
| Silver | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Strontium | mg/L | 0.0652 | 0.0635 | 0.0652 | 0.0786 | 0.0717 | 0.0688 |
| Sulphur | mg/L | 1.33 | 1.38 | 1.38 | 1.80 | 1.69 | 1.76 |
| Tantalum | mg/L | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 | < 0.00010 |
| Tellurium | mg/L | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 | < 0.000020 |
| Thallium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Thorium | mg/L | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 | < 0.0000050 |
| Tin | mg/L | 0.000068 | 0.000066 | 0.000031 | 0.000036 | 0.000026 | < 0.000020 |
| Titanium | mg/L | < 0.00010 | 0.000061 | 0.000057 | < 0.000050 | < 0.000050 | 0.000052 |
| Tungsten | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |
| Uranium | mg/L | 0.0000549 | 0.0000526 | 0.0000549 | 0.0000582 | 0.0000590 | 0.0000592 |
| Vanadium | mg/L | 0.000113 | 0.000099 | 0.000102 | 0.000052 | < 0.000050 | < 0.000050 |
| Yttrium | mg/L | 0.0000081 | 0.0000063 | 0.0000069 | 0.0000054 | 0.0000058 | < 0.0000050 |
| Zinc | mg/L | 0.00142 | 0.00105 | 0.00068 | 0.00071 | < 0.00050 | < 0.00050 |
| Zirconium | mg/L | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 | < 0.000010 |

< Indicates parameter was below laboratory equipment detection limit.
> Indicates parameter detected above equipment analytical range.
- Chemical not analyzed or criteria not defined.
Output generated by GalReport.

# APPENDIX E
# ALS CERTIFICATES OF ANALYSIS – 2019 AEMP WATER CHEMISTRY

# Appendix E1
# ALS Lab Reports: February 2019

Agnico-Eagle - Meliadine Gold Project
ATTN: JENNIFER BROWN
PO Box 99
Rankin Inlet NU X0C 0G0

Date Received: 22-FEB-19
Report Date: 18-MAR-19 14:49 (MT)
Version: FINAL

Client Phone: 819-759-3555

# Certificate of Analysis

## Lab Work Order #: L2235701

Project P.O. #: NOT SUBMITTED
Job Reference: 18110868 AGNICO EAGLE - MELIADINE
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-1 MEL-01-01 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 14:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 28.9 | | 1.2 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 23.7 | | 1.0 | mg/L | | 22-FEB-19 | R4523497 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 15.1 | | 0.10 | mg/L | | 22-FEB-19 | R4525468 |
| **Conductivity** | | | | | | | |
| Conductivity | 107 | | 1.0 | umhos/cm | | 22-FEB-19 | R4523497 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.029 | | 0.020 | mg/L | | 22-FEB-19 | R4525468 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 32.3 | | 0.20 | mg/L | | 18-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 97.4 | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 55.0 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0171 | | 0.0050 | mg/L | | 22-FEB-19 | R4525468 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0171 | | 0.0051 | mg/L | | 26-FEB-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-FEB-19 | R4525468 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.44 | | 0.30 | mg/L | | 22-FEB-19 | R4525468 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 89 | | 13 | mg/L | | 28-FEB-19 | R4539949 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.17 | | 0.10 | NTU | | 22-FEB-19 | R4524935 |
| **pH** | | | | | | | |
| pH | 7.16 | | 0.10 | pH units | | 22-FEB-19 | R4523497 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0244 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 2.52 | | 0.50 | mg/L | | 27-FEB-19 | R4534467 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Phosphorus (P)-Total | 0.0038 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |
| Phosphorus (P)-Total Dissolved | 0.0018 | | 0.0010 | mg/L | | 04-MAR-19 | R4543994 |
| Ra-226 | <0.0097 | | 0.0097 | Bq/L | 26-FEB-19 | 07-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.422 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.219 | | 0.050 | mg/L | 04-MAR-19 | 05-MAR-19 | R4543995 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 26-FEB-19 | R4528787 |
| Total Nitrogen | 0.236 | | 0.050 | mg/L | | 05-MAR-19 | |
| Total Organic Carbon | 3.05 | | 0.50 | mg/L | | 27-FEB-19 | R4534452 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 26-FEB-19 | R4528927 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00069 | | 0.00030 | mg/L | | 06-MAR-19 | R4546411 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-1 MEL-01-01 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 14:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Arsenic (As)-Total | 0.000410 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Barium (Ba)-Total | 0.0101 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Boron (B)-Total | 0.0059 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Calcium (Ca)-Total | 9.74 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Chromium (Cr)-Total | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Cobalt (Co)-Total | 0.000011 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Copper (Cu)-Total | 0.00083 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Iron (Fe)-Total | 0.0052 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Lead (Pb)-Total | 0.000075 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Lithium (Li)-Total | 0.00154 | | 0.00050 | mg/L | | 28-FEB-19 | R4536387 |
| Magnesium (Mg)-Total | 1.82 | | 0.0040 | mg/L | | 28-FEB-19 | R4536387 |
| Manganese (Mn)-Total | 0.00214 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Molybdenum (Mo)-Total | 0.000095 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Nickel (Ni)-Total | 0.000678 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Potassium (K)-Total | 1.24 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Selenium (Se)-Total | 0.000046 | | 0.000040 | mg/L | | 28-FEB-19 | R4536387 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Sodium (Na)-Total | 7.18 | | 0.0050 | mg/L | | 28-FEB-19 | R4536387 |
| Strontium (Sr)-Total | 0.0566 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Uranium (U)-Total | 0.000014 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Zinc (Zn)-Total | <0.00080 | | 0.00080 | mg/L | | 28-FEB-19 | R4536387 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-FEB-19 | R4530168 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-FEB-19 | 01-MAR-19 | R4537767 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-FEB-19 | R4533188 |
| Aluminum (Al)-Dissolved | 0.00077 | | 0.00030 | mg/L | | 06-MAR-19 | R4546411 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Arsenic (As)-Dissolved | 0.000410 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Barium (Ba)-Dissolved | 0.0104 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Boron (B)-Dissolved | 0.0062 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Calcium (Ca)-Dissolved | 9.87 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Chromium (Cr)-Dissolved | 0.000061 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Copper (Cu)-Dissolved | 0.00084 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Iron (Fe)-Dissolved | 0.0035 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Lead (Pb)-Dissolved | 0.000081 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Lithium (Li)-Dissolved | 0.00148 | | 0.00050 | mg/L | | 28-FEB-19 | R4536331 |
| Magnesium (Mg)-Dissolved | 1.86 | | 0.0040 | mg/L | | 28-FEB-19 | R4536331 |
| Manganese (Mn)-Dissolved | 0.000414 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Molybdenum (Mo)-Dissolved | 0.000106 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-1 MEL-01-01 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 14:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Nickel (Ni)-Dissolved | 0.000749 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Potassium (K)-Dissolved | 1.26 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536331 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Sodium (Na)-Dissolved | 7.15 | | 0.0050 | mg/L | | 28-FEB-19 | R4536331 |
| Strontium (Sr)-Dissolved | 0.0565 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Uranium (U)-Dissolved | 0.000016 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Zinc (Zn)-Dissolved | 0.00144 | | 0.00080 | mg/L | | 28-FEB-19 | R4536331 |
| L2235701-2 MEL-01-06 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 13:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 28.7 | | 1.2 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 23.5 | | 1.0 | mg/L | | 22-FEB-19 | R4523497 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 14.5 | | 0.10 | mg/L | | 22-FEB-19 | R4525468 |
| **Conductivity** | | | | | | | |
| Conductivity | 103 | | 1.0 | umhos/cm | | 22-FEB-19 | R4523497 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 22-FEB-19 | R4525468 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 30.7 | | 0.20 | mg/L | | 18-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 94.6 | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 53.0 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0112 | | 0.0050 | mg/L | | 22-FEB-19 | R4525468 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0112 | | 0.0051 | mg/L | | 26-FEB-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-FEB-19 | R4525468 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.23 | | 0.30 | mg/L | | 22-FEB-19 | R4525468 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 71 | | 13 | mg/L | | 28-FEB-19 | R4539949 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.15 | | 0.10 | NTU | | 22-FEB-19 | R4524935 |
| **pH** | | | | | | | |
| pH | 7.21 | | 0.10 | pH units | | 22-FEB-19 | R4523497 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0239 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 2.70 | | 0.50 | mg/L | | 27-FEB-19 | R4534467 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-2 MEL-01-06 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 13:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Phosphorus (P)-Total | 0.0029 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |
| Phosphorus (P)-Total Dissolved | 0.0025 | | 0.0010 | mg/L | | 04-MAR-19 | R4543994 |
| Ra-226 | <0.0089 | | 0.0089 | Bq/L | 26-FEB-19 | 07-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.394 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.225 | | 0.050 | mg/L | 04-MAR-19 | 05-MAR-19 | R4543995 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 26-FEB-19 | R4528787 |
| Total Nitrogen | 0.236 | | 0.050 | mg/L | | 05-MAR-19 | |
| Total Organic Carbon | 3.20 | | 0.50 | mg/L | | 27-FEB-19 | R4534452 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 26-FEB-19 | R4528927 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00095 | | 0.00030 | mg/L | | 28-FEB-19 | R4536387 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Arsenic (As)-Total | 0.000409 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Barium (Ba)-Total | 0.00939 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Boron (B)-Total | 0.0058 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Calcium (Ca)-Total | 9.35 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Chromium (Cr)-Total | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Cobalt (Co)-Total | 0.000012 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Copper (Cu)-Total | 0.00082 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Iron (Fe)-Total | 0.0049 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Lead (Pb)-Total | 0.000108 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Lithium (Li)-Total | 0.00148 | | 0.00050 | mg/L | | 28-FEB-19 | R4536387 |
| Magnesium (Mg)-Total | 1.72 | | 0.0040 | mg/L | | 28-FEB-19 | R4536387 |
| Manganese (Mn)-Total | 0.00190 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Molybdenum (Mo)-Total | 0.000108 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Nickel (Ni)-Total | 0.000701 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Potassium (K)-Total | 1.18 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536387 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Sodium (Na)-Total | 7.02 | | 0.0050 | mg/L | | 28-FEB-19 | R4536387 |
| Strontium (Sr)-Total | 0.0546 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Uranium (U)-Total | 0.000013 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Zinc (Zn)-Total | 0.00118 | | 0.00080 | mg/L | | 28-FEB-19 | R4536387 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-FEB-19 | R4530168 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-FEB-19 | 01-MAR-19 | R4537767 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-FEB-19 | R4533188 |
| Aluminum (Al)-Dissolved | 0.00076 | | 0.00030 | mg/L | | 28-FEB-19 | R4536331 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Arsenic (As)-Dissolved | 0.000372 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-2 MEL-01-06 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 13:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Barium (Ba)-Dissolved | 0.00967 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Boron (B)-Dissolved | 0.0059 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Calcium (Ca)-Dissolved | 9.44 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Chromium (Cr)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Copper (Cu)-Dissolved | 0.00077 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Iron (Fe)-Dissolved | 0.0021 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Lead (Pb)-Dissolved | 0.000101 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Lithium (Li)-Dissolved | 0.00147 | | 0.00050 | mg/L | | 28-FEB-19 | R4536331 |
| Magnesium (Mg)-Dissolved | 1.72 | | 0.0040 | mg/L | | 28-FEB-19 | R4536331 |
| Manganese (Mn)-Dissolved | 0.000322 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Molybdenum (Mo)-Dissolved | 0.000117 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Nickel (Ni)-Dissolved | 0.000644 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Potassium (K)-Dissolved | 1.17 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536331 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Sodium (Na)-Dissolved | 6.77 | | 0.0050 | mg/L | | 28-FEB-19 | R4536331 |
| Strontium (Sr)-Dissolved | 0.0544 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Uranium (U)-Dissolved | 0.000014 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Zinc (Zn)-Dissolved | 0.00142 | | 0.00080 | mg/L | | 28-FEB-19 | R4536331 |
| L2235701-3 MEL-01-07 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 28.7 | | 1.2 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 23.5 | | 1.0 | mg/L | | 22-FEB-19 | R4523497 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 14.9 | | 0.10 | mg/L | | 22-FEB-19 | R4525468 |
| **Conductivity** | | | | | | | |
| Conductivity | 106 | | 1.0 | umhos/cm | | 22-FEB-19 | R4523497 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.029 | | 0.020 | mg/L | | 22-FEB-19 | R4525468 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 32.4 | | 0.20 | mg/L | | 18-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 98.8 | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 54.8 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-3 MEL-01-07 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0124 | | 0.0050 | mg/L | | 22-FEB-19 | R4525468 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0124 | | 0.0051 | mg/L | | 26-FEB-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-FEB-19 | R4525468 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.42 | | 0.30 | mg/L | | 22-FEB-19 | R4525468 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 70 | | 13 | mg/L | | 28-FEB-19 | R4539949 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.18 | | 0.10 | NTU | | 22-FEB-19 | R4524935 |
| **pH** | | | | | | | |
| pH | 7.21 | | 0.10 | pH units | | 22-FEB-19 | R4523497 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0234 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 1.88 | | 0.50 | mg/L | | 06-MAR-19 | R4549712 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Phosphorus (P)-Total | 0.0035 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |
| Phosphorus (P)-Total Dissolved | 0.0031 | | 0.0010 | mg/L | | 04-MAR-19 | R4543994 |
| Ra-226 | <0.0052 | | 0.0052 | Bq/L | 26-FEB-19 | 07-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.374 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.265 | | 0.050 | mg/L | 04-MAR-19 | 05-MAR-19 | R4543995 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 26-FEB-19 | R4528787 |
| Total Nitrogen | 0.277 | | 0.050 | mg/L | | 05-MAR-19 | |
| Total Organic Carbon | 2.01 | | 0.50 | mg/L | | 06-MAR-19 | R4549647 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 26-FEB-19 | R4528927 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00193 | | 0.00030 | mg/L | | 28-FEB-19 | R4536387 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Arsenic (As)-Total | 0.000422 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Barium (Ba)-Total | 0.00965 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Boron (B)-Total | 0.0060 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Calcium (Ca)-Total | 9.71 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Chromium (Cr)-Total | 0.000063 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Cobalt (Co)-Total | 0.000012 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Copper (Cu)-Total | 0.00086 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Iron (Fe)-Total | 0.0053 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Lead (Pb)-Total | 0.000106 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Lithium (Li)-Total | 0.00159 | | 0.00050 | mg/L | | 28-FEB-19 | R4536387 |
| Magnesium (Mg)-Total | 1.81 | | 0.0040 | mg/L | | 28-FEB-19 | R4536387 |
| Manganese (Mn)-Total | 0.00168 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Molybdenum (Mo)-Total | 0.000105 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Nickel (Ni)-Total | 0.000672 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Potassium (K)-Total | 1.25 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536387 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-3 MEL-01-07 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Sodium (Na)-Total | 7.04 | | 0.0050 | mg/L | | 28-FEB-19 | R4536387 |
| Strontium (Sr)-Total | 0.0554 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Uranium (U)-Total | 0.000014 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Zinc (Zn)-Total | 0.00223 | | 0.00080 | mg/L | | 28-FEB-19 | R4536387 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-FEB-19 | R4530168 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-FEB-19 | 01-MAR-19 | R4537767 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-FEB-19 | R4533188 |
| Aluminum (Al)-Dissolved | 0.00101 | | 0.00030 | mg/L | | 28-FEB-19 | R4536331 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Arsenic (As)-Dissolved | 0.000432 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Barium (Ba)-Dissolved | 0.0101 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Boron (B)-Dissolved | 0.0062 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Calcium (Ca)-Dissolved | 9.93 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Chromium (Cr)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Copper (Cu)-Dissolved | 0.00079 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Iron (Fe)-Dissolved | 0.0025 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Lead (Pb)-Dissolved | 0.000093 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Lithium (Li)-Dissolved | 0.00155 | | 0.00050 | mg/L | | 28-FEB-19 | R4536331 |
| Magnesium (Mg)-Dissolved | 1.83 | | 0.0040 | mg/L | | 28-FEB-19 | R4536331 |
| Manganese (Mn)-Dissolved | 0.000337 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Molybdenum (Mo)-Dissolved | 0.000339 | DTC | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Nickel (Ni)-Dissolved | 0.000692 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Potassium (K)-Dissolved | 1.25 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536331 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Sodium (Na)-Dissolved | 7.27 | | 0.0050 | mg/L | | 28-FEB-19 | R4536331 |
| Strontium (Sr)-Dissolved | 0.0562 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Uranium (U)-Dissolved | 0.000014 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Zinc (Zn)-Dissolved | 0.00227 | | 0.00080 | mg/L | | 28-FEB-19 | R4536331 |
| L2235701-4 MEL-01-08 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 34.5 | | 1.2 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Carbonate** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-4 MEL-01-08 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 28.3 | | 1.0 | mg/L | | 22-FEB-19 | R4523497 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 18.8 | | 0.10 | mg/L | | 22-FEB-19 | R4525468 |
| **Conductivity** | | | | | | | |
| Conductivity | 131 | | 1.0 | umhos/cm | | 22-FEB-19 | R4523497 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.034 | | 0.020 | mg/L | | 22-FEB-19 | R4525468 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 41.0 | | 0.20 | mg/L | | 18-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 103 | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 68.4 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0097 | | 0.0050 | mg/L | | 22-FEB-19 | R4525468 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0097 | | 0.0051 | mg/L | | 26-FEB-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-FEB-19 | R4525468 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 6.63 | | 0.30 | mg/L | | 22-FEB-19 | R4525468 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 94 | | 13 | mg/L | | 28-FEB-19 | R4539949 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.37 | | 0.10 | NTU | | 22-FEB-19 | R4524935 |
| **pH** | | | | | | | |
| pH | 7.28 | | 0.10 | pH units | | 22-FEB-19 | R4523497 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0351 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 3.49 | | 0.50 | mg/L | | 27-FEB-19 | R4534467 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Phosphorus (P)-Total | 0.0076 | | 0.0030 | mg/L | | 05-MAR-19 | R4546769 |
| Phosphorus (P)-Total Dissolved | 0.0040 | | 0.0010 | mg/L | | 04-MAR-19 | R4543994 |
| Ra-226 | <0.0053 | | 0.0053 | Bq/L | 26-FEB-19 | 07-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.407 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.312 | | 0.050 | mg/L | 04-MAR-19 | 05-MAR-19 | R4543995 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Mercury (Hg)-Total | 0.00135 | | 0.00050 | ug/L | | 26-FEB-19 | R4528787 |
| Total Nitrogen | 0.322 | | 0.050 | mg/L | | 05-MAR-19 | |
| Total Organic Carbon | 3.90 | | 0.50 | mg/L | | 27-FEB-19 | R4534452 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 26-FEB-19 | R4528927 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00545 | | 0.00030 | mg/L | | 28-FEB-19 | R4536387 |
| Antimony (Sb)-Total | 0.000025 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Arsenic (As)-Total | 0.000562 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Barium (Ba)-Total | 0.0128 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-4 MEL-01-08 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Bismuth (Bi)-Total | 0.000014 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Boron (B)-Total | 0.0076 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Cadmium (Cd)-Total | 0.0000098 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Calcium (Ca)-Total | 12.0 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Chromium (Cr)-Total | 0.000127 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Cobalt (Co)-Total | 0.000024 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Copper (Cu)-Total | 0.00174 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Iron (Fe)-Total | 0.0191 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Lead (Pb)-Total | 0.000471 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Lithium (Li)-Total | 0.00199 | | 0.00050 | mg/L | | 28-FEB-19 | R4536387 |
| Magnesium (Mg)-Total | 2.27 | | 0.0040 | mg/L | | 28-FEB-19 | R4536387 |
| Manganese (Mn)-Total | 0.00175 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Molybdenum (Mo)-Total | 0.000131 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Nickel (Ni)-Total | 0.000977 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Potassium (K)-Total | 1.66 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Selenium (Se)-Total | 0.000059 | | 0.000040 | mg/L | | 28-FEB-19 | R4536387 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Sodium (Na)-Total | 9.29 | | 0.0050 | mg/L | | 28-FEB-19 | R4536387 |
| Strontium (Sr)-Total | 0.0731 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Titanium (Ti)-Total | 0.00021 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Uranium (U)-Total | 0.000021 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Zinc (Zn)-Total | 0.00795 | | 0.00080 | mg/L | | 28-FEB-19 | R4536387 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-FEB-19 | R4530168 |
| Mercury (Hg)-Dissolved | 0.00081 | | 0.00050 | ug/L | 27-FEB-19 | 01-MAR-19 | R4537767 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-FEB-19 | R4533188 |
| Aluminum (Al)-Dissolved | 0.00104 | | 0.00030 | mg/L | | 28-FEB-19 | R4536331 |
| Antimony (Sb)-Dissolved | 0.000029 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Arsenic (As)-Dissolved | 0.000536 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Barium (Ba)-Dissolved | 0.0128 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Boron (B)-Dissolved | 0.0077 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Cadmium (Cd)-Dissolved | 0.0000098 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Calcium (Ca)-Dissolved | 12.5 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Chromium (Cr)-Dissolved | 0.000742 | DTC | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Cobalt (Co)-Dissolved | 0.000024 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Copper (Cu)-Dissolved | 0.00151 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Iron (Fe)-Dissolved | 0.0133 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Lead (Pb)-Dissolved | 0.000305 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Lithium (Li)-Dissolved | 0.00199 | | 0.00050 | mg/L | | 28-FEB-19 | R4536331 |
| Magnesium (Mg)-Dissolved | 2.40 | | 0.0040 | mg/L | | 28-FEB-19 | R4536331 |
| Manganese (Mn)-Dissolved | 0.000968 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Molybdenum (Mo)-Dissolved | 0.000153 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Nickel (Ni)-Dissolved | 0.000897 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Potassium (K)-Dissolved | 1.69 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Selenium (Se)-Dissolved | 0.000046 | | 0.000040 | mg/L | | 28-FEB-19 | R4536331 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-4 MEL-01-08 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Sodium (Na)-Dissolved | 9.37 | | 0.0050 | mg/L | | 28-FEB-19 | R4536331 |
| Strontium (Sr)-Dissolved | 0.0734 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Uranium (U)-Dissolved | 0.000022 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Zinc (Zn)-Dissolved | 0.00792 | | 0.00080 | mg/L | | 28-FEB-19 | R4536331 |
| L2235701-5 MEL-01-09 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 15:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 29.5 | | 1.2 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 24.2 | | 1.0 | mg/L | | 22-FEB-19 | R4523497 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 15.4 | | 0.10 | mg/L | | 22-FEB-19 | R4525468 |
| **Conductivity** | | | | | | | |
| Conductivity | 109 | | 1.0 | umhos/cm | | 22-FEB-19 | R4523497 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.029 | | 0.020 | mg/L | | 22-FEB-19 | R4525468 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 32.8 | | 0.20 | mg/L | | 18-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 96.2 | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 55.8 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0222 | | 0.0050 | mg/L | | 22-FEB-19 | R4525468 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0222 | | 0.0051 | mg/L | | 26-FEB-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-FEB-19 | R4525468 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.50 | | 0.30 | mg/L | | 22-FEB-19 | R4525468 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 81 | | 13 | mg/L | | 28-FEB-19 | R4539949 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.18 | | 0.10 | NTU | | 22-FEB-19 | R4524935 |
| **pH** | | | | | | | |
| pH | 7.19 | | 0.10 | pH units | | 22-FEB-19 | R4523497 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0221 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 2.72 | | 0.50 | mg/L | | 27-FEB-19 | R4534467 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Phosphorus (P)-Total | 0.0064 | | 0.0030 | mg/L | | 05-MAR-19 | R4546769 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-5 MEL-01-09 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 15:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Phosphorus (P)-Total Dissolved | 0.0020 | | 0.0010 | mg/L | | 04-MAR-19 | R4543994 |
| Ra-226 | <0.0046 | | 0.0046 | Bq/L | 26-FEB-19 | 07-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.455 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.207 | | 0.050 | mg/L | 04-MAR-19 | 05-MAR-19 | R4543995 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 26-FEB-19 | R4528787 |
| Total Nitrogen | 0.229 | | 0.050 | mg/L | | 05-MAR-19 | |
| Total Organic Carbon | 2.90 | | 0.50 | mg/L | | 27-FEB-19 | R4534452 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 26-FEB-19 | R4528927 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00217 | | 0.00030 | mg/L | | 28-FEB-19 | R4536387 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Arsenic (As)-Total | 0.000420 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Barium (Ba)-Total | 0.0105 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Boron (B)-Total | 0.0062 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Calcium (Ca)-Total | 9.99 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Chromium (Cr)-Total | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Cobalt (Co)-Total | 0.000013 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Copper (Cu)-Total | 0.00102 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Iron (Fe)-Total | 0.0078 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Lead (Pb)-Total | 0.000088 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Lithium (Li)-Total | 0.00164 | | 0.00050 | mg/L | | 28-FEB-19 | R4536387 |
| Magnesium (Mg)-Total | 1.84 | | 0.0040 | mg/L | | 28-FEB-19 | R4536387 |
| Manganese (Mn)-Total | 0.00222 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Molybdenum (Mo)-Total | 0.000099 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Nickel (Ni)-Total | 0.000731 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Potassium (K)-Total | 1.27 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Selenium (Se)-Total | 0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536387 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Sodium (Na)-Total | 7.31 | | 0.0050 | mg/L | | 28-FEB-19 | R4536387 |
| Strontium (Sr)-Total | 0.0579 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Uranium (U)-Total | 0.000016 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Zinc (Zn)-Total | 0.00121 | | 0.00080 | mg/L | | 28-FEB-19 | R4536387 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-FEB-19 | R4530168 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-FEB-19 | 01-MAR-19 | R4537767 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-FEB-19 | R4533188 |
| Aluminum (Al)-Dissolved | 0.00066 | | 0.00030 | mg/L | | 28-FEB-19 | R4536331 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Arsenic (As)-Dissolved | 0.000415 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Barium (Ba)-Dissolved | 0.0103 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-5 MEL-01-09 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 15:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Boron (B)-Dissolved | 0.0060 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Calcium (Ca)-Dissolved | 10.0 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Chromium (Cr)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Cobalt (Co)-Dissolved | 0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Copper (Cu)-Dissolved | 0.00082 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Iron (Fe)-Dissolved | 0.0048 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Lead (Pb)-Dissolved | 0.000061 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Lithium (Li)-Dissolved | 0.00149 | | 0.00050 | mg/L | | 28-FEB-19 | R4536331 |
| Magnesium (Mg)-Dissolved | 1.88 | | 0.0040 | mg/L | | 28-FEB-19 | R4536331 |
| Manganese (Mn)-Dissolved | 0.000501 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Molybdenum (Mo)-Dissolved | 0.000123 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Nickel (Ni)-Dissolved | 0.000782 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Potassium (K)-Dissolved | 1.26 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536331 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Sodium (Na)-Dissolved | 7.13 | | 0.0050 | mg/L | | 28-FEB-19 | R4536331 |
| Strontium (Sr)-Dissolved | 0.0570 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Uranium (U)-Dissolved | 0.000015 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Zinc (Zn)-Dissolved | 0.00113 | | 0.00080 | mg/L | | 28-FEB-19 | R4536331 |
| L2235701-6 E-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 10:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 2.9 | | 1.2 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 2.4 | | 1.0 | mg/L | | 22-FEB-19 | R4523497 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 0.46 | | 0.10 | mg/L | | 22-FEB-19 | R4525468 |
| **Conductivity** | | | | | | | |
| Conductivity | 4.6 | | 1.0 | umhos/cm | | 22-FEB-19 | R4523497 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 22-FEB-19 | R4525468 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 1.41 | | 0.20 | mg/L | | 18-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 3.6 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0292 | | 0.0050 | mg/L | | 22-FEB-19 | R4525468 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0305 | | 0.0051 | mg/L | | 26-FEB-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-6 E-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 10:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | 0.0013 | | 0.0010 | mg/L | | 22-FEB-19 | R4525468 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 22-FEB-19 | R4525468 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | <4.0 | | 4.0 | mg/L | | 28-FEB-19 | R4539949 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.28 | | 0.10 | NTU | | 22-FEB-19 | R4524935 |
| **pH** | | | | | | | |
| pH | 6.33 | | 0.10 | pH units | | 22-FEB-19 | R4523497 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0438 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 04-MAR-19 | R4543911 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Phosphorus (P)-Total | 0.0028 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |
| Phosphorus (P)-Total Dissolved | 0.0028 | | 0.0010 | mg/L | | 15-MAR-19 | R4566649 |
| Ra-226 | <0.0074 | | 0.0074 | Bq/L | 26-FEB-19 | 07-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.039 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 04-MAR-19 | 05-MAR-19 | R4543995 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 26-FEB-19 | R4528787 |
| Total Nitrogen | <0.050 | | 0.050 | mg/L | | 05-MAR-19 | |
| Total Organic Carbon | <0.50 | | 0.50 | mg/L | | 04-MAR-19 | R4543930 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 26-FEB-19 | R4528927 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00117 | | 0.00030 | mg/L | | 28-FEB-19 | R4536387 |
| Antimony (Sb)-Total | 0.000033 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Arsenic (As)-Total | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Barium (Ba)-Total | 0.000885 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Bismuth (Bi)-Total | 0.000020 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Boron (B)-Total | 0.0032 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Calcium (Ca)-Total | 0.135 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Chromium (Cr)-Total | 0.000103 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Cobalt (Co)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Copper (Cu)-Total | 0.00068 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Iron (Fe)-Total | <0.0010 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Lead (Pb)-Total | 0.0146 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 28-FEB-19 | R4536387 |
| Magnesium (Mg)-Total | 0.0331 | | 0.0040 | mg/L | | 28-FEB-19 | R4536387 |
| Manganese (Mn)-Total | 0.000113 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Nickel (Ni)-Total | 0.000156 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Potassium (K)-Total | 0.032 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536387 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Sodium (Na)-Total | 0.320 | | 0.0050 | mg/L | | 28-FEB-19 | R4536387 |
| Strontium (Sr)-Total | 0.000930 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-6 E-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 14-FEB-19 @ 10:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Uranium (U)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Zinc (Zn)-Total | 0.0240 | | 0.00080 | mg/L | | 28-FEB-19 | R4536387 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-FEB-19 | R4530168 |
| Mercury (Hg)-Dissolved | 0.00087 | | 0.00050 | ug/L | 27-FEB-19 | 01-MAR-19 | R4537767 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-FEB-19 | R4533188 |
| Aluminum (Al)-Dissolved | 0.00091 | | 0.00030 | mg/L | | 06-MAR-19 | R4546411 |
| Antimony (Sb)-Dissolved | 0.000033 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Arsenic (As)-Dissolved | 0.000022 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Barium (Ba)-Dissolved | 0.000645 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Boron (B)-Dissolved | 0.0066 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Calcium (Ca)-Dissolved | 0.387 | DTC | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Chromium (Cr)-Dissolved | 0.000336 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Copper (Cu)-Dissolved | 0.00124 | DTC | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Iron (Fe)-Dissolved | 0.0013 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Lead (Pb)-Dissolved | 0.0124 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | | 28-FEB-19 | R4536331 |
| Magnesium (Mg)-Dissolved | 0.109 | DTC | 0.0040 | mg/L | | 28-FEB-19 | R4536331 |
| Manganese (Mn)-Dissolved | 0.000107 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Molybdenum (Mo)-Dissolved | 0.000170 | DTC | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Nickel (Ni)-Dissolved | 0.000086 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Potassium (K)-Dissolved | 0.080 | DTC | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536331 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Sodium (Na)-Dissolved | 1.00 | DTC | 0.0050 | mg/L | | 28-FEB-19 | R4536331 |
| Strontium (Sr)-Dissolved | 0.00216 | DTC | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Uranium (U)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Zinc (Zn)-Dissolved | 0.0176 | | 0.00080 | mg/L | | 28-FEB-19 | R4536331 |
| L2235701-7 F-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 16-FEB-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 5.9 | | 1.2 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-7 F-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 16-FEB-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 4.8 | | 1.0 | mg/L | | 22-FEB-19 | R4523497 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 1.38 | | 0.10 | mg/L | | 22-FEB-19 | R4525468 |
| **Conductivity** | | | | | | | |
| Conductivity | 12.9 | | 1.0 | umhos/cm | | 22-FEB-19 | R4523497 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 22-FEB-19 | R4525468 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 2.23 | | 0.20 | mg/L | | 18-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 7.1 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0682 | | 0.0050 | mg/L | | 22-FEB-19 | R4525468 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0682 | | 0.0051 | mg/L | | 26-FEB-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-FEB-19 | R4525468 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 22-FEB-19 | R4525468 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 4.9 | | 4.0 | mg/L | | 26-FEB-19 | R4533210 |
| **Turbidity** | | | | | | | |
| Turbidity | <0.10 | | 0.10 | NTU | | 22-FEB-19 | R4524935 |
| **pH** | | | | | | | |
| pH | 6.83 | | 0.10 | pH units | | 22-FEB-19 | R4523497 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 04-MAR-19 | R4543911 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Phosphorus (P)-Total | <0.0010 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |
| Phosphorus (P)-Total Dissolved | <0.0010 | | 0.0010 | mg/L | | 04-MAR-19 | R4543994 |
| Ra-226 | <0.011 | DLRC | 0.011 | Bq/L | 26-FEB-19 | 07-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.417 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 04-MAR-19 | 05-MAR-19 | R4543995 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 26-FEB-19 | R4528787 |
| Total Nitrogen | 0.068 | | 0.050 | mg/L | | 05-MAR-19 | |
| Total Organic Carbon | <0.50 | | 0.50 | mg/L | | 04-MAR-19 | R4543930 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-FEB-19 | R4524897 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | <0.00030 | | 0.00030 | mg/L | | 28-FEB-19 | R4536387 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Arsenic (As)-Total | 0.000082 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Barium (Ba)-Total | 0.00120 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Boron (B)-Total | <0.0010 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Calcium (Ca)-Total | 0.061 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-7 F-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 16-FEB-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Chromium (Cr)-Total | 0.00165 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Cobalt (Co)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Copper (Cu)-Total | 0.00149 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Iron (Fe)-Total | 0.0027 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Lead (Pb)-Total | 0.000036 | | 0.000010 | mg/L | | 06-MAR-19 | R4546411 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 28-FEB-19 | R4536387 |
| Magnesium (Mg)-Total | 0.0084 | | 0.0040 | mg/L | | 28-FEB-19 | R4536387 |
| Manganese (Mn)-Total | 0.000201 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Nickel (Ni)-Total | 0.000118 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Potassium (K)-Total | <0.020 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536387 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Sodium (Na)-Total | 0.335 | | 0.0050 | mg/L | | 28-FEB-19 | R4536387 |
| Strontium (Sr)-Total | 0.000478 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Uranium (U)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Vanadium (V)-Total | 0.000059 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Zinc (Zn)-Total | 0.00368 | | 0.00080 | mg/L | | 28-FEB-19 | R4536387 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-FEB-19 | R4530168 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-FEB-19 | 01-MAR-19 | R4537767 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-FEB-19 | R4533188 |
| Aluminum (Al)-Dissolved | 0.00052 | | 0.00030 | mg/L | | 28-FEB-19 | R4536331 |
| Antimony (Sb)-Dissolved | 0.000033 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Arsenic (As)-Dissolved | 0.000120 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Barium (Ba)-Dissolved | 0.00157 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Boron (B)-Dissolved | 0.0061 | DTC | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Calcium (Ca)-Dissolved | 0.604 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Chromium (Cr)-Dissolved | 0.00151 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Copper (Cu)-Dissolved | 0.00130 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Iron (Fe)-Dissolved | <0.0010 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Lead (Pb)-Dissolved | 0.000027 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | | 28-FEB-19 | R4536331 |
| Magnesium (Mg)-Dissolved | 0.175 | DTC | 0.0040 | mg/L | | 28-FEB-19 | R4536331 |
| Manganese (Mn)-Dissolved | 0.000164 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Molybdenum (Mo)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Nickel (Ni)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Potassium (K)-Dissolved | 0.117 | DTC | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536331 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Sodium (Na)-Dissolved | 1.63 | DTC | 0.0050 | mg/L | | 28-FEB-19 | R4536331 |
| Strontium (Sr)-Dissolved | 0.00314 | DTC | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-7 F-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 16-FEB-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Uranium (U)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Vanadium (V)-Dissolved | 0.000055 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Zinc (Zn)-Dissolved | <0.00080 | | 0.00080 | mg/L | | 28-FEB-19 | R4536331 |
| L2235701-8 MEL-02-06 | | | | | | | |
| Sampled By: CLIENT on 16-FEB-19 @ 12:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 37.3 | | 1.2 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 25-FEB-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 30.6 | | 1.0 | mg/L | | 22-FEB-19 | R4523497 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 14.2 | | 0.10 | mg/L | | 22-FEB-19 | R4525468 |
| **Conductivity** | | | | | | | |
| Conductivity | 118 | | 1.0 | umhos/cm | | 22-FEB-19 | R4523497 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.036 | | 0.020 | mg/L | | 22-FEB-19 | R4525468 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 37.3 | | 0.20 | | | 22-FEB-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 98.3 | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 61.3 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0055 | | 0.0050 | mg/L | | 22-FEB-19 | R4525468 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0055 | | 0.0051 | mg/L | | 26-FEB-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-FEB-19 | R4525468 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.85 | | 0.30 | mg/L | | 22-FEB-19 | R4525468 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 69 | | 13 | mg/L | | 26-FEB-19 | R4533210 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.16 | | 0.10 | NTU | | 22-FEB-19 | R4524935 |
| **pH** | | | | | | | |
| pH | 7.45 | | 0.10 | pH units | | 22-FEB-19 | R4523497 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0261 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 3.13 | | 0.50 | mg/L | | 27-FEB-19 | R4534467 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Phosphorus (P)-Total | 0.0035 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |
| Phosphorus (P)-Total Dissolved | 0.0025 | | 0.0010 | mg/L | | 04-MAR-19 | R4543994 |
| Ra-226 | <0.0066 | | 0.0066 | Bq/L | 26-FEB-19 | 07-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.316 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.347 | | 0.050 | mg/L | 04-MAR-19 | 05-MAR-19 | R4543995 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-8 MEL-02-06 | | | | | | | |
| Sampled By: CLIENT on 16-FEB-19 @ 12:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| Mercury (Hg)-Total | 0.00066 | | 0.00050 | ug/L | | 26-FEB-19 | R4528787 |
| Total Nitrogen | 0.353 | | 0.050 | mg/L | | 05-MAR-19 | |
| Total Organic Carbon | 3.41 | | 0.50 | mg/L | | 27-FEB-19 | R4534452 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-FEB-19 | R4524897 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 27-FEB-19 | R4532528 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00243 | | 0.00030 | mg/L | | 06-MAR-19 | R4546411 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Arsenic (As)-Total | 0.000307 | | 0.000020 | mg/L | | 28-FEB-19 | R4536387 |
| Barium (Ba)-Total | 0.0125 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Boron (B)-Total | 0.0064 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Calcium (Ca)-Total | 11.6 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Chromium (Cr)-Total | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Cobalt (Co)-Total | 0.000015 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Copper (Cu)-Total | 0.00122 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Iron (Fe)-Total | 0.0061 | | 0.0010 | mg/L | | 28-FEB-19 | R4536387 |
| Lead (Pb)-Total | 0.000097 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Lithium (Li)-Total | 0.00121 | | 0.00050 | mg/L | | 28-FEB-19 | R4536387 |
| Magnesium (Mg)-Total | 2.02 | | 0.0040 | mg/L | | 28-FEB-19 | R4536387 |
| Manganese (Mn)-Total | 0.000757 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Molybdenum (Mo)-Total | 0.000119 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Nickel (Ni)-Total | 0.000635 | | 0.000060 | mg/L | | 28-FEB-19 | R4536387 |
| Potassium (K)-Total | 1.55 | | 0.020 | mg/L | | 28-FEB-19 | R4536387 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 28-FEB-19 | R4536387 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Sodium (Na)-Total | 7.97 | | 0.0050 | mg/L | | 28-FEB-19 | R4536387 |
| Strontium (Sr)-Total | 0.0546 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536387 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536387 |
| Uranium (U)-Total | 0.000020 | | 0.000010 | mg/L | | 28-FEB-19 | R4536387 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536387 |
| Zinc (Zn)-Total | 0.00354 | | 0.00080 | mg/L | | 28-FEB-19 | R4536387 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-FEB-19 | R4530168 |
| Mercury (Hg)-Dissolved | 0.00052 | | 0.00050 | ug/L | 27-FEB-19 | 01-MAR-19 | R4537767 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-FEB-19 | R4533188 |
| Aluminum (Al)-Dissolved | 0.00078 | | 0.00030 | mg/L | | 28-FEB-19 | R4536331 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Arsenic (As)-Dissolved | 0.000338 | | 0.000020 | mg/L | | 28-FEB-19 | R4536331 |
| Barium (Ba)-Dissolved | 0.0123 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 06-MAR-19 | R4546411 |
| Boron (B)-Dissolved | 0.0063 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Calcium (Ca)-Dissolved | 11.6 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Chromium (Cr)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2235701-8 MEL-02-06 | | | | | | | |
| Sampled By: CLIENT on 16-FEB-19 @ 12:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Copper (Cu)-Dissolved | 0.00115 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Iron (Fe)-Dissolved | 0.0029 | | 0.0010 | mg/L | | 28-FEB-19 | R4536331 |
| Lead (Pb)-Dissolved | 0.000053 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Lithium (Li)-Dissolved | 0.00104 | | 0.00050 | mg/L | | 28-FEB-19 | R4536331 |
| Magnesium (Mg)-Dissolved | 2.02 | | 0.0040 | mg/L | | 28-FEB-19 | R4536331 |
| Manganese (Mn)-Dissolved | 0.000405 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Molybdenum (Mo)-Dissolved | 0.000112 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Nickel (Ni)-Dissolved | 0.000625 | | 0.000060 | mg/L | | 28-FEB-19 | R4536331 |
| Potassium (K)-Dissolved | 1.52 | | 0.020 | mg/L | | 28-FEB-19 | R4536331 |
| Selenium (Se)-Dissolved | 0.000062 | | 0.000040 | mg/L | | 28-FEB-19 | R4536331 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Sodium (Na)-Dissolved | 7.65 | | 0.0050 | mg/L | | 28-FEB-19 | R4536331 |
| Strontium (Sr)-Dissolved | 0.0550 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 28-FEB-19 | R4536331 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 28-FEB-19 | R4536331 |
| Uranium (U)-Dissolved | 0.000017 | | 0.000010 | mg/L | | 28-FEB-19 | R4536331 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 28-FEB-19 | R4536331 |
| Zinc (Zn)-Dissolved | 0.00255 | | 0.00080 | mg/L | | 28-FEB-19 | R4536331 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Sample Parameter Qualifier Key:**

| Qualifier | Description |
|---|---|
| DLRC | Detection Limit Raised for RadioChemistry test due to sample matrix (e.g. high TDS) or instrument detector conditions. |
| DTC | Dissolved concentration exceeds total. Results were confirmed by re-analysis. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-CO3CO3-CALC-WP | Water | Alkalinity, Carbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L. | | | |
| ALK-HCO3HCO3-CALC-WP | Water | Alkalinity, Bicarbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L | | | |
| ALK-OHOH-CALC-WP | Water | Alkalinity, Hydroxide | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L. | | | |
| ALK-TITR-WP | Water | Alkalinity, Total (as CaCO3) | APHA 2320B |
| The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically. | | | |
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |
| Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |
| Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| CL-L-IC-N-WP | Water | Chloride in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| CN-FREE-CFA-WP | Water | Free Cyanide in water by CFA | ASTM D7237 |
| This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis. | | | |
| CN-T-CFA-WP | Water | Total Cyanide in water by CFA | ISO 14403-2 |
| This analysis is carried out using procedures adapted from ISO Method 14403-2:2012 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourmetric analysis. | | | |
| CN-WAD-CFA-WP | Water | Weak Acid Diss. Cyanide in water by CFA | APHA 4500-CN I |
| This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak acid dissociable (WAD) cyanide is determined by in-line sample distillation and final determination by colourmetric analysis. | | | |
| EC-WP | Water | Conductivity | APHA 2510B |
| Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes. | | | |
| F-IC-N-WP | Water | Fluoride in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| HARDNESS-CALC-WP | Water | Hardness Calculated | APHA 2340B |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. | | | |
| HG-D-U-CVAF-VA | Water | Diss. Mercury in Water by CVAFS (Ultra) | APHA 3030 B / EPA 1631 REV. E |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| | | This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure may involve preliminary sample treatment by filtration (APHA 3030B) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry. | |
| HG-T-U-CVAF-VA | Water | Total Mercury in Water by CVAFS (Ultra) | EPA 1631 REV. E |
| | | This analysis is carried out using procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry. | |
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |
| | | Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.<br><br>Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:<br><br>Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum] | |
| MET-D-NP-U-CCMS-ED | Water | Diss. Metals in Water by CRC ICPMS (Ult) | APHA 3125-ICP-MS |
| | | Ultra trace metals in water are analyzed by ICPMS, based on US EPA Method 6020A (Jan 1998). This procedure is intended for pristine field-filtered acid-preserved water samples. ALS recommends that filtration blanks be submitted for this test to aid with interpretation of results. | |
| MET-T-NP-U-CCMS-ED | Water | Metals in Water by CRC ICPMS (No Digest) | APHA 3125-ICP-MS |
| | | Ultra trace metals in water are analyzed by ICPMS, based on US EPA Method 6020A (Jan 1998). The detection limits provided can only be met for undigested samples. This procedure is intended for pristine, non-turbid, acid-preserved water samples, where sample turbidity is < 1 NTU. Where turbidity exceeds 1 NTU, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. | |
| N-T-CALC-ED | Water | Total Nitrogen (Calculation) | APHA 4500 N-Calculated |
| | | Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)] | |
| NH3-L-CFA-ED | Water | Ammonia in Water by Colour | APHA 4500 NH3-NITROGEN (AMMONIA) |
| | | This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method. | |
| NO2+NO3-CALC-L-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-L-IC-N-WP | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |
| | | Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | |
| NO3-L-IC-N-WP | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |
| | | Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| | | This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample. | |
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| | | This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. | |
| P-TD-COL-WP | Water | Phosphorus, Total Dissolved | APHA 4500 P PHOSPHORUS-L |
| | | This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter. | |
| P-TD-L-COL-WP | Water | Phosphorus, Total Dissolved | APHA 4500 P PHOSPHORUS-L |
| | | This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter. | |
| PH-WP | Water | pH | APHA 4500H |
| | | The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode. | |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| RA226-MMER-FC | Water | Ra226 by Alpha Scint, MDC=0.01 Bq/L | EPA 903.1 |
| SIO2-L-COL-WP | Water | Reactive Silica by colour | APHA 4500 SIO2 |
| This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 "Silica". Molybdate Reactive Silica is determined by analysis of the sample using the heteropoly blue colourimetric method. | | | |
| SO4-IC-N-WP | Water | Sulfate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| TDS-WP | Water | Total Dissolved Solids (TDS) | APHA 2540 SOLIDS C,E |
| A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids. | | | |
| TKN-L-CFA-ED | Water | TKN in Water by Colour | APHA 4500-NORG (TKN) |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish. | | | |
| TSS-LOW-VA | Water | Total Suspended Solids by Grav. (1 mg/L) | APHA 2540D |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples. | | | |
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |
| Turbidity in aqueous matrices is determined by the nephelometric method. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |
| FC | ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report

Workorder: L2235701 Report Date: 18-MAR-19 

Client: Agnico-Eagle - Meliadine Gold Project
PO Box 99
Rankin Inlet NU X0C 0G0
Contact: JENNIFER BROWN

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **ALK-TITR-WP** | **Water** | | | | | | | |
| **Batch R4523497** | | | | | | | | |
| **WG2994273-24 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 106.2 | | % | | 85-115 | 22-FEB-19 |
| **WG2994273-21 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 22-FEB-19 |
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4534467** | | | | | | | | |
| **WG2997450-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 98.4 | | % | | 80-120 | 27-FEB-19 |
| **WG2997450-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 27-FEB-19 |
| **WG2997450-4 MS** | | **L2235701-8** | | | | | | |
| Dissolved Organic Carbon | | | 104.7 | | % | | 70-130 | 27-FEB-19 |
| **Batch R4543911** | | | | | | | | |
| **WG3000275-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 92.7 | | % | | 80-120 | 04-MAR-19 |
| **WG3000275-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 04-MAR-19 |
| **Batch R4549712** | | | | | | | | |
| **WG3001773-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 90.4 | | % | | 80-120 | 06-MAR-19 |
| **WG3001773-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 06-MAR-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4534452** | | | | | | | | |
| **WG2997485-3 DUP** | | **L2235701-1** | | | | | | |
| Total Organic Carbon | | 3.05 | 2.88 | | mg/L | 5.7 | 20 | 27-FEB-19 |
| **WG2997485-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 95.9 | | % | | 80-120 | 27-FEB-19 |
| **WG2997485-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 27-FEB-19 |
| **WG2997485-4 MS** | | **L2235701-2** | | | | | | |
| Total Organic Carbon | | | 103.2 | | % | | 70-130 | 27-FEB-19 |
| **Batch R4543930** | | | | | | | | |
| **WG3000298-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 93.4 | | % | | 80-120 | 04-MAR-19 |
| **WG3000298-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 04-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4549647** | | | | | | | | |
| **WG3001785-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 93.8 | | % | | 80-120 | 06-MAR-19 |
| **WG3001785-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 06-MAR-19 |
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4525468** | | | | | | | | |
| **WG2993591-6 LCS** | | | | | | | | |
| Chloride (Cl) | | | 99.7 | | % | | 90-110 | 22-FEB-19 |
| **WG2993591-5 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 22-FEB-19 |
| **CN-FREE-CFA-WP** | **Water** | | | | | | | |
| **Batch R4532528** | | | | | | | | |
| **WG2996947-8 DUP** | | **L2235701-1** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 27-FEB-19 |
| **WG2996947-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 100.1 | | % | | 80-120 | 27-FEB-19 |
| **WG2996947-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 27-FEB-19 |
| **WG2996947-9 MS** | | **L2235701-1** | | | | | | |
| Cyanide, Free | | | 99.4 | | % | | 75-125 | 27-FEB-19 |
| **CN-T-CFA-WP** | **Water** | | | | | | | |
| **Batch R4532528** | | | | | | | | |
| **WG2996947-8 DUP** | | **L2235701-1** | | | | | | |
| Cyanide, Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 27-FEB-19 |
| **WG2996947-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 83.3 | | % | | 80-120 | 27-FEB-19 |
| **WG2996947-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 27-FEB-19 |
| **WG2996947-9 MS** | | **L2235701-1** | | | | | | |
| Cyanide, Total | | | 83.5 | | % | | 75-125 | 27-FEB-19 |
| **CN-WAD-CFA-WP** | **Water** | | | | | | | |
| **Batch R4532528** | | | | | | | | |
| **WG2996947-8 DUP** | | **L2235701-1** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 27-FEB-19 |
| **WG2996947-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 106.2 | | % | | 80-120 | 27-FEB-19 |
| **WG2996947-6 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-WAD-CFA-WP** | **Water** | | | | | | | |
| **Batch R4532528** | | | | | | | | |
| **WG2996947-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 27-FEB-19 |
| **WG2996947-9 MS** | | **L2235701-1** | | | | | | |
| Cyanide, Weak Acid Diss | | | 105.1 | | % | | 75-125 | 27-FEB-19 |
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4523497** | | | | | | | | |
| **WG2994273-23 LCS** | | | | | | | | |
| Conductivity | | | 100.1 | | % | | 90-110 | 22-FEB-19 |
| **WG2994273-21 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 22-FEB-19 |
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4525468** | | | | | | | | |
| **WG2993591-6 LCS** | | | | | | | | |
| Fluoride (F) | | | 101.2 | | % | | 90-110 | 22-FEB-19 |
| **WG2993591-5 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 22-FEB-19 |
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4534870** | | | | | | | | |
| **WG2996382-2 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 96.9 | | % | | 80-120 | 28-FEB-19 |
| **WG2996382-1 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 28-FEB-19 |
| **Batch R4537767** | | | | | | | | |
| **WG2998398-2 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 97.4 | | % | | 80-120 | 01-MAR-19 |
| **WG2998398-1 MB** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 01-MAR-19 |
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4528787** | | | | | | | | |
| **WG2995909-3 DUP** | | **L2235701-8** | | | | | | |
| Mercury (Hg)-Total | | 0.00066 | 0.00068 | | ug/L | 2.4 | 20 | 26-FEB-19 |
| **WG2995909-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 97.8 | | % | | 80-120 | 26-FEB-19 |
| **WG2995909-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 26-FEB-19 |
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4536331** | | | | | | | | |
| **WG2997173-3 DUP** | | **L2235701-7** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.00052 | 0.00065 | J | mg/L | 0.00013 | 0.0006 | 28-FEB-19 |
| Antimony (Sb)-Dissolved | | 0.000033 | 0.000035 | | mg/L | 6.0 | 20 | 28-FEB-19 |
| Arsenic (As)-Dissolved | | 0.000120 | 0.000103 | | mg/L | 15 | 20 | 28-FEB-19 |
| Barium (Ba)-Dissolved | | 0.00157 | 0.00157 | | mg/L | 0.4 | 20 | 28-FEB-19 |
| Beryllium (Be)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Bismuth (Bi)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Boron (B)-Dissolved | | 0.0061 | 0.0066 | | mg/L | 8.0 | 20 | 28-FEB-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Calcium (Ca)-Dissolved | | 0.604 | 0.655 | | mg/L | 8.2 | 20 | 28-FEB-19 |
| Chromium (Cr)-Dissolved | | 0.00151 | 0.00153 | | mg/L | 1.2 | 20 | 28-FEB-19 |
| Cobalt (Co)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Copper (Cu)-Dissolved | | 0.00130 | 0.00127 | | mg/L | 2.7 | 20 | 28-FEB-19 |
| Iron (Fe)-Dissolved | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Lead (Pb)-Dissolved | | 0.000027 | 0.000017 | J | mg/L | 0.000010 | 0.00002 | 28-FEB-19 |
| Lithium (Li)-Dissolved | | <0.00050 | 0.00051 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Magnesium (Mg)-Dissolved | | 0.175 | 0.177 | | mg/L | 0.8 | 20 | 28-FEB-19 |
| Manganese (Mn)-Dissolved | | 0.000164 | 0.000141 | | mg/L | 15 | 20 | 28-FEB-19 |
| Molybdenum (Mo)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Nickel (Ni)-Dissolved | | <0.000060 | <0.000060 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Potassium (K)-Dissolved | | 0.117 | 0.117 | | mg/L | 0.0 | 20 | 28-FEB-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Sodium (Na)-Dissolved | | 1.63 | 1.63 | | mg/L | 0.1 | 20 | 28-FEB-19 |
| Strontium (Sr)-Dissolved | | 0.00314 | 0.00346 | | mg/L | 9.8 | 20 | 28-FEB-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Tin (Sn)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Titanium (Ti)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Uranium (U)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Vanadium (V)-Dissolved | | 0.000055 | 0.000054 | | mg/L | 2.3 | 20 | 28-FEB-19 |
| Zinc (Zn)-Dissolved | | <0.00080 | <0.00080 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| **WG2997173-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 102.3 | | % | | 80-120 | 28-FEB-19 |
| Antimony (Sb)-Dissolved | | | 99.4 | | % | | 80-120 | 28-FEB-19 |
| Arsenic (As)-Dissolved | | | 100.4 | | % | | 80-120 | 28-FEB-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch** | **R4536331** | | | | | | | |
| **WG2997173-2** | **LCS** | | | | | | | |
| Barium (Ba)-Dissolved | | | 100.5 | | % | | 80-120 | 28-FEB-19 |
| Beryllium (Be)-Dissolved | | | 98.4 | | % | | 80-120 | 28-FEB-19 |
| Bismuth (Bi)-Dissolved | | | 99.4 | | % | | 80-120 | 28-FEB-19 |
| Boron (B)-Dissolved | | | 99.9 | | % | | 80-120 | 28-FEB-19 |
| Cadmium (Cd)-Dissolved | | | 98.1 | | % | | 80-120 | 28-FEB-19 |
| Calcium (Ca)-Dissolved | | | 97.3 | | % | | 80-120 | 28-FEB-19 |
| Chromium (Cr)-Dissolved | | | 102.4 | | % | | 80-120 | 28-FEB-19 |
| Cobalt (Co)-Dissolved | | | 97.3 | | % | | 80-120 | 28-FEB-19 |
| Copper (Cu)-Dissolved | | | 98.2 | | % | | 80-120 | 28-FEB-19 |
| Iron (Fe)-Dissolved | | | 92.6 | | % | | 80-120 | 28-FEB-19 |
| Lead (Pb)-Dissolved | | | 102.2 | | % | | 80-120 | 28-FEB-19 |
| Lithium (Li)-Dissolved | | | 99.0 | | % | | 80-120 | 28-FEB-19 |
| Magnesium (Mg)-Dissolved | | | 103.6 | | % | | 80-120 | 28-FEB-19 |
| Manganese (Mn)-Dissolved | | | 98.6 | | % | | 80-120 | 28-FEB-19 |
| Molybdenum (Mo)-Dissolved | | | 100.5 | | % | | 80-120 | 28-FEB-19 |
| Nickel (Ni)-Dissolved | | | 99.1 | | % | | 80-120 | 28-FEB-19 |
| Potassium (K)-Dissolved | | | 98.5 | | % | | 80-120 | 28-FEB-19 |
| Selenium (Se)-Dissolved | | | 98.8 | | % | | 80-120 | 28-FEB-19 |
| Silver (Ag)-Dissolved | | | 97.7 | | % | | 80-120 | 28-FEB-19 |
| Sodium (Na)-Dissolved | | | 99.7 | | % | | 80-120 | 28-FEB-19 |
| Strontium (Sr)-Dissolved | | | 96.6 | | % | | 80-120 | 28-FEB-19 |
| Thallium (Tl)-Dissolved | | | 102.3 | | % | | 80-120 | 28-FEB-19 |
| Tin (Sn)-Dissolved | | | 99.1 | | % | | 80-120 | 28-FEB-19 |
| Titanium (Ti)-Dissolved | | | 96.8 | | % | | 80-120 | 28-FEB-19 |
| Uranium (U)-Dissolved | | | 99.5 | | % | | 80-120 | 28-FEB-19 |
| Vanadium (V)-Dissolved | | | 100.1 | | % | | 80-120 | 28-FEB-19 |
| Zinc (Zn)-Dissolved | | | 96.7 | | % | | 80-120 | 28-FEB-19 |
| **WG2997173-1** | **MB** | | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 28-FEB-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 28-FEB-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 28-FEB-19 |
| Barium (Ba)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Beryllium (Be)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Bismuth (Bi)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch** | **R4536331** | | | | | | | |
| **WG2997173-1** | **MB** | | | | | | | |
| Boron (B)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 28-FEB-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005( | | mg/L | | 0.000005 | 28-FEB-19 |
| Calcium (Ca)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 28-FEB-19 |
| Chromium (Cr)-Dissolved | | | <0.000060 | | mg/L | | 0.00006 | 28-FEB-19 |
| Cobalt (Co)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Copper (Cu)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 28-FEB-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 28-FEB-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 28-FEB-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 28-FEB-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Nickel (Ni)-Dissolved | | | <0.000060 | | mg/L | | 0.00006 | 28-FEB-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 28-FEB-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 28-FEB-19 |
| Silver (Ag)-Dissolved | | | <0.000005( | | mg/L | | 0.000005 | 28-FEB-19 |
| Sodium (Na)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 28-FEB-19 |
| Strontium (Sr)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Thallium (Tl)-Dissolved | | | <0.000005( | | mg/L | | 0.000005 | 28-FEB-19 |
| Tin (Sn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Titanium (Ti)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 28-FEB-19 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Zinc (Zn)-Dissolved | | | <0.00080 | | mg/L | | 0.0008 | 28-FEB-19 |
| **WG2997173-4** | **MS** | **L2235701-8** | | | | | | |
| Aluminum (Al)-Dissolved | | | 95.9 | | % | | 70-130 | 28-FEB-19 |
| Antimony (Sb)-Dissolved | | | 83.4 | | % | | 70-130 | 28-FEB-19 |
| Arsenic (As)-Dissolved | | | 94.0 | | % | | 70-130 | 28-FEB-19 |
| Barium (Ba)-Dissolved | | | 91.4 | | % | | 70-130 | 28-FEB-19 |
| Beryllium (Be)-Dissolved | | | 88.5 | | % | | 70-130 | 28-FEB-19 |
| Boron (B)-Dissolved | | | 82.5 | | % | | 70-130 | 28-FEB-19 |
| Cadmium (Cd)-Dissolved | | | 94.4 | | % | | 70-130 | 28-FEB-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 28-FEB-19 |
| Chromium (Cr)-Dissolved | | | 92.8 | | % | | 70-130 | 28-FEB-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4536331** | | | | | | | | |
| **WG2997173-4 MS** | | **L2235701-8** | | | | | | |
| Cobalt (Co)-Dissolved | | | 90.9 | | % | | 70-130 | 28-FEB-19 |
| Copper (Cu)-Dissolved | | | 92.7 | | % | | 70-130 | 28-FEB-19 |
| Iron (Fe)-Dissolved | | | 86.1 | | % | | 70-130 | 28-FEB-19 |
| Lead (Pb)-Dissolved | | | 87.1 | | % | | 70-130 | 28-FEB-19 |
| Lithium (Li)-Dissolved | | | 87.8 | | % | | 70-130 | 28-FEB-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 28-FEB-19 |
| Manganese (Mn)-Dissolved | | | 92.5 | | % | | 70-130 | 28-FEB-19 |
| Molybdenum (Mo)-Dissolved | | | 80.3 | | % | | 70-130 | 28-FEB-19 |
| Nickel (Ni)-Dissolved | | | 90.4 | | % | | 70-130 | 28-FEB-19 |
| Potassium (K)-Dissolved | | | 90.7 | | % | | 70-130 | 28-FEB-19 |
| Selenium (Se)-Dissolved | | | 93.4 | | % | | 70-130 | 28-FEB-19 |
| Silver (Ag)-Dissolved | | | 73.0 | | % | | 70-130 | 28-FEB-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 28-FEB-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 28-FEB-19 |
| Thallium (Tl)-Dissolved | | | 87.9 | | % | | 70-130 | 28-FEB-19 |
| Tin (Sn)-Dissolved | | | 82.8 | | % | | 70-130 | 28-FEB-19 |
| Titanium (Ti)-Dissolved | | | 84.6 | | % | | 70-130 | 28-FEB-19 |
| Uranium (U)-Dissolved | | | 87.6 | | % | | 70-130 | 28-FEB-19 |
| Vanadium (V)-Dissolved | | | 91.9 | | % | | 70-130 | 28-FEB-19 |
| Zinc (Zn)-Dissolved | | | 88.8 | | % | | 70-130 | 28-FEB-19 |
| **Batch R4546411** | | | | | | | | |
| **WG2997173-4 MS** | | **L2235701-8** | | | | | | |
| Bismuth (Bi)-Dissolved | | | 79.8 | | % | | 70-130 | 06-MAR-19 |
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4536387** | | | | | | | | |
| **WG2997168-3 DUP** | | **L2235701-7** | | | | | | |
| Aluminum (Al)-Total | | <0.00030 | <0.00030 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Arsenic (As)-Total | | 0.000082 | 0.000094 | | mg/L | 13 | 20 | 28-FEB-19 |
| Barium (Ba)-Total | | 0.00120 | 0.00118 | | mg/L | 1.8 | 20 | 28-FEB-19 |
| Beryllium (Be)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Bismuth (Bi)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Boron (B)-Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005( | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4536387** | | | | | | | | |
| **WG2997168-3 DUP** | | **L2235701-7** | | | | | | |
| Calcium (Ca)-Total | | 0.061 | 0.060 | | mg/L | 1.4 | 20 | 28-FEB-19 |
| Chromium (Cr)-Total | | 0.00165 | 0.00158 | | mg/L | 4.2 | 20 | 28-FEB-19 |
| Cobalt (Co)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Copper (Cu)-Total | | 0.00149 | 0.00148 | | mg/L | 0.5 | 20 | 28-FEB-19 |
| Iron (Fe)-Total | | 0.0027 | 0.0027 | | mg/L | 0.0 | 25 | 28-FEB-19 |
| Lithium (Li)-Total | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Magnesium (Mg)-Total | | 0.0084 | 0.0086 | | mg/L | 2.0 | 20 | 28-FEB-19 |
| Manganese (Mn)-Total | | 0.000201 | 0.000175 | | mg/L | 14 | 20 | 28-FEB-19 |
| Molybdenum (Mo)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Nickel (Ni)-Total | | 0.000118 | 0.000115 | | mg/L | 2.2 | 20 | 28-FEB-19 |
| Potassium (K)-Total | | <0.020 | <0.020 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Selenium (Se)-Total | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Silver (Ag)-Total | | <0.0000050 | <0.0000050 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Sodium (Na)-Total | | 0.335 | 0.330 | | mg/L | 1.4 | 20 | 28-FEB-19 |
| Strontium (Sr)-Total | | 0.000478 | 0.000473 | | mg/L | 1.0 | 20 | 28-FEB-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.0000050 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Tin (Sn)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Titanium (Ti)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Uranium (U)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 28-FEB-19 |
| Vanadium (V)-Total | | 0.000059 | 0.000062 | | mg/L | 5.3 | 20 | 28-FEB-19 |
| Zinc (Zn)-Total | | 0.00368 | 0.00359 | | mg/L | 2.6 | 20 | 28-FEB-19 |
| **WG2997168-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 107.8 | | % | | 80-120 | 28-FEB-19 |
| Antimony (Sb)-Total | | | 101.1 | | % | | 80-120 | 28-FEB-19 |
| Arsenic (As)-Total | | | 101.1 | | % | | 80-120 | 28-FEB-19 |
| Barium (Ba)-Total | | | 100.5 | | % | | 80-120 | 28-FEB-19 |
| Beryllium (Be)-Total | | | 99.9 | | % | | 80-120 | 28-FEB-19 |
| Bismuth (Bi)-Total | | | 96.3 | | % | | 80-120 | 28-FEB-19 |
| Boron (B)-Total | | | 100.1 | | % | | 80-120 | 28-FEB-19 |
| Cadmium (Cd)-Total | | | 99.7 | | % | | 80-120 | 28-FEB-19 |
| Calcium (Ca)-Total | | | 100.4 | | % | | 80-120 | 28-FEB-19 |
| Chromium (Cr)-Total | | | 103.8 | | % | | 80-120 | 28-FEB-19 |
| Cobalt (Co)-Total | | | 99.8 | | % | | 80-120 | 28-FEB-19 |
| Copper (Cu)-Total | | | 98.4 | | % | | 80-120 | 28-FEB-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4536387** | | | | | | | | |
| **WG2997168-2 LCS** | | | | | | | | |
| Iron (Fe)-Total | | | 94.3 | | % | | 80-120 | 28-FEB-19 |
| Lead (Pb)-Total | | | 101.1 | | % | | 80-120 | 28-FEB-19 |
| Lithium (Li)-Total | | | 100.8 | | % | | 80-120 | 28-FEB-19 |
| Magnesium (Mg)-Total | | | 105.3 | | % | | 80-120 | 28-FEB-19 |
| Manganese (Mn)-Total | | | 98.8 | | % | | 80-120 | 28-FEB-19 |
| Molybdenum (Mo)-Total | | | 101.8 | | % | | 80-120 | 28-FEB-19 |
| Nickel (Ni)-Total | | | 99.1 | | % | | 80-120 | 28-FEB-19 |
| Potassium (K)-Total | | | 100.9 | | % | | 80-120 | 28-FEB-19 |
| Selenium (Se)-Total | | | 99.5 | | % | | 80-120 | 28-FEB-19 |
| Silver (Ag)-Total | | | 101.1 | | % | | 80-120 | 28-FEB-19 |
| Sodium (Na)-Total | | | 99.7 | | % | | 80-120 | 28-FEB-19 |
| Strontium (Sr)-Total | | | 98.4 | | % | | 80-120 | 28-FEB-19 |
| Thallium (Tl)-Total | | | 101.0 | | % | | 80-120 | 28-FEB-19 |
| Tin (Sn)-Total | | | 101.2 | | % | | 80-120 | 28-FEB-19 |
| Titanium (Ti)-Total | | | 96.9 | | % | | 80-120 | 28-FEB-19 |
| Uranium (U)-Total | | | 97.7 | | % | | 80-120 | 28-FEB-19 |
| Vanadium (V)-Total | | | 100.8 | | % | | 80-120 | 28-FEB-19 |
| Zinc (Zn)-Total | | | 98.6 | | % | | 80-120 | 28-FEB-19 |
| **WG2997168-1 MB** | | | | | | | | |
| Aluminum (Al)-Total | | | <0.00030 | | mg/L | | 0.0003 | 28-FEB-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 28-FEB-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 28-FEB-19 |
| Barium (Ba)-Total | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Beryllium (Be)-Total | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Bismuth (Bi)-Total | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Boron (B)-Total | | | <0.0010 | | mg/L | | 0.001 | 28-FEB-19 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 28-FEB-19 |
| Calcium (Ca)-Total | | | <0.020 | | mg/L | | 0.02 | 28-FEB-19 |
| Chromium (Cr)-Total | | | <0.000060 | | mg/L | | 0.00006 | 28-FEB-19 |
| Cobalt (Co)-Total | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Copper (Cu)-Total | | | <0.00010 | | mg/L | | 0.0001 | 28-FEB-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 28-FEB-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 28-FEB-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4536387** | | | | | | | | |
| **WG2997168-1 MB** | | | | | | | | |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 28-FEB-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Nickel (Ni)-Total | | | <0.000060 | | mg/L | | 0.00006 | 28-FEB-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 28-FEB-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 28-FEB-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 28-FEB-19 |
| Sodium (Na)-Total | | | <0.0050 | | mg/L | | 0.005 | 28-FEB-19 |
| Strontium (Sr)-Total | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 28-FEB-19 |
| Tin (Sn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Titanium (Ti)-Total | | | <0.00010 | | mg/L | | 0.0001 | 28-FEB-19 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 28-FEB-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 28-FEB-19 |
| Zinc (Zn)-Total | | | <0.00080 | | mg/L | | 0.0008 | 28-FEB-19 |
| **WG2997168-4 MS** | | **L2235701-8** | | | | | | |
| Aluminum (Al)-Total | | | 109.1 | | % | | 70-130 | 28-FEB-19 |
| Antimony (Sb)-Total | | | 99.3 | | % | | 70-130 | 28-FEB-19 |
| Arsenic (As)-Total | | | 105.7 | | % | | 70-130 | 28-FEB-19 |
| Barium (Ba)-Total | | | 104.5 | | % | | 70-130 | 28-FEB-19 |
| Beryllium (Be)-Total | | | 103.9 | | % | | 70-130 | 28-FEB-19 |
| Bismuth (Bi)-Total | | | 81.7 | | % | | 70-130 | 28-FEB-19 |
| Boron (B)-Total | | | 101.5 | | % | | 70-130 | 28-FEB-19 |
| Cadmium (Cd)-Total | | | 107.9 | | % | | 70-130 | 28-FEB-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 28-FEB-19 |
| Chromium (Cr)-Total | | | 105.1 | | % | | 70-130 | 28-FEB-19 |
| Cobalt (Co)-Total | | | 102.8 | | % | | 70-130 | 28-FEB-19 |
| Copper (Cu)-Total | | | 104.6 | | % | | 70-130 | 28-FEB-19 |
| Iron (Fe)-Total | | | 96.6 | | % | | 70-130 | 28-FEB-19 |
| Lead (Pb)-Total | | | 105.1 | | % | | 70-130 | 28-FEB-19 |
| Lithium (Li)-Total | | | 103.8 | | % | | 70-130 | 28-FEB-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 28-FEB-19 |
| Manganese (Mn)-Total | | | 105.2 | | % | | 70-130 | 28-FEB-19 |
| Molybdenum (Mo)-Total | | | 100.3 | | % | | 70-130 | 28-FEB-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4536387** | | | | | | | | |
| **WG2997168-4 MS** | | **L2235701-8** | | | | | | |
| Nickel (Ni)-Total | | | 102.2 | | % | | 70-130 | 28-FEB-19 |
| Potassium (K)-Total | | | 103.3 | | % | | 70-130 | 28-FEB-19 |
| Selenium (Se)-Total | | | 104.8 | | % | | 70-130 | 28-FEB-19 |
| Silver (Ag)-Total | | | 83.5 | | % | | 70-130 | 28-FEB-19 |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 28-FEB-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 28-FEB-19 |
| Thallium (Tl)-Total | | | 105.3 | | % | | 70-130 | 28-FEB-19 |
| Tin (Sn)-Total | | | 98.5 | | % | | 70-130 | 28-FEB-19 |
| Titanium (Ti)-Total | | | 100.3 | | % | | 70-130 | 28-FEB-19 |
| Uranium (U)-Total | | | 105.5 | | % | | 70-130 | 28-FEB-19 |
| Vanadium (V)-Total | | | 104.4 | | % | | 70-130 | 28-FEB-19 |
| Zinc (Zn)-Total | | | 100.2 | | % | | 70-130 | 28-FEB-19 |
| **NH3-L-CFA-ED** | **Water** | | | | | | | |
| **Batch R4565347** | | | | | | | | |
| **WG3006682-3 DUP** | | **L2235701-8** | | | | | | |
| Ammonia, Total (as N) | | 0.0261 | 0.0254 | | mg/L | 2.7 | 20 | 14-MAR-19 |
| **WG3006682-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 97.9 | | % | | 85-115 | 14-MAR-19 |
| **WG3006682-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 14-MAR-19 |
| **WG3006682-4 MS** | | **L2235701-8** | | | | | | |
| Ammonia, Total (as N) | | | 97.0 | | % | | 75-125 | 14-MAR-19 |
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4525468** | | | | | | | | |
| **WG2993591-6 LCS** | | | | | | | | |
| Nitrite (as N) | | | 100.4 | | % | | 90-110 | 22-FEB-19 |
| **WG2993591-5 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 22-FEB-19 |
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4525468** | | | | | | | | |
| **WG2993591-6 LCS** | | | | | | | | |
| Nitrate (as N) | | | 99.9 | | % | | 90-110 | 22-FEB-19 |
| **WG2993591-5 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 22-FEB-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4546769** | | | | | | | | |
| **WG2999925-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 92.3 | | % | | 80-120 | 05-MAR-19 |
| **WG2999925-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 05-MAR-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4555377** | | | | | | | | |
| **WG3003687-3 DUP** | | **L2235701-1** | | | | | | |
| Phosphorus (P)-Total | | 0.0038 | 0.0033 | | mg/L | 14 | 20 | 11-MAR-19 |
| **WG3003687-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 86.7 | | % | | 80-120 | 11-MAR-19 |
| **WG3003687-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 11-MAR-19 |
| **WG3003687-4 MS** | | **L2235701-2** | | | | | | |
| Phosphorus (P)-Total | | | 104.8 | | % | | 70-130 | 11-MAR-19 |
| **P-TD-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4543994** | | | | | | | | |
| **WG2999076-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | 93.2 | | % | | 80-120 | 04-MAR-19 |
| **WG2999076-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | <0.0010 | | mg/L | | 0.001 | 04-MAR-19 |
| **Batch R4566649** | | | | | | | | |
| **WG3007039-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | 87.6 | | % | | 80-120 | 15-MAR-19 |
| **WG3007039-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | <0.0010 | | mg/L | | 0.001 | 15-MAR-19 |
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4523497** | | | | | | | | |
| **WG2994273-22 LCS** | | | | | | | | |
| pH | | | 7.39 | | pH units | | 7.3-7.5 | 22-FEB-19 |
| **SIO2-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4548955** | | | | | | | | |
| **WG3001574-2 LCS** | | | | | | | | |
| Silica, Reactive (as SiO2) | | | 96.9 | | % | | 85-115 | 06-MAR-19 |
| **WG3001574-1 MB** | | | | | | | | |
| Silica, Reactive (as SiO2) | | | <0.010 | | mg/L | | 0.01 | 06-MAR-19 |
| **SO4-IC-N-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **SO4-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4525468** | | | | | | | | |
| **WG2993591-6 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 100.3 | | % | | 90-110 | 22-FEB-19 |
| **WG2993591-5 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 22-FEB-19 |
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4533210** | | | | | | | | |
| **WG2995093-6 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 98.8 | | % | | 85-115 | 26-FEB-19 |
| **WG2995093-5 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 26-FEB-19 |
| **Batch R4539949** | | | | | | | | |
| **WG2997048-3 DUP** | | **L2235701-1** | | | | | | |
| Total Dissolved Solids | | 89 | 80 | | mg/L | 9.9 | 20 | 28-FEB-19 |
| **WG2997048-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 105.8 | | % | | 85-115 | 28-FEB-19 |
| **WG2997048-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 28-FEB-19 |
| **TKN-L-CFA-ED** | **Water** | | | | | | | |
| **Batch R4543995** | | | | | | | | |
| **WG2999584-3 DUP** | | **L2235701-8** | | | | | | |
| Total Kjeldahl Nitrogen | | 0.347 | 0.255 | J | mg/L | 0.092 | 0.1 | 05-MAR-19 |
| **WG2999584-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 102 | | % | | 75-125 | 05-MAR-19 |
| **WG2999584-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 05-MAR-19 |
| **WG2999584-4 MS** | | **L2235701-8** | | | | | | |
| Total Kjeldahl Nitrogen | | | 110 | | % | | 70-130 | 05-MAR-19 |
| **TSS-LOW-VA** | **Water** | | | | | | | |
| **Batch R4524897** | | | | | | | | |
| **WG2994308-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 97.1 | | % | | 85-115 | 23-FEB-19 |
| **WG2994308-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 23-FEB-19 |
| **Batch R4528927** | | | | | | | | |
| **WG2995240-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 96.5 | | % | | 85-115 | 26-FEB-19 |
| **WG2995240-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 26-FEB-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TURBIDITY-WP** | **Water** | | | | | | | |
| **Batch R4524935** | | | | | | | | |
| **WG2994851-3 LCS** | | | | | | | | |
| Turbidity | | | 102.0 | | % | | 85-115 | 22-FEB-19 |
| **WG2994851-6 LCS** | | | | | | | | |
| Turbidity | | | 101.0 | | % | | 85-115 | 22-FEB-19 |
| **WG2994851-1 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 22-FEB-19 |
| **WG2994851-4 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 22-FEB-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Total Dissolved Solids (TDS) | | | | | | | |
| | 1 | 14-FEB-19 14:00 | 28-FEB-19 10:00 | 7 | 14 | days | EHTR |
| | 2 | 14-FEB-19 13:20 | 28-FEB-19 10:00 | 7 | 14 | days | EHTR |
| | 3 | 14-FEB-19 12:20 | 28-FEB-19 10:00 | 7 | 14 | days | EHTR |
| | 4 | 14-FEB-19 11:50 | 28-FEB-19 10:00 | 7 | 14 | days | EHTR |
| | 5 | 14-FEB-19 15:00 | 28-FEB-19 10:00 | 7 | 14 | days | EHTR |
| | 6 | 14-FEB-19 10:00 | 28-FEB-19 10:00 | 7 | 14 | days | EHTR |
| | 7 | 16-FEB-19 12:45 | 26-FEB-19 12:00 | 7 | 10 | days | EHT |
| | 8 | 16-FEB-19 12:30 | 26-FEB-19 12:00 | 7 | 10 | days | EHT |
| Total Suspended Solids by Grav. (1 mg/L) | | | | | | | |
| | 1 | 14-FEB-19 14:00 | 26-FEB-19 09:30 | 7 | 12 | days | EHTR |
| | 2 | 14-FEB-19 13:20 | 26-FEB-19 09:30 | 7 | 12 | days | EHTR |
| | 3 | 14-FEB-19 12:20 | 26-FEB-19 09:30 | 7 | 12 | days | EHTR |
| | 4 | 14-FEB-19 11:50 | 26-FEB-19 09:30 | 7 | 12 | days | EHTR |
| | 5 | 14-FEB-19 15:00 | 26-FEB-19 09:30 | 7 | 12 | days | EHTR |
| | 6 | 14-FEB-19 10:00 | 26-FEB-19 09:30 | 7 | 12 | days | EHTR |
| Turbidity | | | | | | | |
| | 1 | 14-FEB-19 14:00 | 22-FEB-19 12:50 | 3 | 8 | days | EHTR |
| | 2 | 14-FEB-19 13:20 | 22-FEB-19 12:50 | 3 | 8 | days | EHTR |
| | 3 | 14-FEB-19 12:20 | 22-FEB-19 12:50 | 3 | 8 | days | EHTR |
| | 4 | 14-FEB-19 11:50 | 22-FEB-19 12:50 | 3 | 8 | days | EHTR |
| | 5 | 14-FEB-19 15:00 | 22-FEB-19 12:50 | 3 | 8 | days | EHTR |
| | 6 | 14-FEB-19 10:00 | 22-FEB-19 12:50 | 3 | 8 | days | EHTR |
| | 7 | 16-FEB-19 12:45 | 22-FEB-19 12:50 | 3 | 6 | days | EHTR |
| | 8 | 16-FEB-19 12:30 | 22-FEB-19 12:50 | 3 | 6 | days | EHTR |
| pH | | | | | | | |
| | 1 | 14-FEB-19 14:00 | 22-FEB-19 12:00 | 0.25 | 190 | hours | EHTR-FM |
| | 2 | 14-FEB-19 13:20 | 22-FEB-19 12:00 | 0.25 | 191 | hours | EHTR-FM |
| | 3 | 14-FEB-19 12:20 | 22-FEB-19 12:00 | 0.25 | 192 | hours | EHTR-FM |
| | 4 | 14-FEB-19 11:50 | 22-FEB-19 12:00 | 0.25 | 192 | hours | EHTR-FM |
| | 5 | 14-FEB-19 15:00 | 22-FEB-19 12:00 | 0.25 | 189 | hours | EHTR-FM |
| | 6 | 14-FEB-19 10:00 | 22-FEB-19 12:00 | 0.25 | 194 | hours | EHTR-FM |
| | 7 | 16-FEB-19 12:45 | 22-FEB-19 12:00 | 0.25 | 143 | hours | EHTR-FM |
| | 8 | 16-FEB-19 12:30 | 22-FEB-19 12:00 | 0.25 | 144 | hours | EHTR-FM |
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 14-FEB-19 14:00 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 2 | 14-FEB-19 13:20 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 3 | 14-FEB-19 12:20 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 4 | 14-FEB-19 11:50 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 5 | 14-FEB-19 15:00 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 6 | 14-FEB-19 10:00 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 7 | 16-FEB-19 12:45 | 22-FEB-19 11:40 | 3 | 6 | days | EHTR |
| | 8 | 16-FEB-19 12:30 | 22-FEB-19 11:40 | 3 | 6 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 14-FEB-19 14:00 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 2 | 14-FEB-19 13:20 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 3 | 14-FEB-19 12:20 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 4 | 14-FEB-19 11:50 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 5 | 14-FEB-19 15:00 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 6 | 14-FEB-19 10:00 | 22-FEB-19 11:40 | 3 | 8 | days | EHTR |
| | 7 | 16-FEB-19 12:45 | 22-FEB-19 11:40 | 3 | 6 | days | EHTR |
| | 8 | 16-FEB-19 12:30 | 22-FEB-19 11:40 | 3 | 6 | days | EHTR |
| Phosphorus, Total Dissolved | | | | | | | |
| | 6 | 14-FEB-19 10:00 | 15-MAR-19 10:00 | 28 | 29 | days | EHT |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2235701 were received on 22-FEB-19 09:15.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Thursday, March 07, 2019

Judy Dalmaijer
ALS Environmental
1329 Niakwa Road East, Unit 12
Winnipeg, MB R2J 3T4

Re: ALS Workorder: 1902354
Project Name:
Project Number: L2235701

Dear Ms. Dalmaijer:

Eight water samples were received from ALS Environmental, on 2/25/2019. The samples were scheduled for the following analysis:

Radium-226

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. OBrien
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

| ALS Environmental – Fort Collins | |
|---|---|
| | |
| Accreditation Body | License or Certification Number |
| AIHA | 214884 |
| Alaska (AK) | UST-086 |
| Alaska (AK) | CO01099 |
| Arizona (AZ) | AZ0742 |
| California (CA) | 06251CA |
| Colorado (CO) | CO01099 |
| Florida (FL) | E87914 |
| Idaho (ID) | CO01099 |
| Kansas (KS) | E-10381 |
| Kentucky (KY) | 90137 |
| PJ-LA (DoD ELAP/ISO 170250) | 95377 |
| Louisiana (LA) | 05057 |
| Maryland (MD) | 285 |
| Missouri (MO) | 175 |
| Nebraska(NE) | NE-OS-24-13 |
| Nevada (NV) | CO000782008A |
| New York (NY) | 12036 |
| North Dakota (ND) | R-057 |
| Oklahoma (OK) | 1301 |
| Pennsylvania (PA) | 68-03116 |
| Tennessee (TN) | 2976 |
| Texas (TX) | T104704241 |
| Utah (UT) | CO01099 |
| Washington (WA) | C1280 |

# 1902354

**Radium-226:**
The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

**OrderNum:** 1902354
**Client Name:** ALS Environmental
**Client Project Name:**
**Client Project Number:** L2235701
**Client PO Number:** L2235701

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|---|---|---|---|---|---|
| L2235701-1 | 1902354-1 | | WATER | 14-Feb-19 | |
| L2235701-2 | 1902354-2 | | WATER | 14-Feb-19 | |
| L2235701-3 | 1902354-3 | | WATER | 14-Feb-19 | |
| L2235701-4 | 1902354-4 | | WATER | 14-Feb-19 | |
| L2235701-5 | 1902354-5 | | WATER | 14-Feb-19 | |
| L2235701-6 | 1902354-6 | | WATER | 14-Feb-19 | |
| L2235701-7 | 1902354-7 | | WATER | 16-Feb-19 | |
| L2235701-8 | 1902354-8 | | WATER | 16-Feb-19 | |

ALS Environmental

## Subcontract Request Form

**Subcontract To:**

1902354

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

**NOTES:** Please reference on final report and invoice: PO# *L2235701*
ALS requires QC data to be provided with your final results.

**Please see enclosed 8 sample(s) in 8 Container(s)**

| | SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|---|
| 1 | L2235701-1 MEL-01-01 | | 2/14/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 3/15/2019 | |
| 2 | L2235701-2 MEL-01-06 | | 2/14/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 3/15/2019 | |
| 3 | L2235701-3 MEL-01-07 | | 2/14/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 3/15/2019 | |
| 4 | L2235701-4 MEL-01-08 | | 2/14/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 3/15/2019 | |
| 5 | L2235701-5 MEL-01-09 | | 2/14/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 3/15/2019 | |
| 6 | L2235701-6 E-19-02-01 | | 2/14/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 3/15/2019 | |
| 7 | L2235701-7 F-19-02-01 | | 2/16/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 3/15/2019 | |
| 8 | L2235701-8 MEL-02-06 | | 2/16/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 3/15/2019 | |

ALS Environmental

## Subcontract Request Form

**Subcontract To:**

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

Subcontract Info Contact: Judy Dalmaijer (204) 255-9749
Analysis and reporting info contact: Judy Dalmaijer
12-1329 NIAKWA ROAD E
WINNIPEG,MB R2J3T4
Phone: (204) 255-9749 Email: Judy.Dalmaijer@alsglobal.com

**Please email confirmation of receipt to:** **Judy.Dalmaijer@alsglobal.com**

Shipped By: _____ Date Shipped: _____

Received By: Kaylee Per Date Received: 2/25/19 0900

Verified By: _____ Date Verified: _____

Temperature: _____

Sample Integrity Issues: _____

**ALS Environmental - Fort Collins**
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: ALS Winnipeg  Workorder No: 1902354

Project Manager: Katie  Initials: KP  Date: 2/25/19

| | | | | |
|---|---|---|---|---|
| 1. | Are airbills / shipping documents present and/or removable? | DROP OFF | YES | NO |
| 2. | Are custody seals on **shipping** containers intact? | NONE | YES | NO * |
| 3. | Are custody seals on **sample** containers intact? | NONE | YES | NO * |
| 4. | Is there a COC (chain-of-custody) present? | | YES | NO * |
| 5. | Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) | | YES | NO * |
| 6. | Are short-hold samples present? | | YES | NO |
| 7. | Are all samples within holding times for the requested analyses? | | YES | NO * |
| 8. | Were all sample containers received intact? (not broken or leaking) | | YES | NO * |
| 9. | Is there sufficient sample for the requested analyses? | | YES | NO * |
| 10. | Are all samples in the proper containers for the requested analyses? | | YES | NO * |
| 11. | Are all aqueous samples preserved correctly, if required? (excluding volatiles) | N/A | YES | NO * |
| 12. | Are all aqueous non-preserved samples pH 4-9? | N/A | YES | NO * |
| 13. | Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea) | N/A | YES | NO |
| 14. | Were the samples shipped on ice? | | YES | NO |
| 15. | Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 | RAD ONLY | YES | NO |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cooler #: | 1 | | | | | | 1 | |
| Temperature (°C): | Amb | | | | | | | |
| No. of custody seals on cooler: | 0 | | | | | | | |
| DOT Survey/ Acceptance Information — External µR/hr reading: | 10 | | | | | | | |
| Background µR/hr reading: | 11 | | | | | | | |

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)

*** Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.**

All client bottle ID's vs ALS lab ID's double-checked by: KP

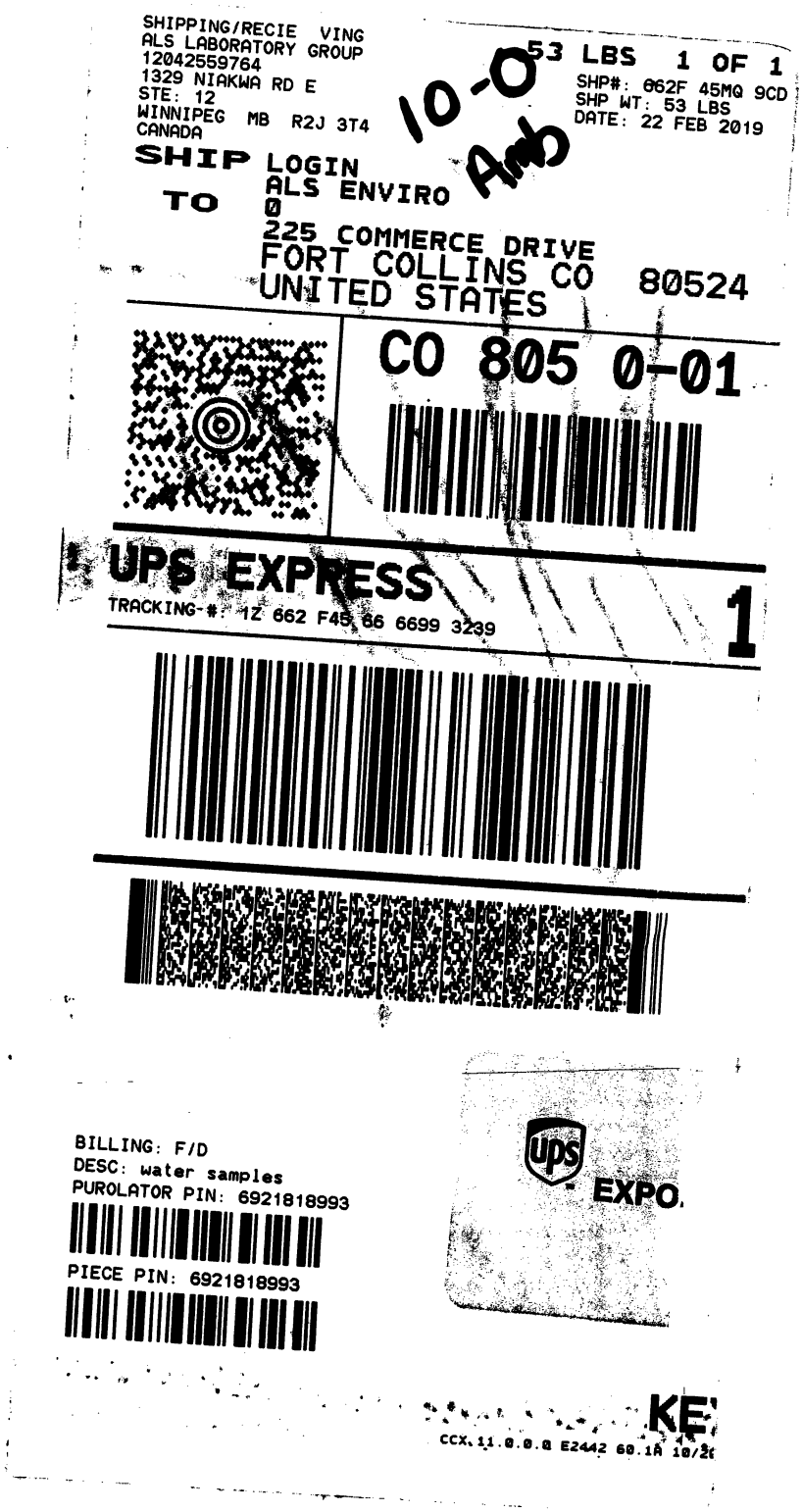
If applicable, was the client contacted? YES / NO / NA  Contact: _____  Date/Time: _____

**Project Manager Signature / Date:** 2/25/19

Form 201r27.xls
(02/11/2019)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

1902354


SHIPPING/RECIE VING
ALS LABORATORY GROUP
12042559764
1329 NIAKWA RD E
STE: 12
WINNIPEG MB R2J 3T4
CANADA
53 LBS 1 OF 1
SHP#: 662F 45MQ 9CD
SHP WT: 53 LBS
DATE: 22 FEB 2019
10-0
Amb
SHIP TO
LOGIN
ALS ENVIRO
0
225 COMMERCE DRIVE
FORT COLLINS CO 80524
UNITED STATES
CO 805 0-01
UPS EXPRESS
TRACKING-#: 1Z 662 F45 66 6699 3239
1
BILLING: F/D
DESC: water samples
PUROLATOR PIN: 6921818993
PIECE PIN: 6921818993
ups
EXPO
CCX.11.0.0.0 E2442 60.1A 10/2

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-1 | **Lab ID:** | 1902354-1 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **2/26/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.00096 (+/- 0.0053) | U | 0.0097 | BQ/l | NA | 3/7/2019 11:59 |
| *Carr: BARIUM* | *88.9* | | *40-110* | *%REC* | DL = NA | 3/7/2019 11:59 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-2 | **Lab ID:** | 1902354-2 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **2/26/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.0032 (+/- 0.0053) | U | 0.0089 | BQ/l | NA | 3/7/2019 11:59 |
| *Carr: BARIUM* | *90* | | *40-110* | *%REC* | DL = NA | 3/7/2019 11:59 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-3 | **Lab ID:** | 1902354-3 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **2/26/2019** | PrepBy: **JXH** | |
| Ra-226 | 0.0029 (+/- 0.0034) | U | 0.0052 | BQ/l | NA | 3/7/2019 11:59 |
| *Carr: BARIUM* | *93* | | *40-110* | *%REC* | DL = NA | 3/7/2019 11:59 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-4 | **Lab ID:** | 1902354-4 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **2/26/2019** | PrepBy: **JXH** |
| Ra-226 | 0.00098 (+/- 0.0028) | U | 0.0053 | BQ/l | NA | 3/7/2019 11:59 |
| *Carr: BARIUM* | *92.1* | | *40-110* | *%REC* | DL = NA | 3/7/2019 11:59 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-5 | **Lab ID:** | 1902354-5 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **2/26/2019** | PrepBy: **JXH** | |
| Ra-226 | 0.0020 (+/- 0.0028) | U | 0.0046 | BQ/l | NA | 3/7/2019 11:59 |
| *Carr: BARIUM* | *91.4* | | *40-110* | *%REC* | DL = NA | 3/7/2019 11:59 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-6 | **Lab ID:** | 1902354-6 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **2/26/2019** | PrepBy: **JXH** |
| Ra-226 | -0.00057 (+/- 0.0034) | U | 0.0074 | BQ/l | NA | 3/7/2019 11:59 |
| *Carr: BARIUM* | *95* | | *40-110* | *%REC* | DL = NA | 3/7/2019 11:59 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-7 | **Lab ID:** | 1902354-7 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/16/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **2/26/2019** | PrepBy: **JXH** | |
| Ra-226 | -0.00061 (+/- 0.0056) | U,M | 0.011 | BQ/l | NA | 3/7/2019 11:59 |
| *Carr: BARIUM* | *94.4* | | *40-110* | *%REC* | DL = NA | 3/7/2019 11:59 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-8 | **Lab ID:** | 1902354-8 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/16/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **2/26/2019** | | PrepBy: **JXH** |
| Ra-226 | -0.0015 (+/- 0.0027) | U | 0.0066 | BQ/l | NA | 3/7/2019 12:34 |
| *Carr: BARIUM* | *91.9* | | *40-110* | *%REC* | DL = NA | 3/7/2019 12:34 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *07-Mar-19* |
| **Project:** | L2235701 | **Work Order:** | 1902354 |
| **Sample ID:** | L2235701-8 | **Lab ID:** | 1902354-8 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/16/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|

## Explanation of Qualifiers

**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

**Inorganics:**

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

**Organics:**

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

# QC BATCH REPORT

Batch ID: **RE190226-1-1** Instrument ID **Alpha Scin** Method: **Radium-226 by Radon Emanation**

**LCS** Sample ID: **RE190226-1** Units: **BQ/l** Analysis Date: **3/7/2019 12:34**

Client ID: Run ID: **RE190226-1A** Prep Date: **2/26/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.86 (+/- 0.460) | 0.00693 | 1.771 | | 105 | 67-120 | | | | | P |
| Carr: BARIUM | 15100 | | 15650 | | 96.4 | 40-110 | | | | | |

**LCSD** Sample ID: **RE190226-1** Units: **BQ/l** Analysis Date: **3/7/2019 12:34**

Client ID: Run ID: **RE190226-1A** Prep Date: **2/26/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.81 (+/- 0.448) | 0.0101 | 1.771 | | 102 | 67-120 | | 1.86 | 0.08 | 2.1 | P,M3 |
| Carr: BARIUM | 14700 | | 15650 | | 94.1 | 40-110 | | 15100 | | | |

**MB** Sample ID: **RE190226-1** Units: **BQ/l** Analysis Date: **3/7/2019 12:34**

Client ID: Run ID: **RE190226-1A** Prep Date: **2/26/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | -0.00094 (+/- 0.0033) | 0.0071 | | | | | | | | | U |
| Carr: BARIUM | 15000 | | 15650 | | 95.8 | 40-110 | | | | | |

**The following samples were analyzed in this batch:**

| | | |
|---|---|---|
| 1902354-1 | 1902354-2 | 1902354-3 |
| 1902354-4 | 1902354-5 | 1902354-6 |
| 1902354-7 | 1902354-8 | |

# Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2235701-COFC

COC Number: 17 -

Page of

| Report To | Contact and company name below will appear on the final report | Report Format / Distribution | |
|---|---|---|---|
| Company: | Agnico Eagle - Meliadine (W10547) | Select Report Format: | ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL) |
| Contact: | JENNIFER BROWN | Quality Control (QC) Report with Report | ☐ YES ☐ NO |
| Phone: | 1-819-759-3555 X 3996 | ☐ Compare Results to Criteria on Report - provide details below if box checked | |
| | Company address below will appear on the final report | Select Distribution: | ☑ EMAIL ☐ MAIL ☐ FAX |
| Street: | Box 99 | Email 1 or Fax | martin.theriault@agnicoeagle.com |
| City/Province: | Rankin Inlet , NU | Email 2 | breda_muldoon@golder.com |
| Postal Code: | X0C 0G0 | Email 3 | eduardo_richard@golder.com |
| **Invoice To** | Same as Report To ☐ YES ☐ NO | **Invoice Distribution** | |
| | Copy of Invoice with Report ☐ YES ☐ NO | Select Invoice Distribution: | ☐ EMAIL ☐ MAIL ☐ FAX |
| Company: | | Email 1 or Fax | Jennifer.Brown@agnicoeagle.com |
| Contact: | | Email 2 | |

| Project Information | | Oil and Gas Required Fields (client use) | |
|---|---|---|---|
| ALS Account # / Quote #: | W10547 Q57496 | AFE/Cost Center: | PO# |
| Job #: | 18110868 Agnico Eagle - Meliadine | Major/Minor Code: | Routing Code: |
| PO / AFE: | | Requisitioner: | |
| LSD: | | Location: | |
| ALS Lab Work Order # (lab use only): | | ALS Contact: Craig Riddell | Sampler: |

Select Service Level below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

**Analysis Request**

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

| ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | NUMBER OF CONTAINERS | (1) AEG-ROU-LOW-WP Pkg | TOC, DOC | Cyanide - Free, WAD, & Total | HG-D-L-CVAF-WP & HG-T-L-CVAF-WP (Ult | MET-D-NP-U CCMS-ED | MET-T-NP-U-CCMS-ED | N-T-CALC-ED & N-TD-CALC-ED | NH3-L-CFA-ED | TKN-L-CFA-ED | TSS-LOW-VA | P-T-COL-WP | P-TD-COL-WP | SIO2-L-COL-WP | RA226-MMER-FC | SAMPLES ON HOLD | SUSPECTED HAZARD (see Special Instructions) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MEL-01-01 | 14-Feb-19 | 14:00 | Surface water | 11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| 2 | MEL-01-06 | 14-Feb-19 | 13:20 | Surface water | 11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| 3 | MEL-01-07 | 14-Feb-19 | 12:20 | Surface water | 11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| 4 | MEL-01-08 | 14-Feb-19 | 11:50 | Surface water | 11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| 5 | MEL-01-09 | 14-Feb-19 | 15:00 | Surface water | 11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| 6 | E-19-02-01 | 14-Feb-19 | 10:00 | Surface water | 11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| 7 | F-19-02-01 | 16-Feb-19 | 12:45 | Surface water | 11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| 8 | MEL-02-06 | 16-Feb-19 | 12:30 | Surface water | 11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |

| Drinking Water (DW) Samples[1] (client use) | Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only) |
|---|---|
| Are samples taken from a Regulated DW System? ☐ YES ☑ NO | |
| Are samples for human consumption/ use? ☐ YES ☑ NO | |

**SAMPLE CONDITION AS RECEIVED (lab use only)**

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

| INITIAL COOLER TEMPERATURES °C | | | | FINAL COOLER TEMPERATURES °C | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | 4.8 |

| SHIPMENT RELEASE (client use) | | | INITIAL SHIPMENT RECEPTION (lab use only) | | | FINAL SHIPMENT RECEPTION (lab use only) | | |
|---|---|---|---|---|---|---|---|---|
| Released by: Randy Schwandt | Date: 2019-02-18 | Time: | Received by: | Date: | Time: | Received by: | Date: FEB 22 2019 | Time: 9:15 |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCT 2018 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Agnico-Eagle - Meliadine Gold Project
ATTN: DAN GORTON
PO Box 99
Rankin Inlet NU X0C 0G0

Date Received: 04-MAR-19
Report Date: 29-MAR-19 07:03 (MT)
Version: FINAL

Client Phone: 819-759-3555

# Certificate of Analysis

## Lab Work Order #: L2239278

Project P.O. #: NOT SUBMITTED
Job Reference: 18110868 AGNICO EAGLE - MELIADINE
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

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# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-1 MEL-02-02 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 12:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 32.6 | | 1.2 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 26.7 | | 1.0 | mg/L | | 05-MAR-19 | R4546331 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 12.6 | | 0.10 | mg/L | | 04-MAR-19 | R4545707 |
| **Conductivity** | | | | | | | |
| Conductivity | 102 | | 1.0 | umhos/cm | | 05-MAR-19 | R4546331 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.034 | | 0.020 | mg/L | | 04-MAR-19 | R4545707 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 31.9 | | 0.20 | mg/L | | 28-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 98.1 | | | % | | 28-MAR-19 | |
| TDS (Calculated) | 53.5 | | | mg/L | | 28-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0067 | | 0.0050 | mg/L | | 04-MAR-19 | R4545707 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0067 | | 0.0051 | mg/L | | 06-MAR-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 04-MAR-19 | R4545707 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.90 | | 0.30 | mg/L | | 04-MAR-19 | R4545707 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 72 | | 13 | mg/L | | 22-MAR-19 | R4580988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.14 | | 0.10 | NTU | | 05-MAR-19 | R4549530 |
| **pH** | | | | | | | |
| pH | 7.38 | | 0.10 | pH units | | 05-MAR-19 | R4546331 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0210 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 1.97 | | 0.50 | mg/L | | 08-MAR-19 | R4555291 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Phosphorus (P)-Total | 0.0060 | | 0.0030 | mg/L | | 07-MAR-19 | R4548314 |
| Phosphorus (P)-Total Dissolved | 0.0054 | | 0.0030 | mg/L | | 07-MAR-19 | R4548314 |
| Ra-226 | <0.0065 | | 0.0065 | Bq/L | 07-MAR-19 | 15-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.365 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.240 | | 0.050 | mg/L | 21-MAR-19 | 22-MAR-19 | R4578769 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 21-MAR-19 | R4577468 |
| Total Nitrogen | 0.247 | | 0.050 | mg/L | | 22-MAR-19 | |
| Total Organic Carbon | 2.14 | | 0.50 | mg/L | | 07-MAR-19 | R4552188 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 06-MAR-19 | R4545302 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00177 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-1 MEL-02-02 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 12:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Arsenic (As)-Total | 0.000178 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Total | 0.00583 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Total | 0.0023 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Total | 5.33 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Total | <0.000060 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Total | 0.00044 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Total | 0.0047 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Total | 0.000032 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Total | 0.877 | | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Total | 0.000641 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Total | 0.000379 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Total | 0.647 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Total | 3.72 | | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Total | 0.0265 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Total | <0.00080 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 22-MAR-19 | R4578935 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 22-MAR-19 | 22-MAR-19 | R4580009 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-MAR-19 | R4573659 |
| Aluminum (Al)-Dissolved | 0.00040 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Dissolved | 0.000022 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Dissolved | 0.000299 | DTC | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Dissolved | 0.0113 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Dissolved | 0.0051 | DTC | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Dissolved | 10.1 | DTC | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Dissolved | 0.00080 | DTC | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Dissolved | 0.0020 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Dissolved | 0.000033 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Dissolved | 0.00090 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Dissolved | 1.64 | DTC | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Dissolved | 0.000283 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Dissolved | 0.000115 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-1 MEL-02-02 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 12:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Nickel (Ni)-Dissolved | 0.000560 | DTC | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Dissolved | 1.27 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Dissolved | 6.94 | DTC | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Dissolved | 0.0486 | DTC | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Dissolved | 0.000015 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Dissolved | 0.00219 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| L2239278-2 MEL-02-03 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 13:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 30.3 | | 1.2 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 24.8 | | 1.0 | mg/L | | 05-MAR-19 | R4546331 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.5 | | 0.10 | mg/L | | 04-MAR-19 | R4545707 |
| **Conductivity** | | | | | | | |
| Conductivity | 94.5 | | 1.0 | umhos/cm | | 05-MAR-19 | R4546331 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.030 | | 0.020 | mg/L | | 04-MAR-19 | R4545707 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 29.0 | | 0.20 | | | 04-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 49.5 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0060 | | 0.0050 | mg/L | | 04-MAR-19 | R4545707 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0060 | | 0.0051 | mg/L | | 06-MAR-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 04-MAR-19 | R4545707 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.50 | | 0.30 | mg/L | | 04-MAR-19 | R4545707 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 61 | | 13 | mg/L | | 22-MAR-19 | R4580988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.12 | | 0.10 | NTU | | 05-MAR-19 | R4549530 |
| **pH** | | | | | | | |
| pH | 7.34 | | 0.10 | pH units | | 05-MAR-19 | R4546331 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0221 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 1.88 | | 0.50 | mg/L | | 11-MAR-19 | R4558811 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-2 MEL-02-03 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 13:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Phosphorus (P)-Total | 0.0067 | | 0.0030 | mg/L | | 07-MAR-19 | R4548314 |
| Phosphorus (P)-Total Dissolved | 0.0040 | | 0.0010 | mg/L | | 15-MAR-19 | R4566649 |
| Ra-226 | <0.0060 | | 0.0060 | Bq/L | 07-MAR-19 | 15-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.306 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.225 | | 0.050 | mg/L | 21-MAR-19 | 22-MAR-19 | R4578769 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 21-MAR-19 | R4577468 |
| Total Nitrogen | 0.231 | | 0.050 | mg/L | | 22-MAR-19 | |
| Total Organic Carbon | 1.88 | | 0.50 | mg/L | | 11-MAR-19 | R4558808 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 06-MAR-19 | R4545302 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00082 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Total | 0.000284 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Total | 0.0110 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Total | 0.0048 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Total | 9.19 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Total | <0.000060 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Total | 0.00085 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Total | 0.0031 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Total | 0.000096 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Total | 0.00092 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Total | 1.51 | | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Total | 0.000842 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Total | 0.000081 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Total | 0.000527 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Total | 1.16 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Total | 6.68 | | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Total | 0.0483 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Total | 0.000012 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Total | 0.000052 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Total | 0.00120 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 22-MAR-19 | R4578935 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 22-MAR-19 | 22-MAR-19 | R4580009 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-MAR-19 | R4573659 |
| Aluminum (Al)-Dissolved | 0.00071 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Dissolved | 0.000274 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-2 MEL-02-03 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 13:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Barium (Ba)-Dissolved | 0.0100 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Dissolved | 0.0047 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Dissolved | 9.11 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Dissolved | 0.00083 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Dissolved | 0.0039 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Dissolved | 0.000056 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Dissolved | 0.00083 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Dissolved | 1.52 | | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Dissolved | 0.000233 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Dissolved | 0.00315 | DTC | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Dissolved | 0.000607 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Dissolved | 1.18 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Dissolved | 0.000051 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Dissolved | 6.78 | | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Dissolved | 0.0457 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Dissolved | 0.000014 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Dissolved | 0.000051 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Dissolved | 0.00127 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| L2239278-3 MEL-02-05 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 14:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 31.6 | | 1.2 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 25.9 | | 1.0 | mg/L | | 05-MAR-19 | R4546331 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 12.0 | | 0.10 | mg/L | | 04-MAR-19 | R4545707 |
| **Conductivity** | | | | | | | |
| Conductivity | 101 | | 1.0 | umhos/cm | | 05-MAR-19 | R4546331 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.033 | | 0.020 | mg/L | | 04-MAR-19 | R4545707 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 31.1 | | 0.20 | | | 04-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 99.4 | | | % | | 07-MAR-19 | |
| TDS (Calculated) | 51.8 | | | mg/L | | 07-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-3 MEL-02-05 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 14:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0052 | | 0.0050 | mg/L | | 04-MAR-19 | R4545707 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0052 | | 0.0051 | mg/L | | 06-MAR-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 04-MAR-19 | R4545707 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.75 | | 0.30 | mg/L | | 04-MAR-19 | R4545707 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 64 | | 13 | mg/L | | 22-MAR-19 | R4580988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.12 | | 0.10 | NTU | | 05-MAR-19 | R4549530 |
| **pH** | | | | | | | |
| pH | 7.35 | | 0.10 | pH units | | 05-MAR-19 | R4546331 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0230 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 1.79 | | 0.50 | mg/L | | 07-MAR-19 | R4552278 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Phosphorus (P)-Total | 0.0049 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |
| Phosphorus (P)-Total Dissolved | 0.0019 | | 0.0010 | mg/L | | 15-MAR-19 | R4566649 |
| Ra-226 | <0.0082 | | 0.0082 | Bq/L | 07-MAR-19 | 15-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.314 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.050 | | 0.050 | mg/L | 21-MAR-19 | 22-MAR-19 | R4578769 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 21-MAR-19 | R4577468 |
| Total Nitrogen | 0.056 | | 0.050 | mg/L | | 22-MAR-19 | |
| Total Organic Carbon | 1.80 | | 0.50 | mg/L | | 07-MAR-19 | R4552188 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 06-MAR-19 | R4545302 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00178 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Total | 0.000186 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Total | 0.00653 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Total | 0.0025 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Total | 5.69 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Total | 0.000108 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Total | 0.00052 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Total | 0.0063 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Total | 0.000028 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Total | 0.00055 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Total | 0.952 | | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Total | 0.000682 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Total | 0.000056 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Total | 0.000434 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Total | 0.735 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-3 MEL-02-05 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 14:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Total | 4.23 | | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Total | 0.0296 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Total | 0.00114 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 22-MAR-19 | R4578935 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 22-MAR-19 | 22-MAR-19 | R4580009 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-MAR-19 | R4573659 |
| Aluminum (Al)-Dissolved | <0.00030 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Dissolved | 0.000281 | DTC | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Dissolved | 0.0107 | DTC | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Dissolved | 0.0051 | DTC | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Dissolved | 9.70 | DTC | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Dissolved | 0.00074 | DTC | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Dissolved | 0.0020 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Dissolved | 0.000012 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Dissolved | 0.00086 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Dissolved | 1.69 | DTC | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Dissolved | 0.000219 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Dissolved | 0.000090 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Dissolved | 0.000553 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Dissolved | 1.24 | DTC | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Dissolved | 6.79 | DTC | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Dissolved | 0.0469 | DTC | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Dissolved | 0.000012 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Dissolved | 0.000051 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Dissolved | 0.00089 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| L2239278-4 MEL-02-08 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 14:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 31.4 | | 1.2 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Carbonate** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-4 MEL-02-08 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 14:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 25.7 | | 1.0 | mg/L | | 05-MAR-19 | R4546331 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 13.0 | | 0.10 | mg/L | | 05-MAR-19 | R4552708 |
| **Conductivity** | | | | | | | |
| Conductivity | 102 | | 1.0 | umhos/cm | | 05-MAR-19 | R4546331 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.035 | | 0.020 | mg/L | | 05-MAR-19 | R4552708 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 31.2 | | 0.20 | | | 04-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 96.9 | | | % | | 11-MAR-19 | |
| TDS (Calculated) | 53.4 | | | mg/L | | 11-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0053 | | 0.0050 | mg/L | | 05-MAR-19 | R4552708 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0079 | | 0.0051 | mg/L | | 11-MAR-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | 0.0026 | | 0.0010 | mg/L | | 05-MAR-19 | R4552708 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.22 | | 0.30 | mg/L | | 05-MAR-19 | R4552708 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 60 | | 13 | mg/L | | 22-MAR-19 | R4580988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.17 | | 0.10 | NTU | | 05-MAR-19 | R4549530 |
| **pH** | | | | | | | |
| pH | 7.40 | | 0.10 | pH units | | 05-MAR-19 | R4546331 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0215 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 1.36 | | 0.50 | mg/L | | 07-MAR-19 | R4552278 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Phosphorus (P)-Total | 0.0030 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |
| Phosphorus (P)-Total Dissolved | 0.0021 | | 0.0010 | mg/L | | 15-MAR-19 | R4566649 |
| Ra-226 | 0.0039 | | 0.0035 | Bq/L | 07-MAR-19 | 15-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.309 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.159 | | 0.050 | mg/L | 21-MAR-19 | 22-MAR-19 | R4578769 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 21-MAR-19 | R4577468 |
| Total Nitrogen | 0.167 | | 0.050 | mg/L | | 22-MAR-19 | |
| Total Organic Carbon | 1.78 | | 0.50 | mg/L | | 07-MAR-19 | R4552188 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 06-MAR-19 | R4545302 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00094 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Total | 0.000330 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Total | 0.0109 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-4 MEL-02-08 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 14:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Total | 0.0048 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Total | 9.78 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Total | <0.000060 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Total | 0.000011 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Total | 0.00081 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Total | 0.0039 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Total | 0.000026 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Total | 0.00093 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Total | 1.65 | | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Total | 0.000846 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Total | 0.000083 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Total | 0.000591 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Total | 1.26 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Total | 7.14 | | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Total | 0.0508 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Total | 0.000013 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Total | <0.00080 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 22-MAR-19 | R4578935 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 22-MAR-19 | 22-MAR-19 | R4580009 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-MAR-19 | R4573659 |
| Aluminum (Al)-Dissolved | 0.00030 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Dissolved | 0.000295 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Dissolved | 0.0109 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Dissolved | 0.0050 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Dissolved | 9.82 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Dissolved | <0.000060 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Dissolved | 0.00077 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Dissolved | 0.0017 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Dissolved | 0.000013 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Dissolved | 0.00094 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Dissolved | 1.63 | | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Dissolved | 0.000186 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Dissolved | 0.000104 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Dissolved | 0.000571 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Dissolved | 1.25 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Dissolved | 0.000044 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-4 MEL-02-08 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 14:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Dissolved | 6.98 | | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Dissolved | 0.0478 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Dissolved | 0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Dissolved | 0.00132 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| L2239278-5 R-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 13:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 29.4 | | 1.2 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 06-MAR-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 24.1 | | 1.0 | mg/L | | 05-MAR-19 | R4546331 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 12.0 | | 0.10 | mg/L | | 05-MAR-19 | R4552708 |
| **Conductivity** | | | | | | | |
| Conductivity | 93.8 | | 1.0 | umhos/cm | | 05-MAR-19 | R4546331 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.033 | | 0.020 | mg/L | | 05-MAR-19 | R4552708 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 28.9 | | 0.20 | | | 04-MAR-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-MAR-19 | |
| TDS (Calculated) | 49.7 | | | mg/L | | 11-MAR-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0075 | | 0.0050 | mg/L | | 05-MAR-19 | R4552708 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0096 | | 0.0051 | mg/L | | 11-MAR-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | 0.0021 | | 0.0010 | mg/L | | 05-MAR-19 | R4552708 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.84 | | 0.30 | mg/L | | 05-MAR-19 | R4552708 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 58 | | 13 | mg/L | | 22-MAR-19 | R4580988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.12 | | 0.10 | NTU | | 05-MAR-19 | R4549530 |
| **pH** | | | | | | | |
| pH | 7.41 | | 0.10 | pH units | | 05-MAR-19 | R4546331 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0228 | | 0.0050 | mg/L | | 14-MAR-19 | R4565347 |
| Dissolved Organic Carbon | 1.53 | | 0.50 | mg/L | | 07-MAR-19 | R4552278 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Phosphorus (P)-Total | 0.0031 | | 0.0010 | mg/L | | 11-MAR-19 | R4555377 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-5 R-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 13:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Phosphorus (P)-Total Dissolved | 0.0022 | | 0.0010 | mg/L | | 15-MAR-19 | R4566649 |
| Ra-226 | <0.0045 | | 0.0045 | Bq/L | 07-MAR-19 | 15-MAR-19 | R4535791 |
| Silica, Reactive (as SiO2) | 0.305 | | 0.010 | mg/L | | 06-MAR-19 | R4548955 |
| Total Kjeldahl Nitrogen | 0.059 | | 0.050 | mg/L | 21-MAR-19 | 22-MAR-19 | R4578769 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 21-MAR-19 | R4577468 |
| Total Nitrogen | 0.068 | | 0.050 | mg/L | | 22-MAR-19 | |
| Total Organic Carbon | 1.53 | | 0.50 | mg/L | | 07-MAR-19 | R4552188 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 06-MAR-19 | R4545302 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 07-MAR-19 | R4551368 |
| **Metals in Water by CRC ICPMS (No Digest)** | | | | | | | |
| Aluminum (Al)-Total | 0.00060 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Total | 0.000253 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Total | 0.0103 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Total | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Boron (B)-Total | 0.0048 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Total | 9.01 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Total | <0.000060 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Total | 0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Total | 0.00074 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Total | 0.0040 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Total | 0.000034 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Total | 0.00083 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Total | 1.50 | | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Total | 0.000821 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Total | 0.000078 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Total | 0.000609 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Total | 1.16 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Total | 0.000040 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Total | 6.46 | | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Total | 0.0456 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Total | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Total | 0.000013 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Total | 0.00099 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 22-MAR-19 | R4578935 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 22-MAR-19 | 22-MAR-19 | R4580009 |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-MAR-19 | R4573659 |
| Aluminum (Al)-Dissolved | 0.00038 | | 0.00030 | mg/L | | 25-MAR-19 | R4581817 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Arsenic (As)-Dissolved | 0.000298 | | 0.000020 | mg/L | | 25-MAR-19 | R4581817 |
| Barium (Ba)-Dissolved | 0.0105 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Beryllium (Be)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Bismuth (Bi)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2239278-5 R-19-02-01 | | | | | | | |
| Sampled By: CLIENT on 22-FEB-19 @ 13:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Metals in Water by CRC ICPMS (Ult)** | | | | | | | |
| Boron (B)-Dissolved | 0.0048 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Calcium (Ca)-Dissolved | 9.12 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Chromium (Cr)-Dissolved | 0.000067 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Cobalt (Co)-Dissolved | <0.000010 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Copper (Cu)-Dissolved | 0.00070 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Iron (Fe)-Dissolved | 0.0019 | | 0.0010 | mg/L | | 25-MAR-19 | R4581817 |
| Lead (Pb)-Dissolved | 0.000018 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Lithium (Li)-Dissolved | 0.00084 | | 0.00050 | mg/L | | 25-MAR-19 | R4581817 |
| Magnesium (Mg)-Dissolved | 1.49 | | 0.0040 | mg/L | | 25-MAR-19 | R4581817 |
| Manganese (Mn)-Dissolved | 0.000201 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Molybdenum (Mo)-Dissolved | 0.000106 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Nickel (Ni)-Dissolved | 0.000533 | | 0.000060 | mg/L | | 25-MAR-19 | R4581817 |
| Potassium (K)-Dissolved | 1.16 | | 0.020 | mg/L | | 25-MAR-19 | R4581817 |
| Selenium (Se)-Dissolved | 0.000054 | | 0.000040 | mg/L | | 25-MAR-19 | R4581817 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Sodium (Na)-Dissolved | 6.59 | | 0.0050 | mg/L | | 25-MAR-19 | R4581817 |
| Strontium (Sr)-Dissolved | 0.0467 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | | 25-MAR-19 | R4581817 |
| Tin (Sn)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Titanium (Ti)-Dissolved | <0.00010 | | 0.00010 | mg/L | | 25-MAR-19 | R4581817 |
| Uranium (U)-Dissolved | 0.000012 | | 0.000010 | mg/L | | 25-MAR-19 | R4581817 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | | 25-MAR-19 | R4581817 |
| Zinc (Zn)-Dissolved | <0.00080 | | 0.00080 | mg/L | | 25-MAR-19 | R4581817 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Sample Parameter Qualifier Key:**

| Qualifier | Description |
|---|---|
| DTC | Dissolved concentration exceeds total. Results were confirmed by re-analysis. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-CO3CO3-CALC-WP | Water | Alkalinity, Carbonate | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

| | | | |
|---|---|---|---|
| ALK-HCO3HCO3-CALC-WP | Water | Alkalinity, Bicarbonate | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

| | | | |
|---|---|---|---|
| ALK-OHOH-CALC-WP | Water | Alkalinity, Hydroxide | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

| | | | |
|---|---|---|---|
| ALK-TITR-WP | Water | Alkalinity, Total (as CaCO3) | APHA 2320B |

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

| | | | |
|---|---|---|---|
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |

Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

| | | | |
|---|---|---|---|
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |

Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

| | | | |
|---|---|---|---|
| CL-L-IC-N-WP | Water | Chloride in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| CN-FREE-CFA-WP | Water | Free Cyanide in water by CFA | ASTM D7237 |

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

| | | | |
|---|---|---|---|
| CN-T-CFA-WP | Water | Total Cyanide in water by CFA | ISO 14403-2 |

This analysis is carried out using procedures adapted from ISO Method 14403-2:2012 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourmetric analysis.

| | | | |
|---|---|---|---|
| CN-WAD-CFA-WP | Water | Weak Acid Diss. Cyanide in water by CFA | APHA 4500-CN I |

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak acid dissociable (WAD) cyanide is determined by in-line sample distillation and final determination by colourmetric analysis.

| | | | |
|---|---|---|---|
| EC-WP | Water | Conductivity | APHA 2510B |

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

| | | | |
|---|---|---|---|
| F-IC-N-WP | Water | Fluoride in Water by IC | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| HARDNESS-CALC-WP | Water | Hardness Calculated | APHA 2340B |

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

| | | | |
|---|---|---|---|
| HG-D-U-CVAF-VA | Water | Diss. Mercury in Water by CVAFS (Ultra) | APHA 3030 B / EPA 1631 REV. E |

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|

American Public Health Association, and with procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure may involve preliminary sample treatment by filtration (APHA 3030B) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry.

| | | | |
|---|---|---|---|
| HG-T-U-CVAF-VA | Water | Total Mercury in Water by CVAFS (Ultra) | EPA 1631 REV. E |

This analysis is carried out using procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry.

| | | | |
|---|---|---|---|
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

| | | | |
|---|---|---|---|
| MET-D-NP-U-CCMS-ED | Water | Diss. Metals in Water by CRC ICPMS (Ult) | APHA 3125-ICP-MS |

Ultra trace metals in water are analyzed by ICPMS, based on US EPA Method 6020A (Jan 1998). This procedure is intended for pristine field-filtered acid-preserved water samples. ALS recommends that filtration blanks be submitted for this test to aid with interpretation of results.

| | | | |
|---|---|---|---|
| MET-T-NP-U-CCMS-ED | Water | Metals in Water by CRC ICPMS (No Digest) | APHA 3125-ICP-MS |

Ultra trace metals in water are analyzed by ICPMS, based on US EPA Method 6020A (Jan 1998). The detection limits provided can only be met for undigested samples. This procedure is intended for pristine, non-turbid, acid-preserved water samples, where sample turbidity is < 1 NTU. Where turbidity exceeds 1 NTU, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results.

| | | | |
|---|---|---|---|
| N-T-CALC-ED | Water | Total Nitrogen (Calculation) | APHA 4500 N-Calculated |

Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]

| | | | |
|---|---|---|---|
| NH3-L-CFA-ED | Water | Ammonia in Water by Colour | APHA 4500 NH3-NITROGEN (AMMONIA) |

This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.

| | | | |
|---|---|---|---|
| NO2+NO3-CALC-L-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-L-IC-N-WP | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| NO3-L-IC-N-WP | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

| | | | |
|---|---|---|---|
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

| | | | |
|---|---|---|---|
| P-TD-COL-WP | Water | Phosphorus, Total Dissolved | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

| | | | |
|---|---|---|---|
| P-TD-L-COL-WP | Water | Phosphorus, Total Dissolved | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

| | | | |
|---|---|---|---|
| PH-WP | Water | pH | APHA 4500H |

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

| | | | |
|---|---|---|---|
| RA226-MMER-FC | Water | Ra226 by Alpha Scint, MDC=0.01 Bq/L | EPA 903.1 |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| SIO2-L-COL-WP | Water | Reactive Silica by colour | APHA 4500 SIO2 |
| This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 "Silica". Molybdate Reactive Silica is determined by analysis of the sample using the heteropoly blue colourimetric method. | | | |
| SO4-IC-N-WP | Water | Sulfate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| TDS-WP | Water | Total Dissolved Solids (TDS) | APHA 2540 SOLIDS C,E |
| A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids. | | | |
| TKN-L-CFA-ED | Water | TKN in Water by Colour | APHA 4500-NORG (TKN) |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish. | | | |
| TSS-LOW-VA | Water | Total Suspended Solids by Grav. (1 mg/L) | APHA 2540D |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples. | | | |
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |
| Turbidity in aqueous matrices is determined by the nephelometric method. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |
| FC | ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
PO Box 99
Rankin Inlet NU X0C 0G0
Contact: DAN GORTON

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **ALK-TITR-WP** | **Water** | | | | | | | |
| **Batch R4546331** | | | | | | | | |
| **WG3000694-20 DUP** | | **L2239278-2** | | | | | | |
| Alkalinity, Total (as CaCO3) | | 24.8 | 24.8 | | mg/L | 0.0 | 20 | 05-MAR-19 |
| **WG3000694-19 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 103.0 | | % | | 85-115 | 05-MAR-19 |
| **WG3000694-16 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 05-MAR-19 |
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4552278** | | | | | | | | |
| **WG3002526-3 DUP** | | **L2239278-4** | | | | | | |
| Dissolved Organic Carbon | | 1.36 | 1.74 | J | mg/L | 0.38 | 1 | 07-MAR-19 |
| **WG3002526-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 99.7 | | % | | 80-120 | 07-MAR-19 |
| **WG3002526-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 07-MAR-19 |
| **WG3002526-4 MS** | | **L2239278-5** | | | | | | |
| Dissolved Organic Carbon | | | 106.3 | | % | | 70-130 | 07-MAR-19 |
| **Batch R4555291** | | | | | | | | |
| **WG3003674-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 95.1 | | % | | 80-120 | 08-MAR-19 |
| **WG3003674-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 08-MAR-19 |
| **Batch R4558811** | | | | | | | | |
| **WG3004475-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 96.0 | | % | | 80-120 | 11-MAR-19 |
| **WG3004475-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 11-MAR-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4552188** | | | | | | | | |
| **WG3002545-3 DUP** | | **L2239278-1** | | | | | | |
| Total Organic Carbon | | 2.14 | 2.32 | | mg/L | 8.1 | 20 | 07-MAR-19 |
| **WG3002545-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 96.7 | | % | | 80-120 | 07-MAR-19 |
| **WG3002545-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 07-MAR-19 |
| **Batch R4558808** | | | | | | | | |
| **WG3004491-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 97.1 | | % | | 80-120 | 11-MAR-19 |
| **WG3004491-1 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4558808** | | | | | | | | |
| **WG3004491-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 11-MAR-19 |
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4545707** | | | | | | | | |
| **WG2999307-2 LCS** | | | | | | | | |
| Chloride (Cl) | | | 97.2 | | % | | 90-110 | 04-MAR-19 |
| **WG2999307-1 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 04-MAR-19 |
| **Batch R4552708** | | | | | | | | |
| **WG3000122-3 DUP** | | **L2239278-4** | | | | | | |
| Chloride (Cl) | | 13.0 | 13.1 | | mg/L | 0.8 | 20 | 05-MAR-19 |
| **WG3000122-2 LCS** | | | | | | | | |
| Chloride (Cl) | | | 100.7 | | % | | 90-110 | 05-MAR-19 |
| **WG3000122-1 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 05-MAR-19 |
| **WG3000122-4 MS** | | **L2239278-4** | | | | | | |
| Chloride (Cl) | | | 103.2 | | % | | 75-125 | 05-MAR-19 |
| **CN-FREE-CFA-WP** | **Water** | | | | | | | |
| **Batch R4551368** | | | | | | | | |
| **WG3002017-3 DUP** | | **L2239278-2** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 07-MAR-19 |
| **WG3002017-2 LCS** | | | | | | | | |
| Cyanide, Free | | | 99.8 | | % | | 80-120 | 07-MAR-19 |
| **WG3002017-1 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 07-MAR-19 |
| **WG3002017-4 MS** | | **L2239278-2** | | | | | | |
| Cyanide, Free | | | 99.0 | | % | | 75-125 | 07-MAR-19 |
| **CN-T-CFA-WP** | **Water** | | | | | | | |
| **Batch R4551368** | | | | | | | | |
| **WG3002017-3 DUP** | | **L2239278-2** | | | | | | |
| Cyanide, Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 07-MAR-19 |
| **WG3002017-2 LCS** | | | | | | | | |
| Cyanide, Total | | | 90.9 | | % | | 80-120 | 07-MAR-19 |
| **WG3002017-1 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 07-MAR-19 |
| **WG3002017-4 MS** | | **L2239278-2** | | | | | | |
| Cyanide, Total | | | 92.1 | | % | | 75-125 | 07-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-WAD-CFA-WP** | **Water** | | | | | | | |
| **Batch R4551368** | | | | | | | | |
| **WG3002017-3 DUP** | | **L2239278-2** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 07-MAR-19 |
| **WG3002017-2 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 95.5 | | % | | 80-120 | 07-MAR-19 |
| **WG3002017-1 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 07-MAR-19 |
| **WG3002017-4 MS** | | **L2239278-2** | | | | | | |
| Cyanide, Weak Acid Diss | | | 95.6 | | % | | 75-125 | 07-MAR-19 |
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4546331** | | | | | | | | |
| **WG3000694-20 DUP** | | **L2239278-2** | | | | | | |
| Conductivity | | 94.5 | 94.6 | | umhos/cm | 0.1 | 10 | 05-MAR-19 |
| **WG3000694-18 LCS** | | | | | | | | |
| Conductivity | | | 98.2 | | % | | 90-110 | 05-MAR-19 |
| **WG3000694-16 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 05-MAR-19 |
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4545707** | | | | | | | | |
| **WG2999307-2 LCS** | | | | | | | | |
| Fluoride (F) | | | 101.0 | | % | | 90-110 | 04-MAR-19 |
| **WG2999307-1 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 04-MAR-19 |
| **Batch R4552708** | | | | | | | | |
| **WG3000122-3 DUP** | | **L2239278-4** | | | | | | |
| Fluoride (F) | | 0.035 | 0.034 | | mg/L | 3.7 | 20 | 05-MAR-19 |
| **WG3000122-2 LCS** | | | | | | | | |
| Fluoride (F) | | | 101.6 | | % | | 90-110 | 05-MAR-19 |
| **WG3000122-1 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 05-MAR-19 |
| **WG3000122-4 MS** | | **L2239278-4** | | | | | | |
| Fluoride (F) | | | 109.4 | | % | | 75-125 | 05-MAR-19 |
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4580009** | | | | | | | | |
| **WG3012376-3 DUP** | | **L2239278-1** | | | | | | |
| Mercury (Hg)-Dissolved | | <0.00050 | <0.00050 | RPD-NA | ug/L | N/A | 20 | 22-MAR-19 |
| **WG3012376-2 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 99.2 | | % | | 80-120 | 22-MAR-19 |
| **WG3012656-2 LCS** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4580009** | | | | | | | | |
| **WG3012656-2 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 99.2 | | % | | 80-120 | 22-MAR-19 |
| **WG3012376-1 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 22-MAR-19 |
| **WG3012656-1 MB** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 22-MAR-19 |
| **WG3012376-4 MS** | | **L2239278-5** | | | | | | |
| Mercury (Hg)-Dissolved | | | 86.9 | | % | | 70-130 | 22-MAR-19 |
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4577468** | | | | | | | | |
| **WG3011553-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 97.4 | | % | | 80-120 | 21-MAR-19 |
| **WG3011553-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 21-MAR-19 |
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4581817** | | | | | | | | |
| **WG3010499-3 DUP** | | **L2239278-1** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.00040 | 0.00041 | | mg/L | 1.8 | 20 | 25-MAR-19 |
| Antimony (Sb)-Dissolved | | 0.000022 | 0.000021 | | mg/L | 6.3 | 20 | 25-MAR-19 |
| Arsenic (As)-Dissolved | | 0.000299 | 0.000298 | | mg/L | 0.5 | 20 | 25-MAR-19 |
| Barium (Ba)-Dissolved | | 0.0113 | 0.0111 | | mg/L | 1.4 | 20 | 25-MAR-19 |
| Beryllium (Be)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Bismuth (Bi)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Boron (B)-Dissolved | | 0.0051 | 0.0054 | | mg/L | 5.7 | 20 | 25-MAR-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005( | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Calcium (Ca)-Dissolved | | 10.1 | 10.2 | | mg/L | 1.1 | 20 | 25-MAR-19 |
| Chromium (Cr)-Dissolved | | <0.000060 | <0.000060 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Cobalt (Co)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Copper (Cu)-Dissolved | | 0.00080 | 0.00077 | | mg/L | 3.7 | 20 | 25-MAR-19 |
| Iron (Fe)-Dissolved | | 0.0020 | 0.0019 | | mg/L | 0.7 | 20 | 25-MAR-19 |
| Lead (Pb)-Dissolved | | 0.000033 | 0.000033 | | mg/L | 1.7 | 20 | 25-MAR-19 |
| Lithium (Li)-Dissolved | | 0.00090 | 0.00088 | | mg/L | 1.5 | 20 | 25-MAR-19 |
| Magnesium (Mg)-Dissolved | | 1.64 | 1.73 | | mg/L | 5.4 | 20 | 25-MAR-19 |
| Manganese (Mn)-Dissolved | | 0.000283 | 0.000261 | | mg/L | 8.3 | 20 | 25-MAR-19 |
| Molybdenum (Mo)-Dissolved | | 0.000115 | 0.000124 | | mg/L | 7.3 | 20 | 25-MAR-19 |
| Nickel (Ni)-Dissolved | | 0.000560 | 0.000579 | | mg/L | 3.3 | 20 | 25-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4581817** | | | | | | | | |
| **WG3010499-3 DUP** | | **L2239278-1** | | | | | | |
| Potassium (K)-Dissolved | | 1.27 | 1.27 | | mg/L | 0.5 | 20 | 25-MAR-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Sodium (Na)-Dissolved | | 6.94 | 7.06 | | mg/L | 1.7 | 20 | 25-MAR-19 |
| Strontium (Sr)-Dissolved | | 0.0486 | 0.0488 | | mg/L | 0.4 | 20 | 25-MAR-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Tin (Sn)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Titanium (Ti)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Uranium (U)-Dissolved | | 0.000015 | 0.000016 | | mg/L | 9.0 | 20 | 25-MAR-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Zinc (Zn)-Dissolved | | 0.00219 | 0.00208 | | mg/L | 5.5 | 20 | 25-MAR-19 |
| **WG3010499-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 103.6 | | % | | 80-120 | 25-MAR-19 |
| Antimony (Sb)-Dissolved | | | 98.4 | | % | | 80-120 | 25-MAR-19 |
| Arsenic (As)-Dissolved | | | 98.3 | | % | | 80-120 | 25-MAR-19 |
| Barium (Ba)-Dissolved | | | 98.5 | | % | | 80-120 | 25-MAR-19 |
| Beryllium (Be)-Dissolved | | | 95.4 | | % | | 80-120 | 25-MAR-19 |
| Bismuth (Bi)-Dissolved | | | 97.2 | | % | | 80-120 | 25-MAR-19 |
| Boron (B)-Dissolved | | | 101.2 | | % | | 80-120 | 25-MAR-19 |
| Cadmium (Cd)-Dissolved | | | 97.0 | | % | | 80-120 | 25-MAR-19 |
| Calcium (Ca)-Dissolved | | | 98.2 | | % | | 80-120 | 25-MAR-19 |
| Chromium (Cr)-Dissolved | | | 100.5 | | % | | 80-120 | 25-MAR-19 |
| Cobalt (Co)-Dissolved | | | 95.2 | | % | | 80-120 | 25-MAR-19 |
| Copper (Cu)-Dissolved | | | 93.8 | | % | | 80-120 | 25-MAR-19 |
| Iron (Fe)-Dissolved | | | 97.1 | | % | | 80-120 | 25-MAR-19 |
| Lead (Pb)-Dissolved | | | 96.4 | | % | | 80-120 | 25-MAR-19 |
| Lithium (Li)-Dissolved | | | 87.5 | | % | | 80-120 | 25-MAR-19 |
| Magnesium (Mg)-Dissolved | | | 103.2 | | % | | 80-120 | 25-MAR-19 |
| Manganese (Mn)-Dissolved | | | 96.2 | | % | | 80-120 | 25-MAR-19 |
| Molybdenum (Mo)-Dissolved | | | 100.4 | | % | | 80-120 | 25-MAR-19 |
| Nickel (Ni)-Dissolved | | | 95.3 | | % | | 80-120 | 25-MAR-19 |
| Potassium (K)-Dissolved | | | 101.7 | | % | | 80-120 | 25-MAR-19 |
| Selenium (Se)-Dissolved | | | 96.9 | | % | | 80-120 | 25-MAR-19 |
| Silver (Ag)-Dissolved | | | 100.3 | | % | | 80-120 | 25-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch** | **R4581817** | | | | | | | |
| **WG3010499-2** | **LCS** | | | | | | | |
| Sodium (Na)-Dissolved | | | 103.3 | | % | | 80-120 | 25-MAR-19 |
| Strontium (Sr)-Dissolved | | | 97.6 | | % | | 80-120 | 25-MAR-19 |
| Thallium (Tl)-Dissolved | | | 95.0 | | % | | 80-120 | 25-MAR-19 |
| Tin (Sn)-Dissolved | | | 96.6 | | % | | 80-120 | 25-MAR-19 |
| Titanium (Ti)-Dissolved | | | 98.0 | | % | | 80-120 | 25-MAR-19 |
| Uranium (U)-Dissolved | | | 93.8 | | % | | 80-120 | 25-MAR-19 |
| Vanadium (V)-Dissolved | | | 97.5 | | % | | 80-120 | 25-MAR-19 |
| Zinc (Zn)-Dissolved | | | 93.3 | | % | | 80-120 | 25-MAR-19 |
| **WG3010499-1** | **MB** | | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 25-MAR-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 25-MAR-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 25-MAR-19 |
| Barium (Ba)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Beryllium (Be)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Bismuth (Bi)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Boron (B)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-MAR-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 25-MAR-19 |
| Calcium (Ca)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 25-MAR-19 |
| Chromium (Cr)-Dissolved | | | <0.000060 | | mg/L | | 0.00006 | 25-MAR-19 |
| Cobalt (Co)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Copper (Cu)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-MAR-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-MAR-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 25-MAR-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 25-MAR-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Nickel (Ni)-Dissolved | | | <0.000060 | | mg/L | | 0.00006 | 25-MAR-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 25-MAR-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 25-MAR-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 25-MAR-19 |
| Sodium (Na)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 25-MAR-19 |
| Strontium (Sr)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 25-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4581817** | | | | | | | | |
| **WG3010499-1 MB** | | | | | | | | |
| Tin (Sn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Titanium (Ti)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-MAR-19 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Zinc (Zn)-Dissolved | | | <0.00080 | | mg/L | | 0.0008 | 25-MAR-19 |
| **WG3010499-4 MS** | | **L2239278-2** | | | | | | |
| Aluminum (Al)-Dissolved | | | 106.4 | | % | | 70-130 | 25-MAR-19 |
| Antimony (Sb)-Dissolved | | | 101.0 | | % | | 70-130 | 25-MAR-19 |
| Arsenic (As)-Dissolved | | | 106.6 | | % | | 70-130 | 25-MAR-19 |
| Barium (Ba)-Dissolved | | | 103.9 | | % | | 70-130 | 25-MAR-19 |
| Beryllium (Be)-Dissolved | | | 106.8 | | % | | 70-130 | 25-MAR-19 |
| Bismuth (Bi)-Dissolved | | | 80.2 | | % | | 70-130 | 25-MAR-19 |
| Boron (B)-Dissolved | | | 110.5 | | % | | 70-130 | 25-MAR-19 |
| Cadmium (Cd)-Dissolved | | | 106.8 | | % | | 70-130 | 25-MAR-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 25-MAR-19 |
| Chromium (Cr)-Dissolved | | | 103.0 | | % | | 70-130 | 25-MAR-19 |
| Cobalt (Co)-Dissolved | | | 101.8 | | % | | 70-130 | 25-MAR-19 |
| Copper (Cu)-Dissolved | | | 101.1 | | % | | 70-130 | 25-MAR-19 |
| Iron (Fe)-Dissolved | | | 99.3 | | % | | 70-130 | 25-MAR-19 |
| Lead (Pb)-Dissolved | | | 102.5 | | % | | 70-130 | 25-MAR-19 |
| Lithium (Li)-Dissolved | | | 98.1 | | % | | 70-130 | 25-MAR-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 25-MAR-19 |
| Manganese (Mn)-Dissolved | | | 98.6 | | % | | 70-130 | 25-MAR-19 |
| Molybdenum (Mo)-Dissolved | | | 101.6 | | % | | 70-130 | 25-MAR-19 |
| Nickel (Ni)-Dissolved | | | 102.7 | | % | | 70-130 | 25-MAR-19 |
| Potassium (K)-Dissolved | | | 104.6 | | % | | 70-130 | 25-MAR-19 |
| Selenium (Se)-Dissolved | | | 109.1 | | % | | 70-130 | 25-MAR-19 |
| Silver (Ag)-Dissolved | | | 76.9 | | % | | 70-130 | 25-MAR-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 25-MAR-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 25-MAR-19 |
| Thallium (Tl)-Dissolved | | | 101.4 | | % | | 70-130 | 25-MAR-19 |
| Tin (Sn)-Dissolved | | | 99.5 | | % | | 70-130 | 25-MAR-19 |
| Titanium (Ti)-Dissolved | | | 100.5 | | % | | 70-130 | 25-MAR-19 |
| Uranium (U)-Dissolved | | | 104.0 | | % | | 70-130 | 25-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4581817** | | | | | | | | |
| **WG3010499-4 MS** | | **L2239278-2** | | | | | | |
| Vanadium (V)-Dissolved | | | 102.2 | | % | | 70-130 | 25-MAR-19 |
| Zinc (Zn)-Dissolved | | | 99.9 | | % | | 70-130 | 25-MAR-19 |
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4581817** | | | | | | | | |
| **WG3010524-3 DUP** | | **L2239278-1** | | | | | | |
| Aluminum (Al)-Total | | 0.00177 | 0.00155 | | mg/L | 13 | 20 | 25-MAR-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Arsenic (As)-Total | | 0.000178 | 0.000160 | | mg/L | 11 | 20 | 25-MAR-19 |
| Barium (Ba)-Total | | 0.00583 | 0.00614 | | mg/L | 5.2 | 20 | 25-MAR-19 |
| Beryllium (Be)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Bismuth (Bi)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Boron (B)-Total | | 0.0023 | 0.0024 | | mg/L | 5.6 | 20 | 25-MAR-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Calcium (Ca)-Total | | 5.33 | 5.36 | | mg/L | 0.4 | 20 | 25-MAR-19 |
| Chromium (Cr)-Total | | <0.000060 | <0.000060 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Cobalt (Co)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Copper (Cu)-Total | | 0.00044 | 0.00046 | | mg/L | 4.1 | 20 | 25-MAR-19 |
| Iron (Fe)-Total | | 0.0047 | 0.0048 | | mg/L | 1.8 | 25 | 25-MAR-19 |
| Lead (Pb)-Total | | 0.000032 | 0.000032 | | mg/L | 1.2 | 20 | 25-MAR-19 |
| Lithium (Li)-Total | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Magnesium (Mg)-Total | | 0.877 | 0.882 | | mg/L | 0.6 | 20 | 25-MAR-19 |
| Manganese (Mn)-Total | | 0.000641 | 0.000644 | | mg/L | 0.5 | 20 | 25-MAR-19 |
| Molybdenum (Mo)-Total | | <0.000050 | 0.000053 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Nickel (Ni)-Total | | 0.000379 | 0.000409 | | mg/L | 7.7 | 20 | 25-MAR-19 |
| Potassium (K)-Total | | 0.647 | 0.655 | | mg/L | 1.4 | 20 | 25-MAR-19 |
| Selenium (Se)-Total | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Sodium (Na)-Total | | 3.72 | 3.75 | | mg/L | 1.0 | 20 | 25-MAR-19 |
| Strontium (Sr)-Total | | 0.0265 | 0.0269 | | mg/L | 1.4 | 20 | 25-MAR-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Tin (Sn)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Titanium (Ti)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Uranium (U)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| Vanadium (V)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4581817** | | | | | | | | |
| **WG3010524-3 DUP** | | **L2239278-1** | | | | | | |
| Zinc (Zn)-Total | | <0.00080 | <0.00080 | RPD-NA | mg/L | N/A | 20 | 25-MAR-19 |
| **WG3010524-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 100.8 | | % | | 80-120 | 25-MAR-19 |
| Antimony (Sb)-Total | | | 99.9 | | % | | 80-120 | 25-MAR-19 |
| Arsenic (As)-Total | | | 97.0 | | % | | 80-120 | 25-MAR-19 |
| Barium (Ba)-Total | | | 101.9 | | % | | 80-120 | 25-MAR-19 |
| Beryllium (Be)-Total | | | 96.8 | | % | | 80-120 | 25-MAR-19 |
| Bismuth (Bi)-Total | | | 99.9 | | % | | 80-120 | 25-MAR-19 |
| Boron (B)-Total | | | 100.6 | | % | | 80-120 | 25-MAR-19 |
| Cadmium (Cd)-Total | | | 96.4 | | % | | 80-120 | 25-MAR-19 |
| Calcium (Ca)-Total | | | 99.5 | | % | | 80-120 | 25-MAR-19 |
| Chromium (Cr)-Total | | | 98.4 | | % | | 80-120 | 25-MAR-19 |
| Cobalt (Co)-Total | | | 96.6 | | % | | 80-120 | 25-MAR-19 |
| Copper (Cu)-Total | | | 93.2 | | % | | 80-120 | 25-MAR-19 |
| Iron (Fe)-Total | | | 97.4 | | % | | 80-120 | 25-MAR-19 |
| Lead (Pb)-Total | | | 99.6 | | % | | 80-120 | 25-MAR-19 |
| Lithium (Li)-Total | | | 88.3 | | % | | 80-120 | 25-MAR-19 |
| Magnesium (Mg)-Total | | | 96.0 | | % | | 80-120 | 25-MAR-19 |
| Manganese (Mn)-Total | | | 96.0 | | % | | 80-120 | 25-MAR-19 |
| Molybdenum (Mo)-Total | | | 100.1 | | % | | 80-120 | 25-MAR-19 |
| Nickel (Ni)-Total | | | 95.9 | | % | | 80-120 | 25-MAR-19 |
| Potassium (K)-Total | | | 102.4 | | % | | 80-120 | 25-MAR-19 |
| Selenium (Se)-Total | | | 97.2 | | % | | 80-120 | 25-MAR-19 |
| Silver (Ag)-Total | | | 102.5 | | % | | 80-120 | 25-MAR-19 |
| Sodium (Na)-Total | | | 106.1 | | % | | 80-120 | 25-MAR-19 |
| Strontium (Sr)-Total | | | 98.1 | | % | | 80-120 | 25-MAR-19 |
| Thallium (Tl)-Total | | | 98.6 | | % | | 80-120 | 25-MAR-19 |
| Tin (Sn)-Total | | | 97.8 | | % | | 80-120 | 25-MAR-19 |
| Titanium (Ti)-Total | | | 96.3 | | % | | 80-120 | 25-MAR-19 |
| Uranium (U)-Total | | | 99.8 | | % | | 80-120 | 25-MAR-19 |
| Vanadium (V)-Total | | | 97.9 | | % | | 80-120 | 25-MAR-19 |
| Zinc (Zn)-Total | | | 90.2 | | % | | 80-120 | 25-MAR-19 |
| **WG3010524-1 MB** | | | | | | | | |
| Aluminum (Al)-Total | | | <0.00030 | | mg/L | | 0.0003 | 25-MAR-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 25-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4581817** | | | | | | | | |
| **WG3010524-1 MB** | | | | | | | | |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 25-MAR-19 |
| Barium (Ba)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Beryllium (Be)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Bismuth (Bi)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Boron (B)-Total | | | <0.0010 | | mg/L | | 0.001 | 25-MAR-19 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 25-MAR-19 |
| Calcium (Ca)-Total | | | <0.020 | | mg/L | | 0.02 | 25-MAR-19 |
| Chromium (Cr)-Total | | | <0.000060 | | mg/L | | 0.00006 | 25-MAR-19 |
| Cobalt (Co)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Copper (Cu)-Total | | | <0.00010 | | mg/L | | 0.0001 | 25-MAR-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 25-MAR-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 25-MAR-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 25-MAR-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Nickel (Ni)-Total | | | <0.000060 | | mg/L | | 0.00006 | 25-MAR-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 25-MAR-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 25-MAR-19 |
| Silver (Ag)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 25-MAR-19 |
| Sodium (Na)-Total | | | <0.0050 | | mg/L | | 0.005 | 25-MAR-19 |
| Strontium (Sr)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Thallium (Tl)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 25-MAR-19 |
| Tin (Sn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Titanium (Ti)-Total | | | <0.00010 | | mg/L | | 0.0001 | 25-MAR-19 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-MAR-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-MAR-19 |
| Zinc (Zn)-Total | | | <0.00080 | | mg/L | | 0.0008 | 25-MAR-19 |
| **WG3010524-4 MS** | | **L2239278-2** | | | | | | |
| Aluminum (Al)-Total | | | 108.4 | | % | | 70-130 | 25-MAR-19 |
| Antimony (Sb)-Total | | | 104.8 | | % | | 70-130 | 25-MAR-19 |
| Arsenic (As)-Total | | | 108.3 | | % | | 70-130 | 25-MAR-19 |
| Barium (Ba)-Total | | | 103.7 | | % | | 70-130 | 25-MAR-19 |
| Beryllium (Be)-Total | | | 110.1 | | % | | 70-130 | 25-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-U-CCMS-ED** | **Water** | | | | | | | |
| **Batch R4581817** | | | | | | | | |
| **WG3010524-4 MS** | | **L2239278-2** | | | | | | |
| Bismuth (Bi)-Total | | | 81.0 | | % | | 70-130 | 25-MAR-19 |
| Boron (B)-Total | | | 110.0 | | % | | 70-130 | 25-MAR-19 |
| Cadmium (Cd)-Total | | | 108.4 | | % | | 70-130 | 25-MAR-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 25-MAR-19 |
| Chromium (Cr)-Total | | | 106.8 | | % | | 70-130 | 25-MAR-19 |
| Cobalt (Co)-Total | | | 105.6 | | % | | 70-130 | 25-MAR-19 |
| Copper (Cu)-Total | | | 105.3 | | % | | 70-130 | 25-MAR-19 |
| Iron (Fe)-Total | | | 101.7 | | % | | 70-130 | 25-MAR-19 |
| Lead (Pb)-Total | | | 103.3 | | % | | 70-130 | 25-MAR-19 |
| Lithium (Li)-Total | | | 105.7 | | % | | 70-130 | 25-MAR-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 25-MAR-19 |
| Manganese (Mn)-Total | | | 101.6 | | % | | 70-130 | 25-MAR-19 |
| Molybdenum (Mo)-Total | | | 101.1 | | % | | 70-130 | 25-MAR-19 |
| Nickel (Ni)-Total | | | 105.4 | | % | | 70-130 | 25-MAR-19 |
| Potassium (K)-Total | | | 110.3 | | % | | 70-130 | 25-MAR-19 |
| Selenium (Se)-Total | | | 109.4 | | % | | 70-130 | 25-MAR-19 |
| Silver (Ag)-Total | | | 91.6 | | % | | 70-130 | 25-MAR-19 |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 25-MAR-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 25-MAR-19 |
| Thallium (Tl)-Total | | | 102.4 | | % | | 70-130 | 25-MAR-19 |
| Tin (Sn)-Total | | | 103.9 | | % | | 70-130 | 25-MAR-19 |
| Titanium (Ti)-Total | | | 106.9 | | % | | 70-130 | 25-MAR-19 |
| Uranium (U)-Total | | | 103.6 | | % | | 70-130 | 25-MAR-19 |
| Vanadium (V)-Total | | | 104.7 | | % | | 70-130 | 25-MAR-19 |
| Zinc (Zn)-Total | | | 106.7 | | % | | 70-130 | 25-MAR-19 |
| **NH3-L-CFA-ED** | **Water** | | | | | | | |
| **Batch R4565347** | | | | | | | | |
| **WG3006682-7 DUP** | | **L2239278-5** | | | | | | |
| Ammonia, Total (as N) | | 0.0228 | 0.0204 | | mg/L | 11 | 20 | 14-MAR-19 |
| **WG3006682-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 97.9 | | % | | 85-115 | 14-MAR-19 |
| **WG3006682-6 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 97.9 | | % | | 85-115 | 14-MAR-19 |
| **WG3006682-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 14-MAR-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **NH3-L-CFA-ED** | **Water** | | | | | | | |
| **Batch R4565347** | | | | | | | | |
| **WG3006682-5 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 14-MAR-19 |
| **WG3006682-8 MS** | | **L2239278-5** | | | | | | |
| Ammonia, Total (as N) | | | 119.0 | | % | | 75-125 | 14-MAR-19 |
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4545707** | | | | | | | | |
| **WG2999307-2 LCS** | | | | | | | | |
| Nitrite (as N) | | | 98.1 | | % | | 90-110 | 04-MAR-19 |
| **WG2999307-1 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 04-MAR-19 |
| **Batch R4552708** | | | | | | | | |
| **WG3000122-3 DUP** | | **L2239278-4** | | | | | | |
| Nitrite (as N) | | 0.0026 | 0.0024 | | mg/L | 8.2 | 20 | 05-MAR-19 |
| **WG3000122-2 LCS** | | | | | | | | |
| Nitrite (as N) | | | 99.6 | | % | | 90-110 | 05-MAR-19 |
| **WG3000122-1 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 05-MAR-19 |
| **WG3000122-4 MS** | | **L2239278-4** | | | | | | |
| Nitrite (as N) | | | 101.6 | | % | | 75-125 | 05-MAR-19 |
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4545707** | | | | | | | | |
| **WG2999307-2 LCS** | | | | | | | | |
| Nitrate (as N) | | | 99.1 | | % | | 90-110 | 04-MAR-19 |
| **WG2999307-1 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 04-MAR-19 |
| **Batch R4552708** | | | | | | | | |
| **WG3000122-3 DUP** | | **L2239278-4** | | | | | | |
| Nitrate (as N) | | 0.0053 | 0.0055 | | mg/L | 2.9 | 20 | 05-MAR-19 |
| **WG3000122-2 LCS** | | | | | | | | |
| Nitrate (as N) | | | 101.5 | | % | | 90-110 | 05-MAR-19 |
| **WG3000122-1 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 05-MAR-19 |
| **WG3000122-4 MS** | | **L2239278-4** | | | | | | |
| Nitrate (as N) | | | 103.7 | | % | | 75-125 | 05-MAR-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4548314** | | | | | | | | |
| **WG3001573-6 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 92.8 | | % | | 80-120 | 07-MAR-19 |
| **WG3001573-5 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 07-MAR-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4555377** | | | | | | | | |
| **WG3003687-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 86.7 | | % | | 80-120 | 11-MAR-19 |
| **WG3003687-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 11-MAR-19 |
| **P-TD-COL-WP** | **Water** | | | | | | | |
| **Batch R4548314** | | | | | | | | |
| **WG3001581-10 LCS** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | 93.7 | | % | | 80-120 | 07-MAR-19 |
| **WG3001581-9 MB** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | <0.0030 | | mg/L | | 0.003 | 07-MAR-19 |
| **P-TD-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4566649** | | | | | | | | |
| **WG3007039-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | 87.6 | | % | | 80-120 | 15-MAR-19 |
| **WG3007039-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | <0.0010 | | mg/L | | 0.001 | 15-MAR-19 |
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4546331** | | | | | | | | |
| **WG3000694-20 DUP** | | **L2239278-2** | | | | | | |
| pH | | 7.34 | 7.34 | J | pH units | 0.00 | 0.2 | 05-MAR-19 |
| **WG3000694-17 LCS** | | | | | | | | |
| pH | | | 7.37 | | pH units | | 7.3-7.5 | 05-MAR-19 |
| **SIO2-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4548955** | | | | | | | | |
| **WG3001574-3 DUP** | | **L2239278-5** | | | | | | |
| Silica, Reactive (as SiO2) | | 0.305 | 0.305 | | mg/L | 0.2 | 20 | 06-MAR-19 |
| **WG3001574-2 LCS** | | | | | | | | |
| Silica, Reactive (as SiO2) | | | 96.9 | | % | | 85-115 | 06-MAR-19 |
| **WG3001574-1 MB** | | | | | | | | |
| Silica, Reactive (as SiO2) | | | <0.010 | | mg/L | | 0.01 | 06-MAR-19 |
| **WG3001574-4 MS** | | **L2239278-5** | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **SIO2-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4548955** | | | | | | | | |
| **WG3001574-4 MS** | | **L2239278-5** | | | | | | |
| Silica, Reactive (as SiO2) | | | N/A | MS-B | % | | - | 06-MAR-19 |
| **SO4-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4545707** | | | | | | | | |
| **WG2999307-2 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 98.5 | | % | | 90-110 | 04-MAR-19 |
| **WG2999307-1 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 04-MAR-19 |
| **Batch R4552708** | | | | | | | | |
| **WG3000122-3 DUP** | | **L2239278-4** | | | | | | |
| Sulfate (SO4) | | 5.22 | 5.21 | | mg/L | 0.2 | 20 | 05-MAR-19 |
| **WG3000122-2 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 101.2 | | % | | 90-110 | 05-MAR-19 |
| **WG3000122-1 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 05-MAR-19 |
| **WG3000122-4 MS** | | **L2239278-4** | | | | | | |
| Sulfate (SO4) | | | 102.9 | | % | | 75-125 | 05-MAR-19 |
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4580988** | | | | | | | | |
| **WG3012058-3 DUP** | | **L2239278-1** | | | | | | |
| Total Dissolved Solids | | 72 | 65 | | mg/L | 11 | 20 | 22-MAR-19 |
| **WG3012058-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 102.3 | | % | | 85-115 | 22-MAR-19 |
| **WG3012058-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 22-MAR-19 |
| **TKN-L-CFA-ED** | **Water** | | | | | | | |
| **Batch R4578769** | | | | | | | | |
| **WG3011670-3 DUP** | | **L2239278-5** | | | | | | |
| Total Kjeldahl Nitrogen | | 0.059 | 0.061 | | mg/L | 2.8 | 20 | 22-MAR-19 |
| **WG3011670-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 101 | | % | | 75-125 | 22-MAR-19 |
| **WG3011670-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 22-MAR-19 |
| **WG3011670-4 MS** | | **L2239278-5** | | | | | | |
| Total Kjeldahl Nitrogen | | | 103 | | % | | 70-130 | 22-MAR-19 |
| **TSS-LOW-VA** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TSS-LOW-VA** | **Water** | | | | | | | |
| **Batch R4545302** | | | | | | | | |
| **WG3000538-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 100.4 | | % | | 85-115 | 06-MAR-19 |
| **WG3000538-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 06-MAR-19 |
| **TURBIDITY-WP** | **Water** | | | | | | | |
| **Batch R4549530** | | | | | | | | |
| **WG3001918-3 LCS** | | | | | | | | |
| Turbidity | | | 100.0 | | % | | 85-115 | 05-MAR-19 |
| **WG3001918-1 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 05-MAR-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Total Dissolved Solids (TDS) | | | | | | | |
| | 1 | 22-FEB-19 12:30 | 22-MAR-19 12:00 | 7 | 28 | days | EHTR |
| | 2 | 22-FEB-19 13:25 | 22-MAR-19 12:00 | 7 | 28 | days | EHTR |
| | 3 | 22-FEB-19 14:25 | 22-MAR-19 12:00 | 7 | 28 | days | EHTR |
| | 4 | 22-FEB-19 14:50 | 22-MAR-19 12:00 | 7 | 28 | days | EHTR |
| | 5 | 22-FEB-19 13:25 | 22-MAR-19 12:00 | 7 | 28 | days | EHTR |
| Total Suspended Solids by Grav. (1 mg/L) | | | | | | | |
| | 1 | 22-FEB-19 12:30 | 06-MAR-19 01:15 | 7 | 12 | days | EHTR |
| | 2 | 22-FEB-19 13:25 | 06-MAR-19 01:15 | 7 | 11 | days | EHTR |
| | 3 | 22-FEB-19 14:25 | 06-MAR-19 01:15 | 7 | 11 | days | EHTR |
| | 4 | 22-FEB-19 14:50 | 06-MAR-19 01:15 | 7 | 11 | days | EHTR |
| | 5 | 22-FEB-19 13:25 | 06-MAR-19 01:15 | 7 | 11 | days | EHTR |
| Turbidity | | | | | | | |
| | 1 | 22-FEB-19 12:30 | 05-MAR-19 14:20 | 3 | 11 | days | EHTR |
| | 2 | 22-FEB-19 13:25 | 05-MAR-19 14:20 | 3 | 11 | days | EHTR |
| | 3 | 22-FEB-19 14:25 | 05-MAR-19 14:20 | 3 | 11 | days | EHTR |
| | 4 | 22-FEB-19 14:50 | 05-MAR-19 14:20 | 3 | 11 | days | EHTR |
| | 5 | 22-FEB-19 13:25 | 05-MAR-19 14:20 | 3 | 11 | days | EHTR |
| pH | | | | | | | |
| | 1 | 22-FEB-19 12:30 | 05-MAR-19 12:00 | 0.25 | 264 | hours | EHTR-FM |
| | 2 | 22-FEB-19 13:25 | 05-MAR-19 12:00 | 0.25 | 263 | hours | EHTR-FM |
| | 3 | 22-FEB-19 14:25 | 05-MAR-19 12:00 | 0.25 | 262 | hours | EHTR-FM |
| | 4 | 22-FEB-19 14:50 | 05-MAR-19 12:00 | 0.25 | 261 | hours | EHTR-FM |
| | 5 | 22-FEB-19 13:25 | 05-MAR-19 12:00 | 0.25 | 263 | hours | EHTR-FM |
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 22-FEB-19 12:30 | 04-MAR-19 12:40 | 3 | 10 | days | EHTR |
| | 2 | 22-FEB-19 13:25 | 04-MAR-19 12:40 | 3 | 10 | days | EHTR |
| | 3 | 22-FEB-19 14:25 | 04-MAR-19 12:40 | 3 | 10 | days | EHTR |
| | 4 | 22-FEB-19 14:50 | 05-MAR-19 12:00 | 3 | 11 | days | EHTR |
| | 5 | 22-FEB-19 13:25 | 05-MAR-19 12:00 | 3 | 11 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 22-FEB-19 12:30 | 04-MAR-19 12:40 | 3 | 10 | days | EHTR |
| | 2 | 22-FEB-19 13:25 | 04-MAR-19 12:40 | 3 | 10 | days | EHTR |
| | 3 | 22-FEB-19 14:25 | 04-MAR-19 12:40 | 3 | 10 | days | EHTR |
| | 4 | 22-FEB-19 14:50 | 05-MAR-19 12:00 | 3 | 11 | days | EHTR |
| | 5 | 22-FEB-19 13:25 | 05-MAR-19 12:00 | 3 | 11 | days | EHTR |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2239278 were received on 04-MAR-19 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

# Quality Control Report



The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Friday, March 15, 2019

Judy Dalmaijer
ALS Environmental
1329 Niakwa Road East, Unit 12
Winnipeg, MB R2J 3T4

Re: ALS Workorder: 1903068
Project Name:
Project Number: L2239278

Dear Ms. Dalmaijer:

Five water samples were received from ALS Environmental, on 3/5/2019. The samples were scheduled for the following analysis:

Radium-226

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
For Katie M. OBrien
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

| ALS Environmental – Fort Collins | |
|---|---|
| | |
| Accreditation Body | License or Certification Number |
| AIHA | 214884 |
| Alaska (AK) | UST-086 |
| Alaska (AK) | CO01099 |
| Arizona (AZ) | AZ0742 |
| California (CA) | 06251CA |
| Colorado (CO) | CO01099 |
| Florida (FL) | E87914 |
| Idaho (ID) | CO01099 |
| Kansas (KS) | E-10381 |
| Kentucky (KY) | 90137 |
| PJ-LA (DoD ELAP/ISO 170250) | 95377 |
| Louisiana (LA) | 05057 |
| Maryland (MD) | 285 |
| Missouri (MO) | 175 |
| Nebraska(NE) | NE-OS-24-13 |
| Nevada (NV) | CO000782008A |
| New York (NY) | 12036 |
| North Dakota (ND) | R-057 |
| Oklahoma (OK) | 1301 |
| Pennsylvania (PA) | 68-03116 |
| Tennessee (TN) | 2976 |
| Texas (TX) | T104704241 |
| Utah (UT) | CO01099 |
| Washington (WA) | C1280 |

# 1903068

**Radium-226:**
The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

**OrderNum:** 1903068
**Client Name:** ALS Environmental
**Client Project Name:**
**Client Project Number:** L2239278
**Client PO Number:** L2239278

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|---|---|---|---|---|---|
| L2239278-1 | 1903068-1 | | WATER | 22-Feb-19 | |
| L2239278-2 | 1903068-2 | | WATER | 22-Feb-19 | |
| L2239278-3 | 1903068-3 | | WATER | 22-Feb-19 | |
| L2239278-4 | 1903068-4 | | WATER | 22-Feb-19 | |
| L2239278-5 | 1903068-5 | | WATER | 22-Feb-19 | |

ALS Environmental

1903068

**L2239278**

WINNIPEG

## Subcontract Request Form

**Subcontract To:**

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

**NOTES:** Please reference on final report and invoice: PO# *L2239278*
ALS requires QC data to be provided with your final results.

**Please see enclosed** 5 **sample(s) in** 5 **Container(s)**

| | SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|---|
| 1 | L2239278-1 MEL-02-02 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 2/ 22/ 2019 3/25/2019 | |
| 2 | L2239278-2 MEL-02-03 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 2/ 22/ 2019 3/25/2019 | |
| 3 | L2239278-3 MEL-02-05 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 2/ 22/ 2019 3/25/2019 | |
| 4 | L2239278-4 MEL-02-08 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 2/ 22/ 2019 3/25/2019 | |
| 5 | L2239278-5 R-19-02-01 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 2/ 22/ 2019 3/25/2019 | |

Subcontract Info Contact: Judy Dalmaijer (204) 255-9749
Analysis and reporting info contact: Judy Dalmaijer
12-1329 NIAKWA ROAD E
WINNIPEG,MB R2J3T4
Phone: (204) 255-9749 Email: Judy.Dalmaijer@alsglobal.com

**Please email confirmation of receipt to:** **Judy.Dalmaijer@alsglobal.com**

Shipped By: CC Date Shipped: 4/3

Received By: C Iramibh Date Received: 3-5-19 0945

Verified By: _____ Date Verified: _____

Temperature: _____

Sample Integrity Issues: _____

**ALS Environmental - Fort Collins**
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: ALS- Winnipeg  Workorder No: 1903068

Project Manager: KO  Initials: CDT  Date: 3-5-19

| | | | | |
|---|---|---|---|---|
| 1. | Are airbills / shipping documents present and/or removable? | DROP OFF | (YES) | NO |
| 2. | Are custody seals on **shipping** containers intact? | (NONE) | YES | NO * |
| 3. | Are custody seals on **sample** containers intact? | (NONE) | YES | NO * |
| 4. | Is there a COC (chain-of-custody) present? | | (YES) | NO * |
| 5. | Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) | | (YES) | NO * |
| 6. | Are short-hold samples present? | | YES | (NO) |
| 7. | Are all samples within holding times for the requested analyses? | | (YES) | NO * |
| 8. | Were all sample containers received intact? (not broken or leaking) | | (YES) | NO * |
| 9. | Is there sufficient sample for the requested analyses? | | (YES) | NO * |
| 10. | Are all samples in the proper containers for the requested analyses? | | (YES) | NO * |
| 11. | Are all aqueous samples preserved correctly, if required? (excluding volatiles) | N/A | (YES) | NO * |
| 12. | Are all aqueous non-preserved samples pH 4-9? | (N/A) | YES | NO * |
| 13. | Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea) | (N/A) | YES | NO |
| 14. | Were the samples shipped on ice? | | YES | (NO) |
| 15. | Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 | RAD ONLY | YES | (NO) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cooler #: | 1 | | | | | | | |
| Temperature (°C): | Amb | | | | | | | |
| No. of custody seals on cooler: | 0 | | | | | | | |
| DOT Survey/ Acceptance Information — External µR/hr reading: | 10 | | | | | | | |
| Background µR/hr reading: | 11 | | | | | | | |

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

*** Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.**

All client bottle ID's vs ALS lab ID's double-checked by: CDT

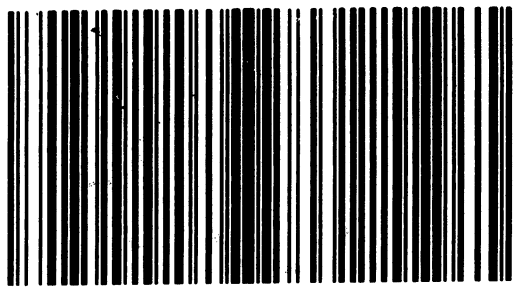
If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

**Project Manager Signature / Date:** 3/6/19

Form 201r27.xls
(02/11/2019)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

BS3S
B3-09
8050P
LOVELAND
1903068
AAD7833UPS



1Z662F456667002253

SHIPPING/RECIE VING
ALS LABORATORY GROUP
12042559764
1329 NIAKWA RD E
STE: 12
WINNIPEG MB R2J 3T4
CANADA

32 LBS 1 OF 1
[illegible]: 662F 45MQ BMZ
SHP WT: 32 LBS
DAT: 04 MAR 2019

10
0-

SHIP TO
LOGIN
ALS ENVIRO
0
225 COMMERCE DRIVE
FORT COLLINS CO 80524
UNITED STATES

CO 805 0-01

UPS EXPRESS

TRACKING #: 1Z 662 F45 66 6700 2253

Amb

ALS ENVIRO
225 COMMERCE DR
FT COLLINS CO 80524

ED
S: BROWN

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *15-Mar-19* |
| **Project:** | L2239278 | **Work Order:** | 1903068 |
| **Sample ID:** | L2239278-1 | **Lab ID:** | 1903068-1 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/22/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **3/7/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.0030 (+/- 0.0040) | U | 0.0065 | BQ/l | NA | 3/15/2019 11:05 |
| *Carr: BARIUM* | *88.9* | | *40-110* | *%REC* | DL = NA | 3/15/2019 11:05 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *15-Mar-19* |
| **Project:** | L2239278 | **Work Order:** | 1903068 |
| **Sample ID:** | L2239278-2 | **Lab ID:** | 1903068-2 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/22/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **3/7/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.0019 (+/- 0.0035) | U | 0.006 | BQ/l | NA | 3/15/2019 11:05 |
| *Carr: BARIUM* | *89.3* | | *40-110* | *%REC* | DL = NA | 3/15/2019 11:05 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *15-Mar-19* |
| **Project:** | L2239278 | **Work Order:** | 1903068 |
| **Sample ID:** | L2239278-3 | **Lab ID:** | 1903068-3 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/22/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **3/7/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.00049 (+/- 0.0043) | U | 0.0082 | BQ/l | NA | 3/15/2019 11:05 |
| *Carr: BARIUM* | *88.8* | | *40-110* | *%REC* | DL = NA | 3/15/2019 11:05 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *15-Mar-19* |
| **Project:** | L2239278 | **Work Order:** | 1903068 |
| **Sample ID:** | L2239278-4 | **Lab ID:** | 1903068-4 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/22/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **3/7/2019** | PrepBy: **JXH** |
| **Ra-226** | **0.0039 (+/- 0.0032)** | | **0.0035** | **BQ/l** | NA | 3/15/2019 11:05 |
| *Carr: BARIUM* | *88.4* | | *40-110* | *%REC* | DL = NA | 3/15/2019 11:05 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *15-Mar-19* |
| **Project:** | L2239278 | **Work Order:** | 1903068 |
| **Sample ID:** | L2239278-5 | **Lab ID:** | 1903068-5 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/22/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **3/7/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.0024 (+/- 0.0029) | U | 0.0045 | BQ/l | NA | 3/15/2019 11:05 |
| *Carr: BARIUM* | *88.8* | | *40-110* | *%REC* | DL = NA | 3/15/2019 11:05 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *15-Mar-19* |
| **Project:** | L2239278 | **Work Order:** | 1903068 |
| **Sample ID:** | L2239278-5 | **Lab ID:** | 1903068-5 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/22/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|

## Explanation of Qualifiers

**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

**Inorganics:**

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

**Organics:**

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE190307-1-1** Instrument ID **Alpha Scin** Method: **Radium-226 by Radon Emanation**

**LCS** Sample ID: **RE190307-1** Units: **BQ/l** Analysis Date: **3/15/2019 11:05**

Client ID: Run ID: **RE190307-1B** Prep Date: **3/7/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 2.03 (+/- 0.507) | 0.0151 | 1.771 | | 114 | 67-120 | | | | | P,M3 |
| Carr: BARIUM | 16000 | | 16310 | | 98.2 | 40-110 | | | | | |

**LCSD** Sample ID: **RE190307-1** Units: **BQ/l** Analysis Date: **3/15/2019 11:42**

Client ID: Run ID: **RE190307-1B** Prep Date: **3/7/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.87 (+/- 0.467) | 0.0145 | 1.771 | | 105 | 67-120 | | 2.03 | 0.2 | 2.1 | P,M3 |
| Carr: BARIUM | 15900 | | 16310 | | 97.8 | 40-110 | | 16000 | | | |

**MB** Sample ID: **RE190307-1** Units: **BQ/l** Analysis Date: **3/15/2019 11:05**

Client ID: Run ID: **RE190307-1B** Prep Date: **3/7/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 0.0016 (+/- 0.0028) | 0.0049 | | | | | | | | | U |
| Carr: BARIUM | 15800 | | 16310 | | 96.6 | 40-110 | | | | | |

**The following samples were analyzed in this batch:**

| | | |
|---|---|---|
| 1903068-1 | 1903068-2 | 1903068-3 |
| 1903068-4 | 1903068-5 | |

# Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2239278-COFC

COC Number: 17 -

Page of

| Report To | Contact and company name below will appear on the final report | Report Format / Distribution | | Turnaround Time (TAT) Requested - Contact your AM to confirm all E&P TATs (surcharges may apply) | |
|---|---|---|---|---|---|
| Company: | Agnico Eagle - Meliadine (W10547) | Select Report Format: ☐ PDF ☑ EXCEL ☐ EDD (DIGITAL) | | Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply | |
| Contact: | Dan Gorton | Quality Control (QC) Report with Report ☐ YES ☐ NO | | PRIORITY (Business Days): 4 day [P4-20%] ☐ | EMERGENCY: 1 Business day [E - 100%] ☐ |
| Phone: | 1-819-759-3555 X 3996 | ☐ Compare Results to Criteria on Report - provide details below if box checked | | 3 day [P3-25%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐ |
| | Company address below will appear on the final report | Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX | | 2 day [P2-50%] ☐ | |
| Street: | Box 99 | Email 1 or Fax | martin.theriault@agnicoeagle.com | Date and Time Required for all E&P TATs: | dd-mmm-yy hh:mm |
| City/Province: | Rankin Inlet , NU | Email 2 | breda_muldoon@golder.com | For tests that can not be performed according to the service level selected, you will be contacted. | |
| Postal Code: | X0C 0G0 | Email 3 | eduardo_richard@golder.com | | |
| **Invoice To** | Same as Report To ☐ YES ☐ NO | **Invoice Distribution** | | | |
| | Copy of Invoice with Report ☐ YES ☐ NO | Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX | | | |
| Company: | | Email 1 or Fax | Jennifer.Brown@agnicoeagle.com | | |
| Contact: | | Email 2 | | | |

| Project Information | | Oil and Gas Required Fields (client use) | |
|---|---|---|---|
| **ALS Account # / Quote #:** | W10547 Q57496 | AFE/Cost Center: | PO# |
| Job #: | 18110868 Agnico Eagle - Meliadine | Major/Minor Code: | Routing Code: |
| PO / AFE: | | Requisitioner: | |
| LSD: | | Location: | |
| **ALS Lab Work Order # (lab use only):** | | **ALS Contact:** Craig Riddell | **Sampler:** |

**Analysis Request**

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

| ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | NUMBER OF CONTAINERS | (1) AEG-ROU-LOW-WP Pkg | TOC, DOC | Cyanide - Free, WAD, & Total | HG-D-L-CVAF-WP & HG-T-L-CVAF-WP (Ultr | MET-D-NP-U-CCMS-ED | MET-T-NP-U-CCMS-ED | N-T-CALC-ED & N-TD-CALC-ED | NH3-L-CFA-ED | TKN-L-CFA-ED | TSS-LOW-VA | P-T-COL-WP | P-TD-COL-WP | SIO2-L-COL-WP | RA226-MMER-FC | SAMPLES ON HOLD | SUSPECTED HAZARD (see Special Instructions) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MEL-02-02 | 22-02-2019 | 12:30 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | MEL-02-03 | 22-02-2019 | 13:25 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | MEL-02-05 | 22-02-2019 | 14:25 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | MEL-02-08 | 22-02-2019 | 14:50 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | R-19-02-01 | 22-02-2019 | 13:25 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | | | | | | | | | | | | | | | | | | | | | |
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| Drinking Water (DW) Samples[1] (client use) | Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only) |
|---|---|
| Are samples taken from a Regulated DW System? ☐ YES ☐ NO | |
| Are samples for human consumption/ use? ☐ YES ☐ NO | |

**SAMPLE CONDITION AS RECEIVED (lab use only)**

| | | | | | |
|---|---|---|---|---|---|
| Frozen ☐ | | SIF Observations | Yes ☐ | No ☐ | |
| Ice Packs ☐ | Ice Cubes ☐ | Custody seal intact | Yes ☐ | No ☐ | |
| Cooling Initiated ☐ | | | | | |

| INITIAL COOLER TEMPERATURES °C | | | | FINAL COOLER TEMPERATURES °C | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | 4.9 |

| SHIPMENT RELEASE (client use) | | | INITIAL SHIPMENT RECEPTION (lab use only) | | | FINAL SHIPMENT RECEPTION (lab use only) | | |
|---|---|---|---|---|---|---|---|---|
| Released by: | Date: | Time: | Received by: | Date: Mar 4/19 | Time: 09 | Received by: | Date: | Time: |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

# Chain of Custody (COC) / Analytical Request Form

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L2239278-COFC

COC Number: 17 -

Page of

| Report To | Contact and company name below will appear on the final report | Report Forma | - Contact your AM to confirm all E&P TATs (surcharges may apply) |
|---|---|---|---|
| Company: | Agnico Eagle - Meliadine (W10547) | Select Report Format: ☐ PDF ☑ EXCEL ☐ EDD (DIGITAL) | Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply |
| Contact: | Dan Gorton | Quality Control (QC) Report with Report ☐ YES ☐ NO | PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐ — EMERGENCY: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐ |
| Phone: | 1-819-759-3555 X 3996 | ☐ Compare Results to Criteria on Report - provide details below if box checked | |
| | Company address below will appear on the final report | Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX | |
| Street: | Box 99 | Email 1 or Fax martin.theriault@agnicoeagle.com | Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm |
| City/Province: | Rankin Inlet , NU | Email 2 breda_muldoon@golder.com | For tests that can not be performed according to the service level selected, you will be contacted. |
| Postal Code: | X0C 0G0 | Email 3 eduardo_richard@golder.com | |
| **Invoice To** | Same as Report To ☐ YES ☐ NO | **Invoice Distribution** | **Analysis Request** |
| | Copy of Invoice with Report ☐ YES ☐ NO | Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX | |
| Company: | | Email 1 or Fax Jennifer.Brown@agnicoeagle.com | |
| Contact: | | Email 2 | |

| Project Information | | Oil and Gas Required Fields (client use) | |
|---|---|---|---|
| ALS Account # / Quote #: | W10547 Q57496 | AFE/Cost Center: | PO# |
| Job #: | 18110868 Agnico Eagle - Meliadine | Major/Minor Code: | Routing Code: |
| PO / AFE: | | Requisitioner: | |
| LSD: | | Location: | |
| ALS Lab Work Order # (lab use only): | | ALS Contact: Craig Riddell | Sampler: |

| ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | NUMBER OF CONTAINERS | (1) AEG-ROU-LOW-WP Pkg | TOC, DOC | Cyanide - Free, WAD, & Total | HG-D-L-CVAF-WP & HG-T-L-CVAF-WP (Ult | MET-D-NP-U-CCMS-ED | MET-T-NP-U-CCMS-ED | N-T-CALC-ED & N-TD-CALC-ED | NH3-L-CFA-ED | TKN-L-CFA-ED | TSS-LOW-VA | P-T-COL-WP | P-TD-COL-WP | SIO2-L-COL-WP | RA226-MMER-FC | SAMPLES ON HOLD | SUSPECTED HAZARD (see Special Instructions) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MEL-02-02 | 22-02-2019 | 12:30 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | MEL-02-03 | 22-02-2019 | 13:25 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | MEL-02-05 | 22-02-2019 | 14:25 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | MEL-02-08 | 22-02-2019 | 14:50 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
| | R-19-02-01 | 22-02-2019 | 13:25 | Surface Water | 11 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | | |
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| Drinking Water (DW) Samples[1] (client use) | Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only) |
|---|---|
| Are samples taken from a Regulated DW System? ☐ YES ☐ NO | |
| Are samples for human consumption/ use? ☐ YES ☐ NO | |

**SAMPLE CONDITION AS RECEIVED (lab use only)**

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

| INITIAL COOLER TEMPERATURES °C | | | | FINAL COOLER TEMPERATURES °C | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | 4.9 |

| SHIPMENT RELEASE (client use) | | | INITIAL SHIPMENT RECEPTION (lab use only) | | | FINAL SHIPMENT RECEPTION (lab use only) | | |
|---|---|---|---|---|---|---|---|---|
| Released by: | Date: | Time: | Received by: | Date: Mar 4/19 | Time: | Received by: | Date: | Time: |

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

# Appendix E2
# ALS Lab Reports: July 2019

Agnico-Eagle - Meliadine Gold Project
ATTN: ERIC FRANZ
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8

Date Received: 22-JUL-19
Report Date: 19-AUG-19 10:02 (MT)
Version: FINAL

Client Phone: 604-730-1220

# Certificate of Analysis

## Lab Work Order #: L2314029

Project P.O. #: NOT SUBMITTED
Job Reference: MEL
C of C Numbers:
Legal Site Desc:

Comments: 12-Aug-19 Ion balance deleted from fractions 28-29, calculation can not be done on less than results.

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-1 MEL-01-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 12-JUL-19 @ 16:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 17.7 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 14.5 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.6 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 75.3 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.022 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.1 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 37.7 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.34 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 51 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.54 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.27 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0052 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.83 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-JUL-19 | R4726691 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-JUL-19 | R4726691 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-JUL-19 | R4726691 |
| Phosphorus (P)-Total | 0.0040 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0057 | | 0.0057 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.222 | | 0.050 | mg/L | 08-AUG-19 | 08-AUG-19 | R4744569 |
| Mercury (Hg)-Total | 0.00087 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.73 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0044 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Arsenic (As)-Total | 0.000314 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Barium (Ba)-Total | 0.00763 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-1 MEL-01-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 12-JUL-19 @ 16:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Boron (B)-Total | 0.0050 | | 0.0050 | mg/L | | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Total | 6.97 | | 0.010 | mg/L | | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Total | 0.0000063 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Total | 0.0000337 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Copper (Cu)-Total | 0.000681 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Iron (Fe)-Total | 0.0411 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Total | 0.000033 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lead (Pb)-Total | 0.000011 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lithium (Li)-Total | 0.00104 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Total | 1.27 | | 0.0040 | mg/L | | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Total | 0.0196 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Total | 0.000059 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Total | 0.000706 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Potassium (K)-Total | 0.974 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Total | 0.00132 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Selenium (Se)-Total | 0.000043 | | 0.000040 | mg/L | | 01-AUG-19 | R4735051 |
| Silicon (Si)-Total | 0.253 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Sodium (Na)-Total | 5.09 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Total | 0.0405 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Sulfur (S)-Total | 1.35 | | 0.50 | mg/L | | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tin (Sn)-Total | 0.000051 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Total | 0.000175 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Uranium (U)-Total | 0.0000127 | | 0.0000010 | mg/L | | 01-AUG-19 | R4735051 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000075 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Total | 0.00079 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00086 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0024 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000283 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00739 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-1 MEL-01-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 12-JUL-19 @ 16:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.80 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Dissolved | 0.0000196 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000850 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0139 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | 0.000020 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00098 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.25 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.0145 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000063 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000706 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.949 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00130 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.252 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 5.00 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0410 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.27 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000047 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000117 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Yttrium (Y)-Dissolved | 0.0000060 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00052 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-2 MEL-01-06 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 12-JUL-19 @ 17:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 17.2 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 14.1 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-2 MEL-01-06 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 12-JUL-19 @ 17:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.6 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 75.2 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.022 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.1 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 37.5 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.33 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 52 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.44 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.22 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0116 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.68 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-JUL-19 | R4726691 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-JUL-19 | R4726691 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-JUL-19 | R4726691 |
| Phosphorus (P)-Total | 0.0092 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Ra-226 | <0.0078 | | 0.0078 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.205 | | 0.050 | mg/L | 08-AUG-19 | 08-AUG-19 | R4744569 |
| Mercury (Hg)-Total | 0.00092 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.84 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0038 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Arsenic (As)-Total | 0.000296 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Barium (Ba)-Total | 0.00767 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Total | 6.89 | | 0.010 | mg/L | | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Total | 0.0000060 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Total | 0.00051 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Total | 0.0000333 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Copper (Cu)-Total | 0.000665 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-2 MEL-01-06 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 12-JUL-19 @ 17:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Iron (Fe)-Total | 0.0391 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Total | 0.000034 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lithium (Li)-Total | 0.00102 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Total | 1.27 | | 0.0040 | mg/L | | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Total | 0.0190 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Total | 0.000058 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Total | 0.000694 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Potassium (K)-Total | 0.971 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Total | 0.00130 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 01-AUG-19 | R4735051 |
| Silicon (Si)-Total | 0.276 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Sodium (Na)-Total | 5.24 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Total | 0.0397 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Sulfur (S)-Total | 1.32 | | 0.50 | mg/L | | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Total | 0.000159 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Uranium (U)-Total | 0.0000142 | | 0.0000010 | mg/L | | 01-AUG-19 | R4735051 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000086 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00059 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0016 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000265 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00746 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.80 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000072 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Dissolved | 0.0000169 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000810 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0121 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-2 MEL-01-06 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 12-JUL-19 @ 17:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00100 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.25 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.0145 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000054 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000700 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.949 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00129 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.240 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 5.04 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0389 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.20 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000034 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000114 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | 0.0000066 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00056 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-3 MEL-01-07 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 16:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 17.9 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 14.7 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.8 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.2 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.023 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.6 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-3 MEL-01-07 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 16:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.0 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.09 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 48 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.38 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.30 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0196 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.63 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0047 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0070 | | 0.0070 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.177 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | 0.00070 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 3.05 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0044 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Arsenic (As)-Total | 0.000284 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Barium (Ba)-Total | 0.00766 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Boron (B)-Total | 0.0052 | | 0.0050 | mg/L | | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Total | 7.16 | | 0.010 | mg/L | | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Total | 0.0000068 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Total | 0.0000337 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Copper (Cu)-Total | 0.000789 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Iron (Fe)-Total | 0.0380 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Total | 0.000031 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lead (Pb)-Total | 0.000013 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lithium (Li)-Total | 0.00109 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Total | 1.31 | | 0.0040 | mg/L | | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Total | 0.0187 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Total | 0.000058 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Total | 0.000698 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-3 MEL-01-07 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 16:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Potassium (K)-Total | 0.990 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Total | 0.00133 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 01-AUG-19 | R4735051 |
| Silicon (Si)-Total | 0.261 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Sodium (Na)-Total | 5.21 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Total | 0.0425 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Sulfur (S)-Total | 1.31 | | 0.50 | mg/L | | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tin (Sn)-Total | 0.000040 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Total | 0.000171 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Uranium (U)-Total | 0.0000133 | | 0.0000010 | mg/L | | 01-AUG-19 | R4735051 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000089 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Total | 0.00065 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00053 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0025 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000276 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00778 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.94 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000071 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Dissolved | 0.0000183 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000759 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0132 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00101 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.28 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.0124 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000064 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000710 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-3 MEL-01-07 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 16:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.968 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00131 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.245 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 5.03 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0419 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.31 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000037 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | 0.000053 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000127 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | 0.0000078 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-4 MEL-01-08 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 16:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 17.9 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 14.7 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.7 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 77.5 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.023 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.7 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.1 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-4 MEL-01-08 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 16:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.23 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 48 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.41 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.24 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0086 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.53 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0042 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0078 | | 0.0078 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.303 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | 0.00064 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 3.00 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0051 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Arsenic (As)-Total | 0.000315 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Barium (Ba)-Total | 0.00772 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Boron (B)-Total | 0.0051 | | 0.0050 | mg/L | | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Total | 7.14 | | 0.010 | mg/L | | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Total | 0.0000068 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Total | 0.0000304 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Copper (Cu)-Total | 0.000731 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Iron (Fe)-Total | 0.0381 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Total | 0.000030 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lead (Pb)-Total | 0.000014 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lithium (Li)-Total | 0.00105 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Total | 1.30 | | 0.0040 | mg/L | | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Total | 0.0185 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Total | 0.000069 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Total | 0.000726 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Potassium (K)-Total | 0.998 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Total | 0.00132 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 01-AUG-19 | R4735051 |
| Silicon (Si)-Total | 0.274 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Sodium (Na)-Total | 5.26 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-4 MEL-01-08 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 16:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Strontium (Sr)-Total | 0.0408 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Sulfur (S)-Total | 1.39 | | 0.50 | mg/L | | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tin (Sn)-Total | 0.000042 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Total | 0.000152 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Uranium (U)-Total | 0.0000153 | | 0.0000010 | mg/L | | 01-AUG-19 | R4735051 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000077 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Total | 0.00120 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00053 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0017 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000279 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00764 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.96 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | 0.00044 | DTC | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Dissolved | 0.0000150 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000843 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0115 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | 0.000019 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00100 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.29 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.0124 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000063 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000692 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.978 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.247 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 5.12 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0415 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-4 MEL-01-08 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 16:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Sulfur (S)-Dissolved | 1.18 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000038 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000121 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | 0.0000068 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00080 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-5 MEL-01-09 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 17:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 18.1 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 14.8 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.9 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.8 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.022 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.6 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.3 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.26 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 49 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.41 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.28 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0067 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-5 MEL-01-09 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 17:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Dissolved Organic Carbon | 2.68 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0046 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0087 | | 0.0087 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.201 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | 0.00068 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.80 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | 1.4 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0045 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Arsenic (As)-Total | 0.000308 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Barium (Ba)-Total | 0.00808 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 07-AUG-19 | R4742915 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Calcium (Ca)-Total | 7.06 | | 0.010 | mg/L | | 07-AUG-19 | R4742915 |
| Cesium (Cs)-Total | 0.0000060 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Total | 0.0000376 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Copper (Cu)-Total | 0.000695 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Iron (Fe)-Total | 0.0354 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Lanthanum (La)-Total | 0.000036 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lead (Pb)-Total | 0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lithium (Li)-Total | 0.00096 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Magnesium (Mg)-Total | 1.27 | | 0.0040 | mg/L | | 07-AUG-19 | R4742915 |
| Manganese (Mn)-Total | 0.0193 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Molybdenum (Mo)-Total | 0.000063 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Nickel (Ni)-Total | 0.000707 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Potassium (K)-Total | 0.969 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Rubidium (Rb)-Total | 0.00137 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 07-AUG-19 | R4742915 |
| Silicon (Si)-Total | 0.260 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Sodium (Na)-Total | 5.19 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Strontium (Sr)-Total | 0.0400 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Sulfur (S)-Total | 1.44 | | 0.50 | mg/L | | 07-AUG-19 | R4742915 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tin (Sn)-Total | 0.000045 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Total | 0.000120 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-5 MEL-01-09 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 17:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Uranium (U)-Total | 0.0000135 | | 0.0000010 | mg/L | | 07-AUG-19 | R4742915 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000059 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0014 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000280 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00771 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.98 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000054 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Dissolved | 0.0000157 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000785 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0118 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | 0.000017 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00100 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.26 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.0123 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000066 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000675 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.961 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00128 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.248 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 5.05 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0418 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.18 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000132 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-5 MEL-01-09 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 17:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | 0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-6 MEL-02-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 11:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.5 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.0 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.1 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.8 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.2 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.3 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.26 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 45 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.32 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.28 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0198 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.66 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Cyanide, Total | 0.0014 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Phosphorus (P)-Total | 0.0034 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Total Kjeldahl Nitrogen | 0.195 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00072 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.87 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-6 MEL-02-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 11:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0036 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.000339 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.00833 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 7.45 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000080 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000196 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.00107 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0310 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000028 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000036 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00090 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 1.23 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.00679 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000070 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000670 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.02 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00139 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.171 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 5.21 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0418 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.44 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000372 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000113 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000133 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000081 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00316 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00058 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-6 MEL-02-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 11:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Aluminum (Al)-Dissolved | 0.0017 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.000258 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.00838 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 7.27 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000068 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000072 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000708 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0105 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000012 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00086 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 1.22 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00252 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000068 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000593 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 0.992 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00139 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.157 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 4.87 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0392 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.39 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000055 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000135 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000054 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00103 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-7 MEL-02-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 13:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.6 | | 1.2 | mg/L | | 23-JUL-19 | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-7 MEL-02-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 13:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.1 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.1 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.8 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.5 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.5 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.14 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 48 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.34 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.28 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0058 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.69 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Phosphorus (P)-Total | 0.0043 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Total Kjeldahl Nitrogen | 0.204 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00068 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.83 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0032 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.000308 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.00837 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 7.48 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-7 MEL-02-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 13:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Cesium (Cs)-Total | 0.0000067 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00027 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000234 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000742 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0360 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000030 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000017 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00090 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 1.23 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.00663 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000068 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000612 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.01 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00138 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | 0.000042 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.183 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 4.92 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0409 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.48 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000043 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | <0.00010 | DLM | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000142 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000064 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000062 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00085 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00060 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 01-AUG-19 | R4737035 |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.000274 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.00833 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 7.39 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000067 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-7 MEL-02-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 13:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Chromium (Cr)-Dissolved | 0.00039 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000073 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000882 | | 0.000050 | mg/L | 01-AUG-19 | 02-AUG-19 | R4738597 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0123 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000019 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000076 | DTMF | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00087 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 1.23 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00265 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000063 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000623 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.00 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00135 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.162 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 4.98 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0400 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.43 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000035 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000128 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000073 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00098 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-8 MEL-02-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 14:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.0 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.4 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.2 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.8 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-8 MEL-02-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 14:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.4 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.8 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.21 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 49 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.36 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.33 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0098 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.63 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Phosphorus (P)-Total | 0.0036 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Total Kjeldahl Nitrogen | 0.194 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00065 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.79 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0035 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.000332 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.00841 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 7.48 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000061 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000223 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000713 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0298 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000030 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000018 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00091 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 1.25 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-8 MEL-02-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 14:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Manganese (Mn)-Total | 0.00662 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000066 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000638 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.03 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00139 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.188 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 5.10 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0414 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.50 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000062 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000116 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000141 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000075 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000069 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00080 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00086 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0021 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.000271 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.00835 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 7.31 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000069 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000078 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000835 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0160 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000020 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000041 | DTMF | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00086 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 1.24 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00266 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-8 MEL-02-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 14:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Molybdenum (Mo)-Dissolved | 0.000073 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000631 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.01 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00137 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.165 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 4.98 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0385 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.61 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000112 | DTMF | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000117 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000055 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000066 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00112 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-9 MEL-02-04 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 14:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.9 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.3 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.2 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 75.9 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.2 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.5 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-9 MEL-02-04 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 14:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.19 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 51 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.27 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.32 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0203 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.75 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Phosphorus (P)-Total | 0.0040 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Total Kjeldahl Nitrogen | 0.214 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00068 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.81 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0024 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.000314 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.00869 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 7.49 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000065 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00034 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000196 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000698 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0264 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000030 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000013 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00089 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 1.24 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.00607 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000071 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000616 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.00 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00139 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | 0.000049 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-9 MEL-02-04 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 14:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Silicon (Si)-Total | 0.186 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 4.97 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0406 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.48 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000179 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000157 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000078 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000076 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00054 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0020 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.000275 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.00826 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 7.26 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000066 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | 0.00033 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000116 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000687 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0110 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000017 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00085 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 1.23 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00246 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000061 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000620 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 0.996 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00137 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.160 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-9 MEL-02-04 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 14:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 4.86 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0392 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.42 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000025 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | 0.000091 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000133 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000057 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00130 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-10 MEL-02-05 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 10:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.8 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.2 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.2 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.2 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.2 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.7 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.19 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 50 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.33 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-10 MEL-02-05 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 10:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **pH** | | | | | | | |
| pH | 7.31 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0145 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.47 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Phosphorus (P)-Total | 0.0035 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Total Kjeldahl Nitrogen | 0.170 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00069 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.79 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0031 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.000314 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.00872 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 7.38 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000074 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00041 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000188 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000724 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0274 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000031 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000035 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00088 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 1.23 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.00622 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000058 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000621 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.00 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00136 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.163 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 4.88 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0410 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.47 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000046 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-10 MEL-02-05 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 10:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Titanium (Ti)-Total | 0.000126 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000143 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000071 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000090 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00207 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00064 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0017 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.000261 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.00856 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 7.25 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000068 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | 0.00048 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000109 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000697 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0119 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00084 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 1.24 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00246 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000059 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000594 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.00 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00137 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.158 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 5.03 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0387 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.50 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-10 MEL-02-05 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 10:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000116 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000053 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000058 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-11 MEL-03-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 11:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.5 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.0 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.29 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 67.8 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.1 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 34.1 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.14 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 43 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.23 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.35 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0107 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 1.99 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Phosphorus (P)-Total | 0.0025 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0072 | | 0.0072 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-11 MEL-03-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 11:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Total Kjeldahl Nitrogen | 0.190 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | 0.00064 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.43 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0034 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Arsenic (As)-Total | 0.000242 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Barium (Ba)-Total | 0.00733 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Total | 6.83 | | 0.010 | mg/L | | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Total | 0.0000068 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Total | 0.0000130 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Copper (Cu)-Total | 0.000646 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Iron (Fe)-Total | 0.0144 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Total | 0.000021 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lead (Pb)-Total | 0.000015 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lithium (Li)-Total | 0.00063 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Total | 1.14 | | 0.0040 | mg/L | | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Total | 0.00267 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Total | 0.000069 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Total | 0.000403 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Potassium (K)-Total | 0.928 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Total | 0.00128 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 01-AUG-19 | R4735051 |
| Silicon (Si)-Total | 0.117 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Sodium (Na)-Total | 4.48 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Total | 0.0332 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Sulfur (S)-Total | 1.16 | | 0.50 | mg/L | | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tin (Sn)-Total | 0.000047 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Total | 0.000138 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Uranium (U)-Total | 0.0000148 | | 0.0000010 | mg/L | | 01-AUG-19 | R4735051 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Total | 0.00092 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-11 MEL-03-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 11:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0046 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000180 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00714 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.64 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000070 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Dissolved | 0.0000077 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000616 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0055 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | 0.000013 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00060 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.00151 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000066 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000394 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.908 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00123 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.109 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 4.36 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0318 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.16 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000049 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000136 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00056 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-12 MEL-03-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 11:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-12 MEL-03-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 11:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 16.6 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 13.6 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.24 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 69.0 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.2 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 35.8 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.627 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.627 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.68 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 47 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.23 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.32 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0130 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 1.56 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Cyanide, Total | 0.0012 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 28-JUL-19 | R4729452 |
| Phosphorus (P)-Total | 0.0024 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0065 | | 0.0065 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.169 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.29 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0035 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Arsenic (As)-Total | 0.000227 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Barium (Ba)-Total | 0.00736 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-12 MEL-03-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 11:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Total | 6.82 | | 0.010 | mg/L | | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Total | 0.0000077 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Total | 0.0000133 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Copper (Cu)-Total | 0.000657 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Iron (Fe)-Total | 0.0145 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Total | 0.000019 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lead (Pb)-Total | 0.000015 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lithium (Li)-Total | 0.00064 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Total | 1.14 | | 0.0040 | mg/L | | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Total | 0.00271 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Total | 0.000063 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Total | 0.000415 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Potassium (K)-Total | 0.925 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Total | 0.00127 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 01-AUG-19 | R4735051 |
| Silicon (Si)-Total | 0.123 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Sodium (Na)-Total | 4.35 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Total | 0.0314 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Sulfur (S)-Total | 1.40 | | 0.50 | mg/L | | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tin (Sn)-Total | 0.000036 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Total | 0.000111 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Uranium (U)-Total | 0.0000152 | | 0.0000010 | mg/L | | 01-AUG-19 | R4735051 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000055 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Total | 0.00097 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0037 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000173 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00726 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-12 MEL-03-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 11:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.69 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000084 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | 0.00042 | DTC | 0.00010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Dissolved | 0.0000089 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000863 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0052 | | 0.0010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Lanthanum (La)-Dissolved | 0.000016 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Lithium (Li)-Dissolved | 0.00059 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.10 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.00156 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000070 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000442 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.892 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00122 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.106 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 4.26 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0326 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.15 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000026 | | 0.000020 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000134 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | 0.0000057 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00108 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-13 MEL-03-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 11:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.0 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 15.6 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-13 MEL-03-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 11:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.18 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 68.1 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.1 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 34.4 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0163 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0163 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.84 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 45 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.27 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.34 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.20 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0022 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0062 | | 0.0062 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.131 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.16 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0047 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Arsenic (As)-Total | 0.000227 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Barium (Ba)-Total | 0.00750 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Total | 6.83 | | 0.010 | mg/L | | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Total | 0.0000077 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Total | 0.0000143 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Copper (Cu)-Total | 0.000615 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-13 MEL-03-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 11:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Iron (Fe)-Total | 0.0151 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Total | 0.000022 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lithium (Li)-Total | 0.00064 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Total | 1.15 | | 0.0040 | mg/L | | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Total | 0.00276 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Total | 0.000069 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Total | 0.000412 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Potassium (K)-Total | 0.934 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Total | 0.00128 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 01-AUG-19 | R4735051 |
| Silicon (Si)-Total | 0.117 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Sodium (Na)-Total | 4.46 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Total | 0.0328 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Sulfur (S)-Total | 1.18 | | 0.50 | mg/L | | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Total | 0.000226 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Uranium (U)-Total | 0.0000144 | | 0.0000010 | mg/L | | 01-AUG-19 | R4735051 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0030 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000190 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00735 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.64 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000089 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | 0.00045 | DTC | 0.00010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Dissolved | 0.0000061 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000803 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0055 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-13 MEL-03-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 11:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lanthanum (La)-Dissolved | 0.000015 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | 0.000012 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00060 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.00161 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000069 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000415 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.901 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00125 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.111 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 4.28 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0321 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.23 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000051 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000130 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | 0.0000061 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00102 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-14 MEL-03-04 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 12:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.0 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 15.6 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.14 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 68.2 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.3 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-14 MEL-03-04 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 12:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 34.3 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.70 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 44 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.22 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.37 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0067 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.08 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0019 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | 0.0059 | | 0.0058 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.157 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.22 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0033 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Arsenic (As)-Total | 0.000234 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Barium (Ba)-Total | 0.00738 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Total | 6.86 | | 0.010 | mg/L | | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Total | 0.0000077 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Total | 0.0000152 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Copper (Cu)-Total | 0.000660 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Iron (Fe)-Total | 0.0150 | | 0.0010 | mg/L | | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Total | 0.000022 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lead (Pb)-Total | 0.000020 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Lithium (Li)-Total | 0.00063 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Total | 1.14 | | 0.0040 | mg/L | | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Total | 0.00269 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Total | 0.000058 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Total | 0.000407 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-14 MEL-03-04 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 12:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Potassium (K)-Total | 0.936 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Total | 0.00128 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 01-AUG-19 | R4735051 |
| Silicon (Si)-Total | 0.119 | | 0.050 | mg/L | | 01-AUG-19 | R4735051 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Sodium (Na)-Total | 4.51 | | 0.020 | mg/L | | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Total | 0.0336 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Sulfur (S)-Total | 1.24 | | 0.50 | mg/L | | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tin (Sn)-Total | 0.000048 | | 0.000020 | mg/L | | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Total | 0.000115 | | 0.000050 | mg/L | | 01-AUG-19 | R4735051 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| Uranium (U)-Total | 0.0000139 | | 0.0000010 | mg/L | | 01-AUG-19 | R4735051 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000056 | | 0.0000050 | mg/L | | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Total | 0.00090 | | 0.00050 | mg/L | | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 01-AUG-19 | R4735051 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0021 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000211 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00723 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.69 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000070 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | 0.00042 | DTC | 0.00010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Dissolved | 0.0000064 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000781 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0053 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | 0.000014 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00061 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.00151 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000070 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000421 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-14 MEL-03-04 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 12:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.912 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00124 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.109 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 4.38 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0326 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.12 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000025 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | 0.000052 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000129 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00062 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-15 MEL-03-05 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 18.9 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 15.5 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.16 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 68.0 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.1 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 34.5 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-15 MEL-03-05 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.85 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 41 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.21 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.38 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0089 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.14 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0059 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Ra-226 | <0.0077 | | 0.0077 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.141 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | 0.00055 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.29 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | 1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0034 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Arsenic (As)-Total | 0.000233 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Barium (Ba)-Total | 0.00759 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 07-AUG-19 | R4742915 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Calcium (Ca)-Total | 6.70 | | 0.010 | mg/L | | 07-AUG-19 | R4742915 |
| Cesium (Cs)-Total | 0.0000076 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Total | 0.0000127 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Copper (Cu)-Total | 0.000658 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Iron (Fe)-Total | 0.0140 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Lanthanum (La)-Total | 0.000024 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lead (Pb)-Total | 0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lithium (Li)-Total | 0.00058 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Magnesium (Mg)-Total | 1.10 | | 0.0040 | mg/L | | 07-AUG-19 | R4742915 |
| Manganese (Mn)-Total | 0.00258 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Molybdenum (Mo)-Total | 0.000063 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Nickel (Ni)-Total | 0.000371 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Potassium (K)-Total | 0.895 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Rubidium (Rb)-Total | 0.00128 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 07-AUG-19 | R4742915 |
| Silicon (Si)-Total | 0.102 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Sodium (Na)-Total | 4.40 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-15 MEL-03-05 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Strontium (Sr)-Total | 0.0301 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Sulfur (S)-Total | 1.07 | | 0.50 | mg/L | | 07-AUG-19 | R4742915 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tin (Sn)-Total | 0.000028 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Total | 0.000074 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Uranium (U)-Total | 0.0000138 | | 0.0000010 | mg/L | | 07-AUG-19 | R4742915 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000077 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0031 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000200 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00720 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.60 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000070 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | 0.00049 | DTC | 0.00010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Dissolved | 0.0000088 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000861 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0083 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | 0.000016 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00060 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.12 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.00142 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000067 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000441 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.912 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00126 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.106 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 4.52 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0318 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-15 MEL-03-05 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 14-JUL-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Sulfur (S)-Dissolved | 1.11 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000027 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | 0.000057 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000147 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | 0.0000054 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00052 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-16 A8-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 11:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 47.0 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 38.5 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 36.6 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 206 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 76.6 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 94.8 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 102 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 6.48 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 156 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.62 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.72 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0821 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-16 A8-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 11:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Dissolved Organic Carbon | 2.70 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Phosphorus (P)-Total | 0.0053 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Total Kjeldahl Nitrogen | 0.312 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00082 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 3.58 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | 1.1 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0066 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | 0.000022 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00280 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0235 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 25.5 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000114 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00040 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000674 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000687 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.118 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000031 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000091 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00612 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 3.49 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.0140 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000173 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000839 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.62 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00145 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.260 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 5.96 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.178 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 2.25 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000060 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000305 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | 0.000071 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000381 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000094 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-16 A8-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 11:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Yttrium (Y)-Total | 0.0000053 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00104 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00066 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0024 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | 0.000023 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.00188 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0229 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 25.0 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000100 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000153 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000823 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0386 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000012 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000033 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00586 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 3.42 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00183 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000160 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000794 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.59 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00143 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.237 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 6.02 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.171 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 2.25 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000085 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | 0.000056 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000366 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000056 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-16 A8-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 11:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Zinc (Zn)-Dissolved | 0.00115 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-17 A8-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 12:05 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 47.9 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 39.3 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 36.9 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 202 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 76.6 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 93.3 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 103 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 6.43 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 157 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.61 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.74 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0539 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 3.07 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Phosphorus (P)-Total | 0.0039 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Total Kjeldahl Nitrogen | 0.319 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00077 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 3.38 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-17 A8-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 12:05 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0057 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | 0.000021 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00266 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0237 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 25.0 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000107 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000594 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000621 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.114 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000027 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000084 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00606 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 3.36 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.0136 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000163 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000758 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.60 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00141 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.239 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 5.91 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.174 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 2.24 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000044 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000178 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | 0.000075 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000365 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000083 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000065 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00055 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00054 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0030 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-17 A8-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 12:05 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Antimony (Sb)-Dissolved | 0.000022 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.00190 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0224 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 25.1 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000101 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000173 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000689 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0453 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000011 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000042 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00571 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 3.35 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00148 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000175 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000887 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.57 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00140 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.227 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 5.90 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.171 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 2.09 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000164 | DTMF | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | 0.000053 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000350 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000058 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00109 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-18 A8-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 12:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 52.6 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-18 A8-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 12:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 43.1 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 30.7 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 192 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 76.2 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 97.3 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 97.2 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.41 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 145 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.71 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.76 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0087 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 4.30 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 24-JUL-19 | R4725109 |
| Phosphorus (P)-Total | 0.0052 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Total Kjeldahl Nitrogen | 0.359 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00095 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 4.24 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0062 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | 0.000021 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00232 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0236 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 24.4 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-18 A8-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 12:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Cesium (Cs)-Total | 0.0000114 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00057 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000728 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000667 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.146 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000029 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000072 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00537 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 3.38 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.0184 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000170 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000956 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.57 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00144 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.310 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 5.60 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.161 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.89 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000050 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000217 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | 0.000020 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000339 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000094 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000072 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00073 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00067 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0026 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | 0.000021 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.00168 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0225 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 25.2 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000100 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-18 A8-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 11-JUL-19 @ 12:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Chromium (Cr)-Dissolved | 0.00039 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000238 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000652 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0581 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000011 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000031 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00514 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 3.25 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00238 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000163 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000901 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.50 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00138 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.280 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 5.25 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.155 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.94 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000088 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | 0.000017 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000315 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000063 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000062 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00082 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-19 B7-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 12:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 38.8 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 31.8 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 25.8 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 159 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-19 B7-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 12:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 61.2 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 95.9 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 79.0 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.82 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 121 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.55 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.62 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0162 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 4.18 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Phosphorus (P)-Total | 0.0079 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Total Kjeldahl Nitrogen | 0.349 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00087 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 4.38 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0047 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | 0.000021 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00225 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0210 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | 0.0101 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 21.1 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000439 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00048 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000776 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.00103 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0857 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000034 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000084 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.0133 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 2.18 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-19 B7-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 12:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Manganese (Mn)-Total | 0.0116 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000158 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000970 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.39 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00142 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.215 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 3.93 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.202 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 2.18 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000050 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000137 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | 0.000040 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000235 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000085 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000078 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00137 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00074 | | 0.00050 | ug/L | 24-JUL-19 | 01-AUG-19 | R4736188 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0027 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | 0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.00183 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0203 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | 0.0097 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 21.0 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000375 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | 0.00051 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000219 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.00107 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0391 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000016 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000047 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.0125 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 2.10 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00201 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-19 B7-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 12:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Molybdenum (Mo)-Dissolved | 0.000171 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000908 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.34 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00140 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.181 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 3.87 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.194 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 2.14 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000095 | DTMF | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | 0.000038 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000229 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000065 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000054 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00127 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-20 B7-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 37.8 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 31.0 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 24.5 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 150 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.024 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 56.6 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 92.7 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 75.1 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-20 B7-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.67 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 113 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.53 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.61 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0440 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 3.91 | | 0.50 | mg/L | | 24-JUL-19 | R4725711 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Phosphorus (P)-Total | 0.0078 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Total Kjeldahl Nitrogen | 0.386 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00086 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 4.14 | | 0.50 | mg/L | | 24-JUL-19 | R4725651 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0049 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00182 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0197 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | 0.0089 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 19.8 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000249 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000636 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000866 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0943 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000033 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000074 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.0126 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 2.08 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.0105 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000163 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000897 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.35 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00140 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-20 B7-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Silicon (Si)-Total | 0.205 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 3.80 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.190 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 2.16 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000068 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | <0.00015 | DLM | 0.00015 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | 0.000033 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000262 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000090 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000063 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00079 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00077 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 01-AUG-19 | R4737035 |
| Aluminum (Al)-Dissolved | 0.0026 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | 0.000021 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.00142 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0193 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | 0.0086 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | 0.0000127 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 19.4 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000244 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | 0.00057 | DTC | 0.00010 | mg/L | 01-AUG-19 | 02-AUG-19 | R4738597 |
| Cobalt (Co)-Dissolved | 0.0000199 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.00102 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0329 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000016 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000045 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.0119 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 1.98 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.000839 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000159 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000948 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.29 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00135 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.198 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-20 B7-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 3.63 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.183 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.99 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000116 | DTC | 0.000020 | mg/L | 01-AUG-19 | 02-AUG-19 | R4738597 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | 0.000031 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000249 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000066 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00116 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-21 B7-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 13:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 37.7 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 30.9 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 24.3 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 150 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 57.1 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 93.6 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 75.1 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.77 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 101 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.49 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-21 B7-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 13:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **pH** | | | | | | | |
| pH | 7.60 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0223 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 3.89 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 26-JUL-19 | R4727956 |
| Phosphorus (P)-Total | 0.0081 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Total Kjeldahl Nitrogen | 0.322 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00078 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 4.00 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | 1.3 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0053 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00178 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0194 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | 0.0089 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 19.7 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000242 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000596 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000754 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0785 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000034 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000069 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.0126 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 2.03 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.00987 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000179 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000872 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.32 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.00137 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.199 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 3.75 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.189 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.89 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000093 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-21 B7-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 13:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Titanium (Ti)-Total | 0.000143 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | 0.000032 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000277 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000087 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000084 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00082 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | 0.000032 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00083 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 01-AUG-19 | R4737035 |
| Aluminum (Al)-Dissolved | 0.0022 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.00143 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0188 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | 0.0086 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 19.6 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000220 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000151 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000801 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0343 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000017 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000036 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.0118 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 1.98 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.000831 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000158 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000842 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.29 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.191 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 3.64 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.181 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.82 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 01-AUG-19 | 02-AUG-19 | R4738597 |
| Tin (Sn)-Dissolved | 0.000096 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | 0.000063 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-21 B7-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 13-JUL-19 @ 13:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Tungsten (W)-Dissolved | 0.000030 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000240 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000061 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000066 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00180 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-22 D7-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 09:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 51.9 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 42.5 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.62 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 115 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.034 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 43.1 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 99.8 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 61.8 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.19 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 68 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.62 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.75 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0342 | | 0.0050 | mg/L | | 06-AUG-19 | R4740391 |
| Dissolved Organic Carbon | 3.94 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0089 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Total Kjeldahl Nitrogen | 0.445 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-22 D7-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 09:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Mercury (Hg)-Total | 0.00099 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 4.27 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | 1.2 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0079 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | 0.000022 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00123 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0185 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | 0.0000378 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | 0.0120 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 13.5 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000062 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000500 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000769 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.135 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000038 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000039 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00134 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 2.42 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.0137 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000290 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000803 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.20 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.000944 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.128 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 6.40 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0672 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.50 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000066 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000348 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000542 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000144 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000097 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00118 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00078 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-22 D7-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 09:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0034 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.00100 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0176 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | 0.0122 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | 0.0000060 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 13.3 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000228 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000827 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0733 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000020 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000027 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00129 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 2.40 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00193 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000304 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000777 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.18 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.000950 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.129 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 6.59 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0652 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.33 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000068 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.00010 | DLM | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000549 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000113 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000081 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00142 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-23 D7-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 09:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-23 D7-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 09:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 51.1 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 41.9 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.68 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 116 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.033 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 42.6 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 98.9 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 61.2 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.27 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 72 | | 13 | mg/L | | 22-JUL-19 | R4720856 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.62 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.72 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0061 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 3.94 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0083 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Total Kjeldahl Nitrogen | 0.384 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00091 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 4.18 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | 1.4 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0063 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00124 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0185 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | 0.0000055 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | 0.0120 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-23 D7-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 09:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 13.3 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000054 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000495 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000673 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.130 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000037 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000031 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00134 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 2.40 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.0114 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000298 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000789 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.17 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.000908 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.128 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 6.41 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0663 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.33 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | 0.0000057 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000060 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000325 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000566 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000141 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000089 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00057 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00076 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0029 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.000983 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0174 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | 0.0116 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-23 D7-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 09:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Calcium (Ca)-Dissolved | 13.1 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000200 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000653 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0574 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000022 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00125 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 2.39 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00118 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000300 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000801 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.16 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.000918 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.117 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 6.42 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0635 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.38 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000066 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | 0.000061 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000526 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000099 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000063 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00105 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-24 D7-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 10:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 51.4 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 42.1 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.61 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-24 D7-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 10:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Conductivity** | | | | | | | |
| Conductivity | 116 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.033 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 42.6 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 99.7 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 61.2 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.00 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 69 | | 13 | mg/L | | 22-JUL-19 | R4720856 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.66 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.71 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0070 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 3.75 | | 0.50 | mg/L | | 26-JUL-19 | R4729463 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | 0.0086 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Total Kjeldahl Nitrogen | 0.170 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00096 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 4.03 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | 1.5 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0062 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00120 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0181 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | 0.0000071 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | 0.0123 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 13.5 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000057 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000420 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000646 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.130 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000038 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000037 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-24 D7-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 10:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Lithium (Li)-Total | 0.00134 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 2.39 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.0105 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000305 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000793 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.17 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.000929 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | 0.000041 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.133 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 6.39 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0658 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.51 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000080 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000305 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000603 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000141 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000081 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00058 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00080 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 01-AUG-19 | R4737035 |
| Aluminum (Al)-Dissolved | 0.0023 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.000897 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0175 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | 0.0121 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 13.2 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | 0.00038 | DTC | 0.00010 | mg/L | 01-AUG-19 | 02-AUG-19 | R4738597 |
| Cobalt (Co)-Dissolved | 0.0000174 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000618 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0577 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000017 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000020 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00127 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-24 D7-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 10:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Magnesium (Mg)-Dissolved | 2.36 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.000876 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000291 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000711 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.15 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.000918 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.124 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 6.54 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0652 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.38 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000031 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | 0.000057 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000549 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000102 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | 0.0000069 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00068 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-25 JUL-DUP-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.0 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.4 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.0 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 77.1 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.5 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.7 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-25 JUL-DUP-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.13 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 45 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.31 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.34 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0161 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.57 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |
| Phosphorus (P)-Total | 0.0031 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Total Kjeldahl Nitrogen | 0.171 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00092 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.81 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | 1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0029 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.000295 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.00857 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 7.46 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000077 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00031 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000222 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000666 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.0272 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000028 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000020 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00091 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 1.26 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.00658 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000067 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000610 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.03 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-25 JUL-DUP-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Rubidium (Rb)-Total | 0.00136 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.177 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 4.99 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0398 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.49 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000025 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000100 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000135 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000072 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000080 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00061 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00109 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0021 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.000277 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.00845 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 7.35 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | 0.0000075 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | 0.00037 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000079 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000695 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0097 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00088 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 1.24 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00256 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000070 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000611 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.01 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.00137 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-25 JUL-DUP-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.154 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 5.08 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0391 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.49 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000024 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000129 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000065 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00069 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| L2314029-26 JUL-DUP-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 17.9 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 14.7 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.8 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 77.0 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.022 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.7 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 38.5 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0083 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0083 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.44 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 50 | | 13 | mg/L | | 24-JUL-19 | R4727328 |
| **Turbidity** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-26 JUL-DUP-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Turbidity** | | | | | | | |
| Turbidity | 0.41 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.29 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0062 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | 2.73 | | 0.50 | mg/L | | 26-JUL-19 | R4729463 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |
| Phosphorus (P)-Total | 0.0040 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | 0.0100 | | 0.0043 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | 0.168 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | 0.00069 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 2.97 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | 1.6 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0033 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Arsenic (As)-Total | 0.000314 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Barium (Ba)-Total | 0.00827 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 07-AUG-19 | R4742915 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Calcium (Ca)-Total | 7.02 | | 0.010 | mg/L | | 07-AUG-19 | R4742915 |
| Cesium (Cs)-Total | 0.0000067 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Chromium (Cr)-Total | 0.00055 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Total | 0.0000299 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Copper (Cu)-Total | 0.000670 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Iron (Fe)-Total | 0.0342 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Lanthanum (La)-Total | 0.000036 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lithium (Li)-Total | 0.00097 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Magnesium (Mg)-Total | 1.27 | | 0.0040 | mg/L | | 07-AUG-19 | R4742915 |
| Manganese (Mn)-Total | 0.0190 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Molybdenum (Mo)-Total | 0.000060 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Nickel (Ni)-Total | 0.000703 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Potassium (K)-Total | 0.957 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Rubidium (Rb)-Total | 0.00132 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 07-AUG-19 | R4742915 |
| Silicon (Si)-Total | 0.263 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Sodium (Na)-Total | 5.14 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Strontium (Sr)-Total | 0.0403 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Sulfur (S)-Total | 1.43 | | 0.50 | mg/L | | 07-AUG-19 | R4742915 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-26 JUL-DUP-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Total | 0.000145 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Uranium (U)-Total | 0.0000145 | | 0.0000010 | mg/L | | 07-AUG-19 | R4742915 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | 0.0000061 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00074 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0019 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | 0.000283 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.00753 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 6.99 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cesium (Cs)-Dissolved | 0.0000062 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cobalt (Co)-Dissolved | 0.0000158 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000822 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0122 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | 0.00104 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 1.28 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | 0.0124 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | 0.000059 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | 0.000741 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | 0.975 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | 0.00128 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | 0.252 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | 5.09 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.0399 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | 1.42 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-26 JUL-DUP-02 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000048 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | 0.0000130 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-27 JUL-DUP-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 51.9 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 42.5 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.64 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 116 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.033 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 42.8 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 99.3 | | | % | | 25-JUL-19 | |
| TDS (Calculated) | 61.4 | | | mg/L | | 25-JUL-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.97 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 70 | | 13 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.75 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 7.74 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0223 | | 0.0050 | mg/L | | 06-AUG-19 | R4740391 |
| Dissolved Organic Carbon | 3.76 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-27 JUL-DUP-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 02-AUG-19 | R4738754 |
| Phosphorus (P)-Total | 0.0096 | | 0.0030 | mg/L | | 24-JUL-19 | R4724477 |
| Total Kjeldahl Nitrogen | 0.318 | | 0.050 | mg/L | 05-AUG-19 | 06-AUG-19 | R4740352 |
| Mercury (Hg)-Total | 0.00077 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | 3.99 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0066 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Arsenic (As)-Total | 0.00127 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Barium (Ba)-Total | 0.0184 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Boron (B)-Total | 0.0124 | | 0.0050 | mg/L | | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Total | 13.4 | | 0.010 | mg/L | | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Total | 0.0000064 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Total | 0.00033 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Total | 0.0000520 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Copper (Cu)-Total | 0.000646 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Iron (Fe)-Total | 0.133 | | 0.0010 | mg/L | | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Total | 0.000035 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lead (Pb)-Total | 0.000030 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Lithium (Li)-Total | 0.00132 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Total | 2.41 | | 0.0040 | mg/L | | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Total | 0.0139 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Total | 0.000296 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Total | 0.000772 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Potassium (K)-Total | 1.18 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Total | 0.000936 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 31-JUL-19 | R4732716 |
| Silicon (Si)-Total | 0.133 | | 0.050 | mg/L | | 31-JUL-19 | R4732716 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Sodium (Na)-Total | 6.43 | | 0.020 | mg/L | | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Total | 0.0648 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Sulfur (S)-Total | 1.45 | | 0.50 | mg/L | | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Thorium (Th)-Total | 0.0000056 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tin (Sn)-Total | 0.000036 | | 0.000020 | mg/L | | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Total | 0.000342 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| Uranium (U)-Total | 0.0000571 | | 0.0000010 | mg/L | | 31-JUL-19 | R4732716 |
| Vanadium (V)-Total | 0.000149 | | 0.000050 | mg/L | | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Total | 0.0000105 | | 0.0000050 | mg/L | | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Total | 0.00055 | | 0.00050 | mg/L | | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-27 JUL-DUP-03 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 31-JUL-19 | R4732716 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | 0.00086 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-JUL-19 | R4730354 |
| Aluminum (Al)-Dissolved | 0.0029 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Arsenic (As)-Dissolved | 0.00105 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Barium (Ba)-Dissolved | 0.0177 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Boron (B)-Dissolved | 0.0118 | | 0.0050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Calcium (Ca)-Dissolved | 13.1 | | 0.010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Cobalt (Co)-Dissolved | 0.0000199 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Copper (Cu)-Dissolved | 0.000631 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Iron (Fe)-Dissolved | 0.0638 | | 0.0010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lanthanum (La)-Dissolved | 0.000022 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lead (Pb)-Dissolved | 0.000019 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Lithium (Li)-Dissolved | 0.00127 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Magnesium (Mg)-Dissolved | 2.41 | | 0.0040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Manganese (Mn)-Dissolved | 0.00176 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Molybdenum (Mo)-Dissolved | 0.000284 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Nickel (Ni)-Dissolved | 0.000770 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Potassium (K)-Dissolved | 1.17 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Rubidium (Rb)-Dissolved | 0.000898 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silicon (Si)-Dissolved | 0.123 | | 0.050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sodium (Na)-Dissolved | 6.59 | | 0.020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Strontium (Sr)-Dissolved | 0.0636 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Sulfur (S)-Dissolved | 1.32 | | 0.50 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tin (Sn)-Dissolved | 0.000042 | | 0.000020 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Titanium (Ti)-Dissolved | 0.000059 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Uranium (U)-Dissolved | 0.0000560 | | 0.0000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Vanadium (V)-Dissolved | 0.000109 | | 0.000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zinc (Zn)-Dissolved | 0.00051 | | 0.00050 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-JUL-19 | 31-JUL-19 | R4732716 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-28 JUL-D1-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 22:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | <1.2 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | <1.0 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | <0.10 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | <1.0 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | <0.20 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | <4.0 | | 4.0 | mg/L | | 22-JUL-19 | R4720856 |
| **Turbidity** | | | | | | | |
| Turbidity | <0.10 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 5.45 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0104 | RRV | 0.0050 | mg/L | | 12-AUG-19 | R4747930 |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | <0.0010 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | 0.013 | | 0.0067 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | <0.50 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | <0.0010 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Arsenic (As)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Barium (Ba)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 07-AUG-19 | R4742915 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-28 JUL-D1-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 22:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Calcium (Ca)-Total | <0.010 | | 0.010 | mg/L | | 07-AUG-19 | R4742915 |
| Cesium (Cs)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Chromium (Cr)-Total | 0.00030 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Copper (Cu)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Iron (Fe)-Total | <0.0010 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Lanthanum (La)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Magnesium (Mg)-Total | <0.0040 | | 0.0040 | mg/L | | 07-AUG-19 | R4742915 |
| Manganese (Mn)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Nickel (Ni)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Potassium (K)-Total | <0.020 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Rubidium (Rb)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 07-AUG-19 | R4742915 |
| Silicon (Si)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Sodium (Na)-Total | <0.020 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Strontium (Sr)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Sulfur (S)-Total | <0.50 | | 0.50 | mg/L | | 07-AUG-19 | R4742915 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Total | 0.000053 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Uranium (U)-Total | <0.0000010 | | 0.0000010 | mg/L | | 07-AUG-19 | R4742915 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | 0.0016 | RRV | 0.0010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.000035 | RRV | 0.000020 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | <0.010 | | 0.010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-28 JUL-D1-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 22:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | 0.00037 | RRV | 0.00010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | 0.0039 | DTC | 0.0010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | 0.000014 | RRV | 0.000010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | <0.0040 | | 0.0040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Manganese (Mn)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | <0.020 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | <0.020 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sulfur (S)-Dissolved | <0.50 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | <0.0000010 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-29 JUL-EB-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 22:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | <1.2 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | <1.0 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | <0.10 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-29 JUL-EB-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 22:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Conductivity** | | | | | | | |
| Conductivity | <1.0 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | <0.20 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0054 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0054 | | 0.0051 | mg/L | | 25-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | <4.0 | | 4.0 | mg/L | | 22-JUL-19 | R4720856 |
| **Turbidity** | | | | | | | |
| Turbidity | <0.10 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 5.43 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0111 | RRV | 0.0050 | mg/L | | 12-AUG-19 | R4747930 |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-JUL-19 | R4729604 |
| Phosphorus (P)-Total | <0.0010 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0060 | | 0.0060 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | <0.50 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0023 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Arsenic (As)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Barium (Ba)-Total | 0.000145 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 07-AUG-19 | R4742915 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Calcium (Ca)-Total | 0.025 | | 0.010 | mg/L | | 07-AUG-19 | R4742915 |
| Cesium (Cs)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Chromium (Cr)-Total | 0.00048 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Total | 0.0000072 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Copper (Cu)-Total | 0.000109 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Iron (Fe)-Total | 0.0048 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Lanthanum (La)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lead (Pb)-Total | 0.000051 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Magnesium (Mg)-Total | <0.0040 | | 0.0040 | mg/L | | 07-AUG-19 | R4742915 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-29 JUL-EB-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 22:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Manganese (Mn)-Total | 0.000107 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Nickel (Ni)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Potassium (K)-Total | <0.020 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Rubidium (Rb)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 07-AUG-19 | R4742915 |
| Silicon (Si)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Sodium (Na)-Total | <0.020 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Strontium (Sr)-Total | 0.000087 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Sulfur (S)-Total | <0.50 | | 0.50 | mg/L | | 07-AUG-19 | R4742915 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tin (Sn)-Total | 0.000029 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Total | 0.000067 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Uranium (U)-Total | <0.0000010 | | 0.0000010 | mg/L | | 07-AUG-19 | R4742915 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Zinc (Zn)-Total | 0.00116 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | <0.0010 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | 0.000076 | RRV | 0.000020 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 0.030 | RRV | 0.010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | 0.00047 | RRV | 0.00010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | 0.000069 | RRV | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | <0.0010 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 0.0040 | RRV | 0.0040 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Manganese (Mn)-Dissolved | 0.000070 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-29 JUL-EB-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 @ 22:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Molybdenum (Mo)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | <0.020 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | <0.020 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Strontium (Sr)-Dissolved | 0.000151 | DTC | 0.000020 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Sulfur (S)-Dissolved | <0.50 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000026 | RRV | 0.000020 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | <0.0000010 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | 0.00137 | RRV | 0.00050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| L2314029-30 JUL-TB-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | <1.2 | | 1.2 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-JUL-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | <1.0 | | 1.0 | mg/L | | 22-JUL-19 | R4720530 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | <0.10 | | 0.10 | mg/L | | 22-JUL-19 | R4725150 |
| **Conductivity** | | | | | | | |
| Conductivity | 27.7 | | 1.0 | umhos/cm | | 22-JUL-19 | R4720530 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 22-JUL-19 | R4725150 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | <0.20 | | 0.20 | mg/L | | 12-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 12-AUG-19 | |
| TDS (Calculated) | 6.7 | | | mg/L | | 12-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 1.49 | | 0.0050 | mg/L | | 22-JUL-19 | R4725150 |
| **Nitrate+Nitrite** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-30 JUL-TB-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 1.49 | | 0.0051 | mg/L | | 30-JUL-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-JUL-19 | R4725150 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 22-JUL-19 | R4725150 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 8.7 | | 4.0 | mg/L | | 22-JUL-19 | R4720708 |
| **Turbidity** | | | | | | | |
| Turbidity | <0.10 | | 0.10 | NTU | | 23-JUL-19 | R4722438 |
| **pH** | | | | | | | |
| pH | 4.19 | | 0.10 | pH units | | 22-JUL-19 | R4720530 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 25-JUL-19 | R4727607 |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 25-JUL-19 | R4727536 |
| Phosphorus (P)-Total | <0.0010 | | 0.0010 | mg/L | | 30-JUL-19 | R4730572 |
| Ra-226 | <0.0059 | | 0.0059 | Bq/L | 29-JUL-19 | 06-AUG-19 | R4740889 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 13-AUG-19 | 13-AUG-19 | R4752008 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 02-AUG-19 | R4738851 |
| Total Organic Carbon | <0.50 | | 0.50 | mg/L | | 25-JUL-19 | R4727520 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 23-JUL-19 | R4723650 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | <0.0010 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Arsenic (As)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Barium (Ba)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 07-AUG-19 | R4742915 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Calcium (Ca)-Total | 0.011 | | 0.010 | mg/L | | 07-AUG-19 | R4742915 |
| Cesium (Cs)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Copper (Cu)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Iron (Fe)-Total | 0.0012 | | 0.0010 | mg/L | | 07-AUG-19 | R4742915 |
| Lanthanum (La)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Magnesium (Mg)-Total | <0.0040 | | 0.0040 | mg/L | | 07-AUG-19 | R4742915 |
| Manganese (Mn)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Nickel (Ni)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Potassium (K)-Total | <0.020 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Rubidium (Rb)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 07-AUG-19 | R4742915 |
| Silicon (Si)-Total | <0.050 | | 0.050 | mg/L | | 07-AUG-19 | R4742915 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-30 JUL-TB-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Sodium (Na)-Total | <0.020 | | 0.020 | mg/L | | 07-AUG-19 | R4742915 |
| Strontium (Sr)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Sulfur (S)-Total | <0.50 | | 0.50 | mg/L | | 07-AUG-19 | R4742915 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 07-AUG-19 | R4742915 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tin (Sn)-Total | 0.000061 | | 0.000020 | mg/L | | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| Uranium (U)-Total | <0.0000010 | | 0.0000010 | mg/L | | 07-AUG-19 | R4742915 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 07-AUG-19 | R4742915 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 07-AUG-19 | R4742915 |
| Zinc (Zn)-Total | 0.00066 | | 0.00050 | mg/L | | 07-AUG-19 | R4742915 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 07-AUG-19 | R4742915 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 24-JUL-19 | R4724125 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 24-JUL-19 | 02-AUG-19 | R4738803 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 02-AUG-19 | R4738943 |
| Aluminum (Al)-Dissolved | <0.0010 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Arsenic (As)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Barium (Ba)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Calcium (Ca)-Dissolved | 0.042 | DTC | 0.010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Chromium (Cr)-Dissolved | 0.00034 | DTC | 0.00010 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Copper (Cu)-Dissolved | <0.000050 | | 0.000050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Iron (Fe)-Dissolved | <0.0010 | | 0.0010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Magnesium (Mg)-Dissolved | 0.0225 | DTC | 0.0040 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Manganese (Mn)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Molybdenum (Mo)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Nickel (Ni)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Potassium (K)-Dissolved | <0.020 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Rubidium (Rb)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silicon (Si)-Dissolved | <0.050 | | 0.050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Sodium (Na)-Dissolved | <0.020 | | 0.020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2314029-30 JUL-TB-01 | | | | | | | |
| Sampled By: AZIMUTH AGNICO EAGLE on 15-JUL-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Strontium (Sr)-Dissolved | 0.000027 | RRV | 0.000020 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Sulfur (S)-Dissolved | <0.50 | | 0.50 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tin (Sn)-Dissolved | 0.000034 | RRV | 0.000020 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Uranium (U)-Dissolved | <0.0000010 | | 0.0000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 02-AUG-19 | 07-AUG-19 | R4742915 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 31-JUL-19 | 01-AUG-19 | R4735051 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

## Qualifiers for Sample Submission Listed:

| Qualifier | Description |
|---|---|
| SPL | -25 NH3-L-CFA, TKN-L-CFA - Sample was Preserved at the laboratory |

## Sample Parameter Qualifier Key:

| Qualifier | Description |
|---|---|
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| DTC | Dissolved concentration exceeds total. Results were confirmed by re-analysis. |
| DTMF | Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration. |
| HTD | Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RM-ND | Reference Material recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected. |
| RRV | Reported Result Verified By Repeat Analysis |

## Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-CO3CO3-CALC-WP | Water | Alkalinity, Carbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L. | | | |
| ALK-HCO3HCO3-CALC-WP | Water | Alkalinity, Bicarbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L | | | |
| ALK-OHOH-CALC-WP | Water | Alkalinity, Hydroxide | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L. | | | |
| ALK-TITR-WP | Water | Alkalinity, Total (as CaCO3) | APHA 2320B |
| The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically. | | | |
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |
| Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |
| Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| CL-L-IC-N-WP | Water | Chloride in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| CN-FREE-L-CFA-VA | Water | Low Level Free Cyanide in water by CFA | ASTM 7237 |
| This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis. | | | |
| CN-T-L-CFA-VA | Water | Low Level Total Cyanide in water by CFA | ISO 14403:2002 |
| This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero. | | | |
| CN-WAD-L-CFA-VA | Water | Low level WAD Cyanide in water by CFA | APHA 4500-CN CYANIDE |
| This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis. | | | |
| EC-SCREEN-WP | Water | Conductivity Screen (Internal Use Only) | APHA 2510 |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc | | | |
| EC-WP | Water | Conductivity | APHA 2510B |
| Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes. | | | |
| F-IC-N-WP | Water | Fluoride in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| HARDNESS-CALC-WP | Water | Hardness Calculated | APHA 2340B |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. | | | |
| HG-D-U-CVAF-VA | Water | Diss. Mercury in Water by CVAFS (Ultra) | APHA 3030 B / EPA 1631 REV. E |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure may involve preliminary sample treatment by filtration (APHA 3030B) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry. | | | |
| HG-T-U-CVAF-VA | Water | Total Mercury in Water by CVAFS (Ultra) | EPA 1631 REV. E |
| This analysis is carried out using procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry. | | | |
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |
| Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.<br><br>Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:<br><br>Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum] | | | |
| MET-D-NP-CCMS-VA | Water | Dissolved Metals in Water CRC ICPMS | EPA 6020B (mod) |
| Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation. | | | |
| MET-T-NP-CCMS-VA | Water | Total Metals by CRC ICPMS (Undigested) | EPA 6020B (mod) |
| Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results.<br>Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations. | | | |
| NH3-F-ED | Water | Ammonia in Water by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. | | | |
| NO2+NO3-CALC-L-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-L-IC-N-WP | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| NO3-L-IC-N-WP | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample. | | | |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. | | | |
| PH-WP | Water | pH | APHA 4500H |
| The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode. | | | |
| RA226-MMER-FC | Water | Ra226 by Alpha Scint, MDC=0.01 Bq/L | EPA 903.1 |
| SO4-IC-N-WP | Water | Sulfate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| TDS-WP | Water | Total Dissolved Solids (TDS) | APHA 2540 SOLIDS C,E |
| A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids. | | | |
| TKN-L-CFA-ED | Water | TKN in Water by Colour | APHA 4500-NORG (TKN) |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish. | | | |
| TSS-LOW-VA | Water | Total Suspended Solids by Grav. (1 mg/L) | APHA 2540D |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples. | | | |
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |
| Turbidity in aqueous matrices is determined by the nephelometric method. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |
| FC | ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8
Contact: ERIC FRANZ

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **ALK-TITR-WP** | **Water** | | | | | | | |
| **Batch R4720530** | | | | | | | | |
| **WG3112543-15 DUP** | | **L2314029-4** | | | | | | |
| Alkalinity, Total (as CaCO3) | | 14.7 | 15.1 | | mg/L | 2.7 | 20 | 22-JUL-19 |
| **WG3112543-14 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 102.0 | | % | | 85-115 | 22-JUL-19 |
| **WG3112543-19 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 103.5 | | % | | 85-115 | 22-JUL-19 |
| **WG3112543-9 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 100.9 | | % | | 85-115 | 22-JUL-19 |
| **WG3112543-11 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 22-JUL-19 |
| **WG3112543-16 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 22-JUL-19 |
| **WG3112543-6 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 22-JUL-19 |
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4725711** | | | | | | | | |
| **WG3115115-7 DUP** | | **L2314029-19** | | | | | | |
| Dissolved Organic Carbon | | 4.18 | 4.18 | | mg/L | 0.0 | 20 | 24-JUL-19 |
| **WG3115115-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 101.2 | | % | | 80-120 | 24-JUL-19 |
| **WG3115115-6 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 102.3 | | % | | 80-120 | 24-JUL-19 |
| **WG3115115-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 24-JUL-19 |
| **WG3115115-5 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 24-JUL-19 |
| **WG3115115-8 MS** | | **L2314029-20** | | | | | | |
| Dissolved Organic Carbon | | | 105.2 | | % | | 70-130 | 24-JUL-19 |
| **Batch R4727536** | | | | | | | | |
| **WG3116275-3 DUP** | | **L2314029-29** | | | | | | |
| Dissolved Organic Carbon | | <0.50 | <0.50 | RPD-NA | mg/L | N/A | 20 | 25-JUL-19 |
| **WG3116275-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 102.1 | | % | | 80-120 | 25-JUL-19 |
| **WG3116275-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 25-JUL-19 |
| **WG3116275-4 MS** | | **L2314029-30** | | | | | | |
| Dissolved Organic Carbon | | | 105.4 | | % | | 70-130 | 25-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4729463** | | | | | | | | |
| **WG3117936-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 102.4 | | % | | 80-120 | 26-JUL-19 |
| **WG3117936-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 26-JUL-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4725651** | | | | | | | | |
| **WG3115170-7 DUP** | | **L2314029-1** | | | | | | |
| Total Organic Carbon | | 2.73 | 2.93 | | mg/L | 7.1 | 20 | 24-JUL-19 |
| **WG3115170-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.5 | | % | | 80-120 | 24-JUL-19 |
| **WG3115170-6 LCS** | | | | | | | | |
| Total Organic Carbon | | | 102.5 | | % | | 80-120 | 24-JUL-19 |
| **WG3115170-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 24-JUL-19 |
| **WG3115170-5 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 24-JUL-19 |
| **WG3115170-8 MS** | | **L2314029-2** | | | | | | |
| Total Organic Carbon | | | 103.2 | | % | | 70-130 | 24-JUL-19 |
| **Batch R4727520** | | | | | | | | |
| **WG3116296-3 DUP** | | **L2314029-21** | | | | | | |
| Total Organic Carbon | | 4.00 | 4.23 | | mg/L | 5.6 | 20 | 25-JUL-19 |
| **WG3116296-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 102.1 | | % | | 80-120 | 25-JUL-19 |
| **WG3116296-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 25-JUL-19 |
| **WG3116296-4 MS** | | **L2314029-22** | | | | | | |
| Total Organic Carbon | | | 105.0 | | % | | 70-130 | 25-JUL-19 |
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4725150** | | | | | | | | |
| **WG3111730-7 DUP** | | **L2314029-11** | | | | | | |
| Chloride (Cl) | | 8.29 | 8.14 | | mg/L | 1.7 | 20 | 22-JUL-19 |
| **WG3111730-10 LCS** | | | | | | | | |
| Chloride (Cl) | | | 100.7 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-2 LCS** | | | | | | | | |
| Chloride (Cl) | | | 99.2 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-6 LCS** | | | | | | | | |
| Chloride (Cl) | | | 100.8 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-1 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4725150** | | | | | | | | |
| **WG3111730-1 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 22-JUL-19 |
| **WG3111730-5 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 22-JUL-19 |
| **WG3111730-9 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 22-JUL-19 |
| **WG3111730-8 MS** | | **L2314029-11** | | | | | | |
| Chloride (Cl) | | | 103.6 | | % | | 75-125 | 22-JUL-19 |
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4725109** | | | | | | | | |
| **WG3114074-10 DUP** | | **L2314029-16** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 24-JUL-19 |
| **WG3114074-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 103.3 | | % | | 80-120 | 24-JUL-19 |
| **WG3114074-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 24-JUL-19 |
| **WG3114074-9 MS** | | **L2314029-16** | | | | | | |
| Cyanide, Free | | | 100.1 | | % | | 75-125 | 24-JUL-19 |
| **Batch R4726691** | | | | | | | | |
| **WG3115139-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 104.0 | | % | | 80-120 | 25-JUL-19 |
| **WG3115139-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 25-JUL-19 |
| **Batch R4727956** | | | | | | | | |
| **WG3116338-12 LCS** | | | | | | | | |
| Cyanide, Free | | | 102.8 | | % | | 80-120 | 26-JUL-19 |
| **WG3116338-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 103.0 | | % | | 80-120 | 26-JUL-19 |
| **WG3116338-11 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 26-JUL-19 |
| **WG3116338-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 26-JUL-19 |
| **Batch R4729452** | | | | | | | | |
| **WG3117510-3 DUP** | | **L2314029-12** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 28-JUL-19 |
| **WG3117510-2 LCS** | | | | | | | | |
| Cyanide, Free | | | 101.1 | | % | | 80-120 | 28-JUL-19 |
| **WG3117510-7 LCS** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4729452** | | | | | | | | |
| **WG3117510-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 99.7 | | % | | 80-120 | 28-JUL-19 |
| **WG3117510-1 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-19 |
| **WG3117510-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-19 |
| **WG3117510-4 MS** | | **L2314029-12** | | | | | | |
| Cyanide, Free | | | 102.2 | | % | | 75-125 | 28-JUL-19 |
| **Batch R4729604** | | | | | | | | |
| **WG3117985-10 DUP** | | **L2314029-3** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 29-JUL-19 |
| **WG3117985-20 DUP** | | **L2314029-23** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 29-JUL-19 |
| **WG3117985-17 LCS** | | | | | | | | |
| Cyanide, Free | | | 101.9 | | % | | 80-120 | 29-JUL-19 |
| **WG3117985-2 LCS** | | | | | | | | |
| Cyanide, Free | | | 103.0 | | % | | 80-120 | 29-JUL-19 |
| **WG3117985-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 102.2 | | % | | 80-120 | 29-JUL-19 |
| **WG3117985-1 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-16 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-19 MS** | | **L2314029-23** | | | | | | |
| Cyanide, Free | | | 104.3 | | % | | 75-125 | 29-JUL-19 |
| **WG3117985-9 MS** | | **L2314029-3** | | | | | | |
| Cyanide, Free | | | 108.1 | | % | | 75-125 | 29-JUL-19 |
| **Batch R4738754** | | | | | | | | |
| **WG3122795-17 LCS** | | | | | | | | |
| Cyanide, Free | | | 101.5 | | % | | 80-120 | 02-AUG-19 |
| **WG3122795-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 100.9 | | % | | 80-120 | 02-AUG-19 |
| **WG3122795-16 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 02-AUG-19 |
| **WG3122795-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 02-AUG-19 |
| | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4725109** | | | | | | | | |
| **WG3114074-10 DUP** | | **L2314029-16** | | | | | | |
| Cyanide, Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 24-JUL-19 |
| **WG3114074-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 101.5 | | % | | 80-120 | 24-JUL-19 |
| **WG3114074-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 24-JUL-19 |
| **WG3114074-9 MS** | | **L2314029-16** | | | | | | |
| Cyanide, Total | | | 96.0 | | % | | 75-125 | 24-JUL-19 |
| **Batch R4726691** | | | | | | | | |
| **WG3115139-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 100.9 | | % | | 80-120 | 25-JUL-19 |
| **WG3115139-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 25-JUL-19 |
| **Batch R4727956** | | | | | | | | |
| **WG3116338-12 LCS** | | | | | | | | |
| Cyanide, Total | | | 100.9 | | % | | 80-120 | 26-JUL-19 |
| **WG3116338-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 100.3 | | % | | 80-120 | 26-JUL-19 |
| **WG3116338-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 26-JUL-19 |
| **Batch R4729452** | | | | | | | | |
| **WG3117510-2 LCS** | | | | | | | | |
| Cyanide, Total | | | 100.3 | | % | | 80-120 | 28-JUL-19 |
| **WG3117510-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 99.3 | | % | | 80-120 | 28-JUL-19 |
| **WG3117510-1 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-19 |
| **WG3117510-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-19 |
| **Batch R4729604** | | | | | | | | |
| **WG3117985-10 DUP** | | **L2314029-3** | | | | | | |
| Cyanide, Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 29-JUL-19 |
| **WG3117985-20 DUP** | | **L2314029-23** | | | | | | |
| Cyanide, Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 29-JUL-19 |
| **WG3117985-17 LCS** | | | | | | | | |
| Cyanide, Total | | | 100.0 | | % | | 80-120 | 29-JUL-19 |
| **WG3117985-2 LCS** | | | | | | | | |
| Cyanide, Total | | | 101.3 | | % | | 80-120 | 29-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4729604** | | | | | | | | |
| **WG3117985-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 99.6 | | % | | 80-120 | 29-JUL-19 |
| **WG3117985-1 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-16 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-19 MS** | | **L2314029-23** | | | | | | |
| Cyanide, Total | | | 100.6 | | % | | 75-125 | 29-JUL-19 |
| **WG3117985-9 MS** | | **L2314029-3** | | | | | | |
| Cyanide, Total | | | 104.4 | | % | | 75-125 | 29-JUL-19 |
| **Batch R4738754** | | | | | | | | |
| **WG3122795-17 LCS** | | | | | | | | |
| Cyanide, Total | | | 99.4 | | % | | 80-120 | 02-AUG-19 |
| **WG3122795-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 97.4 | | % | | 80-120 | 02-AUG-19 |
| **WG3122795-16 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 02-AUG-19 |
| **WG3122795-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 02-AUG-19 |
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4725109** | | | | | | | | |
| **WG3114074-10 DUP** | | **L2314029-16** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 24-JUL-19 |
| **WG3114074-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 120.2 | RM-ND | % | | 80-120 | 24-JUL-19 |
| Cyanide, Weak Acid Diss | | | 120.2 | RM-ND | % | | 80-120 | 24-JUL-19 |
| **WG3114074-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 24-JUL-19 |
| **WG3114074-9 MS** | | **L2314029-16** | | | | | | |
| Cyanide, Weak Acid Diss | | | 106.6 | | % | | 75-125 | 24-JUL-19 |
| **Batch R4726691** | | | | | | | | |
| **WG3115139-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 103.2 | | % | | 80-120 | 25-JUL-19 |
| **WG3115139-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 25-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4727956** | | | | | | | | |
| **WG3116338-12 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 105.1 | | % | | 80-120 | 26-JUL-19 |
| **WG3116338-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 110.6 | | % | | 80-120 | 26-JUL-19 |
| **WG3116338-11 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 26-JUL-19 |
| **WG3116338-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 26-JUL-19 |
| **Batch R4729452** | | | | | | | | |
| **WG3117510-3 DUP** | | **L2314029-12** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 28-JUL-19 |
| **WG3117510-2 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 107.0 | | % | | 80-120 | 28-JUL-19 |
| **WG3117510-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 107.7 | | % | | 80-120 | 28-JUL-19 |
| **WG3117510-1 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-19 |
| **WG3117510-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-19 |
| **WG3117510-4 MS** | | **L2314029-12** | | | | | | |
| Cyanide, Weak Acid Diss | | | 107.6 | | % | | 75-125 | 28-JUL-19 |
| **Batch R4729604** | | | | | | | | |
| **WG3117985-10 DUP** | | **L2314029-3** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 29-JUL-19 |
| **WG3117985-20 DUP** | | **L2314029-23** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 29-JUL-19 |
| **WG3117985-17 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 112.1 | | % | | 80-120 | 29-JUL-19 |
| **WG3117985-2 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 110.2 | | % | | 80-120 | 29-JUL-19 |
| **WG3117985-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 107.0 | | % | | 80-120 | 29-JUL-19 |
| **WG3117985-1 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-16 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 29-JUL-19 |
| **WG3117985-19 MS** | | **L2314029-23** | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4729604** | | | | | | | | |
| **WG3117985-19 MS** | | **L2314029-23** | | | | | | |
| Cyanide, Weak Acid Diss | | | 112.9 | | % | | 75-125 | 29-JUL-19 |
| **WG3117985-9 MS** | | **L2314029-3** | | | | | | |
| Cyanide, Weak Acid Diss | | | 113.9 | | % | | 75-125 | 29-JUL-19 |
| **Batch R4738754** | | | | | | | | |
| **WG3122795-17 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 100.2 | | % | | 80-120 | 02-AUG-19 |
| **WG3122795-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 98.0 | | % | | 80-120 | 02-AUG-19 |
| **WG3122795-16 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 02-AUG-19 |
| **WG3122795-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 02-AUG-19 |
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4720530** | | | | | | | | |
| **WG3112543-15 DUP** | | **L2314029-4** | | | | | | |
| Conductivity | | 77.5 | 77.0 | | umhos/cm | 0.6 | 10 | 22-JUL-19 |
| **WG3112543-13 LCS** | | | | | | | | |
| Conductivity | | | 96.5 | | % | | 90-110 | 22-JUL-19 |
| **WG3112543-18 LCS** | | | | | | | | |
| Conductivity | | | 96.3 | | % | | 90-110 | 22-JUL-19 |
| **WG3112543-8 LCS** | | | | | | | | |
| Conductivity | | | 94.8 | | % | | 90-110 | 22-JUL-19 |
| **WG3112543-11 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 22-JUL-19 |
| **WG3112543-16 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 22-JUL-19 |
| **WG3112543-6 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 22-JUL-19 |
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4725150** | | | | | | | | |
| **WG3111730-7 DUP** | | **L2314029-11** | | | | | | |
| Fluoride (F) | | 0.026 | 0.025 | | mg/L | 2.0 | 20 | 22-JUL-19 |
| **WG3111730-10 LCS** | | | | | | | | |
| Fluoride (F) | | | 97.8 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-2 LCS** | | | | | | | | |
| Fluoride (F) | | | 96.6 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-6 LCS** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4725150** | | | | | | | | |
| **WG3111730-6 LCS** | | | | | | | | |
| Fluoride (F) | | | 98.7 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-1 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 22-JUL-19 |
| **WG3111730-5 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 22-JUL-19 |
| **WG3111730-9 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 22-JUL-19 |
| **WG3111730-8 MS** | | **L2314029-11** | | | | | | |
| Fluoride (F) | | | 100.0 | | % | | 75-125 | 22-JUL-19 |
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4727205** | | | | | | | | |
| **WG3114463-10 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 98.0 | | % | | 80-120 | 25-JUL-19 |
| **WG3114463-14 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 98.0 | | % | | 80-120 | 25-JUL-19 |
| **WG3114463-13 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 25-JUL-19 |
| **WG3114463-9 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 25-JUL-19 |
| **Batch R4736188** | | | | | | | | |
| **WG3114463-11 DUP** | | **L2314029-1** | | | | | | |
| Mercury (Hg)-Dissolved | | 0.00086 | 0.00071 | | ug/L | 19 | 20 | 01-AUG-19 |
| **WG3114463-12 MS** | | **L2314029-9** | | | | | | |
| Mercury (Hg)-Dissolved | | | 101.5 | | % | | 70-130 | 01-AUG-19 |
| **Batch R4738803** | | | | | | | | |
| **WG3114463-15 DUP** | | **L2314029-21** | | | | | | |
| Mercury (Hg)-Dissolved | | 0.00083 | 0.00085 | | ug/L | 3.4 | 20 | 02-AUG-19 |
| **WG3114463-16 MS** | | **L2314029-28** | | | | | | |
| Mercury (Hg)-Dissolved | | | 81.1 | | % | | 70-130 | 02-AUG-19 |
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4738851** | | | | | | | | |
| **WG3123319-3 DUP** | | **L2314029-8** | | | | | | |
| Mercury (Hg)-Total | | 0.00065 | 0.00067 | | ug/L | 2.9 | 20 | 02-AUG-19 |
| **WG3123319-6 DUP** | | **L2314029-25** | | | | | | |
| Mercury (Hg)-Total | | 0.00092 | 0.00085 | | ug/L | 8.4 | 20 | 02-AUG-19 |
| **WG3123319-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 94.6 | | % | | 80-120 | 02-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4738851** | | | | | | | | |
| **WG3123319-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 02-AUG-19 |
| **WG3123319-4 MS** | | **L2314029-19** | | | | | | |
| Mercury (Hg)-Total | | | 82.4 | | % | | 70-130 | 02-AUG-19 |
| **WG3123319-5 MS** | | **L2314029-28** | | | | | | |
| Mercury (Hg)-Total | | | 73.6 | | % | | 70-130 | 02-AUG-19 |
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118689-3 DUP** | | **L2314029-18** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0026 | 0.0024 | | mg/L | 11 | 20 | 31-JUL-19 |
| Antimony (Sb)-Dissolved | | 0.000021 | 0.000021 | | mg/L | 0.0 | 20 | 31-JUL-19 |
| Arsenic (As)-Dissolved | | 0.00168 | 0.00171 | | mg/L | 1.5 | 20 | 31-JUL-19 |
| Barium (Ba)-Dissolved | | 0.0225 | 0.0232 | | mg/L | 3.0 | 20 | 31-JUL-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Boron (B)-Dissolved | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Calcium (Ca)-Dissolved | | 25.2 | 24.3 | | mg/L | 3.4 | 20 | 31-JUL-19 |
| Cesium (Cs)-Dissolved | | 0.0000100 | 0.0000105 | | mg/L | 4.5 | 20 | 31-JUL-19 |
| Chromium (Cr)-Dissolved | | 0.00039 | 0.00039 | | mg/L | 0.8 | 20 | 31-JUL-19 |
| Cobalt (Co)-Dissolved | | 0.0000238 | 0.0000174 | J | mg/L | 0.000006 | 0.00001 | 31-JUL-19 |
| Copper (Cu)-Dissolved | | 0.000652 | 0.000617 | | mg/L | 5.5 | 20 | 31-JUL-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Iron (Fe)-Dissolved | | 0.0581 | 0.0574 | | mg/L | 1.2 | 20 | 31-JUL-19 |
| Lanthanum (La)-Dissolved | | 0.000011 | 0.000012 | | mg/L | 9.8 | 20 | 31-JUL-19 |
| Lead (Pb)-Dissolved | | 0.000031 | 0.000030 | | mg/L | 4.4 | 20 | 31-JUL-19 |
| Lithium (Li)-Dissolved | | 0.00514 | 0.00514 | | mg/L | 0.1 | 20 | 31-JUL-19 |
| Magnesium (Mg)-Dissolved | | 3.25 | 3.26 | | mg/L | 0.2 | 20 | 31-JUL-19 |
| Manganese (Mn)-Dissolved | | 0.00238 | 0.00238 | | mg/L | 0.0 | 20 | 31-JUL-19 |
| Molybdenum (Mo)-Dissolved | | 0.000163 | 0.000167 | | mg/L | 2.2 | 20 | 31-JUL-19 |
| Nickel (Ni)-Dissolved | | 0.000901 | 0.000849 | | mg/L | 6.0 | 20 | 31-JUL-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Potassium (K)-Dissolved | | 1.50 | 1.52 | | mg/L | 1.2 | 20 | 31-JUL-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Rubidium (Rb)-Dissolved | | 0.00138 | 0.00143 | | mg/L | 3.4 | 20 | 31-JUL-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118689-3 DUP** | | **L2314029-18** | | | | | | |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Silicon (Si)-Dissolved | | 0.280 | 0.286 | | mg/L | 2.2 | 20 | 31-JUL-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Sodium (Na)-Dissolved | | 5.25 | 5.38 | | mg/L | 2.4 | 20 | 31-JUL-19 |
| Strontium (Sr)-Dissolved | | 0.155 | 0.153 | | mg/L | 1.2 | 20 | 31-JUL-19 |
| Sulfur (S)-Dissolved | | 1.94 | 1.90 | | mg/L | 2.3 | 20 | 31-JUL-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Tin (Sn)-Dissolved | | 0.000088 | 0.000082 | | mg/L | 6.6 | 20 | 31-JUL-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Tungsten (W)-Dissolved | | 0.000017 | 0.000020 | | mg/L | 15 | 20 | 31-JUL-19 |
| Uranium (U)-Dissolved | | 0.0000315 | 0.0000332 | | mg/L | 5.1 | 20 | 31-JUL-19 |
| Vanadium (V)-Dissolved | | 0.000063 | 0.000061 | | mg/L | 3.7 | 20 | 31-JUL-19 |
| Yttrium (Y)-Dissolved | | 0.0000062 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Zinc (Zn)-Dissolved | | 0.00082 | 0.00077 | | mg/L | 6.2 | 20 | 31-JUL-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| **WG3118689-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 99.9 | | % | | 80-120 | 31-JUL-19 |
| Antimony (Sb)-Dissolved | | | 102.6 | | % | | 80-120 | 31-JUL-19 |
| Arsenic (As)-Dissolved | | | 94.3 | | % | | 80-120 | 31-JUL-19 |
| Barium (Ba)-Dissolved | | | 93.9 | | % | | 80-120 | 31-JUL-19 |
| Beryllium (Be)-Dissolved | | | 98.9 | | % | | 80-120 | 31-JUL-19 |
| Bismuth (Bi)-Dissolved | | | 94.2 | | % | | 80-120 | 31-JUL-19 |
| Boron (B)-Dissolved | | | 95.0 | | % | | 80-120 | 31-JUL-19 |
| Cadmium (Cd)-Dissolved | | | 95.8 | | % | | 80-120 | 31-JUL-19 |
| Calcium (Ca)-Dissolved | | | 96.8 | | % | | 80-120 | 31-JUL-19 |
| Cesium (Cs)-Dissolved | | | 100.2 | | % | | 80-120 | 31-JUL-19 |
| Chromium (Cr)-Dissolved | | | 97.5 | | % | | 80-120 | 31-JUL-19 |
| Cobalt (Co)-Dissolved | | | 96.7 | | % | | 80-120 | 31-JUL-19 |
| Copper (Cu)-Dissolved | | | 95.5 | | % | | 80-120 | 31-JUL-19 |
| Gallium (Ga)-Dissolved | | | 88.6 | | % | | 80-120 | 31-JUL-19 |
| Iron (Fe)-Dissolved | | | 101.9 | | % | | 80-120 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118689-2 LCS** | | | | | | | | |
| Lanthanum (La)-Dissolved | | | 100.4 | | % | | 80-120 | 31-JUL-19 |
| Lead (Pb)-Dissolved | | | 96.7 | | % | | 80-120 | 31-JUL-19 |
| Lithium (Li)-Dissolved | | | 100.6 | | % | | 80-120 | 31-JUL-19 |
| Magnesium (Mg)-Dissolved | | | 100.1 | | % | | 80-120 | 31-JUL-19 |
| Manganese (Mn)-Dissolved | | | 97.0 | | % | | 80-120 | 31-JUL-19 |
| Molybdenum (Mo)-Dissolved | | | 98.5 | | % | | 80-120 | 31-JUL-19 |
| Nickel (Ni)-Dissolved | | | 96.8 | | % | | 80-120 | 31-JUL-19 |
| Niobium (Nb)-Dissolved | | | 99.5 | | % | | 80-120 | 31-JUL-19 |
| Phosphorus (P)-Dissolved | | | 104.7 | | % | | 80-120 | 31-JUL-19 |
| Potassium (K)-Dissolved | | | 103.2 | | % | | 80-120 | 31-JUL-19 |
| Rhenium (Re)-Dissolved | | | 92.0 | | % | | 80-120 | 31-JUL-19 |
| Rubidium (Rb)-Dissolved | | | 96.7 | | % | | 80-120 | 31-JUL-19 |
| Selenium (Se)-Dissolved | | | 96.6 | | % | | 80-120 | 31-JUL-19 |
| Silicon (Si)-Dissolved | | | 103.2 | | % | | 80-120 | 31-JUL-19 |
| Silver (Ag)-Dissolved | | | 100.3 | | % | | 80-120 | 31-JUL-19 |
| Sodium (Na)-Dissolved | | | 100.3 | | % | | 80-120 | 31-JUL-19 |
| Strontium (Sr)-Dissolved | | | 102.9 | | % | | 80-120 | 31-JUL-19 |
| Sulfur (S)-Dissolved | | | 103.4 | | % | | 80-120 | 31-JUL-19 |
| Tantalum (Ta)-Dissolved | | | 102.2 | | % | | 80-120 | 31-JUL-19 |
| Tellurium (Te)-Dissolved | | | 96.2 | | % | | 80-120 | 31-JUL-19 |
| Thallium (Tl)-Dissolved | | | 97.7 | | % | | 80-120 | 31-JUL-19 |
| Thorium (Th)-Dissolved | | | 97.4 | | % | | 80-120 | 31-JUL-19 |
| Tin (Sn)-Dissolved | | | 97.1 | | % | | 80-120 | 31-JUL-19 |
| Titanium (Ti)-Dissolved | | | 96.7 | | % | | 80-120 | 31-JUL-19 |
| Tungsten (W)-Dissolved | | | 99.2 | | % | | 80-120 | 31-JUL-19 |
| Uranium (U)-Dissolved | | | 98.2 | | % | | 80-120 | 31-JUL-19 |
| Vanadium (V)-Dissolved | | | 98.4 | | % | | 80-120 | 31-JUL-19 |
| Yttrium (Y)-Dissolved | | | 99.4 | | % | | 80-120 | 31-JUL-19 |
| Zinc (Zn)-Dissolved | | | 96.6 | | % | | 80-120 | 31-JUL-19 |
| Zirconium (Zr)-Dissolved | | | 100.3 | | % | | 80-120 | 31-JUL-19 |
| **WG3118689-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 31-JUL-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118689-1 MB** | | **NP** | | | | | | |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 31-JUL-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 31-JUL-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 31-JUL-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 31-JUL-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 31-JUL-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 31-JUL-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 31-JUL-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 31-JUL-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 31-JUL-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 31-JUL-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 31-JUL-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118689-1 MB** | | **NP** | | | | | | |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 31-JUL-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 31-JUL-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| **WG3118689-4 MS** | | **L2314029-22** | | | | | | |
| Aluminum (Al)-Dissolved | | | 100.1 | | % | | 70-130 | 31-JUL-19 |
| Antimony (Sb)-Dissolved | | | 102.7 | | % | | 70-130 | 31-JUL-19 |
| Arsenic (As)-Dissolved | | | 98.3 | | % | | 70-130 | 31-JUL-19 |
| Barium (Ba)-Dissolved | | | 95.5 | | % | | 70-130 | 31-JUL-19 |
| Beryllium (Be)-Dissolved | | | 99.6 | | % | | 70-130 | 31-JUL-19 |
| Bismuth (Bi)-Dissolved | | | 101.5 | | % | | 70-130 | 31-JUL-19 |
| Boron (B)-Dissolved | | | 98.0 | | % | | 70-130 | 31-JUL-19 |
| Cadmium (Cd)-Dissolved | | | 99.98 | | % | | 70-130 | 31-JUL-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 31-JUL-19 |
| Cesium (Cs)-Dissolved | | | 102.0 | | % | | 70-130 | 31-JUL-19 |
| Chromium (Cr)-Dissolved | | | 101.8 | | % | | 70-130 | 31-JUL-19 |
| Cobalt (Co)-Dissolved | | | 101.6 | | % | | 70-130 | 31-JUL-19 |
| Copper (Cu)-Dissolved | | | 99.8 | | % | | 70-130 | 31-JUL-19 |
| Gallium (Ga)-Dissolved | | | 96.5 | | % | | 70-130 | 31-JUL-19 |
| Iron (Fe)-Dissolved | | | 98.3 | | % | | 70-130 | 31-JUL-19 |
| Lanthanum (La)-Dissolved | | | 105.5 | | % | | 70-130 | 31-JUL-19 |
| Lead (Pb)-Dissolved | | | 99.3 | | % | | 70-130 | 31-JUL-19 |
| Lithium (Li)-Dissolved | | | 102.2 | | % | | 70-130 | 31-JUL-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 31-JUL-19 |
| Manganese (Mn)-Dissolved | | | 101.9 | | % | | 70-130 | 31-JUL-19 |
| Molybdenum (Mo)-Dissolved | | | 98.9 | | % | | 70-130 | 31-JUL-19 |
| Nickel (Ni)-Dissolved | | | 100.3 | | % | | 70-130 | 31-JUL-19 |
| Niobium (Nb)-Dissolved | | | 102.2 | | % | | 70-130 | 31-JUL-19 |
| Phosphorus (P)-Dissolved | | | 101.8 | | % | | 70-130 | 31-JUL-19 |
| Potassium (K)-Dissolved | | | 105.4 | | % | | 70-130 | 31-JUL-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118689-4 MS** | | **L2314029-22** | | | | | | |
| Rhenium (Re)-Dissolved | | | 99.4 | | % | | 70-130 | 31-JUL-19 |
| Rubidium (Rb)-Dissolved | | | 102.8 | | % | | 70-130 | 31-JUL-19 |
| Selenium (Se)-Dissolved | | | 100.3 | | % | | 70-130 | 31-JUL-19 |
| Silicon (Si)-Dissolved | | | 103.1 | | % | | 70-130 | 31-JUL-19 |
| Silver (Ag)-Dissolved | | | 103.1 | | % | | 70-130 | 31-JUL-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 31-JUL-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 31-JUL-19 |
| Sulfur (S)-Dissolved | | | 103.4 | | % | | 70-130 | 31-JUL-19 |
| Tantalum (Ta)-Dissolved | | | 106.6 | | % | | 70-130 | 31-JUL-19 |
| Tellurium (Te)-Dissolved | | | 95.4 | | % | | 70-130 | 31-JUL-19 |
| Thallium (Tl)-Dissolved | | | 101.8 | | % | | 70-130 | 31-JUL-19 |
| Thorium (Th)-Dissolved | | | 102.9 | | % | | 70-130 | 31-JUL-19 |
| Tin (Sn)-Dissolved | | | 98.6 | | % | | 70-130 | 31-JUL-19 |
| Titanium (Ti)-Dissolved | | | 102.2 | | % | | 70-130 | 31-JUL-19 |
| Tungsten (W)-Dissolved | | | 101.1 | | % | | 70-130 | 31-JUL-19 |
| Uranium (U)-Dissolved | | | 103.1 | | % | | 70-130 | 31-JUL-19 |
| Vanadium (V)-Dissolved | | | 102.9 | | % | | 70-130 | 31-JUL-19 |
| Yttrium (Y)-Dissolved | | | 104.2 | | % | | 70-130 | 31-JUL-19 |
| Zinc (Zn)-Dissolved | | | 99.4 | | % | | 70-130 | 31-JUL-19 |
| Zirconium (Zr)-Dissolved | | | 101.4 | | % | | 70-130 | 31-JUL-19 |
| **Batch R4735051** | | | | | | | | |
| **WG3121075-3 DUP** | | **L2314029-12** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0037 | 0.0023 | J | mg/L | 0.0015 | 0.002 | 01-AUG-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Arsenic (As)-Dissolved | | 0.000173 | 0.000186 | | mg/L | 7.6 | 20 | 01-AUG-19 |
| Barium (Ba)-Dissolved | | 0.00726 | 0.00713 | | mg/L | 1.9 | 20 | 01-AUG-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Boron (B)-Dissolved | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Calcium (Ca)-Dissolved | | 6.69 | 6.63 | | mg/L | 0.9 | 20 | 01-AUG-19 |
| Cesium (Cs)-Dissolved | | 0.0000084 | 0.0000069 | | mg/L | 19 | 20 | 01-AUG-19 |
| Cobalt (Co)-Dissolved | | 0.0000089 | 0.0000081 | | mg/L | 9.3 | 20 | 01-AUG-19 |
| Copper (Cu)-Dissolved | | 0.000863 | 0.000774 | | mg/L | 11 | 20 | 01-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4735051** | | | | | | | | |
| **WG3121075-3 DUP** | | **L2314029-12** | | | | | | |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Lanthanum (La)-Dissolved | | 0.000016 | 0.000013 | | mg/L | 20 | 20 | 01-AUG-19 |
| Lithium (Li)-Dissolved | | 0.00059 | 0.00059 | | mg/L | 1.0 | 20 | 01-AUG-19 |
| Magnesium (Mg)-Dissolved | | 1.10 | 1.10 | | mg/L | 0.0 | 20 | 01-AUG-19 |
| Manganese (Mn)-Dissolved | | 0.00156 | 0.00151 | | mg/L | 3.0 | 20 | 01-AUG-19 |
| Molybdenum (Mo)-Dissolved | | 0.000070 | 0.000068 | | mg/L | 2.4 | 20 | 01-AUG-19 |
| Nickel (Ni)-Dissolved | | 0.000442 | 0.000403 | | mg/L | 9.2 | 20 | 01-AUG-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Potassium (K)-Dissolved | | 0.892 | 0.899 | | mg/L | 0.7 | 20 | 01-AUG-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Rubidium (Rb)-Dissolved | | 0.00122 | 0.00124 | | mg/L | 1.2 | 20 | 01-AUG-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Silicon (Si)-Dissolved | | 0.106 | 0.107 | | mg/L | 0.8 | 20 | 01-AUG-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Sodium (Na)-Dissolved | | 4.26 | 4.30 | | mg/L | 0.8 | 20 | 01-AUG-19 |
| Strontium (Sr)-Dissolved | | 0.0326 | 0.0320 | | mg/L | 1.9 | 20 | 01-AUG-19 |
| Sulfur (S)-Dissolved | | 1.15 | 1.13 | | mg/L | 1.2 | 20 | 01-AUG-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Uranium (U)-Dissolved | | 0.0000134 | 0.0000144 | | mg/L | 7.1 | 20 | 01-AUG-19 |
| Yttrium (Y)-Dissolved | | 0.0000057 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| Zinc (Zn)-Dissolved | | 0.00108 | 0.00052 | J | mg/L | 0.00056 | 0.001 | 01-AUG-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 01-AUG-19 |
| **WG3121075-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 98.0 | | % | | 80-120 | 01-AUG-19 |
| Antimony (Sb)-Dissolved | | | 98.4 | | % | | 80-120 | 01-AUG-19 |
| Arsenic (As)-Dissolved | | | 96.8 | | % | | 80-120 | 01-AUG-19 |
| Barium (Ba)-Dissolved | | | 96.1 | | % | | 80-120 | 01-AUG-19 |
| Beryllium (Be)-Dissolved | | | 95.6 | | % | | 80-120 | 01-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch** | **R4735051** | | | | | | | |
| **WG3121075-2** | **LCS** | | | | | | | |
| Bismuth (Bi)-Dissolved | | | 98.5 | | % | | 80-120 | 01-AUG-19 |
| Boron (B)-Dissolved | | | 93.5 | | % | | 80-120 | 01-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 93.5 | | % | | 80-120 | 01-AUG-19 |
| Calcium (Ca)-Dissolved | | | 97.0 | | % | | 80-120 | 01-AUG-19 |
| Cesium (Cs)-Dissolved | | | 100.1 | | % | | 80-120 | 01-AUG-19 |
| Chromium (Cr)-Dissolved | | | 97.2 | | % | | 80-120 | 01-AUG-19 |
| Cobalt (Co)-Dissolved | | | 97.3 | | % | | 80-120 | 01-AUG-19 |
| Copper (Cu)-Dissolved | | | 95.5 | | % | | 80-120 | 01-AUG-19 |
| Gallium (Ga)-Dissolved | | | 93.7 | | % | | 80-120 | 01-AUG-19 |
| Iron (Fe)-Dissolved | | | 100.6 | | % | | 80-120 | 01-AUG-19 |
| Lanthanum (La)-Dissolved | | | 97.8 | | % | | 80-120 | 01-AUG-19 |
| Lead (Pb)-Dissolved | | | 97.7 | | % | | 80-120 | 01-AUG-19 |
| Lithium (Li)-Dissolved | | | 95.8 | | % | | 80-120 | 01-AUG-19 |
| Magnesium (Mg)-Dissolved | | | 100.3 | | % | | 80-120 | 01-AUG-19 |
| Manganese (Mn)-Dissolved | | | 96.3 | | % | | 80-120 | 01-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 99.7 | | % | | 80-120 | 01-AUG-19 |
| Nickel (Ni)-Dissolved | | | 98.6 | | % | | 80-120 | 01-AUG-19 |
| Niobium (Nb)-Dissolved | | | 92.8 | | % | | 80-120 | 01-AUG-19 |
| Phosphorus (P)-Dissolved | | | 100.2 | | % | | 80-120 | 01-AUG-19 |
| Potassium (K)-Dissolved | | | 103.1 | | % | | 80-120 | 01-AUG-19 |
| Rhenium (Re)-Dissolved | | | 96.5 | | % | | 80-120 | 01-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 97.0 | | % | | 80-120 | 01-AUG-19 |
| Selenium (Se)-Dissolved | | | 99.1 | | % | | 80-120 | 01-AUG-19 |
| Silicon (Si)-Dissolved | | | 105.2 | | % | | 80-120 | 01-AUG-19 |
| Silver (Ag)-Dissolved | | | 100.2 | | % | | 80-120 | 01-AUG-19 |
| Sodium (Na)-Dissolved | | | 102.3 | | % | | 80-120 | 01-AUG-19 |
| Strontium (Sr)-Dissolved | | | 101.8 | | % | | 80-120 | 01-AUG-19 |
| Sulfur (S)-Dissolved | | | 93.3 | | % | | 80-120 | 01-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 100.2 | | % | | 80-120 | 01-AUG-19 |
| Tellurium (Te)-Dissolved | | | 99.3 | | % | | 80-120 | 01-AUG-19 |
| Thallium (Tl)-Dissolved | | | 95.7 | | % | | 80-120 | 01-AUG-19 |
| Thorium (Th)-Dissolved | | | 97.6 | | % | | 80-120 | 01-AUG-19 |
| Tin (Sn)-Dissolved | | | 93.4 | | % | | 80-120 | 01-AUG-19 |
| Titanium (Ti)-Dissolved | | | 93.9 | | % | | 80-120 | 01-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4735051** | | | | | | | | |
| **WG3121075-2 LCS** | | | | | | | | |
| Tungsten (W)-Dissolved | | | 99.5 | | % | | 80-120 | 01-AUG-19 |
| Uranium (U)-Dissolved | | | 98.6 | | % | | 80-120 | 01-AUG-19 |
| Vanadium (V)-Dissolved | | | 98.8 | | % | | 80-120 | 01-AUG-19 |
| Yttrium (Y)-Dissolved | | | 92.0 | | % | | 80-120 | 01-AUG-19 |
| Zinc (Zn)-Dissolved | | | 98.9 | | % | | 80-120 | 01-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 102.5 | | % | | 80-120 | 01-AUG-19 |
| **WG3121075-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 31-JUL-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 31-JUL-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 31-JUL-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 31-JUL-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 31-JUL-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 31-JUL-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 31-JUL-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 31-JUL-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4735051** | | | | | | | | |
| **WG3121075-1 MB** | | **NP** | | | | | | |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 31-JUL-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 31-JUL-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 31-JUL-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 31-JUL-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 31-JUL-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 31-JUL-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| **WG3121075-4 MS** | | **L2314029-26** | | | | | | |
| Aluminum (Al)-Dissolved | | | 97.7 | | % | | 70-130 | 01-AUG-19 |
| Antimony (Sb)-Dissolved | | | 98.5 | | % | | 70-130 | 01-AUG-19 |
| Arsenic (As)-Dissolved | | | 98.0 | | % | | 70-130 | 01-AUG-19 |
| Barium (Ba)-Dissolved | | | 96.4 | | % | | 70-130 | 01-AUG-19 |
| Beryllium (Be)-Dissolved | | | 98.3 | | % | | 70-130 | 01-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 97.4 | | % | | 70-130 | 01-AUG-19 |
| Boron (B)-Dissolved | | | 96.8 | | % | | 70-130 | 01-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 96.5 | | % | | 70-130 | 01-AUG-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 01-AUG-19 |
| Cesium (Cs)-Dissolved | | | 102.4 | | % | | 70-130 | 01-AUG-19 |
| Chromium (Cr)-Dissolved | | | 101.2 | | % | | 70-130 | 01-AUG-19 |
| Cobalt (Co)-Dissolved | | | 101.6 | | % | | 70-130 | 01-AUG-19 |
| Copper (Cu)-Dissolved | | | 100.3 | | % | | 70-130 | 01-AUG-19 |
| Gallium (Ga)-Dissolved | | | 100.0 | | % | | 70-130 | 01-AUG-19 |
| Iron (Fe)-Dissolved | | | 100.6 | | % | | 70-130 | 01-AUG-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4735051** | | | | | | | | |
| **WG3121075-4 MS** | | **L2314029-26** | | | | | | |
| Lanthanum (La)-Dissolved | | | 99.2 | | % | | 70-130 | 01-AUG-19 |
| Lead (Pb)-Dissolved | | | 97.7 | | % | | 70-130 | 01-AUG-19 |
| Lithium (Li)-Dissolved | | | 101.5 | | % | | 70-130 | 01-AUG-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 01-AUG-19 |
| Manganese (Mn)-Dissolved | | | 97.3 | | % | | 70-130 | 01-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 98.9 | | % | | 70-130 | 01-AUG-19 |
| Nickel (Ni)-Dissolved | | | 102.1 | | % | | 70-130 | 01-AUG-19 |
| Niobium (Nb)-Dissolved | | | 97.8 | | % | | 70-130 | 01-AUG-19 |
| Phosphorus (P)-Dissolved | | | 98.5 | | % | | 70-130 | 01-AUG-19 |
| Potassium (K)-Dissolved | | | 100.3 | | % | | 70-130 | 01-AUG-19 |
| Rhenium (Re)-Dissolved | | | 98.9 | | % | | 70-130 | 01-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 99.9 | | % | | 70-130 | 01-AUG-19 |
| Selenium (Se)-Dissolved | | | 97.5 | | % | | 70-130 | 01-AUG-19 |
| Silicon (Si)-Dissolved | | | 104.3 | | % | | 70-130 | 01-AUG-19 |
| Silver (Ag)-Dissolved | | | 103.1 | | % | | 70-130 | 01-AUG-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 01-AUG-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 01-AUG-19 |
| Sulfur (S)-Dissolved | | | 102.7 | | % | | 70-130 | 01-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 101.8 | | % | | 70-130 | 01-AUG-19 |
| Tellurium (Te)-Dissolved | | | 96.0 | | % | | 70-130 | 01-AUG-19 |
| Thallium (Tl)-Dissolved | | | 94.7 | | % | | 70-130 | 01-AUG-19 |
| Thorium (Th)-Dissolved | | | 103.7 | | % | | 70-130 | 01-AUG-19 |
| Tin (Sn)-Dissolved | | | 96.1 | | % | | 70-130 | 01-AUG-19 |
| Titanium (Ti)-Dissolved | | | 99.6 | | % | | 70-130 | 01-AUG-19 |
| Tungsten (W)-Dissolved | | | 99.0 | | % | | 70-130 | 01-AUG-19 |
| Uranium (U)-Dissolved | | | 100.6 | | % | | 70-130 | 01-AUG-19 |
| Yttrium (Y)-Dissolved | | | 96.4 | | % | | 70-130 | 01-AUG-19 |
| Zinc (Zn)-Dissolved | | | 100.3 | | % | | 70-130 | 01-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 105.2 | | % | | 70-130 | 01-AUG-19 |
| **Batch R4738597** | | | | | | | | |
| **WG3122321-3 DUP** | | **L2314029-21** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0022 | 0.0025 | | mg/L | 10 | 20 | 02-AUG-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Arsenic (As)-Dissolved | | 0.00143 | 0.00146 | | mg/L | 2.2 | 20 | 02-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4738597** | | | | | | | | |
| **WG3122321-3 DUP** | | **L2314029-21** | | | | | | |
| Barium (Ba)-Dissolved | | 0.0188 | 0.0177 | | mg/L | 0.1 | 20 | 02-AUG-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Boron (B)-Dissolved | | 0.0086 | 0.0082 | | mg/L | 4.0 | 20 | 02-AUG-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Calcium (Ca)-Dissolved | | 19.6 | 19.4 | | mg/L | 0.7 | 20 | 02-AUG-19 |
| Cesium (Cs)-Dissolved | | 0.0000220 | 0.0000224 | | mg/L | 1.3 | 20 | 02-AUG-19 |
| Chromium (Cr)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Copper (Cu)-Dissolved | | 0.000801 | 0.000799 | | mg/L | 2.3 | 20 | 02-AUG-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Iron (Fe)-Dissolved | | 0.0343 | 0.0322 | | mg/L | 0.8 | 20 | 02-AUG-19 |
| Lanthanum (La)-Dissolved | | 0.000017 | 0.000014 | | mg/L | 6.3 | 20 | 02-AUG-19 |
| Lead (Pb)-Dissolved | | 0.000036 | 0.000036 | | mg/L | 5.6 | 20 | 02-AUG-19 |
| Lithium (Li)-Dissolved | | 0.0118 | 0.0113 | | mg/L | 1.9 | 20 | 02-AUG-19 |
| Magnesium (Mg)-Dissolved | | 1.98 | 1.94 | | mg/L | 1.0 | 20 | 02-AUG-19 |
| Manganese (Mn)-Dissolved | | 0.000831 | 0.000836 | | mg/L | 3.6 | 20 | 02-AUG-19 |
| Molybdenum (Mo)-Dissolved | | 0.000158 | 0.000148 | | mg/L | 3.5 | 20 | 02-AUG-19 |
| Nickel (Ni)-Dissolved | | 0.000842 | 0.000795 | | mg/L | 2.6 | 20 | 02-AUG-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Potassium (K)-Dissolved | | 1.29 | 1.24 | | mg/L | 2.2 | 20 | 02-AUG-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Rubidium (Rb)-Dissolved | | 0.00133 | 0.00136 | | mg/L | 3.2 | 20 | 02-AUG-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Silicon (Si)-Dissolved | | 0.191 | 0.170 | | mg/L | 6.1 | 20 | 02-AUG-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Sodium (Na)-Dissolved | | 3.64 | 3.54 | | mg/L | 3.5 | 20 | 02-AUG-19 |
| Strontium (Sr)-Dissolved | | 0.181 | 0.182 | | mg/L | 4.9 | 20 | 02-AUG-19 |
| Sulfur (S)-Dissolved | | 1.82 | 2.10 | | mg/L | 15 | 20 | 02-AUG-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Tin (Sn)-Dissolved | | 0.000096 | 0.000099 | | mg/L | 0.6 | 20 | 02-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4738597** | | | | | | | | |
| **WG3122321-3 DUP** | | **L2314029-21** | | | | | | |
| Titanium (Ti)-Dissolved | | 0.000063 | 0.000055 | | mg/L | 1.4 | 20 | 02-AUG-19 |
| Tungsten (W)-Dissolved | | 0.000030 | 0.000031 | | mg/L | 0.5 | 20 | 02-AUG-19 |
| Uranium (U)-Dissolved | | 0.0000240 | 0.0000234 | | mg/L | 4.2 | 20 | 02-AUG-19 |
| Vanadium (V)-Dissolved | | 0.000061 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| Zinc (Zn)-Dissolved | | 0.00180 | 0.00178 | | mg/L | 2.3 | 20 | 02-AUG-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 02-AUG-19 |
| **WG3122321-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 102.1 | | % | | 80-120 | 02-AUG-19 |
| Antimony (Sb)-Dissolved | | | 96.9 | | % | | 80-120 | 02-AUG-19 |
| Arsenic (As)-Dissolved | | | 97.8 | | % | | 80-120 | 02-AUG-19 |
| Barium (Ba)-Dissolved | | | 95.2 | | % | | 80-120 | 02-AUG-19 |
| Beryllium (Be)-Dissolved | | | 91.2 | | % | | 80-120 | 02-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 93.7 | | % | | 80-120 | 02-AUG-19 |
| Boron (B)-Dissolved | | | 97.4 | | % | | 80-120 | 02-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 97.7 | | % | | 80-120 | 02-AUG-19 |
| Calcium (Ca)-Dissolved | | | 94.9 | | % | | 80-120 | 02-AUG-19 |
| Cesium (Cs)-Dissolved | | | 102.9 | | % | | 80-120 | 02-AUG-19 |
| Chromium (Cr)-Dissolved | | | 99.2 | | % | | 80-120 | 02-AUG-19 |
| Cobalt (Co)-Dissolved | | | 98.8 | | % | | 80-120 | 02-AUG-19 |
| Copper (Cu)-Dissolved | | | 97.5 | | % | | 80-120 | 02-AUG-19 |
| Gallium (Ga)-Dissolved | | | 94.9 | | % | | 80-120 | 02-AUG-19 |
| Iron (Fe)-Dissolved | | | 98.0 | | % | | 80-120 | 02-AUG-19 |
| Lanthanum (La)-Dissolved | | | 96.6 | | % | | 80-120 | 02-AUG-19 |
| Lead (Pb)-Dissolved | | | 98.5 | | % | | 80-120 | 02-AUG-19 |
| Lithium (Li)-Dissolved | | | 98.5 | | % | | 80-120 | 02-AUG-19 |
| Magnesium (Mg)-Dissolved | | | 100.1 | | % | | 80-120 | 02-AUG-19 |
| Manganese (Mn)-Dissolved | | | 100.0 | | % | | 80-120 | 02-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 95.6 | | % | | 80-120 | 02-AUG-19 |
| Nickel (Ni)-Dissolved | | | 98.9 | | % | | 80-120 | 02-AUG-19 |
| Niobium (Nb)-Dissolved | | | 99.2 | | % | | 80-120 | 02-AUG-19 |
| Phosphorus (P)-Dissolved | | | 98.8 | | % | | 80-120 | 02-AUG-19 |
| Potassium (K)-Dissolved | | | 99.7 | | % | | 80-120 | 02-AUG-19 |
| Rhenium (Re)-Dissolved | | | 94.7 | | % | | 80-120 | 02-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 95.8 | | % | | 80-120 | 02-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4738597** | | | | | | | | |
| **WG3122321-2 LCS** | | | | | | | | |
| Selenium (Se)-Dissolved | | | 99.9 | | % | | 80-120 | 02-AUG-19 |
| Silicon (Si)-Dissolved | | | 102.5 | | % | | 80-120 | 02-AUG-19 |
| Silver (Ag)-Dissolved | | | 95.5 | | % | | 80-120 | 02-AUG-19 |
| Sodium (Na)-Dissolved | | | 99.1 | | % | | 80-120 | 02-AUG-19 |
| Strontium (Sr)-Dissolved | | | 101.5 | | % | | 80-120 | 02-AUG-19 |
| Sulfur (S)-Dissolved | | | 113.5 | | % | | 80-120 | 02-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 97.1 | | % | | 80-120 | 02-AUG-19 |
| Tellurium (Te)-Dissolved | | | 95.7 | | % | | 80-120 | 02-AUG-19 |
| Thallium (Tl)-Dissolved | | | 96.9 | | % | | 80-120 | 02-AUG-19 |
| Thorium (Th)-Dissolved | | | 95.1 | | % | | 80-120 | 02-AUG-19 |
| Tin (Sn)-Dissolved | | | 98.9 | | % | | 80-120 | 02-AUG-19 |
| Titanium (Ti)-Dissolved | | | 95.2 | | % | | 80-120 | 02-AUG-19 |
| Tungsten (W)-Dissolved | | | 101.6 | | % | | 80-120 | 02-AUG-19 |
| Uranium (U)-Dissolved | | | 101.3 | | % | | 80-120 | 02-AUG-19 |
| Vanadium (V)-Dissolved | | | 99.6 | | % | | 80-120 | 02-AUG-19 |
| Yttrium (Y)-Dissolved | | | 100.0 | | % | | 80-120 | 02-AUG-19 |
| Zinc (Zn)-Dissolved | | | 98.1 | | % | | 80-120 | 02-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 93.3 | | % | | 80-120 | 02-AUG-19 |
| **WG3122321-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 02-AUG-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 02-AUG-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 02-AUG-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 02-AUG-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 02-AUG-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 02-AUG-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 02-AUG-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 02-AUG-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 02-AUG-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 02-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4738597** | | | | | | | | |
| **WG3122321-1 MB** | | **NP** | | | | | | |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 02-AUG-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 02-AUG-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 02-AUG-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 02-AUG-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 02-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 02-AUG-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 02-AUG-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 02-AUG-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 02-AUG-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 02-AUG-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 02-AUG-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 02-AUG-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 02-AUG-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 02-AUG-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 02-AUG-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 02-AUG-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 02-AUG-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 02-AUG-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 02-AUG-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 02-AUG-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 02-AUG-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 02-AUG-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 02-AUG-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 02-AUG-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 02-AUG-19 |
| **WG3122321-4 MS** | | **L2314029-24** | | | | | | |
| Aluminum (Al)-Dissolved | | | 102.7 | | % | | 70-130 | 02-AUG-19 |
| Antimony (Sb)-Dissolved | | | 100.3 | | % | | 70-130 | 02-AUG-19 |
| Arsenic (As)-Dissolved | | | 100.8 | | % | | 70-130 | 02-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4738597** | | | | | | | | |
| **WG3122321-4 MS** | | **L2314029-24** | | | | | | |
| Barium (Ba)-Dissolved | | | 91.3 | | % | | 70-130 | 02-AUG-19 |
| Beryllium (Be)-Dissolved | | | 90.6 | | % | | 70-130 | 02-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 98.8 | | % | | 70-130 | 02-AUG-19 |
| Boron (B)-Dissolved | | | 93.2 | | % | | 70-130 | 02-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 101.3 | | % | | 70-130 | 02-AUG-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 02-AUG-19 |
| Cesium (Cs)-Dissolved | | | 106.9 | | % | | 70-130 | 02-AUG-19 |
| Chromium (Cr)-Dissolved | | | 102.2 | | % | | 70-130 | 02-AUG-19 |
| Cobalt (Co)-Dissolved | | | 102.0 | | % | | 70-130 | 02-AUG-19 |
| Copper (Cu)-Dissolved | | | 99.8 | | % | | 70-130 | 02-AUG-19 |
| Gallium (Ga)-Dissolved | | | 98.4 | | % | | 70-130 | 02-AUG-19 |
| Iron (Fe)-Dissolved | | | 101.8 | | % | | 70-130 | 02-AUG-19 |
| Lanthanum (La)-Dissolved | | | 95.2 | | % | | 70-130 | 02-AUG-19 |
| Lead (Pb)-Dissolved | | | 96.3 | | % | | 70-130 | 02-AUG-19 |
| Lithium (Li)-Dissolved | | | 100.0 | | % | | 70-130 | 02-AUG-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 02-AUG-19 |
| Manganese (Mn)-Dissolved | | | 101.3 | | % | | 70-130 | 02-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 99.4 | | % | | 70-130 | 02-AUG-19 |
| Nickel (Ni)-Dissolved | | | 102.3 | | % | | 70-130 | 02-AUG-19 |
| Niobium (Nb)-Dissolved | | | 104.1 | | % | | 70-130 | 02-AUG-19 |
| Phosphorus (P)-Dissolved | | | 101.6 | | % | | 70-130 | 02-AUG-19 |
| Potassium (K)-Dissolved | | | 101.5 | | % | | 70-130 | 02-AUG-19 |
| Rhenium (Re)-Dissolved | | | 94.8 | | % | | 70-130 | 02-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 98.9 | | % | | 70-130 | 02-AUG-19 |
| Selenium (Se)-Dissolved | | | 103.2 | | % | | 70-130 | 02-AUG-19 |
| Silicon (Si)-Dissolved | | | 100.2 | | % | | 70-130 | 02-AUG-19 |
| Silver (Ag)-Dissolved | | | 102.2 | | % | | 70-130 | 02-AUG-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 02-AUG-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 02-AUG-19 |
| Sulfur (S)-Dissolved | | | 111.2 | | % | | 70-130 | 02-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 98.8 | | % | | 70-130 | 02-AUG-19 |
| Tellurium (Te)-Dissolved | | | 95.7 | | % | | 70-130 | 02-AUG-19 |
| Thallium (Tl)-Dissolved | | | 96.6 | | % | | 70-130 | 02-AUG-19 |
| Thorium (Th)-Dissolved | | | 91.6 | | % | | 70-130 | 02-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4738597** | | | | | | | | |
| **WG3122321-4 MS** | | **L2314029-24** | | | | | | |
| Tin (Sn)-Dissolved | | | 100.2 | | % | | 70-130 | 02-AUG-19 |
| Titanium (Ti)-Dissolved | | | 103.0 | | % | | 70-130 | 02-AUG-19 |
| Tungsten (W)-Dissolved | | | 101.2 | | % | | 70-130 | 02-AUG-19 |
| Uranium (U)-Dissolved | | | 101.5 | | % | | 70-130 | 02-AUG-19 |
| Vanadium (V)-Dissolved | | | 103.0 | | % | | 70-130 | 02-AUG-19 |
| Yttrium (Y)-Dissolved | | | 102.9 | | % | | 70-130 | 02-AUG-19 |
| Zinc (Zn)-Dissolved | | | 99.0 | | % | | 70-130 | 02-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 97.3 | | % | | 70-130 | 02-AUG-19 |
| **Batch R4742915** | | | | | | | | |
| **WG3123408-3 DUP** | | **L2314029-5** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0014 | 0.0016 | | mg/L | 7.5 | 20 | 07-AUG-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Arsenic (As)-Dissolved | | 0.000280 | 0.000298 | | mg/L | 2.3 | 20 | 07-AUG-19 |
| Barium (Ba)-Dissolved | | 0.00771 | 0.00802 | | mg/L | 4.1 | 20 | 07-AUG-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Boron (B)-Dissolved | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Calcium (Ca)-Dissolved | | 6.98 | 6.97 | | mg/L | 0.8 | 20 | 07-AUG-19 |
| Cesium (Cs)-Dissolved | | 0.0000054 | 0.0000051 | | mg/L | 7.3 | 20 | 07-AUG-19 |
| Chromium (Cr)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Cobalt (Co)-Dissolved | | 0.0000157 | 0.0000149 | | mg/L | 4.3 | 20 | 07-AUG-19 |
| Copper (Cu)-Dissolved | | 0.000785 | 0.000644 | | mg/L | 3.4 | 20 | 07-AUG-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Iron (Fe)-Dissolved | | 0.0118 | 0.0111 | | mg/L | 0.7 | 20 | 07-AUG-19 |
| Lanthanum (La)-Dissolved | | 0.000017 | 0.000020 | | mg/L | 9.3 | 20 | 07-AUG-19 |
| Lead (Pb)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Lithium (Li)-Dissolved | | 0.00100 | 0.00096 | | mg/L | 0.2 | 20 | 07-AUG-19 |
| Magnesium (Mg)-Dissolved | | 1.26 | 1.23 | | mg/L | 0.2 | 20 | 07-AUG-19 |
| Manganese (Mn)-Dissolved | | 0.0123 | 0.0125 | | mg/L | 0.8 | 20 | 07-AUG-19 |
| Molybdenum (Mo)-Dissolved | | 0.000066 | 0.000060 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Nickel (Ni)-Dissolved | | 0.000675 | 0.000648 | | mg/L | 3.1 | 20 | 07-AUG-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123408-3 DUP** | | **L2314029-5** | | | | | | |
| Potassium (K)-Dissolved | | 0.961 | 0.929 | | mg/L | 0.3 | 20 | 07-AUG-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Rubidium (Rb)-Dissolved | | 0.00128 | 0.00130 | | mg/L | 0.9 | 20 | 07-AUG-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Silicon (Si)-Dissolved | | 0.248 | 0.230 | | mg/L | 1.9 | 20 | 07-AUG-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Sodium (Na)-Dissolved | | 5.05 | 5.06 | | mg/L | 2.1 | 20 | 07-AUG-19 |
| Strontium (Sr)-Dissolved | | 0.0418 | 0.0383 | | mg/L | 2.6 | 20 | 07-AUG-19 |
| Sulfur (S)-Dissolved | | 1.18 | 1.29 | | mg/L | 1.3 | 20 | 07-AUG-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Tin (Sn)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Uranium (U)-Dissolved | | 0.0000132 | 0.0000118 | | mg/L | 5.4 | 20 | 07-AUG-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Yttrium (Y)-Dissolved | | 0.0000050 | 0.0000070 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Zinc (Zn)-Dissolved | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| **WG3123408-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 98.7 | | % | | 80-120 | 07-AUG-19 |
| Antimony (Sb)-Dissolved | | | 93.4 | | % | | 80-120 | 07-AUG-19 |
| Arsenic (As)-Dissolved | | | 93.8 | | % | | 80-120 | 07-AUG-19 |
| Barium (Ba)-Dissolved | | | 106.9 | | % | | 80-120 | 07-AUG-19 |
| Beryllium (Be)-Dissolved | | | 98.4 | | % | | 80-120 | 07-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 87.6 | | % | | 80-120 | 07-AUG-19 |
| Boron (B)-Dissolved | | | 96.8 | | % | | 80-120 | 07-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 96.0 | | % | | 80-120 | 07-AUG-19 |
| Calcium (Ca)-Dissolved | | | 99.7 | | % | | 80-120 | 07-AUG-19 |
| Cesium (Cs)-Dissolved | | | 94.8 | | % | | 80-120 | 07-AUG-19 |
| Chromium (Cr)-Dissolved | | | 98.2 | | % | | 80-120 | 07-AUG-19 |
| Cobalt (Co)-Dissolved | | | 95.5 | | % | | 80-120 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123408-2 LCS** | | | | | | | | |
| Copper (Cu)-Dissolved | | | 95.1 | | % | | 80-120 | 07-AUG-19 |
| Gallium (Ga)-Dissolved | | | 98.7 | | % | | 80-120 | 07-AUG-19 |
| Iron (Fe)-Dissolved | | | 91.2 | | % | | 80-120 | 07-AUG-19 |
| Lanthanum (La)-Dissolved | | | 107.0 | | % | | 80-120 | 07-AUG-19 |
| Lead (Pb)-Dissolved | | | 90.8 | | % | | 80-120 | 07-AUG-19 |
| Lithium (Li)-Dissolved | | | 93.1 | | % | | 80-120 | 07-AUG-19 |
| Magnesium (Mg)-Dissolved | | | 97.3 | | % | | 80-120 | 07-AUG-19 |
| Manganese (Mn)-Dissolved | | | 97.7 | | % | | 80-120 | 07-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 92.9 | | % | | 80-120 | 07-AUG-19 |
| Nickel (Ni)-Dissolved | | | 95.2 | | % | | 80-120 | 07-AUG-19 |
| Niobium (Nb)-Dissolved | | | 98.1 | | % | | 80-120 | 07-AUG-19 |
| Phosphorus (P)-Dissolved | | | 103.9 | | % | | 80-120 | 07-AUG-19 |
| Potassium (K)-Dissolved | | | 97.9 | | % | | 80-120 | 07-AUG-19 |
| Rhenium (Re)-Dissolved | | | 102.7 | | % | | 80-120 | 07-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 97.2 | | % | | 80-120 | 07-AUG-19 |
| Selenium (Se)-Dissolved | | | 94.0 | | % | | 80-120 | 07-AUG-19 |
| Silicon (Si)-Dissolved | | | 96.6 | | % | | 80-120 | 07-AUG-19 |
| Silver (Ag)-Dissolved | | | 91.2 | | % | | 80-120 | 07-AUG-19 |
| Sodium (Na)-Dissolved | | | 105.6 | | % | | 80-120 | 07-AUG-19 |
| Strontium (Sr)-Dissolved | | | 94.4 | | % | | 80-120 | 07-AUG-19 |
| Sulfur (S)-Dissolved | | | 87.1 | | % | | 80-120 | 07-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 104.3 | | % | | 80-120 | 07-AUG-19 |
| Tellurium (Te)-Dissolved | | | 91.3 | | % | | 80-120 | 07-AUG-19 |
| Thallium (Tl)-Dissolved | | | 91.8 | | % | | 80-120 | 07-AUG-19 |
| Thorium (Th)-Dissolved | | | 89.4 | | % | | 80-120 | 07-AUG-19 |
| Tin (Sn)-Dissolved | | | 93.4 | | % | | 80-120 | 07-AUG-19 |
| Titanium (Ti)-Dissolved | | | 95.3 | | % | | 80-120 | 07-AUG-19 |
| Tungsten (W)-Dissolved | | | 92.1 | | % | | 80-120 | 07-AUG-19 |
| Uranium (U)-Dissolved | | | 89.9 | | % | | 80-120 | 07-AUG-19 |
| Vanadium (V)-Dissolved | | | 98.3 | | % | | 80-120 | 07-AUG-19 |
| Yttrium (Y)-Dissolved | | | 97.4 | | % | | 80-120 | 07-AUG-19 |
| Zinc (Zn)-Dissolved | | | 95.6 | | % | | 80-120 | 07-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 90.1 | | % | | 80-120 | 07-AUG-19 |
| **WG3123408-1 MB** | | **NP** | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123408-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 07-AUG-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 07-AUG-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 07-AUG-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 07-AUG-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 07-AUG-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 07-AUG-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 07-AUG-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 07-AUG-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 07-AUG-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 07-AUG-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 07-AUG-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 07-AUG-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 07-AUG-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 07-AUG-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 07-AUG-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 07-AUG-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123408-1 MB** | | **NP** | | | | | | |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 07-AUG-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 07-AUG-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 07-AUG-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 07-AUG-19 |
| **WG3123408-4 MS** | | **L2314029-14** | | | | | | |
| Aluminum (Al)-Dissolved | | | 100.1 | | % | | 70-130 | 07-AUG-19 |
| Antimony (Sb)-Dissolved | | | 98.2 | | % | | 70-130 | 07-AUG-19 |
| Arsenic (As)-Dissolved | | | 95.8 | | % | | 70-130 | 07-AUG-19 |
| Barium (Ba)-Dissolved | | | 103.3 | | % | | 70-130 | 07-AUG-19 |
| Beryllium (Be)-Dissolved | | | 99.5 | | % | | 70-130 | 07-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 98.7 | | % | | 70-130 | 07-AUG-19 |
| Boron (B)-Dissolved | | | 99.0 | | % | | 70-130 | 07-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 99.8 | | % | | 70-130 | 07-AUG-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 07-AUG-19 |
| Cesium (Cs)-Dissolved | | | 100.9 | | % | | 70-130 | 07-AUG-19 |
| Chromium (Cr)-Dissolved | | | 102.1 | | % | | 70-130 | 07-AUG-19 |
| Cobalt (Co)-Dissolved | | | 101.1 | | % | | 70-130 | 07-AUG-19 |
| Copper (Cu)-Dissolved | | | 100.5 | | % | | 70-130 | 07-AUG-19 |
| Gallium (Ga)-Dissolved | | | 104.3 | | % | | 70-130 | 07-AUG-19 |
| Iron (Fe)-Dissolved | | | 100.9 | | % | | 70-130 | 07-AUG-19 |
| Lanthanum (La)-Dissolved | | | 106.3 | | % | | 70-130 | 07-AUG-19 |
| Lead (Pb)-Dissolved | | | 98.4 | | % | | 70-130 | 07-AUG-19 |
| Lithium (Li)-Dissolved | | | 95.8 | | % | | 70-130 | 07-AUG-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 07-AUG-19 |
| Manganese (Mn)-Dissolved | | | 101.9 | | % | | 70-130 | 07-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 95.8 | | % | | 70-130 | 07-AUG-19 |
| Nickel (Ni)-Dissolved | | | 100.3 | | % | | 70-130 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123408-4 MS** | | **L2314029-14** | | | | | | |
| Niobium (Nb)-Dissolved | | | 104.4 | | % | | 70-130 | 07-AUG-19 |
| Phosphorus (P)-Dissolved | | | 104.3 | | % | | 70-130 | 07-AUG-19 |
| Potassium (K)-Dissolved | | | 99.99 | | % | | 70-130 | 07-AUG-19 |
| Rhenium (Re)-Dissolved | | | 103.6 | | % | | 70-130 | 07-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 100.6 | | % | | 70-130 | 07-AUG-19 |
| Selenium (Se)-Dissolved | | | 95.3 | | % | | 70-130 | 07-AUG-19 |
| Silicon (Si)-Dissolved | | | 98.0 | | % | | 70-130 | 07-AUG-19 |
| Silver (Ag)-Dissolved | | | 96.9 | | % | | 70-130 | 07-AUG-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 07-AUG-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 07-AUG-19 |
| Sulfur (S)-Dissolved | | | 93.3 | | % | | 70-130 | 07-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 103.7 | | % | | 70-130 | 07-AUG-19 |
| Tellurium (Te)-Dissolved | | | 92.8 | | % | | 70-130 | 07-AUG-19 |
| Thallium (Tl)-Dissolved | | | 97.8 | | % | | 70-130 | 07-AUG-19 |
| Thorium (Th)-Dissolved | | | 97.3 | | % | | 70-130 | 07-AUG-19 |
| Tin (Sn)-Dissolved | | | 97.5 | | % | | 70-130 | 07-AUG-19 |
| Titanium (Ti)-Dissolved | | | 101.1 | | % | | 70-130 | 07-AUG-19 |
| Tungsten (W)-Dissolved | | | 97.8 | | % | | 70-130 | 07-AUG-19 |
| Uranium (U)-Dissolved | | | 98.9 | | % | | 70-130 | 07-AUG-19 |
| Vanadium (V)-Dissolved | | | 101.6 | | % | | 70-130 | 07-AUG-19 |
| Yttrium (Y)-Dissolved | | | 102.2 | | % | | 70-130 | 07-AUG-19 |
| Zinc (Zn)-Dissolved | | | 99.3 | | % | | 70-130 | 07-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 95.9 | | % | | 70-130 | 07-AUG-19 |
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118705-3 DUP** | | **L2314029-8** | | | | | | |
| Aluminum (Al)-Total | | 0.0035 | 0.0035 | | mg/L | 0.1 | 20 | 31-JUL-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Arsenic (As)-Total | | 0.000332 | 0.000312 | | mg/L | 6.2 | 20 | 31-JUL-19 |
| Barium (Ba)-Total | | 0.00841 | 0.00839 | | mg/L | 0.3 | 20 | 31-JUL-19 |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Boron (B)-Total | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118705-3 DUP** | | **L2314029-8** | | | | | | |
| Calcium (Ca)-Total | | 7.48 | 7.48 | | mg/L | 0.1 | 20 | 31-JUL-19 |
| Cesium (Cs)-Total | | 0.0000061 | 0.0000072 | | mg/L | 16 | 20 | 31-JUL-19 |
| Chromium (Cr)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Cobalt (Co)-Total | | 0.0000223 | 0.0000205 | | mg/L | 8.6 | 20 | 31-JUL-19 |
| Copper (Cu)-Total | | 0.000713 | 0.000722 | | mg/L | 1.3 | 20 | 31-JUL-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Iron (Fe)-Total | | 0.0298 | 0.0295 | | mg/L | 0.8 | 20 | 31-JUL-19 |
| Lanthanum (La)-Total | | 0.000030 | 0.000032 | | mg/L | 5.2 | 20 | 31-JUL-19 |
| Lead (Pb)-Total | | 0.000018 | 0.000017 | | mg/L | 6.5 | 20 | 31-JUL-19 |
| Lithium (Li)-Total | | 0.00091 | 0.00091 | | mg/L | 0.2 | 20 | 31-JUL-19 |
| Magnesium (Mg)-Total | | 1.25 | 1.24 | | mg/L | 1.2 | 20 | 31-JUL-19 |
| Manganese (Mn)-Total | | 0.00662 | 0.00657 | | mg/L | 0.6 | 20 | 31-JUL-19 |
| Molybdenum (Mo)-Total | | 0.000066 | 0.000063 | | mg/L | 5.6 | 20 | 31-JUL-19 |
| Nickel (Ni)-Total | | 0.000638 | 0.000632 | | mg/L | 1.0 | 20 | 31-JUL-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Potassium (K)-Total | | 1.03 | 1.02 | | mg/L | 0.9 | 20 | 31-JUL-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Rubidium (Rb)-Total | | 0.00139 | 0.00138 | | mg/L | 0.6 | 20 | 31-JUL-19 |
| Selenium (Se)-Total | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Silicon (Si)-Total | | 0.188 | 0.178 | | mg/L | 5.5 | 20 | 31-JUL-19 |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Sodium (Na)-Total | | 5.10 | 5.11 | | mg/L | 0.1 | 20 | 31-JUL-19 |
| Strontium (Sr)-Total | | 0.0414 | 0.0420 | | mg/L | 1.5 | 20 | 31-JUL-19 |
| Sulfur (S)-Total | | 1.50 | 1.49 | | mg/L | 0.6 | 20 | 31-JUL-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Thorium (Th)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Tin (Sn)-Total | | 0.000062 | 0.000062 | | mg/L | 0.0 | 20 | 31-JUL-19 |
| Titanium (Ti)-Total | | 0.000116 | 0.000120 | | mg/L | 2.6 | 20 | 31-JUL-19 |
| Tungsten (W)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| Uranium (U)-Total | | 0.0000141 | 0.0000142 | | mg/L | 0.4 | 20 | 31-JUL-19 |
| Vanadium (V)-Total | | 0.000075 | 0.000073 | | mg/L | 1.7 | 20 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118705-3 DUP** | | **L2314029-8** | | | | | | |
| Yttrium (Y)-Total | | 0.0000069 | 0.0000073 | | mg/L | 5.5 | 20 | 31-JUL-19 |
| Zinc (Zn)-Total | | 0.00080 | 0.00068 | | mg/L | 16 | 20 | 31-JUL-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 31-JUL-19 |
| **WG3118705-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 98.5 | | % | | 80-120 | 31-JUL-19 |
| Antimony (Sb)-Total | | | 103.7 | | % | | 80-120 | 31-JUL-19 |
| Arsenic (As)-Total | | | 96.2 | | % | | 80-120 | 31-JUL-19 |
| Barium (Ba)-Total | | | 96.6 | | % | | 80-120 | 31-JUL-19 |
| Beryllium (Be)-Total | | | 100.7 | | % | | 80-120 | 31-JUL-19 |
| Bismuth (Bi)-Total | | | 99.7 | | % | | 80-120 | 31-JUL-19 |
| Boron (B)-Total | | | 97.5 | | % | | 80-120 | 31-JUL-19 |
| Cadmium (Cd)-Total | | | 100.1 | | % | | 80-120 | 31-JUL-19 |
| Calcium (Ca)-Total | | | 99.9 | | % | | 80-120 | 31-JUL-19 |
| Cesium (Cs)-Total | | | 100.6 | | % | | 80-120 | 31-JUL-19 |
| Chromium (Cr)-Total | | | 98.2 | | % | | 80-120 | 31-JUL-19 |
| Cobalt (Co)-Total | | | 98.1 | | % | | 80-120 | 31-JUL-19 |
| Copper (Cu)-Total | | | 96.1 | | % | | 80-120 | 31-JUL-19 |
| Gallium (Ga)-Total | | | 89.1 | | % | | 80-120 | 31-JUL-19 |
| Iron (Fe)-Total | | | 103.0 | | % | | 80-120 | 31-JUL-19 |
| Lanthanum (La)-Total | | | 103.0 | | % | | 80-120 | 31-JUL-19 |
| Lead (Pb)-Total | | | 99.8 | | % | | 80-120 | 31-JUL-19 |
| Lithium (Li)-Total | | | 102.5 | | % | | 80-120 | 31-JUL-19 |
| Magnesium (Mg)-Total | | | 101.0 | | % | | 80-120 | 31-JUL-19 |
| Manganese (Mn)-Total | | | 97.9 | | % | | 80-120 | 31-JUL-19 |
| Molybdenum (Mo)-Total | | | 98.6 | | % | | 80-120 | 31-JUL-19 |
| Nickel (Ni)-Total | | | 98.3 | | % | | 80-120 | 31-JUL-19 |
| Niobium (Nb)-Total | | | 102.8 | | % | | 80-120 | 31-JUL-19 |
| Phosphorus (P)-Total | | | 105.2 | | % | | 80-120 | 31-JUL-19 |
| Potassium (K)-Total | | | 104.4 | | % | | 80-120 | 31-JUL-19 |
| Rhenium (Re)-Total | | | 94.8 | | % | | 80-120 | 31-JUL-19 |
| Rubidium (Rb)-Total | | | 97.3 | | % | | 80-120 | 31-JUL-19 |
| Selenium (Se)-Total | | | 99.4 | | % | | 80-120 | 31-JUL-19 |
| Silicon (Si)-Total | | | 110.3 | | % | | 80-120 | 31-JUL-19 |
| Silver (Ag)-Total | | | 101.9 | | % | | 80-120 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118705-2 LCS** | | | | | | | | |
| Sodium (Na)-Total | | | 102.0 | | % | | 80-120 | 31-JUL-19 |
| Strontium (Sr)-Total | | | 104.2 | | % | | 80-120 | 31-JUL-19 |
| Sulfur (S)-Total | | | 100.5 | | % | | 80-120 | 31-JUL-19 |
| Tantalum (Ta)-Total | | | 105.1 | | % | | 80-120 | 31-JUL-19 |
| Tellurium (Te)-Total | | | 98.9 | | % | | 80-120 | 31-JUL-19 |
| Thallium (Tl)-Total | | | 99.9 | | % | | 80-120 | 31-JUL-19 |
| Thorium (Th)-Total | | | 100.4 | | % | | 80-120 | 31-JUL-19 |
| Tin (Sn)-Total | | | 99.6 | | % | | 80-120 | 31-JUL-19 |
| Titanium (Ti)-Total | | | 97.7 | | % | | 80-120 | 31-JUL-19 |
| Tungsten (W)-Total | | | 101.3 | | % | | 80-120 | 31-JUL-19 |
| Uranium (U)-Total | | | 102.5 | | % | | 80-120 | 31-JUL-19 |
| Vanadium (V)-Total | | | 99.8 | | % | | 80-120 | 31-JUL-19 |
| Yttrium (Y)-Total | | | 100.9 | | % | | 80-120 | 31-JUL-19 |
| Zinc (Zn)-Total | | | 98.3 | | % | | 80-120 | 31-JUL-19 |
| Zirconium (Zr)-Total | | | 102.1 | | % | | 80-120 | 31-JUL-19 |
| **WG3118705-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 31-JUL-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 31-JUL-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 31-JUL-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 31-JUL-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118705-1 MB** | | **NP** | | | | | | |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 31-JUL-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 31-JUL-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 31-JUL-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 31-JUL-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 31-JUL-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 31-JUL-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 31-JUL-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 31-JUL-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 31-JUL-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 31-JUL-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 31-JUL-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 31-JUL-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 31-JUL-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 31-JUL-19 |
| **WG3118705-4 MS** | | **L2314029-27** | | | | | | |
| Aluminum (Al)-Total | | | 100.1 | | % | | 70-130 | 31-JUL-19 |
| Antimony (Sb)-Total | | | 106.4 | | % | | 70-130 | 31-JUL-19 |
| Arsenic (As)-Total | | | 99.9 | | % | | 70-130 | 31-JUL-19 |
| Barium (Ba)-Total | | | 98.0 | | % | | 70-130 | 31-JUL-19 |
| Beryllium (Be)-Total | | | 104.1 | | % | | 70-130 | 31-JUL-19 |
| Bismuth (Bi)-Total | | | 101.4 | | % | | 70-130 | 31-JUL-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118705-4 MS** | | **L2314029-27** | | | | | | |
| Boron (B)-Total | | | 97.7 | | % | | 70-130 | 31-JUL-19 |
| Cadmium (Cd)-Total | | | 102.4 | | % | | 70-130 | 31-JUL-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 31-JUL-19 |
| Cesium (Cs)-Total | | | 104.0 | | % | | 70-130 | 31-JUL-19 |
| Chromium (Cr)-Total | | | 99.6 | | % | | 70-130 | 31-JUL-19 |
| Cobalt (Co)-Total | | | 99.6 | | % | | 70-130 | 31-JUL-19 |
| Copper (Cu)-Total | | | 98.9 | | % | | 70-130 | 31-JUL-19 |
| Gallium (Ga)-Total | | | 92.4 | | % | | 70-130 | 31-JUL-19 |
| Iron (Fe)-Total | | | 96.2 | | % | | 70-130 | 31-JUL-19 |
| Lanthanum (La)-Total | | | 103.9 | | % | | 70-130 | 31-JUL-19 |
| Lead (Pb)-Total | | | 99.96 | | % | | 70-130 | 31-JUL-19 |
| Lithium (Li)-Total | | | 103.5 | | % | | 70-130 | 31-JUL-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 31-JUL-19 |
| Manganese (Mn)-Total | | | 97.6 | | % | | 70-130 | 31-JUL-19 |
| Molybdenum (Mo)-Total | | | 100.3 | | % | | 70-130 | 31-JUL-19 |
| Nickel (Ni)-Total | | | 100.7 | | % | | 70-130 | 31-JUL-19 |
| Niobium (Nb)-Total | | | 103.8 | | % | | 70-130 | 31-JUL-19 |
| Phosphorus (P)-Total | | | 105.8 | | % | | 70-130 | 31-JUL-19 |
| Potassium (K)-Total | | | 102.7 | | % | | 70-130 | 31-JUL-19 |
| Rhenium (Re)-Total | | | 98.4 | | % | | 70-130 | 31-JUL-19 |
| Rubidium (Rb)-Total | | | 99.6 | | % | | 70-130 | 31-JUL-19 |
| Selenium (Se)-Total | | | 105.4 | | % | | 70-130 | 31-JUL-19 |
| Silicon (Si)-Total | | | 103.9 | | % | | 70-130 | 31-JUL-19 |
| Silver (Ag)-Total | | | 106.2 | | % | | 70-130 | 31-JUL-19 |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 31-JUL-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 31-JUL-19 |
| Sulfur (S)-Total | | | 106.4 | | % | | 70-130 | 31-JUL-19 |
| Tantalum (Ta)-Total | | | 108.9 | | % | | 70-130 | 31-JUL-19 |
| Tellurium (Te)-Total | | | 106.3 | | % | | 70-130 | 31-JUL-19 |
| Thallium (Tl)-Total | | | 102.6 | | % | | 70-130 | 31-JUL-19 |
| Thorium (Th)-Total | | | 104.5 | | % | | 70-130 | 31-JUL-19 |
| Tin (Sn)-Total | | | 100.9 | | % | | 70-130 | 31-JUL-19 |
| Titanium (Ti)-Total | | | 100.3 | | % | | 70-130 | 31-JUL-19 |
| Tungsten (W)-Total | | | 102.6 | | % | | 70-130 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4732716** | | | | | | | | |
| **WG3118705-4 MS** | | **L2314029-27** | | | | | | |
| Uranium (U)-Total | | | 103.0 | | % | | 70-130 | 31-JUL-19 |
| Vanadium (V)-Total | | | 101.0 | | % | | 70-130 | 31-JUL-19 |
| Yttrium (Y)-Total | | | 104.6 | | % | | 70-130 | 31-JUL-19 |
| Zinc (Zn)-Total | | | 104.0 | | % | | 70-130 | 31-JUL-19 |
| Zirconium (Zr)-Total | | | 102.1 | | % | | 70-130 | 31-JUL-19 |
| **Batch R4735051** | | | | | | | | |
| **WG3121073-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 98.2 | | % | | 80-120 | 31-JUL-19 |
| Antimony (Sb)-Total | | | 98.1 | | % | | 80-120 | 31-JUL-19 |
| Arsenic (As)-Total | | | 99.9 | | % | | 80-120 | 31-JUL-19 |
| Barium (Ba)-Total | | | 97.7 | | % | | 80-120 | 31-JUL-19 |
| Beryllium (Be)-Total | | | 99.3 | | % | | 80-120 | 31-JUL-19 |
| Bismuth (Bi)-Total | | | 96.7 | | % | | 80-120 | 31-JUL-19 |
| Boron (B)-Total | | | 100.8 | | % | | 80-120 | 31-JUL-19 |
| Cadmium (Cd)-Total | | | 97.2 | | % | | 80-120 | 31-JUL-19 |
| Calcium (Ca)-Total | | | 99.3 | | % | | 80-120 | 31-JUL-19 |
| Cesium (Cs)-Total | | | 99.4 | | % | | 80-120 | 31-JUL-19 |
| Chromium (Cr)-Total | | | 100.7 | | % | | 80-120 | 31-JUL-19 |
| Cobalt (Co)-Total | | | 99.8 | | % | | 80-120 | 31-JUL-19 |
| Copper (Cu)-Total | | | 98.9 | | % | | 80-120 | 31-JUL-19 |
| Gallium (Ga)-Total | | | 105.4 | | % | | 80-120 | 31-JUL-19 |
| Iron (Fe)-Total | | | 103.0 | | % | | 80-120 | 31-JUL-19 |
| Lanthanum (La)-Total | | | 98.6 | | % | | 80-120 | 31-JUL-19 |
| Lead (Pb)-Total | | | 97.9 | | % | | 80-120 | 31-JUL-19 |
| Lithium (Li)-Total | | | 99.1 | | % | | 80-120 | 31-JUL-19 |
| Magnesium (Mg)-Total | | | 104.7 | | % | | 80-120 | 31-JUL-19 |
| Manganese (Mn)-Total | | | 99.3 | | % | | 80-120 | 31-JUL-19 |
| Molybdenum (Mo)-Total | | | 98.4 | | % | | 80-120 | 31-JUL-19 |
| Nickel (Ni)-Total | | | 100.0 | | % | | 80-120 | 31-JUL-19 |
| Niobium (Nb)-Total | | | 100.6 | | % | | 80-120 | 31-JUL-19 |
| Phosphorus (P)-Total | | | 105.7 | | % | | 80-120 | 31-JUL-19 |
| Potassium (K)-Total | | | 106.0 | | % | | 80-120 | 31-JUL-19 |
| Rhenium (Re)-Total | | | 96.0 | | % | | 80-120 | 31-JUL-19 |
| Rubidium (Rb)-Total | | | 99.9 | | % | | 80-120 | 31-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4735051** | | | | | | | | |
| **WG3121073-2 LCS** | | | | | | | | |
| Selenium (Se)-Total | | | 100.9 | | % | | 80-120 | 31-JUL-19 |
| Silicon (Si)-Total | | | 109.7 | | % | | 80-120 | 31-JUL-19 |
| Silver (Ag)-Total | | | 99.4 | | % | | 80-120 | 31-JUL-19 |
| Sodium (Na)-Total | | | 105.3 | | % | | 80-120 | 31-JUL-19 |
| Strontium (Sr)-Total | | | 101.6 | | % | | 80-120 | 31-JUL-19 |
| Sulfur (S)-Total | | | 99.0 | | % | | 80-120 | 31-JUL-19 |
| Tantalum (Ta)-Total | | | 99.8 | | % | | 80-120 | 31-JUL-19 |
| Tellurium (Te)-Total | | | 98.5 | | % | | 80-120 | 31-JUL-19 |
| Thallium (Tl)-Total | | | 96.1 | | % | | 80-120 | 31-JUL-19 |
| Thorium (Th)-Total | | | 97.6 | | % | | 80-120 | 31-JUL-19 |
| Tin (Sn)-Total | | | 97.9 | | % | | 80-120 | 31-JUL-19 |
| Titanium (Ti)-Total | | | 97.2 | | % | | 80-120 | 31-JUL-19 |
| Tungsten (W)-Total | | | 99.1 | | % | | 80-120 | 31-JUL-19 |
| Uranium (U)-Total | | | 100.3 | | % | | 80-120 | 31-JUL-19 |
| Yttrium (Y)-Total | | | 96.6 | | % | | 80-120 | 31-JUL-19 |
| Zinc (Zn)-Total | | | 99.5 | | % | | 80-120 | 31-JUL-19 |
| Zirconium (Zr)-Total | | | 102.6 | | % | | 80-120 | 31-JUL-19 |
| **WG3121073-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 01-AUG-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-AUG-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-AUG-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-AUG-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 01-AUG-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 01-AUG-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 01-AUG-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-AUG-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-AUG-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 01-AUG-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 01-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4735051** | | | | | | | | |
| **WG3121073-1 MB** | | **NP** | | | | | | |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 01-AUG-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 01-AUG-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 01-AUG-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-AUG-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-AUG-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-AUG-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 01-AUG-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 01-AUG-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 01-AUG-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 01-AUG-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 01-AUG-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 01-AUG-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-AUG-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 01-AUG-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 01-AUG-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-AUG-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-AUG-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-AUG-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 01-AUG-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 01-AUG-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-AUG-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 01-AUG-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 01-AUG-19 |
| **Batch R4742915** | | | | | | | | |
| **WG3123428-3 DUP** | | **L2314029-15** | | | | | | |
| Aluminum (Al)-Total | | 0.0034 | 0.0037 | | mg/L | 9.1 | 20 | 07-AUG-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Arsenic (As)-Total | | 0.000233 | 0.000234 | | mg/L | 0.8 | 20 | 07-AUG-19 |
| Barium (Ba)-Total | | 0.00759 | 0.00798 | | mg/L | 5.0 | 20 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123428-3 DUP** | | **L2314029-15** | | | | | | |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Boron (B)-Total | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Calcium (Ca)-Total | | 6.70 | 6.47 | | mg/L | 3.5 | 20 | 07-AUG-19 |
| Cesium (Cs)-Total | | 0.0000076 | 0.0000078 | | mg/L | 3.6 | 20 | 07-AUG-19 |
| Chromium (Cr)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Cobalt (Co)-Total | | 0.0000127 | 0.0000131 | | mg/L | 3.0 | 20 | 07-AUG-19 |
| Copper (Cu)-Total | | 0.000658 | 0.000650 | | mg/L | 1.2 | 20 | 07-AUG-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Iron (Fe)-Total | | 0.0140 | 0.0143 | | mg/L | 2.1 | 20 | 07-AUG-19 |
| Lanthanum (La)-Total | | 0.000024 | 0.000024 | | mg/L | 1.7 | 20 | 07-AUG-19 |
| Lead (Pb)-Total | | 0.000010 | 0.000011 | | mg/L | 2.3 | 20 | 07-AUG-19 |
| Lithium (Li)-Total | | 0.00058 | 0.00056 | | mg/L | 3.8 | 20 | 07-AUG-19 |
| Magnesium (Mg)-Total | | 1.10 | 1.09 | | mg/L | 0.7 | 20 | 07-AUG-19 |
| Manganese (Mn)-Total | | 0.00258 | 0.00259 | | mg/L | 0.1 | 20 | 07-AUG-19 |
| Molybdenum (Mo)-Total | | 0.000063 | 0.000062 | | mg/L | 0.8 | 20 | 07-AUG-19 |
| Nickel (Ni)-Total | | 0.000371 | 0.000393 | | mg/L | 5.7 | 20 | 07-AUG-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Potassium (K)-Total | | 0.895 | 0.897 | | mg/L | 0.3 | 20 | 07-AUG-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Rubidium (Rb)-Total | | 0.00128 | 0.00129 | | mg/L | 1.1 | 20 | 07-AUG-19 |
| Selenium (Se)-Total | | <0.000040 | 0.000047 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Silicon (Si)-Total | | 0.102 | 0.098 | | mg/L | 4.3 | 20 | 07-AUG-19 |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Sodium (Na)-Total | | 4.40 | 4.41 | | mg/L | 0.3 | 20 | 07-AUG-19 |
| Strontium (Sr)-Total | | 0.0301 | 0.0318 | | mg/L | 5.4 | 20 | 07-AUG-19 |
| Sulfur (S)-Total | | 1.07 | 1.25 | | mg/L | 16 | 20 | 07-AUG-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Thorium (Th)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Tin (Sn)-Total | | 0.000028 | 0.000030 | | mg/L | 7.4 | 20 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123428-3 DUP** | | **L2314029-15** | | | | | | |
| Titanium (Ti)-Total | | 0.000074 | 0.000104 | J | mg/L | 0.000030 | 0.0001 | 07-AUG-19 |
| Tungsten (W)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Uranium (U)-Total | | 0.0000138 | 0.0000146 | | mg/L | 5.0 | 20 | 07-AUG-19 |
| Vanadium (V)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Yttrium (Y)-Total | | 0.0000077 | 0.0000066 | | mg/L | 16 | 20 | 07-AUG-19 |
| Zinc (Zn)-Total | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 07-AUG-19 |
| **WG3123428-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 101.5 | | % | | 80-120 | 07-AUG-19 |
| Antimony (Sb)-Total | | | 95.7 | | % | | 80-120 | 07-AUG-19 |
| Arsenic (As)-Total | | | 98.2 | | % | | 80-120 | 07-AUG-19 |
| Barium (Ba)-Total | | | 106.5 | | % | | 80-120 | 07-AUG-19 |
| Beryllium (Be)-Total | | | 100.2 | | % | | 80-120 | 07-AUG-19 |
| Bismuth (Bi)-Total | | | 94.3 | | % | | 80-120 | 07-AUG-19 |
| Boron (B)-Total | | | 98.5 | | % | | 80-120 | 07-AUG-19 |
| Cadmium (Cd)-Total | | | 100.9 | | % | | 80-120 | 07-AUG-19 |
| Calcium (Ca)-Total | | | 103.4 | | % | | 80-120 | 07-AUG-19 |
| Cesium (Cs)-Total | | | 97.3 | | % | | 80-120 | 07-AUG-19 |
| Chromium (Cr)-Total | | | 102.3 | | % | | 80-120 | 07-AUG-19 |
| Cobalt (Co)-Total | | | 100.4 | | % | | 80-120 | 07-AUG-19 |
| Copper (Cu)-Total | | | 100.7 | | % | | 80-120 | 07-AUG-19 |
| Gallium (Ga)-Total | | | 102.2 | | % | | 80-120 | 07-AUG-19 |
| Iron (Fe)-Total | | | 96.7 | | % | | 80-120 | 07-AUG-19 |
| Lanthanum (La)-Total | | | 107.2 | | % | | 80-120 | 07-AUG-19 |
| Lead (Pb)-Total | | | 97.6 | | % | | 80-120 | 07-AUG-19 |
| Lithium (Li)-Total | | | 94.6 | | % | | 80-120 | 07-AUG-19 |
| Magnesium (Mg)-Total | | | 100.7 | | % | | 80-120 | 07-AUG-19 |
| Manganese (Mn)-Total | | | 102.3 | | % | | 80-120 | 07-AUG-19 |
| Molybdenum (Mo)-Total | | | 94.1 | | % | | 80-120 | 07-AUG-19 |
| Nickel (Ni)-Total | | | 98.9 | | % | | 80-120 | 07-AUG-19 |
| Niobium (Nb)-Total | | | 100.9 | | % | | 80-120 | 07-AUG-19 |
| Phosphorus (P)-Total | | | 108.0 | | % | | 80-120 | 07-AUG-19 |
| Potassium (K)-Total | | | 101.9 | | % | | 80-120 | 07-AUG-19 |
| Rhenium (Re)-Total | | | 104.3 | | % | | 80-120 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123428-2 LCS** | | | | | | | | |
| Rubidium (Rb)-Total | | | 100.4 | | % | | 80-120 | 07-AUG-19 |
| Selenium (Se)-Total | | | 99.9 | | % | | 80-120 | 07-AUG-19 |
| Silicon (Si)-Total | | | 103.7 | | % | | 80-120 | 07-AUG-19 |
| Silver (Ag)-Total | | | 93.3 | | % | | 80-120 | 07-AUG-19 |
| Sodium (Na)-Total | | | 108.7 | | % | | 80-120 | 07-AUG-19 |
| Strontium (Sr)-Total | | | 99.2 | | % | | 80-120 | 07-AUG-19 |
| Sulfur (S)-Total | | | 90.4 | | % | | 80-120 | 07-AUG-19 |
| Tantalum (Ta)-Total | | | 103.4 | | % | | 80-120 | 07-AUG-19 |
| Tellurium (Te)-Total | | | 93.6 | | % | | 80-120 | 07-AUG-19 |
| Thallium (Tl)-Total | | | 101.4 | | % | | 80-120 | 07-AUG-19 |
| Thorium (Th)-Total | | | 92.9 | | % | | 80-120 | 07-AUG-19 |
| Tin (Sn)-Total | | | 96.2 | | % | | 80-120 | 07-AUG-19 |
| Titanium (Ti)-Total | | | 98.4 | | % | | 80-120 | 07-AUG-19 |
| Tungsten (W)-Total | | | 97.7 | | % | | 80-120 | 07-AUG-19 |
| Uranium (U)-Total | | | 97.2 | | % | | 80-120 | 07-AUG-19 |
| Vanadium (V)-Total | | | 102.9 | | % | | 80-120 | 07-AUG-19 |
| Yttrium (Y)-Total | | | 102.7 | | % | | 80-120 | 07-AUG-19 |
| Zinc (Zn)-Total | | | 100.3 | | % | | 80-120 | 07-AUG-19 |
| Zirconium (Zr)-Total | | | 92.5 | | % | | 80-120 | 07-AUG-19 |
| **WG3123428-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 07-AUG-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 07-AUG-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 07-AUG-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 07-AUG-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123428-1 MB** | | **NP** | | | | | | |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 07-AUG-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 07-AUG-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 07-AUG-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 07-AUG-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 07-AUG-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 07-AUG-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 07-AUG-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 07-AUG-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 07-AUG-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 07-AUG-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 07-AUG-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 07-AUG-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 07-AUG-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 07-AUG-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 07-AUG-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 07-AUG-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 07-AUG-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 07-AUG-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 07-AUG-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 07-AUG-19 |
| **WG3123428-4 MS** | | **L2314029-5** | | | | | | |
| Aluminum (Al)-Total | | | 98.0 | | % | | 70-130 | 07-AUG-19 |
| Antimony (Sb)-Total | | | 100.5 | | % | | 70-130 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123428-4 MS** | | **L2314029-5** | | | | | | |
| Arsenic (As)-Total | | | 103.0 | | % | | 70-130 | 07-AUG-19 |
| Barium (Ba)-Total | | | 107.3 | | % | | 70-130 | 07-AUG-19 |
| Beryllium (Be)-Total | | | 99.8 | | % | | 70-130 | 07-AUG-19 |
| Bismuth (Bi)-Total | | | 99.1 | | % | | 70-130 | 07-AUG-19 |
| Boron (B)-Total | | | 96.8 | | % | | 70-130 | 07-AUG-19 |
| Cadmium (Cd)-Total | | | 102.4 | | % | | 70-130 | 07-AUG-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 07-AUG-19 |
| Cesium (Cs)-Total | | | 99.5 | | % | | 70-130 | 07-AUG-19 |
| Chromium (Cr)-Total | | | 103.3 | | % | | 70-130 | 07-AUG-19 |
| Cobalt (Co)-Total | | | 103.9 | | % | | 70-130 | 07-AUG-19 |
| Copper (Cu)-Total | | | 101.7 | | % | | 70-130 | 07-AUG-19 |
| Gallium (Ga)-Total | | | 101.4 | | % | | 70-130 | 07-AUG-19 |
| Iron (Fe)-Total | | | 97.8 | | % | | 70-130 | 07-AUG-19 |
| Lanthanum (La)-Total | | | 107.6 | | % | | 70-130 | 07-AUG-19 |
| Lead (Pb)-Total | | | 100.0 | | % | | 70-130 | 07-AUG-19 |
| Lithium (Li)-Total | | | 97.6 | | % | | 70-130 | 07-AUG-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 07-AUG-19 |
| Manganese (Mn)-Total | | | 99.9 | | % | | 70-130 | 07-AUG-19 |
| Molybdenum (Mo)-Total | | | 96.3 | | % | | 70-130 | 07-AUG-19 |
| Nickel (Ni)-Total | | | 102.2 | | % | | 70-130 | 07-AUG-19 |
| Niobium (Nb)-Total | | | 106.1 | | % | | 70-130 | 07-AUG-19 |
| Phosphorus (P)-Total | | | 105.9 | | % | | 70-130 | 07-AUG-19 |
| Potassium (K)-Total | | | 100.5 | | % | | 70-130 | 07-AUG-19 |
| Rhenium (Re)-Total | | | 103.7 | | % | | 70-130 | 07-AUG-19 |
| Rubidium (Rb)-Total | | | 100.6 | | % | | 70-130 | 07-AUG-19 |
| Selenium (Se)-Total | | | 102.1 | | % | | 70-130 | 07-AUG-19 |
| Silicon (Si)-Total | | | 100.5 | | % | | 70-130 | 07-AUG-19 |
| Silver (Ag)-Total | | | 97.0 | | % | | 70-130 | 07-AUG-19 |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 07-AUG-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 07-AUG-19 |
| Sulfur (S)-Total | | | 95.7 | | % | | 70-130 | 07-AUG-19 |
| Tantalum (Ta)-Total | | | 105.8 | | % | | 70-130 | 07-AUG-19 |
| Tellurium (Te)-Total | | | 100.5 | | % | | 70-130 | 07-AUG-19 |
| Thallium (Tl)-Total | | | 99.3 | | % | | 70-130 | 07-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4742915** | | | | | | | | |
| **WG3123428-4 MS** | | **L2314029-5** | | | | | | |
| Thorium (Th)-Total | | | 104.0 | | % | | 70-130 | 07-AUG-19 |
| Tin (Sn)-Total | | | 98.4 | | % | | 70-130 | 07-AUG-19 |
| Titanium (Ti)-Total | | | 102.1 | | % | | 70-130 | 07-AUG-19 |
| Tungsten (W)-Total | | | 99.3 | | % | | 70-130 | 07-AUG-19 |
| Uranium (U)-Total | | | 99.1 | | % | | 70-130 | 07-AUG-19 |
| Vanadium (V)-Total | | | 102.8 | | % | | 70-130 | 07-AUG-19 |
| Yttrium (Y)-Total | | | 103.5 | | % | | 70-130 | 07-AUG-19 |
| Zinc (Zn)-Total | | | 104.9 | | % | | 70-130 | 07-AUG-19 |
| Zirconium (Zr)-Total | | | 95.6 | | % | | 70-130 | 07-AUG-19 |
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4727607** | | | | | | | | |
| **WG3115766-11 DUP** | | **L2314029-30** | | | | | | |
| Ammonia, Total (as N) | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 25-JUL-19 |
| **WG3115766-3 DUP** | | **L2314029-18** | | | | | | |
| Ammonia, Total (as N) | | 0.0087 | 0.0077 | | mg/L | 12 | 20 | 25-JUL-19 |
| **WG3115766-10 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 95.0 | | % | | 85-115 | 25-JUL-19 |
| **WG3115766-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 93.0 | | % | | 85-115 | 25-JUL-19 |
| **WG3115766-6 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 98.3 | | % | | 85-115 | 25-JUL-19 |
| **WG3115766-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 25-JUL-19 |
| **WG3115766-5 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 25-JUL-19 |
| **WG3115766-9 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 25-JUL-19 |
| **WG3115766-12 MS** | | **L2314029-30** | | | | | | |
| Ammonia, Total (as N) | | | 88.1 | | % | | 75-125 | 25-JUL-19 |
| **WG3115766-4 MS** | | **L2314029-18** | | | | | | |
| Ammonia, Total (as N) | | | 97.0 | | % | | 75-125 | 25-JUL-19 |
| **Batch R4740391** | | | | | | | | |
| **WG3124850-3 DUP** | | **L2314029-27** | | | | | | |
| Ammonia, Total (as N) | | 0.0223 | 0.0249 | | mg/L | 11 | 20 | 06-AUG-19 |
| **WG3124850-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 100.8 | | % | | 85-115 | 06-AUG-19 |
| **WG3124850-1 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4740391** | | | | | | | | |
| **WG3124850-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 06-AUG-19 |
| **WG3124850-4 MS** | | **L2314029-27** | | | | | | |
| Ammonia, Total (as N) | | | 96.8 | | % | | 75-125 | 06-AUG-19 |
| **Batch R4747930** | | | | | | | | |
| **WG3130281-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 96.3 | | % | | 85-115 | 12-AUG-19 |
| **WG3130281-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 12-AUG-19 |
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4725150** | | | | | | | | |
| **WG3111730-7 DUP** | | **L2314029-11** | | | | | | |
| Nitrite (as N) | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 22-JUL-19 |
| **WG3111730-10 LCS** | | | | | | | | |
| Nitrite (as N) | | | 107.0 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-2 LCS** | | | | | | | | |
| Nitrite (as N) | | | 104.9 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-6 LCS** | | | | | | | | |
| Nitrite (as N) | | | 106.1 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-1 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 22-JUL-19 |
| **WG3111730-5 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 22-JUL-19 |
| **WG3111730-9 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 22-JUL-19 |
| **WG3111730-8 MS** | | **L2314029-11** | | | | | | |
| Nitrite (as N) | | | 112.1 | | % | | 75-125 | 22-JUL-19 |
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4725150** | | | | | | | | |
| **WG3111730-7 DUP** | | **L2314029-11** | | | | | | |
| Nitrate (as N) | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 22-JUL-19 |
| **WG3111730-10 LCS** | | | | | | | | |
| Nitrate (as N) | | | 101.0 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-2 LCS** | | | | | | | | |
| Nitrate (as N) | | | 99.9 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-6 LCS** | | | | | | | | |
| Nitrate (as N) | | | 101.5 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-1 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4725150** | | | | | | | | |
| **WG3111730-1 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 22-JUL-19 |
| **WG3111730-5 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 22-JUL-19 |
| **WG3111730-9 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 22-JUL-19 |
| **WG3111730-8 MS** | | **L2314029-11** | | | | | | |
| Nitrate (as N) | | | 104.0 | | % | | 75-125 | 22-JUL-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4724477** | | | | | | | | |
| **WG3113063-7 DUP** | | **L2314029-21** | | | | | | |
| Phosphorus (P)-Total | | 0.0081 | 0.0081 | | mg/L | 0.1 | 20 | 24-JUL-19 |
| **WG3113063-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 100.2 | | % | | 80-120 | 24-JUL-19 |
| **WG3113063-6 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 101.3 | | % | | 80-120 | 24-JUL-19 |
| **WG3113063-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 24-JUL-19 |
| **WG3113063-5 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 24-JUL-19 |
| **WG3113063-4 MS** | | **L2314029-2** | | | | | | |
| Phosphorus (P)-Total | | | 103.0 | | % | | 70-130 | 24-JUL-19 |
| **WG3113063-8 MS** | | **L2314029-22** | | | | | | |
| Phosphorus (P)-Total | | | 102.2 | | % | | 70-130 | 24-JUL-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4730572** | | | | | | | | |
| **WG3118382-3 DUP** | | **L2314029-1** | | | | | | |
| Phosphorus (P)-Total | | 0.0040 | 0.0037 | | mg/L | 9.6 | 20 | 30-JUL-19 |
| **WG3118382-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 82.4 | | % | | 80-120 | 30-JUL-19 |
| **WG3118382-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 30-JUL-19 |
| **WG3118382-4 MS** | | **L2314029-3** | | | | | | |
| Phosphorus (P)-Total | | | 108.7 | | % | | 70-130 | 30-JUL-19 |
| **PH-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4720530** | | | | | | | | |
| **WG3112543-15 DUP** | | **L2314029-4** | | | | | | |
| pH | | 7.24 | 7.29 | J | pH units | 0.05 | 0.2 | 22-JUL-19 |
| **WG3112543-12 LCS** | | | | | | | | |
| pH | | | 7.38 | | pH units | | 7.3-7.5 | 22-JUL-19 |
| **WG3112543-17 LCS** | | | | | | | | |
| pH | | | 7.37 | | pH units | | 7.3-7.5 | 22-JUL-19 |
| **WG3112543-7 LCS** | | | | | | | | |
| pH | | | 7.38 | | pH units | | 7.3-7.5 | 22-JUL-19 |
| **SO4-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4725150** | | | | | | | | |
| **WG3111730-7 DUP** | | **L2314029-11** | | | | | | |
| Sulfate (SO4) | | 3.14 | 3.10 | | mg/L | 1.2 | 20 | 22-JUL-19 |
| **WG3111730-10 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 101.2 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-2 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 99.9 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-6 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 101.3 | | % | | 90-110 | 22-JUL-19 |
| **WG3111730-1 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 22-JUL-19 |
| **WG3111730-5 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 22-JUL-19 |
| **WG3111730-9 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 22-JUL-19 |
| **WG3111730-8 MS** | | **L2314029-11** | | | | | | |
| Sulfate (SO4) | | | 104.6 | | % | | 75-125 | 22-JUL-19 |
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4720708** | | | | | | | | |
| **WG3111974-3 DUP** | | **L2314029-1** | | | | | | |
| Total Dissolved Solids | | 51 | 47 | | mg/L | 7.5 | 20 | 22-JUL-19 |
| **WG3111974-7 DUP** | | **L2314029-21** | | | | | | |
| Total Dissolved Solids | | 101 | 100 | | mg/L | 1.3 | 20 | 22-JUL-19 |
| **WG3111974-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 103.0 | | % | | 85-115 | 22-JUL-19 |
| **WG3111974-6 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 98.6 | | % | | 85-115 | 22-JUL-19 |
| **WG3111974-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 22-JUL-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4720708** | | | | | | | | |
| **WG3111974-5 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 22-JUL-19 |
| **Batch R4720856** | | | | | | | | |
| **WG3110117-14 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 101.9 | | % | | 85-115 | 22-JUL-19 |
| **WG3110117-13 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 22-JUL-19 |
| **Batch R4727328** | | | | | | | | |
| **WG3112983-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 96.4 | | % | | 85-115 | 24-JUL-19 |
| **WG3112983-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 24-JUL-19 |
| **TKN-L-CFA-ED** | **Water** | | | | | | | |
| **Batch R4740352** | | | | | | | | |
| **WG3124118-7 DUP** | | **L2314029-27** | | | | | | |
| Total Kjeldahl Nitrogen | | 0.318 | 0.325 | | mg/L | 2.1 | 20 | 06-AUG-19 |
| **WG3124118-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 115 | | % | | 75-125 | 06-AUG-19 |
| **WG3124118-6 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 116 | | % | | 75-125 | 06-AUG-19 |
| **WG3124118-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 06-AUG-19 |
| **WG3124118-5 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 06-AUG-19 |
| **WG3124118-8 MS** | | **L2314029-27** | | | | | | |
| Total Kjeldahl Nitrogen | | | 129 | | % | | 70-130 | 06-AUG-19 |
| **Batch R4744569** | | | | | | | | |
| **WG3126878-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 109 | | % | | 75-125 | 08-AUG-19 |
| **WG3126878-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 08-AUG-19 |
| **Batch R4752008** | | | | | | | | |
| **WG3131063-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 105 | | % | | 75-125 | 13-AUG-19 |
| **WG3131063-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 13-AUG-19 |
| **TSS-LOW-VA** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TSS-LOW-VA** | **Water** | | | | | | | |
| **Batch R4723650** | | | | | | | | |
| **WG3113260-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 91.2 | | % | | 85-115 | 23-JUL-19 |
| **WG3113260-4 LCS** | | | | | | | | |
| Total Suspended Solids | | | 91.2 | | % | | 85-115 | 23-JUL-19 |
| **WG3113260-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 23-JUL-19 |
| **WG3113260-3 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 23-JUL-19 |
| **TURBIDITY-WP** | **Water** | | | | | | | |
| **Batch R4722438** | | | | | | | | |
| **WG3113684-2 LCS** | | | | | | | | |
| Turbidity | | | 100.5 | | % | | 85-115 | 23-JUL-19 |
| **WG3113684-5 LCS** | | | | | | | | |
| Turbidity | | | 99.5 | | % | | 85-115 | 23-JUL-19 |
| **WG3113684-1 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 23-JUL-19 |
| **WG3113684-4 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 23-JUL-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RM-ND | Reference Material recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Total Dissolved Solids (TDS) | | | | | | | |
| | 1 | 12-JUL-19 16:00 | 22-JUL-19 15:00 | 7 | 10 | days | EHTR |
| | 2 | 12-JUL-19 17:00 | 22-JUL-19 15:00 | 7 | 10 | days | EHTR |
| | 3 | 14-JUL-19 16:45 | 22-JUL-19 15:00 | 7 | 8 | days | EHTR |
| | 4 | 14-JUL-19 16:00 | 22-JUL-19 15:00 | 7 | 8 | days | EHTR |
| | 5 | 14-JUL-19 17:35 | 22-JUL-19 15:00 | 7 | 8 | days | EHTR |
| | 6 | 13-JUL-19 11:45 | 22-JUL-19 15:00 | 7 | 9 | days | EHTR |
| | 7 | 13-JUL-19 13:40 | 22-JUL-19 15:00 | 7 | 9 | days | EHTR |
| | 8 | 13-JUL-19 14:50 | 22-JUL-19 15:00 | 7 | 9 | days | EHTR |
| | 9 | 13-JUL-19 14:15 | 22-JUL-19 15:00 | 7 | 9 | days | EHTR |
| | 10 | 14-JUL-19 10:20 | 22-JUL-19 15:00 | 7 | 8 | days | EHTR |
| | 11 | 14-JUL-19 11:15 | 22-JUL-19 15:00 | 7 | 8 | days | EHTR |
| | 12 | 13-JUL-19 11:45 | 22-JUL-19 15:00 | 7 | 9 | days | EHTR |
| | 13 | 14-JUL-19 11:40 | 22-JUL-19 15:00 | 7 | 8 | days | EHTR |
| | 14 | 14-JUL-19 12:15 | 22-JUL-19 15:00 | 7 | 8 | days | EHTR |
| | 15 | 14-JUL-19 12:45 | 22-JUL-19 15:00 | 7 | 8 | days | EHTR |
| | 16 | 11-JUL-19 11:25 | 22-JUL-19 15:00 | 7 | 11 | days | EHTR |
| | 17 | 11-JUL-19 12:05 | 22-JUL-19 15:00 | 7 | 11 | days | EHTR |
| | 18 | 11-JUL-19 12:35 | 22-JUL-19 15:00 | 7 | 11 | days | EHTR |
| | 19 | 13-JUL-19 12:00 | 22-JUL-19 15:00 | 7 | 9 | days | EHTR |
| | 20 | 13-JUL-19 12:45 | 22-JUL-19 15:00 | 7 | 9 | days | EHTR |
| | 21 | 13-JUL-19 13:30 | 22-JUL-19 15:00 | 7 | 9 | days | EHTR |
| | 26 | 15-JUL-19 | 24-JUL-19 08:00 | 7 | 9 | days | EHTL |
| Total Suspended Solids by Grav. (1 mg/L) | | | | | | | |
| | 1 | 12-JUL-19 16:00 | 23-JUL-19 15:10 | 7 | 11 | days | EHTR |
| | 2 | 12-JUL-19 17:00 | 23-JUL-19 15:10 | 7 | 11 | days | EHTR |
| | 3 | 14-JUL-19 16:45 | 23-JUL-19 15:10 | 7 | 9 | days | EHTR |
| | 4 | 14-JUL-19 16:00 | 23-JUL-19 15:10 | 7 | 9 | days | EHTR |
| | 5 | 14-JUL-19 17:35 | 23-JUL-19 15:10 | 7 | 9 | days | EHTR |
| | 6 | 13-JUL-19 11:45 | 23-JUL-19 15:10 | 7 | 10 | days | EHTR |
| | 7 | 13-JUL-19 13:40 | 23-JUL-19 15:10 | 7 | 10 | days | EHTR |
| | 8 | 13-JUL-19 14:50 | 23-JUL-19 15:10 | 7 | 10 | days | EHTR |
| | 9 | 13-JUL-19 14:15 | 23-JUL-19 15:10 | 7 | 10 | days | EHTR |
| | 10 | 14-JUL-19 10:20 | 23-JUL-19 15:10 | 7 | 9 | days | EHTR |
| | 11 | 14-JUL-19 11:15 | 23-JUL-19 15:10 | 7 | 9 | days | EHTR |
| | 12 | 13-JUL-19 11:45 | 23-JUL-19 15:10 | 7 | 10 | days | EHTR |
| | 13 | 14-JUL-19 11:40 | 23-JUL-19 15:10 | 7 | 9 | days | EHTR |
| | 14 | 14-JUL-19 12:15 | 23-JUL-19 15:10 | 7 | 9 | days | EHTR |
| | 15 | 14-JUL-19 12:45 | 23-JUL-19 15:10 | 7 | 9 | days | EHTR |
| | 16 | 11-JUL-19 11:25 | 23-JUL-19 15:10 | 7 | 12 | days | EHTR |
| | 17 | 11-JUL-19 12:05 | 23-JUL-19 15:10 | 7 | 12 | days | EHTR |
| | 18 | 11-JUL-19 12:35 | 23-JUL-19 15:10 | 7 | 12 | days | EHTR |
| | 19 | 13-JUL-19 12:00 | 23-JUL-19 15:10 | 7 | 10 | days | EHTR |
| | 20 | 13-JUL-19 12:45 | 23-JUL-19 15:10 | 7 | 10 | days | EHTR |
| | 21 | 13-JUL-19 13:30 | 23-JUL-19 15:10 | 7 | 10 | days | EHTR |
| | 22 | 15-JUL-19 09:00 | 23-JUL-19 15:10 | 7 | 8 | days | EHTR |
| | 23 | 15-JUL-19 09:45 | 23-JUL-19 15:10 | 7 | 8 | days | EHTL |
| | 24 | 15-JUL-19 10:15 | 23-JUL-19 15:10 | 7 | 8 | days | EHTL |
| | 25 | 15-JUL-19 | 23-JUL-19 15:10 | 7 | 8 | days | EHTL |
| | 26 | 15-JUL-19 | 23-JUL-19 15:10 | 7 | 8 | days | EHTL |
| | 27 | 15-JUL-19 | 23-JUL-19 15:10 | 7 | 8 | days | EHTL |
| | 28 | 15-JUL-19 22:15 | 23-JUL-19 15:10 | 7 | 8 | days | EHTL |
| | 29 | 15-JUL-19 22:00 | 23-JUL-19 15:10 | 7 | 8 | days | EHTL |
| | 30 | 15-JUL-19 | 23-JUL-19 15:10 | 7 | 8 | days | EHTL |
| Turbidity | | | | | | | |
| | 1 | 12-JUL-19 16:00 | 23-JUL-19 10:30 | 3 | 11 | days | EHTR |
| | 2 | 12-JUL-19 17:00 | 23-JUL-19 10:30 | 3 | 11 | days | EHTR |
| | 3 | 14-JUL-19 16:45 | 23-JUL-19 10:30 | 3 | 9 | days | EHTR |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Turbidity | | | | | | | |
| | 4 | 14-JUL-19 16:00 | 23-JUL-19 10:30 | 3 | 9 | days | EHTR |
| | 5 | 14-JUL-19 17:35 | 23-JUL-19 10:30 | 3 | 9 | days | EHTR |
| | 6 | 13-JUL-19 11:45 | 23-JUL-19 10:30 | 3 | 10 | days | EHTR |
| | 7 | 13-JUL-19 13:40 | 23-JUL-19 10:30 | 3 | 10 | days | EHTR |
| | 8 | 13-JUL-19 14:50 | 23-JUL-19 10:30 | 3 | 10 | days | EHTR |
| | 9 | 13-JUL-19 14:15 | 23-JUL-19 10:30 | 3 | 10 | days | EHTR |
| | 10 | 14-JUL-19 10:20 | 23-JUL-19 10:30 | 3 | 9 | days | EHTR |
| | 11 | 14-JUL-19 11:15 | 23-JUL-19 10:30 | 3 | 9 | days | EHTR |
| | 12 | 13-JUL-19 11:45 | 23-JUL-19 10:30 | 3 | 10 | days | EHTR |
| | 13 | 14-JUL-19 11:40 | 23-JUL-19 10:30 | 3 | 9 | days | EHTR |
| | 14 | 14-JUL-19 12:15 | 23-JUL-19 10:30 | 3 | 9 | days | EHTR |
| | 15 | 14-JUL-19 12:45 | 23-JUL-19 10:30 | 3 | 9 | days | EHTR |
| | 16 | 11-JUL-19 11:25 | 23-JUL-19 10:30 | 3 | 12 | days | EHTR |
| | 17 | 11-JUL-19 12:05 | 23-JUL-19 10:30 | 3 | 12 | days | EHTR |
| | 18 | 11-JUL-19 12:35 | 23-JUL-19 10:30 | 3 | 12 | days | EHTR |
| | 19 | 13-JUL-19 12:00 | 23-JUL-19 10:30 | 3 | 10 | days | EHTR |
| | 20 | 13-JUL-19 12:45 | 23-JUL-19 10:30 | 3 | 10 | days | EHTR |
| | 21 | 13-JUL-19 13:30 | 23-JUL-19 10:30 | 3 | 10 | days | EHTR |
| | 22 | 15-JUL-19 09:00 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| | 23 | 15-JUL-19 09:45 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| | 24 | 15-JUL-19 10:15 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| | 25 | 15-JUL-19 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| | 26 | 15-JUL-19 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| | 27 | 15-JUL-19 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| | 28 | 15-JUL-19 22:15 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| | 29 | 15-JUL-19 22:00 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| | 30 | 15-JUL-19 | 23-JUL-19 10:30 | 3 | 8 | days | EHTR |
| pH | | | | | | | |
| | 1 | 12-JUL-19 16:00 | 22-JUL-19 12:00 | 0.25 | 236 | hours | EHTR-FM |
| | 2 | 12-JUL-19 17:00 | 22-JUL-19 12:00 | 0.25 | 235 | hours | EHTR-FM |
| | 3 | 14-JUL-19 16:45 | 22-JUL-19 12:00 | 0.25 | 187 | hours | EHTR-FM |
| | 4 | 14-JUL-19 16:00 | 22-JUL-19 12:00 | 0.25 | 188 | hours | EHTR-FM |
| | 5 | 14-JUL-19 17:35 | 22-JUL-19 12:00 | 0.25 | 186 | hours | EHTR-FM |
| | 6 | 13-JUL-19 11:45 | 22-JUL-19 12:00 | 0.25 | 216 | hours | EHTR-FM |
| | 7 | 13-JUL-19 13:40 | 22-JUL-19 12:00 | 0.25 | 214 | hours | EHTR-FM |
| | 8 | 13-JUL-19 14:50 | 22-JUL-19 12:00 | 0.25 | 213 | hours | EHTR-FM |
| | 9 | 13-JUL-19 14:15 | 22-JUL-19 12:00 | 0.25 | 214 | hours | EHTR-FM |
| | 10 | 14-JUL-19 10:20 | 22-JUL-19 12:00 | 0.25 | 194 | hours | EHTR-FM |
| | 11 | 14-JUL-19 11:15 | 22-JUL-19 12:00 | 0.25 | 193 | hours | EHTR-FM |
| | 12 | 13-JUL-19 11:45 | 22-JUL-19 12:00 | 0.25 | 216 | hours | EHTR-FM |
| | 13 | 14-JUL-19 11:40 | 22-JUL-19 12:00 | 0.25 | 192 | hours | EHTR-FM |
| | 14 | 14-JUL-19 12:15 | 22-JUL-19 12:00 | 0.25 | 192 | hours | EHTR-FM |
| | 15 | 14-JUL-19 12:45 | 22-JUL-19 12:00 | 0.25 | 191 | hours | EHTR-FM |
| | 16 | 11-JUL-19 11:25 | 22-JUL-19 12:00 | 0.25 | 264 | hours | EHTR-FM |
| | 17 | 11-JUL-19 12:05 | 22-JUL-19 12:00 | 0.25 | 264 | hours | EHTR-FM |
| | 18 | 11-JUL-19 12:35 | 22-JUL-19 12:00 | 0.25 | 264 | hours | EHTR-FM |
| | 19 | 13-JUL-19 12:00 | 22-JUL-19 12:00 | 0.25 | 216 | hours | EHTR-FM |
| | 20 | 13-JUL-19 12:45 | 22-JUL-19 12:00 | 0.25 | 215 | hours | EHTR-FM |
| | 21 | 13-JUL-19 13:30 | 22-JUL-19 12:00 | 0.25 | 215 | hours | EHTR-FM |
| | 22 | 15-JUL-19 09:00 | 22-JUL-19 12:00 | 0.25 | 171 | hours | EHTR-FM |
| | 23 | 15-JUL-19 09:45 | 22-JUL-19 12:00 | 0.25 | 170 | hours | EHTR-FM |
| | 24 | 15-JUL-19 10:15 | 22-JUL-19 12:00 | 0.25 | 170 | hours | EHTR-FM |
| | 25 | 15-JUL-19 | 22-JUL-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 26 | 15-JUL-19 | 22-JUL-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 27 | 15-JUL-19 | 22-JUL-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 28 | 15-JUL-19 22:15 | 22-JUL-19 12:00 | 0.25 | 158 | hours | EHTR-FM |
| | 29 | 15-JUL-19 22:00 | 22-JUL-19 12:00 | 0.25 | 158 | hours | EHTR-FM |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| pH | | | | | | | |
| | 30 | 15-JUL-19 | 22-JUL-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 12-JUL-19 16:00 | 22-JUL-19 13:30 | 3 | 10 | days | EHTR |
| | 2 | 12-JUL-19 17:00 | 22-JUL-19 13:30 | 3 | 10 | days | EHTR |
| | 3 | 14-JUL-19 16:45 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 4 | 14-JUL-19 16:00 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 5 | 14-JUL-19 17:35 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 6 | 13-JUL-19 11:45 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 7 | 13-JUL-19 13:40 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 8 | 13-JUL-19 14:50 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 9 | 13-JUL-19 14:15 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 10 | 14-JUL-19 10:20 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 11 | 14-JUL-19 11:15 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 12 | 13-JUL-19 11:45 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 13 | 14-JUL-19 11:40 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 14 | 14-JUL-19 12:15 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 15 | 14-JUL-19 12:45 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 16 | 11-JUL-19 11:25 | 22-JUL-19 13:30 | 3 | 11 | days | EHTR |
| | 17 | 11-JUL-19 12:05 | 22-JUL-19 13:30 | 3 | 11 | days | EHTR |
| | 18 | 11-JUL-19 12:35 | 22-JUL-19 13:30 | 3 | 11 | days | EHTR |
| | 19 | 13-JUL-19 12:00 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 20 | 13-JUL-19 12:45 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 21 | 13-JUL-19 13:30 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 22 | 15-JUL-19 09:00 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 23 | 15-JUL-19 09:45 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 24 | 15-JUL-19 10:15 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 25 | 15-JUL-19 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 26 | 15-JUL-19 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 27 | 15-JUL-19 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 28 | 15-JUL-19 22:15 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 29 | 15-JUL-19 22:00 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 30 | 15-JUL-19 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 12-JUL-19 16:00 | 22-JUL-19 13:30 | 3 | 10 | days | EHTR |
| | 2 | 12-JUL-19 17:00 | 22-JUL-19 13:30 | 3 | 10 | days | EHTR |
| | 3 | 14-JUL-19 16:45 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 4 | 14-JUL-19 16:00 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 5 | 14-JUL-19 17:35 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 6 | 13-JUL-19 11:45 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 7 | 13-JUL-19 13:40 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 8 | 13-JUL-19 14:50 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 9 | 13-JUL-19 14:15 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 10 | 14-JUL-19 10:20 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 11 | 14-JUL-19 11:15 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 12 | 13-JUL-19 11:45 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 13 | 14-JUL-19 11:40 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 14 | 14-JUL-19 12:15 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 15 | 14-JUL-19 12:45 | 22-JUL-19 13:30 | 3 | 8 | days | EHTR |
| | 16 | 11-JUL-19 11:25 | 22-JUL-19 13:30 | 3 | 11 | days | EHTR |
| | 17 | 11-JUL-19 12:05 | 22-JUL-19 13:30 | 3 | 11 | days | EHTR |
| | 18 | 11-JUL-19 12:35 | 22-JUL-19 13:30 | 3 | 11 | days | EHTR |
| | 19 | 13-JUL-19 12:00 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 20 | 13-JUL-19 12:45 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 21 | 13-JUL-19 13:30 | 22-JUL-19 13:30 | 3 | 9 | days | EHTR |
| | 22 | 15-JUL-19 09:00 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 23 | 15-JUL-19 09:45 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Anions and Nutrients** | | | | | | | |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 24 | 15-JUL-19 10:15 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 25 | 15-JUL-19 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 26 | 15-JUL-19 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 27 | 15-JUL-19 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 28 | 15-JUL-19 22:15 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 29 | 15-JUL-19 22:00 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| | 30 | 15-JUL-19 | 22-JUL-19 13:30 | 3 | 7 | days | EHTR |
| TKN in Water by Colour | | | | | | | |
| | 3 | 14-JUL-19 16:45 | 13-AUG-19 00:00 | 28 | 29 | days | EHT |
| | 4 | 14-JUL-19 16:00 | 13-AUG-19 00:00 | 28 | 29 | days | EHT |
| | 5 | 14-JUL-19 17:35 | 13-AUG-19 00:00 | 28 | 29 | days | EHT |
| | 11 | 14-JUL-19 11:15 | 13-AUG-19 00:00 | 28 | 30 | days | EHT |
| | 12 | 13-JUL-19 11:45 | 13-AUG-19 00:00 | 28 | 31 | days | EHT |
| | 13 | 14-JUL-19 11:40 | 13-AUG-19 00:00 | 28 | 30 | days | EHT |
| | 14 | 14-JUL-19 12:15 | 13-AUG-19 00:00 | 28 | 29 | days | EHT |
| | 15 | 14-JUL-19 12:45 | 13-AUG-19 00:00 | 28 | 29 | days | EHT |
| | 26 | 15-JUL-19 | 13-AUG-19 00:00 | 28 | 29 | days | EHT |
| | 30 | 15-JUL-19 | 13-AUG-19 00:00 | 28 | 29 | days | EHT |
| **Cyanides** | | | | | | | |
| Low Level Free Cyanide in water by CFA | | | | | | | |
| | 3 | 14-JUL-19 16:45 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 4 | 14-JUL-19 16:00 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 5 | 14-JUL-19 17:35 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 6 | 13-JUL-19 11:45 | 28-JUL-19 09:14 | 14 | 15 | days | EHT |
| | 12 | 13-JUL-19 11:45 | 28-JUL-19 09:14 | 14 | 15 | days | EHT |
| | 13 | 14-JUL-19 11:40 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 14 | 14-JUL-19 12:15 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 15 | 14-JUL-19 12:45 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 25 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |
| | 26 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |
| | 27 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |
| Low Level Total Cyanide in water by CFA | | | | | | | |
| | 3 | 14-JUL-19 16:45 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 4 | 14-JUL-19 16:00 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 5 | 14-JUL-19 17:35 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 13 | 14-JUL-19 11:40 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 14 | 14-JUL-19 12:15 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 15 | 14-JUL-19 12:45 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 25 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |
| | 26 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |
| | 27 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |
| Low level WAD Cyanide in water by CFA | | | | | | | |
| | 3 | 14-JUL-19 16:45 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 4 | 14-JUL-19 16:00 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 5 | 14-JUL-19 17:35 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 6 | 13-JUL-19 11:45 | 28-JUL-19 09:14 | 14 | 15 | days | EHT |
| | 12 | 13-JUL-19 11:45 | 28-JUL-19 09:14 | 14 | 15 | days | EHT |
| | 13 | 14-JUL-19 11:40 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 14 | 14-JUL-19 12:15 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 15 | 14-JUL-19 12:45 | 29-JUL-19 07:36 | 14 | 15 | days | EHT |
| | 25 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |
| | 26 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |
| | 27 | 15-JUL-19 | 02-AUG-19 07:39 | 14 | 18 | days | EHT |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2314029 were received on 22-JUL-19 09:15.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Tuesday, August 06, 2019

Judy Dalmaijer
ALS Environmental
1329 Niakwa Road East, Unit 12
Winnipeg, MB R2J 3T4

Re: ALS Workorder: 1907449
Project Name:
Project Number: L2314029

Dear Ms. Dalmaijer:

Fourteen water samples were received from ALS Environmental, on 7/23/2019. The samples were scheduled for the following analysis:

Radium-226

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. OBrien
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

| ALS Environmental – Fort Collins | |
|---|---|
| | |
| Accreditation Body | License or Certification Number |
| AIHA | 214884 |
| Alaska (AK) | UST-086 |
| Alaska (AK) | CO01099 |
| Arizona (AZ) | AZ0742 |
| California (CA) | 06251CA |
| Colorado (CO) | CO01099 |
| Florida (FL) | E87914 |
| Idaho (ID) | CO01099 |
| Kansas (KS) | E-10381 |
| Kentucky (KY) | 90137 |
| PJ-LA (DoD ELAP/ISO 170250) | 95377 |
| Louisiana (LA) | 05057 |
| Maryland (MD) | 285 |
| Missouri (MO) | 175 |
| Nebraska(NE) | NE-OS-24-13 |
| Nevada (NV) | CO000782008A |
| New York (NY) | 12036 |
| North Dakota (ND) | R-057 |
| Oklahoma (OK) | 1301 |
| Pennsylvania (PA) | 68-03116 |
| Tennessee (TN) | 2976 |
| Texas (TX) | T104704241 |
| Utah (UT) | CO01099 |
| Washington (WA) | C1280 |

# 1907449

**Radium-226:**
The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

**OrderNum:** 1907449
**Client Name:** ALS Environmental
**Client Project Name:**
**Client Project Number:** L2314029
**Client PO Number:** L2314029

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|---|---|---|---|---|---|
| L2314029-1 | 1907449-1 | | WATER | 12-Jul-19 | |
| L2314029-2 | 1907449-2 | | WATER | 12-Jul-19 | |
| L2314029-3 | 1907449-3 | | WATER | 14-Jul-19 | |
| L2314029-4 | 1907449-4 | | WATER | 14-Jul-19 | |
| L2314029-5 | 1907449-5 | | WATER | 14-Jul-19 | |
| L2314029-11 | 1907449-6 | | WATER | 14-Jul-19 | |
| L2314029-12 | 1907449-7 | | WATER | 13-Jul-19 | |
| L2314029-13 | 1907449-8 | | WATER | 14-Jul-19 | |
| L2314029-14 | 1907449-9 | | WATER | 14-Jul-19 | |
| L2314029-15 | 1907449-10 | | WATER | 14-Jul-19 | |
| L2314029-26 | 1907449-11 | | WATER | 14-Jul-19 | |
| L2314029-28 | 1907449-12 | | WATER | 15-Jul-19 | |
| L2314029-29 | 1907449-13 | | WATER | 15-Jul-19 | |
| L2314029-30 | 1907449-14 | | WATER | 15-Jul-19 | |

ALS Environmental

**L2314029**

WINNIPEG

1907449

## Subcontract Request Form

**Subcontract To:**

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

**NOTES:** Please reference on final report and invoice: PO# *L2314029*
ALS requires QC data to be provided with your final results.

**Please see enclosed 14 sample(s) in 14 Container(s)**

| | SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|---|
| 1 | **L2314029-1 MEL-01-01** | | **7/12/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 2 | **L2314029-2 MEL-01-06** | | **7/12/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 3 | **L2314029-3 MEL-01-07** | | **7/14/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 4 | **L2314029-4 MEL-01-08** | | **7/14/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 5 | **L2314029-5 MEL-01-09** | | **7/14/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 6 | **L2314029-11 MEL-03-01** | | **7/14/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 7 | **L2314029-12 MEL-03-02** | | **7/13/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 8 | **L2314029-13 MEL-03-03** | | **7/14/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 9 | **L2314029-14 MEL-03-04** | | **7/14/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 10 | **L2314029-15 MEL-03-05** | | **7/14/2019** | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |

ALS Environmental

1907449

## Subcontract Request Form

**Subcontract To:**

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

| | SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|---|
| 11 | **L2314029-26 JUL-DUP-02** | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |
| 12 | **L2314029-28 JUL-D1-01** | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | **7/15/2019** 8/13/2019 | |
| 13 | **L2314029-29 JUL-EB-01** | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | **7/15/2019** 8/13/2019 | |
| 14 | **L2314029-30 JUL-TB-01** | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/13/2019 | |

Subcontract Info Contact: Judy Dalmaijer (204) 255-9749

Analysis and reporting info contact: Judy Dalmaijer
12-1329 NIAKWA ROAD E
WINNIPEG,MB R2J3T4
Phone: (204) 255-9749 Email: Judy.Dalmaijer@alsglobal.com

**Please email confirmation of receipt to:** **Judy.Dalmaijer@alsglobal.com**

Shipped By: _____ Date Shipped: JULY 22

Received By: RJ Date Received: 7.23.19 0945

Verified By: _____ Date Verified: _____

Temperature: _____ 2 W/A

Sample Integrity Issues: _____

**ALS Environmental - Fort Collins**
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: ALS Winnipeg  Workorder No: 1907449

Project Manager: KO  Initials: NJ  Date: 7-24-19

| | | | | |
|---|---|---|---|---|
| 1. | Are airbills / shipping documents present and/or removable? | DROP OFF | YES | NO |
| 2. | Are custody seals on **shipping** containers intact? | NONE | YES | NO * |
| 3. | Are custody seals on **sample** containers intact? | NONE | YES | NO * |
| 4. | Is there a COC (chain-of-custody) present? | | YES | NO * |
| 5. | Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) | | YES | NO * |
| 6. | Are short-hold samples present? | | YES | NO |
| 7. | Are all samples within holding times for the requested analyses? | | YES | NO * |
| 8. | Were all sample containers received intact? (not broken or leaking) | | YES | NO * |
| 9. | Is there sufficient sample for the requested analyses? | | YES | NO * |
| 10. | Are all samples in the proper containers for the requested analyses? | | YES | NO * |
| 11. | Are all aqueous samples preserved correctly, if required? (excluding volatiles) | N/A | YES | NO * |
| 12. | Are all aqueous non-preserved samples pH 4-9? | N/A | YES | NO * |
| 13. | Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea) | N/A | YES | NO |
| 14. | Were the samples shipped on ice? | | YES | NO |
| 15. | Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 | RAD ONLY | YES | NO |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cooler #: | 1 | | | | | | | |
| Temperature (°C): | Amb | | | | | | | |
| No. of custody seals on cooler: | 0 | | | | | | | |
| DOT Survey/ Acceptance Information — External µR/hr reading: | 7 | | | | | | | |
| Background µR/hr reading: | 9 | | | | | | | |

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

*** Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.**

All client bottle ID's vs ALS lab ID's double-checked by: NJ

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

**Project Manager Signature / Date:** 7/24/19

Form 201r27.xls
(02/11/2019)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

1907449

SHIPPING/RECIE VING
ALS LABORATORY GROUP
12042559764
1329 NIAKWA RD E
STE: 12
WINNIPEG MB R2J 3T4
CANADA

42 LBS 1 OF 1
SHP#: 662F 45MQ YH9
SHP WT: 42 LBS
DATE: 22 JUL 2019

Amp 7-0

SHIP TO
LOGIN
ALS ENVIRO
0
225 COMMERCE DRIVE
FORT COLLINS CO 80524
UNITED STATES

CO 805 0-01

UPS EXPRESS 1

TRACKING #: 1Z 662 F45 66 6712 9448

EX

BILLING: F/D
DESC: WATER SAMPLES
PUROLATOR PIN: 6923173180

PIECE PIN: 6923173180

KE

CCX 11.2.0.3 E2442 60.1A 10/2

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-1 | **Lab ID:** | 1907449-1 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/12/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.0048 (+/- 0.0042) | U | 0.0057 | BQ/l | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *95.8* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-2 | **Lab ID:** | 1907449-2 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/12/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | PrepBy: **JXH** | |
| Ra-226 | -0.0022 (+/- 0.0036) | U | 0.0078 | BQ/l | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *94.5* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-3 | **Lab ID:** | 1907449-3 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | PrepBy: **JXH** | |
| Ra-226 | 0.0024 (+/- 0.0041) | U | 0.007 | BQ/l | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *94.2* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-4 | **Lab ID:** | 1907449-4 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.00094 (+/- 0.0042) | U | 0.0078 | BQ/l | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *92.3* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-5 | **Lab ID:** | 1907449-5 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | | PrepBy: **JXH** |
| Ra-226 | 0.0028 (+/- 0.0051) | U | 0.0087 | BQ/l | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *93.1* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-11 | **Lab ID:** | 1907449-6 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **7/29/2019** | PrepBy: **JXH** |
| Ra-226 | 0.0039 (+/- 0.0046) | U | 0.0072 | BQ/l | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *93.3* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-12 | **Lab ID:** | 1907449-7 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/13/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | PrepBy: **JXH** | |
| Ra-226 | 0.0037 (+/- 0.0042) | U | 0.0065 | BQ/l | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *93.8* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-13 | **Lab ID:** | 1907449-8 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | | PrepBy: **JXH** |
| Ra-226 | 0 (+/- 0.0029) | U | 0.0062 | BQ/l | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *96.2* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-14 | **Lab ID:** | 1907449-9 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **7/29/2019** | PrepBy: **JXH** |
| **Ra-226** | **0.0059 (+/- 0.0047)** | | **0.0058** | **BQ/l** | NA | 8/6/2019 12:07 |
| *Carr: BARIUM* | *90.1* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:07 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-15 | **Lab ID:** | 1907449-10 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | PrepBy: **JXH** | |
| Ra-226 | -0.0018 (+/- 0.0036) | U | 0.0077 | BQ/l | NA | 8/6/2019 12:44 |
| *Carr: BARIUM* | *96.5* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:44 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-26 | **Lab ID:** | 1907449-11 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | | PrepBy: **JXH** |
| **Ra-226** | **0.010 (+/- 0.0053)** | | **0.0043** | **BQ/l** | NA | 8/6/2019 12:44 |
| *Carr: BARIUM* | *89.9* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:44 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-28 | **Lab ID:** | 1907449-12 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/15/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | | PrepBy: **JXH** |
| **Ra-226** | **0.013 (+/- 0.0066)** | | **0.0067** | **BQ/l** | NA | 8/6/2019 12:44 |
| *Carr: BARIUM* | *98.1* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:44 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-29 | **Lab ID:** | 1907449-13 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/15/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | PrepBy: **JXH** | |
| Ra-226 | 0.0027 (+/- 0.0037) | U | 0.006 | BQ/l | NA | 8/6/2019 12:44 |
| *Carr: BARIUM* | *97.4* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:44 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-30 | **Lab ID:** | 1907449-14 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/15/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **7/29/2019** | PrepBy: **JXH** | |
| Ra-226 | 0.0017 (+/- 0.0034) | U | 0.0059 | BQ/l | NA | 8/6/2019 12:44 |
| *Carr: BARIUM* | *97.5* | | *40-110* | *%REC* | DL = NA | 8/6/2019 12:44 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *06-Aug-19* |
| **Project:** | L2314029 | **Work Order:** | 1907449 |
| **Sample ID:** | L2314029-30 | **Lab ID:** | 1907449-14 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 7/15/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|

## Explanation of Qualifiers

**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

**Inorganics:**

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

**Organics:**

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE190729-1-1** Instrument ID **Alpha Scin** Method: **Radium-226 by Radon Emanation**

**LCS** Sample ID: **RE190729-1** Units: **BQ/l** Analysis Date: **8/6/2019 13:21**

Client ID: Run ID: **RE190729-1A** Prep Date: **7/29/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.86 (+/- 0.463) | 0.0217 | 1.771 | | 105 | 67-120 | | | | | P,M3 |
| Carr: BARIUM | 15800 | | 15870 | | 99.3 | 40-110 | | | | | |

**LCSD** Sample ID: **RE190729-1** Units: **BQ/l** Analysis Date: **8/6/2019 13:21**

Client ID: Run ID: **RE190729-1A** Prep Date: **7/29/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.85 (+/- 0.461) | 0.0101 | 1.771 | | 105 | 67-120 | | 1.86 | 0.01 | 2.1 | P,M3 |
| Carr: BARIUM | 15600 | | 15870 | | 98.3 | 40-110 | | 15800 | | | |

**MB** Sample ID: **RE190729-1** Units: **BQ/l** Analysis Date: **8/6/2019 13:21**

Client ID: Run ID: **RE190729-1A** Prep Date: **7/29/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | -0.00041 (+/- 0.0038) | 0.0074 | | | | | | | | | U |
| Carr: BARIUM | 15700 | | 15910 | | 98.6 | 40-110 | | | | | |

**The following samples were analyzed in this batch:**

| | | |
|---|---|---|
| 1907449-1 | 1907449-2 | 1907449-3 |
| 1907449-4 | 1907449-5 | 1907449-6 |
| 1907449-7 | 1907449-8 | 1907449-9 |
| 1907449-10 | 1907449-11 | 1907449-12 |
| 1907449-13 | 1907449-14 | |

ALS Environmental

L2314029-COFC

COC # _____

Page 1 of 3

| Report To | | | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | Azimuth Consulting Group | ☑ Standard | ☐ Other | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | ☑ PDF | ☑ Excel ☐ Digital ☐ Fax | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 1: | efranz@azimuthgroup.ca | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 2: | mjosee.banville@agncioeagle.com | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | Email 3: | | |
| Invoice To | Same as Report ? ☑ Yes ☐ No | Client / Project Information | | Analysis Request |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Meliadine AEMP - Surface Water | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q57496 | |
| Lab Work Order # (lab use only) | | ALS Contact: | Judy Dalmaijer | Sampler: Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | | F | | F | P | F/P | P | | | | |
| 1 | MEL-01-01 | 12-Jul-19 | 16:00 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 2 | MEL-01-06 | 12-Jul-19 | 17:00 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 3 | MEL-01-07 | 14-Jul-19 | 16:45 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 4 | MEL-01-08 | 14-Jul-19 | 16:00 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 5 | MEL-01-09 | 14-Jul-19 | 17:35 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 6 | MEL-02-01 | 13-Jul-19 | 11:45 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 7 | MEL-02-02 | 13-Jul-19 | 12:35 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 8 | MEL-02-03 | 13-Jul-19 | 13:40 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 9 | MEL-02-04 | 13-Jul-19 | 14:50 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 10 | MEL-02-05 | 13-Jul-19 | 14:15 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 11 | MEL-03-01 | 14-Jul-19 | 10:20 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 12 | MEL-03-02 | 14-Jul-19 | 11:15 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Eric Franz | 16-JUL-19 | 6:30 | | JUL 22 2019 | 915 | 21.3 °C | | JUL 22 2019 | 925 | |

GENF 20.00 Front

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| Report To | | Report... | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|
| Company: | Azimuth Consulting Group | ☑ Standard ☐ Other | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | ☑ PDF ☑ Excel ☐ Digital ☐ Fax | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 1: efranz@azimuthgroup.ca | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 2: mjosee.banville@agnicoeagle.com | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | Email 3: | **Analysis Request** |
| **Invoice To** | Same as Report ? ☑ Yes ☐ No | **Client / Project Information** | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: Meliadine AEMP - Surface Water | |
| Company: | | PO / AFE: | |
| Contact: | | LSD: | |
| Address: | | | |
| Phone: | Fax: | Quote #: Q57496 | |
| Lab Work Order # (lab use only) | | **ALS Contact:** Judy Dalmaijer | **Sampler:** Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | F | | F | P | F/P | P | | | |
| 12 | MEL-03-03 | 14-Jul-19 | 11:40 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 13 | MEL-03-04 | 14-Jul-19 | 12:15 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 15 | MEL-03-05 | 14-Jul-19 | 12:45 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 16 | A8-01 | 11-Jul-19 | 11:25 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 17 | A8-02 | 11-Jul-19 | 12:05 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 18 | A8-03 | 11-Jul-19 | 12:35 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 19 | B7-01 | 13-Jul-19 | 12:00 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 20 | B7-02 | 13-Jul-19 | 12:45 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 21 | B7-03 | 13-Jul-19 | 13:30 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 22 | D7-01 | 15-Jul-19 | 9:00 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 23 | D7-02 | 15-Jul-19 | 9:45 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 24 | D7-03 | 15-Jul-19 | 10:15 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**
**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**
**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Eric Franz | 16-Jul-19 | 6:30 | | | | °C | | | | |

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| Report To | | | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | Azimuth Consulting Group | ☑ PDF ☑ Excel ☐ Digital ☐ Fax | | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | Email 1: efranz@azimuthgroup.ca | | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 2: mjosee.banville@agnicoeagle.com | | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 3: | | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | | | Analysis Request |
| Invoice To | Same as Report ? ☑ Yes ☐ No | Client / Project Information | | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Meliadine AEMP - Surface Water | |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q57496 | |
| Lab Work Order # (lab use only) | | ALS Contact: | Judy Dalmaijer | Sampler: Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | F | | F | P | F/P | P | | | |
| 25 | JUL-DUP-01 | - | - | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 26 | JUL-DUP-02 | - | - | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 27 | JUL-DUP-03 | - | - | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 28 | JUL-DI-01 | 15-Jul-19 | 22:15 | Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 29 | JUL-EB-01 | 15-Jul-19 | 22:00 | Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 30 | JUL-TB-01 | - | - | Water | X | X | | X | X | X | X | X | X | X | | | 8 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote. Missing cyanide and low-level TSS bottles from the Trip Blanks (TB) that were sent to Site on the first Purolator shipment.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Eric Franz | 16-Jul-19 | 6:30 | | | | °C | | | | |

# Appendix E3
# ALS Lab Reports: August 2019

Agnico-Eagle - Meliadine Gold Project
ATTN: JENNIFER BROWN
PO Box 99
Rankin Inlet NU X0C 0G0

Date Received: 16-AUG-19
Report Date: 18-SEP-19 08:16 (MT)
Version: FINAL

Client Phone: 819-759-3555

# Certificate of Analysis

## Lab Work Order #: L2330132

Project P.O. #: NOT SUBMITTED
Job Reference: MEL
C of C Numbers:
Legal Site Desc:

Comments: Ion balance deleted from fraction 20, as it cannot calculate on less than results.

Judy Dalmaijer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-1 MEL-01-01 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 14:10 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.4 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.7 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.6 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 82.4 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.2 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 40.4 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0169 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0169 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.12 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 40 | | 13 | mg/L | | 05-SEP-19 | R4784827 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.42 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.39 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0150 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.99 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0047 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Ra-226 | <0.0078 | | 0.0078 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.208 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00078 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.84 | | 0.50 | mg/L | | 03-SEP-19 | R4782852 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759793 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0039 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000401 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00783 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-1 MEL-01-01 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 14:10 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | 0.0053 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 6.26 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |
| Cesium (Cs)-Total | 0.0000094 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000195 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.000666 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Iron (Fe)-Total | 0.0257 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000026 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | 0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00099 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.23 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |
| Manganese (Mn)-Total | 0.00477 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000074 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000562 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.931 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00138 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | 0.000043 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |
| Silicon (Si)-Total | 0.193 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 5.31 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Strontium (Sr)-Total | 0.0468 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.40 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | 0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Titanium (Ti)-Total | 0.000199 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | 0.000016 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Uranium (U)-Total | 0.0000148 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | 0.000058 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | 0.0000083 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | 0.00060 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774609 |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000332 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00733 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | 0.0000071 | | 0.0000050 | mg/L | 28-AUG-19 | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-1 MEL-01-01 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 14:10 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Boron (B)-Dissolved | 0.0053 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.90 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000091 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000090 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000848 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0065 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00103 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.21 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000582 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Molybdenum (Mo)-Dissolved | 0.000073 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000551 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 0.950 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.175 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 5.45 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0430 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sulfur (S)-Dissolved | 1.27 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 29-AUG-19 | R4778358 |
| Tin (Sn)-Dissolved | 0.000062 | DTC | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 29-AUG-19 | R4778358 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000125 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | 0.0000060 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | 0.00076 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-2 MEL-01-06 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 18:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.9 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.3 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-2 MEL-01-06 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 18:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.4 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 80.7 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.2 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 39.4 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0111 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0111 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.09 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 41 | | 13 | mg/L | | 05-SEP-19 | R4784827 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.33 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.38 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.76 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0095 | | 0.0030 | mg/L | | 19-AUG-19 | R4758841 |
| Ra-226 | <0.0073 | | 0.0073 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.195 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | 0.00057 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.80 | | 0.50 | mg/L | | 03-SEP-19 | R4782852 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759793 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0042 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000356 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00767 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | 0.0051 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 6.42 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |
| Cesium (Cs)-Total | 0.0000083 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | 0.00049 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000165 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.000671 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-2 MEL-01-06 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 18:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Iron (Fe)-Total | 0.0219 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000034 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00100 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.24 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |
| Manganese (Mn)-Total | 0.00500 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000063 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000582 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.940 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00136 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |
| Silicon (Si)-Total | 0.212 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 5.34 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Strontium (Sr)-Total | 0.0456 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.52 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Titanium (Ti)-Total | 0.000209 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Uranium (U)-Total | 0.0000143 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | 0.000062 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | 0.0000073 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | 0.00059 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-AUG-19 | R4761797 |
| Aluminum (Al)-Dissolved | 0.0015 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000357 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00703 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.50 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000061 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Chromium (Cr)-Dissolved | 0.00046 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000081 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000705 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0052 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-2 MEL-01-06 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 18:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00094 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.21 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000544 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Molybdenum (Mo)-Dissolved | 0.000071 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000552 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 0.943 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00132 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.177 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 5.45 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0417 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sulfur (S)-Dissolved | 1.28 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000107 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-3 MEL-01-07 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 16:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.0 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.4 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.7 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 83.4 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.5 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-3 MEL-01-07 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 16:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 40.1 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0143 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0143 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.13 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 47 | | 13 | mg/L | | 05-SEP-19 | R4784827 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.34 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.39 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0136 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.97 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0162 | | 0.0030 | mg/L | | 19-AUG-19 | R4758841 |
| Ra-226 | <0.0084 | | 0.0084 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.171 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00062 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.87 | | 0.50 | mg/L | | 03-SEP-19 | R4782852 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759793 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0096 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000508 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00783 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | 0.0057 | | 0.0050 | mg/L | | 29-AUG-19 | R4778358 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 6.96 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |
| Cesium (Cs)-Total | 0.0000111 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000257 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.000804 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Iron (Fe)-Total | 0.0450 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000067 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | 0.000022 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00112 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.27 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |
| Manganese (Mn)-Total | 0.00519 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000072 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000618 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-3 MEL-01-07 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 16:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.957 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00138 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | 0.000050 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |
| Silicon (Si)-Total | 0.208 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 5.55 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Strontium (Sr)-Total | 0.0483 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.65 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | 0.000047 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Titanium (Ti)-Total | 0.000625 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Uranium (U)-Total | 0.0000188 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | 0.000083 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | 0.0000151 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | 0.00052 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | 0.00059 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 03-SEP-19 | R4782263 |
| Aluminum (Al)-Dissolved | 0.0029 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000367 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00752 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Boron (B)-Dissolved | 0.0050 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.62 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000075 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000076 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000817 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0085 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lanthanum (La)-Dissolved | 0.000012 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | 0.000015 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00101 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.21 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000656 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Molybdenum (Mo)-Dissolved | 0.000072 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000555 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-3 MEL-01-07 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 16:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 0.941 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00129 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.192 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 5.54 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0434 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sulfur (S)-Dissolved | 1.32 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tin (Sn)-Dissolved | 0.000243 | DTC | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000128 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | 0.00075 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-4 MEL-01-08 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 17:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 19.9 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.3 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.3 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 81.5 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.9 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 39.6 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0087 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0087 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-4 MEL-01-08 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 17:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.10 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 37 | | 13 | mg/L | | 05-SEP-19 | R4784827 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.39 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.37 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0068 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.72 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0046 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Ra-226 | <0.0072 | | 0.0072 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.182 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00057 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.85 | | 0.50 | mg/L | | 03-SEP-19 | R4782852 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759793 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0053 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000406 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00770 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | 0.0050 | | 0.0050 | mg/L | | 29-AUG-19 | R4778358 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 6.65 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |
| Cesium (Cs)-Total | 0.0000065 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000200 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.00116 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Iron (Fe)-Total | 0.0226 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000030 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | 0.000017 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00101 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.27 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |
| Manganese (Mn)-Total | 0.00491 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000082 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000586 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.946 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00136 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |
| Silicon (Si)-Total | 0.207 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 5.42 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-4 MEL-01-08 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 17:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Strontium (Sr)-Total | 0.0483 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.49 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | 0.000038 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Titanium (Ti)-Total | 0.000248 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Uranium (U)-Total | 0.0000162 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | 0.000063 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | 0.0000065 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | 0.00077 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | 0.00051 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-AUG-19 | R4761797 |
| Aluminum (Al)-Dissolved | 0.0019 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000346 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00734 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.76 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000075 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000086 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000741 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0062 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00098 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.23 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000594 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Molybdenum (Mo)-Dissolved | 0.000069 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000552 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 0.950 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.197 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 5.37 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0418 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-4 MEL-01-08 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 17:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Sulfur (S)-Dissolved | 1.21 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000127 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | 0.00104 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-5 MEL-01-09 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 15:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.3 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.6 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.8 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 82.8 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.1 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 40.4 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0167 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0167 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.14 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 43 | | 13 | mg/L | | 05-SEP-19 | R4784827 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.40 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.41 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0067 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-5 MEL-01-09 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 15:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Dissolved Organic Carbon | 2.77 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0057 | | 0.0030 | mg/L | | 19-AUG-19 | R4758841 |
| Ra-226 | <0.0056 | | 0.0056 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.165 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00097 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.80 | | 0.50 | mg/L | | 03-SEP-19 | R4782852 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759793 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0041 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000428 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00771 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | 0.0057 | | 0.0050 | mg/L | | 29-AUG-19 | R4778358 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 6.96 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |
| Cesium (Cs)-Total | 0.0000109 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | 0.00036 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000163 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.000728 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Iron (Fe)-Total | 0.0204 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000028 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | 0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00112 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.29 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |
| Manganese (Mn)-Total | 0.00493 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000073 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000591 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.962 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00138 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | 0.000043 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |
| Silicon (Si)-Total | 0.201 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 5.61 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Strontium (Sr)-Total | 0.0482 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.59 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Titanium (Ti)-Total | 0.000213 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-5 MEL-01-09 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 15:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Uranium (U)-Total | 0.0000151 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | 0.000056 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | 0.0000060 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-AUG-19 | R4761797 |
| Aluminum (Al)-Dissolved | 0.0019 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000381 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00737 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Boron (B)-Dissolved | 0.0053 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.84 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000086 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000082 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000765 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0063 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00105 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.21 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000663 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Molybdenum (Mo)-Dissolved | 0.000074 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000563 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 0.944 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.204 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 5.42 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0418 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sulfur (S)-Dissolved | 1.41 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tin (Sn)-Dissolved | 0.000036 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000123 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-5 MEL-01-09 | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 15:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | 0.00065 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-6 MEL-02-01 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 09:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 25.3 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.7 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 19.8 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 114 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 33.8 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 157 | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 73.1 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0055 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0055 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.29 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 71 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.36 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.45 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0380 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.48 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Phosphorus (P)-Total | 0.0033 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Total Kjeldahl Nitrogen | 0.201 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | 0.00061 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.55 | | 0.50 | mg/L | | 03-SEP-19 | R4782852 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-6 MEL-02-01 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 09:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0054 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | 0.000298 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | 0.00781 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | 0.0081 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | 7.41 | | 0.010 | mg/L | | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Total | 0.0000081 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Total | 0.0000145 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | 0.00128 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | 0.0207 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | 0.000021 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lead (Pb)-Total | 0.000034 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | 0.00092 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | 2.27 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | 0.00389 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Total | 0.000069 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | 0.000540 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | 1.27 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | 0.00146 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | 0.151 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | 13.7 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | 0.0455 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Sulfur (S)-Total | 2.02 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | 0.000043 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | 0.000387 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Uranium (U)-Total | 0.0000169 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | 0.0000079 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | 0.00116 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | 0.00071 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 03-SEP-19 | R4782263 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-6 MEL-02-01 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 09:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000267 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00763 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | 0.0122 | | 0.0050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.76 | | 0.010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000078 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000053 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000636 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0047 | | 0.0010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00103 | | 0.00050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 3.49 | DTC | 0.0040 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000446 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000082 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000464 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 1.62 | | 0.020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00153 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.124 | | 0.050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 22.7 | DTC | 0.020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0488 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 2.93 | | 0.50 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000024 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000205 | | 0.0000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00063 | | 0.00050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| L2330132-7 MEL-02-02 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:04 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 25.0 | | 1.2 | mg/L | | 20-AUG-19 | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-7 MEL-02-02 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:04 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.5 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.2 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 82.3 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.6 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 44.4 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.06 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 46 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.26 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.44 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0318 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.49 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Total | 0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Phosphorus (P)-Total | 0.0026 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Total Kjeldahl Nitrogen | 0.191 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.48 | | 0.50 | mg/L | | 03-SEP-19 | R4782852 |
| Total Suspended Solids | 2.9 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0024 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000302 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00801 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 29-AUG-19 | R4778358 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 6.31 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-7 MEL-02-02 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:04 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Cesium (Cs)-Total | 0.0000070 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | 0.00017 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000151 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.000636 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Iron (Fe)-Total | 0.0127 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000021 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00075 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.30 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |
| Manganese (Mn)-Total | 0.00336 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000068 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000457 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.961 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00138 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |
| Silicon (Si)-Total | 0.133 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 6.16 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Strontium (Sr)-Total | 0.0423 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.49 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Titanium (Ti)-Total | 0.000075 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Uranium (U)-Total | 0.0000149 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | 0.0000051 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-AUG-19 | R4761797 |
| Aluminum (Al)-Dissolved | 0.0017 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000271 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00749 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Boron (B)-Dissolved | 0.0053 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.68 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000073 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-7 MEL-02-02 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:04 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Chromium (Cr)-Dissolved | 0.00037 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000060 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000637 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0059 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00080 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.44 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000472 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Molybdenum (Mo)-Dissolved | 0.000080 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000474 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 1.02 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.145 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 7.65 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0398 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sulfur (S)-Dissolved | 1.55 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000127 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-8 MEL-02-03 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.5 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.1 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.3 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 79.3 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-8 MEL-02-03 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.8 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 40.8 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0088 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0088 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.93 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 48 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.24 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.46 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.53 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Total | 0.0012 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Phosphorus (P)-Total | 0.0031 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Total Kjeldahl Nitrogen | 0.157 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.54 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0026 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000274 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00804 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 29-AUG-19 | R4778358 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 7.00 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |
| Cesium (Cs)-Total | 0.0000071 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | 0.00029 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000114 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.000672 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Iron (Fe)-Total | 0.0139 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000018 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00082 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.24 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-8 MEL-02-03 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Manganese (Mn)-Total | 0.00346 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000068 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000489 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.933 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00135 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |
| Silicon (Si)-Total | 0.146 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 5.29 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Strontium (Sr)-Total | 0.0426 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.33 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Titanium (Ti)-Total | 0.000090 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Uranium (U)-Total | 0.0000146 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-AUG-19 | R4761797 |
| Aluminum (Al)-Dissolved | 0.0013 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000270 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00754 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.73 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000075 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Chromium (Cr)-Dissolved | 0.00022 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000059 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000653 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0043 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00078 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.20 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000379 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-8 MEL-02-03 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Molybdenum (Mo)-Dissolved | 0.000077 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000453 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 0.945 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00131 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.130 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 5.56 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0367 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sulfur (S)-Dissolved | 1.36 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000118 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-9 MEL-02-04 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 11:32 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.9 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.4 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.3 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 82.3 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.0 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 42.3 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-9 MEL-02-04 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 11:32 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.06 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 46 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.31 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.44 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0097 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.41 | | 0.50 | mg/L | | 03-SEP-19 | R4782840 |
| Cyanide, Free | 0.0011 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Phosphorus (P)-Total | 0.0033 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Total Kjeldahl Nitrogen | 0.216 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | 0.00059 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.48 | | 0.50 | mg/L | | 03-SEP-19 | R4782852 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0033 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000269 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00797 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 29-AUG-19 | R4778358 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 6.94 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |
| Cesium (Cs)-Total | 0.0000066 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | 0.00051 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000118 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.000665 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Iron (Fe)-Total | 0.0134 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000021 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | 0.000012 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00082 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.17 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |
| Manganese (Mn)-Total | 0.00339 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000065 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000486 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.914 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00135 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | 0.000047 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-9 MEL-02-04 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 11:32 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Silicon (Si)-Total | 0.164 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 6.22 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Strontium (Sr)-Total | 0.0414 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.69 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | 0.000022 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Titanium (Ti)-Total | 0.000082 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Uranium (U)-Total | 0.0000148 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | 0.0000061 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | 0.00054 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-AUG-19 | R4761797 |
| Aluminum (Al)-Dissolved | 0.0015 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000264 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00744 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.78 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000071 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000664 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0047 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00077 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.22 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000446 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Molybdenum (Mo)-Dissolved | 0.000073 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000460 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 0.954 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.135 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-9 MEL-02-04 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 11:32 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 5.66 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0363 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sulfur (S)-Dissolved | 1.31 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000122 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | 0.00059 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-10 MEL-02-05 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.8 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.3 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.4 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 79.4 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.5 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 40.5 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.94 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 49 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.32 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-10 MEL-02-05 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **pH** | | | | | | | |
| pH | 7.46 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0065 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.40 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | 0.0012 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Phosphorus (P)-Total | 0.0043 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Total Kjeldahl Nitrogen | 0.141 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.60 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0029 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Arsenic (As)-Total | 0.000294 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Barium (Ba)-Total | 0.00797 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 29-AUG-19 | R4778358 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Calcium (Ca)-Total | 7.26 | | 0.010 | mg/L | | 29-AUG-19 | R4778358 |
| Cesium (Cs)-Total | 0.0000068 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Cobalt (Co)-Total | 0.0000141 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Copper (Cu)-Total | 0.000655 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Iron (Fe)-Total | 0.0145 | | 0.0010 | mg/L | | 29-AUG-19 | R4778358 |
| Lanthanum (La)-Total | 0.000022 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Lithium (Li)-Total | 0.00085 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Magnesium (Mg)-Total | 1.18 | | 0.0040 | mg/L | | 29-AUG-19 | R4778358 |
| Manganese (Mn)-Total | 0.00343 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Molybdenum (Mo)-Total | 0.000073 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Nickel (Ni)-Total | 0.000503 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Potassium (K)-Total | 0.913 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Rubidium (Rb)-Total | 0.00137 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 29-AUG-19 | R4778358 |
| Silicon (Si)-Total | 0.138 | | 0.050 | mg/L | | 29-AUG-19 | R4778358 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Sodium (Na)-Total | 4.96 | | 0.020 | mg/L | | 29-AUG-19 | R4778358 |
| Strontium (Sr)-Total | 0.0392 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Sulfur (S)-Total | 1.36 | | 0.50 | mg/L | | 29-AUG-19 | R4778358 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 29-AUG-19 | R4778358 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-10 MEL-02-05 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Titanium (Ti)-Total | <0.00010 | DLM | 0.00010 | mg/L | | 29-AUG-19 | R4778358 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| Uranium (U)-Total | 0.0000164 | | 0.0000010 | mg/L | | 29-AUG-19 | R4778358 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 29-AUG-19 | R4778358 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 29-AUG-19 | R4778358 |
| Zinc (Zn)-Total | 0.00052 | | 0.00050 | mg/L | | 29-AUG-19 | R4778358 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 29-AUG-19 | R4778358 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 20-AUG-19 | R4761797 |
| Aluminum (Al)-Dissolved | 0.0015 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Arsenic (As)-Dissolved | 0.000245 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Barium (Ba)-Dissolved | 0.00758 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Calcium (Ca)-Dissolved | 6.69 | | 0.010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cesium (Cs)-Dissolved | 0.0000076 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Chromium (Cr)-Dissolved | 0.00023 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Cobalt (Co)-Dissolved | 0.0000057 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Copper (Cu)-Dissolved | 0.000634 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Iron (Fe)-Dissolved | 0.0045 | | 0.0010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Lithium (Li)-Dissolved | 0.00076 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Magnesium (Mg)-Dissolved | 1.16 | | 0.0040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Manganese (Mn)-Dissolved | 0.000399 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Molybdenum (Mo)-Dissolved | 0.000074 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Nickel (Ni)-Dissolved | 0.000467 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Potassium (K)-Dissolved | 0.927 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Rubidium (Rb)-Dissolved | 0.00132 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silicon (Si)-Dissolved | 0.120 | | 0.050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sodium (Na)-Dissolved | 5.13 | | 0.020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Strontium (Sr)-Dissolved | 0.0371 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Sulfur (S)-Dissolved | 1.22 | | 0.50 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Tin (Sn)-Dissolved | 0.000023 | | 0.000020 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-10 MEL-02-05 | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Uranium (U)-Dissolved | 0.0000114 | | 0.0000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zinc (Zn)-Dissolved | 0.00080 | | 0.00050 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 20-AUG-19 | 24-AUG-19 | R4767939 |
| L2330132-11 MEL-03-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.3 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.9 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.58 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 72.8 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.0 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 37.3 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0096 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0096 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.58 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 41 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.24 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.45 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0206 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.02 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0028 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Ra-226 | <0.0055 | | 0.0055 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-11 MEL-03-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Total Kjeldahl Nitrogen | 0.139 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | 0.00088 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 1.94 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0037 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | 0.000227 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | 0.00694 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | 6.45 | | 0.010 | mg/L | | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Total | 0.0000080 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | 0.00040 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Total | 0.0000115 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | 0.000662 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | 0.0151 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | 0.000021 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lead (Pb)-Total | 0.000013 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | 0.00063 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | 1.08 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | 0.00267 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Total | 0.000066 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | 0.000355 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | 0.889 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | 0.00128 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | 0.119 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | 4.41 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | 0.0349 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Sulfur (S)-Total | 1.30 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | 0.000025 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | 0.000212 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Uranium (U)-Total | 0.0000151 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-11 MEL-03-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Aluminum (Al)-Dissolved | 0.0014 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | 0.000235 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | 0.00695 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Dissolved | 6.55 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | 0.0000085 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | 0.00048 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Dissolved | 0.0000063 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | 0.000683 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | 0.0040 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lithium (Li)-Dissolved | 0.00061 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | 1.12 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | 0.000490 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | 0.000149 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Dissolved | 0.000385 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | 0.910 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | 0.00135 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | 0.109 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sodium (Na)-Dissolved | 4.51 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Dissolved | 0.0367 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | 1.08 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | 0.000024 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Uranium (U)-Dissolved | 0.0000142 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | 0.00057 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| L2330132-12 MEL-03-02 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-12 MEL-03-02 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 21.4 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.5 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.59 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 73.1 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.3 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 21-AUG-19 | |
| TDS (Calculated) | 35.8 | | | mg/L | | 21-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0166 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0166 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.58 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 40 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.22 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.46 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0168 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.13 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0029 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Ra-226 | <0.0068 | | 0.0068 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.157 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.14 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0027 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | 0.000218 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | 0.00720 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-12 MEL-03-02 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | 6.60 | | 0.010 | mg/L | | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Total | 0.0000063 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Total | 0.0000127 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | 0.000670 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | 0.0127 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | 0.000015 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lead (Pb)-Total | 0.000014 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | 0.00063 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | 1.09 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | 0.00278 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Total | 0.000061 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | 0.000359 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | 0.882 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | 0.00130 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | 0.116 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | 0.0000069 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | 4.44 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | 0.0348 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Sulfur (S)-Total | 1.11 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | 0.000033 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | 0.000094 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Uranium (U)-Total | 0.0000137 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | 0.00056 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Dissolved Metals Filtration Location | FIELD | | | | | 03-SEP-19 | R4782263 |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | 0.000214 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | 0.00722 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-12 MEL-03-02 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Dissolved | 6.70 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | 0.0000085 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Dissolved | 0.0000099 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | 0.000677 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | 0.0063 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | 0.000015 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lithium (Li)-Dissolved | 0.00062 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | 0.000627 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | 0.000081 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Dissolved | 0.000373 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | 0.896 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | 0.00131 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | 0.109 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sodium (Na)-Dissolved | 4.34 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Dissolved | 0.0366 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | 1.19 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | 0.000080 | DTC | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | 0.000077 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Uranium (U)-Dissolved | 0.0000129 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | 0.0000065 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | 0.00276 | DTC | 0.00050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| L2330132-13 MEL-03-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.4 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-13 MEL-03-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.58 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 73.2 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.3 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 21-AUG-19 | |
| TDS (Calculated) | 37.2 | | | mg/L | | 21-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.57 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 39 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.28 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.46 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.06 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0038 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Ra-226 | <0.0048 | | 0.0048 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.139 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.17 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0038 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.000191 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.00775 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 6.57 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000085 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | 0.00048 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000116 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-13 MEL-03-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Copper (Cu)-Total | 0.000653 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0124 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000017 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00059 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 1.06 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00287 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000063 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000375 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 0.899 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00129 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000052 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.124 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 4.28 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0331 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.30 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000141 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000146 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Dissolved Metals Filtration Location | FIELD | | | | | 03-SEP-19 | R4782263 |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000199 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00743 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 6.73 | | 0.010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000066 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | 0.00049 | | 0.00010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-13 MEL-03-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Copper (Cu)-Dissolved | 0.000614 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0036 | | 0.0010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00060 | | 0.00050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.10 | | 0.0040 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000512 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000080 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000364 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.887 | | 0.020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00134 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.109 | | 0.050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.34 | | 0.020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0313 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.11 | | 0.50 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000148 | | 0.0000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00052 | | 0.00050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| L2330132-14 MEL-03-04 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.2 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.8 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.60 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 72.9 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-14 MEL-03-04 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.5 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 21-AUG-19 | |
| TDS (Calculated) | 37.4 | | | mg/L | | 21-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.58 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 39 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.25 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.44 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0154 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.00 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0083 | | 0.0030 | mg/L | | 19-AUG-19 | R4758841 |
| Ra-226 | <0.0070 | | 0.0070 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.168 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.13 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0147 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | 0.000237 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | 0.00730 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | 6.31 | | 0.010 | mg/L | | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Total | 0.0000097 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Total | 0.0000173 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | 0.00101 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | 0.0273 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | 0.000066 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lead (Pb)-Total | 0.000312 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | 0.00064 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | 1.10 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | 0.00305 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-14 MEL-03-04 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Molybdenum (Mo)-Total | 0.000072 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | 0.000418 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | 0.896 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | 0.00131 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | 0.142 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | 4.54 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | 0.0347 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Sulfur (S)-Total | 1.20 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | 0.000062 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | 0.00115 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Uranium (U)-Total | 0.0000163 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | 0.000079 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | 0.0000149 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | 0.00053 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Aluminum (Al)-Dissolved | 0.0014 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | 0.000207 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | 0.00710 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Dissolved | 6.77 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | 0.0000076 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | 0.000626 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | 0.0031 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lithium (Li)-Dissolved | 0.00064 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | 1.12 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | 0.000495 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | 0.000081 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-14 MEL-03-04 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Nickel (Ni)-Dissolved | 0.000387 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | 0.900 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | 0.00131 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Selenium (Se)-Dissolved | 0.000044 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | 0.110 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sodium (Na)-Dissolved | 4.48 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Dissolved | 0.0353 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | 1.21 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | 0.000035 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Uranium (U)-Dissolved | 0.0000133 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| L2330132-15 MEL-03-05 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 16:22 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.4 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.58 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 72.8 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 20.9 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 21-AUG-19 | |
| TDS (Calculated) | 37.2 | | | mg/L | | 21-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-15 MEL-03-05 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 16:22 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.58 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 39 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.25 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.45 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0214 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.09 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0032 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Ra-226 | 0.0073 | | 0.0055 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.194 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.08 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0039 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.000200 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.00759 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 6.71 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000076 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000132 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000684 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0127 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000020 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00060 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 1.07 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00264 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000064 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000379 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 0.904 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00131 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000044 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.098 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-15 MEL-03-05 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 16:22 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 4.29 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0319 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 0.99 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000044 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000146 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000167 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00066 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Aluminum (Al)-Dissolved | 0.0017 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | 0.000193 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | 0.00719 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Dissolved | 6.55 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | 0.0000073 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Dissolved | 0.0000054 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | 0.000627 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | 0.0040 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lithium (Li)-Dissolved | 0.00061 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | 0.000522 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | 0.000068 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Dissolved | 0.000348 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | 0.897 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | 0.00129 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Selenium (Se)-Dissolved | 0.000041 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | 0.104 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-15 MEL-03-05 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 16:22 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Sodium (Na)-Dissolved | 4.47 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Dissolved | 0.0355 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | 1.20 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | 0.000033 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Uranium (U)-Dissolved | 0.0000137 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| L2330132-16 B7-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 10:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 45.1 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 37.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 31.3 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 187 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.030 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 69.1 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 105 | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 97.0 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 6.35 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 126 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.52 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.75 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-16 B7-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 10:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0108 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 4.40 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0095 | | 0.0030 | mg/L | | 19-AUG-19 | R4758841 |
| Total Kjeldahl Nitrogen | 0.302 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | 0.00065 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 4.47 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0046 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | 0.00176 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | 0.0187 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | 0.0106 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | 22.0 | | 0.010 | mg/L | | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Total | 0.0000238 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Total | 0.0000360 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | 0.000938 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | 0.0533 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | 0.000020 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lead (Pb)-Total | 0.000035 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | 0.0126 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | 2.56 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | 0.00505 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Total | 0.000188 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | 0.000833 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | 1.48 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | 0.00159 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | 0.212 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | 7.07 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | 0.220 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Sulfur (S)-Total | 2.49 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | 0.000074 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | 0.000140 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | 0.000036 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-16 B7-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 10:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Uranium (U)-Total | 0.0000233 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | 0.000059 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | 0.0000055 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | 0.00119 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | 0.00080 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Dissolved Metals Filtration Location | FIELD | | | | | 03-SEP-19 | R4782263 |
| Aluminum (Al)-Dissolved | 0.0024 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | 0.00151 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | 0.0181 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | 0.0128 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Dissolved | 22.8 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | 0.0000246 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | 0.00065 | DTC | 0.00010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000206 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | 0.00115 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | 0.0189 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | 0.000018 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lithium (Li)-Dissolved | 0.0128 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | 2.93 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | 0.000995 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | 0.000181 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Dissolved | 0.000851 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | 1.62 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | 0.00163 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | 0.175 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sodium (Na)-Dissolved | 9.80 | DTC | 0.020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.221 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | 2.62 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | 0.000086 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | 0.000033 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-16 B7-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 10:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Uranium (U)-Dissolved | 0.0000253 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | 0.00147 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Dissolved | 0.000011 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| L2330132-17 B7-02 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 11:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 44.3 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 36.3 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 27.9 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 174 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.029 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 63.4 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 96.0 | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 87.0 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.90 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 121 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.44 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.73 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0080 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 4.41 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0070 | | 0.0030 | mg/L | | 19-AUG-19 | R4758841 |
| Total Kjeldahl Nitrogen | 0.303 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-17 B7-02 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 11:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Total Organic Carbon | 4.35 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0032 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | 0.00156 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | 0.0186 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | 0.0117 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | 20.8 | | 0.010 | mg/L | | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Total | 0.0000221 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Total | 0.0000385 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | 0.000703 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | 0.0494 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | 0.000017 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lead (Pb)-Total | 0.000022 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | 0.0122 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | 2.77 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | 0.00446 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Total | 0.000180 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | 0.000770 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | 1.54 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | 0.00158 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | 0.216 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | 9.19 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | 0.220 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Sulfur (S)-Total | 2.51 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | 0.000025 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | 0.000079 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | 0.000035 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Uranium (U)-Total | 0.0000241 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | 0.000054 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | 0.0000056 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | 0.00080 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | 0.00052 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-17 B7-02 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 11:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | 0.00139 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | 0.0177 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | 0.0103 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Dissolved | 21.4 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | 0.0000209 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Dissolved | 0.0000206 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | 0.000759 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | 0.0208 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | 0.000014 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lithium (Li)-Dissolved | 0.0122 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | 2.44 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | 0.000721 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | 0.000174 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Dissolved | 0.000789 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | 1.47 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | 0.00157 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | 0.171 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sodium (Na)-Dissolved | 6.08 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Dissolved | 0.212 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | 2.29 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | 0.000025 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | 0.000030 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Uranium (U)-Dissolved | 0.0000247 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | 0.00070 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| L2330132-18 B7-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-18 B7-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 43.9 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 36.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 27.4 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | 172 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.029 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 62.1 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 91.1 | | | % | | 12-SEP-19 | |
| TDS (Calculated) | 84.2 | | | mg/L | | 12-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.86 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 119 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.51 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.74 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0089 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 4.18 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | 0.0051 | | 0.0030 | mg/L | | 19-AUG-19 | R4758841 |
| Total Kjeldahl Nitrogen | 0.312 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | 0.00053 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 4.33 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0041 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | 0.000026 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | 0.00155 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | 0.0187 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | 0.0091 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-18 B7-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | 21.5 | | 0.010 | mg/L | | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Total | 0.0000226 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Total | 0.0000354 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | 0.000735 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | 0.0535 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | 0.000022 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lead (Pb)-Total | 0.000024 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | 0.0125 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | 2.16 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | 0.00441 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Total | 0.000179 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | 0.000801 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | 1.37 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | 0.00153 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Selenium (Se)-Total | 0.000044 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | 0.232 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | 4.38 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | 0.210 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Sulfur (S)-Total | 2.14 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | 0.000067 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | <0.00015 | DLM | 0.00015 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | 0.000035 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Uranium (U)-Total | 0.0000259 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | 0.000058 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | 0.0000059 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | 0.00052 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | 0.00086 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Aluminum (Al)-Dissolved | 0.0014 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | 0.00127 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | 0.0179 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | 0.0093 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-18 B7-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Calcium (Ca)-Dissolved | 21.2 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | 0.0000220 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Dissolved | 0.0000158 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | 0.000717 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | 0.0190 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lithium (Li)-Dissolved | 0.0120 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | 2.24 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | 0.000432 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | 0.000173 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Dissolved | 0.000799 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | 1.38 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | 0.00151 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | 0.166 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sodium (Na)-Dissolved | 4.45 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Dissolved | 0.204 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | 2.00 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | 0.000032 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | 0.000031 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Uranium (U)-Dissolved | 0.0000264 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| L2330132-19 AUG-DUP-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.3 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.9 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.62 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-19 AUG-DUP-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Conductivity** | | | | | | | |
| Conductivity | 72.5 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 20.9 | | 0.20 | | | 16-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 21-AUG-19 | |
| TDS (Calculated) | 37.4 | | | mg/L | | 21-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0137 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0137 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.60 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 39 | | 13 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.22 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 7.45 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.07 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Total | 0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766331 |
| Phosphorus (P)-Total | 0.0028 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Ra-226 | <0.0096 | | 0.0096 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | 0.234 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 23-AUG-19 | R4765597 |
| Total Organic Carbon | 2.12 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0037 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | 0.000218 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | 0.00762 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | 6.41 | | 0.010 | mg/L | | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Total | 0.0000076 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | 0.00066 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Total | 0.0000140 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | 0.000613 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | 0.0111 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | 0.000015 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-19 AUG-DUP-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | 0.00062 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | 1.09 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | 0.00279 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Total | 0.000070 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | 0.000358 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | 0.892 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | 0.00132 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | 0.133 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | 4.48 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | 0.0364 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Sulfur (S)-Total | 1.17 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | 0.000098 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Uranium (U)-Total | 0.0000140 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Aluminum (Al)-Dissolved | 0.0020 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | 0.000191 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | 0.00707 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Dissolved | 6.55 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | 0.0000067 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | 0.00060 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | 0.000608 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | 0.0032 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-19 AUG-DUP-03 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lithium (Li)-Dissolved | 0.00061 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | 0.000500 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | 0.000068 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Dissolved | 0.000356 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | 0.900 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | 0.00130 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | 0.109 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sodium (Na)-Dissolved | 4.59 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Dissolved | 0.0361 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | 1.02 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Uranium (U)-Dissolved | 0.0000138 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| L2330132-20 D1-AUGT-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 14:10 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | <1.2 | | 1.2 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 20-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | <1.0 | | 1.0 | mg/L | | 19-AUG-19 | R4759644 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | <0.10 | | 0.10 | mg/L | | 17-AUG-19 | R4761937 |
| **Conductivity** | | | | | | | |
| Conductivity | <1.0 | | 1.0 | umhos/cm | | 19-AUG-19 | R4759644 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | <0.20 | | 0.20 | | | 16-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-20 D1-AUGT-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 14:10 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 17-AUG-19 | R4761937 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | <4.0 | | 4.0 | mg/L | | 16-AUG-19 | R4758697 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.12 | | 0.10 | NTU | | 16-AUG-19 | R4758124 |
| **pH** | | | | | | | |
| pH | 5.46 | | 0.10 | pH units | | 19-AUG-19 | R4759644 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0072 | RRV | 0.0050 | mg/L | | 06-SEP-19 | R4785688 |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762792 |
| Phosphorus (P)-Total | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4762227 |
| Ra-226 | <0.0068 | | 0.0068 | Bq/L | 28-AUG-19 | 12-SEP-19 | R4780785 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 06-SEP-19 | 07-SEP-19 | R4787411 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 22-AUG-19 | R4765102 |
| Total Organic Carbon | <0.50 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 17-AUG-19 | R4758835 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | <0.0010 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Arsenic (As)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Barium (Ba)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Total | <0.010 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Total | 0.00067 | RRV | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Copper (Cu)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Iron (Fe)-Total | <0.0010 | | 0.0010 | mg/L | | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Total | <0.0040 | | 0.0040 | mg/L | | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Potassium (K)-Total | <0.020 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-20 D1-AUGT-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 14:10 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 30-AUG-19 | R4782166 |
| Silicon (Si)-Total | <0.050 | | 0.050 | mg/L | | 30-AUG-19 | R4782166 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Sodium (Na)-Total | <0.020 | | 0.020 | mg/L | | 30-AUG-19 | R4782166 |
| Strontium (Sr)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | <0.50 | | 0.50 | mg/L | | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| Uranium (U)-Total | <0.0000010 | | 0.0000010 | mg/L | | 30-AUG-19 | R4782166 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 30-AUG-19 | R4782166 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4766288 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 23-AUG-19 | R4768484 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 28-AUG-19 | R4774752 |
| Dissolved Metals Filtration Location | FIELD | | | | | 03-SEP-19 | R4782263 |
| Aluminum (Al)-Dissolved | <0.0010 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Arsenic (As)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Barium (Ba)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Calcium (Ca)-Dissolved | <0.010 | | 0.010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Chromium (Cr)-Dissolved | 0.00066 | RRV | 0.00010 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Copper (Cu)-Dissolved | <0.000050 | | 0.000050 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Iron (Fe)-Dissolved | <0.0010 | | 0.0010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Magnesium (Mg)-Dissolved | <0.0040 | | 0.0040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Manganese (Mn)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Molybdenum (Mo)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Nickel (Ni)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Potassium (K)-Dissolved | <0.020 | | 0.020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Rubidium (Rb)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330132-20 D1-AUGT-01 | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 14:10 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silicon (Si)-Dissolved | <0.050 | | 0.050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sodium (Na)-Dissolved | <0.020 | | 0.020 | mg/L | 03-SEP-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Sulfur (S)-Dissolved | <0.50 | | 0.50 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Uranium (U)-Dissolved | <0.0000010 | | 0.0000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 28-AUG-19 | 30-AUG-19 | R4782166 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Sample Parameter Qualifier Key:**

| Qualifier | Description |
|---|---|
| B | Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable. |
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| DTC | Dissolved concentration exceeds total. Results were confirmed by re-analysis. |
| MES | Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RRV | Reported Result Verified By Repeat Analysis |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-CO3CO3-CALC-WP | Water | Alkalinity, Carbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L. | | | |
| ALK-HCO3HCO3-CALC-WP | Water | Alkalinity, Bicarbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L | | | |
| ALK-OHOH-CALC-WP | Water | Alkalinity, Hydroxide | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L. | | | |
| ALK-TITR-WP | Water | Alkalinity, Total (as CaCO3) | APHA 2320B |
| The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically. | | | |
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |
| Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |
| Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| CL-L-IC-N-WP | Water | Chloride in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| CN-FREE-L-CFA-VA | Water | Low Level Free Cyanide in water by CFA | ASTM 7237 |
| This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis. | | | |
| CN-T-L-CFA-VA | Water | Low Level Total Cyanide in water by CFA | ISO 14403:2002 |
| This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero. | | | |
| CN-WAD-L-CFA-VA | Water | Low level WAD Cyanide in water by CFA | APHA 4500-CN CYANIDE |
| This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis. | | | |
| EC-SCREEN-WP | Water | Conductivity Screen (Internal Use Only) | APHA 2510 |
| Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc | | | |
| EC-WP | Water | Conductivity | APHA 2510B |
| Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes. | | | |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| F-IC-N-WP | Water | Fluoride in Water by IC | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| HARDNESS-CALC-WP | Water | Hardness Calculated | APHA 2340B |

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

| | | | |
|---|---|---|---|
| HG-D-U-CVAF-VA | Water | Diss. Mercury in Water by CVAFS (Ultra) | APHA 3030 B / EPA 1631 REV. E |

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure may involve preliminary sample treatment by filtration (APHA 3030B) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry.

| | | | |
|---|---|---|---|
| HG-T-U-CVAF-VA | Water | Total Mercury in Water by CVAFS (Ultra) | EPA 1631 REV. E |

This analysis is carried out using procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry.

| | | | |
|---|---|---|---|
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

| | | | |
|---|---|---|---|
| MET-D-NP-CCMS-VA | Water | Dissolved Metals in Water CRC ICPMS | EPA 6020B (mod) |

Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.

| | | | |
|---|---|---|---|
| MET-T-NP-CCMS-VA | Water | Total Metals by CRC ICPMS (Undigested) | EPA 6020B (mod) |

Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results.
Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.

| | | | |
|---|---|---|---|
| NH3-F-ED | Water | Ammonia in Water by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

| | | | |
|---|---|---|---|
| NO2+NO3-CALC-L-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-L-IC-N-WP | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| NO3-L-IC-N-WP | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

| | | | |
|---|---|---|---|
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

| | | | |
|---|---|---|---|
| PH-WP | Water | pH | APHA 4500H |

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| reference electrode. | | | |
| RA226-MMER-FC | Water | Ra226 by Alpha Scint, MDC=0.01 Bq/L | EPA 903.1 |
| SO4-IC-N-WP | Water | Sulfate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| TDS-WP | Water | Total Dissolved Solids (TDS) | APHA 2540 SOLIDS C,E |
| A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids. | | | |
| TKN-L-F-ED | Water | TKN (as N) by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection. | | | |
| TSS-LOW-VA | Water | Total Suspended Solids by Grav. (1 mg/L) | APHA 2540D |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples. | | | |
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |
| Turbidity in aqueous matrices is determined by the nephelometric method. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |
| FC | ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
PO Box 99
Rankin Inlet NU X0C 0G0
Contact: JENNIFER BROWN

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **ALK-TITR-WP** | **Water** | | | | | | | |
| **Batch R4759644** | | | | | | | | |
| **WG3137614-25 DUP** | | **L2330132-3** | | | | | | |
| Alkalinity, Total (as CaCO3) | | 16.4 | 16.2 | | mg/L | 1.2 | 20 | 19-AUG-19 |
| **WG3137614-14 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 104.6 | | % | | 85-115 | 19-AUG-19 |
| **WG3137614-19 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 106.8 | | % | | 85-115 | 19-AUG-19 |
| **WG3137614-24 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 107.9 | | % | | 85-115 | 19-AUG-19 |
| **WG3137614-11 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 19-AUG-19 |
| **WG3137614-16 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 19-AUG-19 |
| **WG3137614-21 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 1.0 | | mg/L | | 1 | 19-AUG-19 |
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4782840** | | | | | | | | |
| **WG3151447-3 DUP** | | **L2330132-1** | | | | | | |
| Dissolved Organic Carbon | | 2.99 | 2.80 | | mg/L | 6.6 | 20 | 03-SEP-19 |
| **WG3151447-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 99.9 | | % | | 80-120 | 03-SEP-19 |
| **WG3151447-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 03-SEP-19 |
| **WG3151447-4 MS** | | **L2330132-2** | | | | | | |
| Dissolved Organic Carbon | | | 103.3 | | % | | 70-130 | 03-SEP-19 |
| **Batch R4783541** | | | | | | | | |
| **WG3152640-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 104.0 | | % | | 80-120 | 04-SEP-19 |
| **WG3152640-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4782852** | | | | | | | | |
| **WG3151521-3 DUP** | | **L2330132-3** | | | | | | |
| Total Organic Carbon | | 2.87 | 2.80 | | mg/L | 2.5 | 20 | 03-SEP-19 |
| **WG3151521-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.4 | | % | | 80-120 | 03-SEP-19 |
| **WG3151521-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 03-SEP-19 |
| **WG3151521-4 MS** | | **L2330132-5** | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4782852** | | | | | | | | |
| **WG3151521-4 MS** | | **L2330132-5** | | | | | | |
| Total Organic Carbon | | | 102.7 | | % | | 70-130 | 03-SEP-19 |
| **Batch R4783547** | | | | | | | | |
| **WG3152654-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.8 | | % | | 80-120 | 04-SEP-19 |
| **WG3152654-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4761937** | | | | | | | | |
| **WG3135926-11 DUP** | | **L2330132-3** | | | | | | |
| Chloride (Cl) | | 11.7 | 11.7 | | mg/L | 0.1 | 20 | 17-AUG-19 |
| **WG3135926-10 LCS** | | | | | | | | |
| Chloride (Cl) | | | 99.3 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-2 LCS** | | | | | | | | |
| Chloride (Cl) | | | 100.1 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-6 LCS** | | | | | | | | |
| Chloride (Cl) | | | 99.8 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-1 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 17-AUG-19 |
| **WG3135926-5 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 17-AUG-19 |
| **WG3135926-9 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 17-AUG-19 |
| **WG3135926-12 MS** | | **L2330132-3** | | | | | | |
| Chloride (Cl) | | | 105.4 | | % | | 75-125 | 17-AUG-19 |
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4762792** | | | | | | | | |
| **WG3139151-2 LCS** | | | | | | | | |
| Cyanide, Free | | | 98.1 | | % | | 80-120 | 21-AUG-19 |
| **WG3139151-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 96.6 | | % | | 80-120 | 21-AUG-19 |
| **WG3139151-1 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 21-AUG-19 |
| **WG3139151-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 21-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4766331** | | | | | | | | |
| **WG3140160-3 DUP** | | **L2330132-7** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 22-AUG-19 |
| **WG3140160-2 LCS** | | | | | | | | |
| Cyanide, Free | | | 99.7 | | % | | 80-120 | 22-AUG-19 |
| **WG3140160-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 99.6 | | % | | 80-120 | 22-AUG-19 |
| **WG3140160-1 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 22-AUG-19 |
| **WG3140160-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 22-AUG-19 |
| **WG3140160-4 MS** | | **L2330132-7** | | | | | | |
| Cyanide, Free | | | 103.5 | | % | | 75-125 | 22-AUG-19 |
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4762792** | | | | | | | | |
| **WG3139151-2 LCS** | | | | | | | | |
| Cyanide, Total | | | 95.0 | | % | | 80-120 | 21-AUG-19 |
| **WG3139151-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 103.3 | | % | | 80-120 | 21-AUG-19 |
| **WG3139151-1 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 21-AUG-19 |
| **WG3139151-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 21-AUG-19 |
| **Batch R4766331** | | | | | | | | |
| **WG3140160-3 DUP** | | **L2330132-7** | | | | | | |
| Cyanide, Total | | 0.0010 | 0.0011 | | mg/L | 2.8 | 20 | 22-AUG-19 |
| **WG3140160-2 LCS** | | | | | | | | |
| Cyanide, Total | | | 99.4 | | % | | 80-120 | 22-AUG-19 |
| **WG3140160-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 98.5 | | % | | 80-120 | 22-AUG-19 |
| **WG3140160-1 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 22-AUG-19 |
| **WG3140160-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 22-AUG-19 |
| **WG3140160-4 MS** | | **L2330132-7** | | | | | | |
| Cyanide, Total | | | 99.2 | | % | | 75-125 | 22-AUG-19 |
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4762792** | | | | | | | | |
| **WG3139151-2 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 102.7 | | % | | 80-120 | 21-AUG-19 |
| **WG3139151-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 101.1 | | % | | 80-120 | 21-AUG-19 |
| **WG3139151-1 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 21-AUG-19 |
| **WG3139151-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 21-AUG-19 |
| **Batch R4766331** | | | | | | | | |
| **WG3140160-3 DUP** | | **L2330132-7** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 22-AUG-19 |
| **WG3140160-2 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 105.8 | | % | | 80-120 | 22-AUG-19 |
| **WG3140160-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 104.0 | | % | | 80-120 | 22-AUG-19 |
| **WG3140160-1 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 22-AUG-19 |
| **WG3140160-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 22-AUG-19 |
| **WG3140160-4 MS** | | **L2330132-7** | | | | | | |
| Cyanide, Weak Acid Diss | | | 107.3 | | % | | 75-125 | 22-AUG-19 |
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4759644** | | | | | | | | |
| **WG3137614-25 DUP** | | **L2330132-3** | | | | | | |
| Conductivity | | 83.4 | 82.8 | | umhos/cm | 0.7 | 10 | 19-AUG-19 |
| **WG3137614-13 LCS** | | | | | | | | |
| Conductivity | | | 99.1 | | % | | 90-110 | 19-AUG-19 |
| **WG3137614-18 LCS** | | | | | | | | |
| Conductivity | | | 100.2 | | % | | 90-110 | 19-AUG-19 |
| **WG3137614-23 LCS** | | | | | | | | |
| Conductivity | | | 99.9 | | % | | 90-110 | 19-AUG-19 |
| **WG3137614-11 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 19-AUG-19 |
| **WG3137614-16 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 19-AUG-19 |
| **WG3137614-21 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 19-AUG-19 |
| **F-IC-N-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4761937** | | | | | | | | |
| **WG3135926-11 DUP** | | **L2330132-3** | | | | | | |
| Fluoride (F) | | 0.025 | 0.025 | | mg/L | 0.9 | 20 | 17-AUG-19 |
| **WG3135926-10 LCS** | | | | | | | | |
| Fluoride (F) | | | 102.3 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-2 LCS** | | | | | | | | |
| Fluoride (F) | | | 103.7 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-6 LCS** | | | | | | | | |
| Fluoride (F) | | | 104.4 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-1 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 17-AUG-19 |
| **WG3135926-5 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 17-AUG-19 |
| **WG3135926-9 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 17-AUG-19 |
| **WG3135926-12 MS** | | **L2330132-3** | | | | | | |
| Fluoride (F) | | | 109.1 | | % | | 75-125 | 17-AUG-19 |
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4768484** | | | | | | | | |
| **WG3141676-3 DUP** | | **L2330132-1** | | | | | | |
| Mercury (Hg)-Dissolved | | 0.00060 | 0.00055 | | ug/L | 8.4 | 20 | 23-AUG-19 |
| **WG3141676-2 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 94.3 | | % | | 80-120 | 23-AUG-19 |
| **WG3141676-1 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 23-AUG-19 |
| **WG3141676-4 MS** | | **L2330132-20** | | | | | | |
| Mercury (Hg)-Dissolved | | | 106.6 | | % | | 70-130 | 23-AUG-19 |
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4765102** | | | | | | | | |
| **WG3140709-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 97.0 | | % | | 80-120 | 22-AUG-19 |
| **WG3140709-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 22-AUG-19 |
| **Batch R4765597** | | | | | | | | |
| **WG3141486-3 DUP** | | **L2330132-1** | | | | | | |
| Mercury (Hg)-Total | | 0.00078 | 0.00075 | | ug/L | 4.2 | 20 | 23-AUG-19 |
| **WG3141486-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 98.8 | | % | | 80-120 | 23-AUG-19 |
| **WG3141486-1 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4765597** | | | | | | | | |
| **WG3141486-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 23-AUG-19 |
| **WG3141486-4 MS** | | **L2330132-19** | | | | | | |
| Mercury (Hg)-Total | | | 88.5 | | % | | 70-130 | 23-AUG-19 |
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4767939** | | | | | | | | |
| **WG3138541-3 DUP** | | **L2330132-9** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0015 | 0.0018 | J | mg/L | 0.0003 | 0.002 | 24-AUG-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Arsenic (As)-Dissolved | | 0.000264 | 0.000244 | | mg/L | 7.9 | 20 | 24-AUG-19 |
| Barium (Ba)-Dissolved | | 0.00744 | 0.00738 | | mg/L | 0.8 | 20 | 24-AUG-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Boron (B)-Dissolved | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Calcium (Ca)-Dissolved | | 6.78 | 6.72 | | mg/L | 0.9 | 20 | 24-AUG-19 |
| Cesium (Cs)-Dissolved | | 0.0000071 | 0.0000063 | | mg/L | 12 | 20 | 24-AUG-19 |
| Chromium (Cr)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Cobalt (Co)-Dissolved | | 0.0000051 | 0.0000054 | | mg/L | 4.2 | 20 | 24-AUG-19 |
| Copper (Cu)-Dissolved | | 0.000664 | 0.000645 | | mg/L | 3.0 | 20 | 24-AUG-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Iron (Fe)-Dissolved | | 0.0047 | 0.0047 | | mg/L | 1.5 | 20 | 24-AUG-19 |
| Lanthanum (La)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Lead (Pb)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Lithium (Li)-Dissolved | | 0.00077 | 0.00078 | | mg/L | 0.5 | 20 | 24-AUG-19 |
| Magnesium (Mg)-Dissolved | | 1.22 | 1.19 | | mg/L | 2.9 | 20 | 24-AUG-19 |
| Manganese (Mn)-Dissolved | | 0.000446 | 0.000438 | | mg/L | 1.8 | 20 | 24-AUG-19 |
| Molybdenum (Mo)-Dissolved | | 0.000073 | 0.000075 | | mg/L | 2.5 | 20 | 24-AUG-19 |
| Nickel (Ni)-Dissolved | | 0.000460 | 0.000463 | | mg/L | 0.5 | 20 | 24-AUG-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Potassium (K)-Dissolved | | 0.954 | 0.921 | | mg/L | 3.5 | 20 | 24-AUG-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Rubidium (Rb)-Dissolved | | 0.00133 | 0.00125 | | mg/L | 6.3 | 20 | 24-AUG-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4767939** | | | | | | | | |
| **WG3138541-3 DUP** | | **L2330132-9** | | | | | | |
| Silicon (Si)-Dissolved | | 0.135 | 0.137 | | mg/L | 0.9 | 20 | 24-AUG-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Sodium (Na)-Dissolved | | 5.66 | 5.75 | | mg/L | 1.7 | 20 | 24-AUG-19 |
| Strontium (Sr)-Dissolved | | 0.0363 | 0.0376 | | mg/L | 3.7 | 20 | 24-AUG-19 |
| Sulfur (S)-Dissolved | | 1.31 | 1.30 | | mg/L | 1.0 | 20 | 24-AUG-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Tin (Sn)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Uranium (U)-Dissolved | | 0.0000122 | 0.0000110 | | mg/L | 9.9 | 20 | 24-AUG-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Yttrium (Y)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| Zinc (Zn)-Dissolved | | 0.00059 | 0.00057 | | mg/L | 4.1 | 20 | 24-AUG-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 24-AUG-19 |
| **WG3138541-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 99.5 | | % | | 80-120 | 24-AUG-19 |
| Antimony (Sb)-Dissolved | | | 104.7 | | % | | 80-120 | 24-AUG-19 |
| Arsenic (As)-Dissolved | | | 97.7 | | % | | 80-120 | 24-AUG-19 |
| Barium (Ba)-Dissolved | | | 102.0 | | % | | 80-120 | 24-AUG-19 |
| Beryllium (Be)-Dissolved | | | 91.4 | | % | | 80-120 | 24-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 100.9 | | % | | 80-120 | 24-AUG-19 |
| Boron (B)-Dissolved | | | 96.2 | | % | | 80-120 | 24-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 98.5 | | % | | 80-120 | 24-AUG-19 |
| Calcium (Ca)-Dissolved | | | 93.8 | | % | | 80-120 | 24-AUG-19 |
| Cesium (Cs)-Dissolved | | | 102.2 | | % | | 80-120 | 24-AUG-19 |
| Chromium (Cr)-Dissolved | | | 96.5 | | % | | 80-120 | 24-AUG-19 |
| Cobalt (Co)-Dissolved | | | 96.1 | | % | | 80-120 | 24-AUG-19 |
| Copper (Cu)-Dissolved | | | 97.3 | | % | | 80-120 | 24-AUG-19 |
| Gallium (Ga)-Dissolved | | | 99.6 | | % | | 80-120 | 24-AUG-19 |
| Iron (Fe)-Dissolved | | | 94.0 | | % | | 80-120 | 24-AUG-19 |
| Lanthanum (La)-Dissolved | | | 100.4 | | % | | 80-120 | 24-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4767939** | | | | | | | | |
| **WG3138541-2 LCS** | | | | | | | | |
| Lead (Pb)-Dissolved | | | 99.1 | | % | | 80-120 | 24-AUG-19 |
| Lithium (Li)-Dissolved | | | 93.8 | | % | | 80-120 | 24-AUG-19 |
| Magnesium (Mg)-Dissolved | | | 95.6 | | % | | 80-120 | 24-AUG-19 |
| Manganese (Mn)-Dissolved | | | 96.6 | | % | | 80-120 | 24-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 101.2 | | % | | 80-120 | 24-AUG-19 |
| Nickel (Ni)-Dissolved | | | 94.6 | | % | | 80-120 | 24-AUG-19 |
| Niobium (Nb)-Dissolved | | | 103.7 | | % | | 80-120 | 24-AUG-19 |
| Phosphorus (P)-Dissolved | | | 100.4 | | % | | 80-120 | 24-AUG-19 |
| Potassium (K)-Dissolved | | | 97.4 | | % | | 80-120 | 24-AUG-19 |
| Rhenium (Re)-Dissolved | | | 99.1 | | % | | 80-120 | 24-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 95.0 | | % | | 80-120 | 24-AUG-19 |
| Selenium (Se)-Dissolved | | | 102.2 | | % | | 80-120 | 24-AUG-19 |
| Silicon (Si)-Dissolved | | | 96.0 | | % | | 80-120 | 24-AUG-19 |
| Silver (Ag)-Dissolved | | | 95.9 | | % | | 80-120 | 24-AUG-19 |
| Sodium (Na)-Dissolved | | | 99.4 | | % | | 80-120 | 24-AUG-19 |
| Strontium (Sr)-Dissolved | | | 105.6 | | % | | 80-120 | 24-AUG-19 |
| Sulfur (S)-Dissolved | | | 92.6 | | % | | 80-120 | 24-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 105.6 | | % | | 80-120 | 24-AUG-19 |
| Tellurium (Te)-Dissolved | | | 101.5 | | % | | 80-120 | 24-AUG-19 |
| Thallium (Tl)-Dissolved | | | 101.4 | | % | | 80-120 | 24-AUG-19 |
| Thorium (Th)-Dissolved | | | 93.1 | | % | | 80-120 | 24-AUG-19 |
| Tin (Sn)-Dissolved | | | 97.6 | | % | | 80-120 | 24-AUG-19 |
| Titanium (Ti)-Dissolved | | | 91.9 | | % | | 80-120 | 24-AUG-19 |
| Tungsten (W)-Dissolved | | | 97.9 | | % | | 80-120 | 24-AUG-19 |
| Uranium (U)-Dissolved | | | 92.1 | | % | | 80-120 | 24-AUG-19 |
| Vanadium (V)-Dissolved | | | 97.6 | | % | | 80-120 | 24-AUG-19 |
| Yttrium (Y)-Dissolved | | | 99.5 | | % | | 80-120 | 24-AUG-19 |
| Zinc (Zn)-Dissolved | | | 96.7 | | % | | 80-120 | 24-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 95.3 | | % | | 80-120 | 24-AUG-19 |
| **WG3138541-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 24-AUG-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-AUG-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-AUG-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4767939** | | | | | | | | |
| **WG3138541-1 MB** | | **NP** | | | | | | |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 24-AUG-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 24-AUG-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 24-AUG-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-AUG-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-AUG-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 24-AUG-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 24-AUG-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 24-AUG-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 24-AUG-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 24-AUG-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-AUG-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-AUG-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 24-AUG-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 24-AUG-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 24-AUG-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 24-AUG-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 24-AUG-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 24-AUG-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-AUG-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 24-AUG-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 24-AUG-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-AUG-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4767939** | | | | | | | | |
| **WG3138541-1 MB** | | **NP** | | | | | | |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-AUG-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 24-AUG-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 24-AUG-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-AUG-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-AUG-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 24-AUG-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 24-AUG-19 |
| **WG3138541-4 MS** | | **L2330132-10** | | | | | | |
| Aluminum (Al)-Dissolved | | | 103.0 | | % | | 70-130 | 24-AUG-19 |
| Antimony (Sb)-Dissolved | | | 96.4 | | % | | 70-130 | 24-AUG-19 |
| Arsenic (As)-Dissolved | | | 100.3 | | % | | 70-130 | 24-AUG-19 |
| Barium (Ba)-Dissolved | | | 103.1 | | % | | 70-130 | 24-AUG-19 |
| Beryllium (Be)-Dissolved | | | 93.5 | | % | | 70-130 | 24-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 99.5 | | % | | 70-130 | 24-AUG-19 |
| Boron (B)-Dissolved | | | 96.1 | | % | | 70-130 | 24-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 103.5 | | % | | 70-130 | 24-AUG-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 24-AUG-19 |
| Cesium (Cs)-Dissolved | | | 101.2 | | % | | 70-130 | 24-AUG-19 |
| Chromium (Cr)-Dissolved | | | 99.3 | | % | | 70-130 | 24-AUG-19 |
| Cobalt (Co)-Dissolved | | | 101.5 | | % | | 70-130 | 24-AUG-19 |
| Copper (Cu)-Dissolved | | | 101.1 | | % | | 70-130 | 24-AUG-19 |
| Gallium (Ga)-Dissolved | | | 108.7 | | % | | 70-130 | 24-AUG-19 |
| Iron (Fe)-Dissolved | | | 103.7 | | % | | 70-130 | 24-AUG-19 |
| Lanthanum (La)-Dissolved | | | 104.5 | | % | | 70-130 | 24-AUG-19 |
| Lead (Pb)-Dissolved | | | 102.9 | | % | | 70-130 | 24-AUG-19 |
| Lithium (Li)-Dissolved | | | 98.6 | | % | | 70-130 | 24-AUG-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 24-AUG-19 |
| Manganese (Mn)-Dissolved | | | 99.98 | | % | | 70-130 | 24-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 97.4 | | % | | 70-130 | 24-AUG-19 |
| Nickel (Ni)-Dissolved | | | 98.9 | | % | | 70-130 | 24-AUG-19 |
| Niobium (Nb)-Dissolved | | | 114.3 | | % | | 70-130 | 24-AUG-19 |
| Phosphorus (P)-Dissolved | | | 102.0 | | % | | 70-130 | 24-AUG-19 |
| Potassium (K)-Dissolved | | | 99.3 | | % | | 70-130 | 24-AUG-19 |
| Rhenium (Re)-Dissolved | | | 104.9 | | % | | 70-130 | 24-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4767939** | | | | | | | | |
| **WG3138541-4 MS** | | **L2330132-10** | | | | | | |
| Rubidium (Rb)-Dissolved | | | 97.6 | | % | | 70-130 | 24-AUG-19 |
| Selenium (Se)-Dissolved | | | 105.4 | | % | | 70-130 | 24-AUG-19 |
| Silicon (Si)-Dissolved | | | 101.2 | | % | | 70-130 | 24-AUG-19 |
| Silver (Ag)-Dissolved | | | 96.9 | | % | | 70-130 | 24-AUG-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 24-AUG-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 24-AUG-19 |
| Sulfur (S)-Dissolved | | | 102.7 | | % | | 70-130 | 24-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 107.9 | | % | | 70-130 | 24-AUG-19 |
| Tellurium (Te)-Dissolved | | | 99.5 | | % | | 70-130 | 24-AUG-19 |
| Thallium (Tl)-Dissolved | | | 97.6 | | % | | 70-130 | 24-AUG-19 |
| Thorium (Th)-Dissolved | | | 100.9 | | % | | 70-130 | 24-AUG-19 |
| Tin (Sn)-Dissolved | | | 96.1 | | % | | 70-130 | 24-AUG-19 |
| Titanium (Ti)-Dissolved | | | 96.5 | | % | | 70-130 | 24-AUG-19 |
| Tungsten (W)-Dissolved | | | 99.0 | | % | | 70-130 | 24-AUG-19 |
| Uranium (U)-Dissolved | | | 94.6 | | % | | 70-130 | 24-AUG-19 |
| Vanadium (V)-Dissolved | | | 100.4 | | % | | 70-130 | 24-AUG-19 |
| Yttrium (Y)-Dissolved | | | 105.5 | | % | | 70-130 | 24-AUG-19 |
| Zinc (Zn)-Dissolved | | | 101.0 | | % | | 70-130 | 24-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 97.1 | | % | | 70-130 | 24-AUG-19 |
| **Batch R4778358** | | | | | | | | |
| **WG3146396-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 99.1 | | % | | 80-120 | 29-AUG-19 |
| Antimony (Sb)-Dissolved | | | 95.8 | | % | | 80-120 | 29-AUG-19 |
| Arsenic (As)-Dissolved | | | 93.7 | | % | | 80-120 | 29-AUG-19 |
| Barium (Ba)-Dissolved | | | 99.9 | | % | | 80-120 | 29-AUG-19 |
| Beryllium (Be)-Dissolved | | | 101.9 | | % | | 80-120 | 29-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 109.3 | | % | | 80-120 | 29-AUG-19 |
| Boron (B)-Dissolved | | | 102.0 | | % | | 80-120 | 29-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 95.5 | | % | | 80-120 | 29-AUG-19 |
| Calcium (Ca)-Dissolved | | | 97.2 | | % | | 80-120 | 29-AUG-19 |
| Cesium (Cs)-Dissolved | | | 98.9 | | % | | 80-120 | 29-AUG-19 |
| Chromium (Cr)-Dissolved | | | 94.5 | | % | | 80-120 | 29-AUG-19 |
| Cobalt (Co)-Dissolved | | | 93.5 | | % | | 80-120 | 29-AUG-19 |
| Copper (Cu)-Dissolved | | | 91.3 | | % | | 80-120 | 29-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3146396-2 LCS** | | | | | | | | |
| Gallium (Ga)-Dissolved | | | 93.2 | | % | | 80-120 | 29-AUG-19 |
| Iron (Fe)-Dissolved | | | 84.1 | | % | | 80-120 | 29-AUG-19 |
| Lanthanum (La)-Dissolved | | | 103.2 | | % | | 80-120 | 29-AUG-19 |
| Lead (Pb)-Dissolved | | | 91.5 | | % | | 80-120 | 29-AUG-19 |
| Lithium (Li)-Dissolved | | | 103.9 | | % | | 80-120 | 29-AUG-19 |
| Magnesium (Mg)-Dissolved | | | 97.1 | | % | | 80-120 | 29-AUG-19 |
| Manganese (Mn)-Dissolved | | | 95.7 | | % | | 80-120 | 29-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 98.1 | | % | | 80-120 | 29-AUG-19 |
| Nickel (Ni)-Dissolved | | | 91.6 | | % | | 80-120 | 29-AUG-19 |
| Niobium (Nb)-Dissolved | | | 94.4 | | % | | 80-120 | 29-AUG-19 |
| Phosphorus (P)-Dissolved | | | 96.4 | | % | | 80-120 | 29-AUG-19 |
| Potassium (K)-Dissolved | | | 94.5 | | % | | 80-120 | 29-AUG-19 |
| Rhenium (Re)-Dissolved | | | 102.4 | | % | | 80-120 | 29-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 95.4 | | % | | 80-120 | 29-AUG-19 |
| Selenium (Se)-Dissolved | | | 98.0 | | % | | 80-120 | 29-AUG-19 |
| Silicon (Si)-Dissolved | | | 95.9 | | % | | 80-120 | 29-AUG-19 |
| Silver (Ag)-Dissolved | | | 94.4 | | % | | 80-120 | 29-AUG-19 |
| Sodium (Na)-Dissolved | | | 97.9 | | % | | 80-120 | 29-AUG-19 |
| Strontium (Sr)-Dissolved | | | 94.3 | | % | | 80-120 | 29-AUG-19 |
| Sulfur (S)-Dissolved | | | 93.2 | | % | | 80-120 | 29-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 95.6 | | % | | 80-120 | 29-AUG-19 |
| Tellurium (Te)-Dissolved | | | 97.9 | | % | | 80-120 | 29-AUG-19 |
| Thallium (Tl)-Dissolved | | | 93.9 | | % | | 80-120 | 29-AUG-19 |
| Thorium (Th)-Dissolved | | | 94.6 | | % | | 80-120 | 29-AUG-19 |
| Tin (Sn)-Dissolved | | | 93.3 | | % | | 80-120 | 29-AUG-19 |
| Titanium (Ti)-Dissolved | | | 94.7 | | % | | 80-120 | 29-AUG-19 |
| Tungsten (W)-Dissolved | | | 97.9 | | % | | 80-120 | 29-AUG-19 |
| Uranium (U)-Dissolved | | | 94.4 | | % | | 80-120 | 29-AUG-19 |
| Vanadium (V)-Dissolved | | | 95.3 | | % | | 80-120 | 29-AUG-19 |
| Yttrium (Y)-Dissolved | | | 99.1 | | % | | 80-120 | 29-AUG-19 |
| Zinc (Zn)-Dissolved | | | 94.7 | | % | | 80-120 | 29-AUG-19 |
| Zirconium (Zr)-Dissolved | | | 93.0 | | % | | 80-120 | 29-AUG-19 |
| **WG3146396-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 29-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3146396-1 MB** | | **NP** | | | | | | |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 29-AUG-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 29-AUG-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 29-AUG-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 29-AUG-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 29-AUG-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 29-AUG-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 29-AUG-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 29-AUG-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 29-AUG-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 29-AUG-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 29-AUG-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 29-AUG-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 29-AUG-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 29-AUG-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 29-AUG-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 29-AUG-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3146396-1 MB** | | **NP** | | | | | | |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Titanium (Ti)-Dissolved | | | 0.000058 | B | mg/L | | 0.00005 | 29-AUG-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 29-AUG-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 29-AUG-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 29-AUG-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 29-AUG-19 |
| **Batch R4782166** | | | | | | | | |
| **WG3146493-3 DUP** | | **L2330132-11** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0014 | 0.0017 | | mg/L | 20 | 20 | 30-SEP-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Arsenic (As)-Dissolved | | 0.000235 | 0.000217 | | mg/L | 7.6 | 20 | 30-SEP-19 |
| Barium (Ba)-Dissolved | | 0.00695 | 0.00745 | | mg/L | 7.0 | 20 | 30-SEP-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Boron (B)-Dissolved | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Calcium (Ca)-Dissolved | | 6.55 | 6.93 | | mg/L | 5.6 | 20 | 30-SEP-19 |
| Cesium (Cs)-Dissolved | | 0.0000085 | 0.0000079 | | mg/L | 7.9 | 20 | 30-SEP-19 |
| Chromium (Cr)-Dissolved | | 0.00048 | 0.00049 | | mg/L | 2.1 | 20 | 30-SEP-19 |
| Cobalt (Co)-Dissolved | | 0.0000063 | 0.0000068 | | mg/L | 8.1 | 20 | 30-SEP-19 |
| Copper (Cu)-Dissolved | | 0.000683 | 0.000691 | | mg/L | 1.2 | 20 | 30-SEP-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Iron (Fe)-Dissolved | | 0.0040 | 0.0041 | | mg/L | 2.2 | 20 | 30-SEP-19 |
| Lanthanum (La)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Lead (Pb)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Lithium (Li)-Dissolved | | 0.00061 | 0.00065 | | mg/L | 6.1 | 20 | 30-SEP-19 |
| Magnesium (Mg)-Dissolved | | 1.12 | 1.14 | | mg/L | 2.0 | 20 | 30-SEP-19 |
| Manganese (Mn)-Dissolved | | 0.000490 | 0.000481 | | mg/L | 1.8 | 20 | 30-SEP-19 |
| Molybdenum (Mo)-Dissolved | | 0.000149 | 0.000143 | | mg/L | 4.3 | 20 | 30-SEP-19 |
| Nickel (Ni)-Dissolved | | 0.000385 | 0.000365 | | mg/L | 5.4 | 20 | 30-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3146493-3 DUP** | | **L2330132-11** | | | | | | |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Potassium (K)-Dissolved | | 0.910 | 0.942 | | mg/L | 3.5 | 20 | 30-SEP-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Rubidium (Rb)-Dissolved | | 0.00135 | 0.00137 | | mg/L | 2.0 | 20 | 30-SEP-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Silicon (Si)-Dissolved | | 0.109 | 0.098 | | mg/L | 11 | 20 | 30-SEP-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Sodium (Na)-Dissolved | | 4.51 | 4.64 | | mg/L | 2.9 | 20 | 30-SEP-19 |
| Strontium (Sr)-Dissolved | | 0.0367 | 0.0354 | | mg/L | 3.7 | 20 | 30-SEP-19 |
| Sulfur (S)-Dissolved | | 1.08 | 1.09 | | mg/L | 1.0 | 20 | 30-SEP-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Tin (Sn)-Dissolved | | 0.000024 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Uranium (U)-Dissolved | | 0.0000142 | 0.0000130 | | mg/L | 9.1 | 20 | 30-SEP-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Yttrium (Y)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Zinc (Zn)-Dissolved | | 0.00057 | 0.00051 | | mg/L | 11 | 20 | 30-SEP-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| **WG3146493-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 100.8 | | % | | 80-120 | 30-AUG-19 |
| Antimony (Sb)-Dissolved | | | 95.4 | | % | | 80-120 | 30-AUG-19 |
| Arsenic (As)-Dissolved | | | 100.3 | | % | | 80-120 | 30-AUG-19 |
| Barium (Ba)-Dissolved | | | 98.8 | | % | | 80-120 | 30-AUG-19 |
| Beryllium (Be)-Dissolved | | | 102.0 | | % | | 80-120 | 30-AUG-19 |
| Bismuth (Bi)-Dissolved | | | 106.2 | | % | | 80-120 | 30-AUG-19 |
| Boron (B)-Dissolved | | | 100.4 | | % | | 80-120 | 30-AUG-19 |
| Cadmium (Cd)-Dissolved | | | 97.6 | | % | | 80-120 | 30-AUG-19 |
| Calcium (Ca)-Dissolved | | | 99.5 | | % | | 80-120 | 30-AUG-19 |
| Cesium (Cs)-Dissolved | | | 91.2 | | % | | 80-120 | 30-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch** | **R4782166** | | | | | | | |
| **WG3146493-2** | **LCS** | | | | | | | |
| Chromium (Cr)-Dissolved | | | 100.6 | | % | | 80-120 | 30-AUG-19 |
| Cobalt (Co)-Dissolved | | | 97.8 | | % | | 80-120 | 30-AUG-19 |
| Copper (Cu)-Dissolved | | | 97.1 | | % | | 80-120 | 30-AUG-19 |
| Gallium (Ga)-Dissolved | | | 99.2 | | % | | 80-120 | 30-AUG-19 |
| Iron (Fe)-Dissolved | | | 94.8 | | % | | 80-120 | 30-AUG-19 |
| Lanthanum (La)-Dissolved | | | 96.4 | | % | | 80-120 | 30-AUG-19 |
| Lead (Pb)-Dissolved | | | 106.5 | | % | | 80-120 | 30-AUG-19 |
| Lithium (Li)-Dissolved | | | 99.99 | | % | | 80-120 | 30-AUG-19 |
| Magnesium (Mg)-Dissolved | | | 99.5 | | % | | 80-120 | 30-AUG-19 |
| Manganese (Mn)-Dissolved | | | 101.6 | | % | | 80-120 | 30-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | 93.5 | | % | | 80-120 | 30-AUG-19 |
| Nickel (Ni)-Dissolved | | | 98.2 | | % | | 80-120 | 30-AUG-19 |
| Niobium (Nb)-Dissolved | | | 96.0 | | % | | 80-120 | 30-AUG-19 |
| Phosphorus (P)-Dissolved | | | 100.2 | | % | | 80-120 | 30-AUG-19 |
| Potassium (K)-Dissolved | | | 100.4 | | % | | 80-120 | 30-AUG-19 |
| Rhenium (Re)-Dissolved | | | 96.9 | | % | | 80-120 | 30-AUG-19 |
| Rubidium (Rb)-Dissolved | | | 101.4 | | % | | 80-120 | 30-AUG-19 |
| Selenium (Se)-Dissolved | | | 101.7 | | % | | 80-120 | 30-AUG-19 |
| Silicon (Si)-Dissolved | | | 111.3 | | % | | 80-120 | 30-AUG-19 |
| Silver (Ag)-Dissolved | | | 92.8 | | % | | 80-120 | 30-AUG-19 |
| Sodium (Na)-Dissolved | | | 99.2 | | % | | 80-120 | 30-AUG-19 |
| Strontium (Sr)-Dissolved | | | 108.3 | | % | | 80-120 | 30-AUG-19 |
| Sulfur (S)-Dissolved | | | 99.5 | | % | | 80-120 | 30-AUG-19 |
| Tantalum (Ta)-Dissolved | | | 96.9 | | % | | 80-120 | 30-AUG-19 |
| Tellurium (Te)-Dissolved | | | 93.8 | | % | | 80-120 | 30-AUG-19 |
| Thallium (Tl)-Dissolved | | | 104.3 | | % | | 80-120 | 30-AUG-19 |
| Thorium (Th)-Dissolved | | | 99.4 | | % | | 80-120 | 30-AUG-19 |
| Tin (Sn)-Dissolved | | | 94.4 | | % | | 80-120 | 30-AUG-19 |
| Titanium (Ti)-Dissolved | | | 97.0 | | % | | 80-120 | 30-AUG-19 |
| Tungsten (W)-Dissolved | | | 99.7 | | % | | 80-120 | 30-AUG-19 |
| Uranium (U)-Dissolved | | | 97.9 | | % | | 80-120 | 30-AUG-19 |
| Vanadium (V)-Dissolved | | | 101.8 | | % | | 80-120 | 30-AUG-19 |
| Yttrium (Y)-Dissolved | | | 101.6 | | % | | 80-120 | 30-AUG-19 |
| Zinc (Zn)-Dissolved | | | 99.2 | | % | | 80-120 | 30-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3146493-2 LCS** | | | | | | | | |
| Zirconium (Zr)-Dissolved | | | 91.2 | | % | | 80-120 | 30-AUG-19 |
| **WG3146493-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 30-AUG-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 30-AUG-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 30-AUG-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 30-AUG-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 30-AUG-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 30-AUG-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 30-AUG-19 |
| Potassium (K)-Dissolved | | | 0.020 | B | mg/L | | 0.02 | 30-AUG-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 30-AUG-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 30-AUG-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Sodium (Na)-Dissolved | | | 0.023 | B | mg/L | | 0.02 | 30-AUG-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3146493-1 MB** | | **NP** | | | | | | |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 30-AUG-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Thallium (Tl)-Dissolved | | | <0.000005( | | mg/L | | 0.000005 | 30-AUG-19 |
| Thorium (Th)-Dissolved | | | 0.0000064 | B | mg/L | | 0.000005 | 30-AUG-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Uranium (U)-Dissolved | | | <0.000001( | | mg/L | | 0.000001 | 30-AUG-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Yttrium (Y)-Dissolved | | | <0.000005( | | mg/L | | 0.000005 | 30-AUG-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 30-AUG-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| **WG3146493-4 MS** | | **L2330132-12** | | | | | | |
| Aluminum (Al)-Dissolved | | | 101.9 | | % | | 70-130 | 30-SEP-19 |
| Antimony (Sb)-Dissolved | | | 101.1 | | % | | 70-130 | 30-SEP-19 |
| Arsenic (As)-Dissolved | | | 98.1 | | % | | 70-130 | 30-SEP-19 |
| Barium (Ba)-Dissolved | | | 98.9 | | % | | 70-130 | 30-SEP-19 |
| Beryllium (Be)-Dissolved | | | 101.4 | | % | | 70-130 | 30-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 107.2 | | % | | 70-130 | 30-SEP-19 |
| Boron (B)-Dissolved | | | 102.6 | | % | | 70-130 | 30-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 101.7 | | % | | 70-130 | 30-SEP-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 30-SEP-19 |
| Cesium (Cs)-Dissolved | | | 105.0 | | % | | 70-130 | 30-SEP-19 |
| Chromium (Cr)-Dissolved | | | 99.6 | | % | | 70-130 | 30-SEP-19 |
| Cobalt (Co)-Dissolved | | | 99.4 | | % | | 70-130 | 30-SEP-19 |
| Copper (Cu)-Dissolved | | | 98.0 | | % | | 70-130 | 30-SEP-19 |
| Gallium (Ga)-Dissolved | | | 91.6 | | % | | 70-130 | 30-SEP-19 |
| Iron (Fe)-Dissolved | | | 97.0 | | % | | 70-130 | 30-SEP-19 |
| Lanthanum (La)-Dissolved | | | 93.7 | | % | | 70-130 | 30-SEP-19 |
| Lead (Pb)-Dissolved | | | 108.4 | | % | | 70-130 | 30-SEP-19 |
| Lithium (Li)-Dissolved | | | 105.3 | | % | | 70-130 | 30-SEP-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 30-SEP-19 |
| Manganese (Mn)-Dissolved | | | 101.0 | | % | | 70-130 | 30-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch** | **R4782166** | | | | | | | |
| **WG3146493-4** | **MS** | **L2330132-12** | | | | | | |
| Molybdenum (Mo)-Dissolved | | | 103.1 | | % | | 70-130 | 30-SEP-19 |
| Nickel (Ni)-Dissolved | | | 98.6 | | % | | 70-130 | 30-SEP-19 |
| Niobium (Nb)-Dissolved | | | 98.1 | | % | | 70-130 | 30-SEP-19 |
| Phosphorus (P)-Dissolved | | | 102.4 | | % | | 70-130 | 30-SEP-19 |
| Potassium (K)-Dissolved | | | 97.2 | | % | | 70-130 | 30-SEP-19 |
| Rhenium (Re)-Dissolved | | | 94.0 | | % | | 70-130 | 30-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 99.3 | | % | | 70-130 | 30-SEP-19 |
| Selenium (Se)-Dissolved | | | 104.1 | | % | | 70-130 | 30-SEP-19 |
| Silicon (Si)-Dissolved | | | 100.9 | | % | | 70-130 | 30-SEP-19 |
| Silver (Ag)-Dissolved | | | 106.4 | | % | | 70-130 | 30-SEP-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 30-SEP-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 30-SEP-19 |
| Sulfur (S)-Dissolved | | | 103.7 | | % | | 70-130 | 30-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 96.0 | | % | | 70-130 | 30-SEP-19 |
| Tellurium (Te)-Dissolved | | | 103.9 | | % | | 70-130 | 30-SEP-19 |
| Thallium (Tl)-Dissolved | | | 102.3 | | % | | 70-130 | 30-SEP-19 |
| Thorium (Th)-Dissolved | | | 108.5 | | % | | 70-130 | 30-SEP-19 |
| Titanium (Ti)-Dissolved | | | 97.6 | | % | | 70-130 | 30-SEP-19 |
| Tungsten (W)-Dissolved | | | 101.7 | | % | | 70-130 | 30-SEP-19 |
| Uranium (U)-Dissolved | | | 104.1 | | % | | 70-130 | 30-SEP-19 |
| Vanadium (V)-Dissolved | | | 99.9 | | % | | 70-130 | 30-SEP-19 |
| Yttrium (Y)-Dissolved | | | 102.6 | | % | | 70-130 | 30-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 106.8 | | % | | 70-130 | 30-SEP-19 |
| **Batch** | **R4782843** | | | | | | | |
| **WG3150922-3** | **DUP** | **L2330132-12** | | | | | | |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | 0.000214 | 0.000201 | | mg/L | 3.5 | 20 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | 0.00722 | 0.00739 | | mg/L | 0.0 | 20 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Boron (B)-Dissolved | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | 6.70 | 6.70 | | mg/L | 1.1 | 20 | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | 0.0000085 | 0.0000090 | | mg/L | 12 | 20 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150922-3 DUP** | | **L2330132-12** | | | | | | |
| Chromium (Cr)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | 0.000677 | 0.000702 | | mg/L | 0.0 | 20 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | 0.0063 | 0.0075 | | mg/L | 5.1 | 20 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | 0.000015 | 0.000018 | | mg/L | 0.8 | 20 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | 0.00062 | 0.00060 | | mg/L | 0.4 | 20 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | 1.11 | 1.11 | | mg/L | 0.8 | 20 | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | 0.000627 | 0.000666 | | mg/L | 5.3 | 20 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | 0.000081 | 0.000082 | | mg/L | 4.2 | 20 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | 0.000373 | 0.000365 | | mg/L | 4.6 | 20 | 04-SEP-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Potassium (K)-Dissolved | | 0.896 | 0.898 | | mg/L | 1.3 | 20 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | 0.00131 | 0.00134 | | mg/L | 3.1 | 20 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | 0.109 | 0.101 | | mg/L | 9.1 | 20 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | 4.34 | 4.29 | | mg/L | 2.5 | 20 | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | 0.0366 | 0.0329 | | mg/L | 3.6 | 20 | 04-SEP-19 |
| Sulfur (S)-Dissolved | | 1.19 | 1.30 | | mg/L | 8.8 | 20 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | 0.000080 | 0.000091 | | mg/L | 12 | 20 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Uranium (U)-Dissolved | | 0.0000129 | 0.0000147 | | mg/L | 6.1 | 20 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | 0.0000065 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | 0.00276 | 0.00286 | | mg/L | 3.5 | 20 | 04-SEP-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| **WG3150922-2 LCS** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150922-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 95.6 | | % | | 80-120 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | | 94.2 | | % | | 80-120 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | | 96.7 | | % | | 80-120 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | | 99.0 | | % | | 80-120 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | | 91.4 | | % | | 80-120 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 102.1 | | % | | 80-120 | 04-SEP-19 |
| Boron (B)-Dissolved | | | 96.4 | | % | | 80-120 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 97.7 | | % | | 80-120 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | | 97.5 | | % | | 80-120 | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | | 100.9 | | % | | 80-120 | 04-SEP-19 |
| Chromium (Cr)-Dissolved | | | 95.2 | | % | | 80-120 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | | 95.5 | | % | | 80-120 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | | 92.9 | | % | | 80-120 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | | 91.2 | | % | | 80-120 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | | 94.4 | | % | | 80-120 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | | 99.4 | | % | | 80-120 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | | 103.0 | | % | | 80-120 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | | 94.2 | | % | | 80-120 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | | 93.2 | | % | | 80-120 | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | | 94.3 | | % | | 80-120 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 96.2 | | % | | 80-120 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | | 93.3 | | % | | 80-120 | 04-SEP-19 |
| Niobium (Nb)-Dissolved | | | 97.7 | | % | | 80-120 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | | 99.6 | | % | | 80-120 | 04-SEP-19 |
| Potassium (K)-Dissolved | | | 95.8 | | % | | 80-120 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | | 99.5 | | % | | 80-120 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 96.9 | | % | | 80-120 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | | 106.7 | | % | | 80-120 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | | 105.3 | | % | | 80-120 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | | 96.2 | | % | | 80-120 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | | 95.8 | | % | | 80-120 | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | | 98.1 | | % | | 80-120 | 04-SEP-19 |
| Sulfur (S)-Dissolved | | | 105.0 | | % | | 80-120 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 99.98 | | % | | 80-120 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150922-2 LCS** | | | | | | | | |
| Tellurium (Te)-Dissolved | | | 99.4 | | % | | 80-120 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | | 102.0 | | % | | 80-120 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | | 101.0 | | % | | 80-120 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | | 96.8 | | % | | 80-120 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | | 90.7 | | % | | 80-120 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | | 104.4 | | % | | 80-120 | 04-SEP-19 |
| Uranium (U)-Dissolved | | | 100.8 | | % | | 80-120 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | | 96.5 | | % | | 80-120 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | | 102.7 | | % | | 80-120 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | | 93.7 | | % | | 80-120 | 04-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 95.4 | | % | | 80-120 | 04-SEP-19 |
| **WG3150922-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150922-1 MB** | | **NP** | | | | | | |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| **WG3150922-4 MS** | | **L2330132-13** | | | | | | |
| Aluminum (Al)-Dissolved | | | 98.6 | | % | | 70-130 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | | 99.4 | | % | | 70-130 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | | 97.4 | | % | | 70-130 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | | 93.0 | | % | | 70-130 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | | 90.7 | | % | | 70-130 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 101.0 | | % | | 70-130 | 04-SEP-19 |
| Boron (B)-Dissolved | | | 96.2 | | % | | 70-130 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 100.0 | | % | | 70-130 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | | 103.5 | | % | | 70-130 | 04-SEP-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch** **R4782843** | | | | | | | | |
| **WG3150922-4** **MS** | | **L2330132-13** | | | | | | |
| Chromium (Cr)-Dissolved | | | 98.6 | | % | | 70-130 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | | 100.3 | | % | | 70-130 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | | 97.7 | | % | | 70-130 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | | 89.1 | | % | | 70-130 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | | 99.4 | | % | | 70-130 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | | 96.6 | | % | | 70-130 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | | 104.8 | | % | | 70-130 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | | 95.2 | | % | | 70-130 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | | 99.0 | | % | | 70-130 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 96.7 | | % | | 70-130 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | | 99.0 | | % | | 70-130 | 04-SEP-19 |
| Niobium (Nb)-Dissolved | | | 100.1 | | % | | 70-130 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | | 98.7 | | % | | 70-130 | 04-SEP-19 |
| Potassium (K)-Dissolved | | | 98.5 | | % | | 70-130 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | | 99.3 | | % | | 70-130 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 98.6 | | % | | 70-130 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | | 106.6 | | % | | 70-130 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | | 99.7 | | % | | 70-130 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | | 97.4 | | % | | 70-130 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Sulfur (S)-Dissolved | | | 101.3 | | % | | 70-130 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 98.8 | | % | | 70-130 | 04-SEP-19 |
| Tellurium (Te)-Dissolved | | | 100.5 | | % | | 70-130 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | | 97.8 | | % | | 70-130 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | | 104.2 | | % | | 70-130 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | | 98.1 | | % | | 70-130 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | | 97.2 | | % | | 70-130 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | | 104.6 | | % | | 70-130 | 04-SEP-19 |
| Uranium (U)-Dissolved | | | 101.8 | | % | | 70-130 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | | 99.3 | | % | | 70-130 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | | 105.5 | | % | | 70-130 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | | 97.5 | | % | | 70-130 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150922-4 MS** | | **L2330132-13** | | | | | | |
| Zirconium (Zr)-Dissolved | | | 97.4 | | % | | 70-130 | 04-SEP-19 |
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3138539-3 DUP** | | **L2330132-9** | | | | | | |
| Aluminum (Al)-Total | | 0.0033 | 0.0040 | | mg/L | 18 | 20 | 29-AUG-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Arsenic (As)-Total | | 0.000269 | 0.000277 | | mg/L | 3.3 | 20 | 29-AUG-19 |
| Barium (Ba)-Total | | 0.00797 | 0.00776 | | mg/L | 2.7 | 20 | 29-AUG-19 |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Boron (B)-Total | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Calcium (Ca)-Total | | 6.94 | 6.87 | | mg/L | 0.9 | 20 | 29-AUG-19 |
| Cesium (Cs)-Total | | 0.0000066 | 0.0000076 | | mg/L | 13 | 20 | 29-AUG-19 |
| Chromium (Cr)-Total | | 0.00051 | 0.00052 | | mg/L | 0.6 | 20 | 29-AUG-19 |
| Cobalt (Co)-Total | | 0.0000118 | 0.0000142 | | mg/L | 19 | 20 | 29-AUG-19 |
| Copper (Cu)-Total | | 0.000665 | 0.000684 | | mg/L | 2.7 | 20 | 29-AUG-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Iron (Fe)-Total | | 0.0134 | 0.0131 | | mg/L | 1.8 | 20 | 29-AUG-19 |
| Lanthanum (La)-Total | | 0.000021 | 0.000020 | | mg/L | 7.2 | 20 | 29-AUG-19 |
| Lead (Pb)-Total | | 0.000012 | 0.000012 | | mg/L | 4.3 | 20 | 29-AUG-19 |
| Lithium (Li)-Total | | 0.00082 | 0.00081 | | mg/L | 1.0 | 20 | 29-AUG-19 |
| Magnesium (Mg)-Total | | 1.17 | 1.18 | | mg/L | 0.6 | 20 | 29-AUG-19 |
| Manganese (Mn)-Total | | 0.00339 | 0.00337 | | mg/L | 0.8 | 20 | 29-AUG-19 |
| Molybdenum (Mo)-Total | | 0.000065 | 0.000068 | | mg/L | 3.7 | 20 | 29-AUG-19 |
| Nickel (Ni)-Total | | 0.000486 | 0.000517 | | mg/L | 6.1 | 20 | 29-AUG-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Potassium (K)-Total | | 0.914 | 0.914 | | mg/L | 0.0 | 20 | 29-AUG-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Rubidium (Rb)-Total | | 0.00135 | 0.00138 | | mg/L | 2.0 | 20 | 29-AUG-19 |
| Selenium (Se)-Total | | 0.000047 | 0.000041 | | mg/L | 13 | 20 | 29-AUG-19 |
| Silicon (Si)-Total | | 0.164 | 0.161 | | mg/L | 1.7 | 20 | 29-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3138539-3 DUP** | | **L2330132-9** | | | | | | |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Sodium (Na)-Total | | 6.22 | 6.38 | | mg/L | 2.5 | 20 | 29-AUG-19 |
| Strontium (Sr)-Total | | 0.0414 | 0.0412 | | mg/L | 0.7 | 20 | 29-AUG-19 |
| Sulfur (S)-Total | | 1.69 | 1.43 | | mg/L | 17 | 20 | 29-AUG-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Thorium (Th)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Tin (Sn)-Total | | 0.000022 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Titanium (Ti)-Total | | 0.000082 | 0.000109 | J | mg/L | 0.000026 | 0.0001 | 29-AUG-19 |
| Tungsten (W)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Uranium (U)-Total | | 0.0000148 | 0.0000161 | | mg/L | 8.0 | 20 | 29-AUG-19 |
| Vanadium (V)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| Yttrium (Y)-Total | | 0.0000061 | 0.0000056 | | mg/L | 8.9 | 20 | 29-AUG-19 |
| Zinc (Zn)-Total | | 0.00054 | 0.00052 | | mg/L | 3.1 | 20 | 29-AUG-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| **WG3138539-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 99.8 | | % | | 80-120 | 29-AUG-19 |
| Antimony (Sb)-Total | | | 98.8 | | % | | 80-120 | 29-AUG-19 |
| Arsenic (As)-Total | | | 99.4 | | % | | 80-120 | 29-AUG-19 |
| Barium (Ba)-Total | | | 103.4 | | % | | 80-120 | 29-AUG-19 |
| Beryllium (Be)-Total | | | 102.9 | | % | | 80-120 | 29-AUG-19 |
| Bismuth (Bi)-Total | | | 128.9 | MES | % | | 80-120 | 29-AUG-19 |
| Boron (B)-Total | | | 101.9 | | % | | 80-120 | 29-AUG-19 |
| Cadmium (Cd)-Total | | | 99.6 | | % | | 80-120 | 29-AUG-19 |
| Calcium (Ca)-Total | | | 100.6 | | % | | 80-120 | 29-AUG-19 |
| Cesium (Cs)-Total | | | 99.0 | | % | | 80-120 | 29-AUG-19 |
| Chromium (Cr)-Total | | | 98.3 | | % | | 80-120 | 29-AUG-19 |
| Cobalt (Co)-Total | | | 97.4 | | % | | 80-120 | 29-AUG-19 |
| Copper (Cu)-Total | | | 93.8 | | % | | 80-120 | 29-AUG-19 |
| Gallium (Ga)-Total | | | 102.2 | | % | | 80-120 | 29-AUG-19 |
| Iron (Fe)-Total | | | 82.4 | | % | | 80-120 | 29-AUG-19 |
| Lanthanum (La)-Total | | | 104.1 | | % | | 80-120 | 29-AUG-19 |
| Lead (Pb)-Total | | | 96.9 | | % | | 80-120 | 29-AUG-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3138539-2 LCS** | | | | | | | | |
| Lithium (Li)-Total | | | 104.5 | | % | | 80-120 | 29-AUG-19 |
| Magnesium (Mg)-Total | | | 96.5 | | % | | 80-120 | 29-AUG-19 |
| Manganese (Mn)-Total | | | 98.6 | | % | | 80-120 | 29-AUG-19 |
| Molybdenum (Mo)-Total | | | 103.9 | | % | | 80-120 | 29-AUG-19 |
| Nickel (Ni)-Total | | | 95.5 | | % | | 80-120 | 29-AUG-19 |
| Niobium (Nb)-Total | | | 97.1 | | % | | 80-120 | 29-AUG-19 |
| Phosphorus (P)-Total | | | 100.6 | | % | | 80-120 | 29-AUG-19 |
| Potassium (K)-Total | | | 97.5 | | % | | 80-120 | 29-AUG-19 |
| Rhenium (Re)-Total | | | 102.7 | | % | | 80-120 | 29-AUG-19 |
| Rubidium (Rb)-Total | | | 99.1 | | % | | 80-120 | 29-AUG-19 |
| Selenium (Se)-Total | | | 103.1 | | % | | 80-120 | 29-AUG-19 |
| Silicon (Si)-Total | | | 106.6 | | % | | 80-120 | 29-AUG-19 |
| Silver (Ag)-Total | | | 94.5 | | % | | 80-120 | 29-AUG-19 |
| Sodium (Na)-Total | | | 104.7 | | % | | 80-120 | 29-AUG-19 |
| Strontium (Sr)-Total | | | 96.4 | | % | | 80-120 | 29-AUG-19 |
| Sulfur (S)-Total | | | 109.4 | | % | | 80-120 | 29-AUG-19 |
| Tantalum (Ta)-Total | | | 96.0 | | % | | 80-120 | 29-AUG-19 |
| Tellurium (Te)-Total | | | 101.9 | | % | | 80-120 | 29-AUG-19 |
| Thallium (Tl)-Total | | | 98.9 | | % | | 80-120 | 29-AUG-19 |
| Thorium (Th)-Total | | | 96.8 | | % | | 80-120 | 29-AUG-19 |
| Tin (Sn)-Total | | | 99.6 | | % | | 80-120 | 29-AUG-19 |
| Titanium (Ti)-Total | | | 95.9 | | % | | 80-120 | 29-AUG-19 |
| Tungsten (W)-Total | | | 102.5 | | % | | 80-120 | 29-AUG-19 |
| Uranium (U)-Total | | | 99.2 | | % | | 80-120 | 29-AUG-19 |
| Vanadium (V)-Total | | | 98.7 | | % | | 80-120 | 29-AUG-19 |
| Yttrium (Y)-Total | | | 102.8 | | % | | 80-120 | 29-AUG-19 |
| Zinc (Zn)-Total | | | 96.1 | | % | | 80-120 | 29-AUG-19 |
| Zirconium (Zr)-Total | | | 98.2 | | % | | 80-120 | 29-AUG-19 |
| **WG3138539-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 29-AUG-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Beryllium (Be)-Total | | | <0.000005( | | mg/L | | 0.000005 | 29-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3138539-1 MB** | | **NP** | | | | | | |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 29-AUG-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 29-AUG-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-AUG-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 29-AUG-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-AUG-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-AUG-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-AUG-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 29-AUG-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-AUG-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 29-AUG-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 29-AUG-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 29-AUG-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 29-AUG-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 29-AUG-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 29-AUG-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-AUG-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 29-AUG-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 29-AUG-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3138539-1 MB** | | **NP** | | | | | | |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-AUG-19 |
| Uranium (U)-Total | | | <0.0000010 | | mg/L | | 0.000001 | 29-AUG-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-AUG-19 |
| Yttrium (Y)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 29-AUG-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-AUG-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-AUG-19 |
| **WG3138539-4 MS** | | **L2330132-10** | | | | | | |
| Aluminum (Al)-Total | | | 96.6 | | % | | 70-130 | 29-AUG-19 |
| Antimony (Sb)-Total | | | 99.7 | | % | | 70-130 | 29-AUG-19 |
| Arsenic (As)-Total | | | 97.3 | | % | | 70-130 | 29-AUG-19 |
| Barium (Ba)-Total | | | 99.6 | | % | | 70-130 | 29-AUG-19 |
| Beryllium (Be)-Total | | | 99.0 | | % | | 70-130 | 29-AUG-19 |
| Bismuth (Bi)-Total | | | 91.4 | | % | | 70-130 | 29-AUG-19 |
| Boron (B)-Total | | | 95.7 | | % | | 70-130 | 29-AUG-19 |
| Cadmium (Cd)-Total | | | 100.9 | | % | | 70-130 | 29-AUG-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 29-AUG-19 |
| Cesium (Cs)-Total | | | 98.6 | | % | | 70-130 | 29-AUG-19 |
| Chromium (Cr)-Total | | | 96.9 | | % | | 70-130 | 29-AUG-19 |
| Cobalt (Co)-Total | | | 98.7 | | % | | 70-130 | 29-AUG-19 |
| Copper (Cu)-Total | | | 94.8 | | % | | 70-130 | 29-AUG-19 |
| Gallium (Ga)-Total | | | 104.6 | | % | | 70-130 | 29-AUG-19 |
| Iron (Fe)-Total | | | 99.7 | | % | | 70-130 | 29-AUG-19 |
| Lanthanum (La)-Total | | | 102.8 | | % | | 70-130 | 29-AUG-19 |
| Lead (Pb)-Total | | | 94.2 | | % | | 70-130 | 29-AUG-19 |
| Lithium (Li)-Total | | | 105.7 | | % | | 70-130 | 29-AUG-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 29-AUG-19 |
| Manganese (Mn)-Total | | | 96.0 | | % | | 70-130 | 29-AUG-19 |
| Molybdenum (Mo)-Total | | | 97.6 | | % | | 70-130 | 29-AUG-19 |
| Nickel (Ni)-Total | | | 95.6 | | % | | 70-130 | 29-AUG-19 |
| Niobium (Nb)-Total | | | 102.1 | | % | | 70-130 | 29-AUG-19 |
| Phosphorus (P)-Total | | | 95.5 | | % | | 70-130 | 29-AUG-19 |
| Potassium (K)-Total | | | 94.8 | | % | | 70-130 | 29-AUG-19 |
| Rhenium (Re)-Total | | | 103.4 | | % | | 70-130 | 29-AUG-19 |
| Rubidium (Rb)-Total | | | 95.7 | | % | | 70-130 | 29-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4778358** | | | | | | | | |
| **WG3138539-4 MS** | | **L2330132-10** | | | | | | |
| Selenium (Se)-Total | | | 110.1 | | % | | 70-130 | 29-AUG-19 |
| Silicon (Si)-Total | | | 94.4 | | % | | 70-130 | 29-AUG-19 |
| Silver (Ag)-Total | | | 97.6 | | % | | 70-130 | 29-AUG-19 |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 29-AUG-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 29-AUG-19 |
| Sulfur (S)-Total | | | 99.97 | | % | | 70-130 | 29-AUG-19 |
| Tantalum (Ta)-Total | | | 101.8 | | % | | 70-130 | 29-AUG-19 |
| Tellurium (Te)-Total | | | 104.1 | | % | | 70-130 | 29-AUG-19 |
| Thallium (Tl)-Total | | | 95.6 | | % | | 70-130 | 29-AUG-19 |
| Thorium (Th)-Total | | | 122.6 | | % | | 70-130 | 29-AUG-19 |
| Tin (Sn)-Total | | | 97.2 | | % | | 70-130 | 29-AUG-19 |
| Titanium (Ti)-Total | | | 96.3 | | % | | 70-130 | 29-AUG-19 |
| Tungsten (W)-Total | | | 99.8 | | % | | 70-130 | 29-AUG-19 |
| Uranium (U)-Total | | | 98.1 | | % | | 70-130 | 29-AUG-19 |
| Vanadium (V)-Total | | | 96.5 | | % | | 70-130 | 29-AUG-19 |
| Yttrium (Y)-Total | | | 100.1 | | % | | 70-130 | 29-AUG-19 |
| Zinc (Zn)-Total | | | 100.4 | | % | | 70-130 | 29-AUG-19 |
| Zirconium (Zr)-Total | | | 115.2 | | % | | 70-130 | 29-AUG-19 |
| **Batch R4782166** | | | | | | | | |
| **WG3146509-3 DUP** | | **L2330132-19** | | | | | | |
| Aluminum (Al)-Total | | 0.0037 | 0.0029 | J | mg/L | 0.0009 | 0.002 | 30-SEP-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Arsenic (As)-Total | | 0.000218 | 0.000229 | | mg/L | 4.6 | 20 | 30-SEP-19 |
| Barium (Ba)-Total | | 0.00762 | 0.00737 | | mg/L | 3.3 | 20 | 30-SEP-19 |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Boron (B)-Total | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Calcium (Ca)-Total | | 6.41 | 6.45 | | mg/L | 0.7 | 20 | 30-SEP-19 |
| Cesium (Cs)-Total | | 0.0000076 | 0.0000073 | | mg/L | 5.0 | 20 | 30-SEP-19 |
| Chromium (Cr)-Total | | 0.00066 | 0.00068 | | mg/L | 2.1 | 20 | 30-SEP-19 |
| Cobalt (Co)-Total | | 0.0000140 | 0.0000096 | J | mg/L | 0.000004 | 0.00001 | 30-SEP-19 |
| Copper (Cu)-Total | | 0.000613 | 0.000644 | | mg/L | 5.0 | 20 | 30-SEP-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3146509-3 DUP** | | **L2330132-19** | | | | | | |
| Iron (Fe)-Total | | 0.0111 | 0.0111 | | mg/L | 0.2 | 20 | 30-SEP-19 |
| Lanthanum (La)-Total | | 0.000015 | 0.000016 | | mg/L | 11 | 20 | 30-SEP-19 |
| Lead (Pb)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Lithium (Li)-Total | | 0.00062 | 0.00062 | | mg/L | 0.2 | 20 | 30-SEP-19 |
| Magnesium (Mg)-Total | | 1.09 | 1.09 | | mg/L | 0.1 | 20 | 30-SEP-19 |
| Manganese (Mn)-Total | | 0.00279 | 0.00285 | | mg/L | 2.3 | 20 | 30-SEP-19 |
| Molybdenum (Mo)-Total | | 0.000070 | 0.000065 | | mg/L | 8.7 | 20 | 30-SEP-19 |
| Nickel (Ni)-Total | | 0.000358 | 0.000376 | | mg/L | 4.8 | 20 | 30-SEP-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Potassium (K)-Total | | 0.892 | 0.911 | | mg/L | 2.1 | 20 | 30-SEP-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Rubidium (Rb)-Total | | 0.00132 | 0.00136 | | mg/L | 3.0 | 20 | 30-SEP-19 |
| Selenium (Se)-Total | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Silicon (Si)-Total | | 0.133 | 0.135 | | mg/L | 1.5 | 20 | 30-SEP-19 |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Sodium (Na)-Total | | 4.48 | 4.61 | | mg/L | 3.0 | 20 | 30-SEP-19 |
| Strontium (Sr)-Total | | 0.0364 | 0.0343 | | mg/L | 5.9 | 20 | 30-SEP-19 |
| Sulfur (S)-Total | | 1.17 | 1.12 | | mg/L | 4.0 | 20 | 30-SEP-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Thorium (Th)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Tin (Sn)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Titanium (Ti)-Total | | 0.000098 | 0.000113 | | mg/L | 14 | 20 | 30-SEP-19 |
| Tungsten (W)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Uranium (U)-Total | | 0.0000140 | 0.0000151 | | mg/L | 7.5 | 20 | 30-SEP-19 |
| Vanadium (V)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Yttrium (Y)-Total | | <0.0000050 | 0.0000051 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Zinc (Zn)-Total | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| **WG3148881-3 DUP** | | **L2330132-1** | | | | | | |
| Aluminum (Al)-Total | | 0.0039 | 0.0043 | | mg/L | 2.0 | 20 | 30-SEP-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3148881-3 DUP** | | **L2330132-1** | | | | | | |
| Arsenic (As)-Total | | 0.000401 | 0.000374 | | mg/L | 6.6 | 20 | 30-SEP-19 |
| Barium (Ba)-Total | | 0.00783 | 0.00739 | | mg/L | 0.4 | 20 | 30-SEP-19 |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Boron (B)-Total | | 0.0053 | 0.0053 | | mg/L | 0.2 | 20 | 30-SEP-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Calcium (Ca)-Total | | 6.26 | 6.97 | | mg/L | 0.5 | 20 | 30-SEP-19 |
| Cesium (Cs)-Total | | 0.0000094 | 0.0000076 | | mg/L | 0.9 | 20 | 30-SEP-19 |
| Chromium (Cr)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Cobalt (Co)-Total | | 0.0000195 | 0.0000187 | J | mg/L | 0.000004 | 0.00001 | 30-SEP-19 |
| Copper (Cu)-Total | | 0.000666 | 0.000756 | | mg/L | 0.7 | 20 | 30-SEP-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Iron (Fe)-Total | | 0.0257 | 0.0229 | | mg/L | 0.0 | 20 | 30-SEP-19 |
| Lanthanum (La)-Total | | 0.000026 | 0.000026 | | mg/L | 0.5 | 20 | 30-SEP-19 |
| Lead (Pb)-Total | | 0.000010 | 0.000011 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Lithium (Li)-Total | | 0.00099 | 0.00106 | | mg/L | 0.2 | 20 | 30-SEP-19 |
| Magnesium (Mg)-Total | | 1.23 | 1.32 | | mg/L | 2.3 | 20 | 30-SEP-19 |
| Manganese (Mn)-Total | | 0.00477 | 0.00494 | | mg/L | 0.2 | 20 | 30-SEP-19 |
| Molybdenum (Mo)-Total | | 0.000074 | 0.000081 | | mg/L | 13 | 20 | 30-SEP-19 |
| Nickel (Ni)-Total | | 0.000562 | 0.000597 | | mg/L | 2.7 | 20 | 30-SEP-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Potassium (K)-Total | | 0.931 | 0.980 | | mg/L | 0.4 | 20 | 30-SEP-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Rubidium (Rb)-Total | | 0.00138 | 0.00140 | | mg/L | 0.1 | 20 | 30-SEP-19 |
| Selenium (Se)-Total | | 0.000043 | 0.000042 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Silicon (Si)-Total | | 0.193 | 0.207 | | mg/L | 9.7 | 20 | 30-SEP-19 |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Sodium (Na)-Total | | 5.31 | 5.54 | | mg/L | 2.3 | 20 | 30-SEP-19 |
| Strontium (Sr)-Total | | 0.0468 | 0.0458 | | mg/L | 2.2 | 20 | 30-SEP-19 |
| Sulfur (S)-Total | | 1.40 | 1.40 | | mg/L | 11 | 20 | 30-SEP-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3148881-3 DUP** | | **L2330132-1** | | | | | | |
| Thorium (Th)-Total | | <0.0000050 | <0.0000050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Tin (Sn)-Total | | 0.000020 | 0.000026 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Titanium (Ti)-Total | | 0.000199 | 0.000232 | | mg/L | 11 | 20 | 30-SEP-19 |
| Tungsten (W)-Total | | 0.000016 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Uranium (U)-Total | | 0.0000148 | 0.0000133 | | mg/L | 13 | 20 | 30-SEP-19 |
| Vanadium (V)-Total | | 0.000058 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Yttrium (Y)-Total | | 0.0000083 | 0.0000071 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Zinc (Zn)-Total | | <0.00050 | 0.00056 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 30-SEP-19 |
| **WG3146509-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 97.4 | | % | | 80-120 | 30-AUG-19 |
| Antimony (Sb)-Total | | | 99.2 | | % | | 80-120 | 30-AUG-19 |
| Arsenic (As)-Total | | | 98.1 | | % | | 80-120 | 30-AUG-19 |
| Barium (Ba)-Total | | | 96.0 | | % | | 80-120 | 30-AUG-19 |
| Beryllium (Be)-Total | | | 98.6 | | % | | 80-120 | 30-AUG-19 |
| Bismuth (Bi)-Total | | | 103.0 | | % | | 80-120 | 30-AUG-19 |
| Boron (B)-Total | | | 96.6 | | % | | 80-120 | 30-AUG-19 |
| Cadmium (Cd)-Total | | | 94.4 | | % | | 80-120 | 30-AUG-19 |
| Calcium (Ca)-Total | | | 96.3 | | % | | 80-120 | 30-AUG-19 |
| Cesium (Cs)-Total | | | 92.0 | | % | | 80-120 | 30-AUG-19 |
| Chromium (Cr)-Total | | | 98.3 | | % | | 80-120 | 30-AUG-19 |
| Cobalt (Co)-Total | | | 96.0 | | % | | 80-120 | 30-AUG-19 |
| Copper (Cu)-Total | | | 94.0 | | % | | 80-120 | 30-AUG-19 |
| Gallium (Ga)-Total | | | 94.1 | | % | | 80-120 | 30-AUG-19 |
| Iron (Fe)-Total | | | 94.5 | | % | | 80-120 | 30-AUG-19 |
| Lanthanum (La)-Total | | | 91.8 | | % | | 80-120 | 30-AUG-19 |
| Lead (Pb)-Total | | | 102.5 | | % | | 80-120 | 30-AUG-19 |
| Lithium (Li)-Total | | | 97.6 | | % | | 80-120 | 30-AUG-19 |
| Magnesium (Mg)-Total | | | 96.4 | | % | | 80-120 | 30-AUG-19 |
| Manganese (Mn)-Total | | | 99.3 | | % | | 80-120 | 30-AUG-19 |
| Molybdenum (Mo)-Total | | | 96.5 | | % | | 80-120 | 30-AUG-19 |
| Nickel (Ni)-Total | | | 94.9 | | % | | 80-120 | 30-AUG-19 |
| Niobium (Nb)-Total | | | 93.7 | | % | | 80-120 | 30-AUG-19 |
| Phosphorus (P)-Total | | | 97.4 | | % | | 80-120 | 30-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3146509-2 LCS** | | | | | | | | |
| Potassium (K)-Total | | | 96.6 | | % | | 80-120 | 30-AUG-19 |
| Rhenium (Re)-Total | | | 92.9 | | % | | 80-120 | 30-AUG-19 |
| Rubidium (Rb)-Total | | | 98.6 | | % | | 80-120 | 30-AUG-19 |
| Selenium (Se)-Total | | | 100.5 | | % | | 80-120 | 30-AUG-19 |
| Silicon (Si)-Total | | | 107.9 | | % | | 80-120 | 30-AUG-19 |
| Silver (Ag)-Total | | | 95.9 | | % | | 80-120 | 30-AUG-19 |
| Sodium (Na)-Total | | | 101.7 | | % | | 80-120 | 30-AUG-19 |
| Strontium (Sr)-Total | | | 107.5 | | % | | 80-120 | 30-AUG-19 |
| Sulfur (S)-Total | | | 100.6 | | % | | 80-120 | 30-AUG-19 |
| Tantalum (Ta)-Total | | | 92.7 | | % | | 80-120 | 30-AUG-19 |
| Tellurium (Te)-Total | | | 95.8 | | % | | 80-120 | 30-AUG-19 |
| Thallium (Tl)-Total | | | 99.2 | | % | | 80-120 | 30-AUG-19 |
| Thorium (Th)-Total | | | 98.3 | | % | | 80-120 | 30-AUG-19 |
| Tin (Sn)-Total | | | 95.9 | | % | | 80-120 | 30-AUG-19 |
| Titanium (Ti)-Total | | | 94.9 | | % | | 80-120 | 30-AUG-19 |
| Tungsten (W)-Total | | | 98.3 | | % | | 80-120 | 30-AUG-19 |
| Uranium (U)-Total | | | 94.8 | | % | | 80-120 | 30-AUG-19 |
| Vanadium (V)-Total | | | 99.0 | | % | | 80-120 | 30-AUG-19 |
| Yttrium (Y)-Total | | | 97.5 | | % | | 80-120 | 30-AUG-19 |
| Zinc (Zn)-Total | | | 97.0 | | % | | 80-120 | 30-AUG-19 |
| Zirconium (Zr)-Total | | | 95.8 | | % | | 80-120 | 30-AUG-19 |
| **WG3148881-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 106.3 | | % | | 80-120 | 30-AUG-19 |
| Antimony (Sb)-Total | | | 103.0 | | % | | 80-120 | 30-AUG-19 |
| Arsenic (As)-Total | | | 104.0 | | % | | 80-120 | 30-AUG-19 |
| Barium (Ba)-Total | | | 105.6 | | % | | 80-120 | 30-AUG-19 |
| Beryllium (Be)-Total | | | 99.5 | | % | | 80-120 | 30-AUG-19 |
| Bismuth (Bi)-Total | | | 106.7 | | % | | 80-120 | 30-AUG-19 |
| Boron (B)-Total | | | 98.4 | | % | | 80-120 | 30-AUG-19 |
| Cadmium (Cd)-Total | | | 102.1 | | % | | 80-120 | 30-AUG-19 |
| Calcium (Ca)-Total | | | 101.6 | | % | | 80-120 | 30-AUG-19 |
| Cesium (Cs)-Total | | | 100.6 | | % | | 80-120 | 30-AUG-19 |
| Chromium (Cr)-Total | | | 104.7 | | % | | 80-120 | 30-AUG-19 |
| Cobalt (Co)-Total | | | 102.4 | | % | | 80-120 | 30-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3148881-2 LCS** | | | | | | | | |
| Copper (Cu)-Total | | | 102.4 | | % | | 80-120 | 30-AUG-19 |
| Gallium (Ga)-Total | | | 98.6 | | % | | 80-120 | 30-AUG-19 |
| Iron (Fe)-Total | | | 100.3 | | % | | 80-120 | 30-AUG-19 |
| Lanthanum (La)-Total | | | 101.2 | | % | | 80-120 | 30-AUG-19 |
| Lead (Pb)-Total | | | 105.7 | | % | | 80-120 | 30-AUG-19 |
| Lithium (Li)-Total | | | 97.5 | | % | | 80-120 | 30-AUG-19 |
| Magnesium (Mg)-Total | | | 105.0 | | % | | 80-120 | 30-AUG-19 |
| Manganese (Mn)-Total | | | 105.5 | | % | | 80-120 | 30-AUG-19 |
| Molybdenum (Mo)-Total | | | 100.5 | | % | | 80-120 | 30-AUG-19 |
| Nickel (Ni)-Total | | | 102.0 | | % | | 80-120 | 30-AUG-19 |
| Niobium (Nb)-Total | | | 101.4 | | % | | 80-120 | 30-AUG-19 |
| Phosphorus (P)-Total | | | 106.3 | | % | | 80-120 | 30-AUG-19 |
| Potassium (K)-Total | | | 103.8 | | % | | 80-120 | 30-AUG-19 |
| Rhenium (Re)-Total | | | 99.5 | | % | | 80-120 | 30-AUG-19 |
| Rubidium (Rb)-Total | | | 103.7 | | % | | 80-120 | 30-AUG-19 |
| Selenium (Se)-Total | | | 103.7 | | % | | 80-120 | 30-AUG-19 |
| Silicon (Si)-Total | | | 105.6 | | % | | 80-120 | 30-AUG-19 |
| Silver (Ag)-Total | | | 98.0 | | % | | 80-120 | 30-AUG-19 |
| Sodium (Na)-Total | | | 109.0 | | % | | 80-120 | 30-AUG-19 |
| Strontium (Sr)-Total | | | 118.1 | | % | | 80-120 | 30-AUG-19 |
| Sulfur (S)-Total | | | 98.4 | | % | | 80-120 | 30-AUG-19 |
| Tantalum (Ta)-Total | | | 103.4 | | % | | 80-120 | 30-AUG-19 |
| Tellurium (Te)-Total | | | 99.7 | | % | | 80-120 | 30-AUG-19 |
| Thallium (Tl)-Total | | | 104.8 | | % | | 80-120 | 30-AUG-19 |
| Thorium (Th)-Total | | | 98.5 | | % | | 80-120 | 30-AUG-19 |
| Tin (Sn)-Total | | | 99.6 | | % | | 80-120 | 30-AUG-19 |
| Titanium (Ti)-Total | | | 102.4 | | % | | 80-120 | 30-AUG-19 |
| Tungsten (W)-Total | | | 103.0 | | % | | 80-120 | 30-AUG-19 |
| Uranium (U)-Total | | | 101.5 | | % | | 80-120 | 30-AUG-19 |
| Vanadium (V)-Total | | | 106.2 | | % | | 80-120 | 30-AUG-19 |
| Yttrium (Y)-Total | | | 104.1 | | % | | 80-120 | 30-AUG-19 |
| Zinc (Zn)-Total | | | 103.3 | | % | | 80-120 | 30-AUG-19 |
| Zirconium (Zr)-Total | | | 97.1 | | % | | 80-120 | 30-AUG-19 |
| **WG3146509-1 MB** | | **NP** | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3146509-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 30-AUG-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 30-AUG-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 30-AUG-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 30-AUG-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 30-AUG-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 30-AUG-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 30-AUG-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 30-AUG-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 30-AUG-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 30-AUG-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 30-AUG-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 30-AUG-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3146509-1 MB** | | **NP** | | | | | | |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 30-AUG-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 30-AUG-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| **WG3148881-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 30-AUG-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 30-AUG-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 30-AUG-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 30-AUG-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 30-AUG-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 30-AUG-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3148881-1 MB** | | **NP** | | | | | | |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 30-AUG-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 30-AUG-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 30-AUG-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 30-AUG-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 30-AUG-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 30-AUG-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-AUG-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 30-AUG-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 30-AUG-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-AUG-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 30-AUG-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 30-AUG-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-AUG-19 |
| **WG3146509-4 MS** | | **L2330132-20** | | | | | | |
| Aluminum (Al)-Total | | | 99.1 | | % | | 70-130 | 30-SEP-19 |
| Antimony (Sb)-Total | | | 96.4 | | % | | 70-130 | 30-SEP-19 |
| Arsenic (As)-Total | | | 101.4 | | % | | 70-130 | 30-SEP-19 |
| Beryllium (Be)-Total | | | 104.1 | | % | | 70-130 | 30-SEP-19 |
| Bismuth (Bi)-Total | | | 103.5 | | % | | 70-130 | 30-SEP-19 |
| Boron (B)-Total | | | 107.7 | | % | | 70-130 | 30-SEP-19 |
| Cadmium (Cd)-Total | | | 100.2 | | % | | 70-130 | 30-SEP-19 |
| Cesium (Cs)-Total | | | 100.3 | | % | | 70-130 | 30-SEP-19 |
| Cobalt (Co)-Total | | | 99.3 | | % | | 70-130 | 30-SEP-19 |
| Copper (Cu)-Total | | | 100.6 | | % | | 70-130 | 30-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782166** | | | | | | | | |
| **WG3146509-4 MS** | | **L2330132-20** | | | | | | |
| Gallium (Ga)-Total | | | 96.4 | | % | | 70-130 | 30-SEP-19 |
| Iron (Fe)-Total | | | 98.4 | | % | | 70-130 | 30-SEP-19 |
| Lanthanum (La)-Total | | | 94.5 | | % | | 70-130 | 30-SEP-19 |
| Lead (Pb)-Total | | | 106.0 | | % | | 70-130 | 30-SEP-19 |
| Lithium (Li)-Total | | | 107.4 | | % | | 70-130 | 30-SEP-19 |
| Magnesium (Mg)-Total | | | 96.9 | | % | | 70-130 | 30-SEP-19 |
| Manganese (Mn)-Total | | | 101.4 | | % | | 70-130 | 30-SEP-19 |
| Molybdenum (Mo)-Total | | | 97.0 | | % | | 70-130 | 30-SEP-19 |
| Nickel (Ni)-Total | | | 100.5 | | % | | 70-130 | 30-SEP-19 |
| Niobium (Nb)-Total | | | 97.3 | | % | | 70-130 | 30-SEP-19 |
| Phosphorus (P)-Total | | | 99.7 | | % | | 70-130 | 30-SEP-19 |
| Rhenium (Re)-Total | | | 94.2 | | % | | 70-130 | 30-SEP-19 |
| Rubidium (Rb)-Total | | | 101.3 | | % | | 70-130 | 30-SEP-19 |
| Selenium (Se)-Total | | | 105.6 | | % | | 70-130 | 30-SEP-19 |
| Silicon (Si)-Total | | | 101.7 | | % | | 70-130 | 30-SEP-19 |
| Silver (Ag)-Total | | | 101.1 | | % | | 70-130 | 30-SEP-19 |
| Sodium (Na)-Total | | | 103.7 | | % | | 70-130 | 30-SEP-19 |
| Sulfur (S)-Total | | | 101.0 | | % | | 70-130 | 30-SEP-19 |
| Tantalum (Ta)-Total | | | 96.1 | | % | | 70-130 | 30-SEP-19 |
| Tellurium (Te)-Total | | | 101.1 | | % | | 70-130 | 30-SEP-19 |
| Thallium (Tl)-Total | | | 101.7 | | % | | 70-130 | 30-SEP-19 |
| Thorium (Th)-Total | | | 108.8 | | % | | 70-130 | 30-SEP-19 |
| Tin (Sn)-Total | | | 96.5 | | % | | 70-130 | 30-SEP-19 |
| Titanium (Ti)-Total | | | 96.5 | | % | | 70-130 | 30-SEP-19 |
| Tungsten (W)-Total | | | 100.0 | | % | | 70-130 | 30-SEP-19 |
| Uranium (U)-Total | | | 98.3 | | % | | 70-130 | 30-SEP-19 |
| Vanadium (V)-Total | | | 99.8 | | % | | 70-130 | 30-SEP-19 |
| Yttrium (Y)-Total | | | 100.9 | | % | | 70-130 | 30-SEP-19 |
| Zinc (Zn)-Total | | | 102.8 | | % | | 70-130 | 30-SEP-19 |
| Zirconium (Zr)-Total | | | 99.3 | | % | | 70-130 | 30-SEP-19 |
| **Batch R4782843** | | | | | | | | |
| **WG3150917-3 DUP** | | **L2330132-13** | | | | | | |
| Aluminum (Al)-Total | | 0.0038 | 0.0033 | | mg/L | 16 | 20 | 04-SEP-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150917-3 DUP** | | **L2330132-13** | | | | | | |
| Arsenic (As)-Total | | 0.000191 | 0.000179 | | mg/L | 6.2 | 20 | 04-SEP-19 |
| Barium (Ba)-Total | | 0.00775 | 0.00745 | | mg/L | 4.0 | 20 | 04-SEP-19 |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Boron (B)-Total | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Calcium (Ca)-Total | | 6.57 | 6.68 | | mg/L | 1.7 | 20 | 04-SEP-19 |
| Cesium (Cs)-Total | | 0.0000085 | 0.0000082 | | mg/L | 3.8 | 20 | 04-SEP-19 |
| Chromium (Cr)-Total | | 0.00048 | 0.00049 | | mg/L | 2.0 | 20 | 04-SEP-19 |
| Cobalt (Co)-Total | | 0.0000116 | 0.0000135 | | mg/L | 15 | 20 | 04-SEP-19 |
| Copper (Cu)-Total | | 0.000653 | 0.000667 | | mg/L | 2.1 | 20 | 04-SEP-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Iron (Fe)-Total | | 0.0124 | 0.0126 | | mg/L | 1.6 | 20 | 04-SEP-19 |
| Lanthanum (La)-Total | | 0.000017 | 0.000016 | | mg/L | 4.3 | 20 | 04-SEP-19 |
| Lead (Pb)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Lithium (Li)-Total | | 0.00059 | 0.00058 | | mg/L | 0.4 | 20 | 04-SEP-19 |
| Magnesium (Mg)-Total | | 1.06 | 1.10 | | mg/L | 3.6 | 20 | 04-SEP-19 |
| Manganese (Mn)-Total | | 0.00287 | 0.00288 | | mg/L | 0.3 | 20 | 04-SEP-19 |
| Molybdenum (Mo)-Total | | 0.000063 | 0.000062 | | mg/L | 1.5 | 20 | 04-SEP-19 |
| Nickel (Ni)-Total | | 0.000375 | 0.000393 | | mg/L | 4.8 | 20 | 04-SEP-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Potassium (K)-Total | | 0.899 | 0.913 | | mg/L | 1.6 | 20 | 04-SEP-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Rubidium (Rb)-Total | | 0.00129 | 0.00134 | | mg/L | 3.6 | 20 | 04-SEP-19 |
| Selenium (Se)-Total | | 0.000052 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Silicon (Si)-Total | | 0.124 | 0.114 | | mg/L | 8.4 | 20 | 04-SEP-19 |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Sodium (Na)-Total | | 4.28 | 4.40 | | mg/L | 2.6 | 20 | 04-SEP-19 |
| Strontium (Sr)-Total | | 0.0331 | 0.0324 | | mg/L | 2.4 | 20 | 04-SEP-19 |
| Sulfur (S)-Total | | 1.30 | 1.19 | | mg/L | 9.1 | 20 | 04-SEP-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150917-3 DUP** | | **L2330132-13** | | | | | | |
| Thorium (Th)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Tin (Sn)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Titanium (Ti)-Total | | 0.000141 | 0.000142 | | mg/L | 0.5 | 20 | 04-SEP-19 |
| Tungsten (W)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Uranium (U)-Total | | 0.0000146 | 0.0000162 | | mg/L | 10 | 20 | 04-SEP-19 |
| Vanadium (V)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Yttrium (Y)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Zinc (Zn)-Total | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| **WG3150917-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 99.1 | | % | | 80-120 | 04-SEP-19 |
| Antimony (Sb)-Total | | | 100.2 | | % | | 80-120 | 04-SEP-19 |
| Arsenic (As)-Total | | | 97.7 | | % | | 80-120 | 04-SEP-19 |
| Barium (Ba)-Total | | | 98.8 | | % | | 80-120 | 04-SEP-19 |
| Beryllium (Be)-Total | | | 93.5 | | % | | 80-120 | 04-SEP-19 |
| Bismuth (Bi)-Total | | | 100.5 | | % | | 80-120 | 04-SEP-19 |
| Boron (B)-Total | | | 99.6 | | % | | 80-120 | 04-SEP-19 |
| Cadmium (Cd)-Total | | | 99.4 | | % | | 80-120 | 04-SEP-19 |
| Calcium (Ca)-Total | | | 99.2 | | % | | 80-120 | 04-SEP-19 |
| Cesium (Cs)-Total | | | 101.4 | | % | | 80-120 | 04-SEP-19 |
| Chromium (Cr)-Total | | | 97.0 | | % | | 80-120 | 04-SEP-19 |
| Cobalt (Co)-Total | | | 97.4 | | % | | 80-120 | 04-SEP-19 |
| Copper (Cu)-Total | | | 95.3 | | % | | 80-120 | 04-SEP-19 |
| Gallium (Ga)-Total | | | 91.7 | | % | | 80-120 | 04-SEP-19 |
| Iron (Fe)-Total | | | 95.5 | | % | | 80-120 | 04-SEP-19 |
| Lanthanum (La)-Total | | | 100.2 | | % | | 80-120 | 04-SEP-19 |
| Lead (Pb)-Total | | | 102.9 | | % | | 80-120 | 04-SEP-19 |
| Lithium (Li)-Total | | | 95.6 | | % | | 80-120 | 04-SEP-19 |
| Magnesium (Mg)-Total | | | 95.7 | | % | | 80-120 | 04-SEP-19 |
| Manganese (Mn)-Total | | | 97.0 | | % | | 80-120 | 04-SEP-19 |
| Molybdenum (Mo)-Total | | | 96.1 | | % | | 80-120 | 04-SEP-19 |
| Nickel (Ni)-Total | | | 95.5 | | % | | 80-120 | 04-SEP-19 |
| Niobium (Nb)-Total | | | 98.1 | | % | | 80-120 | 04-SEP-19 |
| Phosphorus (P)-Total | | | 100.4 | | % | | 80-120 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150917-2 LCS** | | | | | | | | |
| Potassium (K)-Total | | | 98.9 | | % | | 80-120 | 04-SEP-19 |
| Rhenium (Re)-Total | | | 101.8 | | % | | 80-120 | 04-SEP-19 |
| Rubidium (Rb)-Total | | | 98.8 | | % | | 80-120 | 04-SEP-19 |
| Selenium (Se)-Total | | | 104.1 | | % | | 80-120 | 04-SEP-19 |
| Silicon (Si)-Total | | | 99.2 | | % | | 80-120 | 04-SEP-19 |
| Silver (Ag)-Total | | | 95.9 | | % | | 80-120 | 04-SEP-19 |
| Sodium (Na)-Total | | | 95.9 | | % | | 80-120 | 04-SEP-19 |
| Strontium (Sr)-Total | | | 98.9 | | % | | 80-120 | 04-SEP-19 |
| Sulfur (S)-Total | | | 88.8 | | % | | 80-120 | 04-SEP-19 |
| Tantalum (Ta)-Total | | | 101.6 | | % | | 80-120 | 04-SEP-19 |
| Tellurium (Te)-Total | | | 97.8 | | % | | 80-120 | 04-SEP-19 |
| Thallium (Tl)-Total | | | 102.1 | | % | | 80-120 | 04-SEP-19 |
| Thorium (Th)-Total | | | 103.3 | | % | | 80-120 | 04-SEP-19 |
| Tin (Sn)-Total | | | 95.0 | | % | | 80-120 | 04-SEP-19 |
| Titanium (Ti)-Total | | | 93.9 | | % | | 80-120 | 04-SEP-19 |
| Tungsten (W)-Total | | | 104.2 | | % | | 80-120 | 04-SEP-19 |
| Uranium (U)-Total | | | 102.8 | | % | | 80-120 | 04-SEP-19 |
| Vanadium (V)-Total | | | 98.7 | | % | | 80-120 | 04-SEP-19 |
| Yttrium (Y)-Total | | | 104.4 | | % | | 80-120 | 04-SEP-19 |
| Zinc (Zn)-Total | | | 95.2 | | % | | 80-120 | 04-SEP-19 |
| Zirconium (Zr)-Total | | | 94.3 | | % | | 80-120 | 04-SEP-19 |
| **WG3150917-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 04-SEP-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150917-1 MB** | | **NP** | | | | | | |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 04-SEP-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 04-SEP-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Uranium (U)-Total | | | <0.0000010 | | mg/L | | 0.000001 | 04-SEP-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| **WG3150917-4 MS** | | **L2330132-15** | | | | | | |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150917-4 MS** | | **L2330132-15** | | | | | | |
| Aluminum (Al)-Total | | | 98.7 | | % | | 70-130 | 04-SEP-19 |
| Antimony (Sb)-Total | | | 100.2 | | % | | 70-130 | 04-SEP-19 |
| Arsenic (As)-Total | | | 97.9 | | % | | 70-130 | 04-SEP-19 |
| Barium (Ba)-Total | | | 97.4 | | % | | 70-130 | 04-SEP-19 |
| Beryllium (Be)-Total | | | 92.9 | | % | | 70-130 | 04-SEP-19 |
| Bismuth (Bi)-Total | | | 102.4 | | % | | 70-130 | 04-SEP-19 |
| Boron (B)-Total | | | 99.7 | | % | | 70-130 | 04-SEP-19 |
| Cadmium (Cd)-Total | | | 102.7 | | % | | 70-130 | 04-SEP-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Cesium (Cs)-Total | | | 100.0 | | % | | 70-130 | 04-SEP-19 |
| Chromium (Cr)-Total | | | 98.3 | | % | | 70-130 | 04-SEP-19 |
| Cobalt (Co)-Total | | | 100.2 | | % | | 70-130 | 04-SEP-19 |
| Copper (Cu)-Total | | | 96.8 | | % | | 70-130 | 04-SEP-19 |
| Gallium (Ga)-Total | | | 93.3 | | % | | 70-130 | 04-SEP-19 |
| Iron (Fe)-Total | | | 101.8 | | % | | 70-130 | 04-SEP-19 |
| Lanthanum (La)-Total | | | 98.8 | | % | | 70-130 | 04-SEP-19 |
| Lead (Pb)-Total | | | 105.4 | | % | | 70-130 | 04-SEP-19 |
| Lithium (Li)-Total | | | 94.0 | | % | | 70-130 | 04-SEP-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Manganese (Mn)-Total | | | 98.9 | | % | | 70-130 | 04-SEP-19 |
| Molybdenum (Mo)-Total | | | 97.3 | | % | | 70-130 | 04-SEP-19 |
| Nickel (Ni)-Total | | | 98.2 | | % | | 70-130 | 04-SEP-19 |
| Niobium (Nb)-Total | | | 99.8 | | % | | 70-130 | 04-SEP-19 |
| Phosphorus (P)-Total | | | 101.2 | | % | | 70-130 | 04-SEP-19 |
| Potassium (K)-Total | | | 98.8 | | % | | 70-130 | 04-SEP-19 |
| Rhenium (Re)-Total | | | 102.4 | | % | | 70-130 | 04-SEP-19 |
| Rubidium (Rb)-Total | | | 100.2 | | % | | 70-130 | 04-SEP-19 |
| Selenium (Se)-Total | | | 111.5 | | % | | 70-130 | 04-SEP-19 |
| Silicon (Si)-Total | | | 96.3 | | % | | 70-130 | 04-SEP-19 |
| Silver (Ag)-Total | | | 98.9 | | % | | 70-130 | 04-SEP-19 |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Sulfur (S)-Total | | | 102.4 | | % | | 70-130 | 04-SEP-19 |
| Tantalum (Ta)-Total | | | 101.2 | | % | | 70-130 | 04-SEP-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3150917-4 MS** | | **L2330132-15** | | | | | | |
| Tellurium (Te)-Total | | | 106.1 | | % | | 70-130 | 04-SEP-19 |
| Thallium (Tl)-Total | | | 100.8 | | % | | 70-130 | 04-SEP-19 |
| Thorium (Th)-Total | | | 104.1 | | % | | 70-130 | 04-SEP-19 |
| Tin (Sn)-Total | | | 97.8 | | % | | 70-130 | 04-SEP-19 |
| Titanium (Ti)-Total | | | 96.5 | | % | | 70-130 | 04-SEP-19 |
| Tungsten (W)-Total | | | 105.6 | | % | | 70-130 | 04-SEP-19 |
| Uranium (U)-Total | | | 104.3 | | % | | 70-130 | 04-SEP-19 |
| Vanadium (V)-Total | | | 99.4 | | % | | 70-130 | 04-SEP-19 |
| Yttrium (Y)-Total | | | 106.4 | | % | | 70-130 | 04-SEP-19 |
| Zinc (Zn)-Total | | | 101.2 | | % | | 70-130 | 04-SEP-19 |
| Zirconium (Zr)-Total | | | 96.6 | | % | | 70-130 | 04-SEP-19 |
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4782163** | | | | | | | | |
| **WG3150395-3 DUP** | | **L2330132-5** | | | | | | |
| Ammonia, Total (as N) | | 0.0067 | 0.0063 | | mg/L | 6.2 | 20 | 04-SEP-19 |
| **WG3150395-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 103.3 | | % | | 85-115 | 03-SEP-19 |
| **WG3150395-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 03-SEP-19 |
| **WG3150395-4 MS** | | **L2330132-6** | | | | | | |
| Ammonia, Total (as N) | | | 99.1 | | % | | 75-125 | 04-SEP-19 |
| **Batch R4785688** | | | | | | | | |
| **WG3154451-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 99.2 | | % | | 85-115 | 06-SEP-19 |
| **WG3154451-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 06-SEP-19 |
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4761937** | | | | | | | | |
| **WG3135926-11 DUP** | | **L2330132-3** | | | | | | |
| Nitrite (as N) | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 17-AUG-19 |
| **WG3135926-10 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.7 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-2 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.6 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-6 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.8 | | % | | 90-110 | 17-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4761937** | | | | | | | | |
| **WG3135926-1 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 17-AUG-19 |
| **WG3135926-5 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 17-AUG-19 |
| **WG3135926-9 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 17-AUG-19 |
| **WG3135926-12 MS** | | **L2330132-3** | | | | | | |
| Nitrite (as N) | | | 105.9 | | % | | 75-125 | 17-AUG-19 |
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4761937** | | | | | | | | |
| **WG3135926-11 DUP** | | **L2330132-3** | | | | | | |
| Nitrate (as N) | | 0.0143 | 0.0150 | | mg/L | 5.0 | 20 | 17-AUG-19 |
| **WG3135926-10 LCS** | | | | | | | | |
| Nitrate (as N) | | | 99.4 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-2 LCS** | | | | | | | | |
| Nitrate (as N) | | | 99.0 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-6 LCS** | | | | | | | | |
| Nitrate (as N) | | | 99.7 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-1 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 17-AUG-19 |
| **WG3135926-5 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 17-AUG-19 |
| **WG3135926-9 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 17-AUG-19 |
| **WG3135926-12 MS** | | **L2330132-3** | | | | | | |
| Nitrate (as N) | | | 104.9 | | % | | 75-125 | 17-AUG-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4758841** | | | | | | | | |
| **WG3135319-10 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 99.5 | | % | | 80-120 | 19-AUG-19 |
| **WG3135319-6 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 100.9 | | % | | 80-120 | 19-AUG-19 |
| **WG3135319-5 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 19-AUG-19 |
| **WG3135319-9 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 19-AUG-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4762227** | | | | | | | | |
| **WG3138150-3 DUP** | | **L2330132-1** | | | | | | |
| Phosphorus (P)-Total | | 0.0047 | 0.0050 | | mg/L | 7.4 | 20 | 21-AUG-19 |
| **WG3138150-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 92.4 | | % | | 80-120 | 21-AUG-19 |
| **WG3138150-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 21-AUG-19 |
| **WG3138150-4 MS** | | **L2330132-4** | | | | | | |
| Phosphorus (P)-Total | | | 119.3 | | % | | 70-130 | 21-AUG-19 |
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4759644** | | | | | | | | |
| **WG3137614-25 DUP** | | **L2330132-3** | | | | | | |
| pH | | 7.39 | 7.40 | J | pH units | 0.01 | 0.2 | 19-AUG-19 |
| **WG3137614-12 LCS** | | | | | | | | |
| pH | | | 7.40 | | pH units | | 7.3-7.5 | 19-AUG-19 |
| **WG3137614-17 LCS** | | | | | | | | |
| pH | | | 7.41 | | pH units | | 7.3-7.5 | 19-AUG-19 |
| **WG3137614-22 LCS** | | | | | | | | |
| pH | | | 7.41 | | pH units | | 7.3-7.5 | 19-AUG-19 |
| **SO4-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4761937** | | | | | | | | |
| **WG3135926-11 DUP** | | **L2330132-3** | | | | | | |
| Sulfate (SO4) | | 4.13 | 4.12 | | mg/L | 0.4 | 20 | 17-AUG-19 |
| **WG3135926-10 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 100.4 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-2 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 100.8 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-6 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 100.6 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-1 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 17-AUG-19 |
| **WG3135926-5 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 17-AUG-19 |
| **WG3135926-9 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 17-AUG-19 |
| **WG3135926-12 MS** | | **L2330132-3** | | | | | | |
| Sulfate (SO4) | | | 105.9 | | % | | 75-125 | 17-AUG-19 |
| **TDS-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4758697** | | | | | | | | |
| **WG3135105-3 DUP** | | **L2330132-6** | | | | | | |
| Total Dissolved Solids | | 71 | 64 | | mg/L | 9.9 | 20 | 16-AUG-19 |
| **WG3135105-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 100.5 | | % | | 85-115 | 16-AUG-19 |
| **WG3135105-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 16-AUG-19 |
| **Batch R4784827** | | | | | | | | |
| **WG3151625-3 DUP** | | **L2330132-1** | | | | | | |
| Total Dissolved Solids | | 40 | 43 | | mg/L | 7.2 | 20 | 05-SEP-19 |
| **WG3151625-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 99.4 | | % | | 85-115 | 05-SEP-19 |
| **WG3151625-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 05-SEP-19 |
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4784575** | | | | | | | | |
| **WG3151534-14 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 106 | | % | | 75-125 | 05-SEP-19 |
| **WG3151534-13 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 05-SEP-19 |
| **Batch R4787411** | | | | | | | | |
| **WG3154632-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 94 | | % | | 75-125 | 07-SEP-19 |
| **WG3154632-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 07-SEP-19 |
| **TSS-LOW-VA** | **Water** | | | | | | | |
| **Batch R4758835** | | | | | | | | |
| **WG3135987-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 95.5 | | % | | 85-115 | 17-AUG-19 |
| **WG3135987-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 17-AUG-19 |
| **Batch R4759793** | | | | | | | | |
| **WG3136797-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 96.5 | | % | | 85-115 | 19-AUG-19 |
| **WG3136797-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 19-AUG-19 |
| **TURBIDITY-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TURBIDITY-WP** | **Water** | | | | | | | |
| **Batch R4758124** | | | | | | | | |
| **WG3135458-5 LCS** | | | | | | | | |
| Turbidity | | | 102.5 | | % | | 85-115 | 16-AUG-19 |
| **WG3135458-8 LCS** | | | | | | | | |
| Turbidity | | | 102.5 | | % | | 85-115 | 16-AUG-19 |
| **WG3135458-4 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 16-AUG-19 |
| **WG3135458-7 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 16-AUG-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| B | Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable. |
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| MES | Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Total Dissolved Solids (TDS) | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 05-SEP-19 08:00 | 7 | 28 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 05-SEP-19 08:00 | 7 | 28 | days | EHTR |
| | 3 | 08-AUG-19 16:35 | 05-SEP-19 08:00 | 7 | 28 | days | EHTR |
| | 4 | 08-AUG-19 17:50 | 05-SEP-19 08:00 | 7 | 28 | days | EHTR |
| | 5 | 08-AUG-19 15:45 | 05-SEP-19 08:00 | 7 | 28 | days | EHTR |
| Total Suspended Solids by Grav. (1 mg/L) | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 19-AUG-19 10:30 | 7 | 11 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 19-AUG-19 10:30 | 7 | 11 | days | EHTR |
| | 3 | 08-AUG-19 16:35 | 19-AUG-19 10:30 | 7 | 11 | days | EHTR |
| | 4 | 08-AUG-19 17:50 | 19-AUG-19 10:30 | 7 | 11 | days | EHTR |
| | 5 | 08-AUG-19 15:45 | 19-AUG-19 10:30 | 7 | 11 | days | EHTR |
| | 11 | 09-AUG-19 12:45 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 12 | 09-AUG-19 13:57 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 13 | 09-AUG-19 15:00 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 14 | 09-AUG-19 15:35 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 15 | 09-AUG-19 16:22 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 16 | 09-AUG-19 10:40 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 17 | 09-AUG-19 11:20 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 18 | 09-AUG-19 12:20 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 19 | 09-AUG-19 13:57 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| | 20 | 09-AUG-19 14:10 | 17-AUG-19 15:00 | 7 | 8 | days | EHTL |
| Turbidity | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 16-AUG-19 09:45 | 3 | 8 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 16-AUG-19 09:45 | 3 | 8 | days | EHTR |
| | 3 | 08-AUG-19 16:35 | 16-AUG-19 09:45 | 3 | 8 | days | EHTR |
| | 4 | 08-AUG-19 17:50 | 16-AUG-19 09:45 | 3 | 8 | days | EHTR |
| | 5 | 08-AUG-19 15:45 | 16-AUG-19 09:45 | 3 | 8 | days | EHTR |
| | 6 | 10-AUG-19 09:30 | 16-AUG-19 09:45 | 3 | 6 | days | EHTR |
| | 7 | 10-AUG-19 10:04 | 16-AUG-19 09:45 | 3 | 6 | days | EHTR |
| | 8 | 10-AUG-19 10:52 | 16-AUG-19 09:45 | 3 | 6 | days | EHTR |
| | 9 | 10-AUG-19 11:32 | 16-AUG-19 09:45 | 3 | 6 | days | EHTR |
| | 10 | 10-AUG-19 12:23 | 16-AUG-19 09:45 | 3 | 6 | days | EHTR |
| | 11 | 09-AUG-19 12:45 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 12 | 09-AUG-19 13:57 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 13 | 09-AUG-19 15:00 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 14 | 09-AUG-19 15:35 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 15 | 09-AUG-19 16:22 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 16 | 09-AUG-19 10:40 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 17 | 09-AUG-19 11:20 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 18 | 09-AUG-19 12:20 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 19 | 09-AUG-19 13:57 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| | 20 | 09-AUG-19 14:10 | 16-AUG-19 09:45 | 3 | 7 | days | EHTR |
| pH | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 19-AUG-19 12:00 | 0.25 | 262 | hours | EHTR-FM |
| | 2 | 08-AUG-19 18:40 | 19-AUG-19 12:00 | 0.25 | 257 | hours | EHTR-FM |
| | 3 | 08-AUG-19 16:35 | 19-AUG-19 12:00 | 0.25 | 259 | hours | EHTR-FM |
| | 4 | 08-AUG-19 17:50 | 19-AUG-19 12:00 | 0.25 | 258 | hours | EHTR-FM |
| | 5 | 08-AUG-19 15:45 | 19-AUG-19 12:00 | 0.25 | 260 | hours | EHTR-FM |
| | 6 | 10-AUG-19 09:30 | 19-AUG-19 12:00 | 0.25 | 218 | hours | EHTR-FM |
| | 7 | 10-AUG-19 10:04 | 19-AUG-19 12:00 | 0.25 | 218 | hours | EHTR-FM |
| | 8 | 10-AUG-19 10:52 | 19-AUG-19 12:00 | 0.25 | 217 | hours | EHTR-FM |
| | 9 | 10-AUG-19 11:32 | 19-AUG-19 12:00 | 0.25 | 216 | hours | EHTR-FM |
| | 10 | 10-AUG-19 12:23 | 19-AUG-19 12:00 | 0.25 | 216 | hours | EHTR-FM |
| | 11 | 09-AUG-19 12:45 | 19-AUG-19 12:00 | 0.25 | 239 | hours | EHTR-FM |
| | 12 | 09-AUG-19 13:57 | 19-AUG-19 12:00 | 0.25 | 238 | hours | EHTR-FM |
| | 13 | 09-AUG-19 15:00 | 19-AUG-19 12:00 | 0.25 | 237 | hours | EHTR-FM |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| pH | | | | | | | |
| | 14 | 09-AUG-19 15:35 | 19-AUG-19 12:00 | 0.25 | 236 | hours | EHTR-FM |
| | 15 | 09-AUG-19 16:22 | 19-AUG-19 12:00 | 0.25 | 236 | hours | EHTR-FM |
| | 16 | 09-AUG-19 10:40 | 19-AUG-19 12:00 | 0.25 | 241 | hours | EHTR-FM |
| | 17 | 09-AUG-19 11:20 | 19-AUG-19 12:00 | 0.25 | 241 | hours | EHTR-FM |
| | 18 | 09-AUG-19 12:20 | 19-AUG-19 12:00 | 0.25 | 240 | hours | EHTR-FM |
| | 19 | 09-AUG-19 13:57 | 19-AUG-19 12:00 | 0.25 | 238 | hours | EHTR-FM |
| | 20 | 09-AUG-19 14:10 | 19-AUG-19 12:00 | 0.25 | 238 | hours | EHTR-FM |
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 3 | 08-AUG-19 16:35 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 4 | 08-AUG-19 17:50 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 5 | 08-AUG-19 15:45 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 6 | 10-AUG-19 09:30 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 7 | 10-AUG-19 10:04 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 8 | 10-AUG-19 10:52 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 9 | 10-AUG-19 11:32 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 10 | 10-AUG-19 12:23 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 11 | 09-AUG-19 12:45 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 12 | 09-AUG-19 13:57 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 13 | 09-AUG-19 15:00 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 14 | 09-AUG-19 15:35 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 15 | 09-AUG-19 16:22 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 16 | 09-AUG-19 10:40 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 17 | 09-AUG-19 11:20 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 18 | 09-AUG-19 12:20 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 19 | 09-AUG-19 13:57 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 20 | 09-AUG-19 14:10 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 3 | 08-AUG-19 16:35 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 4 | 08-AUG-19 17:50 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 5 | 08-AUG-19 15:45 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 6 | 10-AUG-19 09:30 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 7 | 10-AUG-19 10:04 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 8 | 10-AUG-19 10:52 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 9 | 10-AUG-19 11:32 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 10 | 10-AUG-19 12:23 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 11 | 09-AUG-19 12:45 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 12 | 09-AUG-19 13:57 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 13 | 09-AUG-19 15:00 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 14 | 09-AUG-19 15:35 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 15 | 09-AUG-19 16:22 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 16 | 09-AUG-19 10:40 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 17 | 09-AUG-19 11:20 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 18 | 09-AUG-19 12:20 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 19 | 09-AUG-19 13:57 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 20 | 09-AUG-19 14:10 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2330132 were received on 16-AUG-19 09:05.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Thursday, September 12, 2019

Judy Dalmaijer
ALS Environmental
1329 Niakwa Road East, Unit 12
Winnipeg, MB R2J 3T4

Re: ALS Workorder: 1908453
Project Name:
Project Number: L2330132

Dear Ms. Dalmaijer:

Twelve water samples were received from ALS Environmental, on 8/20/2019. The samples were scheduled for the following analysis:

Radium-226

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. OBrien
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

| ALS Environmental – Fort Collins | |
|---|---|
| | |
| Accreditation Body | License or Certification Number |
| AIHA | 214884 |
| Alaska (AK) | UST-086 |
| Alaska (AK) | CO01099 |
| Arizona (AZ) | AZ0742 |
| California (CA) | 06251CA |
| Colorado (CO) | CO01099 |
| Florida (FL) | E87914 |
| Idaho (ID) | CO01099 |
| Kansas (KS) | E-10381 |
| Kentucky (KY) | 90137 |
| PJ-LA (DoD ELAP/ISO 170250) | 95377 |
| Louisiana (LA) | 05057 |
| Maryland (MD) | 285 |
| Missouri (MO) | 175 |
| Nebraska(NE) | NE-OS-24-13 |
| Nevada (NV) | CO000782008A |
| New York (NY) | 12036 |
| North Dakota (ND) | R-057 |
| Oklahoma (OK) | 1301 |
| Pennsylvania (PA) | 68-03116 |
| Tennessee (TN) | 2976 |
| Texas (TX) | T104704241 |
| Utah (UT) | CO01099 |
| Washington (WA) | C1280 |

# 1908453

**Radium-226:**
The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

**OrderNum:** 1908453
**Client Name:** ALS Environmental
**Client Project Name:**
**Client Project Number:** L2330132
**Client PO Number:** L2330132

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|---|---|---|---|---|---|
| L2330132-1 | 1908453-1 | | WATER | 08-Aug-19 | |
| L2330132-2 | 1908453-2 | | WATER | 08-Aug-19 | |
| L2330132-3 | 1908453-3 | | WATER | 08-Aug-19 | |
| L2330132-4 | 1908453-4 | | WATER | 08-Aug-19 | |
| L2330132-5 | 1908453-5 | | WATER | 08-Aug-19 | |
| L2330132-11 | 1908453-6 | | WATER | 09-Aug-19 | |
| L2330132-12 | 1908453-7 | | WATER | 09-Aug-19 | |
| L2330132-13 | 1908453-8 | | WATER | 09-Aug-19 | |
| L2330132-14 | 1908453-9 | | WATER | 09-Aug-19 | |
| L2330132-15 | 1908453-10 | | WATER | 09-Aug-19 | |
| L2330132-19 | 1908453-11 | | WATER | 09-Aug-19 | |
| L2330132-20 | 1908453-12 | | WATER | 09-Aug-19 | |

ALS Environmental

**L2330132**

WINNIPEG

1908453

## Subcontract Request Form

**Subcontract To:**

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

**NOTES:** Please reference on final report and invoice: PO# *L2330132*
ALS requires QC data to be provided with your final results.

**Please see enclosed 12 sample(s) in 12 Container(s)**

| | SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|---|
| 1 | L2330132-1 MEL-01-01 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/8/2019 9/9/2019 | |
| 2 | L2330132-2 MEL-01-06 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/8/2019 9/9/2019 | |
| 3 | L2330132-3 MEL-01-07 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/8/2019 9/9/2019 | |
| 4 | L2330132-4 MEL-01-08 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/8/2019 9/9/2019 | |
| 5 | L2330132-5 MEL-01-09 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/8/2019 9/9/2019 | |
| 6 | L2330132-11 MEL-03-01 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/9/2019 9/9/2019 | |
| 7 | L2330132-12 MEL-03-02 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/9/2019 9/9/2019 | |
| 8 | L2330132-13 MEL-03-03 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/9/2019 9/9/2019 | |
| 9 | L2330132-14 MEL-03-04 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/9/2019 9/9/2019 | |
| 10 | L2330132-15 MEL-03-05 | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 8/9/2019 9/9/2019 | |

ALS Environmental

**L2330132**

WINNIPEG

1908453

## Subcontract Request Form

**Subcontract To:** WP-SHIPTO-FC-FRI

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

| | SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|---|
| 11 | L2330132-19 AUG-DUP-03 | | 8/9/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 9/9/2019 | |
| 12 | L2330132-20 D1-AUGT-01 | | 8/9/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 9/9/2019 | |

Subcontract Info Contact: Judy Dalmaijer (204) 255-9749

Analysis and reporting info contact: Judy Dalmaijer
12-1329 NIAKWA ROAD E
WINNIPEG,MB R2J3T4
Phone: (204) 255-9749 Email: Judy.Dalmaijer@alsglobal.com

**Please email confirmation of receipt to:** **Judy.Dalmaijer@alsglobal.com**

Shipped By: _____ Date Shipped: AUG 16

Received By: Emily Lyons Date Received: 08.20.19 0920

Verified By: _____ Date Verified: _____

Temperature: N/A

Sample Integrity Issues: _____

**ALS Environmental - Fort Collins**
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: ALS-Winnipeg  Workorder No: 1908453

Project Manager: KMO  Initials: Em  Date: 08·21·19

| | | | | |
|---|---|---|---|---|
| 1. | Are airbills / shipping documents present and/or removable? | DROP OFF | (YES) | NO |
| 2. | Are custody seals on **shipping** containers intact? | (NONE) | YES | NO * |
| 3. | Are custody seals on **sample** containers intact? | (NONE) | YES | NO * |
| 4. | Is there a COC (chain-of-custody) present? | | (YES) | NO * |
| 5. | Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) | | (YES) | NO * |
| 6. | Are short-hold samples present? | | YES | (NO) |
| 7. | Are all samples within holding times for the requested analyses? | | (YES) | NO * |
| 8. | Were all sample containers received intact? (not broken or leaking) | | (YES) | NO * |
| 9. | Is there sufficient sample for the requested analyses? | | (YES) | NO * |
| 10. | Are all samples in the proper containers for the requested analyses? | | (YES) | NO * |
| 11. | Are all aqueous samples preserved correctly, if required? (excluding volatiles) | N/A | (YES) | NO * |
| 12. | Are all aqueous non-preserved samples pH 4-9? | (N/A) | YES | NO * |
| 13. | Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea) | (N/A) | YES | NO |
| 14. | Were the samples shipped on ice? | | (YES) | (NO) 8/22/19 |
| 15. | Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 | (RAD ONLY) | YES | NO |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cooler #: | 1 | | | | | | | |
| Temperature (°C): | Amb. | | | | | | | |
| No. of custody seals on cooler: | Ø | | | | | | | |
| DOT Survey/ Acceptance Information — External µR/hr reading: | 11 | | | | | | | |
| Background µR/hr reading: | 13 | | | | | | | |

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

*** Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.**

All client bottle ID's vs ALS lab ID's double-checked by: Em KMO

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

**Project Manager Signature / Date:** 8/22/19

Form 201r27.xls
(02/11/2019)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

45 LBS 1 OF 1
SHP#: 662F 45MR 4PB
SHP WT: 45 LBS
DATE: 15 AUG 2019

1908453

Shipping/Recie ving
ALS Laboratory Group
12042559764
1329 Niakwa RD E
Ste: 12
WINNIPEG MB R2J 3T4
CANADA

11-0

SHIP LOGIN
TO ALS ENVIRO
0
225 COMMERCE DRIVE
FORT COLLINS CO 80524
UNITED STATES

CO 805 0-01

ALS ENVIRO
225 COMMERCE DR
FORT COLLINS CO 80524

P:RED S:BROWN
36-1023
1293
1030
COLOUR
AUG 20 07:01:30 2019

UPS EXPRESS
1
TRACKING #: 1Z 662 F45 69 6715 1293

NO
DESC
VALUI
IMP/E)
COUN

DATE:
PIECES

EXPORT #

25.00

EXP

BILLING: F/D
DESC: Soil Samples
PUROLATOR PIN: 6923387520
PIECE PIN: 6923387520

Purolator's
(including liabilit
publiées par Purol
les limites de respo

KE

CCX 11 2.0.1 E2442 60.1A 10/20

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-1 | **Lab ID:** | 1908453-1 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/8/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **8/28/2019** | PrepBy: **TRW** |
| Ra-226 | 0.0031 (+/- 0.0047) | U | 0.0078 | BQ/l | NA | 9/12/2019 09:15 |
| *Carr: BARIUM* | *93* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:15 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-2 | **Lab ID:** | 1908453-2 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/8/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | 0.0017 (+/- 0.0041) | U | 0.0073 | BQ/l | NA | 9/12/2019 09:15 |
| *Carr: BARIUM* | *91.7* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:15 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-3 | **Lab ID:** | 1908453-3 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/8/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | -0.00096 (+/- 0.0041) | U | 0.0084 | BQ/l | NA | 9/12/2019 09:15 |
| *Carr: BARIUM* | *91.7* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:15 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-4 | **Lab ID:** | 1908453-4 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/8/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | 0 (+/- 0.0036) | U | 0.0072 | BQ/l | NA | 9/12/2019 09:15 |
| *Carr: BARIUM* | *96.8* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:15 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-5 | **Lab ID:** | 1908453-5 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/8/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | 0.0014 (+/- 0.0031) | U | 0.0056 | BQ/l | NA | 9/12/2019 09:15 |
| *Carr: BARIUM* | *98* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:15 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-11 | **Lab ID:** | 1908453-6 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/9/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | 0.0023 (+/- 0.0034) | U | 0.0055 | BQ/l | NA | 9/12/2019 09:15 |
| *Carr: BARIUM* | *95.8* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:15 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-12 | **Lab ID:** | 1908453-7 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/9/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | 0 (+/- 0.0032) | U | 0.0068 | BQ/l | NA | 9/12/2019 09:15 |
| *Carr: BARIUM* | *87.7* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:15 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-13 | **Lab ID:** | 1908453-8 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/9/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | 0.0026 (+/- 0.0031) | U | 0.0048 | BQ/l | NA | 9/12/2019 09:15 |
| *Carr: BARIUM* | *98.6* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:15 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-14 | **Lab ID:** | 1908453-9 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/9/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | PrepBy: **TRW** | |
| Ra-226 | 0.0047 (+/- 0.0047) | U | 0.007 | BQ/l | NA | 9/12/2019 09:55 |
| *Carr: BARIUM* | *97.9* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:55 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-15 | **Lab ID:** | 1908453-10 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/9/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| **Ra-226** | **0.0073 (+/- 0.0048)** | | **0.0055** | **BQ/l** | NA | 9/12/2019 09:55 |
| *Carr: BARIUM* | *95.8* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:55 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-19 | **Lab ID:** | 1908453-11 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/9/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | 0.0042 (+/- 0.0059) | U | 0.0096 | BQ/l | NA | 9/12/2019 09:55 |
| *Carr: BARIUM* | *95.8* | | *40-110* | *%REC* | DL = NA | 9/12/2019 09:55 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-20 | **Lab ID:** | 1908453-12 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/9/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **8/28/2019** | | PrepBy: **TRW** |
| Ra-226 | -0.0016 (+/- 0.0032) | Y1,U | 0.0068 | BQ/l | NA | 9/12/2019 09:55 |
| *Carr: BARIUM* | *100* | Y1 | *40-110* | *%REC* | DL = NA | 9/12/2019 09:55 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *12-Sep-19* |
| **Project:** | L2330132 | **Work Order:** | 1908453 |
| **Sample ID:** | L2330132-20 | **Lab ID:** | 1908453-12 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 8/9/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|

## Explanation of Qualifiers

**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

**Inorganics:**

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

**Organics:**

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE190828-1-1** Instrument ID **Alpha Scin** Method: **Radium-226 by Radon Emanation**

**LCS** Sample ID: **RE190828-1** Units: **BQ/l** Analysis Date: **9/12/2019 09:55**

Client ID: Run ID: **RE190828-1B** Prep Date: **8/28/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.77 (+/- 0.444) | 0.011 | 1.72 | | 103 | 67-120 | | | | | P,Y1,M3 |
| Carr: BARIUM | 16800 | | 16690 | | 101 | 40-110 | | | | | Y1 |

**LCSD** Sample ID: **RE190828-1** Units: **BQ/l** Analysis Date: **9/12/2019 10:30**

Client ID: Run ID: **RE190828-1B** Prep Date: **8/28/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.68 (+/- 0.419) | 0.0158 | 1.72 | | 97.5 | 67-120 | | 1.77 | 0.2 | 2.1 | P,M3 |
| Carr: BARIUM | 16500 | | 16690 | | 98.8 | 40-110 | | 16800 | | | |

**MB** Sample ID: **RE190828-1** Units: **BQ/l** Analysis Date: **9/12/2019 09:55**

Client ID: Run ID: **RE190828-1B** Prep Date: **8/28/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 0.0017 (+/- 0.0032) | 0.0055 | | | | | | | | | U |
| Carr: BARIUM | 16200 | | 16690 | | 97 | 40-110 | | | | | |

**The following samples were analyzed in this batch:**

| | | |
|---|---|---|
| 1908453-1 | 1908453-2 | 1908453-3 |
| 1908453-4 | 1908453-5 | 1908453-6 |
| 1908453-7 | 1908453-8 | 1908453-9 |
| 1908453-10 | 1908453-11 | 1908453-12 |

ALS Environmental

# Chain of Custody / Analytical Request Form

1 800 668 9878

L2330132-COFC

COC # _____

Page 1 of 2

| Report To | | | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | Azimuth Consulting Group | | | (●) Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | | | ( ) Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 1: | efranz@azimuthgroup.ca | ( ) Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 2: | mjosee.banville@agncioeagle.com | ( ) Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | Email 3: | | |
| Invoice To | Same as Report ? [✓] Yes [ ] No | Client / Project Information | | Analysis Request |
| Hardcopy of Invoice with Report? | [ ] Yes [✓] No | Job #: | Meliadine AEMP - Surface Water | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q57496 | |
| Lab Work Order # (lab use only) | | ALS Contact: | Judy Dalmaijer | Sampler: Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | | F | | F | P | F/P | P | | | | |
| 1 | MEL-01-01 | 08-Aug-19 | 14:10 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 2 | MEL-01-06 | 08-Aug-19 | 18:40 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 3 | MEL-01-07 | 08-Aug-19 | 16:35 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 4 | MEL-01-08 | 08-Aug-19 | 17:50 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 5 | MEL-01-09 | 08-Aug-19 | 15:45 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 6 | MEL-02-01 | 10-Aug-19 | 9:30 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 7 | MEL-02-02 | 10-Aug-19 | 10:04 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 8 | MEL-02-03 | 10-Aug-19 | 10:52 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 9 | MEL-02-04 | 10-Aug-19 | 11:32 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 10 | MEL-02-05 | 10-Aug-19 | 12:23 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 11 | MEL-03-01 | 09-Aug-19 | 12:45 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 12 | MEL-03-02 | 09-Aug-19 | 13:57 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Bethany Hodgins | 12-Aug-19 | 8:00 | OG | Aug 16/19 | 9:05 | 18.8 °C | | | | |

GENF 20.00 Front

ALS Environmental

# Chain of Custody / Analytical Request Form

L2330132-COFC

COC # _____



| Report To | | | |
|---|---|---|---|
| Company: | Azimuth Consulting Group | ☑ PDF ☑ Excel ☐ Digital ☐ Fax | |
| Contact: | Eric Franz | Email 1: efranz@azimuthgroup.ca | |
| Address: | 218-2902 West Broadway | Email 2: mjosee.banville@agnicoeagle.com | |
| | Vancouver, BC V6K2G8 | Email 3: | |
| Phone: | 604-730-1220 Fax: | | |
| **Invoice To** | Same as Report ? ☑ Yes ☐ No | **Client / Project Information** | |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: Meliadine AEMP - Surface Water | |
| Company: | | PO / AFE: | |
| Contact: | | LSD: | |
| Address: | | | |
| Phone: | Fax: | Quote #: Q57496 | |
| Lab Work Order # (lab use only) | | **ALS Contact:** Judy Dalmaijer | **Sampler:** Azimuth Agnico Eagle |

**Service Requested** (Rush for routine analysis subject to availability)

- (●) Regular (Standard Turnaround Times - Business Days)
- ( ) Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ( ) Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ( ) Same Day or Weekend Emergency - Contact ALS to Confirm TAT

**Analysis Request**

Please indicate below Filtered, Preserved or both (F, P, F/P)

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) P | Total mercury | Dissolved mercury F | Total Metals | Dissolved Metals F | TOC, Ammonia, TKN, Total P P | DOC F/P | Radium-226 P | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | MEL-03-03 | 09-Aug-19 | 15:00 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 14 | MEL-03-04 | 09-Aug-19 | 15:35 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 15 | MEL-03-05 | 09-Aug-19 | 16:22 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 16 | B7-01 | 08-Aug-19 | 10:40 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 17 | B7-02 | 08-Aug-19 | 11:20 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 18 | B7-03 | 08-Aug-19 | 12:20 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 19 | AUG-DUP-03 | 09-Aug-19 | 13:57 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 20 | ~~AUG-DUP-01~~ D1-AUG-01 | 08-Aug-19 | 14:10 | Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Bethany Hodgins | 12-Aug-19 | 8:00 | OG | Aug/16/19 | 9:05 | 18.5 °C | | | | |

Agnico-Eagle - Meliadine Gold Project
ATTN: ERIC FRANZ
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8

Date Received: 21-AUG-19
Report Date: 12-SEP-19 07:56 (MT)
Version: FINAL

Client Phone: 604-730-1220

# Certificate of Analysis

## Lab Work Order #: L2332618

Project P.O. #: NOT SUBMITTED
Job Reference: MELIADINE AEMP - SURFACE WATER
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-1 MEL-04-01 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:05 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.4 | | 1.2 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.0 | | 1.0 | mg/L | | 21-AUG-19 | R4763750 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.81 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 73.0 | | 1.0 | umhos/cm | | 21-AUG-19 | R4763750 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.9 | | 0.20 | mg/L | | 11-SEP-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 38.0 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0121 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0121 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.57 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 47 | | 13 | mg/L | | 21-AUG-19 | R4764988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.21 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.48 | | 0.10 | pH units | | 21-AUG-19 | R4763750 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0080 | | 0.0050 | mg/L | | 04-SEP-19 | R4783638 |
| Dissolved Organic Carbon | 2.23 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Phosphorus (P)-Total | 0.0026 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.172 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.27 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-AUG-19 | R4766510 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0034 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.000225 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.00724 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-1 MEL-04-01 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:05 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 6.92 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000086 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000113 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000745 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0133 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000016 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000015 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00064 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 1.05 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00284 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000063 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000371 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 0.906 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00126 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000053 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.117 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 4.40 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0328 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.33 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000054 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000143 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000145 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00067 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00051 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0021 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000200 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00743 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-1 MEL-04-01 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:05 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 6.94 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000086 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | 0.00024 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000615 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0029 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00063 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000454 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000065 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000368 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.925 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00131 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.113 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.52 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0320 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.31 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000124 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-2 MEL-04-02 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:50 | | | | | | | |
| Matrix: 8/14/2019 11:05 AM | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 21.0 | | 1.2 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.2 | | 1.0 | mg/L | | 21-AUG-19 | R4763750 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-2 MEL-04-02 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:50 | | | | | | | |
| Matrix: 8/14/2019 11:05 AM | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.72 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 71.9 | | 1.0 | umhos/cm | | 21-AUG-19 | R4763750 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.2 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 36.2 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.56 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 48 | | 13 | mg/L | | 21-AUG-19 | R4764988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.29 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.44 | | 0.10 | pH units | | 21-AUG-19 | R4763750 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.28 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Phosphorus (P)-Total | 0.0032 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.202 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00401 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.24 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-AUG-19 | R4766510 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0048 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.000205 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.00788 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 6.88 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000084 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000147 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000747 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0139 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-2 MEL-04-02 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:50 | | | | | | | |
| Matrix: 8/14/2019 11:05 AM | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Lanthanum (La)-Total | 0.000017 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000021 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00064 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 1.05 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00278 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000068 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000384 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 0.902 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00130 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.117 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 4.35 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0336 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.09 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000031 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | <0.00025 | DLM | 0.00025 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000144 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | 0.0000054 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00133 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0022 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000199 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00748 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.05 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000085 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000600 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0030 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-2 MEL-04-02 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:50 | | | | | | | |
| Matrix: 8/14/2019 11:05 AM | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00063 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000464 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000066 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000369 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.918 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00134 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.107 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.54 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0320 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.28 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000137 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-3 MEL-04-03 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 21.0 | | 1.2 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.2 | | 1.0 | mg/L | | 21-AUG-19 | R4763750 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.65 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 73.1 | | 1.0 | umhos/cm | | 21-AUG-19 | R4763750 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.1 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-3 MEL-04-03 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| TDS (Calculated) | 36.4 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0793 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0793 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.56 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 36 | | 13 | mg/L | | 21-AUG-19 | R4764988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.29 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.45 | | 0.10 | pH units | | 21-AUG-19 | R4763750 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0208 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.25 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Phosphorus (P)-Total | 0.0027 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.239 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00067 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.47 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-AUG-19 | R4766510 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0053 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.000228 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.00846 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 7.13 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000095 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000164 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000689 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0138 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000019 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000021 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00064 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 1.05 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00288 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000065 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000368 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-3 MEL-04-03 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Potassium (K)-Total | 0.894 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00133 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000044 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.128 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 4.47 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0331 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.23 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000185 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000144 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | 0.0000061 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00167 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00052 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0020 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000206 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00734 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.03 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000079 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000055 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000642 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0032 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00062 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000651 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000140 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000384 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.920 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-3 MEL-04-03 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00131 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.108 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.44 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0323 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.20 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000028 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000137 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00103 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-4 MEL-04-04 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 21.1 | | 1.2 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.3 | | 1.0 | mg/L | | 21-AUG-19 | R4763750 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.78 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 72.2 | | 1.0 | umhos/cm | | 21-AUG-19 | R4763750 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.025 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.3 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 36.1 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0059 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0059 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.62 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-4 MEL-04-04 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 55 | | 13 | mg/L | | 21-AUG-19 | R4764988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.27 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.47 | | 0.10 | pH units | | 21-AUG-19 | R4763750 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0064 | RRV | 0.0050 | mg/L | | 06-SEP-19 | R4785688 |
| Dissolved Organic Carbon | 2.25 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Phosphorus (P)-Total | 0.0024 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.191 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00064 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.14 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-AUG-19 | R4766510 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0031 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.000215 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.00762 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 6.80 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000090 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000110 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000667 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0110 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000016 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000022 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00062 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 1.03 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00275 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000070 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000366 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 0.878 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00128 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000064 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.117 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 4.31 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0336 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.12 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-4 MEL-04-04 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000093 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000151 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00181 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0040 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000210 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00736 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 6.73 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000088 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000710 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0031 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00060 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.10 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000534 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000073 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000358 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.918 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00132 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.100 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.50 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0325 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.26 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-4 MEL-04-04 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000025 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000135 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00075 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-5 MEL-04-05 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 10:06 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.2 | | 1.2 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 22-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.8 | | 1.0 | mg/L | | 21-AUG-19 | R4763750 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.30 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 84.2 | | 1.0 | umhos/cm | | 21-AUG-19 | R4763750 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.024 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.1 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 38.8 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0332 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0332 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.66 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 52 | | 13 | mg/L | | 21-AUG-19 | R4764988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.25 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.48 | | 0.10 | pH units | | 21-AUG-19 | R4763750 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0092 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.14 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-5 MEL-04-05 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 10:06 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Phosphorus (P)-Total | 0.0029 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.222 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.22 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-AUG-19 | R4766510 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0038 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.000216 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.00710 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 6.98 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000085 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000110 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000753 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0123 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000016 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00064 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 1.09 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00271 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000067 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000377 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 0.899 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00130 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.113 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 4.72 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0336 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.18 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | <0.00015 | DLM | 0.00015 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000134 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00053 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-5 MEL-04-05 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 10:06 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000178 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00744 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 6.95 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000093 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | 0.00016 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000638 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0027 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | 0.000122 | DTMF | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00063 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.14 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000455 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000069 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000373 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.915 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00129 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.107 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.82 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0322 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.22 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000121 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00065 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-6 A8-01 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:26 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 51.9 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 42.5 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 38.6 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 219 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.029 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 84.4 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 97.3 | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 110 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 6.25 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 130 | | 13 | mg/L | | 21-AUG-19 | R4764988 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.35 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.74 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0127 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 3.43 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Phosphorus (P)-Total | 0.0051 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.345 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00054 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 3.58 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-AUG-19 | R4766510 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0022 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.00201 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.0212 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-6 A8-01 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:26 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 28.6 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000129 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | 0.00035 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000306 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000641 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0428 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000011 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000015 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00610 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 3.39 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00670 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000204 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000651 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 1.65 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00157 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.188 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 6.30 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.174 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 2.45 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | 0.000057 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000375 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | 0.0000062 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0023 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | 0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.00184 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.0223 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-6 A8-01 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:26 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 27.8 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000132 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000161 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000641 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0179 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00607 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 3.63 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.00146 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000207 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000683 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 1.71 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00166 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.187 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 6.54 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.173 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 2.39 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | 0.000055 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000357 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-7 A8-02 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 12:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 52.0 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 42.6 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-7 A8-02 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 12:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 39.1 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 219 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.029 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 84.4 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 96.3 | | | % | | 28-AUG-19 | |
| TDS (Calculated) | 111 | | | mg/L | | 28-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 6.30 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 159 | | 20 | mg/L | | 03-SEP-19 | R4782675 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.32 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.76 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0101 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 3.50 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | 0.0011 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Phosphorus (P)-Total | 0.0057 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.355 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00059 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 3.71 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | 1.2 | | 1.0 | mg/L | | 29-AUG-19 | R4777507 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0032 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.00210 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.0219 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 29.0 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000138 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | 0.00033 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000275 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000664 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0444 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-7 A8-02 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 12:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Lanthanum (La)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000017 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00610 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 3.53 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00613 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000218 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000662 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 1.66 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00162 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.192 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 6.30 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.184 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 2.24 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000026 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000072 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | 0.000055 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000366 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00066 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | 0.000021 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.00183 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.0213 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 27.9 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000133 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | 0.00042 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000173 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000897 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0140 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-7 A8-02 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 12:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lead (Pb)-Dissolved | 0.000014 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00593 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 3.60 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.00112 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000205 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000651 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 1.69 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00166 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.179 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 6.41 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.176 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 2.39 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | 0.000050 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000357 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00058 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-8 A8-03 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 58.0 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 47.5 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 35.2 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 215 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.035 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 85.2 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 97.5 | | | % | | 11-SEP-19 | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-8 A8-03 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| TDS (Calculated) | 109 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.45 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 222 | | 20 | mg/L | | 03-SEP-19 | R4782675 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.41 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.81 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0190 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 4.54 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | 0.0012 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Phosphorus (P)-Total | 0.0079 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.371 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00054 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 4.34 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | 1.3 | | 1.0 | mg/L | | 29-AUG-19 | R4777507 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0070 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.00210 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.0221 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 28.3 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000140 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000425 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.00109 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0700 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000013 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000048 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00551 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 3.46 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.0114 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000212 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000803 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-8 A8-03 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Potassium (K)-Total | 1.62 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00165 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.266 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 5.90 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.172 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.98 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000036 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | <0.00015 | DLM | 0.00015 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | 0.000021 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000351 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | 0.0000063 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00091 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00058 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0021 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.00180 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.0221 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 28.2 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000135 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000212 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000693 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0309 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00552 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 3.60 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.00143 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000219 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000797 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 1.67 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-8 A8-03 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00167 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.268 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 5.96 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.169 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 2.01 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000041 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | 0.000018 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000331 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-9 D7-01 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 08:46 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 56.4 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 46.2 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 17.3 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 155 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.042 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 50.2 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 94.7 | | | % | | 28-AUG-19 | |
| TDS (Calculated) | 79.4 | | | mg/L | | 28-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0374 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0386 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | 0.0011 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.25 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-9 D7-01 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 08:46 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 75 | | 13 | mg/L | | 03-SEP-19 | R4782675 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.64 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.80 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0290 | RRV | 0.0050 | mg/L | | 06-SEP-19 | R4785688 |
| Dissolved Organic Carbon | 4.34 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Phosphorus (P)-Total | 0.0098 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.447 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00072 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 4.41 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | 1.3 | | 1.0 | mg/L | | 29-AUG-19 | R4777507 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0057 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.00105 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.0164 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | 0.0139 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 15.0 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000121 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000520 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.00174 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0648 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000025 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000057 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00167 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 2.86 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.0110 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000459 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000784 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 1.33 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00114 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.134 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 9.07 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0803 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.77 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-9 D7-01 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 08:46 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000047 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000300 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000615 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | 0.000081 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | 0.0000076 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00112 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00056 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0025 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000899 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.0171 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | 0.0146 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 15.3 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000123 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000234 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000773 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0221 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | 0.000012 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00168 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 2.93 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.00105 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000445 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000769 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 1.35 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00118 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | 0.000045 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.126 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 9.29 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0786 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.80 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-9 D7-01 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 08:46 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000036 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000582 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | 0.000052 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | 0.0000054 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00071 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-10 D7-02 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 09:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 55.4 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 45.4 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.5 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 134 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.041 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 47.2 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 101 | | | % | | 28-AUG-19 | |
| TDS (Calculated) | 70.2 | | | mg/L | | 28-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0123 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0123 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.55 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 79 | | 13 | mg/L | | 03-SEP-19 | R4782675 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.57 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.81 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0173 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 4.41 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-10 D7-02 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 09:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Phosphorus (P)-Total | 0.0086 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.409 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00079 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 4.37 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | 1.2 | | 1.0 | mg/L | | 29-AUG-19 | R4777507 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0063 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.00101 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.0168 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | 0.0147 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 15.1 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000126 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | 0.00036 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000517 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000824 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0627 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000028 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000025 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00170 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 2.81 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.0119 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000455 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000803 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 1.32 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00114 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000042 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.138 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 9.04 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0836 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.88 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000035 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000330 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000645 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | 0.000082 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | 0.0000086 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-10 D7-02 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 09:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00071 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0026 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000899 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.0166 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | 0.0145 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 14.5 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000087 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000218 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000787 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0202 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | 0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00153 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 2.70 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.00136 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000422 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000760 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 1.31 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00118 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | 0.000049 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.113 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 8.26 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0717 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.69 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000026 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000590 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | 0.0000058 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-11 D7-03 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 09:37 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 56.6 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 46.4 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.4 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 135 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.042 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 47.3 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 97.7 | | | % | | 28-AUG-19 | |
| TDS (Calculated) | 70.2 | | | mg/L | | 28-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0258 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0272 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | 0.0014 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.55 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 90 | HTD | 13 | mg/L | | 23-AUG-19 | R4768592 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.59 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.81 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0199 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 4.36 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 25-AUG-19 | R4769035 |
| Phosphorus (P)-Total | 0.0083 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.441 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00066 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 4.80 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-AUG-19 | R4766510 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0053 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.000954 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.0167 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-11 D7-03 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 09:37 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Boron (B)-Total | 0.0150 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 15.4 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000091 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000484 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000780 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0594 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000024 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000017 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00159 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 2.62 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.0108 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000445 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000767 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 1.29 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00111 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000044 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.139 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 7.87 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0739 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.63 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000276 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000615 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | 0.000079 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | 0.0000090 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00060 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4769899 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0021 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000865 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.0167 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | 0.0144 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-11 D7-03 | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 09:37 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 14.6 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000089 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | 0.00019 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000216 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000767 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0191 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00151 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 2.64 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000994 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000428 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000731 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 1.28 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00111 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | 0.000042 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.130 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 7.75 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0688 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.76 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | 0.000052 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000592 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-12 AUG-DUP-01 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 56.6 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 46.4 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-12 AUG-DUP-01 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 13.3 | | 0.10 | mg/L | | 22-AUG-19 | R4766152 |
| **Conductivity** | | | | | | | |
| Conductivity | 142 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.041 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 47.1 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 92.2 | | | % | | 23-AUG-19 | |
| TDS (Calculated) | 72.4 | | | mg/L | | 23-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0202 | | 0.0050 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0202 | | 0.0051 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766152 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.15 | | 0.30 | mg/L | | 22-AUG-19 | R4766152 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 84 | | 13 | mg/L | | 28-AUG-19 | R4776249 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.66 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.81 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0169 | RRV | 0.0050 | mg/L | | 06-SEP-19 | R4785688 |
| Dissolved Organic Carbon | 4.39 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |
| Phosphorus (P)-Total | 0.0097 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.408 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00075 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 4.29 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| Total Suspended Solids | <2.0 | | 2.0 | mg/L | | 29-AUG-19 | R4777507 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0058 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.00103 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.0172 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | 0.0144 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 15.3 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000069 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | 0.00036 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000481 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000810 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0646 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-12 AUG-DUP-01 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Lanthanum (La)-Total | 0.000025 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000017 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00147 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 2.54 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.0110 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000427 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000803 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 1.28 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00111 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000051 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.144 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 7.38 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0690 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.60 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000301 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000609 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | 0.000080 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | 0.0000081 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00069 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4770555 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 04-SEP-19 | R4783182 |
| Aluminum (Al)-Dissolved | 0.0024 | | 0.0010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Arsenic (As)-Dissolved | 0.000894 | | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Barium (Ba)-Dissolved | 0.0168 | | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Boron (B)-Dissolved | 0.0143 | | 0.0050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Calcium (Ca)-Dissolved | 14.5 | | 0.010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Cesium (Cs)-Dissolved | 0.0000062 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Chromium (Cr)-Dissolved | 0.00031 | | 0.00010 | mg/L | 04-SEP-19 | 03-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000215 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Copper (Cu)-Dissolved | 0.000788 | | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Iron (Fe)-Dissolved | 0.0276 | | 0.0010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Lanthanum (La)-Dissolved | 0.000012 | | 0.000010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-12 AUG-DUP-01 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lead (Pb)-Dissolved | 0.000010 | | 0.000010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Lithium (Li)-Dissolved | 0.00143 | | 0.00050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Magnesium (Mg)-Dissolved | 2.67 | | 0.0040 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Manganese (Mn)-Dissolved | 0.000892 | | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Molybdenum (Mo)-Dissolved | 0.000470 | | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Nickel (Ni)-Dissolved | 0.000747 | | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Potassium (K)-Dissolved | 1.27 | | 0.020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Rubidium (Rb)-Dissolved | 0.00111 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Silicon (Si)-Dissolved | 0.141 | | 0.050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Sodium (Na)-Dissolved | 7.50 | | 0.020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Strontium (Sr)-Dissolved | 0.0711 | | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Sulfur (S)-Dissolved | 1.72 | | 0.50 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Tin (Sn)-Dissolved | 0.000025 | | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Titanium (Ti)-Dissolved | 0.000058 | | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Uranium (U)-Dissolved | 0.0000574 | | 0.0000010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| L2332618-13 AUG-DUP-02 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 50.8 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 41.6 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 38.3 | | 0.10 | mg/L | | 22-AUG-19 | R4766152 |
| **Conductivity** | | | | | | | |
| Conductivity | 223 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.031 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 84.3 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 98.1 | | | % | | 23-AUG-19 | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-13 AUG-DUP-02 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| TDS (Calculated) | 109 | | | mg/L | | 23-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766152 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 6.23 | | 0.30 | mg/L | | 22-AUG-19 | R4766152 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 153 | | 20 | mg/L | | 28-AUG-19 | R4776249 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.33 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.77 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0172 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 3.71 | | 0.50 | mg/L | | 29-AUG-19 | R4778126 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |
| Phosphorus (P)-Total | 0.0050 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.355 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00065 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 3.55 | | 0.50 | mg/L | | 29-AUG-19 | R4778113 |
| Total Suspended Solids | <2.0 | | 2.0 | mg/L | | 29-AUG-19 | R4777507 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0022 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.00214 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.0226 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 28.6 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000133 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000295 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000664 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0445 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000012 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000018 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00609 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 3.55 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00667 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000208 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000676 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-13 AUG-DUP-02 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Potassium (K)-Total | 1.68 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00158 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | 0.000048 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.178 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 6.41 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.181 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 2.47 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000084 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | 0.000059 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000375 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00059 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4770555 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0015 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.00188 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.0219 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 27.8 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000134 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000151 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000667 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0187 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00592 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 3.64 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.00148 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000210 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000661 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 1.67 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-13 AUG-DUP-02 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00166 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.169 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 6.31 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.177 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 2.03 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000021 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | 0.000053 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000352 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00061 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-14 AUG-EB-01 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 10:00 | | | | | | | |
| Matrix: WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | <1.2 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | <1.0 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 0.11 | | 0.10 | mg/L | | 21-AUG-19 | R4769820 |
| **Conductivity** | | | | | | | |
| Conductivity | 1.1 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 21-AUG-19 | R4769820 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 0.23 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low TDS | | | % | | 28-AUG-19 | |
| TDS (Calculated) | <1.0 | | | mg/L | | 28-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 21-AUG-19 | R4769820 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 28-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 21-AUG-19 | R4769820 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 21-AUG-19 | R4769820 |
| **Total Dissolved Solids (TDS)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-14 AUG-EB-01 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 10:00 | | | | | | | |
| Matrix: WATER | | | | | | | |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | <4.0 | | 4.0 | mg/L | | 03-SEP-19 | R4782675 |
| **Turbidity** | | | | | | | |
| Turbidity | <0.10 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 5.52 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0090 | RRV | 0.0050 | mg/L | | 06-SEP-19 | R4785688 |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 29-AUG-19 | R4778126 |
| Cyanide, Free | 0.0013 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4767563 |
| Phosphorus (P)-Total | <0.0010 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | <0.50 | | 0.50 | mg/L | | 29-AUG-19 | R4778113 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 29-AUG-19 | R4777507 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | <0.0010 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | <0.010 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | 0.00045 | RRV | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Cobalt (Co)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | <0.0010 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 0.0064 | RRV | 0.0040 | mg/L | | 06-SEP-19 | R4785409 |
| Manganese (Mn)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000135 | RRV | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Nickel (Ni)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | <0.020 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 0.067 | RRV | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Strontium (Sr)-Total | 0.000049 | RRV | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Sulfur (S)-Total | <0.50 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-14 AUG-EB-01 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 10:00 | | | | | | | |
| Matrix: WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | <0.0000010 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4770555 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 04-SEP-19 | R4783182 |
| Aluminum (Al)-Dissolved | <0.0010 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.000045 | RRV | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 0.060 | RRV | 0.010 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | <0.0010 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 0.0197 | RRV | 0.0040 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Manganese (Mn)-Dissolved | 0.000059 | RRV | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Molybdenum (Mo)-Dissolved | 0.000119 | RRV | 0.000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Nickel (Ni)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | <0.020 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.0000067 | RRV | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 0.192 | RRV | 0.020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Strontium (Sr)-Dissolved | 0.000194 | RRV | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Sulfur (S)-Dissolved | <0.50 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-14 AUG-EB-01 | | | | | | | |
| Sampled By: AAE on 12-AUG-19 @ 10:00 | | | | | | | |
| Matrix: WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000035 | RRV | 0.000020 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | <0.0000010 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00133 | RRV | 0.00050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2332618-15 AUG-DUP-04 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.3 | | 1.2 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 23-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.6 | | 1.0 | mg/L | | 22-AUG-19 | R4765529 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.53 | | 0.10 | mg/L | | 22-AUG-19 | R4766152 |
| **Conductivity** | | | | | | | |
| Conductivity | 74.6 | | 1.0 | umhos/cm | | 22-AUG-19 | R4765529 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.5 | | 0.20 | | | 21-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 11-SEP-19 | |
| TDS (Calculated) | 37.7 | | | mg/L | | 11-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0070 | <T | 0.0050 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0070 | | 0.0051 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4766152 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.70 | | 0.30 | mg/L | | 22-AUG-19 | R4766152 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 44 | | 13 | mg/L | | 28-AUG-19 | R4776249 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.27 | | 0.10 | NTU | | 21-AUG-19 | R4763090 |
| **pH** | | | | | | | |
| pH | 7.39 | | 0.10 | pH units | | 22-AUG-19 | R4765529 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0383 | RRV | 0.0050 | mg/L | | 06-SEP-19 | R4785688 |
| Dissolved Organic Carbon | 2.15 | | 0.50 | mg/L | | 29-AUG-19 | R4778126 |
| Cyanide, Free | 0.0013 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-15 AUG-DUP-04 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Total | 0.0011 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 01-SEP-19 | R4779654 |
| Phosphorus (P)-Total | 0.0025 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.221 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Mercury (Hg)-Total | 0.00056 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.22 | | 0.50 | mg/L | | 29-AUG-19 | R4778113 |
| Total Suspended Solids | <2.0 | | 2.0 | mg/L | | 29-AUG-19 | R4777507 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0106 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Arsenic (As)-Total | 0.000237 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Barium (Ba)-Total | 0.00997 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Total | 7.08 | | 0.010 | mg/L | | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Total | 0.0000097 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Total | 0.00033 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Total | 0.0000223 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Copper (Cu)-Total | 0.000842 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Iron (Fe)-Total | 0.0206 | | 0.0010 | mg/L | | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Total | 0.000029 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lead (Pb)-Total | 0.000042 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Lithium (Li)-Total | 0.00064 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Total | 1.13 | | 0.0040 | mg/L | | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Total | 0.00309 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Total | 0.000070 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Total | 0.000412 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Potassium (K)-Total | 0.934 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Total | 0.00136 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 04-SEP-19 | R4782843 |
| Silicon (Si)-Total | 0.128 | | 0.050 | mg/L | | 04-SEP-19 | R4782843 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Sodium (Na)-Total | 4.83 | | 0.020 | mg/L | | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Total | 0.0331 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Sulfur (S)-Total | 1.36 | | 0.50 | mg/L | | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tin (Sn)-Total | 0.000034 | | 0.000020 | mg/L | | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Total | 0.000394 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| Uranium (U)-Total | 0.0000146 | | 0.0000010 | mg/L | | 04-SEP-19 | R4782843 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Total | 0.00253 | | 0.00050 | mg/L | | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332618-15 AUG-DUP-04 | | | | | | | |
| Sampled By: AAE | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 04-SEP-19 | R4782843 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 23-AUG-19 | R4767324 |
| Mercury (Hg)-Dissolved | 0.00051 | | 0.00050 | ug/L | 23-AUG-19 | 28-AUG-19 | R4770555 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0021 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000222 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00743 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.01 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000097 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000147 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000632 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0029 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00068 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.20 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000519 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000293 | DTMF | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000372 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.948 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00134 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.108 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 5.29 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0315 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.31 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000035 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | 0.000021 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000142 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | 0.000218 | DTMF | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00145 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | 0.000015 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

## Qualifiers for Sample Submission Listed:

| Qualifier | Description |
|---|---|
| SPL | -1 NH3-F, TKN-L - Sample was Preserved at the laboratory |

## Sample Parameter Qualifier Key:

| Qualifier | Description |
|---|---|
| <T | A Measurable Trace Amount: Interpret With Caution |
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| DTMF | Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration. |
| HTD | Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RRV | Reported Result Verified By Repeat Analysis |

## Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-CO3CO3-CALC-WP | Water | Alkalinity, Carbonate | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

| | | | |
|---|---|---|---|
| ALK-HCO3HCO3-CALC-WP | Water | Alkalinity, Bicarbonate | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

| | | | |
|---|---|---|---|
| ALK-OHOH-CALC-WP | Water | Alkalinity, Hydroxide | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

| | | | |
|---|---|---|---|
| ALK-TITR-WP | Water | Alkalinity, Total (as CaCO3) | APHA 2320B |

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

| | | | |
|---|---|---|---|
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |

Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

| | | | |
|---|---|---|---|
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |

Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

| | | | |
|---|---|---|---|
| CL-L-IC-N-WP | Water | Chloride in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| CN-FREE-L-CFA-VA | Water | Low Level Free Cyanide in water by CFA | ASTM 7237 |

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

| | | | |
|---|---|---|---|
| CN-T-L-CFA-VA | Water | Low Level Total Cyanide in water by CFA | ISO 14403:2002 |

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

| | | | |
|---|---|---|---|
| CN-WAD-L-CFA-VA | Water | Low level WAD Cyanide in water by CFA | APHA 4500-CN CYANIDE |

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

| | | | |
|---|---|---|---|
| EC-SCREEN-VA | Water | Conductivity Screen (Internal Use Only) | APHA 2510 |

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| EC-WP | Water | Conductivity | APHA 2510B |
| Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes. | | | |
| F-IC-N-WP | Water | Fluoride in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| HARDNESS-CALC-WP | Water | Hardness Calculated | APHA 2340B |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. | | | |
| HG-D-U-CVAF-VA | Water | Diss. Mercury in Water by CVAFS (Ultra) | APHA 3030 B / EPA 1631 REV. E |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure may involve preliminary sample treatment by filtration (APHA 3030B) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry. | | | |
| HG-T-U-CVAF-VA | Water | Total Mercury in Water by CVAFS (Ultra) | EPA 1631 REV. E |
| This analysis is carried out using procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry. | | | |
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |
| Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.<br><br>Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:<br><br>Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum] | | | |
| MET-D-NP-CCMS-VA | Water | Dissolved Metals in Water CRC ICPMS | EPA 6020B (mod) |
| Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation. | | | |
| MET-T-NP-CCMS-VA | Water | Total Metals by CRC ICPMS (Undigested) | EPA 6020B (mod) |
| Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results.<br>Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations. | | | |
| NH3-F-ED | Water | Ammonia in Water by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. | | | |
| NO2+NO3-CALC-L-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-L-IC-N-WP | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| NO3-L-IC-N-WP | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample. | | | |
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| | | This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. | |
| PH-WP | Water | pH | APHA 4500H |
| | | The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode. | |
| SO4-IC-N-WP | Water | Sulfate in Water by IC | EPA 300.1 (mod) |
| | | Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | |
| TDS-WP | Water | Total Dissolved Solids (TDS) | APHA 2540 SOLIDS C,E |
| | | A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids. | |
| TKN-L-F-ED | Water | TKN (as N) by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| | | This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection. | |
| TSS-LOW-VA | Water | Total Suspended Solids by Grav. (1 mg/L) | APHA 2540D |
| | | This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples. | |
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |
| | | Turbidity in aqueous matrices is determined by the nephelometric method. | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8
Contact: ERIC FRANZ

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **ALK-TITR-WP** | **Water** | | | | | | | |
| **Batch R4763750** | | | | | | | | |
| **WG3139880-24 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 105.7 | | % | | 85-115 | 21-AUG-19 |
| **WG3139880-21 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 21-AUG-19 |
| **Batch R4765529** | | | | | | | | |
| **WG3141365-10 DUP** | | **L2332618-15** | | | | | | |
| Alkalinity, Total (as CaCO3) | | 16.6 | 16.5 | | mg/L | 0.6 | 20 | 22-AUG-19 |
| **WG3141365-19 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 106.1 | | % | | 85-115 | 22-AUG-19 |
| **WG3141365-9 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 101.4 | | % | | 85-115 | 22-AUG-19 |
| **WG3141365-16 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 22-AUG-19 |
| **WG3141365-6 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 22-AUG-19 |
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4775378** | | | | | | | | |
| **WG3146825-3 DUP** | | **L2332618-11** | | | | | | |
| Dissolved Organic Carbon | | 4.36 | 4.30 | | mg/L | 1.4 | 20 | 28-AUG-19 |
| **WG3146825-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 103.3 | | % | | 80-120 | 28-AUG-19 |
| **WG3146825-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 28-AUG-19 |
| **WG3146825-4 MS** | | **L2332618-12** | | | | | | |
| Dissolved Organic Carbon | | | 102.0 | | % | | 70-130 | 28-AUG-19 |
| **Batch R4778126** | | | | | | | | |
| **WG3148454-3 DUP** | | **L2332618-14** | | | | | | |
| Dissolved Organic Carbon | | <0.50 | <0.50 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| **WG3148454-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 103.7 | | % | | 80-120 | 29-AUG-19 |
| **WG3148454-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 29-AUG-19 |
| **WG3148454-4 MS** | | **L2332618-15** | | | | | | |
| Dissolved Organic Carbon | | | 108.4 | | % | | 70-130 | 29-AUG-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4775374** | | | | | | | | |
| **WG3146967-3 DUP** | | **L2332618-1** | | | | | | |
| Total Organic Carbon | | 2.27 | 2.35 | | mg/L | 3.5 | 20 | 28-AUG-19 |
| **WG3146967-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.6 | | % | | 80-120 | 28-AUG-19 |
| **WG3146967-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 28-AUG-19 |
| **WG3146967-4 MS** | | **L2332618-2** | | | | | | |
| Total Organic Carbon | | | 102.9 | | % | | 70-130 | 28-AUG-19 |
| **Batch R4778113** | | | | | | | | |
| **WG3148482-3 DUP** | | **L2332618-13** | | | | | | |
| Total Organic Carbon | | 3.55 | 3.51 | | mg/L | 1.1 | 20 | 29-AUG-19 |
| **WG3148482-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.6 | | % | | 80-120 | 29-AUG-19 |
| **WG3148482-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 29-AUG-19 |
| **WG3148482-4 MS** | | **L2332618-14** | | | | | | |
| Total Organic Carbon | | | 103.3 | | % | | 70-130 | 29-AUG-19 |
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4766152** | | | | | | | | |
| **WG3140205-2 LCS** | | | | | | | | |
| Chloride (Cl) | | | 98.3 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-1 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 22-AUG-19 |
| **Batch R4769820** | | | | | | | | |
| **WG3138862-2 LCS** | | | | | | | | |
| Chloride (Cl) | | | 99.0 | | % | | 90-110 | 21-AUG-19 |
| **WG3138862-1 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 21-AUG-19 |
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4767563** | | | | | | | | |
| **WG3141858-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 99.8 | | % | | 80-120 | 23-AUG-19 |
| **WG3141858-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 23-AUG-19 |
| **Batch R4769035** | | | | | | | | |
| **WG3142822-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 99.2 | | % | | 80-120 | 25-AUG-19 |
| **WG3142822-6 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4769035** | | | | | | | | |
| **WG3142822-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 25-AUG-19 |
| **Batch R4779654** | | | | | | | | |
| **WG3149751-2 LCS** | | | | | | | | |
| Cyanide, Free | | | 100.8 | | % | | 80-120 | 01-SEP-19 |
| **WG3149751-7 LCS** | | | | | | | | |
| Cyanide, Free | | | 100.1 | | % | | 80-120 | 01-SEP-19 |
| **WG3149751-1 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 01-SEP-19 |
| **WG3149751-6 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 01-SEP-19 |
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4767563** | | | | | | | | |
| **WG3141858-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 96.5 | | % | | 80-120 | 23-AUG-19 |
| **WG3141858-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 23-AUG-19 |
| **Batch R4769035** | | | | | | | | |
| **WG3142822-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 97.8 | | % | | 80-120 | 25-AUG-19 |
| **WG3142822-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 25-AUG-19 |
| **Batch R4779654** | | | | | | | | |
| **WG3149751-2 LCS** | | | | | | | | |
| Cyanide, Total | | | 98.8 | | % | | 80-120 | 01-SEP-19 |
| **WG3149751-7 LCS** | | | | | | | | |
| Cyanide, Total | | | 99.0 | | % | | 80-120 | 01-SEP-19 |
| **WG3149751-1 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 01-SEP-19 |
| **WG3149751-6 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 01-SEP-19 |
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4767563** | | | | | | | | |
| **WG3141858-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 104.6 | | % | | 80-120 | 23-AUG-19 |
| **WG3141858-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 23-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4769035** | | | | | | | | |
| **WG3142822-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 103.0 | | % | | 80-120 | 25-AUG-19 |
| **WG3142822-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 25-AUG-19 |
| **Batch R4779654** | | | | | | | | |
| **WG3149751-2 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 105.4 | | % | | 80-120 | 01-SEP-19 |
| **WG3149751-7 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 100.0 | | % | | 80-120 | 01-SEP-19 |
| **WG3149751-1 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 01-SEP-19 |
| **WG3149751-6 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 01-SEP-19 |
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4763750** | | | | | | | | |
| **WG3139880-23 LCS** | | | | | | | | |
| Conductivity | | | 98.6 | | % | | 90-110 | 21-AUG-19 |
| **WG3139880-21 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 21-AUG-19 |
| **Batch R4765529** | | | | | | | | |
| **WG3141365-10 DUP** | | **L2332618-15** | | | | | | |
| Conductivity | | 74.6 | 74.3 | | umhos/cm | 0.4 | 10 | 22-AUG-19 |
| **WG3141365-18 LCS** | | | | | | | | |
| Conductivity | | | 98.4 | | % | | 90-110 | 22-AUG-19 |
| **WG3141365-8 LCS** | | | | | | | | |
| Conductivity | | | 98.6 | | % | | 90-110 | 22-AUG-19 |
| **WG3141365-16 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 22-AUG-19 |
| **WG3141365-6 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 22-AUG-19 |
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4766152** | | | | | | | | |
| **WG3140205-2 LCS** | | | | | | | | |
| Fluoride (F) | | | 99.8 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-1 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 22-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4769820** | | | | | | | | |
| **WG3138862-2 LCS** | | | | | | | | |
| Fluoride (F) | | | 101.4 | | % | | 90-110 | 21-AUG-19 |
| **WG3138862-1 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 21-AUG-19 |
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4768491** | | | | | | | | |
| **WG3141774-10 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 83.2 | | % | | 80-120 | 23-AUG-19 |
| **WG3141774-6 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 83.2 | | % | | 80-120 | 23-AUG-19 |
| **WG3141774-5 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 23-AUG-19 |
| **WG3141774-9 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 23-AUG-19 |
| **Batch R4769899** | | | | | | | | |
| **WG3141774-11 DUP** | | **L2332618-6** | | | | | | |
| Mercury (Hg)-Dissolved | | <0.00050 | <0.00050 | RPD-NA | ug/L | N/A | 20 | 28-AUG-19 |
| **WG3141774-12 MS** | | **L2332618-7** | | | | | | |
| Mercury (Hg)-Dissolved | | | 98.1 | | % | | 70-130 | 28-AUG-19 |
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4771650** | | | | | | | | |
| **WG3145722-5 DUP** | | **L2332618-1** | | | | | | |
| Mercury (Hg)-Total | | <0.00050 | 0.00052 | RPD-NA | ug/L | N/A | 20 | 29-AUG-19 |
| **WG3145722-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 97.0 | | % | | 80-120 | 28-AUG-19 |
| **WG3145722-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 28-AUG-19 |
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 105.7 | | % | | 80-120 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | | 97.1 | | % | | 80-120 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | | 98.1 | | % | | 80-120 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | | 100.8 | | % | | 80-120 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | | 99.1 | | % | | 80-120 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 99.6 | | % | | 80-120 | 04-SEP-19 |
| Boron (B)-Dissolved | | | 101.9 | | % | | 80-120 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-2 LCS** | | | | | | | | |
| Cadmium (Cd)-Dissolved | | | 100.6 | | % | | 80-120 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | | 102.5 | | % | | 80-120 | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | | 103.5 | | % | | 80-120 | 04-SEP-19 |
| Chromium (Cr)-Dissolved | | | 98.6 | | % | | 80-120 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | | 98.2 | | % | | 80-120 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | | 96.8 | | % | | 80-120 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | | 84.3 | | % | | 80-120 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | | 97.2 | | % | | 80-120 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | | 101.5 | | % | | 80-120 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | | 100.8 | | % | | 80-120 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | | 102.1 | | % | | 80-120 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | | 97.0 | | % | | 80-120 | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | | 99.2 | | % | | 80-120 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 97.5 | | % | | 80-120 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | | 97.9 | | % | | 80-120 | 04-SEP-19 |
| Niobium (Nb)-Dissolved | | | 99.97 | | % | | 80-120 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | | 104.3 | | % | | 80-120 | 04-SEP-19 |
| Potassium (K)-Dissolved | | | 100.9 | | % | | 80-120 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | | 102.2 | | % | | 80-120 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 101.1 | | % | | 80-120 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | | 100.1 | | % | | 80-120 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | | 107.1 | | % | | 80-120 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | | 94.4 | | % | | 80-120 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | | 100.4 | | % | | 80-120 | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | | 99.4 | | % | | 80-120 | 04-SEP-19 |
| Sulfur (S)-Dissolved | | | 103.8 | | % | | 80-120 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 99.5 | | % | | 80-120 | 04-SEP-19 |
| Tellurium (Te)-Dissolved | | | 100.4 | | % | | 80-120 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | | 100.2 | | % | | 80-120 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | | 97.1 | | % | | 80-120 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | | 96.9 | | % | | 80-120 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | | 97.6 | | % | | 80-120 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | | 103.0 | | % | | 80-120 | 04-SEP-19 |
| Uranium (U)-Dissolved | | | 103.3 | | % | | 80-120 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-2 LCS** | | | | | | | | |
| Vanadium (V)-Dissolved | | | 100.4 | | % | | 80-120 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | | 105.8 | | % | | 80-120 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | | 97.7 | | % | | 80-120 | 04-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 94.9 | | % | | 80-120 | 04-SEP-19 |
| **WG3147918-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-1 MB** | | **NP** | | | | | | |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 100.7 | | % | | 80-120 | 06-SEP-19 |
| Antimony (Sb)-Dissolved | | | 96.6 | | % | | 80-120 | 06-SEP-19 |
| Arsenic (As)-Dissolved | | | 97.4 | | % | | 80-120 | 06-SEP-19 |
| Barium (Ba)-Dissolved | | | 101.4 | | % | | 80-120 | 06-SEP-19 |
| Beryllium (Be)-Dissolved | | | 99.2 | | % | | 80-120 | 06-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 97.3 | | % | | 80-120 | 06-SEP-19 |
| Boron (B)-Dissolved | | | 92.7 | | % | | 80-120 | 06-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 98.4 | | % | | 80-120 | 06-SEP-19 |
| Calcium (Ca)-Dissolved | | | 100.6 | | % | | 80-120 | 06-SEP-19 |
| Cesium (Cs)-Dissolved | | | 96.4 | | % | | 80-120 | 06-SEP-19 |
| Chromium (Cr)-Dissolved | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Cobalt (Co)-Dissolved | | | 97.5 | | % | | 80-120 | 06-SEP-19 |
| Copper (Cu)-Dissolved | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| Gallium (Ga)-Dissolved | | | 101.3 | | % | | 80-120 | 06-SEP-19 |
| Iron (Fe)-Dissolved | | | 96.7 | | % | | 80-120 | 06-SEP-19 |
| Lanthanum (La)-Dissolved | | | 100.1 | | % | | 80-120 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-2 LCS** | | | | | | | | |
| Lead (Pb)-Dissolved | | | 97.5 | | % | | 80-120 | 06-SEP-19 |
| Lithium (Li)-Dissolved | | | 95.4 | | % | | 80-120 | 06-SEP-19 |
| Magnesium (Mg)-Dissolved | | | 98.3 | | % | | 80-120 | 06-SEP-19 |
| Manganese (Mn)-Dissolved | | | 99.5 | | % | | 80-120 | 06-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 102.2 | | % | | 80-120 | 06-SEP-19 |
| Nickel (Ni)-Dissolved | | | 98.0 | | % | | 80-120 | 06-SEP-19 |
| Niobium (Nb)-Dissolved | | | 95.0 | | % | | 80-120 | 06-SEP-19 |
| Phosphorus (P)-Dissolved | | | 102.4 | | % | | 80-120 | 06-SEP-19 |
| Potassium (K)-Dissolved | | | 100.4 | | % | | 80-120 | 06-SEP-19 |
| Rhenium (Re)-Dissolved | | | 101.6 | | % | | 80-120 | 06-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 100.6 | | % | | 80-120 | 06-SEP-19 |
| Selenium (Se)-Dissolved | | | 95.2 | | % | | 80-120 | 06-SEP-19 |
| Silicon (Si)-Dissolved | | | 101.5 | | % | | 80-120 | 06-SEP-19 |
| Silver (Ag)-Dissolved | | | 98.1 | | % | | 80-120 | 06-SEP-19 |
| Sodium (Na)-Dissolved | | | 102.6 | | % | | 80-120 | 06-SEP-19 |
| Strontium (Sr)-Dissolved | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| Sulfur (S)-Dissolved | | | 97.5 | | % | | 80-120 | 06-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 101.2 | | % | | 80-120 | 06-SEP-19 |
| Tellurium (Te)-Dissolved | | | 103.8 | | % | | 80-120 | 06-SEP-19 |
| Thallium (Tl)-Dissolved | | | 97.0 | | % | | 80-120 | 06-SEP-19 |
| Thorium (Th)-Dissolved | | | 93.4 | | % | | 80-120 | 06-SEP-19 |
| Tin (Sn)-Dissolved | | | 97.3 | | % | | 80-120 | 06-SEP-19 |
| Titanium (Ti)-Dissolved | | | 97.3 | | % | | 80-120 | 06-SEP-19 |
| Tungsten (W)-Dissolved | | | 102.6 | | % | | 80-120 | 06-SEP-19 |
| Uranium (U)-Dissolved | | | 95.0 | | % | | 80-120 | 06-SEP-19 |
| Vanadium (V)-Dissolved | | | 99.0 | | % | | 80-120 | 06-SEP-19 |
| Yttrium (Y)-Dissolved | | | 99.6 | | % | | 80-120 | 06-SEP-19 |
| Zinc (Zn)-Dissolved | | | 98.3 | | % | | 80-120 | 06-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 95.4 | | % | | 80-120 | 06-SEP-19 |
| **WG3152155-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 06-SEP-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-1 MB** | | **NP** | | | | | | |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 06-SEP-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 06-SEP-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 06-SEP-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 06-SEP-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 06-SEP-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 06-SEP-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 06-SEP-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 06-SEP-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 06-SEP-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 06-SEP-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 06-SEP-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-1 MB** | | **NP** | | | | | | |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 06-SEP-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 06-SEP-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147909-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 100.3 | | % | | 80-120 | 04-SEP-19 |
| Antimony (Sb)-Total | | | 97.4 | | % | | 80-120 | 04-SEP-19 |
| Arsenic (As)-Total | | | 98.4 | | % | | 80-120 | 04-SEP-19 |
| Barium (Ba)-Total | | | 101.0 | | % | | 80-120 | 04-SEP-19 |
| Beryllium (Be)-Total | | | 96.6 | | % | | 80-120 | 04-SEP-19 |
| Bismuth (Bi)-Total | | | 104.6 | | % | | 80-120 | 04-SEP-19 |
| Boron (B)-Total | | | 99.7 | | % | | 80-120 | 04-SEP-19 |
| Cadmium (Cd)-Total | | | 99.4 | | % | | 80-120 | 04-SEP-19 |
| Calcium (Ca)-Total | | | 99.5 | | % | | 80-120 | 04-SEP-19 |
| Cesium (Cs)-Total | | | 102.0 | | % | | 80-120 | 04-SEP-19 |
| Chromium (Cr)-Total | | | 98.7 | | % | | 80-120 | 04-SEP-19 |
| Cobalt (Co)-Total | | | 98.2 | | % | | 80-120 | 04-SEP-19 |
| Copper (Cu)-Total | | | 97.4 | | % | | 80-120 | 04-SEP-19 |
| Gallium (Ga)-Total | | | 85.9 | | % | | 80-120 | 04-SEP-19 |
| Iron (Fe)-Total | | | 97.3 | | % | | 80-120 | 04-SEP-19 |
| Lanthanum (La)-Total | | | 104.2 | | % | | 80-120 | 04-SEP-19 |
| Lead (Pb)-Total | | | 108.7 | | % | | 80-120 | 04-SEP-19 |
| Lithium (Li)-Total | | | 99.2 | | % | | 80-120 | 04-SEP-19 |
| Magnesium (Mg)-Total | | | 98.6 | | % | | 80-120 | 04-SEP-19 |
| Manganese (Mn)-Total | | | 99.1 | | % | | 80-120 | 04-SEP-19 |
| Molybdenum (Mo)-Total | | | 96.7 | | % | | 80-120 | 04-SEP-19 |
| Nickel (Ni)-Total | | | 96.6 | | % | | 80-120 | 04-SEP-19 |
| Niobium (Nb)-Total | | | 98.2 | | % | | 80-120 | 04-SEP-19 |
| Phosphorus (P)-Total | | | 101.3 | | % | | 80-120 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147909-2 LCS** | | | | | | | | |
| Potassium (K)-Total | | | 101.0 | | % | | 80-120 | 04-SEP-19 |
| Rhenium (Re)-Total | | | 104.6 | | % | | 80-120 | 04-SEP-19 |
| Rubidium (Rb)-Total | | | 99.3 | | % | | 80-120 | 04-SEP-19 |
| Selenium (Se)-Total | | | 98.7 | | % | | 80-120 | 04-SEP-19 |
| Silicon (Si)-Total | | | 108.2 | | % | | 80-120 | 04-SEP-19 |
| Silver (Ag)-Total | | | 94.0 | | % | | 80-120 | 04-SEP-19 |
| Sodium (Na)-Total | | | 99.7 | | % | | 80-120 | 04-SEP-19 |
| Strontium (Sr)-Total | | | 102.6 | | % | | 80-120 | 04-SEP-19 |
| Sulfur (S)-Total | | | 94.6 | | % | | 80-120 | 04-SEP-19 |
| Tantalum (Ta)-Total | | | 100.8 | | % | | 80-120 | 04-SEP-19 |
| Tellurium (Te)-Total | | | 98.2 | | % | | 80-120 | 04-SEP-19 |
| Thallium (Tl)-Total | | | 104.5 | | % | | 80-120 | 04-SEP-19 |
| Thorium (Th)-Total | | | 104.3 | | % | | 80-120 | 04-SEP-19 |
| Tin (Sn)-Total | | | 95.8 | | % | | 80-120 | 04-SEP-19 |
| Titanium (Ti)-Total | | | 96.5 | | % | | 80-120 | 04-SEP-19 |
| Tungsten (W)-Total | | | 107.7 | | % | | 80-120 | 04-SEP-19 |
| Uranium (U)-Total | | | 107.6 | | % | | 80-120 | 04-SEP-19 |
| Vanadium (V)-Total | | | 100.4 | | % | | 80-120 | 04-SEP-19 |
| Yttrium (Y)-Total | | | 108.6 | | % | | 80-120 | 04-SEP-19 |
| Zinc (Zn)-Total | | | 98.0 | | % | | 80-120 | 04-SEP-19 |
| Zirconium (Zr)-Total | | | 94.6 | | % | | 80-120 | 04-SEP-19 |
| **WG3147909-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 04-SEP-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147909-1 MB** | | **NP** | | | | | | |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 04-SEP-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 04-SEP-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Uranium (U)-Total | | | <0.0000010 | | mg/L | | 0.000001 | 04-SEP-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Antimony (Sb)-Total | | | 97.8 | | % | | 80-120 | 06-SEP-19 |
| Arsenic (As)-Total | | | 99.5 | | % | | 80-120 | 06-SEP-19 |
| Barium (Ba)-Total | | | 98.8 | | % | | 80-120 | 06-SEP-19 |
| Beryllium (Be)-Total | | | 98.2 | | % | | 80-120 | 06-SEP-19 |
| Bismuth (Bi)-Total | | | 96.3 | | % | | 80-120 | 06-SEP-19 |
| Boron (B)-Total | | | 91.6 | | % | | 80-120 | 06-SEP-19 |
| Cadmium (Cd)-Total | | | 99.2 | | % | | 80-120 | 06-SEP-19 |
| Calcium (Ca)-Total | | | 99.2 | | % | | 80-120 | 06-SEP-19 |
| Cesium (Cs)-Total | | | 98.4 | | % | | 80-120 | 06-SEP-19 |
| Chromium (Cr)-Total | | | 98.8 | | % | | 80-120 | 06-SEP-19 |
| Cobalt (Co)-Total | | | 98.4 | | % | | 80-120 | 06-SEP-19 |
| Copper (Cu)-Total | | | 98.1 | | % | | 80-120 | 06-SEP-19 |
| Gallium (Ga)-Total | | | 104.1 | | % | | 80-120 | 06-SEP-19 |
| Iron (Fe)-Total | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Lanthanum (La)-Total | | | 98.0 | | % | | 80-120 | 06-SEP-19 |
| Lead (Pb)-Total | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| Lithium (Li)-Total | | | 94.3 | | % | | 80-120 | 06-SEP-19 |
| Magnesium (Mg)-Total | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Manganese (Mn)-Total | | | 100.0 | | % | | 80-120 | 06-SEP-19 |
| Molybdenum (Mo)-Total | | | 102.8 | | % | | 80-120 | 06-SEP-19 |
| Nickel (Ni)-Total | | | 98.7 | | % | | 80-120 | 06-SEP-19 |
| Niobium (Nb)-Total | | | 95.7 | | % | | 80-120 | 06-SEP-19 |
| Phosphorus (P)-Total | | | 102.8 | | % | | 80-120 | 06-SEP-19 |
| Potassium (K)-Total | | | 102.1 | | % | | 80-120 | 06-SEP-19 |
| Rhenium (Re)-Total | | | 99.7 | | % | | 80-120 | 06-SEP-19 |
| Rubidium (Rb)-Total | | | 102.2 | | % | | 80-120 | 06-SEP-19 |
| Selenium (Se)-Total | | | 97.0 | | % | | 80-120 | 06-SEP-19 |
| Silicon (Si)-Total | | | 104.0 | | % | | 80-120 | 06-SEP-19 |
| Silver (Ag)-Total | | | 98.7 | | % | | 80-120 | 06-SEP-19 |
| Sodium (Na)-Total | | | 103.4 | | % | | 80-120 | 06-SEP-19 |
| Strontium (Sr)-Total | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| Sulfur (S)-Total | | | 100.2 | | % | | 80-120 | 06-SEP-19 |
| Tantalum (Ta)-Total | | | 98.4 | | % | | 80-120 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-2 LCS** | | | | | | | | |
| Tellurium (Te)-Total | | | 104.4 | | % | | 80-120 | 06-SEP-19 |
| Thallium (Tl)-Total | | | 98.0 | | % | | 80-120 | 06-SEP-19 |
| Thorium (Th)-Total | | | 93.6 | | % | | 80-120 | 06-SEP-19 |
| Tin (Sn)-Total | | | 97.9 | | % | | 80-120 | 06-SEP-19 |
| Titanium (Ti)-Total | | | 97.7 | | % | | 80-120 | 06-SEP-19 |
| Tungsten (W)-Total | | | 100.2 | | % | | 80-120 | 06-SEP-19 |
| Uranium (U)-Total | | | 94.7 | | % | | 80-120 | 06-SEP-19 |
| Vanadium (V)-Total | | | 99.9 | | % | | 80-120 | 06-SEP-19 |
| Yttrium (Y)-Total | | | 100.5 | | % | | 80-120 | 06-SEP-19 |
| Zinc (Zn)-Total | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Zirconium (Zr)-Total | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| **WG3152192-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 06-SEP-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 06-SEP-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 06-SEP-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 06-SEP-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 06-SEP-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 06-SEP-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-1 MB** | | **NP** | | | | | | |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 06-SEP-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 06-SEP-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 06-SEP-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 06-SEP-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 06-SEP-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 06-SEP-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 06-SEP-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 06-SEP-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4782163** | | | | | | | | |
| **WG3150395-7 DUP** | | **L2332618-7** | | | | | | |
| Ammonia, Total (as N) | | 0.0101 | 0.0111 | | mg/L | 9.4 | 20 | 04-SEP-19 |
| **WG3150395-6 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 108.5 | | % | | 85-115 | 04-SEP-19 |
| **WG3150395-5 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| **WG3150395-8 MS** | | **L2332618-8** | | | | | | |
| Ammonia, Total (as N) | | | 108.7 | | % | | 75-125 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4783638** | | | | | | | | |
| **WG3151973-14 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 100.9 | | % | | 85-115 | 04-SEP-19 |
| **WG3151973-13 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| **Batch R4785688** | | | | | | | | |
| **WG3154451-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 99.2 | | % | | 85-115 | 06-SEP-19 |
| **WG3154451-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 06-SEP-19 |
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4766152** | | | | | | | | |
| **WG3140205-2 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.2 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-1 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 22-AUG-19 |
| **Batch R4769820** | | | | | | | | |
| **WG3138862-2 LCS** | | | | | | | | |
| Nitrite (as N) | | | 99.1 | | % | | 90-110 | 21-AUG-19 |
| **WG3138862-1 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 21-AUG-19 |
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4766152** | | | | | | | | |
| **WG3140205-2 LCS** | | | | | | | | |
| Nitrate (as N) | | | 98.1 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-1 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 22-AUG-19 |
| **Batch R4769820** | | | | | | | | |
| **WG3138862-2 LCS** | | | | | | | | |
| Nitrate (as N) | | | 98.7 | | % | | 90-110 | 21-AUG-19 |
| **WG3138862-1 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 21-AUG-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4765948** | | | | | | | | |
| **WG3139455-10 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 102.2 | | % | | 80-120 | 22-AUG-19 |
| **WG3139455-14 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 98.8 | | % | | 80-120 | 22-AUG-19 |
| **WG3139455-13 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4765948** | | | | | | | | |
| **WG3139455-13 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 22-AUG-19 |
| **WG3139455-9 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 22-AUG-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4768595** | | | | | | | | |
| **WG3141997-6 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 92.2 | | % | | 80-120 | 26-AUG-19 |
| **WG3141997-5 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 26-AUG-19 |
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4763750** | | | | | | | | |
| **WG3139880-22 LCS** | | | | | | | | |
| pH | | | 7.39 | | pH units | | 7.3-7.5 | 21-AUG-19 |
| **Batch R4765529** | | | | | | | | |
| **WG3141365-10 DUP** | | **L2332618-15** | | | | | | |
| pH | | 7.39 | 7.39 | J | pH units | 0.00 | 0.2 | 22-AUG-19 |
| **WG3141365-17 LCS** | | | | | | | | |
| pH | | | 7.40 | | pH units | | 7.3-7.5 | 22-AUG-19 |
| **WG3141365-7 LCS** | | | | | | | | |
| pH | | | 7.40 | | pH units | | 7.3-7.5 | 22-AUG-19 |
| **SO4-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4766152** | | | | | | | | |
| **WG3140205-2 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 99.4 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-1 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 22-AUG-19 |
| **Batch R4769820** | | | | | | | | |
| **WG3138862-2 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 99.8 | | % | | 90-110 | 21-AUG-19 |
| **WG3138862-1 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 21-AUG-19 |
| **TDS-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4764988** | | | | | | | | |
| **WG3138155-10 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 94.1 | | % | | 85-115 | 21-AUG-19 |
| **WG3138155-6 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 102.5 | | % | | 85-115 | 21-AUG-19 |
| **WG3138155-5 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 21-AUG-19 |
| **WG3138155-9 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 21-AUG-19 |
| **Batch R4768592** | | | | | | | | |
| **WG3141158-11 DUP** | | **L2332618-11** | | | | | | |
| Total Dissolved Solids | | 90 | 97 | | mg/L | 7.1 | 20 | 23-AUG-19 |
| **WG3141158-10 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 102.7 | | % | | 85-115 | 23-AUG-19 |
| **WG3141158-9 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 23-AUG-19 |
| **Batch R4776249** | | | | | | | | |
| **WG3144913-3 DUP** | | **L2332618-12** | | | | | | |
| Total Dissolved Solids | | 84 | 85 | | mg/L | 1.2 | 20 | 28-AUG-19 |
| **WG3144913-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 99.97 | | % | | 85-115 | 28-AUG-19 |
| **WG3144913-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 28-AUG-19 |
| **Batch R4782675** | | | | | | | | |
| **WG3148726-3 DUP** | | **L2332618-7** | | | | | | |
| Total Dissolved Solids | | 159 | 167 | | mg/L | 5.2 | 20 | 03-SEP-19 |
| **WG3148726-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 101.5 | | % | | 85-115 | 03-SEP-19 |
| **WG3148726-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 03-SEP-19 |
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4784575** | | | | | | | | |
| **WG3151534-15 DUP** | | **L2332618-1** | | | | | | |
| Total Kjeldahl Nitrogen | | 0.172 | 0.164 | | mg/L | 4.6 | 20 | 05-SEP-19 |
| **WG3151534-14 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 106 | | % | | 75-125 | 05-SEP-19 |
| **WG3151534-18 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 104 | | % | | 75-125 | 05-SEP-19 |
| **WG3151534-13 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4784575** | | | | | | | | |
| **WG3151534-13 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 05-SEP-19 |
| **WG3151534-17 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 05-SEP-19 |
| **WG3151534-16 MS** | | **L2332618-1** | | | | | | |
| Total Kjeldahl Nitrogen | | | 107 | | % | | 70-130 | 05-SEP-19 |
| **TSS-LOW-VA** | **Water** | | | | | | | |
| **Batch R4766510** | | | | | | | | |
| **WG3140719-4 LCS** | | | | | | | | |
| Total Suspended Solids | | | 91.3 | | % | | 85-115 | 22-AUG-19 |
| **WG3140719-3 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 22-AUG-19 |
| **Batch R4777507** | | | | | | | | |
| **WG3146497-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 95.9 | | % | | 85-115 | 29-AUG-19 |
| **WG3146497-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 29-AUG-19 |
| **TURBIDITY-WP** | **Water** | | | | | | | |
| **Batch R4763090** | | | | | | | | |
| **WG3139273-6 DUP** | | **L2332618-15** | | | | | | |
| Turbidity | | 0.27 | 0.27 | | NTU | 0.4 | 15 | 21-AUG-19 |
| **WG3139273-2 LCS** | | | | | | | | |
| Turbidity | | | 103.5 | | % | | 85-115 | 21-AUG-19 |
| **WG3139273-5 LCS** | | | | | | | | |
| Turbidity | | | 103.0 | | % | | 85-115 | 21-AUG-19 |
| **WG3139273-1 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 21-AUG-19 |
| **WG3139273-4 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 21-AUG-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Total Dissolved Solids (TDS) | | | | | | | |
| | 7 | 12-AUG-19 12:40 | 03-SEP-19 08:00 | 7 | 22 | days | EHTR |
| | 8 | 12-AUG-19 13:15 | 03-SEP-19 08:00 | 7 | 22 | days | EHTR |
| | 9 | 12-AUG-19 08:46 | 03-SEP-19 08:00 | 7 | 22 | days | EHTR |
| | 10 | 14-AUG-19 09:15 | 03-SEP-19 08:00 | 7 | 20 | days | EHTR |
| | 11 | 14-AUG-19 09:37 | 23-AUG-19 13:00 | 7 | 9 | days | EHTL |
| | 14 | 12-AUG-19 10:00 | 03-SEP-19 08:00 | 7 | 22 | days | EHTR |
| Total Suspended Solids by Grav. (1 mg/L) | | | | | | | |
| | 1 | 14-AUG-19 11:05 | 22-AUG-19 14:50 | 7 | 8 | days | EHTL |
| | 2 | 14-AUG-19 12:50 | 22-AUG-19 14:50 | 7 | 8 | days | EHTL |
| | 3 | 14-AUG-19 12:20 | 22-AUG-19 14:50 | 7 | 8 | days | EHTL |
| | 4 | 14-AUG-19 11:50 | 22-AUG-19 14:50 | 7 | 8 | days | EHTL |
| | 5 | 14-AUG-19 10:06 | 22-AUG-19 14:50 | 7 | 8 | days | EHTL |
| | 6 | 14-AUG-19 11:26 | 22-AUG-19 14:50 | 7 | 8 | days | EHTL |
| | 7 | 12-AUG-19 12:40 | 29-AUG-19 04:30 | 7 | 17 | days | EHTR |
| | 8 | 12-AUG-19 13:15 | 29-AUG-19 04:30 | 7 | 17 | days | EHTR |
| | 9 | 12-AUG-19 08:46 | 29-AUG-19 04:30 | 7 | 17 | days | EHTR |
| | 10 | 14-AUG-19 09:15 | 29-AUG-19 04:30 | 7 | 15 | days | EHTR |
| | 11 | 14-AUG-19 09:37 | 22-AUG-19 14:50 | 7 | 8 | days | EHTL |
| | 12 | Not provided | 29-AUG-19 04:30 | 7 | 8 | days | EHT |
| | 13 | Not provided | 29-AUG-19 04:30 | 7 | 8 | days | EHT |
| | 14 | 12-AUG-19 10:00 | 29-AUG-19 04:30 | 7 | 17 | days | EHTR |
| | 15 | Not provided | 29-AUG-19 04:30 | 7 | 8 | days | EHT |
| Turbidity | | | | | | | |
| | 1 | 14-AUG-19 11:05 | 21-AUG-19 11:50 | 3 | 7 | days | EHTR |
| | 2 | 14-AUG-19 12:50 | 21-AUG-19 11:50 | 3 | 7 | days | EHTR |
| | 3 | 14-AUG-19 12:20 | 21-AUG-19 11:50 | 3 | 7 | days | EHTR |
| | 4 | 14-AUG-19 11:50 | 21-AUG-19 11:50 | 3 | 7 | days | EHTR |
| | 5 | 14-AUG-19 10:06 | 21-AUG-19 11:50 | 3 | 7 | days | EHTR |
| | 6 | 14-AUG-19 11:26 | 21-AUG-19 11:50 | 3 | 7 | days | EHTR |
| | 7 | 12-AUG-19 12:40 | 21-AUG-19 11:50 | 3 | 9 | days | EHTR |
| | 8 | 12-AUG-19 13:15 | 21-AUG-19 11:50 | 3 | 9 | days | EHTR |
| | 9 | 12-AUG-19 08:46 | 21-AUG-19 11:50 | 3 | 9 | days | EHTR |
| | 10 | 14-AUG-19 09:15 | 21-AUG-19 11:50 | 3 | 7 | days | EHTR |
| | 11 | 14-AUG-19 09:37 | 21-AUG-19 11:50 | 3 | 7 | days | EHTR |
| | 14 | 12-AUG-19 10:00 | 21-AUG-19 11:50 | 3 | 9 | days | EHTR |
| pH | | | | | | | |
| | 1 | 14-AUG-19 11:05 | 21-AUG-19 12:00 | 0.25 | 169 | hours | EHTR-FM |
| | 2 | 14-AUG-19 12:50 | 21-AUG-19 12:00 | 0.25 | 167 | hours | EHTR-FM |
| | 3 | 14-AUG-19 12:20 | 21-AUG-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 4 | 14-AUG-19 11:50 | 21-AUG-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 5 | 14-AUG-19 10:06 | 21-AUG-19 12:00 | 0.25 | 170 | hours | EHTR-FM |
| | 6 | 14-AUG-19 11:26 | 22-AUG-19 12:00 | 0.25 | 192 | hours | EHTR-FM |
| | 7 | 12-AUG-19 12:40 | 22-AUG-19 12:00 | 0.25 | 239 | hours | EHTR-FM |
| | 8 | 12-AUG-19 13:15 | 22-AUG-19 12:00 | 0.25 | 239 | hours | EHTR-FM |
| | 9 | 12-AUG-19 08:46 | 22-AUG-19 12:00 | 0.25 | 243 | hours | EHTR-FM |
| | 10 | 14-AUG-19 09:15 | 22-AUG-19 12:00 | 0.25 | 195 | hours | EHTR-FM |
| | 11 | 14-AUG-19 09:37 | 22-AUG-19 12:00 | 0.25 | 194 | hours | EHTR-FM |
| | 12 | Not provided | 22-AUG-19 12:00 | 0.25 | 27 | hours | EHTR-FM |
| | 13 | Not provided | 22-AUG-19 12:00 | 0.25 | 27 | hours | EHTR-FM |
| | 14 | 12-AUG-19 10:00 | 22-AUG-19 12:00 | 0.25 | 242 | hours | EHTR-FM |
| | 15 | Not provided | 22-AUG-19 12:00 | 0.25 | 27 | hours | EHTR-FM |
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 14-AUG-19 11:05 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 2 | 14-AUG-19 12:50 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 3 | 14-AUG-19 12:20 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 4 | 14-AUG-19 11:50 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 5 | 14-AUG-19 10:06 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 6 | 14-AUG-19 11:26 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 7 | 12-AUG-19 12:40 | 21-AUG-19 11:30 | 3 | 9 | days | EHTR |
| | 8 | 12-AUG-19 13:15 | 21-AUG-19 11:30 | 3 | 9 | days | EHTR |
| | 9 | 12-AUG-19 08:46 | 21-AUG-19 11:30 | 3 | 9 | days | EHTR |
| | 10 | 14-AUG-19 09:15 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 11 | 14-AUG-19 09:37 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 14 | 12-AUG-19 10:00 | 21-AUG-19 11:30 | 3 | 9 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 14-AUG-19 11:05 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 2 | 14-AUG-19 12:50 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 3 | 14-AUG-19 12:20 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 4 | 14-AUG-19 11:50 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 5 | 14-AUG-19 10:06 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 6 | 14-AUG-19 11:26 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 7 | 12-AUG-19 12:40 | 21-AUG-19 11:30 | 3 | 9 | days | EHTR |
| | 8 | 12-AUG-19 13:15 | 21-AUG-19 11:30 | 3 | 9 | days | EHTR |
| | 9 | 12-AUG-19 08:46 | 21-AUG-19 11:30 | 3 | 9 | days | EHTR |
| | 10 | 14-AUG-19 09:15 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 11 | 14-AUG-19 09:37 | 21-AUG-19 11:30 | 3 | 7 | days | EHTR |
| | 14 | 12-AUG-19 10:00 | 21-AUG-19 11:30 | 3 | 9 | days | EHTR |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2332618 were received on 21-AUG-19 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

**Chain of Custody / Analytical**

L2332618-COFC

COC # _____

Page 1 of 2

| Report To | | | | Report Format / Distribution | | | |
|---|---|---|---|---|---|---|---|
| Company: | Azimuth Consulting Group | | | ☑ Standard | | | |
| Contact: | Eric Franz | | | ☑ PDF | ☐ Digital | ☐ Fax | |
| Address: | 218-2902 West Broadway | | | Email 1: | efranz@azimuthgroup.ca | | |
| | Vancouver, BC V6K2G8 | | | Email 2: | mjosee.banville@agncioeagle.com | | |
| Phone: | 604-730-1220 | Fax: | | Email 3: | | | |
| **Invoice To** | Same as Report ? | ☑ Yes | ☐ No | **Client / Project Information** | | | |
| Hardcopy of Invoice with Report? | | ☐ Yes | ☑ No | Job #: | Meliadine AEMP - Surface Water | | |
| Company: | | | | PO / AFE: | | | |
| Contact: | | | | LSD: | | | |
| Address: | | | | | | | |
| Phone: | | Fax: | | Quote #: | Q57496 | | |
| Lab Work Order # (lab use only) | | | | **ALS Contact:** | Judy Dalmaijer | **Sampler:** | Azimuth Agnico Eagle |

**Service Requested** (Rush for routine analysis subject to availability)

- (●) Regular (Standard Turnaround Times - Business Days)
- ( ) Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ( ) Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ( ) Same Day or Weekend Emergency - Contact ALS to Confirm TAT

**Analysis Request**

Please indicate below Filtered, Preserved or both (F, P, F/P)

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | | F | | F | P | F/P | P | | | | |
| 1 | MEL-04-01 | 14-Aug-19 | 11:05 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 2 | MEL-04-02 | 14-Aug-19 | 12:50 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 3 | MEL-04-03 | 14-Aug-19 | 12:20 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 4 | MEL-04-04 | 14-Aug-19 | 11:50 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 5 | MEL-04-05 | 14-Aug-19 | 10:06 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 6 | A8-01 | 12-Aug-19 | 11:26 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 7 | A8-02 | 12-Aug-19 | 12:40 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 8 | A8-03 | 12-Aug-19 | 1:15 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 9 | D7-01 | 14-Aug-19 | 8:46 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 10 | D7-02 | 14-Aug-19 | 9:15 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 11 | D7-03 | 14-Aug-19 | 9:37 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 12 | AUG-DUP-01 | - | - | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: AUG 21 2019 | Time: 900 | Temperature: 19.8 °C | Verified by: | Date: AUG 21 2019 | Time: 900 | Observations: Yes / No If Yes add SIF |

GENF 20.00 Front

ALS Environmental

**Chain of Custody / Analytical Request Form**

L2332618-COFC

COC # _____



| | | | |
|---|---|---|---|
| **Report To** | | **Report** | **Service Requested** (Rush for routine analysis subject to availability) |
| Company: | Azimuth Consulting Group | ☑ Stand | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | ☑ PDF ☑ Excel ☐ Digital ☐ Fax | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 1: efranz@azimuthgroup.ca | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 2: mjosee.banville@agncioeagle.com | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | Email 3: | **Analysis Request** |
| **Invoice To** | Same as Report ? ☑ Yes ☐ No | **Client / Project Information** | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: Meliadine AEMP - Surface Water | |
| Company: | | PO / AFE: | |
| Contact: | | LSD: | |
| Address: | | | |
| Phone: | Fax: | Quote #: Q57496 | |

| | | | |
|---|---|---|---|
| Lab Work Order # (lab use only) | | **ALS Contact:** Judy Dalmaijer | **Sampler:** Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | | F | | F | P | F/P | P | | | | |
| 13 | AUG-DUP-02 | - | - | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 14 | AUG-EB-01 | 15 Aug 19 | 12:00 | Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 15 | AUG-DUP-04 | - | - | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
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**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: AUG 21 2019 | Time: | Temperature: °C | Verified by: | Date: AUG 21 2019 | Time: | Observations: Yes / No ? If Yes add SIF |
| Bethany Hodgins | 15-Aug-19 | 8:00 | | | | | | | | |

Agnico-Eagle - Meliadine Gold Project
ATTN: ERIC FRANZ
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8

Date Received: 23-AUG-19
Report Date: 12-SEP-19 08:21 (MT)
Version: FINAL

Client Phone: 604-730-1220

# Certificate of Analysis

## Lab Work Order #: L2334497

Project P.O. #: NOT SUBMITTED
Job Reference: MELIADINE AEMP - SURFACE WATER
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-1 MEL-05-01 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:49 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 23.9 | | 1.2 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.6 | | 1.0 | mg/L | | 23-AUG-19 | R4768589 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.92 | | 0.10 | mg/L | | 23-AUG-19 | R4772009 |
| **Conductivity** | | | | | | | |
| Conductivity | 77.5 | | 1.0 | umhos/cm | | 23-AUG-19 | R4768589 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.4 | | 0.20 | | | 23-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 30-AUG-19 | |
| TDS (Calculated) | 38.7 | | | mg/L | | 30-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0351 | | 0.0050 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0351 | | 0.0051 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4772009 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.66 | | 0.30 | mg/L | | 23-AUG-19 | R4772009 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 55 | | 13 | mg/L | | 23-AUG-19 | R4768592 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.30 | | 0.10 | NTU | | 23-AUG-19 | R4767872 |
| **pH** | | | | | | | |
| pH | 7.63 | | 0.10 | pH units | | 23-AUG-19 | R4768589 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0055 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.30 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Total | 0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-AUG-19 | R4777228 |
| Phosphorus (P)-Total | 0.0018 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Total Kjeldahl Nitrogen | 0.154 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Mercury (Hg)-Total | 0.00064 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.26 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 27-AUG-19 | R4769806 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0035 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.000232 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Barium (Ba)-Total | 0.00792 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-1 MEL-05-01 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:49 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 06-SEP-19 | R4785409 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Calcium (Ca)-Total | 7.32 | | 0.010 | mg/L | | 06-SEP-19 | R4785409 |
| Cesium (Cs)-Total | 0.0000079 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Cobalt (Co)-Total | 0.0000160 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Copper (Cu)-Total | 0.000719 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Iron (Fe)-Total | 0.0130 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Lanthanum (La)-Total | 0.000013 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lead (Pb)-Total | 0.000015 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lithium (Li)-Total | 0.00061 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Magnesium (Mg)-Total | 1.11 | | 0.0040 | mg/L | | 06-SEP-19 | R4785409 |
| Manganese (Mn)-Total | 0.00287 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Molybdenum (Mo)-Total | 0.000076 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Nickel (Ni)-Total | 0.000378 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Potassium (K)-Total | 0.926 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Rubidium (Rb)-Total | 0.00135 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Selenium (Se)-Total | 0.000047 | | 0.000040 | mg/L | | 06-SEP-19 | R4785409 |
| Silicon (Si)-Total | 0.123 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Sodium (Na)-Total | 4.50 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Strontium (Sr)-Total | 0.0338 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Sulfur (S)-Total | 1.24 | | 0.50 | mg/L | | 06-SEP-19 | R4785409 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tin (Sn)-Total | 0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Titanium (Ti)-Total | <0.00015 | DLM | 0.00015 | mg/L | | 06-SEP-19 | R4785409 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Uranium (U)-Total | 0.0000127 | | 0.0000010 | mg/L | | 06-SEP-19 | R4785409 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Zinc (Zn)-Total | 0.00117 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-AUG-19 | R4769989 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-AUG-19 | 29-AUG-19 | R4775852 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0016 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000240 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00779 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-1 MEL-05-01 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:49 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.46 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000082 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | 0.00021 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000633 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0034 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00064 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.15 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000366 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000079 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000365 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.944 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00136 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.114 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.62 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0333 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.25 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000132 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00051 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2334497-2 MEL-05-02 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 14:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 23.9 | | 1.2 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.6 | | 1.0 | mg/L | | 23-AUG-19 | R4768589 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-2 MEL-05-02 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 14:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.91 | | 0.10 | mg/L | | 23-AUG-19 | R4772009 |
| **Conductivity** | | | | | | | |
| Conductivity | 77.6 | | 1.0 | umhos/cm | | 23-AUG-19 | R4768589 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.4 | | 0.20 | | | 23-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 30-AUG-19 | |
| TDS (Calculated) | 38.5 | | | mg/L | | 30-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0167 | | 0.0050 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0167 | | 0.0051 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4772009 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.66 | | 0.30 | mg/L | | 23-AUG-19 | R4772009 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 33 | HTD | 13 | mg/L | | 27-AUG-19 | R4771078 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.35 | | 0.10 | NTU | | 23-AUG-19 | R4767872 |
| **pH** | | | | | | | |
| pH | 7.55 | | 0.10 | pH units | | 23-AUG-19 | R4768589 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0116 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.20 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-AUG-19 | R4777228 |
| Phosphorus (P)-Total | 0.0017 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Total Kjeldahl Nitrogen | 0.164 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Mercury (Hg)-Total | 0.00054 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.31 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <2.0 | | 2.0 | mg/L | | 27-AUG-19 | R4769806 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0038 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.000260 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Barium (Ba)-Total | 0.00807 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 06-SEP-19 | R4785409 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Calcium (Ca)-Total | 7.39 | | 0.010 | mg/L | | 06-SEP-19 | R4785409 |
| Cesium (Cs)-Total | 0.0000090 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Cobalt (Co)-Total | 0.0000161 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Copper (Cu)-Total | 0.000779 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Iron (Fe)-Total | 0.0141 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-2 MEL-05-02 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 14:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Lanthanum (La)-Total | 0.000013 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lead (Pb)-Total | 0.000023 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lithium (Li)-Total | 0.00062 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Magnesium (Mg)-Total | 1.13 | | 0.0040 | mg/L | | 06-SEP-19 | R4785409 |
| Manganese (Mn)-Total | 0.00300 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Molybdenum (Mo)-Total | 0.000085 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Nickel (Ni)-Total | 0.000371 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Potassium (K)-Total | 0.935 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Rubidium (Rb)-Total | 0.00136 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 06-SEP-19 | R4785409 |
| Silicon (Si)-Total | 0.118 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Sodium (Na)-Total | 4.51 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Strontium (Sr)-Total | 0.0349 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Sulfur (S)-Total | 1.31 | | 0.50 | mg/L | | 06-SEP-19 | R4785409 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tin (Sn)-Total | 0.000078 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Titanium (Ti)-Total | 0.000127 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Uranium (U)-Total | 0.0000136 | | 0.0000010 | mg/L | | 06-SEP-19 | R4785409 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Zinc (Zn)-Total | 0.00079 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 29-AUG-19 | R4769989 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 29-AUG-19 | 29-AUG-19 | R4775852 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0016 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000246 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00771 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.45 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000077 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000659 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0036 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-2 MEL-05-02 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 14:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00065 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.15 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000384 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000073 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000370 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.940 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00137 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.134 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.57 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0337 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.31 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000149 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00092 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2334497-3 MEL-05-03 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 23.7 | | 1.2 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.4 | | 1.0 | mg/L | | 23-AUG-19 | R4768589 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.89 | | 0.10 | mg/L | | 23-AUG-19 | R4772009 |
| **Conductivity** | | | | | | | |
| Conductivity | 78.1 | | 1.0 | umhos/cm | | 23-AUG-19 | R4768589 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.3 | | 0.20 | | | 23-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 30-AUG-19 | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-3 MEL-05-03 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| TDS (Calculated) | 39.1 | | | mg/L | | 30-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.179 | | 0.0050 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.179 | | 0.0051 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4772009 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.64 | | 0.30 | mg/L | | 23-AUG-19 | R4772009 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 57 | | 13 | mg/L | | 23-AUG-19 | R4768592 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.25 | | 0.10 | NTU | | 23-AUG-19 | R4767872 |
| **pH** | | | | | | | |
| pH | 7.58 | | 0.10 | pH units | | 23-AUG-19 | R4768589 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.22 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | 0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-AUG-19 | R4777228 |
| Phosphorus (P)-Total | 0.0025 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Total Kjeldahl Nitrogen | 0.172 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Mercury (Hg)-Total | 0.00061 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.33 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | 1.1 | | 1.0 | mg/L | | 27-AUG-19 | R4769806 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0032 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.000255 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Barium (Ba)-Total | 0.00815 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 06-SEP-19 | R4785409 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Calcium (Ca)-Total | 7.30 | | 0.010 | mg/L | | 06-SEP-19 | R4785409 |
| Cesium (Cs)-Total | 0.0000081 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Chromium (Cr)-Total | 0.00055 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Cobalt (Co)-Total | 0.0000130 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Copper (Cu)-Total | 0.000698 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Iron (Fe)-Total | 0.0120 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Lanthanum (La)-Total | 0.000014 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lead (Pb)-Total | 0.000011 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lithium (Li)-Total | 0.00059 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Magnesium (Mg)-Total | 1.12 | | 0.0040 | mg/L | | 06-SEP-19 | R4785409 |
| Manganese (Mn)-Total | 0.00292 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Molybdenum (Mo)-Total | 0.000076 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Nickel (Ni)-Total | 0.000365 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-3 MEL-05-03 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Potassium (K)-Total | 0.924 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Rubidium (Rb)-Total | 0.00133 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 06-SEP-19 | R4785409 |
| Silicon (Si)-Total | 0.117 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Sodium (Na)-Total | 4.55 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Strontium (Sr)-Total | 0.0344 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Sulfur (S)-Total | 1.23 | | 0.50 | mg/L | | 06-SEP-19 | R4785409 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Titanium (Ti)-Total | 0.000092 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Uranium (U)-Total | 0.0000139 | | 0.0000010 | mg/L | | 06-SEP-19 | R4785409 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Zinc (Zn)-Total | 0.00078 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-AUG-19 | R4769989 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-AUG-19 | 29-AUG-19 | R4775852 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 04-SEP-19 | R4783182 |
| Aluminum (Al)-Dissolved | 0.0017 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000244 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00775 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.44 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000087 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000634 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0034 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00066 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.15 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000415 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000081 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000364 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.926 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-3 MEL-05-03 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00135 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.102 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.59 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0330 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.20 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 04-SEP-19 | 06-SEP-19 | R4785409 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000134 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00059 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2334497-4 MEL-05-04 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 23.6 | | 1.2 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.4 | | 1.0 | mg/L | | 23-AUG-19 | R4768589 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.97 | | 0.10 | mg/L | | 23-AUG-19 | R4772009 |
| **Conductivity** | | | | | | | |
| Conductivity | 77.4 | | 1.0 | umhos/cm | | 23-AUG-19 | R4768589 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.1 | | 0.20 | | | 23-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 30-AUG-19 | |
| TDS (Calculated) | 38.4 | | | mg/L | | 30-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0209 | | 0.0050 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0209 | | 0.0051 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4772009 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.68 | | 0.30 | mg/L | | 23-AUG-19 | R4772009 |
| **Total Dissolved Solids (TDS)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-4 MEL-05-04 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 54 | | 13 | mg/L | | 23-AUG-19 | R4768592 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.46 | | 0.10 | NTU | | 23-AUG-19 | R4767872 |
| **pH** | | | | | | | |
| pH | 7.59 | | 0.10 | pH units | | 23-AUG-19 | R4768589 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0075 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.29 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | 0.0011 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-AUG-19 | R4777228 |
| Total Kjeldahl Nitrogen | 0.156 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Mercury (Hg)-Total | 0.00071 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 2.40 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 27-AUG-19 | R4769806 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0035 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.000263 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Barium (Ba)-Total | 0.00805 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 06-SEP-19 | R4785409 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Calcium (Ca)-Total | 7.26 | | 0.010 | mg/L | | 06-SEP-19 | R4785409 |
| Cesium (Cs)-Total | 0.0000078 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Cobalt (Co)-Total | 0.0000144 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Copper (Cu)-Total | 0.000712 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Iron (Fe)-Total | 0.0146 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Lanthanum (La)-Total | 0.000013 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lead (Pb)-Total | 0.000017 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lithium (Li)-Total | 0.00061 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Magnesium (Mg)-Total | 1.12 | | 0.0040 | mg/L | | 06-SEP-19 | R4785409 |
| Manganese (Mn)-Total | 0.00289 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Molybdenum (Mo)-Total | 0.000071 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Nickel (Ni)-Total | 0.000367 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Potassium (K)-Total | 0.934 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Rubidium (Rb)-Total | 0.00135 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Selenium (Se)-Total | 0.000041 | | 0.000040 | mg/L | | 06-SEP-19 | R4785409 |
| Silicon (Si)-Total | 0.120 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Sodium (Na)-Total | 4.55 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Strontium (Sr)-Total | 0.0338 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Sulfur (S)-Total | 1.28 | | 0.50 | mg/L | | 06-SEP-19 | R4785409 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-4 MEL-05-04 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tin (Sn)-Total | 0.000040 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Titanium (Ti)-Total | 0.000154 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Uranium (U)-Total | 0.0000124 | | 0.0000010 | mg/L | | 06-SEP-19 | R4785409 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Zinc (Zn)-Total | 0.00103 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-AUG-19 | R4769989 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-AUG-19 | 29-AUG-19 | R4775852 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0016 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000245 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00857 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | 0.0000123 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.35 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000088 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000072 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000665 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0042 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00064 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.15 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000416 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000071 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000359 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.954 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00141 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | 0.000041 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.106 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.51 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0335 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.21 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-4 MEL-05-04 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000025 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000126 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00082 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| L2334497-5 MEL-05-05 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.9 | | 1.2 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 26-AUG-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.4 | | 1.0 | mg/L | | 23-AUG-19 | R4768589 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.10 | | 0.10 | mg/L | | 23-AUG-19 | R4772009 |
| **Conductivity** | | | | | | | |
| Conductivity | 79.8 | | 1.0 | umhos/cm | | 23-AUG-19 | R4768589 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.029 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.3 | | 0.20 | | | 23-AUG-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 30-AUG-19 | |
| TDS (Calculated) | 39.3 | | | mg/L | | 30-AUG-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0058 | | 0.0050 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0058 | | 0.0051 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 23-AUG-19 | R4772009 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.69 | | 0.30 | mg/L | | 23-AUG-19 | R4772009 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 52 | | 13 | mg/L | | 23-AUG-19 | R4768592 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.57 | | 0.10 | NTU | | 23-AUG-19 | R4767872 |
| **pH** | | | | | | | |
| pH | 7.61 | | 0.10 | pH units | | 23-AUG-19 | R4768589 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0170 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.36 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 28-AUG-19 | R4777228 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-5 MEL-05-05 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-AUG-19 | R4777228 |
| Phosphorus (P)-Total | 0.0033 | | 0.0030 | mg/L | | 27-AUG-19 | R4769484 |
| Total Kjeldahl Nitrogen | 0.392 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Mercury (Hg)-Total | 0.00087 | | 0.00050 | ug/L | | 29-AUG-19 | R4771650 |
| Total Organic Carbon | 3.20 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| Total Suspended Solids | 1.4 | | 1.0 | mg/L | | 27-AUG-19 | R4769806 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0083 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Arsenic (As)-Total | 0.000270 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Barium (Ba)-Total | 0.00833 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 06-SEP-19 | R4785409 |
| Cadmium (Cd)-Total | 0.0000074 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Calcium (Ca)-Total | 7.34 | | 0.010 | mg/L | | 06-SEP-19 | R4785409 |
| Cesium (Cs)-Total | 0.0000084 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Cobalt (Co)-Total | 0.0000201 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Copper (Cu)-Total | 0.00106 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Iron (Fe)-Total | 0.0193 | | 0.0010 | mg/L | | 06-SEP-19 | R4785409 |
| Lanthanum (La)-Total | 0.000023 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lead (Pb)-Total | 0.000041 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Lithium (Li)-Total | 0.00062 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Magnesium (Mg)-Total | 1.14 | | 0.0040 | mg/L | | 06-SEP-19 | R4785409 |
| Manganese (Mn)-Total | 0.00317 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Molybdenum (Mo)-Total | 0.000102 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Nickel (Ni)-Total | 0.000411 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Potassium (K)-Total | 0.964 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Rubidium (Rb)-Total | 0.00139 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 06-SEP-19 | R4785409 |
| Silicon (Si)-Total | 0.123 | | 0.050 | mg/L | | 06-SEP-19 | R4785409 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Sodium (Na)-Total | 4.90 | | 0.020 | mg/L | | 06-SEP-19 | R4785409 |
| Strontium (Sr)-Total | 0.0350 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Sulfur (S)-Total | 1.23 | | 0.50 | mg/L | | 06-SEP-19 | R4785409 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 06-SEP-19 | R4785409 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tin (Sn)-Total | 0.000075 | | 0.000020 | mg/L | | 06-SEP-19 | R4785409 |
| Titanium (Ti)-Total | 0.000399 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |
| Uranium (U)-Total | 0.0000122 | | 0.0000010 | mg/L | | 06-SEP-19 | R4785409 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 06-SEP-19 | R4785409 |
| Yttrium (Y)-Total | 0.0000067 | | 0.0000050 | mg/L | | 06-SEP-19 | R4785409 |
| Zinc (Zn)-Total | 0.00331 | | 0.00050 | mg/L | | 06-SEP-19 | R4785409 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 06-SEP-19 | R4785409 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334497-5 MEL-05-05 | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 27-AUG-19 | R4769989 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 27-AUG-19 | 29-AUG-19 | R4775852 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 29-AUG-19 | R4777786 |
| Aluminum (Al)-Dissolved | 0.0017 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Arsenic (As)-Dissolved | 0.000283 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Barium (Ba)-Dissolved | 0.00773 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Calcium (Ca)-Dissolved | 7.40 | | 0.010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cesium (Cs)-Dissolved | 0.0000094 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Cobalt (Co)-Dissolved | 0.0000097 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Copper (Cu)-Dissolved | 0.000774 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Iron (Fe)-Dissolved | 0.0046 | | 0.0010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Lithium (Li)-Dissolved | 0.00064 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Magnesium (Mg)-Dissolved | 1.16 | | 0.0040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Manganese (Mn)-Dissolved | 0.000477 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Molybdenum (Mo)-Dissolved | 0.000077 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Nickel (Ni)-Dissolved | 0.000373 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Potassium (K)-Dissolved | 0.967 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Rubidium (Rb)-Dissolved | 0.00139 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silicon (Si)-Dissolved | 0.103 | | 0.050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sodium (Na)-Dissolved | 4.68 | | 0.020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Strontium (Sr)-Dissolved | 0.0339 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Sulfur (S)-Dissolved | 1.31 | | 0.50 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tin (Sn)-Dissolved | 0.000067 | | 0.000020 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Uranium (U)-Dissolved | 0.0000131 | | 0.0000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zinc (Zn)-Dissolved | 0.00197 | | 0.00050 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 29-AUG-19 | 04-SEP-19 | R4782843 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Sample Parameter Qualifier Key:**

| Qualifier | Description |
|---|---|
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| HTD | Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-CO3CO3-CALC-WP | Water | Alkalinity, Carbonate | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

| | | | |
|---|---|---|---|
| ALK-HCO3HCO3-CALC-WP | Water | Alkalinity, Bicarbonate | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

| | | | |
|---|---|---|---|
| ALK-OHOH-CALC-WP | Water | Alkalinity, Hydroxide | CALCULATION |

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

| | | | |
|---|---|---|---|
| ALK-TITR-WP | Water | Alkalinity, Total (as CaCO3) | APHA 2320B |

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

| | | | |
|---|---|---|---|
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |

Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

| | | | |
|---|---|---|---|
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |

Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

| | | | |
|---|---|---|---|
| CL-L-IC-N-WP | Water | Chloride in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| CN-FREE-L-CFA-VA | Water | Low Level Free Cyanide in water by CFA | ASTM 7237 |

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

| | | | |
|---|---|---|---|
| CN-T-L-CFA-VA | Water | Low Level Total Cyanide in water by CFA | ISO 14403:2002 |

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

| | | | |
|---|---|---|---|
| CN-WAD-L-CFA-VA | Water | Low level WAD Cyanide in water by CFA | APHA 4500-CN CYANIDE |

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

| | | | |
|---|---|---|---|
| EC-WP | Water | Conductivity | APHA 2510B |

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

| | | | |
|---|---|---|---|
| F-IC-N-WP | Water | Fluoride in Water by IC | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| HARDNESS-CALC-WP | Water | Hardness Calculated | APHA 2340B |

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| HG-D-U-CVAF-VA | Water | Diss. Mercury in Water by CVAFS (Ultra) | APHA 3030 B / EPA 1631 REV. E |

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure may involve preliminary sample treatment by filtration (APHA 3030B) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry.

| | | | |
|---|---|---|---|
| HG-T-U-CVAF-VA | Water | Total Mercury in Water by CVAFS (Ultra) | EPA 1631 REV. E |

This analysis is carried out using procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry.

| | | | |
|---|---|---|---|
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

| | | | |
|---|---|---|---|
| MET-D-NP-CCMS-VA | Water | Dissolved Metals in Water CRC ICPMS | EPA 6020B (mod) |

Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.

| | | | |
|---|---|---|---|
| MET-T-NP-CCMS-VA | Water | Total Metals by CRC ICPMS (Undigested) | EPA 6020B (mod) |

Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results.
Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.

| | | | |
|---|---|---|---|
| NH3-F-ED | Water | Ammonia in Water by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

| | | | |
|---|---|---|---|
| NO2+NO3-CALC-L-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-L-IC-N-WP | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| NO3-L-IC-N-WP | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

| | | | |
|---|---|---|---|
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

| | | | |
|---|---|---|---|
| PH-WP | Water | pH | APHA 4500H |

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

| | | | |
|---|---|---|---|
| SO4-IC-N-WP | Water | Sulfate in Water by IC | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| TDS-WP | Water | Total Dissolved Solids (TDS) | APHA 2540 SOLIDS C,E |

A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C.

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| The increase in vial weight represents the total dissolved solids. | | | |
| TKN-L-F-ED | Water | TKN (as N) by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection. | | | |
| TSS-LOW-VA | Water | Total Suspended Solids by Grav. (1 mg/L) | APHA 2540D |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples. | | | |
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |
| Turbidity in aqueous matrices is determined by the nephelometric method. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report

Workorder: L2334497 Report Date: 12-SEP-19 

Client: Agnico-Eagle - Meliadine Gold Project
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8
Contact: ERIC FRANZ

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **ALK-TITR-WP** | **Water** | | | | | | | |
| **Batch R4768589** | | | | | | | | |
| **WG3143275-25 DUP** | | **L2334497-1** | | | | | | |
| Alkalinity, Total (as CaCO3) | | 19.6 | 19.4 | | mg/L | 1.4 | 20 | 23-AUG-19 |
| **WG3143275-30 DUP** | | **L2334497-2** | | | | | | |
| Alkalinity, Total (as CaCO3) | | 19.6 | 18.8 | | mg/L | 4.2 | 20 | 23-AUG-19 |
| **WG3143275-24 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 107.9 | | % | | 85-115 | 23-AUG-19 |
| **WG3143275-29 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 107.9 | | % | | 85-115 | 23-AUG-19 |
| **WG3143275-21 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 23-AUG-19 |
| **WG3143275-26 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 23-AUG-19 |
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4783541** | | | | | | | | |
| **WG3152640-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 104.0 | | % | | 80-120 | 04-SEP-19 |
| **WG3152640-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4783547** | | | | | | | | |
| **WG3152654-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.8 | | % | | 80-120 | 04-SEP-19 |
| **WG3152654-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4772009** | | | | | | | | |
| **WG3141426-14 LCS** | | | | | | | | |
| Chloride (Cl) | | | 97.7 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-13 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 23-AUG-19 |
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4777228** | | | | | | | | |
| **WG3145779-14 DUP** | | **L2334497-2** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 28-AUG-19 |
| **WG3145779-12 LCS** | | | | | | | | |
| Cyanide, Free | | | 102.8 | | % | | 80-120 | 28-AUG-19 |
| **WG3145779-11 MB** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4777228** | | | | | | | | |
| **WG3145779-11 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 28-AUG-19 |
| **WG3145779-15 MS** | | **L2334497-2** | | | | | | |
| Cyanide, Free | | | 96.6 | | % | | 75-125 | 28-AUG-19 |
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4777228** | | | | | | | | |
| **WG3145779-14 DUP** | | **L2334497-2** | | | | | | |
| Cyanide, Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 28-AUG-19 |
| **WG3145779-12 LCS** | | | | | | | | |
| Cyanide, Total | | | 99.3 | | % | | 80-120 | 28-AUG-19 |
| **WG3145779-11 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 28-AUG-19 |
| **WG3145779-15 MS** | | **L2334497-2** | | | | | | |
| Cyanide, Total | | | 93.7 | | % | | 75-125 | 28-AUG-19 |
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4777228** | | | | | | | | |
| **WG3145779-14 DUP** | | **L2334497-2** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 29-AUG-19 |
| **WG3145779-12 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 101.8 | | % | | 80-120 | 29-AUG-19 |
| **WG3145779-11 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 29-AUG-19 |
| **WG3145779-15 MS** | | **L2334497-2** | | | | | | |
| Cyanide, Weak Acid Diss | | | 99.1 | | % | | 75-125 | 29-AUG-19 |
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4768589** | | | | | | | | |
| **WG3143275-25 DUP** | | **L2334497-1** | | | | | | |
| Conductivity | | 77.5 | 77.7 | | umhos/cm | 0.3 | 10 | 23-AUG-19 |
| **WG3143275-30 DUP** | | **L2334497-2** | | | | | | |
| Conductivity | | 77.6 | 77.0 | | umhos/cm | 0.8 | 10 | 23-AUG-19 |
| **WG3143275-23 LCS** | | | | | | | | |
| Conductivity | | | 100.0 | | % | | 90-110 | 23-AUG-19 |
| **WG3143275-28 LCS** | | | | | | | | |
| Conductivity | | | 99.8 | | % | | 90-110 | 23-AUG-19 |
| **WG3143275-21 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 23-AUG-19 |
| **WG3143275-26 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 23-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4772009** | | | | | | | | |
| **WG3141426-14 LCS** | | | | | | | | |
| Fluoride (F) | | | 97.9 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-13 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 23-AUG-19 |
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4775852** | | | | | | | | |
| **WG3144968-2 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 94.3 | | % | | 80-120 | 29-AUG-19 |
| **WG3144968-6 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 94.3 | | % | | 80-120 | 29-AUG-19 |
| **WG3144968-1 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 29-AUG-19 |
| **WG3144968-5 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 29-AUG-19 |
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4771650** | | | | | | | | |
| **WG3145722-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 97.0 | | % | | 80-120 | 28-AUG-19 |
| **WG3145722-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 28-AUG-19 |
| **WG3145722-9 MS** | | **L2334497-5** | | | | | | |
| Mercury (Hg)-Total | | | 110.0 | | % | | 70-130 | 29-AUG-19 |
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-3 DUP** | | **L2334497-4** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0016 | 0.0021 | J | mg/L | 0.0005 | 0.002 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | 0.000245 | 0.000242 | | mg/L | 1.1 | 20 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | 0.00857 | 0.00805 | | mg/L | 6.3 | 20 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | 0.0000123 | 0.0000051 | J | mg/L | 0.000007 | 0.00001 | 04-SEP-19 |
| Boron (B)-Dissolved | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | 7.35 | 7.32 | | mg/L | 0.5 | 20 | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | 0.0000088 | 0.0000090 | | mg/L | 1.7 | 20 | 04-SEP-19 |
| Chromium (Cr)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | 0.0000072 | 0.0000053 | J | mg/L | 0.000001 | 0.00001 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-3 DUP** | | **L2334497-4** | | | | | | |
| Copper (Cu)-Dissolved | | 0.000665 | 0.000670 | | mg/L | 0.8 | 20 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | 0.0042 | 0.0040 | | mg/L | 3.2 | 20 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | 0.00064 | 0.00063 | | mg/L | 0.2 | 20 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | 1.15 | 1.15 | | mg/L | 0.6 | 20 | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | 0.000416 | 0.000401 | | mg/L | 3.6 | 20 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | 0.000071 | 0.000075 | | mg/L | 5.6 | 20 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | 0.000359 | 0.000370 | | mg/L | 3.0 | 20 | 04-SEP-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Potassium (K)-Dissolved | | 0.954 | 0.935 | | mg/L | 2.0 | 20 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | 0.00141 | 0.00139 | | mg/L | 1.5 | 20 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | 0.000041 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | 0.106 | 0.106 | | mg/L | 0.3 | 20 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | 4.51 | 4.59 | | mg/L | 1.8 | 20 | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | 0.0335 | 0.0334 | | mg/L | 0.1 | 20 | 04-SEP-19 |
| Sulfur (S)-Dissolved | | 1.21 | 1.30 | | mg/L | 6.9 | 20 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | 0.000025 | 0.000028 | | mg/L | 13 | 20 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Uranium (U)-Dissolved | | 0.0000126 | 0.0000126 | | mg/L | 0.0 | 20 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | 0.00082 | 0.00090 | | mg/L | 9.6 | 20 | 04-SEP-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 04-SEP-19 |
| **WG3147918-2 LCS** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 105.7 | | % | | 80-120 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | | 97.1 | | % | | 80-120 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | | 98.1 | | % | | 80-120 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | | 100.8 | | % | | 80-120 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | | 99.1 | | % | | 80-120 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 99.6 | | % | | 80-120 | 04-SEP-19 |
| Boron (B)-Dissolved | | | 101.9 | | % | | 80-120 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 100.6 | | % | | 80-120 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | | 102.5 | | % | | 80-120 | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | | 103.5 | | % | | 80-120 | 04-SEP-19 |
| Chromium (Cr)-Dissolved | | | 98.6 | | % | | 80-120 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | | 98.2 | | % | | 80-120 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | | 96.8 | | % | | 80-120 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | | 84.3 | | % | | 80-120 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | | 97.2 | | % | | 80-120 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | | 101.5 | | % | | 80-120 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | | 100.8 | | % | | 80-120 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | | 102.1 | | % | | 80-120 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | | 97.0 | | % | | 80-120 | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | | 99.2 | | % | | 80-120 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 97.5 | | % | | 80-120 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | | 97.9 | | % | | 80-120 | 04-SEP-19 |
| Niobium (Nb)-Dissolved | | | 99.97 | | % | | 80-120 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | | 104.3 | | % | | 80-120 | 04-SEP-19 |
| Potassium (K)-Dissolved | | | 100.9 | | % | | 80-120 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | | 102.2 | | % | | 80-120 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 101.1 | | % | | 80-120 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | | 100.1 | | % | | 80-120 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | | 107.1 | | % | | 80-120 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | | 94.4 | | % | | 80-120 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | | 100.4 | | % | | 80-120 | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | | 99.4 | | % | | 80-120 | 04-SEP-19 |
| Sulfur (S)-Dissolved | | | 103.8 | | % | | 80-120 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 99.5 | | % | | 80-120 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-2 LCS** | | | | | | | | |
| Tellurium (Te)-Dissolved | | | 100.4 | | % | | 80-120 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | | 100.2 | | % | | 80-120 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | | 97.1 | | % | | 80-120 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | | 96.9 | | % | | 80-120 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | | 97.6 | | % | | 80-120 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | | 103.0 | | % | | 80-120 | 04-SEP-19 |
| Uranium (U)-Dissolved | | | 103.3 | | % | | 80-120 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | | 100.4 | | % | | 80-120 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | | 105.8 | | % | | 80-120 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | | 97.7 | | % | | 80-120 | 04-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 94.9 | | % | | 80-120 | 04-SEP-19 |
| **WG3147918-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-1 MB** | | **NP** | | | | | | |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-SEP-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 04-SEP-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-SEP-19 |
| **WG3147918-4 MS** | | **L2334497-5** | | | | | | |
| Aluminum (Al)-Dissolved | | | 97.7 | | % | | 70-130 | 04-SEP-19 |
| Antimony (Sb)-Dissolved | | | 96.4 | | % | | 70-130 | 04-SEP-19 |
| Arsenic (As)-Dissolved | | | 96.6 | | % | | 70-130 | 04-SEP-19 |
| Barium (Ba)-Dissolved | | | 94.1 | | % | | 70-130 | 04-SEP-19 |
| Beryllium (Be)-Dissolved | | | 93.6 | | % | | 70-130 | 04-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 99.8 | | % | | 70-130 | 04-SEP-19 |
| Boron (B)-Dissolved | | | 97.7 | | % | | 70-130 | 04-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 101.4 | | % | | 70-130 | 04-SEP-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Cesium (Cs)-Dissolved | | | 101.8 | | % | | 70-130 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-4 MS** | | **L2334497-5** | | | | | | |
| Chromium (Cr)-Dissolved | | | 97.6 | | % | | 70-130 | 04-SEP-19 |
| Cobalt (Co)-Dissolved | | | 98.3 | | % | | 70-130 | 04-SEP-19 |
| Copper (Cu)-Dissolved | | | 96.7 | | % | | 70-130 | 04-SEP-19 |
| Gallium (Ga)-Dissolved | | | 93.7 | | % | | 70-130 | 04-SEP-19 |
| Iron (Fe)-Dissolved | | | 97.7 | | % | | 70-130 | 04-SEP-19 |
| Lanthanum (La)-Dissolved | | | 95.2 | | % | | 70-130 | 04-SEP-19 |
| Lead (Pb)-Dissolved | | | 101.2 | | % | | 70-130 | 04-SEP-19 |
| Lithium (Li)-Dissolved | | | 98.8 | | % | | 70-130 | 04-SEP-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Manganese (Mn)-Dissolved | | | 98.7 | | % | | 70-130 | 04-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 95.8 | | % | | 70-130 | 04-SEP-19 |
| Nickel (Ni)-Dissolved | | | 96.7 | | % | | 70-130 | 04-SEP-19 |
| Niobium (Nb)-Dissolved | | | 99.5 | | % | | 70-130 | 04-SEP-19 |
| Phosphorus (P)-Dissolved | | | 98.0 | | % | | 70-130 | 04-SEP-19 |
| Potassium (K)-Dissolved | | | 96.6 | | % | | 70-130 | 04-SEP-19 |
| Rhenium (Re)-Dissolved | | | 99.0 | | % | | 70-130 | 04-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 99.9 | | % | | 70-130 | 04-SEP-19 |
| Selenium (Se)-Dissolved | | | 96.5 | | % | | 70-130 | 04-SEP-19 |
| Silicon (Si)-Dissolved | | | 98.2 | | % | | 70-130 | 04-SEP-19 |
| Silver (Ag)-Dissolved | | | 96.0 | | % | | 70-130 | 04-SEP-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 04-SEP-19 |
| Sulfur (S)-Dissolved | | | 98.7 | | % | | 70-130 | 04-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 98.1 | | % | | 70-130 | 04-SEP-19 |
| Tellurium (Te)-Dissolved | | | 98.7 | | % | | 70-130 | 04-SEP-19 |
| Thallium (Tl)-Dissolved | | | 97.2 | | % | | 70-130 | 04-SEP-19 |
| Thorium (Th)-Dissolved | | | 105.0 | | % | | 70-130 | 04-SEP-19 |
| Tin (Sn)-Dissolved | | | 96.7 | | % | | 70-130 | 04-SEP-19 |
| Titanium (Ti)-Dissolved | | | 98.4 | | % | | 70-130 | 04-SEP-19 |
| Tungsten (W)-Dissolved | | | 102.3 | | % | | 70-130 | 04-SEP-19 |
| Uranium (U)-Dissolved | | | 99.9 | | % | | 70-130 | 04-SEP-19 |
| Vanadium (V)-Dissolved | | | 98.2 | | % | | 70-130 | 04-SEP-19 |
| Yttrium (Y)-Dissolved | | | 108.0 | | % | | 70-130 | 04-SEP-19 |
| Zinc (Zn)-Dissolved | | | 97.0 | | % | | 70-130 | 04-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4782843** | | | | | | | | |
| **WG3147918-4 MS** | | **L2334497-5** | | | | | | |
| Zirconium (Zr)-Dissolved | | | 98.6 | | % | | 70-130 | 04-SEP-19 |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-3 DUP** | | **L2334497-3** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0017 | 0.0016 | | mg/L | 4.8 | 20 | 06-SEP-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Arsenic (As)-Dissolved | | 0.000244 | 0.000241 | | mg/L | 3.9 | 20 | 06-SEP-19 |
| Barium (Ba)-Dissolved | | 0.00775 | 0.00806 | | mg/L | 1.8 | 20 | 06-SEP-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Boron (B)-Dissolved | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Calcium (Ca)-Dissolved | | 7.44 | 7.50 | | mg/L | 2.6 | 20 | 06-SEP-19 |
| Cesium (Cs)-Dissolved | | 0.0000087 | 0.0000071 | | mg/L | 10 | 20 | 06-SEP-19 |
| Chromium (Cr)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Cobalt (Co)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Copper (Cu)-Dissolved | | 0.000634 | 0.000645 | | mg/L | 1.9 | 20 | 06-SEP-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Iron (Fe)-Dissolved | | 0.0034 | 0.0039 | | mg/L | 0.4 | 20 | 06-SEP-19 |
| Lanthanum (La)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Lead (Pb)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Lithium (Li)-Dissolved | | 0.00066 | 0.00064 | | mg/L | 0.6 | 20 | 06-SEP-19 |
| Magnesium (Mg)-Dissolved | | 1.15 | 1.10 | | mg/L | 2.2 | 20 | 06-SEP-19 |
| Manganese (Mn)-Dissolved | | 0.000415 | 0.000408 | | mg/L | 1.6 | 20 | 06-SEP-19 |
| Molybdenum (Mo)-Dissolved | | 0.000081 | 0.000083 | | mg/L | 7.8 | 20 | 06-SEP-19 |
| Nickel (Ni)-Dissolved | | 0.000364 | 0.000368 | | mg/L | 2.2 | 20 | 06-SEP-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Potassium (K)-Dissolved | | 0.926 | 0.913 | | mg/L | 1.1 | 20 | 06-SEP-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Rubidium (Rb)-Dissolved | | 0.00135 | 0.00134 | | mg/L | 1.9 | 20 | 06-SEP-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Silicon (Si)-Dissolved | | 0.102 | 0.111 | | mg/L | 4.2 | 20 | 06-SEP-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-3 DUP** | | **L2334497-3** | | | | | | |
| Sodium (Na)-Dissolved | | 4.59 | 4.42 | | mg/L | 2.6 | 20 | 06-SEP-19 |
| Strontium (Sr)-Dissolved | | 0.0330 | 0.0347 | | mg/L | 0.1 | 20 | 06-SEP-19 |
| Sulfur (S)-Dissolved | | 1.20 | 1.25 | | mg/L | 1.7 | 20 | 06-SEP-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Tin (Sn)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Uranium (U)-Dissolved | | 0.0000134 | 0.0000117 | | mg/L | 5.8 | 20 | 06-SEP-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Yttrium (Y)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Zinc (Zn)-Dissolved | | 0.00059 | 0.00062 | | mg/L | 2.4 | 20 | 06-SEP-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| **WG3152155-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 100.7 | | % | | 80-120 | 06-SEP-19 |
| Antimony (Sb)-Dissolved | | | 96.6 | | % | | 80-120 | 06-SEP-19 |
| Arsenic (As)-Dissolved | | | 97.4 | | % | | 80-120 | 06-SEP-19 |
| Barium (Ba)-Dissolved | | | 101.4 | | % | | 80-120 | 06-SEP-19 |
| Beryllium (Be)-Dissolved | | | 99.2 | | % | | 80-120 | 06-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 97.3 | | % | | 80-120 | 06-SEP-19 |
| Boron (B)-Dissolved | | | 92.7 | | % | | 80-120 | 06-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 98.4 | | % | | 80-120 | 06-SEP-19 |
| Calcium (Ca)-Dissolved | | | 100.6 | | % | | 80-120 | 06-SEP-19 |
| Cesium (Cs)-Dissolved | | | 96.4 | | % | | 80-120 | 06-SEP-19 |
| Chromium (Cr)-Dissolved | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Cobalt (Co)-Dissolved | | | 97.5 | | % | | 80-120 | 06-SEP-19 |
| Copper (Cu)-Dissolved | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| Gallium (Ga)-Dissolved | | | 101.3 | | % | | 80-120 | 06-SEP-19 |
| Iron (Fe)-Dissolved | | | 96.7 | | % | | 80-120 | 06-SEP-19 |
| Lanthanum (La)-Dissolved | | | 100.1 | | % | | 80-120 | 06-SEP-19 |
| Lead (Pb)-Dissolved | | | 97.5 | | % | | 80-120 | 06-SEP-19 |
| Lithium (Li)-Dissolved | | | 95.4 | | % | | 80-120 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-2 LCS** | | | | | | | | |
| Magnesium (Mg)-Dissolved | | | 98.3 | | % | | 80-120 | 06-SEP-19 |
| Manganese (Mn)-Dissolved | | | 99.5 | | % | | 80-120 | 06-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 102.2 | | % | | 80-120 | 06-SEP-19 |
| Nickel (Ni)-Dissolved | | | 98.0 | | % | | 80-120 | 06-SEP-19 |
| Niobium (Nb)-Dissolved | | | 95.0 | | % | | 80-120 | 06-SEP-19 |
| Phosphorus (P)-Dissolved | | | 102.4 | | % | | 80-120 | 06-SEP-19 |
| Potassium (K)-Dissolved | | | 100.4 | | % | | 80-120 | 06-SEP-19 |
| Rhenium (Re)-Dissolved | | | 101.6 | | % | | 80-120 | 06-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 100.6 | | % | | 80-120 | 06-SEP-19 |
| Selenium (Se)-Dissolved | | | 95.2 | | % | | 80-120 | 06-SEP-19 |
| Silicon (Si)-Dissolved | | | 101.5 | | % | | 80-120 | 06-SEP-19 |
| Silver (Ag)-Dissolved | | | 98.1 | | % | | 80-120 | 06-SEP-19 |
| Sodium (Na)-Dissolved | | | 102.6 | | % | | 80-120 | 06-SEP-19 |
| Strontium (Sr)-Dissolved | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| Sulfur (S)-Dissolved | | | 97.5 | | % | | 80-120 | 06-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 101.2 | | % | | 80-120 | 06-SEP-19 |
| Tellurium (Te)-Dissolved | | | 103.8 | | % | | 80-120 | 06-SEP-19 |
| Thallium (Tl)-Dissolved | | | 97.0 | | % | | 80-120 | 06-SEP-19 |
| Thorium (Th)-Dissolved | | | 93.4 | | % | | 80-120 | 06-SEP-19 |
| Tin (Sn)-Dissolved | | | 97.3 | | % | | 80-120 | 06-SEP-19 |
| Titanium (Ti)-Dissolved | | | 97.3 | | % | | 80-120 | 06-SEP-19 |
| Tungsten (W)-Dissolved | | | 102.6 | | % | | 80-120 | 06-SEP-19 |
| Uranium (U)-Dissolved | | | 95.0 | | % | | 80-120 | 06-SEP-19 |
| Vanadium (V)-Dissolved | | | 99.0 | | % | | 80-120 | 06-SEP-19 |
| Yttrium (Y)-Dissolved | | | 99.6 | | % | | 80-120 | 06-SEP-19 |
| Zinc (Zn)-Dissolved | | | 98.3 | | % | | 80-120 | 06-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 95.4 | | % | | 80-120 | 06-SEP-19 |
| **WG3152155-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 06-SEP-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-1 MB** | | **NP** | | | | | | |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 06-SEP-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 06-SEP-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 06-SEP-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 06-SEP-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 06-SEP-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 06-SEP-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 06-SEP-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 06-SEP-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 06-SEP-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 06-SEP-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 06-SEP-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152155-1 MB** | | **NP** | | | | | | |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 06-SEP-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 06-SEP-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-3 DUP** | | **L2334497-4** | | | | | | |
| Aluminum (Al)-Total | | 0.0035 | 0.0034 | | mg/L | 1.9 | 20 | 06-SEP-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Arsenic (As)-Total | | 0.000263 | 0.000259 | | mg/L | 1.7 | 20 | 06-SEP-19 |
| Barium (Ba)-Total | | 0.00805 | 0.00802 | | mg/L | 0.3 | 20 | 06-SEP-19 |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Boron (B)-Total | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Calcium (Ca)-Total | | 7.26 | 7.24 | | mg/L | 0.3 | 20 | 06-SEP-19 |
| Cesium (Cs)-Total | | 0.0000078 | 0.0000086 | | mg/L | 9.0 | 20 | 06-SEP-19 |
| Chromium (Cr)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Cobalt (Co)-Total | | 0.0000144 | 0.0000148 | | mg/L | 2.4 | 20 | 06-SEP-19 |
| Copper (Cu)-Total | | 0.000712 | 0.000715 | | mg/L | 0.4 | 20 | 06-SEP-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Iron (Fe)-Total | | 0.0146 | 0.0145 | | mg/L | 1.0 | 20 | 06-SEP-19 |
| Lanthanum (La)-Total | | 0.000013 | 0.000012 | | mg/L | 10 | 20 | 06-SEP-19 |
| Lead (Pb)-Total | | 0.000017 | 0.000017 | | mg/L | 1.1 | 20 | 06-SEP-19 |
| Lithium (Li)-Total | | 0.00061 | 0.00060 | | mg/L | 0.2 | 20 | 06-SEP-19 |
| Magnesium (Mg)-Total | | 1.12 | 1.14 | | mg/L | 2.0 | 20 | 06-SEP-19 |
| Manganese (Mn)-Total | | 0.00289 | 0.00293 | | mg/L | 1.5 | 20 | 06-SEP-19 |
| Molybdenum (Mo)-Total | | 0.000071 | 0.000078 | | mg/L | 10 | 20 | 06-SEP-19 |
| Nickel (Ni)-Total | | 0.000367 | 0.000377 | | mg/L | 2.7 | 20 | 06-SEP-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Potassium (K)-Total | | 0.934 | 0.942 | | mg/L | 0.8 | 20 | 06-SEP-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-3 DUP** | | **L2334497-4** | | | | | | |
| Rubidium (Rb)-Total | | 0.00135 | 0.00133 | | mg/L | 1.1 | 20 | 06-SEP-19 |
| Selenium (Se)-Total | | 0.000041 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Silicon (Si)-Total | | 0.120 | 0.119 | | mg/L | 1.0 | 20 | 06-SEP-19 |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Sodium (Na)-Total | | 4.55 | 4.54 | | mg/L | 0.3 | 20 | 06-SEP-19 |
| Strontium (Sr)-Total | | 0.0338 | 0.0353 | | mg/L | 4.1 | 20 | 06-SEP-19 |
| Sulfur (S)-Total | | 1.28 | 1.29 | | mg/L | 0.9 | 20 | 06-SEP-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Thorium (Th)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Tin (Sn)-Total | | 0.000040 | 0.000032 | J | mg/L | 0.000008 | 0.00004 | 06-SEP-19 |
| Titanium (Ti)-Total | | 0.000154 | 0.000126 | | mg/L | 20 | 20 | 06-SEP-19 |
| Tungsten (W)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Uranium (U)-Total | | 0.0000124 | 0.0000140 | | mg/L | 12 | 20 | 06-SEP-19 |
| Vanadium (V)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Yttrium (Y)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| Zinc (Zn)-Total | | 0.00103 | 0.00091 | | mg/L | 12 | 20 | 06-SEP-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 06-SEP-19 |
| **WG3152192-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Antimony (Sb)-Total | | | 97.8 | | % | | 80-120 | 06-SEP-19 |
| Arsenic (As)-Total | | | 99.5 | | % | | 80-120 | 06-SEP-19 |
| Barium (Ba)-Total | | | 98.8 | | % | | 80-120 | 06-SEP-19 |
| Beryllium (Be)-Total | | | 98.2 | | % | | 80-120 | 06-SEP-19 |
| Bismuth (Bi)-Total | | | 96.3 | | % | | 80-120 | 06-SEP-19 |
| Boron (B)-Total | | | 91.6 | | % | | 80-120 | 06-SEP-19 |
| Cadmium (Cd)-Total | | | 99.2 | | % | | 80-120 | 06-SEP-19 |
| Calcium (Ca)-Total | | | 99.2 | | % | | 80-120 | 06-SEP-19 |
| Cesium (Cs)-Total | | | 98.4 | | % | | 80-120 | 06-SEP-19 |
| Chromium (Cr)-Total | | | 98.8 | | % | | 80-120 | 06-SEP-19 |
| Cobalt (Co)-Total | | | 98.4 | | % | | 80-120 | 06-SEP-19 |
| Copper (Cu)-Total | | | 98.1 | | % | | 80-120 | 06-SEP-19 |
| Gallium (Ga)-Total | | | 104.1 | | % | | 80-120 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-2 LCS** | | | | | | | | |
| Iron (Fe)-Total | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Lanthanum (La)-Total | | | 98.0 | | % | | 80-120 | 06-SEP-19 |
| Lead (Pb)-Total | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| Lithium (Li)-Total | | | 94.3 | | % | | 80-120 | 06-SEP-19 |
| Magnesium (Mg)-Total | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Manganese (Mn)-Total | | | 100.0 | | % | | 80-120 | 06-SEP-19 |
| Molybdenum (Mo)-Total | | | 102.8 | | % | | 80-120 | 06-SEP-19 |
| Nickel (Ni)-Total | | | 98.7 | | % | | 80-120 | 06-SEP-19 |
| Niobium (Nb)-Total | | | 95.7 | | % | | 80-120 | 06-SEP-19 |
| Phosphorus (P)-Total | | | 102.8 | | % | | 80-120 | 06-SEP-19 |
| Potassium (K)-Total | | | 102.1 | | % | | 80-120 | 06-SEP-19 |
| Rhenium (Re)-Total | | | 99.7 | | % | | 80-120 | 06-SEP-19 |
| Rubidium (Rb)-Total | | | 102.2 | | % | | 80-120 | 06-SEP-19 |
| Selenium (Se)-Total | | | 97.0 | | % | | 80-120 | 06-SEP-19 |
| Silicon (Si)-Total | | | 104.0 | | % | | 80-120 | 06-SEP-19 |
| Silver (Ag)-Total | | | 98.7 | | % | | 80-120 | 06-SEP-19 |
| Sodium (Na)-Total | | | 103.4 | | % | | 80-120 | 06-SEP-19 |
| Strontium (Sr)-Total | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| Sulfur (S)-Total | | | 100.2 | | % | | 80-120 | 06-SEP-19 |
| Tantalum (Ta)-Total | | | 98.4 | | % | | 80-120 | 06-SEP-19 |
| Tellurium (Te)-Total | | | 104.4 | | % | | 80-120 | 06-SEP-19 |
| Thallium (Tl)-Total | | | 98.0 | | % | | 80-120 | 06-SEP-19 |
| Thorium (Th)-Total | | | 93.6 | | % | | 80-120 | 06-SEP-19 |
| Tin (Sn)-Total | | | 97.9 | | % | | 80-120 | 06-SEP-19 |
| Titanium (Ti)-Total | | | 97.7 | | % | | 80-120 | 06-SEP-19 |
| Tungsten (W)-Total | | | 100.2 | | % | | 80-120 | 06-SEP-19 |
| Uranium (U)-Total | | | 94.7 | | % | | 80-120 | 06-SEP-19 |
| Vanadium (V)-Total | | | 99.9 | | % | | 80-120 | 06-SEP-19 |
| Yttrium (Y)-Total | | | 100.5 | | % | | 80-120 | 06-SEP-19 |
| Zinc (Zn)-Total | | | 98.5 | | % | | 80-120 | 06-SEP-19 |
| Zirconium (Zr)-Total | | | 97.1 | | % | | 80-120 | 06-SEP-19 |
| **WG3152192-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 06-SEP-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-1 MB** | | **NP** | | | | | | |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 06-SEP-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 06-SEP-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 06-SEP-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 06-SEP-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 06-SEP-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 06-SEP-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 06-SEP-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 06-SEP-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 06-SEP-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 06-SEP-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 06-SEP-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-SEP-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-1 MB** | | **NP** | | | | | | |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 06-SEP-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 06-SEP-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-SEP-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 06-SEP-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 06-SEP-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 06-SEP-19 |
| **WG3152192-4 MS** | | **L2334497-5** | | | | | | |
| Aluminum (Al)-Total | | | 94.3 | | % | | 70-130 | 06-SEP-19 |
| Antimony (Sb)-Total | | | 89.7 | | % | | 70-130 | 06-SEP-19 |
| Arsenic (As)-Total | | | 96.0 | | % | | 70-130 | 06-SEP-19 |
| Barium (Ba)-Total | | | 97.3 | | % | | 70-130 | 06-SEP-19 |
| Beryllium (Be)-Total | | | 96.0 | | % | | 70-130 | 06-SEP-19 |
| Bismuth (Bi)-Total | | | 90.2 | | % | | 70-130 | 06-SEP-19 |
| Boron (B)-Total | | | 93.1 | | % | | 70-130 | 06-SEP-19 |
| Cadmium (Cd)-Total | | | 103.9 | | % | | 70-130 | 06-SEP-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 06-SEP-19 |
| Cesium (Cs)-Total | | | 91.7 | | % | | 70-130 | 06-SEP-19 |
| Chromium (Cr)-Total | | | 97.3 | | % | | 70-130 | 06-SEP-19 |
| Cobalt (Co)-Total | | | 96.9 | | % | | 70-130 | 06-SEP-19 |
| Copper (Cu)-Total | | | 95.6 | | % | | 70-130 | 06-SEP-19 |
| Gallium (Ga)-Total | | | 101.6 | | % | | 70-130 | 06-SEP-19 |
| Iron (Fe)-Total | | | 96.6 | | % | | 70-130 | 06-SEP-19 |
| Lanthanum (La)-Total | | | 97.1 | | % | | 70-130 | 06-SEP-19 |
| Lead (Pb)-Total | | | 93.6 | | % | | 70-130 | 06-SEP-19 |
| Lithium (Li)-Total | | | 92.6 | | % | | 70-130 | 06-SEP-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 06-SEP-19 |
| Manganese (Mn)-Total | | | 97.4 | | % | | 70-130 | 06-SEP-19 |
| Molybdenum (Mo)-Total | | | 94.8 | | % | | 70-130 | 06-SEP-19 |
| Nickel (Ni)-Total | | | 96.7 | | % | | 70-130 | 06-SEP-19 |
| Niobium (Nb)-Total | | | 103.4 | | % | | 70-130 | 06-SEP-19 |
| Phosphorus (P)-Total | | | 98.8 | | % | | 70-130 | 06-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4785409** | | | | | | | | |
| **WG3152192-4 MS** | | **L2334497-5** | | | | | | |
| Potassium (K)-Total | | | 92.5 | | % | | 70-130 | 06-SEP-19 |
| Rhenium (Re)-Total | | | 101.3 | | % | | 70-130 | 06-SEP-19 |
| Rubidium (Rb)-Total | | | 97.0 | | % | | 70-130 | 06-SEP-19 |
| Selenium (Se)-Total | | | 98.9 | | % | | 70-130 | 06-SEP-19 |
| Silicon (Si)-Total | | | 98.5 | | % | | 70-130 | 06-SEP-19 |
| Silver (Ag)-Total | | | 92.3 | | % | | 70-130 | 06-SEP-19 |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 06-SEP-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 06-SEP-19 |
| Sulfur (S)-Total | | | 102.4 | | % | | 70-130 | 06-SEP-19 |
| Tantalum (Ta)-Total | | | 98.7 | | % | | 70-130 | 06-SEP-19 |
| Tellurium (Te)-Total | | | 97.3 | | % | | 70-130 | 06-SEP-19 |
| Thallium (Tl)-Total | | | 90.3 | | % | | 70-130 | 06-SEP-19 |
| Thorium (Th)-Total | | | 94.9 | | % | | 70-130 | 06-SEP-19 |
| Tin (Sn)-Total | | | 94.5 | | % | | 70-130 | 06-SEP-19 |
| Titanium (Ti)-Total | | | 94.7 | | % | | 70-130 | 06-SEP-19 |
| Tungsten (W)-Total | | | 97.0 | | % | | 70-130 | 06-SEP-19 |
| Uranium (U)-Total | | | 92.6 | | % | | 70-130 | 06-SEP-19 |
| Vanadium (V)-Total | | | 97.7 | | % | | 70-130 | 06-SEP-19 |
| Yttrium (Y)-Total | | | 108.4 | | % | | 70-130 | 06-SEP-19 |
| Zinc (Zn)-Total | | | 97.6 | | % | | 70-130 | 06-SEP-19 |
| Zirconium (Zr)-Total | | | 94.3 | | % | | 70-130 | 06-SEP-19 |
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4782163** | | | | | | | | |
| **WG3150395-11 DUP** | | **L2334497-5** | | | | | | |
| Ammonia, Total (as N) | | 0.0170 | 0.0160 | | mg/L | 6.1 | 20 | 04-SEP-19 |
| **WG3150395-10 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 109.6 | | % | | 85-115 | 04-SEP-19 |
| **WG3150395-9 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| **WG3150395-12 MS** | | **L2334497-5** | | | | | | |
| Ammonia, Total (as N) | | | 99.1 | | % | | 75-125 | 04-SEP-19 |
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4772009** | | | | | | | | |
| **WG3141426-14 LCS** | | | | | | | | |
| Nitrite (as N) | | | 100.7 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-13 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 23-AUG-19 |
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4772009** | | | | | | | | |
| **WG3141426-14 LCS** | | | | | | | | |
| Nitrate (as N) | | | 98.0 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-13 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 23-AUG-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4769484** | | | | | | | | |
| **WG3143771-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 94.4 | | % | | 80-120 | 27-AUG-19 |
| **WG3143771-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 27-AUG-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4771318** | | | | | | | | |
| **WG3144882-7 DUP** | | **L2334497-2** | | | | | | |
| Phosphorus (P)-Total | | 0.0017 | 0.0021 | J | mg/L | 0.0005 | 0.002 | 28-AUG-19 |
| **WG3144882-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 87.8 | | % | | 80-120 | 28-AUG-19 |
| **WG3144882-6 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 86.0 | | % | | 80-120 | 28-AUG-19 |
| **WG3144882-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 28-AUG-19 |
| **WG3144882-5 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 28-AUG-19 |
| **WG3144882-8 MS** | | **L2334497-3** | | | | | | |
| Phosphorus (P)-Total | | | 92.8 | | % | | 70-130 | 28-AUG-19 |
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4768589** | | | | | | | | |
| **WG3143275-25 DUP** | | **L2334497-1** | | | | | | |
| pH | | 7.63 | 7.59 | J | pH units | 0.04 | 0.2 | 23-AUG-19 |
| **WG3143275-30 DUP** | | **L2334497-2** | | | | | | |
| pH | | 7.55 | 7.58 | J | pH units | 0.03 | 0.2 | 23-AUG-19 |
| **WG3143275-22 LCS** | | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4768589** | | | | | | | | |
| **WG3143275-22 LCS** | | | | | | | | |
| pH | | | 7.40 | | pH units | | 7.3-7.5 | 23-AUG-19 |
| **WG3143275-27 LCS** | | | | | | | | |
| pH | | | 7.40 | | pH units | | 7.3-7.5 | 23-AUG-19 |
| **SO4-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4772009** | | | | | | | | |
| **WG3141426-14 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 98.8 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-13 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 23-AUG-19 |
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4768592** | | | | | | | | |
| **WG3141158-10 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 102.7 | | % | | 85-115 | 23-AUG-19 |
| **WG3141158-6 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 102.5 | | % | | 85-115 | 23-AUG-19 |
| **WG3141158-5 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 23-AUG-19 |
| **WG3141158-9 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 23-AUG-19 |
| **Batch R4771078** | | | | | | | | |
| **WG3143629-2 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 101.7 | | % | | 85-115 | 27-AUG-19 |
| **WG3143629-1 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 27-AUG-19 |
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4795131** | | | | | | | | |
| **WG3156365-3 DUP** | | **L2334497-1** | | | | | | |
| Total Kjeldahl Nitrogen | | 0.154 | 0.160 | | mg/L | 3.6 | 20 | 10-SEP-19 |
| **WG3156365-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 103 | | % | | 75-125 | 10-SEP-19 |
| **WG3156365-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 10-SEP-19 |
| **WG3156365-4 MS** | | **L2334497-1** | | | | | | |
| Total Kjeldahl Nitrogen | | | 109 | | % | | 70-130 | 10-SEP-19 |
| **TSS-LOW-VA** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TSS-LOW-VA** | **Water** | | | | | | | |
| **Batch R4769806** | | | | | | | | |
| **WG3144055-4 LCS** | | | | | | | | |
| Total Suspended Solids | | | 97.9 | | % | | 85-115 | 27-AUG-19 |
| **WG3144055-3 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 27-AUG-19 |
| **TURBIDITY-WP** | **Water** | | | | | | | |
| **Batch R4767872** | | | | | | | | |
| **WG3141762-3 DUP** | | **L2334497-5** | | | | | | |
| Turbidity | | 0.57 | 0.57 | | NTU | 0.5 | 15 | 23-AUG-19 |
| **WG3141762-2 LCS** | | | | | | | | |
| Turbidity | | | 103.0 | | % | | 85-115 | 23-AUG-19 |
| **WG3141762-1 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 23-AUG-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Total Dissolved Solids (TDS) | | | | | | | |
| | 2 | 16-AUG-19 14:18 | 27-AUG-19 14:00 | 7 | 11 | days | EHTL |
| Total Suspended Solids by Grav. (1 mg/L) | | | | | | | |
| | 1 | 16-AUG-19 13:49 | 27-AUG-19 03:45 | 7 | 11 | days | EHTL |
| | 2 | 16-AUG-19 14:18 | 27-AUG-19 03:45 | 7 | 11 | days | EHTL |
| | 3 | 16-AUG-19 13:15 | 27-AUG-19 03:45 | 7 | 11 | days | EHTL |
| | 4 | 16-AUG-19 12:31 | 27-AUG-19 03:45 | 7 | 11 | days | EHTL |
| | 5 | 16-AUG-19 12:23 | 27-AUG-19 03:45 | 7 | 11 | days | EHTL |
| Turbidity | | | | | | | |
| | 1 | 16-AUG-19 13:49 | 23-AUG-19 12:00 | 3 | 7 | days | EHTR |
| | 2 | 16-AUG-19 14:18 | 23-AUG-19 12:00 | 3 | 7 | days | EHTR |
| | 3 | 16-AUG-19 13:15 | 23-AUG-19 12:00 | 3 | 7 | days | EHTR |
| | 4 | 16-AUG-19 12:31 | 23-AUG-19 12:00 | 3 | 7 | days | EHTR |
| | 5 | 16-AUG-19 12:23 | 23-AUG-19 12:00 | 3 | 7 | days | EHTR |
| pH | | | | | | | |
| | 1 | 16-AUG-19 13:49 | 23-AUG-19 12:00 | 0.25 | 166 | hours | EHTR-FM |
| | 2 | 16-AUG-19 14:18 | 23-AUG-19 12:00 | 0.25 | 166 | hours | EHTR-FM |
| | 3 | 16-AUG-19 13:15 | 23-AUG-19 12:00 | 0.25 | 167 | hours | EHTR-FM |
| | 4 | 16-AUG-19 12:31 | 23-AUG-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 5 | 16-AUG-19 12:23 | 23-AUG-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 16-AUG-19 13:49 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 2 | 16-AUG-19 14:18 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 3 | 16-AUG-19 13:15 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 4 | 16-AUG-19 12:31 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 5 | 16-AUG-19 12:23 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 16-AUG-19 13:49 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 2 | 16-AUG-19 14:18 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 3 | 16-AUG-19 13:15 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 4 | 16-AUG-19 12:31 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 5 | 16-AUG-19 12:23 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2334497 were received on 23-AUG-19 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

# Quality Control Report



The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

Chain of Custody / Analytical Request Form

L2334497-COFC

COC # _____

Page 1 of 1

| Report To | | | Report Format / Distribution | | | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|---|---|---|
| Company: | Azimuth Consulting Group | | ☑ | | | | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | | ☑ PDF | ☑ Excel | ☐ Digital | ☐ Fax | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | | Email 1: | efranz@azimuthgroup.ca | | | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | | Email 2: | mjosee.banville@agncioeagle.com | | | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 | Fax: | Email 3: | | | | |
| **Invoice To** | Same as Report ? ☑ Yes | ☐ No | **Client / Project Information** | | | | **Analysis Request** |
| Hardcopy of Invoice with Report? | ☐ Yes | ☑ No | Job #: | Meliadine AEMP - Surface Water | | | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | | PO / AFE: | | | | |
| Contact: | | | LSD: | | | | |
| Address: | | | | | | | |
| Phone: | | Fax: | Quote #: | Q57496 | | | |

| Lab Work Order # (lab use only) | ALS Contact: | Judy Dalmaijer | Sampler: | Azimuth Agnico Eagle |
|---|---|---|---|---|

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | F | | F | P | F/P | P | | | |
| | MEL-05-01 | 16-Aug-19 | 1:49 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| | MEL-05-02 | 16-Aug-19 | 2:18 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| | MEL-05-03 | 16-Aug-19 | 1:15 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| | MEL-05-04 | 16-Aug-19 | 12:31 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| | MEL-05-05 | 16-Aug-19 | 12:23 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Bethany Hodgins | 19-Aug-19 | 8:00 | | AUG 23 2019 | 9:00 | 19.4 °C | | AUG 23 2019 | 9:00 | |

GENF 20.00 Front

# Appendix E4
# ALS Lab Reports: September 2019

Agnico-Eagle - Meliadine Gold Project
ATTN: ERIC FRANZ
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8

Date Received: 13-SEP-19
Report Date: 04-OCT-19 12:14 (MT)
Version: FINAL

Client Phone: 604-730-1220

# Certificate of Analysis

## Lab Work Order #: L2346699

Project P.O. #: NOT SUBMITTED
Job Reference: MEL
C of C Numbers:
Legal Site Desc:

Comments: Ion balance was deleted from fraction 11 as it cannot calculate with less than results.

Judy Dalmaijer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-1 MEL-01-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 09:36 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 25.1 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.6 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 12.6 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 87.1 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.6 | | 0.20 | | | 13-SEP-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 45.1 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0177 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0177 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.45 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 50 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.76 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.12 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 3.07 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0041 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Ra-226 | <0.0068 | | 0.0068 | Bq/L | 18-SEP-19 | 27-SEP-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.200 | | 0.050 | mg/L | 02-OCT-19 | 03-OCT-19 | R4858440 |
| Mercury (Hg)-Total | 0.00056 | | 0.00050 | ug/L | | 21-SEP-19 | R4830009 |
| Total Organic Carbon | 2.77 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | 1.6 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0110 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000479 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00740 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-1 MEL-01-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 09:36 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Boron (B)-Total | 0.0057 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | 0.0000096 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 7.54 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000103 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000302 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.000790 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0339 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000046 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000021 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00119 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.36 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00403 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000093 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000626 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 0.995 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00140 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.188 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 5.86 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0449 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.61 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | 0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | 0.000692 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000165 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000096 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | 0.00079 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 27-SEP-19 | R4849476 |
| Aluminum (Al)-Dissolved | 0.0025 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000416 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00719 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | 0.0058 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-1 MEL-01-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 09:36 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Cadmium (Cd)-Dissolved | 0.0000416 | DTC | 0.0000050 | mg/L | 27-SEP-19 | 01-OCT-19 | R4850932 |
| Calcium (Ca)-Dissolved | 7.32 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000162 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00044 | DTC | 0.00010 | mg/L | 27-SEP-19 | 01-OCT-19 | R4850932 |
| Cobalt (Co)-Dissolved | 0.0000121 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.00102 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0071 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | 0.000022 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00108 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.29 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000353 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000085 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000581 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.980 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00136 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.172 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 5.96 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0426 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.48 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | 0.000071 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000142 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | 0.0000059 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | 0.00165 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-2 MEL-01-06 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 11:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 21.2 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.4 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-2 MEL-01-06 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 11:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 14.7 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 94.0 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 24.6 | | 0.20 | | | 13-SEP-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 46.9 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0619 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0642 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | 0.0023 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.78 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 55 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.64 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.32 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.85 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0053 | | 0.0030 | mg/L | | 17-SEP-19 | R4818357 |
| Ra-226 | <0.0083 | | 0.0083 | Bq/L | 18-SEP-19 | 27-SEP-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.323 | | 0.050 | mg/L | 02-OCT-19 | 03-OCT-19 | R4858440 |
| Mercury (Hg)-Total | 0.00052 | | 0.00050 | ug/L | | 21-SEP-19 | R4830009 |
| Total Organic Carbon | 2.78 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | 1.2 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0108 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000469 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00776 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | 0.0064 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | 0.0000055 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 8.03 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000128 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000311 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.000897 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0298 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-2 MEL-01-06 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 11:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Lanthanum (La)-Total | 0.000043 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000015 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00142 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.48 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00395 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000097 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000629 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 1.06 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00144 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.218 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 6.49 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0528 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.90 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | 0.000545 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000181 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000091 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0031 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000415 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00761 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | 0.0055 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 7.52 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000093 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000116 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000704 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0069 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000016 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-2 MEL-01-06 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 11:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00125 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.40 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000369 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000091 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000590 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 1.02 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00142 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.186 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 6.68 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0515 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.58 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | 0.000022 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000154 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | 0.00059 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-3 MEL-01-07 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 10:54 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.6 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.9 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 12.8 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 87.4 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 24.4 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-3 MEL-01-07 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 10:54 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| TDS (Calculated) | 43.8 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0755 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0755 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.52 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 58 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.56 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.31 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.81 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0051 | | 0.0030 | mg/L | | 17-SEP-19 | R4818357 |
| Ra-226 | <0.0089 | | 0.0089 | Bq/L | 18-SEP-19 | 27-SEP-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.251 | | 0.050 | mg/L | 02-OCT-19 | 03-OCT-19 | R4858440 |
| Mercury (Hg)-Total | 0.00057 | | 0.00050 | ug/L | | 21-SEP-19 | R4830009 |
| Total Organic Carbon | 2.95 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0111 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000503 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00754 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | 0.0057 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 7.51 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000114 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | 0.00053 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000315 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.000977 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0328 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000052 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000017 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00122 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.37 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00412 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000098 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000618 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-3 MEL-01-07 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 10:54 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Potassium (K)-Total | 0.994 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00134 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.203 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 6.13 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0478 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.74 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | 0.000650 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000164 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000085 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0029 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000394 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00723 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | 0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 7.61 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000087 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00027 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000102 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000754 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0067 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000017 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00112 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.31 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000341 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000083 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000568 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.986 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-3 MEL-01-07 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 10:54 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00137 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.169 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 6.06 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0448 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.43 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000150 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | 0.0000076 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | 0.00079 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-4 MEL-01-08 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 11:41 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.2 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.8 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 13.7 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 90.8 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 24.2 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 46.4 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0395 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0408 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | 0.0013 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.56 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-4 MEL-01-08 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 11:41 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 59 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.43 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.35 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.86 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0061 | | 0.0030 | mg/L | | 17-SEP-19 | R4818357 |
| Ra-226 | <0.0078 | | 0.0078 | Bq/L | 18-SEP-19 | 27-SEP-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.236 | | 0.050 | mg/L | 02-OCT-19 | 03-OCT-19 | R4858440 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.94 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0103 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000461 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00748 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | 0.0064 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 8.00 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000116 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000252 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.000969 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0303 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000047 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000016 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00135 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.43 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00403 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000093 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000615 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 1.02 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00144 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.193 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 6.30 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0493 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.71 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-4 MEL-01-08 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 11:41 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | 0.000044 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | 0.000558 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000162 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000094 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0027 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000375 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00711 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | 0.0052 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 7.46 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000069 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00026 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000105 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000675 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0065 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000016 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00119 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.34 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000329 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000087 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000554 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.985 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00137 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.175 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 6.31 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0469 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.35 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-4 MEL-01-08 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 11:41 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000148 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | 0.0000059 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-5 MEL-01-09 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 10:14 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 21.4 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.5 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 13.0 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 87.2 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.2 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 43.9 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0223 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0223 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.49 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 60 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.59 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.34 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.83 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-5 MEL-01-09 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 10:14 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0046 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Ra-226 | <0.0076 | | 0.0076 | Bq/L | 18-SEP-19 | 27-SEP-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.236 | | 0.050 | mg/L | 02-OCT-19 | 03-OCT-19 | R4858440 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.74 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | 1.5 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0109 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000446 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00746 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | 0.0061 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | 0.0000054 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 7.83 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000106 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | 0.00033 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000275 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.000866 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0324 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000050 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000024 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00126 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.36 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00394 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000097 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000609 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 0.991 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00140 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.206 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 5.77 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0448 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.55 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | 0.000595 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000169 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000108 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-5 MEL-01-09 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 10:14 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0022 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000381 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00746 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | 0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 7.17 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000065 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000089 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000693 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0067 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00108 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.30 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000288 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000080 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000577 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.988 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00138 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.172 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 6.35 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0438 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.56 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000148 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-6 MEL-02-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.5 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.1 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.89 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.9 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.9 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 39.9 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0074 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0074 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.90 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 50 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.28 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.23 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.45 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0034 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Total Kjeldahl Nitrogen | 0.224 | | 0.050 | mg/L | 25-SEP-19 | 26-SEP-19 | R4845591 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.54 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0048 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Arsenic (As)-Total | 0.000262 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Barium (Ba)-Total | 0.00764 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 25-SEP-19 | R4839932 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-6 MEL-02-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Calcium (Ca)-Total | 6.99 | | 0.010 | mg/L | | 25-SEP-19 | R4839932 |
| Cesium (Cs)-Total | 0.0000076 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Cobalt (Co)-Total | 0.0000141 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Copper (Cu)-Total | 0.00191 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Iron (Fe)-Total | 0.0174 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Lanthanum (La)-Total | 0.000030 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lead (Pb)-Total | 0.000012 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lithium (Li)-Total | 0.00082 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Magnesium (Mg)-Total | 1.21 | | 0.0040 | mg/L | | 25-SEP-19 | R4839932 |
| Manganese (Mn)-Total | 0.00280 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Molybdenum (Mo)-Total | 0.000075 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Nickel (Ni)-Total | 0.000462 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Potassium (K)-Total | 0.929 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Rubidium (Rb)-Total | 0.00139 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Selenium (Se)-Total | 0.000059 | | 0.000040 | mg/L | | 25-SEP-19 | R4839932 |
| Silicon (Si)-Total | 0.173 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Sodium (Na)-Total | 4.88 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Strontium (Sr)-Total | 0.0358 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Sulfur (S)-Total | 1.50 | | 0.50 | mg/L | | 25-SEP-19 | R4839932 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Titanium (Ti)-Total | 0.000260 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Uranium (U)-Total | 0.0000147 | | 0.0000010 | mg/L | | 25-SEP-19 | R4839932 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Yttrium (Y)-Total | 0.0000065 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Zinc (Zn)-Total | 0.00051 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 25-SEP-19 | R4841889 |
| Aluminum (Al)-Dissolved | 0.0016 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000239 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00720 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-6 MEL-02-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Calcium (Ca)-Dissolved | 6.93 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000061 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00036 | DTC | 0.00010 | mg/L | 25-SEP-19 | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Dissolved | 0.0000061 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000681 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0056 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000016 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00075 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.12 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000319 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000066 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000440 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.923 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.137 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 4.97 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0345 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.28 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000137 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | 0.00081 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-7 MEL-02-02 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 14:26 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.9 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.4 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.91 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-7 MEL-02-02 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 14:26 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Conductivity** | | | | | | | |
| Conductivity | 77.1 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.6 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 40.4 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0146 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0146 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.97 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 49 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.34 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.22 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.39 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | 0.0011 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0085 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Total Kjeldahl Nitrogen | 0.240 | | 0.050 | mg/L | 25-SEP-19 | 26-SEP-19 | R4845591 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.64 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0037 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Arsenic (As)-Total | 0.000283 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Barium (Ba)-Total | 0.00787 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 25-SEP-19 | R4839932 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Calcium (Ca)-Total | 6.99 | | 0.010 | mg/L | | 25-SEP-19 | R4839932 |
| Cesium (Cs)-Total | 0.0000077 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Cobalt (Co)-Total | 0.0000131 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Copper (Cu)-Total | 0.000791 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Iron (Fe)-Total | 0.0172 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Lanthanum (La)-Total | 0.000033 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lithium (Li)-Total | 0.00082 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-7 MEL-02-02 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 14:26 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Magnesium (Mg)-Total | 1.19 | | 0.0040 | mg/L | | 25-SEP-19 | R4839932 |
| Manganese (Mn)-Total | 0.00274 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Molybdenum (Mo)-Total | 0.000070 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Nickel (Ni)-Total | 0.000445 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Potassium (K)-Total | 0.922 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Rubidium (Rb)-Total | 0.00135 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 25-SEP-19 | R4839932 |
| Silicon (Si)-Total | 0.159 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Sodium (Na)-Total | 4.74 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Strontium (Sr)-Total | 0.0371 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Sulfur (S)-Total | 1.65 | | 0.50 | mg/L | | 25-SEP-19 | R4839932 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tin (Sn)-Total | 0.000027 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Titanium (Ti)-Total | 0.000191 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Uranium (U)-Total | 0.0000163 | | 0.0000010 | mg/L | | 25-SEP-19 | R4839932 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Yttrium (Y)-Total | 0.0000100 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Zinc (Zn)-Total | 0.00052 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0020 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000255 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00709 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 7.23 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000064 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000064 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000678 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0049 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000013 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00078 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.12 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-7 MEL-02-02 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 14:26 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Manganese (Mn)-Dissolved | 0.000348 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000067 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000448 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.899 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00128 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.121 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 4.92 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0351 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.19 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000143 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | 0.0000051 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-8 MEL-02-03 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 13:44 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.4 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 20.0 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.91 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.5 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.6 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 39.4 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-8 MEL-02-03 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 13:44 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.88 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 47 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.32 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.19 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.48 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0036 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Total Kjeldahl Nitrogen | 0.228 | | 0.050 | mg/L | 25-SEP-19 | 26-SEP-19 | R4845591 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.48 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0042 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Arsenic (As)-Total | 0.000286 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Barium (Ba)-Total | 0.00771 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 25-SEP-19 | R4839932 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Calcium (Ca)-Total | 6.88 | | 0.010 | mg/L | | 25-SEP-19 | R4839932 |
| Cesium (Cs)-Total | 0.0000075 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Chromium (Cr)-Total | 0.00038 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Cobalt (Co)-Total | 0.0000139 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Copper (Cu)-Total | 0.000916 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Iron (Fe)-Total | 0.0179 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Lanthanum (La)-Total | 0.000030 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lithium (Li)-Total | 0.00083 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Magnesium (Mg)-Total | 1.20 | | 0.0040 | mg/L | | 25-SEP-19 | R4839932 |
| Manganese (Mn)-Total | 0.00272 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Molybdenum (Mo)-Total | 0.000074 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Nickel (Ni)-Total | 0.000474 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Potassium (K)-Total | 0.923 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Rubidium (Rb)-Total | 0.00135 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Selenium (Se)-Total | 0.000042 | | 0.000040 | mg/L | | 25-SEP-19 | R4839932 |
| Silicon (Si)-Total | 0.167 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-8 MEL-02-03 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 13:44 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Sodium (Na)-Total | 4.76 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Strontium (Sr)-Total | 0.0358 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Sulfur (S)-Total | 1.34 | | 0.50 | mg/L | | 25-SEP-19 | R4839932 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Titanium (Ti)-Total | <0.00020 | DLM | 0.00020 | mg/L | | 25-SEP-19 | R4839932 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Uranium (U)-Total | 0.0000153 | | 0.0000010 | mg/L | | 25-SEP-19 | R4839932 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Yttrium (Y)-Total | 0.0000068 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0016 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000262 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00719 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 6.84 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000058 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00030 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000061 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000831 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0049 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000017 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00077 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000338 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000071 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000448 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.908 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00131 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | 0.000044 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.123 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-8 MEL-02-03 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 13:44 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Sodium (Na)-Dissolved | 4.72 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0348 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.32 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000141 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | 0.0000054 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-9 MEL-02-04 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 14:01 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.2 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.8 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.91 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.8 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.9 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 39.5 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.92 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 51 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.43 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.22 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-9 MEL-02-04 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 14:01 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.50 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0084 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Total Kjeldahl Nitrogen | 0.205 | | 0.050 | mg/L | 25-SEP-19 | 26-SEP-19 | R4845591 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.46 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0047 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Arsenic (As)-Total | 0.000284 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Barium (Ba)-Total | 0.00745 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 25-SEP-19 | R4839932 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Calcium (Ca)-Total | 7.11 | | 0.010 | mg/L | | 25-SEP-19 | R4839932 |
| Cesium (Cs)-Total | 0.0000082 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Chromium (Cr)-Total | 0.00045 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Cobalt (Co)-Total | 0.0000158 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Copper (Cu)-Total | 0.00137 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Iron (Fe)-Total | 0.0176 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Lanthanum (La)-Total | 0.000031 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lead (Pb)-Total | 0.000015 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lithium (Li)-Total | 0.00084 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Magnesium (Mg)-Total | 1.20 | | 0.0040 | mg/L | | 25-SEP-19 | R4839932 |
| Manganese (Mn)-Total | 0.00284 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Molybdenum (Mo)-Total | 0.000077 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Nickel (Ni)-Total | 0.000463 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Potassium (K)-Total | 0.936 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Rubidium (Rb)-Total | 0.00131 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Selenium (Se)-Total | 0.000073 | | 0.000040 | mg/L | | 25-SEP-19 | R4839932 |
| Silicon (Si)-Total | 0.141 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Sodium (Na)-Total | 4.92 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Strontium (Sr)-Total | 0.0348 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Sulfur (S)-Total | 1.57 | | 0.50 | mg/L | | 25-SEP-19 | R4839932 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tin (Sn)-Total | 0.000253 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Titanium (Ti)-Total | 0.000199 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Uranium (U)-Total | 0.0000153 | | 0.0000010 | mg/L | | 25-SEP-19 | R4839932 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-9 MEL-02-04 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 14:01 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Yttrium (Y)-Total | 0.0000067 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Zinc (Zn)-Total | 0.00146 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0018 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000280 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00709 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 6.97 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000064 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000071 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000658 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0051 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000018 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00078 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.09 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000342 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000071 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000460 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.908 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00135 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.142 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 4.79 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0362 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.26 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000144 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-9 MEL-02-04 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 14:01 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Yttrium (Y)-Dissolved | 0.0000062 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-10 MEL-02-05 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 13:22 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 21.4 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.5 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.85 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.5 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.7 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 38.0 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.85 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 49 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.32 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.22 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.44 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0033 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Total Kjeldahl Nitrogen | 0.217 | | 0.050 | mg/L | 25-SEP-19 | 26-SEP-19 | R4845591 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.49 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-10 MEL-02-05 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 13:22 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0047 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Arsenic (As)-Total | 0.000274 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Barium (Ba)-Total | 0.00770 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 25-SEP-19 | R4839932 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Calcium (Ca)-Total | 7.27 | | 0.010 | mg/L | | 25-SEP-19 | R4839932 |
| Cesium (Cs)-Total | 0.0000085 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Chromium (Cr)-Total | 0.00039 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Cobalt (Co)-Total | 0.0000149 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Copper (Cu)-Total | 0.00101 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Iron (Fe)-Total | 0.0164 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Lanthanum (La)-Total | 0.000033 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lithium (Li)-Total | 0.00083 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Magnesium (Mg)-Total | 1.21 | | 0.0040 | mg/L | | 25-SEP-19 | R4839932 |
| Manganese (Mn)-Total | 0.00274 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Molybdenum (Mo)-Total | 0.000073 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Nickel (Ni)-Total | 0.000452 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Potassium (K)-Total | 0.925 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Rubidium (Rb)-Total | 0.00134 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Selenium (Se)-Total | 0.000043 | | 0.000040 | mg/L | | 25-SEP-19 | R4839932 |
| Silicon (Si)-Total | 0.145 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Sodium (Na)-Total | 4.94 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Strontium (Sr)-Total | 0.0342 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Sulfur (S)-Total | 1.40 | | 0.50 | mg/L | | 25-SEP-19 | R4839932 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Titanium (Ti)-Total | 0.000195 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Uranium (U)-Total | 0.0000150 | | 0.0000010 | mg/L | | 25-SEP-19 | R4839932 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Yttrium (Y)-Total | 0.0000059 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0016 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-10 MEL-02-05 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 @ 13:22 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000256 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00738 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 6.86 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000063 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00025 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000077 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000652 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0045 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000015 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00074 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000332 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000072 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000458 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.916 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00131 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.139 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 4.84 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0350 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.44 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000142 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-11 DI-SEPT-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | <1.2 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-11 DI-SEPT-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | <1.0 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | <0.10 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | <1.0 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | <0.20 | | 0.20 | | | 13-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | <4.0 | | 4.0 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | <0.10 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 5.42 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Ra-226 | <0.0074 | | 0.0074 | Bq/L | 18-SEP-19 | 27-SEP-19 | R4851666 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 02-OCT-19 | 03-OCT-19 | R4858440 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | <0.50 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | <0.0010 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | <0.010 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-11 DI-SEPT-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Copper (Cu)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | <0.0010 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | <0.0040 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | <0.020 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | <0.020 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | <0.50 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | <0.0000010 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | <0.0010 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | <0.010 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00031 | RRV | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-11 DI-SEPT-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | <0.0010 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | <0.0040 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | <0.020 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | <0.020 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.000036 | RRV | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | <0.50 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | <0.0000010 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-12 EB-SEPT-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | <1.2 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | <1.0 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | <0.10 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 1.2 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | <0.020 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-12 EB-SEPT-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | <0.20 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low TDS | | | % | | 19-SEP-19 | |
| TDS (Calculated) | <1.0 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0067 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0067 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | <0.30 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | <4.0 | | 4.0 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.19 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 5.32 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.62 | RRV | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Ra-226 | <0.0076 | | 0.0076 | Bq/L | 18-SEP-19 | 27-SEP-19 | R4851666 |
| Total Kjeldahl Nitrogen | <0.050 | | 0.050 | mg/L | 02-OCT-19 | 03-OCT-19 | R4858440 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | <0.50 | RRV | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0016 | RRV | 0.0010 | mg/L | | 01-OCT-19 | R4850932 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.000113 | RRV | 0.000020 | mg/L | | 01-OCT-19 | R4850932 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 0.020 | RRV | 0.010 | mg/L | | 01-OCT-19 | R4850932 |
| Cesium (Cs)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.000081 | RRV | 0.000050 | mg/L | | 01-OCT-19 | R4850932 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0015 | RRV | 0.0010 | mg/L | | 01-OCT-19 | R4850932 |
| Lanthanum (La)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000011 | | 0.000010 | mg/L | | 01-OCT-19 | R4850932 |
| Lithium (Li)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 0.0066 | RRV | 0.0040 | mg/L | | 01-OCT-19 | R4850932 |
| Manganese (Mn)-Total | 0.000064 | RRV | 0.000050 | mg/L | | 01-OCT-19 | R4850932 |
| Molybdenum (Mo)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-12 EB-SEPT-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Nickel (Ni)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | <0.020 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | <0.0000050 | | 0.0000050 | mg/L | | 01-OCT-19 | R4850932 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 0.034 | RRV | 0.020 | mg/L | | 01-OCT-19 | R4850932 |
| Strontium (Sr)-Total | 0.000089 | RRV | 0.000020 | mg/L | | 01-OCT-19 | R4850932 |
| Sulfur (S)-Total | <0.50 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | 0.000065 | RRV | 0.000020 | mg/L | | 01-OCT-19 | R4850932 |
| Titanium (Ti)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | <0.0000010 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | 0.00117 | RRV | 0.00050 | mg/L | | 01-OCT-19 | R4850932 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | <0.0010 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.000057 | RRV | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 0.019 | RRV | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | <0.0010 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 0.0077 | RRV | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-12 EB-SEPT-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | <0.020 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 0.051 | RRV | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.000085 | RRV | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | <0.50 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | <0.0000010 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | 0.00106 | RRV | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-13 DUP-MEL-SEP-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.2 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.8 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 12.5 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 87.7 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 24.4 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 44.7 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0301 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0301 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-13 DUP-MEL-SEP-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.30 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 57 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.64 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.20 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |
| Dissolved Organic Carbon | 2.72 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0041 | | 0.0010 | mg/L | | 18-SEP-19 | R4819168 |
| Ra-226 | 0.0075 | | 0.0066 | Bq/L | 18-SEP-19 | 27-SEP-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.226 | | 0.050 | mg/L | 02-OCT-19 | 03-OCT-19 | R4858440 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.95 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | 1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0109 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000448 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00786 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | 0.0060 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 7.74 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000105 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | 0.00034 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000276 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.000755 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0316 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000052 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000013 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00123 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.38 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00411 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000095 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000597 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 0.998 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00137 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.206 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-13 DUP-MEL-SEP-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Sodium (Na)-Total | 5.78 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0468 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.75 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | 0.000561 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000170 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000114 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 23-SEP-19 | R4834427 |
| Aluminum (Al)-Dissolved | 0.0024 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000424 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00739 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | 0.0055 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | 0.0000208 | DTMF | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 7.65 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000136 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00028 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cobalt (Co)-Dissolved | 0.0000086 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000923 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0069 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000017 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00107 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.29 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000271 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000085 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000570 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.982 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00137 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.181 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 5.94 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-13 DUP-MEL-SEP-01 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Strontium (Sr)-Dissolved | 0.0443 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.36 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000140 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | 0.0000060 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zinc (Zn)-Dissolved | 0.00052 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| L2346699-14 DUP-MEL-SEP-02 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 24.3 | | 1.2 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 16-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 19.9 | | 1.0 | mg/L | | 13-SEP-19 | R4809090 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 9.93 | | 0.10 | mg/L | | 13-SEP-19 | R4819249 |
| **Conductivity** | | | | | | | |
| Conductivity | 76.0 | | 1.0 | umhos/cm | | 13-SEP-19 | R4809090 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.028 | | 0.020 | mg/L | | 13-SEP-19 | R4819249 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 21.4 | | 0.20 | mg/L | | 02-OCT-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 19-SEP-19 | |
| TDS (Calculated) | 39.3 | | | mg/L | | 19-SEP-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 13-SEP-19 | R4819249 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 19-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 13-SEP-19 | R4819249 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.88 | | 0.30 | mg/L | | 13-SEP-19 | R4819249 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 48 | | 13 | mg/L | | 13-SEP-19 | R4809960 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.32 | | 0.10 | NTU | | 13-SEP-19 | R4813054 |
| **pH** | | | | | | | |
| pH | 7.19 | | 0.10 | pH units | | 13-SEP-19 | R4809090 |
| **Miscellaneous Parameters** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-14 DUP-MEL-SEP-02 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Dissolved Organic Carbon | <0.50 | | 0.50 | mg/L | | 24-SEP-19 | R4839132 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 18-SEP-19 | R4822752 |
| Phosphorus (P)-Total | 0.0090 | | 0.0030 | mg/L | | 17-SEP-19 | R4818357 |
| Total Kjeldahl Nitrogen | 0.201 | | 0.050 | mg/L | 25-SEP-19 | 26-SEP-19 | R4845591 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.48 | | 0.50 | mg/L | | 24-SEP-19 | R4839150 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 16-SEP-19 | R4814210 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0093 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Arsenic (As)-Total | 0.000275 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Barium (Ba)-Total | 0.00750 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 25-SEP-19 | R4839932 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Calcium (Ca)-Total | 7.05 | | 0.010 | mg/L | | 25-SEP-19 | R4839932 |
| Cesium (Cs)-Total | 0.0000067 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Cobalt (Co)-Total | 0.0000144 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Copper (Cu)-Total | 0.000781 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Iron (Fe)-Total | 0.0186 | | 0.0010 | mg/L | | 25-SEP-19 | R4839932 |
| Lanthanum (La)-Total | 0.000033 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lead (Pb)-Total | 0.000012 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Lithium (Li)-Total | 0.00083 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Magnesium (Mg)-Total | 1.20 | | 0.0040 | mg/L | | 25-SEP-19 | R4839932 |
| Manganese (Mn)-Total | 0.00290 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Molybdenum (Mo)-Total | 0.000074 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Nickel (Ni)-Total | 0.000462 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Potassium (K)-Total | 0.932 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Rubidium (Rb)-Total | 0.00136 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 25-SEP-19 | R4839932 |
| Silicon (Si)-Total | 0.154 | | 0.050 | mg/L | | 25-SEP-19 | R4839932 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Sodium (Na)-Total | 4.83 | | 0.020 | mg/L | | 25-SEP-19 | R4839932 |
| Strontium (Sr)-Total | 0.0349 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Sulfur (S)-Total | 1.45 | | 0.50 | mg/L | | 25-SEP-19 | R4839932 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 25-SEP-19 | R4839932 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 25-SEP-19 | R4839932 |
| Titanium (Ti)-Total | 0.000225 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| Uranium (U)-Total | 0.0000160 | | 0.0000010 | mg/L | | 25-SEP-19 | R4839932 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 25-SEP-19 | R4839932 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-14 DUP-MEL-SEP-02 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 25-SEP-19 | R4839932 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 25-SEP-19 | R4839932 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 25-SEP-19 | R4839932 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 18-SEP-19 | R4818736 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 18-SEP-19 | 25-SEP-19 | R4841070 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 25-SEP-19 | R4841889 |
| Aluminum (Al)-Dissolved | 0.0013 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Arsenic (As)-Dissolved | 0.000270 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Barium (Ba)-Dissolved | 0.00703 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Calcium (Ca)-Dissolved | 6.75 | | 0.010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Cesium (Cs)-Dissolved | 0.0000066 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Chromium (Cr)-Dissolved | 0.00045 | DTC | 0.00010 | mg/L | 25-SEP-19 | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Dissolved | 0.0000065 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Copper (Cu)-Dissolved | 0.000734 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Iron (Fe)-Dissolved | 0.0047 | | 0.0010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lanthanum (La)-Dissolved | 0.000016 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Lithium (Li)-Dissolved | 0.00076 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Magnesium (Mg)-Dissolved | 1.10 | | 0.0040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Manganese (Mn)-Dissolved | 0.000318 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Molybdenum (Mo)-Dissolved | 0.000071 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Nickel (Ni)-Dissolved | 0.000446 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Potassium (K)-Dissolved | 0.911 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Rubidium (Rb)-Dissolved | 0.00132 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Selenium (Se)-Dissolved | 0.000042 | | 0.000040 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silicon (Si)-Dissolved | 0.130 | | 0.050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sodium (Na)-Dissolved | 4.81 | | 0.020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Strontium (Sr)-Dissolved | 0.0352 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Sulfur (S)-Dissolved | 1.40 | | 0.50 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Uranium (U)-Dissolved | 0.0000135 | | 0.0000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2346699-14 DUP-MEL-SEP-02 | | | | | | | |
| Sampled By: AAE on 06-SEP-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 23-SEP-19 | 24-SEP-19 | R4834310 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Sample Parameter Qualifier Key:**

| Qualifier | Description |
|---|---|
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| DTC | Dissolved concentration exceeds total. Results were confirmed by re-analysis. |
| DTMF | Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration. |
| MES | Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RRV | Reported Result Verified By Repeat Analysis |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-CO3CO3-CALC-WP | Water | Alkalinity, Carbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L. | | | |
| ALK-HCO3HCO3-CALC-WP | Water | Alkalinity, Bicarbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L | | | |
| ALK-OHOH-CALC-WP | Water | Alkalinity, Hydroxide | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L. | | | |
| ALK-TITR-WP | Water | Alkalinity, Total (as CaCO3) | APHA 2320B |
| The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically. | | | |
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |
| Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |
| Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| CL-L-IC-N-WP | Water | Chloride in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| CN-FREE-L-CFA-VA | Water | Low Level Free Cyanide in water by CFA | ASTM 7237 |
| This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis. | | | |
| CN-T-L-CFA-VA | Water | Low Level Total Cyanide in water by CFA | ISO 14403:2002 |
| This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero. | | | |
| CN-WAD-L-CFA-VA | Water | Low level WAD Cyanide in water by CFA | APHA 4500-CN CYANIDE |
| This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis. | | | |
| EC-WP | Water | Conductivity | APHA 2510B |
| Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes. | | | |
| F-IC-N-WP | Water | Fluoride in Water by IC | EPA 300.1 (mod) |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| HARDNESS-CALC-WP | Water | Hardness Calculated | APHA 2340B |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. | | | |
| HG-D-U-CVAF-VA | Water | Diss. Mercury in Water by CVAFS (Ultra) | APHA 3030 B / EPA 1631 REV. E |
| This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure may involve preliminary sample treatment by filtration (APHA 3030B) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry. | | | |
| HG-T-U-CVAF-VA | Water | Total Mercury in Water by CVAFS (Ultra) | EPA 1631 REV. E |
| This analysis is carried out using procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry. | | | |
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |
| Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.<br><br>Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:<br><br>Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum] | | | |
| MET-D-NP-CCMS-VA | Water | Dissolved Metals in Water CRC ICPMS | EPA 6020B (mod) |
| Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation. | | | |
| MET-T-NP-CCMS-VA | Water | Total Metals by CRC ICPMS (Undigested) | EPA 6020B (mod) |
| Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results.<br>Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations. | | | |
| NO2+NO3-CALC-L-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-L-IC-N-WP | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| NO3-L-IC-N-WP | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample. | | | |
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. | | | |
| PH-WP | Water | pH | APHA 4500H |
| The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode. | | | |
| RA226-MMER-FC | Water | Ra226 by Alpha Scint, MDC=0.01 Bq/L | EPA 903.1 |
| SO4-IC-N-WP | Water | Sulfate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| TDS-WP | Water | Total Dissolved Solids (TDS) | APHA 2540 SOLIDS C,E |

A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.

| | | | |
|---|---|---|---|
| TKN-L-F-ED | Water | TKN (as N) by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

| | | | |
|---|---|---|---|
| TSS-LOW-VA | Water | Total Suspended Solids by Grav. (1 mg/L) | APHA 2540D |

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.
Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

| | | | |
|---|---|---|---|
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |

Turbidity in aqueous matrices is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |
| FC | ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8
Contact: ERIC FRANZ

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **ALK-TITR-WP** | **Water** | | | | | | | |
| **Batch R4809090** | | | | | | | | |
| **WG3162466-31 DUP** | | **L2346699-14** | | | | | | |
| Alkalinity, Total (as CaCO3) | | 19.9 | 19.9 | | mg/L | 0.0 | 20 | 13-SEP-19 |
| **WG3162466-19 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 102.7 | | % | | 85-115 | 13-SEP-19 |
| **WG3162466-24 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 105.8 | | % | | 85-115 | 13-SEP-19 |
| **WG3162466-43 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 106.5 | | % | | 85-115 | 13-SEP-19 |
| **WG3162466-16 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 13-SEP-19 |
| **WG3162466-21 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 13-SEP-19 |
| **WG3162466-29 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 13-SEP-19 |
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4839132** | | | | | | | | |
| **WG3172213-3 DUP** | | **L2346699-1** | | | | | | |
| Dissolved Organic Carbon | | 3.07 | 2.85 | | mg/L | 7.4 | 20 | 24-SEP-19 |
| **WG3172213-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 97.4 | | % | | 80-120 | 24-SEP-19 |
| **WG3172213-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 24-SEP-19 |
| **WG3172213-4 MS** | | **L2346699-2** | | | | | | |
| Dissolved Organic Carbon | | | 95.6 | | % | | 70-130 | 24-SEP-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4839150** | | | | | | | | |
| **WG3172219-3 DUP** | | **L2346699-3** | | | | | | |
| Total Organic Carbon | | 2.95 | 2.98 | | mg/L | 1.0 | 20 | 24-SEP-19 |
| **WG3172219-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 97.0 | | % | | 80-120 | 24-SEP-19 |
| **WG3172219-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 24-SEP-19 |
| **WG3172219-4 MS** | | **L2346699-4** | | | | | | |
| Total Organic Carbon | | | 95.0 | | % | | 70-130 | 24-SEP-19 |
| **CL-L-IC-N-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4819249** | | | | | | | | |
| **WG3161133-10 LCS** | | | | | | | | |
| Chloride (Cl) | | | 101.9 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-6 LCS** | | | | | | | | |
| Chloride (Cl) | | | 101.8 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-5 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 13-SEP-19 |
| **WG3161133-9 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 13-SEP-19 |
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4822752** | | | | | | | | |
| **WG3165781-19 DUP** | | **L2346699-1** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 18-SEP-19 |
| **WG3165781-3 DUP** | | **L2346699-2** | | | | | | |
| Cyanide, Free | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 18-SEP-19 |
| **WG3165781-17 LCS** | | | | | | | | |
| Cyanide, Free | | | 98.5 | | % | | 80-120 | 18-SEP-19 |
| **WG3165781-2 LCS** | | | | | | | | |
| Cyanide, Free | | | 98.8 | | % | | 80-120 | 18-SEP-19 |
| **WG3165781-1 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 18-SEP-19 |
| **WG3165781-16 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 18-SEP-19 |
| **WG3165781-20 MS** | | **L2346699-5** | | | | | | |
| Cyanide, Free | | | 97.4 | | % | | 75-125 | 18-SEP-19 |
| **WG3165781-4 MS** | | **L2346699-3** | | | | | | |
| Cyanide, Free | | | 97.0 | | % | | 75-125 | 18-SEP-19 |
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4822752** | | | | | | | | |
| **WG3165781-19 DUP** | | **L2346699-1** | | | | | | |
| Cyanide, Total | | <0.0010 | 0.0011 | RPD-NA | mg/L | N/A | 20 | 18-SEP-19 |
| **WG3165781-3 DUP** | | **L2346699-2** | | | | | | |
| Cyanide, Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 18-SEP-19 |
| **WG3165781-17 LCS** | | | | | | | | |
| Cyanide, Total | | | 99.8 | | % | | 80-120 | 18-SEP-19 |
| **WG3165781-2 LCS** | | | | | | | | |
| Cyanide, Total | | | 100.6 | | % | | 80-120 | 18-SEP-19 |
| **WG3165781-1 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 18-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4822752** | | | | | | | | |
| **WG3165781-16 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 18-SEP-19 |
| **WG3165781-20 MS** | | **L2346699-5** | | | | | | |
| Cyanide, Total | | | 98.6 | | % | | 75-125 | 18-SEP-19 |
| **WG3165781-4 MS** | | **L2346699-3** | | | | | | |
| Cyanide, Total | | | 99.4 | | % | | 75-125 | 18-SEP-19 |
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4822752** | | | | | | | | |
| **WG3165781-19 DUP** | | **L2346699-1** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 18-SEP-19 |
| **WG3165781-3 DUP** | | **L2346699-2** | | | | | | |
| Cyanide, Weak Acid Diss | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 18-SEP-19 |
| **WG3165781-17 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 101.8 | | % | | 80-120 | 18-SEP-19 |
| **WG3165781-2 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 105.0 | | % | | 80-120 | 18-SEP-19 |
| **WG3165781-1 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 18-SEP-19 |
| **WG3165781-16 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 18-SEP-19 |
| **WG3165781-20 MS** | | **L2346699-5** | | | | | | |
| Cyanide, Weak Acid Diss | | | 103.5 | | % | | 75-125 | 18-SEP-19 |
| **WG3165781-4 MS** | | **L2346699-3** | | | | | | |
| Cyanide, Weak Acid Diss | | | 101.6 | | % | | 75-125 | 18-SEP-19 |
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4809090** | | | | | | | | |
| **WG3162466-31 DUP** | | **L2346699-14** | | | | | | |
| Conductivity | | 76.0 | 76.1 | | umhos/cm | 0.1 | 10 | 13-SEP-19 |
| **WG3162466-18 LCS** | | | | | | | | |
| Conductivity | | | 97.8 | | % | | 90-110 | 13-SEP-19 |
| **WG3162466-23 LCS** | | | | | | | | |
| Conductivity | | | 97.6 | | % | | 90-110 | 13-SEP-19 |
| **WG3162466-42 LCS** | | | | | | | | |
| Conductivity | | | 100.3 | | % | | 90-110 | 13-SEP-19 |
| **WG3162466-16 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 13-SEP-19 |
| **WG3162466-21 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 13-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4809090** | | | | | | | | |
| **WG3162466-29 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 13-SEP-19 |
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4819249** | | | | | | | | |
| **WG3161133-10 LCS** | | | | | | | | |
| Fluoride (F) | | | 102.4 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-6 LCS** | | | | | | | | |
| Fluoride (F) | | | 105.3 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-5 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 13-SEP-19 |
| **WG3161133-9 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 13-SEP-19 |
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4825308** | | | | | | | | |
| **WG3164652-2 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 103.2 | | % | | 80-120 | 19-SEP-19 |
| **WG3164652-1 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 19-SEP-19 |
| **Batch R4841070** | | | | | | | | |
| **WG3164652-3 DUP** | | **L2346699-3** | | | | | | |
| Mercury (Hg)-Dissolved | | <0.00050 | <0.00050 | RPD-NA | ug/L | N/A | 20 | 25-SEP-19 |
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4830009** | | | | | | | | |
| **WG3168657-3 DUP** | | **L2346699-1** | | | | | | |
| Mercury (Hg)-Total | | 0.00056 | 0.00053 | | ug/L | 5.5 | 20 | 21-SEP-19 |
| **WG3168657-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 99.6 | | % | | 80-120 | 21-SEP-19 |
| **WG3168657-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 21-SEP-19 |
| **WG3168657-4 MS** | | **L2346699-3** | | | | | | |
| Mercury (Hg)-Total | | | 86.9 | | % | | 70-130 | 21-SEP-19 |
| **Batch R4841436** | | | | | | | | |
| **WG3172947-7 DUP** | | **L2346699-10** | | | | | | |
| Mercury (Hg)-Total | | <0.00050 | <0.00050 | RPD-NA | ug/L | N/A | 20 | 25-SEP-19 |
| **WG3172947-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 100.8 | | % | | 80-120 | 25-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4841436** | | | | | | | | |
| **WG3172947-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 25-SEP-19 |
| **WG3172947-8 MS** | | **L2346699-13** | | | | | | |
| Mercury (Hg)-Total | | | 74.0 | | % | | 70-130 | 25-SEP-19 |
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4834310** | | | | | | | | |
| **WG3170511-3 DUP** | | **L2346699-4** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0027 | 0.0029 | | mg/L | 10 | 20 | 24-SEP-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Arsenic (As)-Dissolved | | 0.000375 | 0.000402 | | mg/L | 7.0 | 20 | 24-SEP-19 |
| Barium (Ba)-Dissolved | | 0.00711 | 0.00743 | | mg/L | 4.5 | 20 | 24-SEP-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Boron (B)-Dissolved | | 0.0052 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Calcium (Ca)-Dissolved | | 7.46 | 7.27 | | mg/L | 2.6 | 20 | 24-SEP-19 |
| Cesium (Cs)-Dissolved | | 0.0000069 | 0.0000072 | | mg/L | 5.0 | 20 | 24-SEP-19 |
| Chromium (Cr)-Dissolved | | 0.00026 | 0.00025 | | mg/L | 0.7 | 20 | 24-SEP-19 |
| Cobalt (Co)-Dissolved | | 0.0000105 | 0.0000101 | | mg/L | 4.5 | 20 | 24-SEP-19 |
| Copper (Cu)-Dissolved | | 0.000675 | 0.000682 | | mg/L | 1.1 | 20 | 24-SEP-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Iron (Fe)-Dissolved | | 0.0065 | 0.0063 | | mg/L | 1.8 | 20 | 24-SEP-19 |
| Lanthanum (La)-Dissolved | | 0.000016 | 0.000018 | | mg/L | 12 | 20 | 24-SEP-19 |
| Lead (Pb)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Lithium (Li)-Dissolved | | 0.00119 | 0.00111 | | mg/L | 7.3 | 20 | 24-SEP-19 |
| Magnesium (Mg)-Dissolved | | 1.34 | 1.35 | | mg/L | 0.2 | 20 | 24-SEP-19 |
| Manganese (Mn)-Dissolved | | 0.000329 | 0.000357 | | mg/L | 8.1 | 20 | 24-SEP-19 |
| Molybdenum (Mo)-Dissolved | | 0.000087 | 0.000081 | | mg/L | 7.0 | 20 | 24-SEP-19 |
| Nickel (Ni)-Dissolved | | 0.000554 | 0.000556 | | mg/L | 0.4 | 20 | 24-SEP-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Potassium (K)-Dissolved | | 0.985 | 0.991 | | mg/L | 0.6 | 20 | 24-SEP-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Rubidium (Rb)-Dissolved | | 0.00137 | 0.00138 | | mg/L | 1.0 | 20 | 24-SEP-19 |
| Selenium (Se)-Dissolved | | <0.000040 | <0.000040 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4834310** | | | | | | | | |
| **WG3170511-3 DUP** | | **L2346699-4** | | | | | | |
| Silicon (Si)-Dissolved | | 0.175 | 0.169 | | mg/L | 3.7 | 20 | 24-SEP-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Sodium (Na)-Dissolved | | 6.31 | 6.36 | | mg/L | 0.8 | 20 | 24-SEP-19 |
| Strontium (Sr)-Dissolved | | 0.0469 | 0.0462 | | mg/L | 1.6 | 20 | 24-SEP-19 |
| Sulfur (S)-Dissolved | | 1.35 | 1.59 | | mg/L | 16 | 20 | 24-SEP-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Tin (Sn)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Uranium (U)-Dissolved | | 0.0000148 | 0.0000156 | | mg/L | 5.3 | 20 | 24-SEP-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Yttrium (Y)-Dissolved | | 0.0000059 | 0.0000068 | | mg/L | 14 | 20 | 24-SEP-19 |
| Zinc (Zn)-Dissolved | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 24-SEP-19 |
| **WG3170511-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 96.8 | | % | | 80-120 | 24-SEP-19 |
| Antimony (Sb)-Dissolved | | | 90.6 | | % | | 80-120 | 24-SEP-19 |
| Arsenic (As)-Dissolved | | | 96.4 | | % | | 80-120 | 24-SEP-19 |
| Barium (Ba)-Dissolved | | | 92.3 | | % | | 80-120 | 24-SEP-19 |
| Beryllium (Be)-Dissolved | | | 91.2 | | % | | 80-120 | 24-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 90.3 | | % | | 80-120 | 24-SEP-19 |
| Boron (B)-Dissolved | | | 90.6 | | % | | 80-120 | 24-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 97.5 | | % | | 80-120 | 24-SEP-19 |
| Calcium (Ca)-Dissolved | | | 94.2 | | % | | 80-120 | 24-SEP-19 |
| Cesium (Cs)-Dissolved | | | 92.2 | | % | | 80-120 | 24-SEP-19 |
| Chromium (Cr)-Dissolved | | | 95.6 | | % | | 80-120 | 24-SEP-19 |
| Cobalt (Co)-Dissolved | | | 95.9 | | % | | 80-120 | 24-SEP-19 |
| Copper (Cu)-Dissolved | | | 94.3 | | % | | 80-120 | 24-SEP-19 |
| Gallium (Ga)-Dissolved | | | 97.6 | | % | | 80-120 | 24-SEP-19 |
| Iron (Fe)-Dissolved | | | 89.1 | | % | | 80-120 | 24-SEP-19 |
| Lanthanum (La)-Dissolved | | | 97.2 | | % | | 80-120 | 24-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4834310** | | | | | | | | |
| **WG3170511-2 LCS** | | | | | | | | |
| Lead (Pb)-Dissolved | | | 94.1 | | % | | 80-120 | 24-SEP-19 |
| Lithium (Li)-Dissolved | | | 94.0 | | % | | 80-120 | 24-SEP-19 |
| Magnesium (Mg)-Dissolved | | | 93.6 | | % | | 80-120 | 24-SEP-19 |
| Manganese (Mn)-Dissolved | | | 94.7 | | % | | 80-120 | 24-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 92.0 | | % | | 80-120 | 24-SEP-19 |
| Nickel (Ni)-Dissolved | | | 94.1 | | % | | 80-120 | 24-SEP-19 |
| Niobium (Nb)-Dissolved | | | 93.3 | | % | | 80-120 | 24-SEP-19 |
| Phosphorus (P)-Dissolved | | | 101.1 | | % | | 80-120 | 24-SEP-19 |
| Potassium (K)-Dissolved | | | 94.8 | | % | | 80-120 | 24-SEP-19 |
| Rhenium (Re)-Dissolved | | | 94.9 | | % | | 80-120 | 24-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 94.4 | | % | | 80-120 | 24-SEP-19 |
| Selenium (Se)-Dissolved | | | 98.8 | | % | | 80-120 | 24-SEP-19 |
| Silicon (Si)-Dissolved | | | 97.1 | | % | | 80-120 | 24-SEP-19 |
| Silver (Ag)-Dissolved | | | 89.2 | | % | | 80-120 | 24-SEP-19 |
| Sodium (Na)-Dissolved | | | 102.5 | | % | | 80-120 | 24-SEP-19 |
| Strontium (Sr)-Dissolved | | | 92.3 | | % | | 80-120 | 24-SEP-19 |
| Sulfur (S)-Dissolved | | | 109.7 | | % | | 80-120 | 24-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 97.6 | | % | | 80-120 | 24-SEP-19 |
| Tellurium (Te)-Dissolved | | | 90.6 | | % | | 80-120 | 24-SEP-19 |
| Thallium (Tl)-Dissolved | | | 93.9 | | % | | 80-120 | 24-SEP-19 |
| Thorium (Th)-Dissolved | | | 87.1 | | % | | 80-120 | 24-SEP-19 |
| Tin (Sn)-Dissolved | | | 96.0 | | % | | 80-120 | 24-SEP-19 |
| Titanium (Ti)-Dissolved | | | 89.2 | | % | | 80-120 | 24-SEP-19 |
| Tungsten (W)-Dissolved | | | 96.4 | | % | | 80-120 | 24-SEP-19 |
| Uranium (U)-Dissolved | | | 97.6 | | % | | 80-120 | 24-SEP-19 |
| Vanadium (V)-Dissolved | | | 96.9 | | % | | 80-120 | 24-SEP-19 |
| Yttrium (Y)-Dissolved | | | 97.1 | | % | | 80-120 | 24-SEP-19 |
| Zinc (Zn)-Dissolved | | | 96.7 | | % | | 80-120 | 24-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 89.2 | | % | | 80-120 | 24-SEP-19 |
| **WG3170511-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 24-SEP-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-SEP-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-SEP-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4834310** | | | | | | | | |
| **WG3170511-1 MB** | | **NP** | | | | | | |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 24-SEP-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 24-SEP-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 24-SEP-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-SEP-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-SEP-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 24-SEP-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 24-SEP-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 24-SEP-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 24-SEP-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 24-SEP-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-SEP-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-SEP-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 24-SEP-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 24-SEP-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 24-SEP-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 24-SEP-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 24-SEP-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 24-SEP-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-SEP-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 24-SEP-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 24-SEP-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-SEP-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 24-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4834310** | | | | | | | | |
| **WG3170511-1 MB** | | **NP** | | | | | | |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-SEP-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 24-SEP-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 24-SEP-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 24-SEP-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 24-SEP-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 24-SEP-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 24-SEP-19 |
| **WG3170511-4 MS** | | **L2346699-5** | | | | | | |
| Aluminum (Al)-Dissolved | | | 96.4 | | % | | 70-130 | 24-SEP-19 |
| Antimony (Sb)-Dissolved | | | 96.1 | | % | | 70-130 | 24-SEP-19 |
| Arsenic (As)-Dissolved | | | 96.7 | | % | | 70-130 | 24-SEP-19 |
| Barium (Ba)-Dissolved | | | 95.6 | | % | | 70-130 | 24-SEP-19 |
| Beryllium (Be)-Dissolved | | | 96.2 | | % | | 70-130 | 24-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 98.8 | | % | | 70-130 | 24-SEP-19 |
| Boron (B)-Dissolved | | | 92.3 | | % | | 70-130 | 24-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 99.8 | | % | | 70-130 | 24-SEP-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 24-SEP-19 |
| Cesium (Cs)-Dissolved | | | 98.0 | | % | | 70-130 | 24-SEP-19 |
| Chromium (Cr)-Dissolved | | | 96.6 | | % | | 70-130 | 24-SEP-19 |
| Cobalt (Co)-Dissolved | | | 96.5 | | % | | 70-130 | 24-SEP-19 |
| Copper (Cu)-Dissolved | | | 93.7 | | % | | 70-130 | 24-SEP-19 |
| Gallium (Ga)-Dissolved | | | 99.9 | | % | | 70-130 | 24-SEP-19 |
| Iron (Fe)-Dissolved | | | 96.7 | | % | | 70-130 | 24-SEP-19 |
| Lanthanum (La)-Dissolved | | | 99.0 | | % | | 70-130 | 24-SEP-19 |
| Lead (Pb)-Dissolved | | | 96.4 | | % | | 70-130 | 24-SEP-19 |
| Lithium (Li)-Dissolved | | | 98.3 | | % | | 70-130 | 24-SEP-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 24-SEP-19 |
| Manganese (Mn)-Dissolved | | | 96.3 | | % | | 70-130 | 24-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 95.4 | | % | | 70-130 | 24-SEP-19 |
| Nickel (Ni)-Dissolved | | | 97.8 | | % | | 70-130 | 24-SEP-19 |
| Niobium (Nb)-Dissolved | | | 98.7 | | % | | 70-130 | 24-SEP-19 |
| Phosphorus (P)-Dissolved | | | 98.5 | | % | | 70-130 | 24-SEP-19 |
| Potassium (K)-Dissolved | | | 95.3 | | % | | 70-130 | 24-SEP-19 |
| Rhenium (Re)-Dissolved | | | 94.9 | | % | | 70-130 | 24-SEP-19 |

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4834310** | | | | | | | | |
| **WG3170511-4 MS** | | **L2346699-5** | | | | | | |
| Rubidium (Rb)-Dissolved | | | 95.6 | | % | | 70-130 | 24-SEP-19 |
| Selenium (Se)-Dissolved | | | 97.8 | | % | | 70-130 | 24-SEP-19 |
| Silicon (Si)-Dissolved | | | 95.0 | | % | | 70-130 | 24-SEP-19 |
| Silver (Ag)-Dissolved | | | 92.8 | | % | | 70-130 | 24-SEP-19 |
| Sodium (Na)-Dissolved | | | N/A | MS-B | % | | - | 24-SEP-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 24-SEP-19 |
| Sulfur (S)-Dissolved | | | 97.7 | | % | | 70-130 | 24-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 97.9 | | % | | 70-130 | 24-SEP-19 |
| Tellurium (Te)-Dissolved | | | 94.3 | | % | | 70-130 | 24-SEP-19 |
| Thallium (Tl)-Dissolved | | | 91.8 | | % | | 70-130 | 24-SEP-19 |
| Thorium (Th)-Dissolved | | | 102.4 | | % | | 70-130 | 24-SEP-19 |
| Tin (Sn)-Dissolved | | | 94.8 | | % | | 70-130 | 24-SEP-19 |
| Titanium (Ti)-Dissolved | | | 93.8 | | % | | 70-130 | 24-SEP-19 |
| Tungsten (W)-Dissolved | | | 100.7 | | % | | 70-130 | 24-SEP-19 |
| Uranium (U)-Dissolved | | | 94.5 | | % | | 70-130 | 24-SEP-19 |
| Vanadium (V)-Dissolved | | | 97.2 | | % | | 70-130 | 24-SEP-19 |
| Yttrium (Y)-Dissolved | | | 99.4 | | % | | 70-130 | 24-SEP-19 |
| Zinc (Zn)-Dissolved | | | 97.8 | | % | | 70-130 | 24-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 95.5 | | % | | 70-130 | 24-SEP-19 |
| **Batch R4849218** | | | | | | | | |
| **WG3173033-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 98.6 | | % | | 80-120 | 27-SEP-19 |
| Antimony (Sb)-Dissolved | | | 102.0 | | % | | 80-120 | 27-SEP-19 |
| Arsenic (As)-Dissolved | | | 95.1 | | % | | 80-120 | 27-SEP-19 |
| Barium (Ba)-Dissolved | | | 97.8 | | % | | 80-120 | 27-SEP-19 |
| Beryllium (Be)-Dissolved | | | 101.6 | | % | | 80-120 | 27-SEP-19 |
| Bismuth (Bi)-Dissolved | | | 99.3 | | % | | 80-120 | 27-SEP-19 |
| Boron (B)-Dissolved | | | 100.1 | | % | | 80-120 | 27-SEP-19 |
| Cadmium (Cd)-Dissolved | | | 97.6 | | % | | 80-120 | 27-SEP-19 |
| Calcium (Ca)-Dissolved | | | 97.2 | | % | | 80-120 | 27-SEP-19 |
| Cesium (Cs)-Dissolved | | | 101.6 | | % | | 80-120 | 27-SEP-19 |
| Chromium (Cr)-Dissolved | | | 98.2 | | % | | 80-120 | 27-SEP-19 |
| Cobalt (Co)-Dissolved | | | 96.4 | | % | | 80-120 | 27-SEP-19 |
| Copper (Cu)-Dissolved | | | 95.5 | | % | | 80-120 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3173033-2 LCS** | | | | | | | | |
| Gallium (Ga)-Dissolved | | | 93.8 | | % | | 80-120 | 27-SEP-19 |
| Iron (Fe)-Dissolved | | | 88.2 | | % | | 80-120 | 27-SEP-19 |
| Lanthanum (La)-Dissolved | | | 96.9 | | % | | 80-120 | 27-SEP-19 |
| Lead (Pb)-Dissolved | | | 99.0 | | % | | 80-120 | 27-SEP-19 |
| Lithium (Li)-Dissolved | | | 103.1 | | % | | 80-120 | 27-SEP-19 |
| Magnesium (Mg)-Dissolved | | | 100.5 | | % | | 80-120 | 27-SEP-19 |
| Manganese (Mn)-Dissolved | | | 98.8 | | % | | 80-120 | 27-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | 104.6 | | % | | 80-120 | 27-SEP-19 |
| Nickel (Ni)-Dissolved | | | 95.9 | | % | | 80-120 | 27-SEP-19 |
| Niobium (Nb)-Dissolved | | | 97.6 | | % | | 80-120 | 27-SEP-19 |
| Phosphorus (P)-Dissolved | | | 102.7 | | % | | 80-120 | 27-SEP-19 |
| Potassium (K)-Dissolved | | | 99.97 | | % | | 80-120 | 27-SEP-19 |
| Rhenium (Re)-Dissolved | | | 98.2 | | % | | 80-120 | 27-SEP-19 |
| Rubidium (Rb)-Dissolved | | | 97.1 | | % | | 80-120 | 27-SEP-19 |
| Selenium (Se)-Dissolved | | | 93.9 | | % | | 80-120 | 27-SEP-19 |
| Silicon (Si)-Dissolved | | | 104.0 | | % | | 80-120 | 27-SEP-19 |
| Silver (Ag)-Dissolved | | | 101.1 | | % | | 80-120 | 27-SEP-19 |
| Sodium (Na)-Dissolved | | | 103.3 | | % | | 80-120 | 27-SEP-19 |
| Strontium (Sr)-Dissolved | | | 103.6 | | % | | 80-120 | 27-SEP-19 |
| Sulfur (S)-Dissolved | | | 104.3 | | % | | 80-120 | 27-SEP-19 |
| Tantalum (Ta)-Dissolved | | | 95.0 | | % | | 80-120 | 27-SEP-19 |
| Tellurium (Te)-Dissolved | | | 103.2 | | % | | 80-120 | 27-SEP-19 |
| Thallium (Tl)-Dissolved | | | 97.3 | | % | | 80-120 | 27-SEP-19 |
| Thorium (Th)-Dissolved | | | 91.2 | | % | | 80-120 | 27-SEP-19 |
| Tin (Sn)-Dissolved | | | 95.6 | | % | | 80-120 | 27-SEP-19 |
| Titanium (Ti)-Dissolved | | | 96.9 | | % | | 80-120 | 27-SEP-19 |
| Tungsten (W)-Dissolved | | | 97.4 | | % | | 80-120 | 27-SEP-19 |
| Uranium (U)-Dissolved | | | 100.5 | | % | | 80-120 | 27-SEP-19 |
| Vanadium (V)-Dissolved | | | 99.4 | | % | | 80-120 | 27-SEP-19 |
| Yttrium (Y)-Dissolved | | | 98.8 | | % | | 80-120 | 27-SEP-19 |
| Zinc (Zn)-Dissolved | | | 95.2 | | % | | 80-120 | 27-SEP-19 |
| Zirconium (Zr)-Dissolved | | | 101.6 | | % | | 80-120 | 27-SEP-19 |
| **WG3173033-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3173033-1 MB** | | **NP** | | | | | | |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 27-SEP-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 27-SEP-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 27-SEP-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 27-SEP-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 27-SEP-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 27-SEP-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 27-SEP-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 27-SEP-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 27-SEP-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 27-SEP-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 27-SEP-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3173033-1 MB** | | **NP** | | | | | | |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 27-SEP-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 27-SEP-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| **Batch R4850932** | | | | | | | | |
| **WG3175641-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 98.9 | | % | | 80-120 | 01-OCT-19 |
| Antimony (Sb)-Dissolved | | | 97.4 | | % | | 80-120 | 01-OCT-19 |
| Arsenic (As)-Dissolved | | | 95.4 | | % | | 80-120 | 01-OCT-19 |
| Barium (Ba)-Dissolved | | | 93.9 | | % | | 80-120 | 01-OCT-19 |
| Beryllium (Be)-Dissolved | | | 95.2 | | % | | 80-120 | 01-OCT-19 |
| Bismuth (Bi)-Dissolved | | | 104.2 | | % | | 80-120 | 01-OCT-19 |
| Boron (B)-Dissolved | | | 90.7 | | % | | 80-120 | 01-OCT-19 |
| Cadmium (Cd)-Dissolved | | | 96.1 | | % | | 80-120 | 01-OCT-19 |
| Calcium (Ca)-Dissolved | | | 94.1 | | % | | 80-120 | 01-OCT-19 |
| Cesium (Cs)-Dissolved | | | 99.1 | | % | | 80-120 | 01-OCT-19 |
| Chromium (Cr)-Dissolved | | | 97.6 | | % | | 80-120 | 01-OCT-19 |
| Cobalt (Co)-Dissolved | | | 97.6 | | % | | 80-120 | 01-OCT-19 |
| Copper (Cu)-Dissolved | | | 96.8 | | % | | 80-120 | 01-OCT-19 |
| Gallium (Ga)-Dissolved | | | 110.8 | | % | | 80-120 | 01-OCT-19 |
| Iron (Fe)-Dissolved | | | 88.6 | | % | | 80-120 | 01-OCT-19 |
| Lanthanum (La)-Dissolved | | | 95.3 | | % | | 80-120 | 01-OCT-19 |
| Lead (Pb)-Dissolved | | | 97.6 | | % | | 80-120 | 01-OCT-19 |
| Lithium (Li)-Dissolved | | | 93.6 | | % | | 80-120 | 01-OCT-19 |
| Magnesium (Mg)-Dissolved | | | 98.1 | | % | | 80-120 | 01-OCT-19 |
| Manganese (Mn)-Dissolved | | | 98.2 | | % | | 80-120 | 01-OCT-19 |
| Molybdenum (Mo)-Dissolved | | | 97.1 | | % | | 80-120 | 01-OCT-19 |
| Nickel (Ni)-Dissolved | | | 97.2 | | % | | 80-120 | 01-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4850932** | | | | | | | | |
| **WG3175641-2 LCS** | | | | | | | | |
| Niobium (Nb)-Dissolved | | | 97.4 | | % | | 80-120 | 01-OCT-19 |
| Phosphorus (P)-Dissolved | | | 103.5 | | % | | 80-120 | 01-OCT-19 |
| Potassium (K)-Dissolved | | | 98.4 | | % | | 80-120 | 01-OCT-19 |
| Rhenium (Re)-Dissolved | | | 91.5 | | % | | 80-120 | 01-OCT-19 |
| Rubidium (Rb)-Dissolved | | | 97.7 | | % | | 80-120 | 01-OCT-19 |
| Selenium (Se)-Dissolved | | | 95.0 | | % | | 80-120 | 01-OCT-19 |
| Silicon (Si)-Dissolved | | | 102.7 | | % | | 80-120 | 01-OCT-19 |
| Silver (Ag)-Dissolved | | | 94.8 | | % | | 80-120 | 01-OCT-19 |
| Sodium (Na)-Dissolved | | | 96.8 | | % | | 80-120 | 01-OCT-19 |
| Strontium (Sr)-Dissolved | | | 95.8 | | % | | 80-120 | 01-OCT-19 |
| Sulfur (S)-Dissolved | | | 101.1 | | % | | 80-120 | 01-OCT-19 |
| Tantalum (Ta)-Dissolved | | | 99.0 | | % | | 80-120 | 01-OCT-19 |
| Tellurium (Te)-Dissolved | | | 95.8 | | % | | 80-120 | 01-OCT-19 |
| Thallium (Tl)-Dissolved | | | 106.8 | | % | | 80-120 | 01-OCT-19 |
| Thorium (Th)-Dissolved | | | 100.4 | | % | | 80-120 | 01-OCT-19 |
| Tin (Sn)-Dissolved | | | 94.4 | | % | | 80-120 | 01-OCT-19 |
| Titanium (Ti)-Dissolved | | | 95.3 | | % | | 80-120 | 01-OCT-19 |
| Tungsten (W)-Dissolved | | | 93.6 | | % | | 80-120 | 01-OCT-19 |
| Uranium (U)-Dissolved | | | 99.7 | | % | | 80-120 | 01-OCT-19 |
| Vanadium (V)-Dissolved | | | 98.7 | | % | | 80-120 | 01-OCT-19 |
| Yttrium (Y)-Dissolved | | | 97.1 | | % | | 80-120 | 01-OCT-19 |
| Zinc (Zn)-Dissolved | | | 96.9 | | % | | 80-120 | 01-OCT-19 |
| Zirconium (Zr)-Dissolved | | | 94.4 | | % | | 80-120 | 01-OCT-19 |
| **WG3175641-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 01-OCT-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 01-OCT-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 01-OCT-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4850932** | | | | | | | | |
| **WG3175641-1 MB** | | **NP** | | | | | | |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 01-OCT-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 01-OCT-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 01-OCT-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 01-OCT-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 01-OCT-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 01-OCT-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 01-OCT-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 01-OCT-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 01-OCT-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 01-OCT-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 01-OCT-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 01-OCT-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 01-OCT-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 01-OCT-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 01-OCT-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 01-OCT-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 01-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4850932** | | | | | | | | |
| **WG3175641-1 MB** | | **NP** | | | | | | |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 01-OCT-19 |
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4839932** | | | | | | | | |
| **WG3171759-3 DUP** | | **L2346699-10** | | | | | | |
| Aluminum (Al)-Total | | 0.0047 | 0.0038 | J | mg/L | 0.0009 | 0.002 | 25-SEP-19 |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Arsenic (As)-Total | | 0.000274 | 0.000266 | | mg/L | 3.2 | 20 | 25-SEP-19 |
| Barium (Ba)-Total | | 0.00770 | 0.00756 | | mg/L | 1.9 | 20 | 25-SEP-19 |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Boron (B)-Total | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Calcium (Ca)-Total | | 7.27 | 7.03 | | mg/L | 3.3 | 20 | 25-SEP-19 |
| Cesium (Cs)-Total | | 0.0000085 | 0.0000080 | | mg/L | 6.7 | 20 | 25-SEP-19 |
| Chromium (Cr)-Total | | 0.00039 | 0.00039 | | mg/L | 0.2 | 20 | 25-SEP-19 |
| Cobalt (Co)-Total | | 0.0000149 | 0.0000159 | | mg/L | 5.9 | 20 | 25-SEP-19 |
| Copper (Cu)-Total | | 0.00101 | 0.000998 | | mg/L | 0.8 | 20 | 25-SEP-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Iron (Fe)-Total | | 0.0164 | 0.0163 | | mg/L | 1.1 | 20 | 25-SEP-19 |
| Lanthanum (La)-Total | | 0.000033 | 0.000028 | | mg/L | 18 | 20 | 25-SEP-19 |
| Lead (Pb)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Lithium (Li)-Total | | 0.00083 | 0.00082 | | mg/L | 2.1 | 20 | 25-SEP-19 |
| Magnesium (Mg)-Total | | 1.21 | 1.22 | | mg/L | 1.2 | 20 | 25-SEP-19 |
| Manganese (Mn)-Total | | 0.00274 | 0.00269 | | mg/L | 1.8 | 20 | 25-SEP-19 |
| Molybdenum (Mo)-Total | | 0.000073 | 0.000072 | | mg/L | 1.4 | 20 | 25-SEP-19 |
| Nickel (Ni)-Total | | 0.000452 | 0.000459 | | mg/L | 1.5 | 20 | 25-SEP-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Potassium (K)-Total | | 0.925 | 0.936 | | mg/L | 1.2 | 20 | 25-SEP-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Rubidium (Rb)-Total | | 0.00134 | 0.00137 | | mg/L | 2.8 | 20 | 25-SEP-19 |
| Selenium (Se)-Total | | 0.000043 | 0.000062 | J | mg/L | 0.000019 | 0.00008 | 25-SEP-19 |
| Silicon (Si)-Total | | 0.145 | 0.139 | | mg/L | 4.1 | 20 | 25-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4839932** | | | | | | | | |
| **WG3171759-3 DUP** | | **L2346699-10** | | | | | | |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Sodium (Na)-Total | | 4.94 | 4.87 | | mg/L | 1.5 | 20 | 25-SEP-19 |
| Strontium (Sr)-Total | | 0.0342 | 0.0342 | | mg/L | 0.1 | 20 | 25-SEP-19 |
| Sulfur (S)-Total | | 1.40 | 1.41 | | mg/L | 0.7 | 20 | 25-SEP-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Thorium (Th)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Tin (Sn)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Titanium (Ti)-Total | | 0.000195 | 0.000170 | | mg/L | 14 | 20 | 25-SEP-19 |
| Tungsten (W)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Uranium (U)-Total | | 0.0000150 | 0.0000147 | | mg/L | 1.6 | 20 | 25-SEP-19 |
| Vanadium (V)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Yttrium (Y)-Total | | 0.0000059 | 0.0000065 | | mg/L | 10 | 20 | 25-SEP-19 |
| Zinc (Zn)-Total | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 25-SEP-19 |
| **WG3171759-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 97.9 | | % | | 80-120 | 25-SEP-19 |
| Antimony (Sb)-Total | | | 94.9 | | % | | 80-120 | 25-SEP-19 |
| Arsenic (As)-Total | | | 95.2 | | % | | 80-120 | 25-SEP-19 |
| Barium (Ba)-Total | | | 100.1 | | % | | 80-120 | 25-SEP-19 |
| Beryllium (Be)-Total | | | 93.9 | | % | | 80-120 | 25-SEP-19 |
| Bismuth (Bi)-Total | | | 95.3 | | % | | 80-120 | 25-SEP-19 |
| Boron (B)-Total | | | 94.3 | | % | | 80-120 | 25-SEP-19 |
| Cadmium (Cd)-Total | | | 98.5 | | % | | 80-120 | 25-SEP-19 |
| Calcium (Ca)-Total | | | 94.8 | | % | | 80-120 | 25-SEP-19 |
| Cesium (Cs)-Total | | | 95.9 | | % | | 80-120 | 25-SEP-19 |
| Chromium (Cr)-Total | | | 96.3 | | % | | 80-120 | 25-SEP-19 |
| Cobalt (Co)-Total | | | 96.0 | | % | | 80-120 | 25-SEP-19 |
| Copper (Cu)-Total | | | 94.7 | | % | | 80-120 | 25-SEP-19 |
| Gallium (Ga)-Total | | | 98.9 | | % | | 80-120 | 25-SEP-19 |
| Iron (Fe)-Total | | | 90.8 | | % | | 80-120 | 25-SEP-19 |
| Lanthanum (La)-Total | | | 98.7 | | % | | 80-120 | 25-SEP-19 |
| Lead (Pb)-Total | | | 100.7 | | % | | 80-120 | 25-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4839932** | | | | | | | | |
| **WG3171759-2 LCS** | | | | | | | | |
| Lithium (Li)-Total | | | 98.7 | | % | | 80-120 | 25-SEP-19 |
| Magnesium (Mg)-Total | | | 96.6 | | % | | 80-120 | 25-SEP-19 |
| Manganese (Mn)-Total | | | 97.1 | | % | | 80-120 | 25-SEP-19 |
| Molybdenum (Mo)-Total | | | 93.2 | | % | | 80-120 | 25-SEP-19 |
| Nickel (Ni)-Total | | | 97.1 | | % | | 80-120 | 25-SEP-19 |
| Niobium (Nb)-Total | | | 95.8 | | % | | 80-120 | 25-SEP-19 |
| Phosphorus (P)-Total | | | 99.2 | | % | | 80-120 | 25-SEP-19 |
| Potassium (K)-Total | | | 96.5 | | % | | 80-120 | 25-SEP-19 |
| Rhenium (Re)-Total | | | 99.5 | | % | | 80-120 | 25-SEP-19 |
| Rubidium (Rb)-Total | | | 97.3 | | % | | 80-120 | 25-SEP-19 |
| Selenium (Se)-Total | | | 101.9 | | % | | 80-120 | 25-SEP-19 |
| Silicon (Si)-Total | | | 99.0 | | % | | 80-120 | 25-SEP-19 |
| Silver (Ag)-Total | | | 93.7 | | % | | 80-120 | 25-SEP-19 |
| Sodium (Na)-Total | | | 109.6 | | % | | 80-120 | 25-SEP-19 |
| Strontium (Sr)-Total | | | 94.0 | | % | | 80-120 | 25-SEP-19 |
| Sulfur (S)-Total | | | 102.1 | | % | | 80-120 | 25-SEP-19 |
| Tantalum (Ta)-Total | | | 108.0 | | % | | 80-120 | 25-SEP-19 |
| Tellurium (Te)-Total | | | 97.1 | | % | | 80-120 | 25-SEP-19 |
| Thallium (Tl)-Total | | | 96.2 | | % | | 80-120 | 25-SEP-19 |
| Thorium (Th)-Total | | | 95.8 | | % | | 80-120 | 25-SEP-19 |
| Tin (Sn)-Total | | | 99.3 | | % | | 80-120 | 25-SEP-19 |
| Titanium (Ti)-Total | | | 91.2 | | % | | 80-120 | 25-SEP-19 |
| Tungsten (W)-Total | | | 98.2 | | % | | 80-120 | 25-SEP-19 |
| Uranium (U)-Total | | | 96.6 | | % | | 80-120 | 25-SEP-19 |
| Vanadium (V)-Total | | | 97.4 | | % | | 80-120 | 25-SEP-19 |
| Yttrium (Y)-Total | | | 98.7 | | % | | 80-120 | 25-SEP-19 |
| Zinc (Zn)-Total | | | 96.1 | | % | | 80-120 | 25-SEP-19 |
| Zirconium (Zr)-Total | | | 94.2 | | % | | 80-120 | 25-SEP-19 |
| **WG3171759-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 25-SEP-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 25-SEP-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 25-SEP-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 25-SEP-19 |
| Beryllium (Be)-Total | | | <0.000005( | | mg/L | | 0.000005 | 25-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4839932** | | | | | | | | |
| **WG3171759-1 MB** | | **NP** | | | | | | |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 25-SEP-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 25-SEP-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 25-SEP-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-SEP-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-SEP-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 25-SEP-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-SEP-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-SEP-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 25-SEP-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 25-SEP-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-SEP-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-SEP-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-SEP-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 25-SEP-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 25-SEP-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 25-SEP-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 25-SEP-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 25-SEP-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 25-SEP-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 25-SEP-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 25-SEP-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 25-SEP-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 25-SEP-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 25-SEP-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4839932** | | | | | | | | |
| **WG3171759-1 MB** | | **NP** | | | | | | |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-SEP-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 25-SEP-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 25-SEP-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 25-SEP-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 25-SEP-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 25-SEP-19 |
| **WG3171759-4 MS** | | **L2346699-14** | | | | | | |
| Aluminum (Al)-Total | | | 101.1 | | % | | 70-130 | 25-SEP-19 |
| Antimony (Sb)-Total | | | 94.3 | | % | | 70-130 | 25-SEP-19 |
| Arsenic (As)-Total | | | 99.8 | | % | | 70-130 | 25-SEP-19 |
| Barium (Ba)-Total | | | 106.6 | | % | | 70-130 | 25-SEP-19 |
| Beryllium (Be)-Total | | | 97.5 | | % | | 70-130 | 25-SEP-19 |
| Bismuth (Bi)-Total | | | 94.2 | | % | | 70-130 | 25-SEP-19 |
| Boron (B)-Total | | | 96.7 | | % | | 70-130 | 25-SEP-19 |
| Cadmium (Cd)-Total | | | 102.4 | | % | | 70-130 | 25-SEP-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 25-SEP-19 |
| Cesium (Cs)-Total | | | 96.3 | | % | | 70-130 | 25-SEP-19 |
| Chromium (Cr)-Total | | | 99.3 | | % | | 70-130 | 25-SEP-19 |
| Cobalt (Co)-Total | | | 99.7 | | % | | 70-130 | 25-SEP-19 |
| Copper (Cu)-Total | | | 98.6 | | % | | 70-130 | 25-SEP-19 |
| Gallium (Ga)-Total | | | 103.8 | | % | | 70-130 | 25-SEP-19 |
| Iron (Fe)-Total | | | 101.8 | | % | | 70-130 | 25-SEP-19 |
| Lanthanum (La)-Total | | | 103.5 | | % | | 70-130 | 25-SEP-19 |
| Lead (Pb)-Total | | | 96.2 | | % | | 70-130 | 25-SEP-19 |
| Lithium (Li)-Total | | | 97.4 | | % | | 70-130 | 25-SEP-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 25-SEP-19 |
| Manganese (Mn)-Total | | | 99.7 | | % | | 70-130 | 25-SEP-19 |
| Molybdenum (Mo)-Total | | | 91.4 | | % | | 70-130 | 25-SEP-19 |
| Nickel (Ni)-Total | | | 101.4 | | % | | 70-130 | 25-SEP-19 |
| Niobium (Nb)-Total | | | 105.3 | | % | | 70-130 | 25-SEP-19 |
| Phosphorus (P)-Total | | | 104.1 | | % | | 70-130 | 25-SEP-19 |
| Potassium (K)-Total | | | 99.6 | | % | | 70-130 | 25-SEP-19 |
| Rhenium (Re)-Total | | | 104.4 | | % | | 70-130 | 25-SEP-19 |
| Rubidium (Rb)-Total | | | 98.6 | | % | | 70-130 | 25-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4839932** | | | | | | | | |
| **WG3171759-4 MS** | | **L2346699-14** | | | | | | |
| Selenium (Se)-Total | | | 108.2 | | % | | 70-130 | 25-SEP-19 |
| Silicon (Si)-Total | | | 101.9 | | % | | 70-130 | 25-SEP-19 |
| Silver (Ag)-Total | | | 96.2 | | % | | 70-130 | 25-SEP-19 |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 25-SEP-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 25-SEP-19 |
| Sulfur (S)-Total | | | 104.0 | | % | | 70-130 | 25-SEP-19 |
| Tantalum (Ta)-Total | | | 108.2 | | % | | 70-130 | 25-SEP-19 |
| Tellurium (Te)-Total | | | 98.5 | | % | | 70-130 | 25-SEP-19 |
| Thallium (Tl)-Total | | | 91.9 | | % | | 70-130 | 25-SEP-19 |
| Thorium (Th)-Total | | | 99.1 | | % | | 70-130 | 25-SEP-19 |
| Tin (Sn)-Total | | | 99.7 | | % | | 70-130 | 25-SEP-19 |
| Titanium (Ti)-Total | | | 95.7 | | % | | 70-130 | 25-SEP-19 |
| Tungsten (W)-Total | | | 94.8 | | % | | 70-130 | 25-SEP-19 |
| Uranium (U)-Total | | | 95.4 | | % | | 70-130 | 25-SEP-19 |
| Vanadium (V)-Total | | | 99.7 | | % | | 70-130 | 25-SEP-19 |
| Yttrium (Y)-Total | | | 102.5 | | % | | 70-130 | 25-SEP-19 |
| Zinc (Zn)-Total | | | 101.7 | | % | | 70-130 | 25-SEP-19 |
| Zirconium (Zr)-Total | | | 91.6 | | % | | 70-130 | 25-SEP-19 |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 95.9 | | % | | 80-120 | 27-SEP-19 |
| Antimony (Sb)-Total | | | 98.3 | | % | | 80-120 | 27-SEP-19 |
| Arsenic (As)-Total | | | 96.0 | | % | | 80-120 | 27-SEP-19 |
| Barium (Ba)-Total | | | 99.0 | | % | | 80-120 | 27-SEP-19 |
| Beryllium (Be)-Total | | | 96.4 | | % | | 80-120 | 27-SEP-19 |
| Bismuth (Bi)-Total | | | 99.98 | | % | | 80-120 | 27-SEP-19 |
| Boron (B)-Total | | | 96.3 | | % | | 80-120 | 27-SEP-19 |
| Cadmium (Cd)-Total | | | 96.8 | | % | | 80-120 | 27-SEP-19 |
| Calcium (Ca)-Total | | | 92.8 | | % | | 80-120 | 27-SEP-19 |
| Cesium (Cs)-Total | | | 100.0 | | % | | 80-120 | 27-SEP-19 |
| Chromium (Cr)-Total | | | 97.8 | | % | | 80-120 | 27-SEP-19 |
| Cobalt (Co)-Total | | | 96.8 | | % | | 80-120 | 27-SEP-19 |
| Copper (Cu)-Total | | | 94.7 | | % | | 80-120 | 27-SEP-19 |
| Gallium (Ga)-Total | | | 92.5 | | % | | 80-120 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-2 LCS** | | | | | | | | |
| Iron (Fe)-Total | | | 91.3 | | % | | 80-120 | 27-SEP-19 |
| Lanthanum (La)-Total | | | 98.3 | | % | | 80-120 | 27-SEP-19 |
| Lead (Pb)-Total | | | 103.5 | | % | | 80-120 | 27-SEP-19 |
| Lithium (Li)-Total | | | 98.8 | | % | | 80-120 | 27-SEP-19 |
| Magnesium (Mg)-Total | | | 100.2 | | % | | 80-120 | 27-SEP-19 |
| Manganese (Mn)-Total | | | 98.1 | | % | | 80-120 | 27-SEP-19 |
| Molybdenum (Mo)-Total | | | 103.6 | | % | | 80-120 | 27-SEP-19 |
| Nickel (Ni)-Total | | | 95.4 | | % | | 80-120 | 27-SEP-19 |
| Niobium (Nb)-Total | | | 96.8 | | % | | 80-120 | 27-SEP-19 |
| Phosphorus (P)-Total | | | 100.8 | | % | | 80-120 | 27-SEP-19 |
| Potassium (K)-Total | | | 99.1 | | % | | 80-120 | 27-SEP-19 |
| Rhenium (Re)-Total | | | 98.7 | | % | | 80-120 | 27-SEP-19 |
| Rubidium (Rb)-Total | | | 97.1 | | % | | 80-120 | 27-SEP-19 |
| Selenium (Se)-Total | | | 78.6 | MES | % | | 80-120 | 27-SEP-19 |
| Silicon (Si)-Total | | | 89.6 | | % | | 80-120 | 27-SEP-19 |
| Silver (Ag)-Total | | | 98.6 | | % | | 80-120 | 27-SEP-19 |
| Sodium (Na)-Total | | | 101.8 | | % | | 80-120 | 27-SEP-19 |
| Strontium (Sr)-Total | | | 106.7 | | % | | 80-120 | 27-SEP-19 |
| Sulfur (S)-Total | | | 94.7 | | % | | 80-120 | 27-SEP-19 |
| Tantalum (Ta)-Total | | | 95.7 | | % | | 80-120 | 27-SEP-19 |
| Tellurium (Te)-Total | | | 101.2 | | % | | 80-120 | 27-SEP-19 |
| Thallium (Tl)-Total | | | 97.5 | | % | | 80-120 | 27-SEP-19 |
| Thorium (Th)-Total | | | 90.9 | | % | | 80-120 | 27-SEP-19 |
| Tin (Sn)-Total | | | 96.2 | | % | | 80-120 | 27-SEP-19 |
| Titanium (Ti)-Total | | | 96.3 | | % | | 80-120 | 27-SEP-19 |
| Tungsten (W)-Total | | | 97.6 | | % | | 80-120 | 27-SEP-19 |
| Uranium (U)-Total | | | 104.0 | | % | | 80-120 | 27-SEP-19 |
| Vanadium (V)-Total | | | 98.9 | | % | | 80-120 | 27-SEP-19 |
| Yttrium (Y)-Total | | | 98.7 | | % | | 80-120 | 27-SEP-19 |
| Zinc (Zn)-Total | | | 94.6 | | % | | 80-120 | 27-SEP-19 |
| Zirconium (Zr)-Total | | | 98.5 | | % | | 80-120 | 27-SEP-19 |
| **WG3171776-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 27-SEP-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-1 MB** | | **NP** | | | | | | |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Beryllium (Be)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 27-SEP-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 27-SEP-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 27-SEP-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 27-SEP-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 27-SEP-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 27-SEP-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 27-SEP-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 27-SEP-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 27-SEP-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 27-SEP-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 27-SEP-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-1 MB** | | **NP** | | | | | | |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 27-SEP-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 27-SEP-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| **Batch R4850932** | | | | | | | | |
| **WG3175615-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 99.5 | | % | | 80-120 | 01-OCT-19 |
| Antimony (Sb)-Total | | | 100.3 | | % | | 80-120 | 01-OCT-19 |
| Arsenic (As)-Total | | | 100.1 | | % | | 80-120 | 01-OCT-19 |
| Barium (Ba)-Total | | | 96.6 | | % | | 80-120 | 01-OCT-19 |
| Beryllium (Be)-Total | | | 100.3 | | % | | 80-120 | 01-OCT-19 |
| Bismuth (Bi)-Total | | | 103.6 | | % | | 80-120 | 01-OCT-19 |
| Boron (B)-Total | | | 93.8 | | % | | 80-120 | 01-OCT-19 |
| Cadmium (Cd)-Total | | | 97.0 | | % | | 80-120 | 01-OCT-19 |
| Calcium (Ca)-Total | | | 96.9 | | % | | 80-120 | 01-OCT-19 |
| Cesium (Cs)-Total | | | 102.0 | | % | | 80-120 | 01-OCT-19 |
| Chromium (Cr)-Total | | | 99.8 | | % | | 80-120 | 01-OCT-19 |
| Cobalt (Co)-Total | | | 98.3 | | % | | 80-120 | 01-OCT-19 |
| Copper (Cu)-Total | | | 97.7 | | % | | 80-120 | 01-OCT-19 |
| Gallium (Ga)-Total | | | 115.5 | | % | | 80-120 | 01-OCT-19 |
| Iron (Fe)-Total | | | 91.8 | | % | | 80-120 | 01-OCT-19 |
| Lanthanum (La)-Total | | | 99.2 | | % | | 80-120 | 01-OCT-19 |
| Lead (Pb)-Total | | | 100.3 | | % | | 80-120 | 01-OCT-19 |
| Lithium (Li)-Total | | | 97.8 | | % | | 80-120 | 01-OCT-19 |
| Magnesium (Mg)-Total | | | 100.9 | | % | | 80-120 | 01-OCT-19 |
| Manganese (Mn)-Total | | | 99.5 | | % | | 80-120 | 01-OCT-19 |
| Molybdenum (Mo)-Total | | | 101.2 | | % | | 80-120 | 01-OCT-19 |
| Nickel (Ni)-Total | | | 98.5 | | % | | 80-120 | 01-OCT-19 |
| Niobium (Nb)-Total | | | 96.3 | | % | | 80-120 | 01-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4850932** | | | | | | | | |
| **WG3175615-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 105.8 | | % | | 80-120 | 01-OCT-19 |
| Potassium (K)-Total | | | 100.3 | | % | | 80-120 | 01-OCT-19 |
| Rhenium (Re)-Total | | | 93.9 | | % | | 80-120 | 01-OCT-19 |
| Rubidium (Rb)-Total | | | 97.8 | | % | | 80-120 | 01-OCT-19 |
| Selenium (Se)-Total | | | 97.0 | | % | | 80-120 | 01-OCT-19 |
| Silicon (Si)-Total | | | 107.6 | | % | | 80-120 | 01-OCT-19 |
| Silver (Ag)-Total | | | 98.7 | | % | | 80-120 | 01-OCT-19 |
| Sodium (Na)-Total | | | 98.4 | | % | | 80-120 | 01-OCT-19 |
| Strontium (Sr)-Total | | | 99.5 | | % | | 80-120 | 01-OCT-19 |
| Sulfur (S)-Total | | | 94.3 | | % | | 80-120 | 01-OCT-19 |
| Tantalum (Ta)-Total | | | 101.0 | | % | | 80-120 | 01-OCT-19 |
| Tellurium (Te)-Total | | | 103.9 | | % | | 80-120 | 01-OCT-19 |
| Thallium (Tl)-Total | | | 107.4 | | % | | 80-120 | 01-OCT-19 |
| Thorium (Th)-Total | | | 100.1 | | % | | 80-120 | 01-OCT-19 |
| Tin (Sn)-Total | | | 96.7 | | % | | 80-120 | 01-OCT-19 |
| Titanium (Ti)-Total | | | 95.2 | | % | | 80-120 | 01-OCT-19 |
| Tungsten (W)-Total | | | 96.1 | | % | | 80-120 | 01-OCT-19 |
| Uranium (U)-Total | | | 101.5 | | % | | 80-120 | 01-OCT-19 |
| Vanadium (V)-Total | | | 100.9 | | % | | 80-120 | 01-OCT-19 |
| Yttrium (Y)-Total | | | 97.3 | | % | | 80-120 | 01-OCT-19 |
| Zinc (Zn)-Total | | | 100.1 | | % | | 80-120 | 01-OCT-19 |
| Zirconium (Zr)-Total | | | 99.2 | | % | | 80-120 | 01-OCT-19 |
| **WG3175615-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 01-OCT-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Beryllium (Be)-Total | | | <0.000005( | | mg/L | | 0.000005 | 01-OCT-19 |
| Bismuth (Bi)-Total | | | <0.000005( | | mg/L | | 0.000005 | 01-OCT-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 01-OCT-19 |
| Cadmium (Cd)-Total | | | <0.000005( | | mg/L | | 0.000005 | 01-OCT-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 01-OCT-19 |
| Cesium (Cs)-Total | | | <0.000005( | | mg/L | | 0.000005 | 01-OCT-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 01-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4850932** | | | | | | | | |
| **WG3175615-1 MB** | | **NP** | | | | | | |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 01-OCT-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 01-OCT-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 01-OCT-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 01-OCT-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 01-OCT-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 01-OCT-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 01-OCT-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 01-OCT-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 01-OCT-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 01-OCT-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 01-OCT-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 01-OCT-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 01-OCT-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 01-OCT-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 01-OCT-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 01-OCT-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 01-OCT-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 01-OCT-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 01-OCT-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 01-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4819249** | | | | | | | | |
| **WG3161133-10 LCS** | | | | | | | | |
| Nitrite (as N) | | | 99.3 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-6 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.4 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-5 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 13-SEP-19 |
| **WG3161133-9 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 13-SEP-19 |
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4819249** | | | | | | | | |
| **WG3161133-10 LCS** | | | | | | | | |
| Nitrate (as N) | | | 102.4 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-6 LCS** | | | | | | | | |
| Nitrate (as N) | | | 101.6 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-5 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 13-SEP-19 |
| **WG3161133-9 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 13-SEP-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4818357** | | | | | | | | |
| **WG3163608-14 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 96.2 | | % | | 80-120 | 17-SEP-19 |
| **WG3163608-18 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 97.5 | | % | | 80-120 | 17-SEP-19 |
| **WG3163608-13 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 17-SEP-19 |
| **WG3163608-17 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 17-SEP-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4819168** | | | | | | | | |
| **WG3164321-8 DUP** | | **L2346699-12** | | | | | | |
| Phosphorus (P)-Total | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 18-SEP-19 |
| **WG3164321-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 81.3 | | % | | 80-120 | 18-SEP-19 |
| **WG3164321-6 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 83.2 | | % | | 80-120 | 18-SEP-19 |
| **WG3164321-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 18-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4819168** | | | | | | | | |
| **WG3164321-5 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 18-SEP-19 |
| **WG3164321-7 MS** | | **L2346699-13** | | | | | | |
| Phosphorus (P)-Total | | | 102.8 | | % | | 70-130 | 18-SEP-19 |
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4809090** | | | | | | | | |
| **WG3162466-31 DUP** | | **L2346699-14** | | | | | | |
| pH | | 7.19 | 7.20 | J | pH units | 0.01 | 0.2 | 13-SEP-19 |
| **WG3162466-17 LCS** | | | | | | | | |
| pH | | | 7.37 | | pH units | | 7.3-7.5 | 13-SEP-19 |
| **WG3162466-22 LCS** | | | | | | | | |
| pH | | | 7.37 | | pH units | | 7.3-7.5 | 13-SEP-19 |
| **WG3162466-30 LCS** | | | | | | | | |
| pH | | | 7.35 | | pH units | | 7.3-7.5 | 13-SEP-19 |
| **SO4-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4819249** | | | | | | | | |
| **WG3161133-10 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 103.0 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-6 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 103.5 | | % | | 90-110 | 13-SEP-19 |
| **WG3161133-5 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 13-SEP-19 |
| **WG3161133-9 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 13-SEP-19 |
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4809960** | | | | | | | | |
| **WG3160027-10 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 100.3 | | % | | 85-115 | 13-SEP-19 |
| **WG3160027-9 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 13-SEP-19 |
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4845591** | | | | | | | | |
| **WG3172854-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 101 | | % | | 75-125 | 26-SEP-19 |
| **WG3172854-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 26-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4858440** | | | | | | | | |
| **WG3179824-11 DUP** | | **L2346699-1** | | | | | | |
| Total Kjeldahl Nitrogen | | 0.200 | 0.176 | | mg/L | 13 | 20 | 03-OCT-19 |
| **WG3179824-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 112 | | % | | 75-125 | 03-OCT-19 |
| **WG3179824-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 03-OCT-19 |
| **WG3179824-9 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 03-OCT-19 |
| **WG3179824-12 MS** | | **L2346699-1** | | | | | | |
| Total Kjeldahl Nitrogen | | | 106 | | % | | 70-130 | 03-OCT-19 |
| **TSS-LOW-VA** | **Water** | | | | | | | |
| **Batch R4814210** | | | | | | | | |
| **WG3162812-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 96.1 | | % | | 85-115 | 16-SEP-19 |
| **WG3162812-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 16-SEP-19 |
| **TURBIDITY-WP** | **Water** | | | | | | | |
| **Batch R4813054** | | | | | | | | |
| **WG3160926-2 LCS** | | | | | | | | |
| Turbidity | | | 103.5 | | % | | 85-115 | 13-SEP-19 |
| **WG3160926-5 LCS** | | | | | | | | |
| Turbidity | | | 103.0 | | % | | 85-115 | 13-SEP-19 |
| **WG3160926-1 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 13-SEP-19 |
| **WG3160926-4 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 13-SEP-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| MES | Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Total Suspended Solids by Grav. (1 mg/L) | | | | | | | |
| | 1 | 06-SEP-19 09:36 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 2 | 06-SEP-19 11:18 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 3 | 06-SEP-19 10:54 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 4 | 06-SEP-19 11:41 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 5 | 06-SEP-19 10:14 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 6 | 06-SEP-19 12:20 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 7 | 06-SEP-19 14:26 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 8 | 06-SEP-19 13:44 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 9 | 06-SEP-19 14:01 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 10 | 06-SEP-19 13:22 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 11 | 06-SEP-19 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 12 | 06-SEP-19 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 13 | 06-SEP-19 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| | 14 | 06-SEP-19 | 16-SEP-19 12:30 | 7 | 10 | days | EHTL |
| Turbidity | | | | | | | |
| | 1 | 06-SEP-19 09:36 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 2 | 06-SEP-19 11:18 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 3 | 06-SEP-19 10:54 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 4 | 06-SEP-19 11:41 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 5 | 06-SEP-19 10:14 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 6 | 06-SEP-19 12:20 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 7 | 06-SEP-19 14:26 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 8 | 06-SEP-19 13:44 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 9 | 06-SEP-19 14:01 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 10 | 06-SEP-19 13:22 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 11 | 06-SEP-19 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 12 | 06-SEP-19 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 13 | 06-SEP-19 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| | 14 | 06-SEP-19 | 13-SEP-19 10:40 | 3 | 7 | days | EHTR |
| pH | | | | | | | |
| | 1 | 06-SEP-19 09:36 | 13-SEP-19 12:00 | 0.25 | 170 | hours | EHTR-FM |
| | 2 | 06-SEP-19 11:18 | 13-SEP-19 12:00 | 0.25 | 169 | hours | EHTR-FM |
| | 3 | 06-SEP-19 10:54 | 13-SEP-19 12:00 | 0.25 | 169 | hours | EHTR-FM |
| | 4 | 06-SEP-19 11:41 | 13-SEP-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 5 | 06-SEP-19 10:14 | 13-SEP-19 12:00 | 0.25 | 170 | hours | EHTR-FM |
| | 6 | 06-SEP-19 12:20 | 13-SEP-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 7 | 06-SEP-19 14:26 | 13-SEP-19 12:00 | 0.25 | 166 | hours | EHTR-FM |
| | 8 | 06-SEP-19 13:44 | 13-SEP-19 12:00 | 0.25 | 166 | hours | EHTR-FM |
| | 9 | 06-SEP-19 14:01 | 13-SEP-19 12:00 | 0.25 | 166 | hours | EHTR-FM |
| | 10 | 06-SEP-19 13:22 | 13-SEP-19 12:00 | 0.25 | 167 | hours | EHTR-FM |
| | 11 | 06-SEP-19 | 13-SEP-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 12 | 06-SEP-19 | 13-SEP-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 13 | 06-SEP-19 | 13-SEP-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| | 14 | 06-SEP-19 | 13-SEP-19 12:00 | 0.25 | 168 | hours | EHTR-FM |
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 06-SEP-19 09:36 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 2 | 06-SEP-19 11:18 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 3 | 06-SEP-19 10:54 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 4 | 06-SEP-19 11:41 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 5 | 06-SEP-19 10:14 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 6 | 06-SEP-19 12:20 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 7 | 06-SEP-19 14:26 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 8 | 06-SEP-19 13:44 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 9 | 06-SEP-19 14:01 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 10 | 06-SEP-19 13:22 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 11 | 06-SEP-19 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 12 | 06-SEP-19 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 13 | 06-SEP-19 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 14 | 06-SEP-19 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 06-SEP-19 09:36 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 2 | 06-SEP-19 11:18 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 3 | 06-SEP-19 10:54 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 4 | 06-SEP-19 11:41 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 5 | 06-SEP-19 10:14 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 6 | 06-SEP-19 12:20 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 7 | 06-SEP-19 14:26 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 8 | 06-SEP-19 13:44 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 9 | 06-SEP-19 14:01 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 10 | 06-SEP-19 13:22 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 11 | 06-SEP-19 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 12 | 06-SEP-19 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 13 | 06-SEP-19 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |
| | 14 | 06-SEP-19 | 13-SEP-19 11:10 | 3 | 7 | days | EHTR |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2346699 were received on 13-SEP-19 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Monday, September 30, 2019

Judy Dalmaijer
ALS Environmental
1329 Niakwa Road East, Unit 12
Winnipeg, MB R2J 3T4

Re: ALS Workorder: 1909289
Project Name:
Project Number: L2346699

Dear Ms. Dalmaijer:

Eight water samples were received from ALS Environmental, on 9/14/2019. The samples were scheduled for the following analysis:

Radium-226

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. OBrien
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

| ALS Environmental – Fort Collins | |
|---|---|
| | |
| Accreditation Body | License or Certification Number |
| AIHA | 214884 |
| Alaska (AK) | UST-086 |
| Alaska (AK) | CO01099 |
| Arizona (AZ) | AZ0742 |
| California (CA) | 06251CA |
| Colorado (CO) | CO01099 |
| Florida (FL) | E87914 |
| Idaho (ID) | CO01099 |
| Kansas (KS) | E-10381 |
| Kentucky (KY) | 90137 |
| PJ-LA (DoD ELAP/ISO 170250) | 95377 |
| Louisiana (LA) | 05057 |
| Maryland (MD) | 285 |
| Missouri (MO) | 175 |
| Nebraska(NE) | NE-OS-24-13 |
| Nevada (NV) | CO000782008A |
| New York (NY) | 12036 |
| North Dakota (ND) | R-057 |
| Oklahoma (OK) | 1301 |
| Pennsylvania (PA) | 68-03116 |
| Tennessee (TN) | 2976 |
| Texas (TX) | T104704241 |
| Utah (UT) | CO01099 |
| Washington (WA) | C1280 |

# 1909289

**Radium-226:**
The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

**OrderNum:** 1909289
**Client Name:** ALS Environmental
**Client Project Name:**
**Client Project Number:** L2346699
**Client PO Number:** L2346699

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|---|---|---|---|---|---|
| L2346699-1 | 1909289-1 | | WATER | 06-Sep-19 | |
| L2346699-2 | 1909289-2 | | WATER | 06-Sep-19 | |
| L2346699-3 | 1909289-3 | | WATER | 06-Sep-19 | |
| L2346699-4 | 1909289-4 | | WATER | 06-Sep-19 | |
| L2346699-5 | 1909289-5 | | WATER | 06-Sep-19 | |
| L2346699-11 | 1909289-6 | | WATER | 06-Sep-19 | |
| L2346699-12 | 1909289-7 | | WATER | 06-Sep-19 | |
| L2346699-13 | 1909289-8 | | WATER | 06-Sep-19 | |

ALS Environmental

## Subcontract Request Form 1909289

**Subcontract To:**

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

**NOTES:** Please reference on final report and invoice: PO# *L2346699*
ALS requires QC data to be provided with your final results.

**Please see enclosed 8 sample(s) in 8 Container(s)**

| | SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|---|
| 1 | L2346699-1 MEL-01-01 | | 9/6/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/4/2019 | |
| 2 | L2346699-2 MEL-01-06 | | 9/6/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/4/2019 | |
| 3 | L2346699-3 MEL-01-07 | | 9/6/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/4/2019 | |
| 4 | L2346699-4 MEL-01-08 | | 9/6/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/4/2019 | |
| 5 | L2346699-5 MEL-01-09 | | 9/6/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/4/2019 | |
| 6 | L2346699-11 DI-SEPT-01 | | 9/6/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/4/2019 | |
| 7 | L2346699-12 EQ-SEPT-01 | | 9/6/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/4/2019 | |
| 8 | L2346699-13 DUP-MEL-SEP-01 | | 9/6/2019 | |
| | | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/4/2019 | |

ALS Environmental

**L2346699**

WINNIPEG

## Subcontract Request Form 1909289

**Subcontract To:**

**ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

Subcontract Info Contact: Judy Dalmaijer (204) 255-9749
Analysis and reporting info contact: Judy Dalmaijer
12-1329 NIAKWA ROAD E
WINNIPEG,MB R2J3T4
Phone: (204) 255-9749 Email: Judy.Dalmaijer@alsglobal.com

**Please email confirmation of receipt to:** **Judy.Dalmaijer@alsglobal.com**

Shipped By: _____ Date Shipped: SEPT 13

Received By: Emily Lyons Date Received: 09.14.19 1140

Verified By: _____ Date Verified: _____

Temperature: N/A

Sample Integrity Issues: _____

WP-SHIPTO-FC-FRI

**ALS Environmental - Fort Collins**
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: ALS Winnipeg  Workorder No: 1909289

Project Manager: KMO  Initials: EM  Date: 09-14-19

| | | | | |
|---|---|---|---|---|
| 1. | Are airbills / shipping documents present and/or removable? | DROP OFF | YES | NO |
| 2. | Are custody seals on **shipping** containers intact? | NONE | YES | NO * |
| 3. | Are custody seals on **sample** containers intact? | NONE | YES | NO * |
| 4. | Is there a COC (chain-of-custody) present? | | YES | NO * |
| 5. | Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) | | YES | NO * |
| 6. | Are short-hold samples present? | | YES | NO |
| 7. | Are all samples within holding times for the requested analyses? | | YES | NO * |
| 8. | Were all sample containers received intact? (not broken or leaking) | | YES | NO * |
| 9. | Is there sufficient sample for the requested analyses? | | YES | NO * |
| 10. | Are all samples in the proper containers for the requested analyses? | | YES | NO * |
| 11. | Are all aqueous samples preserved correctly, if required? (excluding volatiles) | N/A | YES | NO * |
| 12. | Are all aqueous non-preserved samples pH 4-9? | N/A | YES | NO * |
| 13. | Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea) | N/A | YES | NO |
| 14. | Were the samples shipped on ice? | | YES | NO |
| 15. | Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 #3 #4 | RAD ONLY | YES | NO |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cooler #: | 1 | | | | | | | |
| Temperature (°C): | Amb. | | | | | | | |
| No. of custody seals on cooler: | Ø | | | | | | | |
| DOT Survey/ Acceptance Information — External µR/hr reading: | 12 | | | | | | | |
| Background µR/hr reading: | 13 | | | | | | | |

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

*** Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.**

All client bottle ID's vs ALS lab ID's double-checked by: EM

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

**Project Manager Signature / Date:** 9/16/19

Form 201r27.xls
(02/11/2019)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

i90928

**Purolator** **Purolator Express U.S.**

FROM / DE
ALS Laboratory Group
Shipping/Recieving
1329 Niakwa RD E
SUITE 12
WINNIPEG, MB
R2J 3T4
Canada
204-255-9764

TO / A
LOGIN
ALS ENVIRO
225 COMMERCE DRIVE
FORT COLLINS, CO, 80524
United States

12-0
Amb

**PUROLATOR PIN: 6923613546**

**NON DOCS**
DESC: water sample
VALUE: $ 8.00 CAD
IMP/EXP TYPE: PERMANENT
COUNTRY OF MFG: Canada

DATE: 13 SEP 2019
PIECES: 1 of/de 1 **WEIGHT/POIDS: 30 LB**

**DUTIES/TAX**
DDU: [ ]
DDP: [ X ]

**DESTINATION**
**FNL**

**EXP** Saturday

ESO - PDF

Purolator's published terms and conditions apply. Warsaw Convention, 1929, as amended or supplemented (including liability limits therein), may also apply if shipment crosses international border(s). Les modalités et conditions publiées par Purolator s'appliquent. La Convention de Varsovie de 1929, dans sa version modifiée ou étoffée (y compris les limites de responsabilité qui y sont prévues), peut également s'appliquer si l'envoi franchit une ou plusieurs frontières.

Fold the Bill of Lading on the dotted line and insert into the adhesive pouch. Attach a Bill of Lading to each package.

Veuillez plier ce connaissement sur la ligne pointillée et l'insérer dans la pochette adhésive. Veuillez joindre un connaissement à chaque colis.

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1329 NIAKWA RD E
STE: 12
WINNIPEG MB R2J 3T4
CANADA

24 LBS 1 OF 1
SHP#: 662F 45MR BDQ
SHP WT: 24 LBS
DATE: 13 SEP 2019

8 of 18

SHIP TO
LOGIN
ALS ENVIRO
0
225 COMMERCE DRIVE
FORT COLLINS CO 80524
UNITED STATES

CO 805 0-01

**UPS EXPRESS** **1 S**

TRACKING #: 1Z 662 F45 69 6717 6114

BILLING: F/D
DESC: water sample
PUROLATOR PIN: 6923613546

PIECE PIN: 6923613546

UPS EXPORT #

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|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-1 | **Lab ID:** | 1909289-1 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **9/18/2019** | | PrepBy: **JXH** |
| Ra-226 | -0.0013 (+/- 0.0031) | U | 0.0068 | BQ/l | NA | 9/27/2019 12:12 |
| *Carr: BARIUM* | *93.6* | | *40-110* | *%REC* | DL = NA | 9/27/2019 12:12 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-2 | **Lab ID:** | 1909289-2 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **9/18/2019** | | PrepBy: **JXH** |
| Ra-226 | -0.0021 (+/- 0.0037) | U | 0.0083 | BQ/l | NA | 9/27/2019 12:12 |
| *Carr: BARIUM* | *90.9* | | *40-110* | *%REC* | DL = NA | 9/27/2019 12:12 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-3 | **Lab ID:** | 1909289-3 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **9/18/2019** | | PrepBy: **JXH** |
| Ra-226 | -0.0016 (+/- 0.0042) | U | 0.0089 | BQ/l | NA | 9/27/2019 12:12 |
| *Carr: BARIUM* | *86.5* | | *40-110* | *%REC* | DL = NA | 9/27/2019 12:12 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-4 | **Lab ID:** | 1909289-4 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **9/18/2019** | PrepBy: **JXH** |
| Ra-226 | 0.0013 (+/- 0.0043) | U | 0.0078 | BQ/l | NA | 9/27/2019 12:50 |
| *Carr: BARIUM* | *92.1* | | *40-110* | *%REC* | DL = NA | 9/27/2019 12:50 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-5 | **Lab ID:** | 1909289-5 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **9/18/2019** | PrepBy: **JXH** |
| Ra-226 | 0.0012 (+/- 0.0042) | U | 0.0076 | BQ/l | NA | 9/27/2019 12:50 |
| *Carr: BARIUM* | *89.2* | | *40-110* | *%REC* | DL = NA | 9/27/2019 12:50 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-11 | **Lab ID:** | 1909289-6 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **9/18/2019** | PrepBy: **JXH** |
| Ra-226 | 0.0021 (+/- 0.0043) | U | 0.0074 | BQ/l | NA | 9/27/2019 12:50 |
| *Carr: BARIUM* | *97.2* | | *40-110* | *%REC* | DL = NA | 9/27/2019 12:50 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-12 | **Lab ID:** | 1909289-7 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **9/18/2019** | PrepBy: **JXH** |
| Ra-226 | -0.0021 (+/- 0.0035) | U | 0.0076 | BQ/l | NA | 9/27/2019 12:50 |
| *Carr: BARIUM* | *97.1* | | *40-110* | *%REC* | DL = NA | 9/27/2019 12:50 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-13 | **Lab ID:** | 1909289-8 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | | **SOP 783** | | Prep Date: **9/18/2019** | PrepBy: **JXH** |
| **Ra-226** | **0.0075 (+/- 0.0053)** | | **0.0066** | **BQ/l** | NA | 9/27/2019 12:50 |
| *Carr: BARIUM* | *91.5* | | *40-110* | *%REC* | DL = NA | 9/27/2019 12:50 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *30-Sep-19* |
| **Project:** | L2346699 | **Work Order:** | 1909289 |
| **Sample ID:** | L2346699-13 | **Lab ID:** | 1909289-8 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/6/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|

## Explanation of Qualifiers

**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

**Inorganics:**

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

**Organics:**

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE190918-2-1** Instrument ID **Alpha Scin** Method: **Radium-226 by Radon Emanation**

**LCS** Sample ID: **RE190918-2** Units: **BQ/l** Analysis Date: **9/27/2019 12:50**
Client ID: Run ID: **RE190918-2A** Prep Date: **9/18/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.74 (+/- 0.434) | 0.013 | 1.72 | | 101 | 67-120 | | | | | P,M3 |
| Carr: BARIUM | 15600 | | 16100 | | 97 | 40-110 | | | | | |

**LCSD** Sample ID: **RE190918-2** Units: **BQ/l** Analysis Date: **9/27/2019 12:50**
Client ID: Run ID: **RE190918-2A** Prep Date: **9/18/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.55 (+/- 0.388) | 0.0133 | 1.72 | | 90 | 67-120 | | 1.74 | 0.3 | 2.1 | P,M3 |
| Carr: BARIUM | 15700 | | 16080 | | 97.8 | 40-110 | | 15600 | | | |

**MB** Sample ID: **RE190918-2** Units: **BQ/l** Analysis Date: **9/27/2019 12:12**
Client ID: Run ID: **RE190918-2A** Prep Date: **9/18/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 0.00093 (+/- 0.0044) | 0.0081 | | | | | | | | | U |
| Carr: BARIUM | 15500 | | 16080 | | 96.6 | 40-110 | | | | | |

**The following samples were analyzed in this batch:**

| | | |
|---|---|---|
| 1909289-1 | 1909289-2 | 1909289-3 |
| 1909289-4 | 1909289-5 | 1909289-6 |
| 1909289-7 | 1909289-8 | |

ALS Environmental

L2346699-COFC

COC # _____

Page 1 of 2

| Report To | | | | R | | | |
|---|---|---|---|---|---|---|---|
| Company: | Azimuth Consulting Group | | | ☑ | | | |
| Contact: | Eric Franz | | | ☑PDF | ☑Excel | ☐Digital | ☐Fax |
| Address: | 218-2902 West Broadway | | | Email 1: | efranz@azimuthgroup.ca | | |
| | Vancouver, BC V6K2G8 | | | Email 2: | mjosee.banville@agncloeagle.com | | |
| Phone: | 604-730-1220 | Fax: | | Email 3: | | | |
| **Invoice To** | Same as Report ? | ☑ Yes | ☐ No | **Client / Project Information** | | | |
| Hardcopy of Invoice with Report? | | ☐ Yes | ☑ No | Job #: | Meliadine AEMP - Surface Water | | |
| Company: | | | | PO / AFE: | | | |
| Contact: | | | | LSD: | | | |
| Address: | | | | | | | |
| Phone: | | Fax: | | Quote #: | Q57496 | | |

| Lab Work Order # (lab use only) | | ALS Contact: | Judy Dalmaijer | Sampler: | Azimuth Agnico Eagle |
|---|---|---|---|---|---|

**Service Requested** (Rush for routine analysis subject to availability)

- ◉ Regular (Standard Turnaround Times - Business Days)
- ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

**Analysis Request**

Please indicate below Filtered, Preserved or both (F, P, F/P)

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | | F | | F | P | F/P | P | | | | |
| 1 | MEL-01-01 | 06-Sep-19 | 9:36 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 2 | MEL-01-06 | 06-Sep-19 | 11:18 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 3 | MEL-01-07 | 06-Sep-19 | 10:54 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 4 | MEL-01-08 | 06-Sep-19 | 11:41 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 5 | MEL-01-09 | 06-Sep-19 | 10:14 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 6 | MEL-02-01 | 06-Sep-19 | 12:20 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 7 | MEL-02-02 | 06-Sep-19 | 2:26 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 8 | MEL-02-03 | 06-Sep-19 | 1:44 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 9 | MEL-02-04 | 06-Sep-19 | 2:01 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 10 | MEL-02-05 | 06-Sep-19 | 1:22 | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| 11 | DI-SEPT-01 | 06-Sep-19 | - | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| 12 | EQ-SEPT-01 | 06-Sep-19 | - | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No If Yes add SIF |
| Bethany Hodgins | 9-Sep-19 | 8:00 | | SEP 13 2019 | 900 | 14.4 °C | | SEP 13 2019 | 900 | |

GENF 20.00 Front

ALS Environmental

# Chain of Custody / Analytical Request Form

L2346699-COFC

COC # _____



| Report To | | | Report Format / Distribution | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | Azimuth Consulting Group | | ☑ Standard | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | | ☑ PDF ☑ Excel | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | | Email 1: efranz@azimuthgroup.ca | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | | Email 2: mjosee.banville@agnicoeagle.com | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 | Fax: | Email 3: | |
| Invoice To | Same as Report ? ☑ Yes | ☐ No | Client / Project Information | Analysis Request |
| Hardcopy of Invoice with Report? | ☐ Yes | ☑ No | Job #: Meliadine AEMP - Surface Water | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | | PO / AFE: | |
| Contact: | | | LSD: | |
| Address: | | | | |
| Phone: | | Fax: | Quote #: Q57496 | |
| Lab Work Order # (lab use only) | | | ALS Contact: Judy Dalmaijer | Sampler: Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | | F | | F | P | F/P | P | | | | |
| [redacted] | DUP-MEL-SEP-01 | 06-Sep-19 | - | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| [redacted] | DUP-MEL-SEP-02 | 06-Sep-19 | - | Surface Water | X | X | X | X | X | X | X | X | X | | | | 9 |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| [redacted] SHIPMENT RELEASE (client use) [redacted] | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Bethany Hodgins | 9-Sep-19 | 8:00 | | | | °C | | | | |

Agnico-Eagle - Meliadine Gold Project
ATTN: ERIC FRANZ
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8

Date Received: 20-SEP-19
Report Date: 17-OCT-19 12:59 (MT)
Version: FINAL

Client Phone: 604-730-1220

# Certificate of Analysis

## Lab Work Order #: L2351036

Project P.O. #: NOT SUBMITTED
Job Reference: MEL
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-1 MEL-03-01 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 10:46 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 21.2 | | 1.2 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.4 | | 1.0 | mg/L | | 22-SEP-19 | R4835269 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 10.2 | | 0.10 | mg/L | | 20-SEP-19 | R4834671 |
| **Conductivity** | | | | | | | |
| Conductivity | 84.6 | | 1.0 | umhos/cm | | 22-SEP-19 | R4835269 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 20-SEP-19 | R4834671 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.0 | | 0.20 | | | 20-SEP-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 16-OCT-19 | |
| TDS (Calculated) | 38.4 | | | mg/L | | 16-OCT-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0174 | | 0.0050 | mg/L | | 20-SEP-19 | R4834671 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0174 | | 0.0051 | mg/L | | 24-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 20-SEP-19 | R4834671 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.81 | | 0.30 | mg/L | | 20-SEP-19 | R4834671 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 114 | | 20 | mg/L | | 20-SEP-19 | R4833072 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.23 | | 0.10 | NTU | | 20-SEP-19 | R4838752 |
| **pH** | | | | | | | |
| pH | 7.40 | | 0.10 | pH units | | 22-SEP-19 | R4835269 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0107 | RRV | 0.0050 | mg/L | | 07-OCT-19 | R4860899 |
| Dissolved Organic Carbon | 2.54 | | 0.50 | mg/L | | 03-OCT-19 | R4859316 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Phosphorus (P)-Total | 0.0020 | | 0.0010 | mg/L | | 27-SEP-19 | R4848610 |
| Ra-226 | <0.0090 | | 0.0090 | Bq/L | 26-SEP-19 | 07-OCT-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.191 | | 0.050 | mg/L | 09-OCT-19 | 10-OCT-19 | R4866600 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 3.52 | | 0.50 | mg/L | | 03-OCT-19 | R4859405 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-SEP-19 | R4832796 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0044 | | 0.0010 | mg/L | | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000232 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00707 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-1 MEL-03-01 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 10:46 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 6.93 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000088 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | 0.00021 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000125 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.00219 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0103 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000022 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000011 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00072 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.28 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00209 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000079 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000379 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 0.951 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00132 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.117 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 6.10 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0346 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.43 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | 0.000151 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000164 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | 0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 25-SEP-19 | R4839371 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 25-SEP-19 | 27-SEP-19 | R4849433 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 27-SEP-19 | R4849509 |
| Aluminum (Al)-Dissolved | 0.0020 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Arsenic (As)-Dissolved | 0.000213 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Barium (Ba)-Dissolved | 0.00680 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-1 MEL-03-01 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 10:46 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Calcium (Ca)-Dissolved | 6.94 | | 0.010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cesium (Cs)-Dissolved | 0.0000083 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Chromium (Cr)-Dissolved | 0.00024 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cobalt (Co)-Dissolved | 0.0000057 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Copper (Cu)-Dissolved | 0.000707 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Iron (Fe)-Dissolved | 0.0039 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lanthanum (La)-Dissolved | 0.000011 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lithium (Li)-Dissolved | 0.00070 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Magnesium (Mg)-Dissolved | 1.14 | | 0.0040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Manganese (Mn)-Dissolved | 0.000266 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Molybdenum (Mo)-Dissolved | 0.000079 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Nickel (Ni)-Dissolved | 0.000342 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Potassium (K)-Dissolved | 0.898 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rubidium (Rb)-Dissolved | 0.00132 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silicon (Si)-Dissolved | 0.110 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sodium (Na)-Dissolved | 4.83 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Strontium (Sr)-Dissolved | 0.0368 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sulfur (S)-Dissolved | 1.24 | | 0.50 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Uranium (U)-Dissolved | 0.0000146 | | 0.0000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| L2351036-2 MEL-03-02 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 11:12 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.7 | | 1.2 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 17.0 | | 1.0 | mg/L | | 22-SEP-19 | R4835269 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-2 MEL-03-02 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 11:12 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.68 | | 0.10 | mg/L | | 20-SEP-19 | R4834671 |
| **Conductivity** | | | | | | | |
| Conductivity | 73.5 | | 1.0 | umhos/cm | | 22-SEP-19 | R4835269 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 20-SEP-19 | R4834671 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.3 | | 0.20 | | | 20-SEP-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 16-OCT-19 | |
| TDS (Calculated) | 36.7 | | | mg/L | | 16-OCT-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 20-SEP-19 | R4834671 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 24-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 20-SEP-19 | R4834671 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.58 | | 0.30 | mg/L | | 20-SEP-19 | R4834671 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 101 | | 20 | mg/L | | 20-SEP-19 | R4833072 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.19 | | 0.10 | NTU | | 20-SEP-19 | R4838752 |
| **pH** | | | | | | | |
| pH | 7.26 | | 0.10 | pH units | | 22-SEP-19 | R4835269 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0158 | | 0.0050 | mg/L | | 08-OCT-19 | R4861562 |
| Dissolved Organic Carbon | 2.60 | | 0.50 | mg/L | | 03-OCT-19 | R4859316 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Phosphorus (P)-Total | 0.0019 | | 0.0010 | mg/L | | 27-SEP-19 | R4848610 |
| Ra-226 | <0.0073 | | 0.0073 | Bq/L | 26-SEP-19 | 07-OCT-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.194 | | 0.050 | mg/L | 09-OCT-19 | 10-OCT-19 | R4866600 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.49 | | 0.50 | mg/L | | 03-OCT-19 | R4859405 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-SEP-19 | R4832796 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0068 | | 0.0010 | mg/L | | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000210 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00719 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 7.03 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000083 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | 0.00037 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000116 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.00119 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-2 MEL-03-02 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 11:12 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Iron (Fe)-Total | 0.0126 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000023 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000012 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00070 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.20 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00220 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000077 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000409 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 0.936 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00128 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.111 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 5.15 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0346 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.42 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | <0.00020 | DLM | 0.00020 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000175 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 25-SEP-19 | R4839371 |
| Mercury (Hg)-Dissolved | 0.00062 | | 0.00050 | ug/L | 25-SEP-19 | 27-SEP-19 | R4849433 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 27-SEP-19 | R4849509 |
| Aluminum (Al)-Dissolved | 0.0022 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Arsenic (As)-Dissolved | 0.000196 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Barium (Ba)-Dissolved | 0.00684 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Calcium (Ca)-Dissolved | 6.97 | | 0.010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cesium (Cs)-Dissolved | 0.0000074 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Chromium (Cr)-Dissolved | 0.00026 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cobalt (Co)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Copper (Cu)-Dissolved | 0.000768 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Iron (Fe)-Dissolved | 0.0036 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-2 MEL-03-02 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 11:12 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Lanthanum (La)-Dissolved | 0.000013 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lithium (Li)-Dissolved | 0.00068 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Magnesium (Mg)-Dissolved | 1.17 | | 0.0040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Manganese (Mn)-Dissolved | 0.000328 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Molybdenum (Mo)-Dissolved | 0.000077 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Nickel (Ni)-Dissolved | 0.000381 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Potassium (K)-Dissolved | 0.907 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silicon (Si)-Dissolved | 0.108 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sodium (Na)-Dissolved | 5.19 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Strontium (Sr)-Dissolved | 0.0357 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sulfur (S)-Dissolved | 1.44 | | 0.50 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tin (Sn)-Dissolved | 0.000027 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Uranium (U)-Dissolved | 0.0000154 | | 0.0000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zinc (Zn)-Dissolved | 0.00050 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| L2351036-3 MEL-03-03 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 11:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.5 | | 1.2 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.8 | | 1.0 | mg/L | | 22-SEP-19 | R4835269 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 8.59 | | 0.10 | mg/L | | 20-SEP-19 | R4834671 |
| **Conductivity** | | | | | | | |
| Conductivity | 72.8 | | 1.0 | umhos/cm | | 22-SEP-19 | R4835269 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 20-SEP-19 | R4834671 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 22.0 | | 0.20 | | | 20-SEP-19 | |
| **Ion Balance Calculation** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-3 MEL-03-03 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 11:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 16-OCT-19 | |
| TDS (Calculated) | 36.1 | | | mg/L | | 16-OCT-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | <0.0050 | | 0.0050 | mg/L | | 20-SEP-19 | R4834671 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.0051 | | 0.0051 | mg/L | | 24-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 20-SEP-19 | R4834671 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 3.57 | | 0.30 | mg/L | | 20-SEP-19 | R4834671 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 98 | | 20 | mg/L | | 20-SEP-19 | R4833072 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.20 | | 0.10 | NTU | | 20-SEP-19 | R4838752 |
| **pH** | | | | | | | |
| pH | 7.29 | | 0.10 | pH units | | 22-SEP-19 | R4835269 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0092 | | 0.0050 | mg/L | | 08-OCT-19 | R4861562 |
| Dissolved Organic Carbon | 2.47 | | 0.50 | mg/L | | 03-OCT-19 | R4859316 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Phosphorus (P)-Total | 0.0046 | | 0.0010 | mg/L | | 27-SEP-19 | R4848610 |
| Ra-226 | <0.0092 | | 0.0092 | Bq/L | 26-SEP-19 | 07-OCT-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.191 | | 0.050 | mg/L | 09-OCT-19 | 10-OCT-19 | R4866600 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.27 | | 0.50 | mg/L | | 07-OCT-19 | R4861772 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-SEP-19 | R4832796 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0043 | | 0.0010 | mg/L | | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000226 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00718 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 6.89 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000099 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | 0.00022 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000099 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.00235 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0097 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000021 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00068 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.17 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00201 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000082 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000374 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-3 MEL-03-03 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 11:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 0.918 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00132 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | 0.000044 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.121 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 5.04 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0338 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.63 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | <0.00015 | DLM | 0.00015 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000151 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 25-SEP-19 | R4839371 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 25-SEP-19 | 27-SEP-19 | R4849433 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 27-SEP-19 | R4849509 |
| Aluminum (Al)-Dissolved | 0.0023 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Arsenic (As)-Dissolved | 0.000204 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Barium (Ba)-Dissolved | 0.00688 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Boron (B)-Dissolved | <0.0050 | | 0.0050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Calcium (Ca)-Dissolved | 6.96 | | 0.010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cesium (Cs)-Dissolved | 0.0000100 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Chromium (Cr)-Dissolved | 0.00020 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cobalt (Co)-Dissolved | 0.0000059 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Copper (Cu)-Dissolved | 0.000640 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Iron (Fe)-Dissolved | 0.0030 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lanthanum (La)-Dissolved | 0.000012 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lithium (Li)-Dissolved | 0.00067 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Magnesium (Mg)-Dissolved | 1.11 | | 0.0040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Manganese (Mn)-Dissolved | 0.000237 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Molybdenum (Mo)-Dissolved | 0.000078 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Nickel (Ni)-Dissolved | 0.000334 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-3 MEL-03-03 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 11:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Potassium (K)-Dissolved | 0.885 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rubidium (Rb)-Dissolved | 0.00127 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Selenium (Se)-Dissolved | 0.000046 | | 0.000040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silicon (Si)-Dissolved | 0.108 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sodium (Na)-Dissolved | 4.90 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Strontium (Sr)-Dissolved | 0.0357 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sulfur (S)-Dissolved | 1.38 | | 0.50 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Uranium (U)-Dissolved | 0.0000134 | | 0.0000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zinc (Zn)-Dissolved | <0.00050 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| L2351036-4 MEL-03-04 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 09:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.5 | | 1.2 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.8 | | 1.0 | mg/L | | 22-SEP-19 | R4835269 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 18.8 | | 0.10 | mg/L | | 20-SEP-19 | R4834671 |
| **Conductivity** | | | | | | | |
| Conductivity | 110 | | 1.0 | umhos/cm | | 22-SEP-19 | R4835269 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.027 | | 0.020 | mg/L | | 20-SEP-19 | R4834671 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.1 | | 0.20 | | | 20-SEP-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | 81.6 | | | % | | 16-OCT-19 | |
| TDS (Calculated) | 50.5 | | | mg/L | | 16-OCT-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0423 | | 0.0050 | mg/L | | 20-SEP-19 | R4834671 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0423 | | 0.0051 | mg/L | | 24-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 20-SEP-19 | R4834671 |
| **Sulfate in Water by IC** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-4 MEL-03-04 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 09:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 5.01 | | 0.30 | mg/L | | 20-SEP-19 | R4834671 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 120 | | 20 | mg/L | | 20-SEP-19 | R4833072 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.26 | | 0.10 | NTU | | 20-SEP-19 | R4838752 |
| **pH** | | | | | | | |
| pH | 7.27 | | 0.10 | pH units | | 22-SEP-19 | R4835269 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 08-OCT-19 | R4861562 |
| Dissolved Organic Carbon | 2.44 | | 0.50 | mg/L | | 03-OCT-19 | R4859316 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Phosphorus (P)-Total | 0.0022 | | 0.0010 | mg/L | | 27-SEP-19 | R4848610 |
| Ra-226 | <0.0081 | | 0.0081 | Bq/L | 26-SEP-19 | 07-OCT-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.175 | | 0.050 | mg/L | 09-OCT-19 | 10-OCT-19 | R4866600 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.56 | | 0.50 | mg/L | | 03-OCT-19 | R4859405 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-SEP-19 | R4832796 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0054 | | 0.0010 | mg/L | | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000208 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00712 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | 0.0067 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 7.24 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000097 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | 0.00037 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000118 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.000941 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0116 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000025 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000027 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00079 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.72 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00213 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000088 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000390 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 1.10 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00132 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.120 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 9.63 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-4 MEL-03-04 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 09:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Strontium (Sr)-Total | 0.0365 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.67 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | 0.000028 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | <0.00015 | DLM | 0.00015 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Uranium (U)-Total | 0.0000179 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | 0.00067 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 25-SEP-19 | R4839371 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 25-SEP-19 | 27-SEP-19 | R4849433 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 27-SEP-19 | R4849509 |
| Aluminum (Al)-Dissolved | 0.0021 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Arsenic (As)-Dissolved | 0.000226 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Barium (Ba)-Dissolved | 0.00691 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Boron (B)-Dissolved | 0.0052 | | 0.0050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cadmium (Cd)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Calcium (Ca)-Dissolved | 6.98 | | 0.010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cesium (Cs)-Dissolved | 0.0000095 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Chromium (Cr)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cobalt (Co)-Dissolved | 0.0000055 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Copper (Cu)-Dissolved | 0.000694 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Iron (Fe)-Dissolved | 0.0038 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lanthanum (La)-Dissolved | 0.000012 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lithium (Li)-Dissolved | 0.00071 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Magnesium (Mg)-Dissolved | 1.39 | | 0.0040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Manganese (Mn)-Dissolved | 0.000286 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Molybdenum (Mo)-Dissolved | 0.000086 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Nickel (Ni)-Dissolved | 0.000342 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Potassium (K)-Dissolved | 0.969 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rubidium (Rb)-Dissolved | 0.00136 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silicon (Si)-Dissolved | 0.112 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sodium (Na)-Dissolved | 7.08 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Strontium (Sr)-Dissolved | 0.0386 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-4 MEL-03-04 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 09:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Sulfur (S)-Dissolved | 1.64 | | 0.50 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Titanium (Ti)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Uranium (U)-Dissolved | 0.0000153 | | 0.0000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Yttrium (Y)-Dissolved | 0.0000055 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zinc (Zn)-Dissolved | 0.00114 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| L2351036-5 MEL-03-05 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 10:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Agnico-Golder Routine parameters** | | | | | | | |
| **Alkalinity, Bicarbonate** | | | | | | | |
| Bicarbonate (HCO3) | 20.3 | | 1.2 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Carbonate** | | | | | | | |
| Carbonate (CO3) | <0.60 | | 0.60 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Hydroxide** | | | | | | | |
| Hydroxide (OH) | <0.34 | | 0.34 | mg/L | | 24-SEP-19 | |
| **Alkalinity, Total (as CaCO3)** | | | | | | | |
| Alkalinity, Total (as CaCO3) | 16.6 | | 1.0 | mg/L | | 22-SEP-19 | R4835269 |
| **Chloride in Water by IC (Low Level)** | | | | | | | |
| Chloride (Cl) | 11.5 | | 0.10 | mg/L | | 20-SEP-19 | R4834671 |
| **Conductivity** | | | | | | | |
| Conductivity | 83.5 | | 1.0 | umhos/cm | | 22-SEP-19 | R4835269 |
| **Fluoride in Water by IC** | | | | | | | |
| Fluoride (F) | 0.026 | | 0.020 | mg/L | | 20-SEP-19 | R4834671 |
| **Hardness Calculated** | | | | | | | |
| Hardness (as CaCO3) | 23.8 | | 0.20 | | | 20-SEP-19 | |
| **Ion Balance Calculation** | | | | | | | |
| Ion Balance | Low EC | | | % | | 16-OCT-19 | |
| TDS (Calculated) | 42.4 | | | mg/L | | 16-OCT-19 | |
| **Nitrate in Water by IC (Low Level)** | | | | | | | |
| Nitrate (as N) | 0.0310 | | 0.0050 | mg/L | | 20-SEP-19 | R4834671 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.0310 | | 0.0051 | mg/L | | 24-SEP-19 | |
| **Nitrite in Water by IC (Low Level)** | | | | | | | |
| Nitrite (as N) | <0.0010 | | 0.0010 | mg/L | | 20-SEP-19 | R4834671 |
| **Sulfate in Water by IC** | | | | | | | |
| Sulfate (SO4) | 4.06 | | 0.30 | mg/L | | 20-SEP-19 | R4834671 |
| **Total Dissolved Solids (TDS)** | | | | | | | |
| Total Dissolved Solids | 104 | | 20 | mg/L | | 20-SEP-19 | R4833072 |
| **Turbidity** | | | | | | | |
| Turbidity | 0.29 | | 0.10 | NTU | | 20-SEP-19 | R4838752 |
| **pH** | | | | | | | |
| pH | 7.28 | | 0.10 | pH units | | 22-SEP-19 | R4835269 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 08-OCT-19 | R4861562 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-5 MEL-03-05 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 10:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Dissolved Organic Carbon | 2.77 | | 0.50 | mg/L | | 03-OCT-19 | R4859316 |
| Cyanide, Free | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Total | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Cyanide, Weak Acid Diss | <0.0010 | | 0.0010 | mg/L | | 29-SEP-19 | R4850688 |
| Phosphorus (P)-Total | 0.0021 | | 0.0010 | mg/L | | 27-SEP-19 | R4848610 |
| Ra-226 | <0.0078 | | 0.0078 | Bq/L | 26-SEP-19 | 07-OCT-19 | R4851666 |
| Total Kjeldahl Nitrogen | 0.175 | | 0.050 | mg/L | 09-OCT-19 | 10-OCT-19 | R4866600 |
| Mercury (Hg)-Total | <0.00050 | | 0.00050 | ug/L | | 25-SEP-19 | R4841436 |
| Total Organic Carbon | 2.49 | | 0.50 | mg/L | | 03-OCT-19 | R4859405 |
| Total Suspended Solids | <1.0 | | 1.0 | mg/L | | 22-SEP-19 | R4832796 |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Aluminum (Al)-Total | 0.0045 | | 0.0010 | mg/L | | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Arsenic (As)-Total | 0.000218 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Barium (Ba)-Total | 0.00707 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Beryllium (Be)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Bismuth (Bi)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Boron (B)-Total | <0.0050 | | 0.0050 | mg/L | | 27-SEP-19 | R4849218 |
| Cadmium (Cd)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Calcium (Ca)-Total | 7.08 | | 0.010 | mg/L | | 27-SEP-19 | R4849218 |
| Cesium (Cs)-Total | 0.0000083 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Chromium (Cr)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Cobalt (Co)-Total | 0.0000134 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Copper (Cu)-Total | 0.00111 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Gallium (Ga)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Iron (Fe)-Total | 0.0109 | | 0.0010 | mg/L | | 27-SEP-19 | R4849218 |
| Lanthanum (La)-Total | 0.000026 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lead (Pb)-Total | 0.000011 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| Lithium (Li)-Total | 0.00070 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Magnesium (Mg)-Total | 1.17 | | 0.0040 | mg/L | | 27-SEP-19 | R4849218 |
| Manganese (Mn)-Total | 0.00197 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Molybdenum (Mo)-Total | 0.000081 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Nickel (Ni)-Total | 0.000374 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Niobium (Nb)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Phosphorus (P)-Total | <0.050 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Potassium (K)-Total | 0.917 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Rhenium (Re)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Rubidium (Rb)-Total | 0.00130 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Selenium (Se)-Total | <0.000040 | | 0.000040 | mg/L | | 27-SEP-19 | R4849218 |
| Silicon (Si)-Total | 0.108 | | 0.050 | mg/L | | 27-SEP-19 | R4849218 |
| Silver (Ag)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Sodium (Na)-Total | 5.03 | | 0.020 | mg/L | | 27-SEP-19 | R4849218 |
| Strontium (Sr)-Total | 0.0352 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Sulfur (S)-Total | 1.38 | | 0.50 | mg/L | | 27-SEP-19 | R4849218 |
| Tantalum (Ta)-Total | <0.00010 | | 0.00010 | mg/L | | 27-SEP-19 | R4849218 |
| Tellurium (Te)-Total | <0.000020 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Thallium (Tl)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Thorium (Th)-Total | <0.0000050 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tin (Sn)-Total | 0.000038 | | 0.000020 | mg/L | | 27-SEP-19 | R4849218 |
| Titanium (Ti)-Total | 0.000080 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Tungsten (W)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-5 MEL-03-05 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 10:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Metals by CRC ICPMS (Undigested)** | | | | | | | |
| Uranium (U)-Total | 0.0000174 | | 0.0000010 | mg/L | | 27-SEP-19 | R4849218 |
| Vanadium (V)-Total | <0.000050 | | 0.000050 | mg/L | | 27-SEP-19 | R4849218 |
| Yttrium (Y)-Total | 0.0000052 | | 0.0000050 | mg/L | | 27-SEP-19 | R4849218 |
| Zinc (Zn)-Total | <0.00050 | | 0.00050 | mg/L | | 27-SEP-19 | R4849218 |
| Zirconium (Zr)-Total | <0.000010 | | 0.000010 | mg/L | | 27-SEP-19 | R4849218 |
| **Diss. Mercury in Water by CVAFS (Ultra)** | | | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | | | | 25-SEP-19 | R4839371 |
| Mercury (Hg)-Dissolved | <0.00050 | | 0.00050 | ug/L | 25-SEP-19 | 27-SEP-19 | R4849433 |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Dissolved Metals Filtration Location | FIELD | | | | | 04-OCT-19 | R4859661 |
| Aluminum (Al)-Dissolved | 0.0019 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Antimony (Sb)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Arsenic (As)-Dissolved | 0.000218 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Barium (Ba)-Dissolved | 0.00666 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Beryllium (Be)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Bismuth (Bi)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Boron (B)-Dissolved | 0.0056 | | 0.0050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cadmium (Cd)-Dissolved | 0.0000052 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Calcium (Ca)-Dissolved | 7.12 | | 0.010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cesium (Cs)-Dissolved | 0.0000107 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Chromium (Cr)-Dissolved | 0.00016 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Cobalt (Co)-Dissolved | 0.0000057 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Copper (Cu)-Dissolved | 0.00110 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Gallium (Ga)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Iron (Fe)-Dissolved | 0.0039 | | 0.0010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lanthanum (La)-Dissolved | 0.000012 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lead (Pb)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Lithium (Li)-Dissolved | 0.00075 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Magnesium (Mg)-Dissolved | 1.46 | | 0.0040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Manganese (Mn)-Dissolved | 0.000324 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Molybdenum (Mo)-Dissolved | 0.000085 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Nickel (Ni)-Dissolved | 0.000362 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Niobium (Nb)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Phosphorus (P)-Dissolved | <0.050 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Potassium (K)-Dissolved | 1.01 | | 0.020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rhenium (Re)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Rubidium (Rb)-Dissolved | 0.00133 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Selenium (Se)-Dissolved | <0.000040 | | 0.000040 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silicon (Si)-Dissolved | 0.113 | | 0.050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Silver (Ag)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sodium (Na)-Dissolved | 7.17 | DTC | 0.020 | mg/L | 04-OCT-19 | 05-OCT-19 | R4859965 |
| Strontium (Sr)-Dissolved | 0.0375 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Sulfur (S)-Dissolved | 1.50 | | 0.50 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tantalum (Ta)-Dissolved | <0.00010 | | 0.00010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tellurium (Te)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thallium (Tl)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Thorium (Th)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tin (Sn)-Dissolved | <0.000020 | | 0.000020 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Titanium (Ti)-Dissolved | 0.000054 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Tungsten (W)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Uranium (U)-Dissolved | 0.0000153 | | 0.0000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2351036-5 MEL-03-05 | | | | | | | |
| Sampled By: AAE on 14-SEP-19 @ 10:25 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Dissolved Metals in Water CRC ICPMS** | | | | | | | |
| Vanadium (V)-Dissolved | <0.000050 | | 0.000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Yttrium (Y)-Dissolved | <0.0000050 | | 0.0000050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zinc (Zn)-Dissolved | 0.00080 | | 0.00050 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |
| Zirconium (Zr)-Dissolved | <0.000010 | | 0.000010 | mg/L | 27-SEP-19 | 03-OCT-19 | R4858217 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Sample Parameter Qualifier Key:**

| Qualifier | Description |
|---|---|
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| DTC | Dissolved concentration exceeds total. Results were confirmed by re-analysis. |
| MES | Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RRV | Reported Result Verified By Repeat Analysis |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| ALK-CO3CO3-CALC-WP | Water | Alkalinity, Carbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L. | | | |
| ALK-HCO3HCO3-CALC-WP | Water | Alkalinity, Bicarbonate | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L | | | |
| ALK-OHOH-CALC-WP | Water | Alkalinity, Hydroxide | CALCULATION |
| The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L. | | | |
| ALK-TITR-WP | Water | Alkalinity, Total (as CaCO3) | APHA 2320B |
| The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically. | | | |
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |
| Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |
| Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| CL-L-IC-N-WP | Water | Chloride in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| CN-FREE-L-CFA-VA | Water | Low Level Free Cyanide in water by CFA | ASTM 7237 |
| This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis. | | | |
| CN-T-L-CFA-VA | Water | Low Level Total Cyanide in water by CFA | ISO 14403:2002 |
| This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero. | | | |
| CN-WAD-L-CFA-VA | Water | Low level WAD Cyanide in water by CFA | APHA 4500-CN CYANIDE |
| This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis. | | | |
| EC-WP | Water | Conductivity | APHA 2510B |
| Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes. | | | |
| F-IC-N-WP | Water | Fluoride in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| HARDNESS-CALC-WP | Water | Hardness Calculated | APHA 2340B |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

| | | | |
|---|---|---|---|
| HG-D-U-CVAF-VA | Water | Diss. Mercury in Water by CVAFS (Ultra) | APHA 3030 B / EPA 1631 REV. E |

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure may involve preliminary sample treatment by filtration (APHA 3030B) and involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry.

| | | | |
|---|---|---|---|
| HG-T-U-CVAF-VA | Water | Total Mercury in Water by CVAFS (Ultra) | EPA 1631 REV. E |

This analysis is carried out using procedures adapted from Method 1631 Rev. E. by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to a purge and trap concentration step and final reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry.

| | | | |
|---|---|---|---|
| IONBALANCE-CALC-WP | Water | Ion Balance Calculation | APHA 1030E |

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

| | | | |
|---|---|---|---|
| MET-D-NP-CCMS-VA | Water | Dissolved Metals in Water CRC ICPMS | EPA 6020B (mod) |

Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.

| | | | |
|---|---|---|---|
| MET-T-NP-CCMS-VA | Water | Total Metals by CRC ICPMS (Undigested) | EPA 6020B (mod) |

Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results.
Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.

| | | | |
|---|---|---|---|
| NH3-F-ED | Water | Ammonia in Water by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

| | | | |
|---|---|---|---|
| NO2+NO3-CALC-L-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-L-IC-N-WP | Water | Nitrite in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| NO3-L-IC-N-WP | Water | Nitrate in Water by IC (Low Level) | EPA 300.1 (mod) |

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

| | | | |
|---|---|---|---|
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

| | | | |
|---|---|---|---|
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

| | | | |
|---|---|---|---|
| PH-WP | Water | pH | APHA 4500H |

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

| | | | |
|---|---|---|---|
| RA226-MMER-FC | Water | Ra226 by Alpha Scint, MDC=0.01 Bq/L | EPA 903.1 |
| SO4-IC-N-WP | Water | Sulfate in Water by IC | EPA 300.1 (mod) |

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| TDS-WP | Water | Total Dissolved Solids (TDS) | APHA 2540 SOLIDS C,E |
| A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaportaed to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids. | | | |
| TKN-L-F-ED | Water | TKN (as N) by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection. | | | |
| TSS-LOW-VA | Water | Total Suspended Solids by Grav. (1 mg/L) | APHA 2540D |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples. | | | |
| TURBIDITY-WP | Water | Turbidity | APHA 2130B (modified) |
| Turbidity in aqueous matrices is determined by the nephelometric method. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |
| FC | ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8
Contact: ERIC FRANZ

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **ALK-TITR-WP** | **Water** | | | | | | | |
| **Batch R4835269** | | | | | | | | |
| **WG3170920-5 DUP** | | **L2351036-1** | | | | | | |
| Alkalinity, Total (as CaCO3) | | 17.4 | 16.5 | | mg/L | 5.3 | 20 | 22-SEP-19 |
| **WG3170920-4 LCS** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | 100.2 | | % | | 85-115 | 22-SEP-19 |
| **WG3170920-1 MB** | | | | | | | | |
| Alkalinity, Total (as CaCO3) | | | <1.0 | | mg/L | | 1 | 22-SEP-19 |
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4859316** | | | | | | | | |
| **WG3182098-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 98.1 | | % | | 80-120 | 03-OCT-19 |
| **WG3182098-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 03-OCT-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4859405** | | | | | | | | |
| **WG3182175-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 97.7 | | % | | 80-120 | 03-OCT-19 |
| **WG3182175-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 03-OCT-19 |
| **Batch R4861772** | | | | | | | | |
| **WG3185248-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 99.9 | | % | | 80-120 | 07-OCT-19 |
| **WG3185248-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 07-OCT-19 |
| **CL-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4834671** | | | | | | | | |
| **WG3167866-14 LCS** | | | | | | | | |
| Chloride (Cl) | | | 96.6 | | % | | 90-110 | 20-SEP-19 |
| **WG3167866-13 MB** | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 20-SEP-19 |
| **CN-FREE-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4850688** | | | | | | | | |
| **WG3176247-2 LCS** | | | | | | | | |
| Cyanide, Free | | | 99.3 | | % | | 80-120 | 29-SEP-19 |
| **WG3176247-1 MB** | | | | | | | | |
| Cyanide, Free | | | <0.0010 | | mg/L | | 0.001 | 29-SEP-19 |
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **CN-T-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4850688** | | | | | | | | |
| **WG3176247-2 LCS** | | | | | | | | |
| Cyanide, Total | | | 101.7 | | % | | 80-120 | 29-SEP-19 |
| **WG3176247-1 MB** | | | | | | | | |
| Cyanide, Total | | | <0.0010 | | mg/L | | 0.001 | 29-SEP-19 |
| **CN-WAD-L-CFA-VA** | **Water** | | | | | | | |
| **Batch R4850688** | | | | | | | | |
| **WG3176247-2 LCS** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | 107.5 | | % | | 80-120 | 29-SEP-19 |
| **WG3176247-1 MB** | | | | | | | | |
| Cyanide, Weak Acid Diss | | | <0.0010 | | mg/L | | 0.001 | 29-SEP-19 |
| **EC-WP** | **Water** | | | | | | | |
| **Batch R4835269** | | | | | | | | |
| **WG3170920-5 DUP** | | **L2351036-1** | | | | | | |
| Conductivity | | 84.6 | 79.8 | | umhos/cm | 5.8 | 10 | 22-SEP-19 |
| **WG3170920-3 LCS** | | | | | | | | |
| Conductivity | | | 97.9 | | % | | 90-110 | 22-SEP-19 |
| **WG3170920-1 MB** | | | | | | | | |
| Conductivity | | | <1.0 | | umhos/cm | | 1 | 22-SEP-19 |
| **F-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4834671** | | | | | | | | |
| **WG3167866-14 LCS** | | | | | | | | |
| Fluoride (F) | | | 96.7 | | % | | 90-110 | 20-SEP-19 |
| **WG3167866-13 MB** | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 20-SEP-19 |
| **HG-D-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4841070** | | | | | | | | |
| **WG3172319-2 LCS** | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 91.2 | | % | | 80-120 | 25-SEP-19 |
| **WG3172319-1 MB** | | **NP** | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.00050 | | ug/L | | 0.0005 | 25-SEP-19 |
| **HG-T-U-CVAF-VA** | **Water** | | | | | | | |
| **Batch R4841436** | | | | | | | | |
| **WG3172947-2 LCS** | | | | | | | | |
| Mercury (Hg)-Total | | | 100.8 | | % | | 80-120 | 25-SEP-19 |
| **WG3172947-1 MB** | | | | | | | | |
| Mercury (Hg)-Total | | | <0.00050 | | ug/L | | 0.0005 | 25-SEP-19 |
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3175659-3 DUP** | | **L2351036-4** | | | | | | |
| Aluminum (Al)-Dissolved | | 0.0021 | 0.0023 | | mg/L | 8.0 | 20 | 03-OCT-19 |
| Antimony (Sb)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Arsenic (As)-Dissolved | | 0.000226 | 0.000206 | | mg/L | 9.1 | 20 | 03-OCT-19 |
| Barium (Ba)-Dissolved | | 0.00691 | 0.00662 | | mg/L | 4.2 | 20 | 03-OCT-19 |
| Beryllium (Be)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Bismuth (Bi)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Boron (B)-Dissolved | | 0.0052 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Cadmium (Cd)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Calcium (Ca)-Dissolved | | 6.98 | 6.95 | | mg/L | 0.4 | 20 | 03-OCT-19 |
| Cesium (Cs)-Dissolved | | 0.0000095 | 0.0000078 | | mg/L | 20 | 20 | 03-OCT-19 |
| Chromium (Cr)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Cobalt (Co)-Dissolved | | 0.0000055 | 0.0000054 | | mg/L | 1.1 | 20 | 03-OCT-19 |
| Copper (Cu)-Dissolved | | 0.000694 | 0.000673 | | mg/L | 3.2 | 20 | 03-OCT-19 |
| Gallium (Ga)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Iron (Fe)-Dissolved | | 0.0038 | 0.0038 | | mg/L | 0.6 | 20 | 03-OCT-19 |
| Lanthanum (La)-Dissolved | | 0.000012 | 0.000013 | | mg/L | 9.9 | 20 | 03-OCT-19 |
| Lead (Pb)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Lithium (Li)-Dissolved | | 0.00071 | 0.00071 | | mg/L | 0.4 | 20 | 03-OCT-19 |
| Magnesium (Mg)-Dissolved | | 1.39 | 1.36 | | mg/L | 2.1 | 20 | 03-OCT-19 |
| Manganese (Mn)-Dissolved | | 0.000286 | 0.000276 | | mg/L | 3.7 | 20 | 03-OCT-19 |
| Molybdenum (Mo)-Dissolved | | 0.000086 | 0.000077 | | mg/L | 11 | 20 | 03-OCT-19 |
| Nickel (Ni)-Dissolved | | 0.000342 | 0.000342 | | mg/L | 0.2 | 20 | 03-OCT-19 |
| Niobium (Nb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Potassium (K)-Dissolved | | 0.969 | 0.977 | | mg/L | 0.9 | 20 | 03-OCT-19 |
| Rhenium (Re)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Rubidium (Rb)-Dissolved | | 0.00136 | 0.00132 | | mg/L | 3.4 | 20 | 03-OCT-19 |
| Selenium (Se)-Dissolved | | <0.000040 | 0.000049 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Silicon (Si)-Dissolved | | 0.112 | 0.103 | | mg/L | 9.0 | 20 | 03-OCT-19 |
| Silver (Ag)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Sodium (Na)-Dissolved | | 7.08 | 7.04 | | mg/L | 0.5 | 20 | 03-OCT-19 |
| Strontium (Sr)-Dissolved | | 0.0386 | 0.0363 | | mg/L | 6.2 | 20 | 03-OCT-19 |
| Sulfur (S)-Dissolved | | 1.64 | 1.55 | | mg/L | 5.6 | 20 | 03-OCT-19 |
| Tantalum (Ta)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3175659-3 DUP** | | **L2351036-4** | | | | | | |
| Tellurium (Te)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Thallium (Tl)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Thorium (Th)-Dissolved | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Tin (Sn)-Dissolved | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Titanium (Ti)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Tungsten (W)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Uranium (U)-Dissolved | | 0.0000153 | 0.0000151 | | mg/L | 0.8 | 20 | 03-OCT-19 |
| Vanadium (V)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Yttrium (Y)-Dissolved | | 0.0000055 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| Zinc (Zn)-Dissolved | | 0.00114 | 0.00116 | | mg/L | 1.5 | 20 | 03-OCT-19 |
| Zirconium (Zr)-Dissolved | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 03-OCT-19 |
| **WG3175659-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 99.2 | | % | | 80-120 | 03-OCT-19 |
| Antimony (Sb)-Dissolved | | | 95.0 | | % | | 80-120 | 03-OCT-19 |
| Arsenic (As)-Dissolved | | | 99.1 | | % | | 80-120 | 03-OCT-19 |
| Barium (Ba)-Dissolved | | | 96.5 | | % | | 80-120 | 03-OCT-19 |
| Beryllium (Be)-Dissolved | | | 102.5 | | % | | 80-120 | 03-OCT-19 |
| Bismuth (Bi)-Dissolved | | | 123.4 | MES | % | | 80-120 | 03-OCT-19 |
| Boron (B)-Dissolved | | | 97.8 | | % | | 80-120 | 03-OCT-19 |
| Cadmium (Cd)-Dissolved | | | 97.2 | | % | | 80-120 | 03-OCT-19 |
| Calcium (Ca)-Dissolved | | | 98.9 | | % | | 80-120 | 03-OCT-19 |
| Cesium (Cs)-Dissolved | | | 98.2 | | % | | 80-120 | 03-OCT-19 |
| Chromium (Cr)-Dissolved | | | 100.3 | | % | | 80-120 | 03-OCT-19 |
| Cobalt (Co)-Dissolved | | | 98.4 | | % | | 80-120 | 03-OCT-19 |
| Copper (Cu)-Dissolved | | | 98.3 | | % | | 80-120 | 03-OCT-19 |
| Gallium (Ga)-Dissolved | | | 104.5 | | % | | 80-120 | 03-OCT-19 |
| Iron (Fe)-Dissolved | | | 81.9 | | % | | 80-120 | 03-OCT-19 |
| Lanthanum (La)-Dissolved | | | 95.4 | | % | | 80-120 | 03-OCT-19 |
| Lead (Pb)-Dissolved | | | 93.8 | | % | | 80-120 | 03-OCT-19 |
| Lithium (Li)-Dissolved | | | 102.2 | | % | | 80-120 | 03-OCT-19 |
| Magnesium (Mg)-Dissolved | | | 99.2 | | % | | 80-120 | 03-OCT-19 |
| Manganese (Mn)-Dissolved | | | 99.5 | | % | | 80-120 | 03-OCT-19 |
| Molybdenum (Mo)-Dissolved | | | 101.2 | | % | | 80-120 | 03-OCT-19 |
| Nickel (Ni)-Dissolved | | | 98.9 | | % | | 80-120 | 03-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3175659-2 LCS** | | | | | | | | |
| Niobium (Nb)-Dissolved | | | 97.8 | | % | | 80-120 | 03-OCT-19 |
| Phosphorus (P)-Dissolved | | | 100.1 | | % | | 80-120 | 03-OCT-19 |
| Potassium (K)-Dissolved | | | 100.1 | | % | | 80-120 | 03-OCT-19 |
| Rhenium (Re)-Dissolved | | | 96.8 | | % | | 80-120 | 03-OCT-19 |
| Rubidium (Rb)-Dissolved | | | 98.2 | | % | | 80-120 | 03-OCT-19 |
| Selenium (Se)-Dissolved | | | 95.2 | | % | | 80-120 | 03-OCT-19 |
| Silicon (Si)-Dissolved | | | 104.4 | | % | | 80-120 | 03-OCT-19 |
| Silver (Ag)-Dissolved | | | 95.5 | | % | | 80-120 | 03-OCT-19 |
| Sodium (Na)-Dissolved | | | 98.1 | | % | | 80-120 | 03-OCT-19 |
| Strontium (Sr)-Dissolved | | | 96.1 | | % | | 80-120 | 03-OCT-19 |
| Sulfur (S)-Dissolved | | | 105.0 | | % | | 80-120 | 03-OCT-19 |
| Tantalum (Ta)-Dissolved | | | 96.6 | | % | | 80-120 | 03-OCT-19 |
| Tellurium (Te)-Dissolved | | | 95.8 | | % | | 80-120 | 03-OCT-19 |
| Thallium (Tl)-Dissolved | | | 95.3 | | % | | 80-120 | 03-OCT-19 |
| Thorium (Th)-Dissolved | | | 91.4 | | % | | 80-120 | 03-OCT-19 |
| Tin (Sn)-Dissolved | | | 96.1 | | % | | 80-120 | 03-OCT-19 |
| Titanium (Ti)-Dissolved | | | 94.6 | | % | | 80-120 | 03-OCT-19 |
| Tungsten (W)-Dissolved | | | 94.2 | | % | | 80-120 | 03-OCT-19 |
| Uranium (U)-Dissolved | | | 95.5 | | % | | 80-120 | 03-OCT-19 |
| Vanadium (V)-Dissolved | | | 101.2 | | % | | 80-120 | 03-OCT-19 |
| Yttrium (Y)-Dissolved | | | 95.4 | | % | | 80-120 | 03-OCT-19 |
| Zinc (Zn)-Dissolved | | | 98.3 | | % | | 80-120 | 03-OCT-19 |
| Zirconium (Zr)-Dissolved | | | 93.8 | | % | | 80-120 | 03-OCT-19 |
| **WG3175659-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 03-OCT-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 03-OCT-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 03-OCT-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3175659-1 MB** | | **NP** | | | | | | |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 03-OCT-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 03-OCT-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 03-OCT-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 03-OCT-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 03-OCT-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 03-OCT-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 03-OCT-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 03-OCT-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 03-OCT-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 03-OCT-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 03-OCT-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 03-OCT-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 03-OCT-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 03-OCT-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 03-OCT-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 03-OCT-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 03-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3175659-1 MB** | | **NP** | | | | | | |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 03-OCT-19 |
| **WG3175659-4 MS** | | **L2351036-5** | | | | | | |
| Aluminum (Al)-Dissolved | | | 96.7 | | % | | 70-130 | 03-OCT-19 |
| Antimony (Sb)-Dissolved | | | 99.2 | | % | | 70-130 | 03-OCT-19 |
| Arsenic (As)-Dissolved | | | 97.6 | | % | | 70-130 | 03-OCT-19 |
| Barium (Ba)-Dissolved | | | 95.0 | | % | | 70-130 | 03-OCT-19 |
| Beryllium (Be)-Dissolved | | | 103.5 | | % | | 70-130 | 03-OCT-19 |
| Bismuth (Bi)-Dissolved | | | 91.4 | | % | | 70-130 | 03-OCT-19 |
| Boron (B)-Dissolved | | | 101.7 | | % | | 70-130 | 03-OCT-19 |
| Cadmium (Cd)-Dissolved | | | 99.7 | | % | | 70-130 | 03-OCT-19 |
| Calcium (Ca)-Dissolved | | | N/A | MS-B | % | | - | 03-OCT-19 |
| Cesium (Cs)-Dissolved | | | 97.3 | | % | | 70-130 | 03-OCT-19 |
| Chromium (Cr)-Dissolved | | | 99.9 | | % | | 70-130 | 03-OCT-19 |
| Cobalt (Co)-Dissolved | | | 99.1 | | % | | 70-130 | 03-OCT-19 |
| Copper (Cu)-Dissolved | | | 97.5 | | % | | 70-130 | 03-OCT-19 |
| Gallium (Ga)-Dissolved | | | 96.5 | | % | | 70-130 | 03-OCT-19 |
| Iron (Fe)-Dissolved | | | 99.6 | | % | | 70-130 | 03-OCT-19 |
| Lanthanum (La)-Dissolved | | | 95.2 | | % | | 70-130 | 03-OCT-19 |
| Lead (Pb)-Dissolved | | | 92.2 | | % | | 70-130 | 03-OCT-19 |
| Lithium (Li)-Dissolved | | | 108.8 | | % | | 70-130 | 03-OCT-19 |
| Magnesium (Mg)-Dissolved | | | N/A | MS-B | % | | - | 03-OCT-19 |
| Manganese (Mn)-Dissolved | | | 100.5 | | % | | 70-130 | 03-OCT-19 |
| Molybdenum (Mo)-Dissolved | | | 99.1 | | % | | 70-130 | 03-OCT-19 |
| Nickel (Ni)-Dissolved | | | 97.8 | | % | | 70-130 | 03-OCT-19 |
| Niobium (Nb)-Dissolved | | | 100.7 | | % | | 70-130 | 03-OCT-19 |
| Phosphorus (P)-Dissolved | | | 101.9 | | % | | 70-130 | 03-OCT-19 |
| Potassium (K)-Dissolved | | | 98.9 | | % | | 70-130 | 03-OCT-19 |
| Rhenium (Re)-Dissolved | | | 94.5 | | % | | 70-130 | 03-OCT-19 |
| Rubidium (Rb)-Dissolved | | | 100.8 | | % | | 70-130 | 03-OCT-19 |
| Selenium (Se)-Dissolved | | | 94.9 | | % | | 70-130 | 03-OCT-19 |
| Silicon (Si)-Dissolved | | | 101.5 | | % | | 70-130 | 03-OCT-19 |
| Silver (Ag)-Dissolved | | | 96.1 | | % | | 70-130 | 03-OCT-19 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 03-OCT-19 |
| Sulfur (S)-Dissolved | | | 99.9 | | % | | 70-130 | 03-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3175659-4 MS** | | **L2351036-5** | | | | | | |
| Tantalum (Ta)-Dissolved | | | 97.7 | | % | | 70-130 | 03-OCT-19 |
| Tellurium (Te)-Dissolved | | | 97.6 | | % | | 70-130 | 03-OCT-19 |
| Thallium (Tl)-Dissolved | | | 92.6 | | % | | 70-130 | 03-OCT-19 |
| Thorium (Th)-Dissolved | | | 116.8 | | % | | 70-130 | 03-OCT-19 |
| Tin (Sn)-Dissolved | | | 99.7 | | % | | 70-130 | 03-OCT-19 |
| Titanium (Ti)-Dissolved | | | 99.3 | | % | | 70-130 | 03-OCT-19 |
| Tungsten (W)-Dissolved | | | 94.0 | | % | | 70-130 | 03-OCT-19 |
| Uranium (U)-Dissolved | | | 92.4 | | % | | 70-130 | 03-OCT-19 |
| Vanadium (V)-Dissolved | | | 100.5 | | % | | 70-130 | 03-OCT-19 |
| Yttrium (Y)-Dissolved | | | 98.9 | | % | | 70-130 | 03-OCT-19 |
| Zinc (Zn)-Dissolved | | | 99.7 | | % | | 70-130 | 03-OCT-19 |
| Zirconium (Zr)-Dissolved | | | 98.5 | | % | | 70-130 | 03-OCT-19 |
| **Batch R4859965** | | | | | | | | |
| **WG3182874-2 LCS** | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 102.1 | | % | | 80-120 | 05-OCT-19 |
| Antimony (Sb)-Dissolved | | | 92.5 | | % | | 80-120 | 05-OCT-19 |
| Arsenic (As)-Dissolved | | | 94.5 | | % | | 80-120 | 05-OCT-19 |
| Barium (Ba)-Dissolved | | | 98.1 | | % | | 80-120 | 05-OCT-19 |
| Beryllium (Be)-Dissolved | | | 102.3 | | % | | 80-120 | 05-OCT-19 |
| Bismuth (Bi)-Dissolved | | | 92.3 | | % | | 80-120 | 05-OCT-19 |
| Boron (B)-Dissolved | | | 100.4 | | % | | 80-120 | 05-OCT-19 |
| Cadmium (Cd)-Dissolved | | | 94.9 | | % | | 80-120 | 05-OCT-19 |
| Calcium (Ca)-Dissolved | | | 103.4 | | % | | 80-120 | 05-OCT-19 |
| Cesium (Cs)-Dissolved | | | 92.2 | | % | | 80-120 | 05-OCT-19 |
| Chromium (Cr)-Dissolved | | | 96.1 | | % | | 80-120 | 05-OCT-19 |
| Cobalt (Co)-Dissolved | | | 95.6 | | % | | 80-120 | 05-OCT-19 |
| Copper (Cu)-Dissolved | | | 93.9 | | % | | 80-120 | 05-OCT-19 |
| Gallium (Ga)-Dissolved | | | 99.5 | | % | | 80-120 | 05-OCT-19 |
| Iron (Fe)-Dissolved | | | 85.6 | | % | | 80-120 | 05-OCT-19 |
| Lanthanum (La)-Dissolved | | | 102.4 | | % | | 80-120 | 05-OCT-19 |
| Lead (Pb)-Dissolved | | | 95.2 | | % | | 80-120 | 05-OCT-19 |
| Lithium (Li)-Dissolved | | | 98.5 | | % | | 80-120 | 05-OCT-19 |
| Magnesium (Mg)-Dissolved | | | 96.9 | | % | | 80-120 | 05-OCT-19 |
| Manganese (Mn)-Dissolved | | | 97.4 | | % | | 80-120 | 05-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch** | **R4859965** | | | | | | | |
| **WG3182874-2** | **LCS** | | | | | | | |
| Molybdenum (Mo)-Dissolved | | | 95.0 | | % | | 80-120 | 05-OCT-19 |
| Nickel (Ni)-Dissolved | | | 91.9 | | % | | 80-120 | 05-OCT-19 |
| Niobium (Nb)-Dissolved | | | 96.8 | | % | | 80-120 | 05-OCT-19 |
| Phosphorus (P)-Dissolved | | | 101.0 | | % | | 80-120 | 05-OCT-19 |
| Potassium (K)-Dissolved | | | 100.2 | | % | | 80-120 | 05-OCT-19 |
| Rhenium (Re)-Dissolved | | | 95.3 | | % | | 80-120 | 05-OCT-19 |
| Rubidium (Rb)-Dissolved | | | 98.4 | | % | | 80-120 | 05-OCT-19 |
| Selenium (Se)-Dissolved | | | 90.5 | | % | | 80-120 | 05-OCT-19 |
| Silicon (Si)-Dissolved | | | 104.1 | | % | | 80-120 | 05-OCT-19 |
| Silver (Ag)-Dissolved | | | 93.7 | | % | | 80-120 | 05-OCT-19 |
| Sodium (Na)-Dissolved | | | 97.2 | | % | | 80-120 | 05-OCT-19 |
| Strontium (Sr)-Dissolved | | | 94.2 | | % | | 80-120 | 05-OCT-19 |
| Sulfur (S)-Dissolved | | | 81.1 | | % | | 80-120 | 05-OCT-19 |
| Tantalum (Ta)-Dissolved | | | 97.5 | | % | | 80-120 | 05-OCT-19 |
| Tellurium (Te)-Dissolved | | | 90.8 | | % | | 80-120 | 05-OCT-19 |
| Thallium (Tl)-Dissolved | | | 93.2 | | % | | 80-120 | 05-OCT-19 |
| Thorium (Th)-Dissolved | | | 96.9 | | % | | 80-120 | 05-OCT-19 |
| Tin (Sn)-Dissolved | | | 95.9 | | % | | 80-120 | 05-OCT-19 |
| Titanium (Ti)-Dissolved | | | 94.9 | | % | | 80-120 | 05-OCT-19 |
| Tungsten (W)-Dissolved | | | 96.3 | | % | | 80-120 | 05-OCT-19 |
| Uranium (U)-Dissolved | | | 102.9 | | % | | 80-120 | 05-OCT-19 |
| Vanadium (V)-Dissolved | | | 98.6 | | % | | 80-120 | 05-OCT-19 |
| Yttrium (Y)-Dissolved | | | 90.0 | | % | | 80-120 | 05-OCT-19 |
| Zinc (Zn)-Dissolved | | | 95.8 | | % | | 80-120 | 05-OCT-19 |
| Zirconium (Zr)-Dissolved | | | 94.6 | | % | | 80-120 | 05-OCT-19 |
| **WG3182874-1** | **MB** | **NP** | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 05-OCT-19 |
| Antimony (Sb)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 05-OCT-19 |
| Arsenic (As)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 05-OCT-19 |
| Barium (Ba)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 05-OCT-19 |
| Beryllium (Be)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Bismuth (Bi)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Boron (B)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 05-OCT-19 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4859965** | | | | | | | | |
| **WG3182874-1 MB** | | **NP** | | | | | | |
| Calcium (Ca)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 05-OCT-19 |
| Cesium (Cs)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 05-OCT-19 |
| Cobalt (Co)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Copper (Cu)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 05-OCT-19 |
| Gallium (Ga)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 05-OCT-19 |
| Iron (Fe)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 05-OCT-19 |
| Lanthanum (La)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 05-OCT-19 |
| Lead (Pb)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 05-OCT-19 |
| Lithium (Li)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 05-OCT-19 |
| Magnesium (Mg)-Dissolved | | | <0.0040 | | mg/L | | 0.004 | 05-OCT-19 |
| Manganese (Mn)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 05-OCT-19 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 05-OCT-19 |
| Nickel (Ni)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 05-OCT-19 |
| Niobium (Nb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 05-OCT-19 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 05-OCT-19 |
| Potassium (K)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 05-OCT-19 |
| Rhenium (Re)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Rubidium (Rb)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Selenium (Se)-Dissolved | | | <0.000040 | | mg/L | | 0.00004 | 05-OCT-19 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 05-OCT-19 |
| Silver (Ag)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Sodium (Na)-Dissolved | | | <0.020 | | mg/L | | 0.02 | 05-OCT-19 |
| Strontium (Sr)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 05-OCT-19 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 05-OCT-19 |
| Tantalum (Ta)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 05-OCT-19 |
| Tellurium (Te)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 05-OCT-19 |
| Thallium (Tl)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Thorium (Th)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Tin (Sn)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 05-OCT-19 |
| Titanium (Ti)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 05-OCT-19 |
| Tungsten (W)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 05-OCT-19 |
| Uranium (U)-Dissolved | | | <0.000001C | | mg/L | | 0.000001 | 05-OCT-19 |
| Vanadium (V)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 05-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-D-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4859965** | | | | | | | | |
| **WG3182874-1 MB** | | **NP** | | | | | | |
| Yttrium (Y)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 05-OCT-19 |
| Zinc (Zn)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 05-OCT-19 |
| Zirconium (Zr)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 05-OCT-19 |
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-3 DUP** | | **L2351036-1** | | | | | | |
| Antimony (Sb)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Arsenic (As)-Total | | 0.000232 | 0.000232 | | mg/L | 0.1 | 20 | 27-SEP-19 |
| Barium (Ba)-Total | | 0.00707 | 0.00696 | | mg/L | 1.6 | 20 | 27-SEP-19 |
| Beryllium (Be)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Bismuth (Bi)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Boron (B)-Total | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Cadmium (Cd)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Calcium (Ca)-Total | | 6.93 | 6.99 | | mg/L | 0.9 | 20 | 27-SEP-19 |
| Cesium (Cs)-Total | | 0.0000088 | 0.0000089 | | mg/L | 1.4 | 20 | 27-SEP-19 |
| Chromium (Cr)-Total | | 0.00021 | 0.00021 | | mg/L | 0.0 | 20 | 27-SEP-19 |
| Cobalt (Co)-Total | | 0.0000125 | 0.0000122 | | mg/L | 2.6 | 20 | 27-SEP-19 |
| Copper (Cu)-Total | | 0.00219 | 0.00216 | | mg/L | 1.5 | 20 | 27-SEP-19 |
| Gallium (Ga)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Iron (Fe)-Total | | 0.0103 | 0.0103 | | mg/L | 0.1 | 20 | 27-SEP-19 |
| Lanthanum (La)-Total | | 0.000022 | 0.000021 | | mg/L | 2.2 | 20 | 27-SEP-19 |
| Lead (Pb)-Total | | 0.000011 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Lithium (Li)-Total | | 0.00072 | 0.00071 | | mg/L | 1.8 | 20 | 27-SEP-19 |
| Magnesium (Mg)-Total | | 1.28 | 1.26 | | mg/L | 2.1 | 20 | 27-SEP-19 |
| Manganese (Mn)-Total | | 0.00209 | 0.00207 | | mg/L | 1.3 | 20 | 27-SEP-19 |
| Molybdenum (Mo)-Total | | 0.000079 | 0.000076 | | mg/L | 3.5 | 20 | 27-SEP-19 |
| Nickel (Ni)-Total | | 0.000379 | 0.000391 | | mg/L | 3.2 | 20 | 27-SEP-19 |
| Niobium (Nb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Potassium (K)-Total | | 0.951 | 0.953 | | mg/L | 0.3 | 20 | 27-SEP-19 |
| Rhenium (Re)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Rubidium (Rb)-Total | | 0.00132 | 0.00131 | | mg/L | 0.9 | 20 | 27-SEP-19 |
| Selenium (Se)-Total | | <0.000040 | 0.000048 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Silicon (Si)-Total | | 0.117 | 0.122 | | mg/L | 4.3 | 20 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-3 DUP** | | **L2351036-1** | | | | | | |
| Silver (Ag)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Sodium (Na)-Total | | 6.10 | 5.98 | | mg/L | 2.1 | 20 | 27-SEP-19 |
| Strontium (Sr)-Total | | 0.0346 | 0.0345 | | mg/L | 0.3 | 20 | 27-SEP-19 |
| Sulfur (S)-Total | | 1.43 | 1.50 | | mg/L | 5.1 | 20 | 27-SEP-19 |
| Tantalum (Ta)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Tellurium (Te)-Total | | <0.000020 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Thallium (Tl)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Thorium (Th)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Tin (Sn)-Total | | <0.000020 | 0.000025 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Titanium (Ti)-Total | | 0.000151 | 0.000099 | J | mg/L | 0.000052 | 0.0001 | 27-SEP-19 |
| Tungsten (W)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Uranium (U)-Total | | 0.0000164 | 0.0000171 | | mg/L | 4.2 | 20 | 27-SEP-19 |
| Vanadium (V)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Yttrium (Y)-Total | | <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| Zinc (Zn)-Total | | 0.00050 | 0.00051 | | mg/L | 2.1 | 20 | 27-SEP-19 |
| Zirconium (Zr)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 27-SEP-19 |
| **WG3171776-2 LCS** | | | | | | | | |
| Antimony (Sb)-Total | | | 98.3 | | % | | 80-120 | 27-SEP-19 |
| Arsenic (As)-Total | | | 96.0 | | % | | 80-120 | 27-SEP-19 |
| Barium (Ba)-Total | | | 99.0 | | % | | 80-120 | 27-SEP-19 |
| Beryllium (Be)-Total | | | 96.4 | | % | | 80-120 | 27-SEP-19 |
| Bismuth (Bi)-Total | | | 99.98 | | % | | 80-120 | 27-SEP-19 |
| Boron (B)-Total | | | 96.3 | | % | | 80-120 | 27-SEP-19 |
| Cadmium (Cd)-Total | | | 96.8 | | % | | 80-120 | 27-SEP-19 |
| Calcium (Ca)-Total | | | 92.8 | | % | | 80-120 | 27-SEP-19 |
| Cesium (Cs)-Total | | | 100.0 | | % | | 80-120 | 27-SEP-19 |
| Chromium (Cr)-Total | | | 97.8 | | % | | 80-120 | 27-SEP-19 |
| Cobalt (Co)-Total | | | 96.8 | | % | | 80-120 | 27-SEP-19 |
| Copper (Cu)-Total | | | 94.7 | | % | | 80-120 | 27-SEP-19 |
| Gallium (Ga)-Total | | | 92.5 | | % | | 80-120 | 27-SEP-19 |
| Iron (Fe)-Total | | | 91.3 | | % | | 80-120 | 27-SEP-19 |
| Lanthanum (La)-Total | | | 98.3 | | % | | 80-120 | 27-SEP-19 |
| Lead (Pb)-Total | | | 103.5 | | % | | 80-120 | 27-SEP-19 |
| Lithium (Li)-Total | | | 98.8 | | % | | 80-120 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-2 LCS** | | | | | | | | |
| Magnesium (Mg)-Total | | | 100.2 | | % | | 80-120 | 27-SEP-19 |
| Manganese (Mn)-Total | | | 98.1 | | % | | 80-120 | 27-SEP-19 |
| Molybdenum (Mo)-Total | | | 103.6 | | % | | 80-120 | 27-SEP-19 |
| Nickel (Ni)-Total | | | 95.4 | | % | | 80-120 | 27-SEP-19 |
| Niobium (Nb)-Total | | | 96.8 | | % | | 80-120 | 27-SEP-19 |
| Phosphorus (P)-Total | | | 100.8 | | % | | 80-120 | 27-SEP-19 |
| Potassium (K)-Total | | | 99.1 | | % | | 80-120 | 27-SEP-19 |
| Rhenium (Re)-Total | | | 98.7 | | % | | 80-120 | 27-SEP-19 |
| Rubidium (Rb)-Total | | | 97.1 | | % | | 80-120 | 27-SEP-19 |
| Selenium (Se)-Total | | | 78.6 | MES | % | | 80-120 | 27-SEP-19 |
| Silicon (Si)-Total | | | 89.6 | | % | | 80-120 | 27-SEP-19 |
| Silver (Ag)-Total | | | 98.6 | | % | | 80-120 | 27-SEP-19 |
| Sodium (Na)-Total | | | 101.8 | | % | | 80-120 | 27-SEP-19 |
| Strontium (Sr)-Total | | | 106.7 | | % | | 80-120 | 27-SEP-19 |
| Sulfur (S)-Total | | | 94.7 | | % | | 80-120 | 27-SEP-19 |
| Tantalum (Ta)-Total | | | 95.7 | | % | | 80-120 | 27-SEP-19 |
| Tellurium (Te)-Total | | | 101.2 | | % | | 80-120 | 27-SEP-19 |
| Thallium (Tl)-Total | | | 97.5 | | % | | 80-120 | 27-SEP-19 |
| Thorium (Th)-Total | | | 90.9 | | % | | 80-120 | 27-SEP-19 |
| Tin (Sn)-Total | | | 96.2 | | % | | 80-120 | 27-SEP-19 |
| Titanium (Ti)-Total | | | 96.3 | | % | | 80-120 | 27-SEP-19 |
| Tungsten (W)-Total | | | 97.6 | | % | | 80-120 | 27-SEP-19 |
| Uranium (U)-Total | | | 104.0 | | % | | 80-120 | 27-SEP-19 |
| Vanadium (V)-Total | | | 98.9 | | % | | 80-120 | 27-SEP-19 |
| Yttrium (Y)-Total | | | 98.7 | | % | | 80-120 | 27-SEP-19 |
| Zinc (Zn)-Total | | | 94.6 | | % | | 80-120 | 27-SEP-19 |
| Zirconium (Zr)-Total | | | 98.5 | | % | | 80-120 | 27-SEP-19 |
| **WG3171776-1 MB** | | **NP** | | | | | | |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Beryllium (Be)-Total | | | <0.000005( | | mg/L | | 0.000005 | 27-SEP-19 |
| Bismuth (Bi)-Total | | | <0.000005( | | mg/L | | 0.000005 | 27-SEP-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-1 MB** | | **NP** | | | | | | |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 27-SEP-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 27-SEP-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 27-SEP-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 27-SEP-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 27-SEP-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 27-SEP-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 27-SEP-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 27-SEP-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 27-SEP-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 27-SEP-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 27-SEP-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 27-SEP-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| Uranium (U)-Total | | | <0.000001C | | mg/L | | 0.000001 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-1 MB** | | **NP** | | | | | | |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 27-SEP-19 |
| Yttrium (Y)-Total | | | <0.000005C | | mg/L | | 0.000005 | 27-SEP-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 27-SEP-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 27-SEP-19 |
| **WG3171776-4 MS** | | **L2351036-5** | | | | | | |
| Antimony (Sb)-Total | | | 104.8 | | % | | 70-130 | 27-SEP-19 |
| Arsenic (As)-Total | | | 98.5 | | % | | 70-130 | 27-SEP-19 |
| Barium (Ba)-Total | | | 96.9 | | % | | 70-130 | 27-SEP-19 |
| Beryllium (Be)-Total | | | 100.4 | | % | | 70-130 | 27-SEP-19 |
| Bismuth (Bi)-Total | | | 99.8 | | % | | 70-130 | 27-SEP-19 |
| Boron (B)-Total | | | 100.2 | | % | | 70-130 | 27-SEP-19 |
| Cadmium (Cd)-Total | | | 100.5 | | % | | 70-130 | 27-SEP-19 |
| Calcium (Ca)-Total | | | N/A | MS-B | % | | - | 27-SEP-19 |
| Cesium (Cs)-Total | | | 107.0 | | % | | 70-130 | 27-SEP-19 |
| Chromium (Cr)-Total | | | 97.3 | | % | | 70-130 | 27-SEP-19 |
| Cobalt (Co)-Total | | | 96.8 | | % | | 70-130 | 27-SEP-19 |
| Copper (Cu)-Total | | | 96.0 | | % | | 70-130 | 27-SEP-19 |
| Gallium (Ga)-Total | | | 92.8 | | % | | 70-130 | 27-SEP-19 |
| Iron (Fe)-Total | | | 93.1 | | % | | 70-130 | 27-SEP-19 |
| Lanthanum (La)-Total | | | 97.7 | | % | | 70-130 | 27-SEP-19 |
| Lead (Pb)-Total | | | 102.0 | | % | | 70-130 | 27-SEP-19 |
| Lithium (Li)-Total | | | 101.9 | | % | | 70-130 | 27-SEP-19 |
| Magnesium (Mg)-Total | | | N/A | MS-B | % | | - | 27-SEP-19 |
| Manganese (Mn)-Total | | | 97.1 | | % | | 70-130 | 27-SEP-19 |
| Molybdenum (Mo)-Total | | | 105.4 | | % | | 70-130 | 27-SEP-19 |
| Nickel (Ni)-Total | | | 95.5 | | % | | 70-130 | 27-SEP-19 |
| Niobium (Nb)-Total | | | 98.1 | | % | | 70-130 | 27-SEP-19 |
| Phosphorus (P)-Total | | | 98.7 | | % | | 70-130 | 27-SEP-19 |
| Potassium (K)-Total | | | 97.8 | | % | | 70-130 | 27-SEP-19 |
| Rhenium (Re)-Total | | | 98.4 | | % | | 70-130 | 27-SEP-19 |
| Rubidium (Rb)-Total | | | 97.8 | | % | | 70-130 | 27-SEP-19 |
| Selenium (Se)-Total | | | 103.3 | | % | | 70-130 | 27-SEP-19 |
| Silicon (Si)-Total | | | 102.1 | | % | | 70-130 | 27-SEP-19 |
| Silver (Ag)-Total | | | 106.0 | | % | | 70-130 | 27-SEP-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4849218** | | | | | | | | |
| **WG3171776-4 MS** | | **L2351036-5** | | | | | | |
| Sodium (Na)-Total | | | N/A | MS-B | % | | - | 27-SEP-19 |
| Strontium (Sr)-Total | | | N/A | MS-B | % | | - | 27-SEP-19 |
| Sulfur (S)-Total | | | 108.8 | | % | | 70-130 | 27-SEP-19 |
| Tantalum (Ta)-Total | | | 95.2 | | % | | 70-130 | 27-SEP-19 |
| Tellurium (Te)-Total | | | 111.6 | | % | | 70-130 | 27-SEP-19 |
| Thallium (Tl)-Total | | | 97.2 | | % | | 70-130 | 27-SEP-19 |
| Thorium (Th)-Total | | | 102.2 | | % | | 70-130 | 27-SEP-19 |
| Tin (Sn)-Total | | | 97.6 | | % | | 70-130 | 27-SEP-19 |
| Titanium (Ti)-Total | | | 96.5 | | % | | 70-130 | 27-SEP-19 |
| Tungsten (W)-Total | | | 100.0 | | % | | 70-130 | 27-SEP-19 |
| Uranium (U)-Total | | | 100.7 | | % | | 70-130 | 27-SEP-19 |
| Vanadium (V)-Total | | | 98.1 | | % | | 70-130 | 27-SEP-19 |
| Yttrium (Y)-Total | | | 94.3 | | % | | 70-130 | 27-SEP-19 |
| Zinc (Zn)-Total | | | 99.1 | | % | | 70-130 | 27-SEP-19 |
| Zirconium (Zr)-Total | | | 107.4 | | % | | 70-130 | 27-SEP-19 |
| **Batch R4858217** | | | | | | | | |
| **WG3178787-2 LCS** | | | | | | | | |
| Aluminum (Al)-Total | | | 98.0 | | % | | 80-120 | 03-OCT-19 |
| Antimony (Sb)-Total | | | 97.4 | | % | | 80-120 | 03-OCT-19 |
| Arsenic (As)-Total | | | 99.7 | | % | | 80-120 | 03-OCT-19 |
| Barium (Ba)-Total | | | 94.6 | | % | | 80-120 | 03-OCT-19 |
| Beryllium (Be)-Total | | | 101.0 | | % | | 80-120 | 03-OCT-19 |
| Bismuth (Bi)-Total | | | 119.8 | | % | | 80-120 | 03-OCT-19 |
| Boron (B)-Total | | | 101.3 | | % | | 80-120 | 03-OCT-19 |
| Cadmium (Cd)-Total | | | 95.1 | | % | | 80-120 | 03-OCT-19 |
| Calcium (Ca)-Total | | | 97.9 | | % | | 80-120 | 03-OCT-19 |
| Cesium (Cs)-Total | | | 98.7 | | % | | 80-120 | 03-OCT-19 |
| Chromium (Cr)-Total | | | 98.8 | | % | | 80-120 | 03-OCT-19 |
| Cobalt (Co)-Total | | | 96.5 | | % | | 80-120 | 03-OCT-19 |
| Copper (Cu)-Total | | | 96.4 | | % | | 80-120 | 03-OCT-19 |
| Gallium (Ga)-Total | | | 101.9 | | % | | 80-120 | 03-OCT-19 |
| Iron (Fe)-Total | | | 80.4 | | % | | 80-120 | 03-OCT-19 |
| Lanthanum (La)-Total | | | 95.3 | | % | | 80-120 | 03-OCT-19 |
| Lead (Pb)-Total | | | 93.2 | | % | | 80-120 | 03-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3178787-2 LCS** | | | | | | | | |
| Lithium (Li)-Total | | | 102.0 | | % | | 80-120 | 03-OCT-19 |
| Magnesium (Mg)-Total | | | 99.4 | | % | | 80-120 | 03-OCT-19 |
| Manganese (Mn)-Total | | | 98.7 | | % | | 80-120 | 03-OCT-19 |
| Molybdenum (Mo)-Total | | | 99.5 | | % | | 80-120 | 03-OCT-19 |
| Nickel (Ni)-Total | | | 97.1 | | % | | 80-120 | 03-OCT-19 |
| Niobium (Nb)-Total | | | 98.4 | | % | | 80-120 | 03-OCT-19 |
| Phosphorus (P)-Total | | | 103.9 | | % | | 80-120 | 03-OCT-19 |
| Potassium (K)-Total | | | 99.4 | | % | | 80-120 | 03-OCT-19 |
| Rhenium (Re)-Total | | | 95.7 | | % | | 80-120 | 03-OCT-19 |
| Rubidium (Rb)-Total | | | 97.1 | | % | | 80-120 | 03-OCT-19 |
| Selenium (Se)-Total | | | 96.2 | | % | | 80-120 | 03-OCT-19 |
| Silicon (Si)-Total | | | 103.5 | | % | | 80-120 | 03-OCT-19 |
| Silver (Ag)-Total | | | 95.2 | | % | | 80-120 | 03-OCT-19 |
| Sodium (Na)-Total | | | 97.2 | | % | | 80-120 | 03-OCT-19 |
| Strontium (Sr)-Total | | | 96.0 | | % | | 80-120 | 03-OCT-19 |
| Sulfur (S)-Total | | | 101.5 | | % | | 80-120 | 03-OCT-19 |
| Tantalum (Ta)-Total | | | 97.5 | | % | | 80-120 | 03-OCT-19 |
| Tellurium (Te)-Total | | | 96.0 | | % | | 80-120 | 03-OCT-19 |
| Thallium (Tl)-Total | | | 94.4 | | % | | 80-120 | 03-OCT-19 |
| Thorium (Th)-Total | | | 94.1 | | % | | 80-120 | 03-OCT-19 |
| Tin (Sn)-Total | | | 99.0 | | % | | 80-120 | 03-OCT-19 |
| Titanium (Ti)-Total | | | 97.0 | | % | | 80-120 | 03-OCT-19 |
| Tungsten (W)-Total | | | 94.1 | | % | | 80-120 | 03-OCT-19 |
| Uranium (U)-Total | | | 93.7 | | % | | 80-120 | 03-OCT-19 |
| Vanadium (V)-Total | | | 99.9 | | % | | 80-120 | 03-OCT-19 |
| Yttrium (Y)-Total | | | 94.0 | | % | | 80-120 | 03-OCT-19 |
| Zinc (Zn)-Total | | | 97.0 | | % | | 80-120 | 03-OCT-19 |
| Zirconium (Zr)-Total | | | 95.5 | | % | | 80-120 | 03-OCT-19 |
| **WG3178787-1 MB** | | **NP** | | | | | | |
| Aluminum (Al)-Total | | | <0.0010 | | mg/L | | 0.001 | 03-OCT-19 |
| Antimony (Sb)-Total | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Arsenic (As)-Total | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Barium (Ba)-Total | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Beryllium (Be)-Total | | | <0.000005( | | mg/L | | 0.000005 | 03-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3178787-1 MB** | | **NP** | | | | | | |
| Bismuth (Bi)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Boron (B)-Total | | | <0.0050 | | mg/L | | 0.005 | 03-OCT-19 |
| Cadmium (Cd)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Calcium (Ca)-Total | | | <0.010 | | mg/L | | 0.01 | 03-OCT-19 |
| Cesium (Cs)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 03-OCT-19 |
| Cobalt (Co)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Copper (Cu)-Total | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Gallium (Ga)-Total | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Iron (Fe)-Total | | | <0.0010 | | mg/L | | 0.001 | 03-OCT-19 |
| Lanthanum (La)-Total | | | <0.000010 | | mg/L | | 0.00001 | 03-OCT-19 |
| Lead (Pb)-Total | | | <0.000010 | | mg/L | | 0.00001 | 03-OCT-19 |
| Lithium (Li)-Total | | | <0.00050 | | mg/L | | 0.0005 | 03-OCT-19 |
| Magnesium (Mg)-Total | | | <0.0040 | | mg/L | | 0.004 | 03-OCT-19 |
| Manganese (Mn)-Total | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Nickel (Ni)-Total | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Niobium (Nb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 03-OCT-19 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 03-OCT-19 |
| Potassium (K)-Total | | | <0.020 | | mg/L | | 0.02 | 03-OCT-19 |
| Rhenium (Re)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Rubidium (Rb)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Selenium (Se)-Total | | | <0.000040 | | mg/L | | 0.00004 | 03-OCT-19 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 03-OCT-19 |
| Silver (Ag)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Sodium (Na)-Total | | | <0.020 | | mg/L | | 0.02 | 03-OCT-19 |
| Strontium (Sr)-Total | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 03-OCT-19 |
| Tantalum (Ta)-Total | | | <0.00010 | | mg/L | | 0.0001 | 03-OCT-19 |
| Tellurium (Te)-Total | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Thallium (Tl)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Thorium (Th)-Total | | | <0.000005C | | mg/L | | 0.000005 | 03-OCT-19 |
| Tin (Sn)-Total | | | <0.000020 | | mg/L | | 0.00002 | 03-OCT-19 |
| Titanium (Ti)-Total | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **MET-T-NP-CCMS-VA** | **Water** | | | | | | | |
| **Batch R4858217** | | | | | | | | |
| **WG3178787-1 MB** | | **NP** | | | | | | |
| Tungsten (W)-Total | | | <0.000010 | | mg/L | | 0.00001 | 03-OCT-19 |
| Uranium (U)-Total | | | <0.0000010 | | mg/L | | 0.000001 | 03-OCT-19 |
| Vanadium (V)-Total | | | <0.000050 | | mg/L | | 0.00005 | 03-OCT-19 |
| Yttrium (Y)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 03-OCT-19 |
| Zinc (Zn)-Total | | | <0.00050 | | mg/L | | 0.0005 | 03-OCT-19 |
| Zirconium (Zr)-Total | | | <0.000010 | | mg/L | | 0.00001 | 03-OCT-19 |
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4860899** | | | | | | | | |
| **WG3184120-3 DUP** | | **L2351036-1** | | | | | | |
| Ammonia, Total (as N) | | 0.0107 | 0.0106 | | mg/L | 0.9 | 20 | 07-OCT-19 |
| **WG3184120-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 99.5 | | % | | 85-115 | 07-OCT-19 |
| **WG3184120-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 07-OCT-19 |
| **WG3184120-4 MS** | | **L2351036-1** | | | | | | |
| Ammonia, Total (as N) | | | 93.7 | | % | | 75-125 | 07-OCT-19 |
| **Batch R4861562** | | | | | | | | |
| **WG3184813-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 107.3 | | % | | 85-115 | 08-OCT-19 |
| **WG3184813-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 08-OCT-19 |
| **NO2-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4834671** | | | | | | | | |
| **WG3167866-14 LCS** | | | | | | | | |
| Nitrite (as N) | | | 98.1 | | % | | 90-110 | 20-SEP-19 |
| **WG3167866-13 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 20-SEP-19 |
| **NO3-L-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4834671** | | | | | | | | |
| **WG3167866-14 LCS** | | | | | | | | |
| Nitrate (as N) | | | 96.5 | | % | | 90-110 | 20-SEP-19 |
| **WG3167866-13 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 20-SEP-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4848610** | | | | | | | | |
| **WG3174203-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 81.5 | | % | | 80-120 | 27-SEP-19 |
| **PH-WP** | **Water** | | | | | | | |
| **Batch R4835269** | | | | | | | | |
| **WG3170920-5 DUP** | | **L2351036-1** | | | | | | |
| pH | | 7.40 | 7.27 | J | pH units | 0.13 | 0.2 | 22-SEP-19 |
| **WG3170920-2 LCS** | | | | | | | | |
| pH | | | 7.33 | | pH units | | 7.3-7.5 | 22-SEP-19 |
| **SO4-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4834671** | | | | | | | | |
| **WG3167866-14 LCS** | | | | | | | | |
| Sulfate (SO4) | | | 97.6 | | % | | 90-110 | 20-SEP-19 |
| **WG3167866-13 MB** | | | | | | | | |
| Sulfate (SO4) | | | <0.30 | | mg/L | | 0.3 | 20-SEP-19 |
| **TDS-WP** | **Water** | | | | | | | |
| **Batch R4833072** | | | | | | | | |
| **WG3167204-6 LCS** | | | | | | | | |
| Total Dissolved Solids | | | 101.3 | | % | | 85-115 | 20-SEP-19 |
| **WG3167204-5 MB** | | | | | | | | |
| Total Dissolved Solids | | | <4.0 | | mg/L | | 4 | 20-SEP-19 |
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4866600** | | | | | | | | |
| **WG3186757-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 107 | | % | | 75-125 | 10-OCT-19 |
| **WG3186757-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 10-OCT-19 |
| **TSS-LOW-VA** | **Water** | | | | | | | |
| **Batch R4832796** | | | | | | | | |
| **WG3169287-2 LCS** | | | | | | | | |
| Total Suspended Solids | | | 90.4 | | % | | 85-115 | 22-SEP-19 |
| **WG3169287-1 MB** | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 22-SEP-19 |
| **TURBIDITY-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **TURBIDITY-WP** | **Water** | | | | | | | |
| **Batch R4838752** | | | | | | | | |
| **WG3168881-2 LCS** | | | | | | | | |
| Turbidity | | | 103.5 | | % | | 85-115 | 20-SEP-19 |
| **WG3168881-1 MB** | | | | | | | | |
| Turbidity | | | <0.10 | | NTU | | 0.1 | 20-SEP-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| MES | Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Physical Tests** | | | | | | | |
| Total Suspended Solids by Grav. (1 mg/L) | | | | | | | |
| | 1 | 14-SEP-19 10:46 | 22-SEP-19 12:30 | 7 | 8 | days | EHT |
| | 2 | 14-SEP-19 11:12 | 22-SEP-19 12:30 | 7 | 8 | days | EHT |
| | 3 | 14-SEP-19 11:31 | 22-SEP-19 12:30 | 7 | 8 | days | EHT |
| | 4 | 14-SEP-19 09:52 | 22-SEP-19 12:30 | 7 | 8 | days | EHT |
| | 5 | 14-SEP-19 10:25 | 22-SEP-19 12:30 | 7 | 8 | days | EHT |
| Turbidity | | | | | | | |
| | 1 | 14-SEP-19 10:46 | 20-SEP-19 12:30 | 3 | 6 | days | EHTR |
| | 2 | 14-SEP-19 11:12 | 20-SEP-19 12:30 | 3 | 6 | days | EHTR |
| | 3 | 14-SEP-19 11:31 | 20-SEP-19 12:30 | 3 | 6 | days | EHTR |
| | 4 | 14-SEP-19 09:52 | 20-SEP-19 12:30 | 3 | 6 | days | EHTR |
| | 5 | 14-SEP-19 10:25 | 20-SEP-19 12:30 | 3 | 6 | days | EHTR |
| pH | | | | | | | |
| | 1 | 14-SEP-19 10:46 | 22-SEP-19 12:00 | 0.25 | 193 | hours | EHTR-FM |
| | 2 | 14-SEP-19 11:12 | 22-SEP-19 12:00 | 0.25 | 193 | hours | EHTR-FM |
| | 3 | 14-SEP-19 11:31 | 22-SEP-19 12:00 | 0.25 | 192 | hours | EHTR-FM |
| | 4 | 14-SEP-19 09:52 | 22-SEP-19 12:00 | 0.25 | 194 | hours | EHTR-FM |
| | 5 | 14-SEP-19 10:25 | 22-SEP-19 12:00 | 0.25 | 194 | hours | EHTR-FM |
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 14-SEP-19 10:46 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| | 2 | 14-SEP-19 11:12 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| | 3 | 14-SEP-19 11:31 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| | 4 | 14-SEP-19 09:52 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| | 5 | 14-SEP-19 10:25 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 14-SEP-19 10:46 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| | 2 | 14-SEP-19 11:12 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| | 3 | 14-SEP-19 11:31 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| | 4 | 14-SEP-19 09:52 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| | 5 | 14-SEP-19 10:25 | 20-SEP-19 13:30 | 3 | 6 | days | EHTR |
| **Cyanides** | | | | | | | |
| Low Level Free Cyanide in water by CFA | | | | | | | |
| | 1 | 14-SEP-19 10:46 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 2 | 14-SEP-19 11:12 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 3 | 14-SEP-19 11:31 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 4 | 14-SEP-19 09:52 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 5 | 14-SEP-19 10:25 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| Low Level Total Cyanide in water by CFA | | | | | | | |
| | 1 | 14-SEP-19 10:46 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 2 | 14-SEP-19 11:12 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 3 | 14-SEP-19 11:31 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 4 | 14-SEP-19 09:52 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 5 | 14-SEP-19 10:25 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| Low level WAD Cyanide in water by CFA | | | | | | | |
| | 1 | 14-SEP-19 10:46 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 2 | 14-SEP-19 11:12 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 3 | 14-SEP-19 11:31 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 4 | 14-SEP-19 09:52 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |
| | 5 | 14-SEP-19 10:25 | 29-SEP-19 09:31 | 14 | 15 | days | EHT |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2351036 were received on 20-SEP-19 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

---

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Friday, October 11, 2019

Judy Dalmaijer
ALS Environmental
1329 Niakwa Road East, Unit 12
Winnipeg, MB R2J 3T4

Re: ALS Workorder: 1909442
Project Name:
Project Number: L2351036

Dear Ms. Dalmaijer:

Five water samples were received from ALS Environmental, on 9/21/2019. The samples were scheduled for the following analysis:

Radium-226

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. OBrien
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

| ALS Environmental – Fort Collins | |
|---|---|
| | |
| Accreditation Body | License or Certification Number |
| AIHA | 214884 |
| Alaska (AK) | UST-086 |
| Alaska (AK) | CO01099 |
| Arizona (AZ) | AZ0742 |
| California (CA) | 06251CA |
| Colorado (CO) | CO01099 |
| Florida (FL) | E87914 |
| Idaho (ID) | CO01099 |
| Kansas (KS) | E-10381 |
| Kentucky (KY) | 90137 |
| PJ-LA (DoD ELAP/ISO 170250) | 95377 |
| Louisiana (LA) | 05057 |
| Maryland (MD) | 285 |
| Missouri (MO) | 175 |
| Nebraska(NE) | NE-OS-24-13 |
| Nevada (NV) | CO000782008A |
| New York (NY) | 12036 |
| North Dakota (ND) | R-057 |
| Oklahoma (OK) | 1301 |
| Pennsylvania (PA) | 68-03116 |
| Tennessee (TN) | 2976 |
| Texas (TX) | T104704241 |
| Utah (UT) | CO01099 |
| Washington (WA) | C1280 |

# 1909442

**Radium-226:**
The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

# ALS -- Fort Collins

## Sample Number(s) Cross-Reference Table

**OrderNum:** 1909442
**Client Name:** ALS Environmental
**Client Project Name:**
**Client Project Number:** L2351036
**Client PO Number:** L2351036

| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|---|---|---|---|---|---|
| L2351036-1 | 1909442-1 | | WATER | 14-Sep-19 | |
| L2351036-2 | 1909442-2 | | WATER | 14-Sep-19 | |
| L2351036-3 | 1909442-3 | | WATER | 14-Sep-19 | |
| L2351036-4 | 1909442-4 | | WATER | 14-Sep-19 | |
| L2351036-5 | 1909442-5 | | WATER | 14-Sep-19 | |

ALS Environmental

# L2351036

WINNIPEG

1a 04442

## Subcontract Request Form

**Subcontract To:**

**ALS ENVIRONMENTAL - FORT COLLINS, COL(**
225 COMMERCE DRIVE
FORT COLLINS,CO 80524

WP-SHIPTO-FC-FRI

**NOTES:** Please reference on final report and invoice
ALS requires QC data to be provided with your final results.

**Please see enclosed** 5 **sample(s) in** 5 **Container(s)**

| SAMPLE NUMBER | ANALYTICAL REQUIRED | DATE SAMPLED / DUE DATE | Priority Flag |
|---|---|---|---|
| **L2351036-1 MEL-03-01** | | 9/ 14/ 2019 | |
| | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/11/2019 | |
| **L2351036-2 MEL-03-02** | | 9/ 14/ 2019 | |
| | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/11/2019 | |
| **L2351036-3 MEL-03-03** | | 9/ 14/ 2019 | |
| | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/11/2019 | |
| **L2351036-4 MEL-03-04** | | 9/ 14/ 2019 | |
| | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/11/2019 | |
| **L2351036-5 MEL-03-05** | | 9/ 14/ 2019 | |
| | Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1) | 10/11/2019 | |

Subcontract Info Contact: Judy Dalmaijer (204) 255-9749
Analysis and reporting info contact: Judy Dalmaijer
12-1329 NIAKWA ROAD E
WINNIPEG,MB R2J3T4
Phone: (204) 255-9749 Email: Judy.Dalmaijer@alsglobal.com

**Please email confirmation of receipt to:** **Judy.Dalmaijer@alsglobal.com**

Shipped By: _____ Date Shipped: _____

Received By: _____ Date Received: 9/21/19 10:20

Verified By: _____ Date Verified: _____

Temperature: _____

Sample Integrity Issues: _____

**ALS Environmental - Fort Collins**
**CONDITION OF SAMPLE UPON RECEIPT FORM**

Client: ALS Winnipeg  Workorder No: 1806442

Project Manager: KMO  Initials: TEM  Date: 9/21/19

| | | | | |
|---|---|---|---|---|
| 1. | Are airbills / shipping documents present and/or removable? | DROP OFF | (YES) | NO |
| 2. | Are custody seals on **shipping** containers intact? | (NONE) | YES | NO * |
| 3. | Are custody seals on **sample** containers intact? | (NONE) | YES | NO * |
| 4. | Is there a COC (chain-of-custody) present? | | (YES) | NO * |
| 5. | Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.) | | (YES) | NO * |
| 6. | Are short-hold samples present? | | YES | (NO) |
| 7. | Are all samples within holding times for the requested analyses? | | (YES) | NO * |
| 8. | Were all sample containers received intact? (not broken or leaking) | | (YES) | NO * |
| 9. | Is there sufficient sample for the requested analyses? | | (YES) | NO * |
| 10. | Are all samples in the proper containers for the requested analyses? | | (YES) | NO * |
| 11. | Are all aqueous samples preserved correctly, if required? (excluding volatiles) | N/A | (YES) | NO * |
| 12. | Are all aqueous non-preserved samples pH 4-9? | (N/A) | YES | NO * |
| 13. | Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea) | (N/A) | YES | NO |
| 14. | Were the samples shipped on ice? | | (YES) | NO |
| 15. | Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #1 (#3) #4 | (RAD ONLY) | YES | (NO) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cooler #: | | | | | | | | |
| Temperature (°C): | | | | | | | | |
| No. of custody seals on cooler: | | | | | | | | |
| DOT Survey/ Acceptance Information — External µR/hr reading: | 12 | | | | | | | |
| Background µR/hr reading: | 13 | | | | | | | |

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

*** Please provide details here for NO responses to gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.**

* samples are preserved but no indication on bottles or COC

All client bottle ID's vs ALS lab ID's double-checked by: TEM

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

**Project Manager Signature / Date:** _____

Form 201r27.xls
(02/11/2019)

*IR Gun #1, VWR SN 170560549
*IR Gun #3, VWR SN 170647571
*IR Gun #4, Oakton, SN 2372220101-0002

1209442

SHIPPING/RECIE VING
ALS LABORATORY GROUP
12042559764
1329 NIAKWA RD E
STE: 12
WINNIPEG MB R2J 3T4
CANADA

18 LBS 1 OF 1
SHP#: 662F 45MR CBY
SHP WT: 18 LBS
DATE: 20 SEP 2019

12-0
18-5

SHIP TO
LOGIN
ALS ENVIRO
0
225 COMMERCE DRIVE
FORT COLLINS CO 80524
UNITED STATES

CO 805 0-01

UPS EXPRESS 1 S

TRACKING #: 1Z 662 F45 69 6718 2429

BILLING: F/D
DESC: WATER SAMPLE
PUROLATOR PIN: 6923673680

PIECE PIN: 6923673680

EXPORT #

KE

CCX 11.2.0.3 E2442 60.1A 10/2

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *11-Oct-19* |
| **Project:** | L2351036 | **Work Order:** | 1909442 |
| **Sample ID:** | L2351036-1 | **Lab ID:** | 1909442-1 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **9/26/2019** | PrepBy: **TRW** | |
| Ra-226 | 0.0077 (+/- 0.0064) | U | 0.009 | BQ/l | NA | 10/7/2019 13:43 |
| *Carr: BARIUM* | *91.8* | | *40-110* | *%REC* | DL = NA | 10/7/2019 13:43 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *11-Oct-19* |
| **Project:** | L2351036 | **Work Order:** | 1909442 |
| **Sample ID:** | L2351036-2 | **Lab ID:** | 1909442-2 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **9/26/2019** | | PrepBy: **TRW** |
| Ra-226 | 0 (+/- 0.0037) | U | 0.0073 | BQ/l | NA | 10/7/2019 13:43 |
| *Carr: BARIUM* | *93* | | *40-110* | *%REC* | DL = NA | 10/7/2019 13:43 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *11-Oct-19* |
| **Project:** | L2351036 | **Work Order:** | 1909442 |
| **Sample ID:** | L2351036-3 | **Lab ID:** | 1909442-3 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **9/26/2019** | | PrepBy: **TRW** |
| Ra-226 | 0.0027 (+/- 0.0053) | U | 0.0092 | BQ/l | NA | 10/7/2019 13:43 |
| *Carr: BARIUM* | *93.8* | | *40-110* | *%REC* | DL = NA | 10/7/2019 13:43 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *11-Oct-19* |
| **Project:** | L2351036 | **Work Order:** | 1909442 |
| **Sample ID:** | L2351036-4 | **Lab ID:** | 1909442-4 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **9/26/2019** | | PrepBy: **TRW** |
| Ra-226 | -0.00093 (+/- 0.0040) | U | 0.0081 | BQ/l | NA | 10/7/2019 13:43 |
| *Carr: BARIUM* | *92.7* | | *40-110* | *%REC* | DL = NA | 10/7/2019 13:43 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *11-Oct-19* |
| **Project:** | L2351036 | **Work Order:** | 1909442 |
| **Sample ID:** | L2351036-5 | **Lab ID:** | 1909442-5 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **Radium-226 by Radon Emanation - Method 903.1** | | **SOP 783** | | Prep Date: **9/26/2019** | | PrepBy: **TRW** |
| Ra-226 | 0 (+/- 0.0040) | U | 0.0078 | BQ/l | NA | 10/7/2019 13:43 |
| *Carr: BARIUM* | *90.3* | | *40-110* | *%REC* | DL = NA | 10/7/2019 13:43 |

| | | | |
|---|---|---|---|
| **Client:** | ALS Environmental | **Date:** | *11-Oct-19* |
| **Project:** | L2351036 | **Work Order:** | 1909442 |
| **Sample ID:** | L2351036-5 | **Lab ID:** | 1909442-5 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 9/14/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|

## Explanation of Qualifiers

**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

**Inorganics:**

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

**Organics:**

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **RE190926-1-1** Instrument ID **Alpha Scin** Method: **Radium-226 by Radon Emanation**

**LCS** Sample ID: **RE190926-1** Units: **BQ/l** Analysis Date: **10/7/2019 14:57**
Client ID: Run ID: **RE190926-1A** Prep Date: **9/26/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.62 (+/- 0.405) | 0.0377 | 1.72 | | 94.1 | 67-120 | | | | | P,M3 |
| Carr: BARIUM | 16800 | | 17150 | | 97.9 | 40-110 | | | | | |

**LCSD** Sample ID: **RE190926-1** Units: **BQ/l** Analysis Date: **10/7/2019 14:57**
Client ID: Run ID: **RE190926-1A** Prep Date: **9/26/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | 1.73 (+/- 0.435) | 0.0357 | 1.72 | | 101 | 67-120 | | 1.62 | 0.2 | 2.1 | P,M3 |
| Carr: BARIUM | 16700 | | 17160 | | 97.1 | 40-110 | | 16800 | | | |

**MB** Sample ID: **RE190926-1** Units: **BQ/l** Analysis Date: **10/7/2019 14:57**
Client ID: Run ID: **RE190926-1A** Prep Date: **9/26/2019** DF: **NA**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | DER Ref | DER | DER Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ra-226 | -0.0019 (+/- 0.0034) | 0.0072 | | | | | | | | | U |
| Carr: BARIUM | 16800 | | 17170 | | 98 | 40-110 | | | | | |

**The following samples were analyzed in this batch:**

| | | |
|---|---|---|
| 1909442-1 | 1909442-2 | 1909442-3 |
| 1909442-4 | 1909442-5 | |

ALS Environmental

# Chain of Custody / Analytical Request Form

L2351036-COFC

COC # _____

Page 1 of 2

| Report To | | Report Format / Distribution | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|
| Company: | Azimuth Consulting Group | ☑ [illegible] | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | ☑ PDF | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 1: efranz@azimuthgroup.ca | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 2: mjosee.banville@agncioeagle.com | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | Email 3: | |
| **Invoice To** | Same as Report ? ☑ Yes ☐ No | **Client / Project Information** | **Analysis Request** |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: Meliadine AEMP - Surface Water | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | |
| Contact: | | LSD: | |
| Address: | | | |
| Phone: | Fax: | Quote #: Q57496 | |

| Lab Work Order # (lab use only) | [redacted] | ALS Contact: Judy Dalmaijer | Sampler: Azimuth Agnico Eagle |
|---|---|---|---|

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | | F | | F | P | F/P | P | | | | |
| [redacted] | MEL-03-01 | 14-Sep-19 | 10:46 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| [redacted] | MEL-03-02 | 14-Sep-19 | 11:12 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| [redacted] | MEL-03-03 | 14-Sep-19 | 11:31 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| [redacted] | MEL-03-04 | 14-Sep-19 | 9:52 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| [redacted] | MEL-03-05 | 14-Sep-19 | 10:25 | Surface Water | X | X | X | X | X | X | X | X | X | X | | | 10 |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |
| [redacted] | | | | | | | | | | | | | | | | | |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| [redacted] SHIPMENT RELEASE (client use) [redacted] | | | [redacted] SHIPMENT RECEPTION (lab use only) [redacted] | | | | [redacted] SHIPMENT VERIFICATION (lab use only) [redacted] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes (No) If Yes add SIF |
| Bethany Hodgins | 16-Sep-19 | 8:00 | | SEP 20 2019 | | 19.0 °C | | SEP 20 2019 | | |

GENF 20.00 Front

# APPENDIX F
# NORMAL RANGE REVIEW

Azimuth Consulting Group Partnership
Vancouver, BC
Canada

www.azimuthgroup.ca

# Memorandum

## Review of Normal Range Methods for Meliadine Lake

**Date:** **December 31, 2019**

**To:** **Eric Franz & Gary Mann, Azimuth Consulting Group**

**From:** **Brian Pyper, Azimuth Consulting Group**

**RE:** **Review of normal range methods for Meliadine Lake**

# 1 OVERVIEW

I developed R code to replicate the methods used by Golder to construct normal ranges, and applied the methods to the baseline/reference data for 52 variables. For total metals, I can duplicate Golder results almost exactly (there were slight differences for percentiles, which is expected given they used a random resample of the data). For some variables, sample numbers (and hence results) differ somewhat. This is noted below in more detail.

In the following sections, I review the precise steps used to develop normal ranges, then provide a brief critique, then focus on selected results.

# 2 REVIEW OF NORMAL RANGE

## 2.1 Development of Golder-type normal range

The following steps were used and coded. These steps were outlined in Section 6.2.4.2 of the AEMP (Golder 2019), but it is useful to repeat them here – in the order they were executed – for clarity.

1. "All values at the DL were set to half the DL for the purposes of calculating the normal range." [This includes high DLs that were greater than the maximum observation.]
2. "Statistical outliers were identified using studentized residual, which provide a measure of the difference between observed and expected values (i.e., residuals), normalized to the variance of the dataset. Data points with studentized residuals (SR) greater than |3.5| (i.e., more than 3.5 standard deviations from the sample mean), were omitted from analysis." [Technically, these are not "studentized residuals."]
3. "Normality [of the raw data] was assessed using the Shapiro-Wilk test, using $\alpha = 0.05$ to indicate a significant departure from normality. When the baseline data were normally distributed, the normal range was estimated as the 80% prediction interval (PI) of the dataset."
4. "When the baseline data were not normally distributed, but normality could be achieved after Box-Cox transformation (Box and Cox 1964), the normal range was calculated on the Box-Cox transformed data and the upper and lower bound of the normal ranges were back-transformed." [PI(λ)]
5. "If neither the untransformed data nor Box-Cox transformed datasets were normally distributed, the normal range boundaries were defined as the 10th and 90th percentile of the baseline data. In cases where the percentile method was used, a dataset of 1,000 samples was randomly generated from the normal range dataset and the 10th and 90th percentile were calculated from this distribution of 1,000 samples to estimate the normal range."

Adjustments to the normal range were then made depending on DLs. In cases where all measurements were > DL but the lower bound was below the analytical DL, the lower bound was set at the DL. For variables with values at the DL (or at multiple DL levels), they specify the following rules, verbatim:

- If all values were less than the RDL, then the lower bound of the normal range was set to zero and the upper bound was set to the RDL value.

- If the lower bound of the normal range was less than the RDL, then it was set to zero.
- If the upper bound of the normal range was less than the RDL, then it was set to the DL value.
- If the dataset included a mix of RDLs and all the values were non-detect, then the normal range was set to zero (lower bound) and the most common used RDL (upper bound).
- If the dataset included a mix of RDLs, and the upper bound of the normal range was between the lowest and highest RDL, then the upper bound of the normal range was set to the highest RDL.
- If the dataset included a mix of RDLs, and the RDLs varied by more than an order of magnitude, then the data with the higher RDL was removed from analysis and the normal range was re-calculated.

## 2.2 Critique of normal range method

Overall, the methodology seems unnecessarily complex. Normal ranges are just one of several tools used to compare reference and exposure data, so I question how detailed or precise the methodology needs to be. More importantly, I expect that certain aspects of the above approach would result in systematic biases in the estimation of normal ranges.

- First, the approaches presented above (following Barrett et al. 2015) were not developed for cases that included censored data (i.e., measurements below detection limits). When censored measurements (i.e., <DL) are present, substituting them with arbitrary values – such as DL/2 as used above – typically results in biased estimates (Helsel 2012). Instead, it is recommended that alternative methods be used to estimate quantities such as means, medians, and percentiles (Helsel 2012).
- Second, the approach for removing outliers is highly questionable. This procedure was implemented prior to assessing normality, and so only makes sense if we initially assume that the data should be normally distributed. For example, assuming normality, a scaled measurement[1] (i.e., with the sample mean removed and divided by the sample standard deviation) with an absolute value > 3.5 would indeed be highly anomalous, and would

[1] Technically, the measure used by Golder is not a studentized residual nor standardized residual as described by Venables and Ripley (2002, p. 151), though it is nearly identical to a standardized residual for large sample sizes.

have a strong influence on the normal range estimated using the PI method[2] (i.e., the range would be too wide if the outlier was erroneous). However, if sample measurements were log-normally distributed or followed some other highly skewed or highly tailed distribution, then we would expect a much greater prevalence of "outliers" (as defined above) to occur naturally, and removing them would tend to result in underestimates of the normal range (i.e., the range would tend to be narrow). Note that the percentile method, in particular for the moderate quantiles required (10$^{th}$ and 90$^{th}$ percentiles), will be much less sensitive (i.e., more robust) to the presence of outliers (natural or erroneous) than the PI method. [I've done some simulations to quantify the frequency with which such "outliers" would occur under normal versus lognormal distributions, but did not include values here because it depends on sample size and variance assumptions. In short, what's being done is highly suspect in many cases.]

- Third, the steps involving Shapiro-Wilk tests of normality and Box-Cox transformations (if applicable) are predicated on the priority use of the PI method; however, the extent to which the PI method is preferable to the percentile method is unclear. Barrett et al. (2015) did not conduct simulation analyses to assess the relative performance of the PI and percentiles methods, nor did they reference such literature. Given that normality could not be achieved for most variables, and hence the percentile method was used to compute most of the normal ranges for Meliadine Lake (as well as lakes A8, B7, and D7), it seems reasonable to adopt the percentile method in all cases. More on this below.
- Fourth, I would not recommend the percentile method as described (i.e., the percentiles of the distribution of 1,000 randomly generated resamples of the data). Barrett et al. (2015) recommended this approach when estimating the normal range for the mean of a given sample, not for a single observation as required here (i.e., we are on the left side of Figure 6 of Barrett et al. 2015, not the right side). If we have fifty data points with which to estimate percentiles, we cannot improve the point estimates by randomly resampling and increasing the number of data points (unless there is a unique set of circumstances in which the original percentile method is biased and resampling moderates that bias, in which case, we would use a different method). Indeed, as noted below, simulations indicate that resampling the data reduces the accuracy and precision of percentile estimates.

[2] For the PI method, the normal range is proportional to the estimated sample standard deviation, which will be inflated if outliers are present.

## 2.3 Investigation of PI vs Percentile method

We can ask the following key question:

- *For those variables using either PI or PI(λ), how do the normal ranges compare with the simple percentiles? In other words, if the Percentile method is predominantly used, what's the potential disadvantage of applying it in all cases?*

Using the nine variables for which our results were either PI or PI(λ), I compared the upper and lower ranges with the 10$^{th}$ and 90$^{th}$ percentiles (**Table 1** and **Figure 1**).

Overall, the normal ranges based on prediction intervals and percentiles are quite similar; in roughly half the cases, the difference is less than the change associated with rounding to two significant digits (as reported by Golder).

By far the largest difference (in proportional terms) occurred for the lower bound for TKN, with the 10$^{th}$ percentile (0.095) being 32.7% higher than the lower PI of 0.072 (**Table 1;** and the only data point off the 1:1 line in **Figure 1**). But for this variable, 12 of the 94 measurements were <DL, with seven < 0.2 and five < 0.05. It's not clear how much bias in the lower bound would be expected, for either PI or percentile, by using values = DL/2. Alternatively, we'd be on safer ground using ROS-based percentiles, for which the lower bound was 0.075 (only 4.9% higher than the lower PI of 0.072).

A final quick comparison of normal ranges based on the percentile method and ROS (outliers removed) for the 23 variables with some < DL measures (but at least two observations above detection limits). Here, we would argue that ROS (or some other method applicable to censored data) is more appropriate than using percentiles after setting < DL to DL/2. Results are plotted in **Figure 2**. In short, using ROS can result in considerable differences, as expected, though some of these cases should be thrown out (i.e., estimating a 10$^{th}$ percentile when most measures are <DL).

We can do the same kind of thing comparing results with or without outliers removed; my sense is we'd conclude that outliers should be retained in all cases and percentiles (or ROS-percentiles when needed) be used to estimate normal range.

# 3 RECOMMENDATIONS

I recommend adopting a simpler and arguably more robust approach to estimating normal ranges. Of particular concern is the treatment of censored measurements (i.e., <DL) and outliers. Substitution of censored measurements (e.g., using values = DL/2) typically results in

biased estimates compared to alternative methods (Helsel 2012), while the initial removal of outliers under the assumption of normality is also problematic. For example, a quite different set of “outliers” would be removed if the data were initially assumed to be log-normally distributed.

The current baseline and reference data indicate that normality, or achieving normality via a Box-Cox transformation, is uncommon among variables. Further, it is likely that more rejections of normality will occur as more data are collected (i.e., the power of the Shapiro-Wilk test to detect departures from normality will increase). The lack of normality is not surprising. Samples have been collected across several locations and years, and so we would expect some degree of spatial and temporal variation associated with these measurements that would result in departures from simple normal or log-normal distributions. Obviously, the inclusion of even a few censored measurements (e.g., using values = DL/2) would impart irregularities in distributions.

If instead we focused only on the percentile method, and used a robust method for estimating percentiles when DLs were present (e.g., ROS noted above), we could ignore issues of outliers and normality (and any arbitrary assumptions involved) and provide more robust estimates of normal range when DLs were present.

# 4 REFERENCES

Barrett, T.J., Kelly A. Hille, Rainie L. Sharpe, Katherine M. Harris ,Hilary M. Machtans and Peter M. Chapman. 2015. Quantifying natural variability as a method to detect environmental change: Definitions of the normal range for a single observation and the mean of m observations. Environmental Toxicology and Chemistry. Vol 34-5 Pg 1185-1195.

Golder. 2019. Cycle 1 Environmental Effects Monitoring Report and 2018 Aquatic Effects Monitoring Program Annual Report. Submitted to Agnico Eagle Mines Ltd – Meliadine Gold Mine. March 27, 2019.

Helsel, D. 2012. Statistics for censored environmental data using Minitab and R. Hoboken, N.J.: Wiley.

Venables, W.N. and Ripley, B.D. 2002. Random and Mixed Effects. In: Modern Applied Statistics with S. Statistics and Computing. Springer, New York, NY

# FIGURES

**Figure 1. Comparison of lower and upper bounds of the normal range estimated using prediction intervals (PI or PI(λ)) versus percentiles. Data also shown in Table 1.**

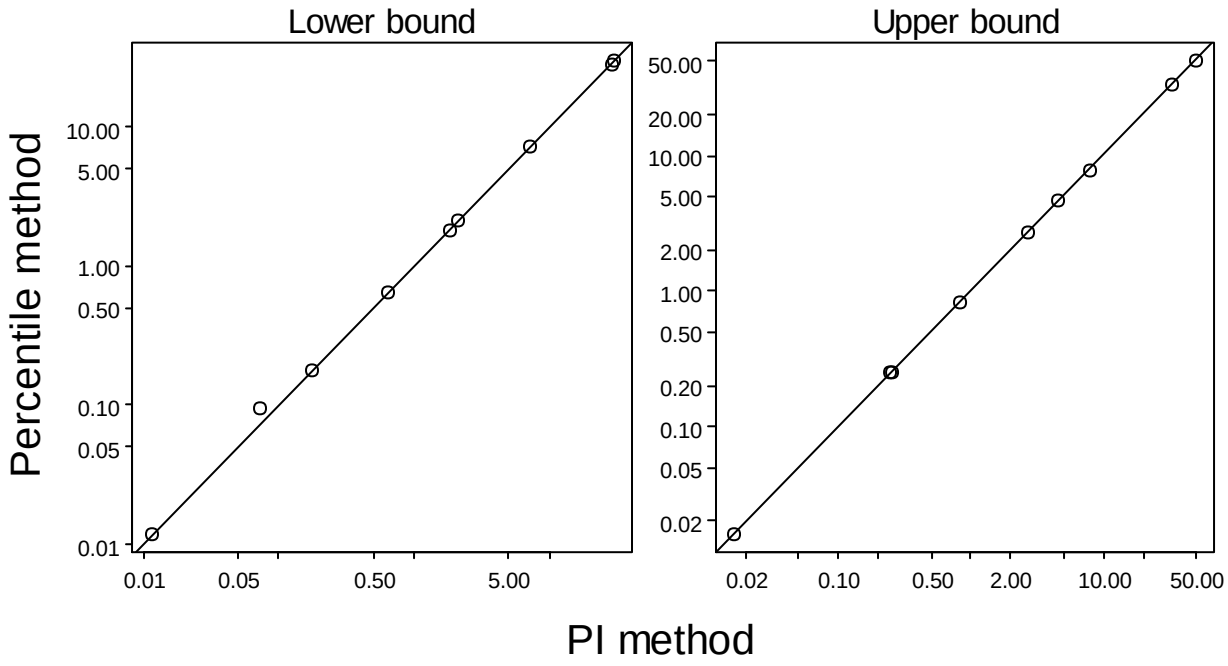
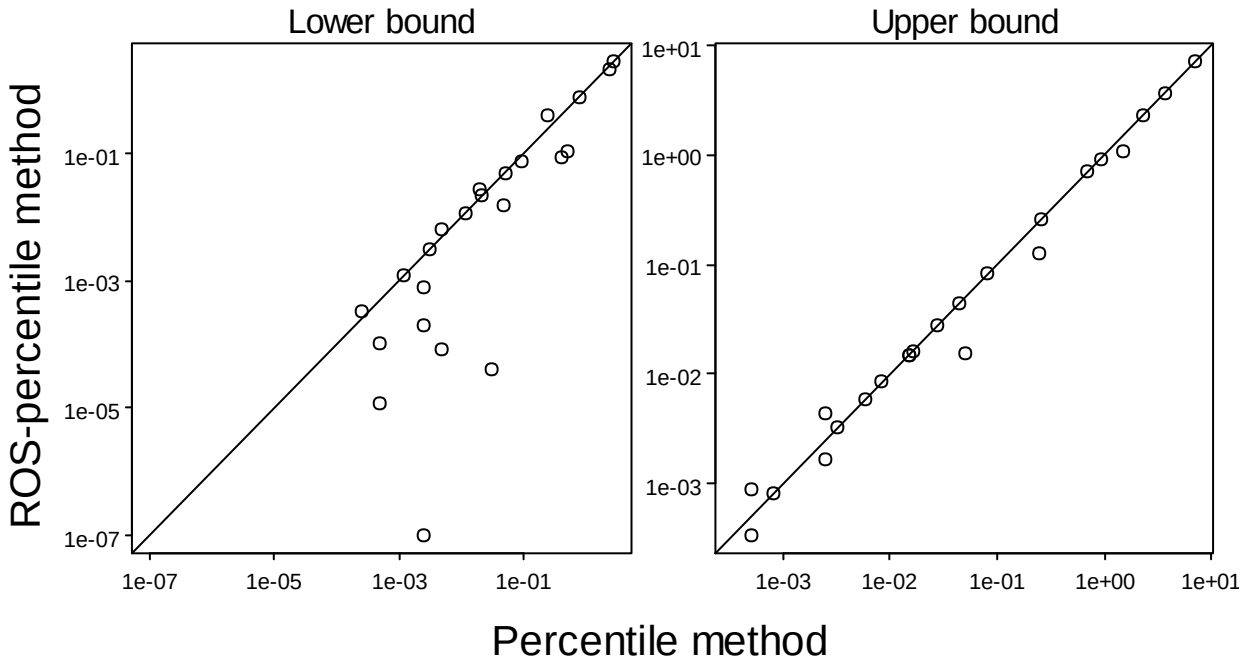


**Figure 2. Comparison of lower and upper bounds of the normal range estimated using percentiles (after setting "< DL" = DL/2) versus ROS-based percentiles across 23 variables.**



# TABLES

**Table 1. Comparison of lower and upper bounds of the normal range (NR) estimated using prediction intervals (PI or PI(λ)) versus percentiles.**

| | | | | | Normal range [a] | | Percentile NR [b] | | % Difference | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | N | <DL | Outliers | Method | Lower | Upper | Lower | Upper | Lower | Upper |
| TDS | 94 | 0 | 0 | PI(λ) | 29.1 | 50.4 | 28.3 | 49.4 | -2.6% | -1.9% |
| TKN | 94 | 12 | 0 | PI(λ) | 0.072 | 0.252 | 0.095 | 0.255 | 32.7% | 1.4% |
| DOC | 82 | 0 | 0 | PI(λ) | 2.10 | 2.71 | 2.11 | 2.72 | 0.4% | 0.5% |
| Aluminum | 69 | 0 | 1 | PI(λ) | 1.83 | 4.53 | 1.83 | 4.68 | 0.1% | 3.2% |
| Arsenic | 69 | 0 | 0 | PI(λ) | 0.174 | 0.243 | 0.176 | 0.250 | 1.2% | 2.7% |
| Barium | 69 | 0 | 0 | PI | 7.25 | 7.88 | 7.22 | 7.82 | -0.4% | -0.8% |
| Copper | 69 | 0 | 0 | PI(λ) | 0.645 | 0.825 | 0.650 | 0.832 | 0.8% | 0.8% |
| Strontium | 69 | 0 | 0 | PI | 29.5 | 33.1 | 29.4 | 33.0 | -0.3% | -0.2% |
| Uranium | 69 | 1 | 1 | PI(λ) | 0.0114 | 0.0162 | 0.0120 | 0.0163 | 5.2% | 0.6% |

Notes:

[a] Method published by Barrett et al (2015) and adopted in previous AEMP reports

[b] Simplified percentile method recommended in this memo.

# APPENDIX G
# PHYTOPLANKTON DATA

# Appendix G1
# 2019 Phytoplankton Taxonomy (Plankton R Us)

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

**Phytoplankton species data for Meliadine 2019**

** 1st number in **species code** = group 1=cyanophyte 2=chlorophyte
3= Euglenophyte 4=chrysophyte 5=diatoms 6=Cryptophyte 7=Dinoflagellates

***RECOUNT = QA\QC sample

** total daily biomass is sum of all species on a date.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| DUP - 0 1 - PC | 14-Aug-19 | 1014 | Chroococcus limneticus Lemmermann | 229888 | 11.72 | 4.60 | 4.60 | 51.00 |
| DUP - 0 1 - PC | 14-Aug-19 | 1073 | Snowella sp | 3200 | 1.60 | 0.00 | 0.00 | 500.00 |
| DUP - 0 1 - PC | 14-Aug-19 | 2105 | Chlamydomonas spp. | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| DUP - 0 1 - PC | 14-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 21552 | 0.34 | 3.10 | 3.10 | 15.60 |
| DUP - 0 1 - PC | 14-Aug-19 | 2121 | Oocystis lacustris Chodat | 215520 | 5.69 | 5.60 | 3.00 | 26.40 |
| DUP - 0 1 - PC | 14-Aug-19 | 2126 | Chodatella sp. | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| DUP - 0 1 - PC | 14-Aug-19 | 2130 | Scenedesmus quadricauda (Turp.) Brebisson | 14368 | 0.39 | 7.10 | 3.30 | 27.00 |
| DUP - 0 1 - PC | 14-Aug-19 | 2132 | Scenedesmus denticulatus Lagerhiem | 57472 | 2.60 | 8.10 | 4.00 | 45.20 |
| DUP - 0 1 - PC | 14-Aug-19 | 2145 | Crucigenia quadrata Morr. | 28736 | 0.14 | 3.00 | 3.00 | 4.70 |
| DUP - 0 1 - PC | 14-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 114944 | 1.46 | 8.10 | 2.00 | 12.70 |
| DUP - 0 1 - PC | 14-Aug-19 | 2178 | Cosmarium sp. | 200 | 0.28 | 20.00 | 20.00 | 1396.30 |
| DUP - 0 1 - PC | 14-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 107760 | 4.06 | 6.00 | 6.00 | 37.70 |
| DUP - 0 1 - PC | 14-Aug-19 | 2206 | Botryococcus braunii Kutzing | 1000 | 1.77 | 15.00 | 15.00 | 1767.10 |
| DUP - 0 1 - PC | 14-Aug-19 | 2215 | Tetraedron caudatum (Corda) Hansgrig | 7184 | 0.03 | 3.00 | 3.00 | 4.70 |
| DUP - 0 1 - PC | 14-Aug-19 | 2506 | Nephrocytium lunatum W. West | 200 | 0.62 | 0.00 | 0.00 | 3100.00 |
| DUP - 0 1 - PC | 14-Aug-19 | 4351 | Small chrysophyceae | 711216 | 5.83 | 2.50 | 2.50 | 8.20 |
| DUP - 0 1 - PC | 14-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| DUP - 0 1 - PC | 14-Aug-19 | 4355 | Chrysochromulina parva Lackey | 1372144 | 89.74 | 5.00 | 5.00 | 65.40 |
| DUP - 0 1 - PC | 14-Aug-19 | 4357 | Chrysococcus sp. | 1688240 | 110.41 | 5.00 | 5.00 | 65.40 |
| DUP - 0 1 - PC | 14-Aug-19 | 4362 | Kephyrion sp. | 280176 | 3.95 | 3.00 | 3.00 | 14.10 |
| DUP - 0 1 - PC | 14-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 7184 | 0.20 | 5.40 | 3.10 | 27.20 |
| DUP - 0 1 - PC | 14-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 1099152 | 124.31 | 6.00 | 6.00 | 113.10 |
| DUP - 0 1 - PC | 14-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 646560 | 338.54 | 10.00 | 10.00 | 523.60 |
| DUP - 0 1 - PC | 14-Aug-19 | 4414 | Stichogloea spp. | 35920 | 1.81 | 6.00 | 4.00 | 50.30 |
| DUP - 0 1 - PC | 14-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 93392 | 2.42 | 5.50 | 3.00 | 25.90 |
| DUP - 0 1 - PC | 14-Aug-19 | 5508 | Cyclotella pseudostelligera | 237072 | 127.73 | 7.00 | 14.00 | 538.80 |
| DUP - 0 1 - PC | 14-Aug-19 | 5509 | Cyclotella ocellata Pant. | 86208 | 12.34 | 4.50 | 9.00 | 143.10 |
| DUP - 0 1 - PC | 14-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 200 | 0.02 | 110.00 | 2.00 | 115.20 |
| DUP - 0 1 - PC | 14-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 2600 | 0.80 | 73.00 | 4.00 | 305.80 |
| DUP - 0 1 - PC | 14-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 71840 | 1.76 | 2.50 | 5.00 | 24.50 |
| DUP - 0 1 - PC | 14-Aug-19 | 6554 | Rhodomonas minuta Skuja | 35920 | 1.75 | 8.30 | 4.10 | 48.70 |
| DUP - 0 1 - PC | 14-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1800 | 2.14 | 23.60 | 12.00 | 1186.30 |
| DUP - 0 1 - PC | 14-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1600 | 1.08 | 19.40 | 10.00 | 677.20 |
| DUP - 0 1 - PC | 14-Aug-19 | 6568 | Katablepharis ovalis Skuja | 79024 | 3.53 | 8.00 | 4.00 | 44.70 |
| DUP - 0 1 - PC | 14-Aug-19 | 7632 | Gymnodinium sp. | 344832 | 216.66 | 12.00 | 10.00 | 628.30 |
| DUP - 0 1 - PC | 14-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 2800 | 11.04 | 19.60 | 19.60 | 3942.50 |
| DUP - 0 2 - PC | 12-Aug-19 | 1014 | Chroococcus limneticus Lemmermann | 229888 | 14.16 | 4.90 | 4.90 | 61.60 |
| DUP - 0 2 - PC | 12-Aug-19 | 1073 | Snowella sp | 200 | 0.10 | 0.00 | 0.00 | 500.00 |
| DUP - 0 2 - PC | 12-Aug-19 | 2121 | Oocystis lacustris Chodat | 165232 | 4.68 | 6.00 | 3.00 | 28.30 |
| DUP - 0 2 - PC | 12-Aug-19 | 2132 | Scenedesmus denticulatus Lagerhiem | 21552 | 0.78 | 8.00 | 3.60 | 36.20 |
| DUP - 0 2 - PC | 12-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 495696 | 2.08 | 2.00 | 2.00 | 4.20 |
| DUP - 0 2 - PC | 12-Aug-19 | 2145 | Crucigenia quadrata Morr. | 86208 | 0.41 | 3.00 | 3.00 | 4.70 |
| DUP - 0 2 - PC | 12-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 35920 | 0.56 | 10.00 | 2.00 | 15.70 |
| DUP - 0 2 - PC | 12-Aug-19 | 2178 | Cosmarium sp. | 400 | 0.56 | 20.00 | 20.00 | 1396.30 |
| DUP - 0 2 - PC | 12-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 50288 | 1.90 | 6.00 | 6.00 | 37.70 |
| DUP - 0 2 - PC | 12-Aug-19 | 2215 | Tetraedron caudatum (Corda) Hansgrig | 7184 | 0.03 | 3.00 | 3.00 | 4.70 |
| DUP - 0 2 - PC | 12-Aug-19 | 2235 | Ankistrodesmus spiralis Lemmermann | 215520 | 13.43 | 36.00 | 2.10 | 62.30 |
| DUP - 0 2 - PC | 12-Aug-19 | 2247 | Oocystis gigas Archer | 200 | 0.48 | 18.00 | 16.00 | 2412.70 |
| DUP - 0 2 - PC | 12-Aug-19 | 4351 | Small chrysophyceae | 222704 | 1.25 | 2.20 | 2.20 | 5.60 |
| DUP - 0 2 - PC | 12-Aug-19 | 4352 | Large chrysophyceae | 64656 | 11.61 | 7.00 | 7.00 | 179.60 |
| DUP - 0 2 - PC | 12-Aug-19 | 4355 | Chrysochromulina parva Lackey | 21552 | 1.41 | 5.00 | 5.00 | 65.40 |
| DUP - 0 2 - PC | 12-Aug-19 | 4357 | Chrysococcus sp. | 308912 | 20.20 | 5.00 | 5.00 | 65.40 |
| DUP - 0 2 - PC | 12-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 35920 | 12.82 | 8.80 | 8.80 | 356.80 |
| DUP - 0 2 - PC | 12-Aug-19 | 4362 | Kephyrion sp. | 416672 | 5.88 | 3.00 | 3.00 | 14.10 |
| DUP - 0 2 - PC | 12-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 43104 | 5.42 | 9.60 | 5.00 | 125.70 |
| DUP - 0 2 - PC | 12-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 35920 | 4.70 | 10.00 | 5.00 | 130.90 |
| DUP - 0 2 - PC | 12-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 7000 | 13.94 | 0.00 | 0.00 | 1991.00 |
| DUP - 0 2 - PC | 12-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| DUP - 0 2 - PC | 12-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 21552 | 4.88 | 12.00 | 6.00 | 226.20 |
| DUP - 0 2 - PC | 12-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 200 | 0.68 | 0.00 | 0.00 | 3390.00 |
| DUP - 0 2 - PC | 12-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 21552 | 0.57 | 5.60 | 3.00 | 26.40 |
| DUP - 0 2 - PC | 12-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 2327616 | 263.25 | 6.00 | 6.00 | 113.10 |
| DUP - 0 2 - PC | 12-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| DUP - 0 2 - PC | 12-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 57472 | 26.62 | 9.60 | 9.60 | 463.20 |
| DUP - 0 2 - PC | 12-Aug-19 | 4414 | Stichogloea spp. | 100576 | 5.06 | 6.00 | 4.00 | 50.30 |
| DUP - 0 2 - PC | 12-Aug-19 | 5509 | Cyclotella ocellata Pant. | 50288 | 3.84 | 3.65 | 7.30 | 76.40 |
| DUP - 0 2 - PC | 12-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 10400 | 3.18 | 73.00 | 4.00 | 305.80 |
| DUP - 0 2 - PC | 12-Aug-19 | 5518 | Synedra acus Kutzing | 8000 | 0.92 | 110.00 | 2.00 | 115.20 |
| DUP - 0 2 - PC | 12-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 57472 | 1.49 | 2.55 | 5.10 | 26.00 |
| DUP - 0 2 - PC | 12-Aug-19 | 6554 | Rhodomonas minuta Skuja | 43104 | 3.91 | 10.40 | 5.00 | 90.80 |
| DUP - 0 2 - PC | 12-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 6600 | 11.56 | 25.60 | 14.00 | 1751.50 |
| DUP - 0 2 - PC | 12-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 200 | 0.15 | 21.00 | 10.00 | 733.00 |
| DUP - 0 2 - PC | 12-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 400 | 0.90 | 33.00 | 14.00 | 2257.80 |
| DUP - 0 2 - PC | 12-Aug-19 | 6568 | Katablepharis ovalis Skuja | 21552 | 0.96 | 8.00 | 4.00 | 44.70 |
| DUP - 0 2 - PC | 12-Aug-19 | 7632 | Gymnodinium sp. | 200 | 2.06 | 27.00 | 27.00 | 10306.00 |
| DUP - 0 2 - PC | 12-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 3000 | 11.83 | 19.60 | 19.60 | 3942.50 |
| DUP - 0 2 - PC | 12-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 1000 | 9.05 | 30.00 | 24.00 | 9047.80 |
| DUP - 0 3 - PC | 9-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 50288 | 0.87 | 11.00 | 2.00 | 17.30 |
| DUP - 0 3 - PC | 9-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 21552 | 4.88 | 18.00 | 4.00 | 226.20 |
| DUP - 0 3 - PC | 9-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.60 | 11.00 | 304.80 |
| DUP - 0 3 - PC | 9-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 14368 | 0.54 | 6.00 | 6.00 | 37.70 |
| DUP - 0 3 - PC | 9-Aug-19 | 2206 | Botryococcus braunii Kutzing | 400 | 0.36 | 12.00 | 12.00 | 904.80 |
| DUP - 0 3 - PC | 9-Aug-19 | 4351 | Small chrysophyceae | 287360 | 1.61 | 2.20 | 2.20 | 5.60 |
| DUP - 0 3 - PC | 9-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| DUP - 0 3 - PC | 9-Aug-19 | 4355 | Chrysochromulina parva Lackey | 100576 | 6.58 | 5.00 | 5.00 | 65.40 |
| DUP - 0 3 - PC | 9-Aug-19 | 4357 | Chrysococcus sp. | 316096 | 19.47 | 4.90 | 4.90 | 61.60 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| DUP - 0 3 - PC | 9-Aug-19 | 4362 | Kephyrion sp. | 57472 | 0.74 | 2.90 | 2.90 | 12.80 |
| DUP - 0 3 - PC | 9-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.66 | 5.60 | 5.60 | 92.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 200 | 0.21 | 20.00 | 10.00 | 1047.20 |
| DUP - 0 3 - PC | 9-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 14368 | 0.62 | 9.10 | 3.00 | 42.90 |
| DUP - 0 3 - PC | 9-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 21552 | 2.82 | 10.00 | 5.00 | 130.90 |
| DUP - 0 3 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 28736 | 6.50 | 12.00 | 6.00 | 226.20 |
| DUP - 0 3 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 1000 | 1.25 | 0.00 | 0.00 | 1250.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 158048 | 35.75 | 12.00 | 6.00 | 226.20 |
| DUP - 0 3 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1800 | 6.10 | 0.00 | 0.00 | 3390.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 14368 | 0.43 | 5.60 | 3.20 | 30.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 244256 | 27.63 | 6.00 | 6.00 | 113.10 |
| DUP - 0 3 - PC | 9-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 93392 | 40.62 | 9.40 | 9.40 | 434.90 |
| DUP - 0 3 - PC | 9-Aug-19 | 4414 | Stichogloea spp. | 35920 | 1.81 | 6.00 | 4.00 | 50.30 |
| DUP - 0 3 - PC | 9-Aug-19 | 4436 | Dinobryon attenuatum Hill | 7184 | 1.03 | 11.00 | 5.00 | 144.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 4437 | Pteridomonas sp. | 14368 | 3.19 | 8.60 | 8.60 | 222.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1200 | 2.18 | 10.50 | 21.00 | 1818.40 |
| DUP - 0 3 - PC | 9-Aug-19 | 5509 | Cyclotella ocellata Pant. | 93392 | 11.66 | 4.30 | 8.60 | 124.90 |
| DUP - 0 3 - PC | 9-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 21552 | 1.83 | 12.00 | 3.00 | 84.80 |
| DUP - 0 3 - PC | 9-Aug-19 | 5514 | Tabellaria flocculosa (Roth) Kutzing | 4000 | 5.52 | 26.90 | 14.00 | 1380.30 |
| DUP - 0 3 - PC | 9-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 1800 | 0.58 | 77.00 | 4.00 | 322.50 |
| DUP - 0 3 - PC | 9-Aug-19 | 5524 | Asterionella formosa Hassall | 1400 | 0.15 | 100.00 | 2.00 | 104.70 |
| DUP - 0 3 - PC | 9-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 28736 | 0.70 | 2.50 | 5.00 | 24.50 |
| DUP - 0 3 - PC | 9-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 200 | 1.41 | 16.50 | 33.00 | 7056.20 |
| DUP - 0 3 - PC | 9-Aug-19 | 6554 | Rhodomonas minuta Skuja | 57472 | 4.82 | 10.00 | 4.90 | 83.80 |
| DUP - 0 3 - PC | 9-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1800 | 3.14 | 25.50 | 14.00 | 1744.60 |
| DUP - 0 3 - PC | 9-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 800 | 0.59 | 21.00 | 10.00 | 733.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 400 | 0.99 | 36.00 | 14.00 | 2463.00 |
| DUP - 0 3 - PC | 9-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 2600 | 9.19 | 18.90 | 18.90 | 3535.00 |
| DUP - 0 4 - PC | 14-Aug-19 | 2121 | Oocystis lacustris Chodat | 7184 | 0.20 | 6.00 | 3.00 | 28.30 |
| DUP - 0 4 - PC | 14-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 50288 | 0.79 | 10.00 | 2.00 | 15.70 |
| DUP - 0 4 - PC | 14-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 21552 | 4.88 | 18.00 | 4.00 | 226.20 |
| DUP - 0 4 - PC | 14-Aug-19 | 2178 | Cosmarium sp. | 200 | 0.28 | 20.00 | 20.00 | 1396.30 |
| DUP - 0 4 - PC | 14-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1000 | 0.30 | 12.50 | 11.00 | 300.00 |
| DUP - 0 4 - PC | 14-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| DUP - 0 4 - PC | 14-Aug-19 | 2247 | Oocystis gigas Archer | 200 | 0.48 | 18.00 | 16.00 | 2412.70 |
| DUP - 0 4 - PC | 14-Aug-19 | 4351 | Small chrysophyceae | 366384 | 2.05 | 2.20 | 2.20 | 5.60 |
| DUP - 0 4 - PC | 14-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| DUP - 0 4 - PC | 14-Aug-19 | 4355 | Chrysochromulina parva Lackey | 50288 | 3.29 | 5.00 | 5.00 | 65.40 |
| DUP - 0 4 - PC | 14-Aug-19 | 4357 | Chrysococcus sp. | 431040 | 26.55 | 4.90 | 4.90 | 61.60 |
| DUP - 0 4 - PC | 14-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 14368 | 5.13 | 8.80 | 8.80 | 356.80 |
| DUP - 0 4 - PC | 14-Aug-19 | 4362 | Kephyrion sp. | 129312 | 1.82 | 3.00 | 3.00 | 14.10 |
| DUP - 0 4 - PC | 14-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 35920 | 1.54 | 9.10 | 3.00 | 42.90 |
| DUP - 0 4 - PC | 14-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 64656 | 8.46 | 10.00 | 5.00 | 130.90 |
| DUP - 0 4 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 71840 | 16.25 | 12.00 | 6.00 | 226.20 |
| DUP - 0 4 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 800 | 2.71 | 0.00 | 0.00 | 3390.00 |
| DUP - 0 4 - PC | 14-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| DUP - 0 4 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 136496 | 30.88 | 12.00 | 6.00 | 226.20 |
| DUP - 0 4 - PC | 14-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 7184 | 0.23 | 5.90 | 3.20 | 31.60 |
| DUP - 0 4 - PC | 14-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 122128 | 13.81 | 6.00 | 6.00 | 113.10 |
| DUP - 0 4 - PC | 14-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 122128 | 56.57 | 9.60 | 9.60 | 463.20 |
| DUP - 0 4 - PC | 14-Aug-19 | 4414 | Stichogloea spp. | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| DUP - 0 4 - PC | 14-Aug-19 | 4415 | Bicosoeca lacustris Clark | 7184 | 0.85 | 9.00 | 5.00 | 117.80 |
| DUP - 0 4 - PC | 14-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |
| DUP - 0 4 - PC | 14-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 800 | 1.58 | 10.80 | 21.60 | 1978.80 |
| DUP - 0 4 - PC | 14-Aug-19 | 5509 | Cyclotella ocellata Pant. | 43104 | 5.38 | 4.30 | 8.60 | 124.90 |
| DUP - 0 4 - PC | 14-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 14368 | 1.12 | 11.00 | 3.00 | 77.80 |
| DUP - 0 4 - PC | 14-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 1200 | 0.96 | 85.00 | 6.00 | 801.10 |
| DUP - 0 4 - PC | 14-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 800 | 0.24 | 71.00 | 4.00 | 297.40 |
| DUP - 0 4 - PC | 14-Aug-19 | 5524 | Asterionella formosa Hassall | 1800 | 0.19 | 100.00 | 2.00 | 104.70 |
| DUP - 0 4 - PC | 14-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 50288 | 1.23 | 2.50 | 5.00 | 24.50 |
| DUP - 0 4 - PC | 14-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 600 | 3.86 | 16.00 | 32.00 | 6434.00 |
| DUP - 0 4 - PC | 14-Aug-19 | 6554 | Rhodomonas minuta Skuja | 64656 | 5.64 | 10.00 | 5.00 | 87.30 |
| DUP - 0 4 - PC | 14-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1600 | 2.74 | 25.00 | 14.00 | 1710.40 |
| DUP - 0 4 - PC | 14-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 600 | 0.44 | 21.00 | 10.00 | 733.00 |
| DUP - 0 4 - PC | 14-Aug-19 | 6568 | Katablepharis ovalis Skuja | 7184 | 0.32 | 8.00 | 4.00 | 44.70 |
| DUP - 0 4 - PC | 14-Aug-19 | 7631 | Gymnodinium helveticum Penard | 400 | 9.42 | 50.00 | 30.00 | 23561.90 |
| DUP - 0 4 - PC | 14-Aug-19 | 7632 | Gymnodinium sp. | 200 | 2.55 | 29.00 | 29.00 | 12770.10 |
| DUP - 0 4 - PC | 14-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 400 | 1.46 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 101 - PC | 8-Aug-19 | 1073 | Snowella sp | 600 | 0.30 | 0.00 | 0.00 | 500.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 2105 | Chlamydomonas spp. | 7184 | 0.17 | 5.10 | 3.00 | 24.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 86208 | 1.78 | 3.40 | 3.40 | 20.60 |
| MEL - 0 101 - PC | 8-Aug-19 | 2121 | Oocystis lacustris Chodat | 14368 | 0.72 | 6.00 | 4.00 | 50.30 |
| MEL - 0 101 - PC | 8-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 28736 | 0.16 | 2.20 | 2.20 | 5.60 |
| MEL - 0 101 - PC | 8-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 43104 | 0.75 | 11.00 | 2.00 | 17.30 |
| MEL - 0 101 - PC | 8-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 100576 | 22.75 | 18.00 | 4.00 | 226.20 |
| MEL - 0 101 - PC | 8-Aug-19 | 2178 | Cosmarium sp. | 400 | 0.56 | 20.00 | 20.00 | 1396.30 |
| MEL - 0 101 - PC | 8-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1800 | 0.55 | 12.60 | 11.00 | 304.80 |
| MEL - 0 101 - PC | 8-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 14368 | 0.54 | 6.00 | 6.00 | 37.70 |
| MEL - 0 101 - PC | 8-Aug-19 | 2205 | Mougeotia sp. | 400 | 1.29 | 41.00 | 10.00 | 3220.10 |
| MEL - 0 101 - PC | 8-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.10 | 10.00 | 10.00 | 523.60 |
| MEL - 0 101 - PC | 8-Aug-19 | 2235 | Ankistrodesmus spiralis Lemmermann | 7184 | 0.45 | 36.00 | 2.10 | 62.30 |
| MEL - 0 101 - PC | 8-Aug-19 | 4351 | Small chrysophyceae | 531616 | 2.98 | 2.20 | 2.20 | 5.60 |
| MEL - 0 101 - PC | 8-Aug-19 | 4352 | Large chrysophyceae | 21552 | 3.87 | 7.00 | 7.00 | 179.60 |
| MEL - 0 101 - PC | 8-Aug-19 | 4355 | Chrysochromulina parva Lackey | 86208 | 5.64 | 5.00 | 5.00 | 65.40 |
| MEL - 0 101 - PC | 8-Aug-19 | 4357 | Chrysococcus sp. | 316096 | 16.12 | 4.60 | 4.60 | 51.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.39 | 8.60 | 8.60 | 333.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 4362 | Kephyrion sp. | 172416 | 2.21 | 2.90 | 2.90 | 12.80 |
| MEL - 0 101 - PC | 8-Aug-19 | 4363 | Spiniferomonas serrata | 21552 | 2.69 | 6.20 | 6.20 | 124.80 |
| MEL - 0 101 - PC | 8-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 200 | 0.21 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 101 - PC | 8-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 50288 | 2.20 | 9.30 | 3.00 | 43.80 |
| MEL - 0 101 - PC | 8-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 50288 | 6.58 | 10.00 | 5.00 | 130.90 |
| MEL - 0 101 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 438224 | 99.13 | 12.00 | 6.00 | 226.20 |
| MEL - 0 101 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 400 | 0.50 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 57472 | 22.86 | 15.50 | 7.00 | 397.70 |
| MEL - 0 101 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 2800 | 11.62 | 0.00 | 0.00 | 4150.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 71840 | 16.25 | 12.00 | 6.00 | 226.20 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 101 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 4200 | 14.24 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 35920 | 1.12 | 5.80 | 3.20 | 31.10 |
| MEL - 0 101 - PC | 8-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 294544 | 33.31 | 6.00 | 6.00 | 113.10 |
| MEL - 0 101 - PC | 8-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 7184 | 0.33 | 5.50 | 4.00 | 46.10 |
| MEL - 0 101 - PC | 8-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 71840 | 31.24 | 9.40 | 9.40 | 434.90 |
| MEL - 0 101 - PC | 8-Aug-19 | 4414 | Stichogloea spp. | 43104 | 2.17 | 6.00 | 4.00 | 50.30 |
| MEL - 0 101 - PC | 8-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 7184 | 0.28 | 6.00 | 3.50 | 38.50 |
| MEL - 0 101 - PC | 8-Aug-19 | 4437 | Pteridomonas sp. | 71840 | 17.09 | 8.80 | 8.80 | 237.90 |
| MEL - 0 101 - PC | 8-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 2200 | 4.17 | 10.65 | 21.30 | 1897.40 |
| MEL - 0 101 - PC | 8-Aug-19 | 5509 | Cyclotella ocellata Pant. | 28736 | 3.72 | 4.35 | 8.70 | 129.30 |
| MEL - 0 101 - PC | 8-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 86208 | 7.31 | 12.00 | 3.00 | 84.80 |
| MEL - 0 101 - PC | 8-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 8800 | 7.05 | 85.00 | 6.00 | 801.10 |
| MEL - 0 101 - PC | 8-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 3400 | 1.01 | 71.00 | 4.00 | 297.40 |
| MEL - 0 101 - PC | 8-Aug-19 | 5524 | Asterionella formosa Hassall | 5400 | 0.57 | 101.00 | 2.00 | 105.80 |
| MEL - 0 101 - PC | 8-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 14368 | 0.35 | 2.50 | 5.00 | 24.50 |
| MEL - 0 101 - PC | 8-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 600 | 4.23 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 101 - PC | 8-Aug-19 | 6554 | Rhodomonas minuta Skuja | 21552 | 2.71 | 10.00 | 6.00 | 125.70 |
| MEL - 0 101 - PC | 8-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 9800 | 17.16 | 25.60 | 14.00 | 1751.50 |
| MEL - 0 101 - PC | 8-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 6000 | 4.40 | 21.00 | 10.00 | 733.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 1600 | 3.94 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 7631 | Gymnodinium helveticum Penard | 800 | 18.85 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 101 - PC | 8-Aug-19 | 7632 | Gymnodinium sp. | 3600 | 31.26 | 25.50 | 25.50 | 8682.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 3200 | 11.31 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 101 - PC | 8-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 200 | 1.81 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 106 - PC | 8-Aug-19 | 1073 | Snowella sp | 600 | 0.30 | 0.00 | 0.00 | 500.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 35920 | 0.74 | 3.40 | 3.40 | 20.60 |
| MEL - 0 106 - PC | 8-Aug-19 | 2121 | Oocystis lacustris Chodat | 14368 | 0.72 | 6.00 | 4.00 | 50.30 |
| MEL - 0 106 - PC | 8-Aug-19 | 2145 | Crucigenia quadrata Morr. | 7184 | 0.03 | 3.00 | 3.00 | 4.70 |
| MEL - 0 106 - PC | 8-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 28736 | 0.50 | 11.00 | 2.00 | 17.30 |
| MEL - 0 106 - PC | 8-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 50288 | 11.38 | 18.00 | 4.00 | 226.20 |
| MEL - 0 106 - PC | 8-Aug-19 | 2178 | Cosmarium sp. | 200 | 0.28 | 20.00 | 20.00 | 1396.30 |
| MEL - 0 106 - PC | 8-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.60 | 11.00 | 304.80 |
| MEL - 0 106 - PC | 8-Aug-19 | 2260 | Monomastix minuta Skuja | 7184 | 0.18 | 6.50 | 3.30 | 24.70 |
| MEL - 0 106 - PC | 8-Aug-19 | 4351 | Small chrysophyceae | 538800 | 3.02 | 2.20 | 2.20 | 5.60 |
| MEL - 0 106 - PC | 8-Aug-19 | 4352 | Large chrysophyceae | 50288 | 9.03 | 7.00 | 7.00 | 179.60 |
| MEL - 0 106 - PC | 8-Aug-19 | 4355 | Chrysochromulina parva Lackey | 100576 | 6.58 | 5.00 | 5.00 | 65.40 |
| MEL - 0 106 - PC | 8-Aug-19 | 4357 | Chrysococcus sp. | 222704 | 11.36 | 4.60 | 4.60 | 51.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 4362 | Kephyrion sp. | 143680 | 1.84 | 2.90 | 2.90 | 12.80 |
| MEL - 0 106 - PC | 8-Aug-19 | 4364 | Mallomonas caudata Ivanov | 200 | 1.07 | 40.00 | 16.00 | 5361.70 |
| MEL - 0 106 - PC | 8-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 7184 | 0.31 | 9.20 | 3.00 | 43.40 |
| MEL - 0 106 - PC | 8-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 21552 | 2.82 | 10.00 | 5.00 | 130.90 |
| MEL - 0 106 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 308912 | 69.88 | 12.00 | 6.00 | 226.20 |
| MEL - 0 106 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 400 | 0.50 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 21552 | 8.57 | 15.50 | 7.00 | 397.70 |
| MEL - 0 106 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 2800 | 11.48 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 129312 | 29.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 106 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1600 | 5.42 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 4394 | Epiphyxis sp. | 7184 | 0.55 | 9.10 | 4.00 | 76.20 |
| MEL - 0 106 - PC | 8-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 35920 | 1.12 | 5.80 | 3.20 | 31.10 |
| MEL - 0 106 - PC | 8-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 301728 | 34.13 | 6.00 | 6.00 | 113.10 |
| MEL - 0 106 - PC | 8-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 106 - PC | 8-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 86208 | 37.49 | 9.40 | 9.40 | 434.90 |
| MEL - 0 106 - PC | 8-Aug-19 | 4414 | Stichogloea spp. | 57472 | 2.89 | 6.00 | 4.00 | 50.30 |
| MEL - 0 106 - PC | 8-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 79024 | 3.04 | 6.00 | 3.50 | 38.50 |
| MEL - 0 106 - PC | 8-Aug-19 | 4437 | Pteridomonas sp. | 57472 | 13.67 | 8.80 | 8.80 | 237.90 |
| MEL - 0 106 - PC | 8-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 4400 | 8.35 | 10.65 | 21.30 | 1897.40 |
| MEL - 0 106 - PC | 8-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 64656 | 5.48 | 12.00 | 3.00 | 84.80 |
| MEL - 0 106 - PC | 8-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 1800 | 1.44 | 85.00 | 6.00 | 801.10 |
| MEL - 0 106 - PC | 8-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 3400 | 1.05 | 74.00 | 4.00 | 310.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 5524 | Asterionella formosa Hassall | 7200 | 0.76 | 101.00 | 2.00 | 105.80 |
| MEL - 0 106 - PC | 8-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 28736 | 0.70 | 2.50 | 5.00 | 24.50 |
| MEL - 0 106 - PC | 8-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 400 | 2.82 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 106 - PC | 8-Aug-19 | 6554 | Rhodomonas minuta Skuja | 21552 | 2.98 | 11.00 | 6.00 | 138.20 |
| MEL - 0 106 - PC | 8-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 12000 | 20.69 | 25.20 | 14.00 | 1724.10 |
| MEL - 0 106 - PC | 8-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 3800 | 2.79 | 21.00 | 10.00 | 733.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 3600 | 8.87 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 7631 | Gymnodinium helveticum Penard | 1200 | 28.27 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 106 - PC | 8-Aug-19 | 7632 | Gymnodinium sp. | 800 | 6.54 | 25.00 | 25.00 | 8181.20 |
| MEL - 0 106 - PC | 8-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 5600 | 19.80 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 106 - PC | 8-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 800 | 7.24 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 107 - PC | 8-Aug-19 | 1073 | Snowella sp | 800 | 0.40 | 0.00 | 0.00 | 500.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 35920 | 0.74 | 3.40 | 3.40 | 20.60 |
| MEL - 0 107 - PC | 8-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 28736 | 0.14 | 2.10 | 2.10 | 4.80 |
| MEL - 0 107 - PC | 8-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 50288 | 0.87 | 11.00 | 2.00 | 17.30 |
| MEL - 0 107 - PC | 8-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 100576 | 22.75 | 18.00 | 4.00 | 226.20 |
| MEL - 0 107 - PC | 8-Aug-19 | 2182 | Euastrum spp. | 200 | 0.37 | 22.00 | 22.00 | 1858.40 |
| MEL - 0 107 - PC | 8-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.60 | 11.00 | 304.80 |
| MEL - 0 107 - PC | 8-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 14368 | 0.54 | 6.00 | 6.00 | 37.70 |
| MEL - 0 107 - PC | 8-Aug-19 | 2205 | Mougeotia sp. | 200 | 0.57 | 36.00 | 10.00 | 2827.40 |
| MEL - 0 107 - PC | 8-Aug-19 | 2206 | Botryococcus braunii Kutzing | 400 | 0.21 | 10.00 | 10.00 | 523.60 |
| MEL - 0 107 - PC | 8-Aug-19 | 4351 | Small chrysophyceae | 596272 | 3.34 | 2.20 | 2.20 | 5.60 |
| MEL - 0 107 - PC | 8-Aug-19 | 4352 | Large chrysophyceae | 35920 | 6.45 | 7.00 | 7.00 | 179.60 |
| MEL - 0 107 - PC | 8-Aug-19 | 4355 | Chrysochromulina parva Lackey | 136496 | 8.93 | 5.00 | 5.00 | 65.40 |
| MEL - 0 107 - PC | 8-Aug-19 | 4357 | Chrysococcus sp. | 380752 | 19.42 | 4.60 | 4.60 | 51.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 4362 | Kephyrion sp. | 186784 | 2.39 | 2.90 | 2.90 | 12.80 |
| MEL - 0 107 - PC | 8-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.85 | 6.10 | 6.10 | 118.80 |
| MEL - 0 107 - PC | 8-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 1000 | 1.05 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 107 - PC | 8-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 7184 | 0.31 | 9.10 | 3.00 | 42.90 |
| MEL - 0 107 - PC | 8-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 50288 | 6.58 | 10.00 | 5.00 | 130.90 |
| MEL - 0 107 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 323280 | 73.13 | 12.00 | 6.00 | 226.20 |
| MEL - 0 107 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 400 | 0.50 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 28736 | 11.43 | 15.50 | 7.00 | 397.70 |
| MEL - 0 107 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 4000 | 16.40 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 14368 | 3.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 107 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1400 | 4.75 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 35920 | 1.12 | 5.80 | 3.20 | 31.10 |
| MEL - 0 107 - PC | 8-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 287360 | 32.50 | 6.00 | 6.00 | 113.10 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 107 - PC | 8-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 71840 | 31.24 | 9.40 | 9.40 | 434.90 |
| MEL - 0 107 - PC | 8-Aug-19 | 4414 | Stichogloea spp. | 43104 | 2.17 | 6.00 | 4.00 | 50.30 |
| MEL - 0 107 - PC | 8-Aug-19 | 4415 | Bicosoeca lacustris Clark | 7184 | 0.30 | 4.30 | 4.30 | 41.60 |
| MEL - 0 107 - PC | 8-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 57472 | 2.21 | 6.00 | 3.50 | 38.50 |
| MEL - 0 107 - PC | 8-Aug-19 | 4437 | Pteridomonas sp. | 57472 | 13.67 | 8.80 | 8.80 | 237.90 |
| MEL - 0 107 - PC | 8-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 5200 | 9.87 | 10.65 | 21.30 | 1897.40 |
| MEL - 0 107 - PC | 8-Aug-19 | 5509 | Cyclotella ocellata Pant. | 28736 | 4.69 | 4.70 | 9.40 | 163.10 |
| MEL - 0 107 - PC | 8-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 86208 | 7.31 | 12.00 | 3.00 | 84.80 |
| MEL - 0 107 - PC | 8-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 3200 | 2.65 | 88.00 | 6.00 | 829.40 |
| MEL - 0 107 - PC | 8-Aug-19 | 5514 | Tabellaria flocculosa (Roth) Kutzing | 200 | 0.29 | 28.00 | 14.00 | 1436.80 |
| MEL - 0 107 - PC | 8-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 2800 | 0.83 | 71.00 | 4.00 | 297.40 |
| MEL - 0 107 - PC | 8-Aug-19 | 5524 | Asterionella formosa Hassall | 1400 | 0.15 | 101.00 | 2.00 | 105.80 |
| MEL - 0 107 - PC | 8-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 35920 | 0.88 | 2.50 | 5.00 | 24.50 |
| MEL - 0 107 - PC | 8-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 1200 | 8.47 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 107 - PC | 8-Aug-19 | 6554 | Rhodomonas minuta Skuja | 71840 | 9.03 | 10.00 | 6.00 | 125.70 |
| MEL - 0 107 - PC | 8-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 10000 | 17.24 | 25.20 | 14.00 | 1724.10 |
| MEL - 0 107 - PC | 8-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 6400 | 4.69 | 21.00 | 10.00 | 733.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 2800 | 6.90 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 7631 | Gymnodinium helveticum Penard | 800 | 18.85 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 107 - PC | 8-Aug-19 | 7632 | Gymnodinium sp. | 3600 | 31.26 | 25.50 | 25.50 | 8682.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 7635 | Peridinium willei Huitfeldt-Kaas | 200 | 4.89 | 36.00 | 36.00 | 24429.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 4800 | 16.97 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 107 - PC | 8-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 800 | 7.24 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 108 - PC | 8-Aug-19 | 1073 | Snowella sp | 600 | 0.30 | 0.00 | 0.00 | 500.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 57472 | 1.18 | 3.40 | 3.40 | 20.60 |
| MEL - 0 108 - PC | 8-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 28736 | 0.14 | 2.10 | 2.10 | 4.80 |
| MEL - 0 108 - PC | 8-Aug-19 | 2164 | Quadrigula closterioides (Bohl.) Printz | 28736 | 0.50 | 11.00 | 2.00 | 17.30 |
| MEL - 0 108 - PC | 8-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 43104 | 0.75 | 11.00 | 2.00 | 17.30 |
| MEL - 0 108 - PC | 8-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 64656 | 14.63 | 18.00 | 4.00 | 226.20 |
| MEL - 0 108 - PC | 8-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1800 | 0.55 | 12.60 | 11.00 | 304.80 |
| MEL - 0 108 - PC | 8-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 14368 | 0.54 | 6.00 | 6.00 | 37.70 |
| MEL - 0 108 - PC | 8-Aug-19 | 2205 | Mougeotia sp. | 600 | 1.03 | 34.00 | 8.00 | 1709.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 4351 | Small chrysophyceae | 854896 | 4.79 | 2.20 | 2.20 | 5.60 |
| MEL - 0 108 - PC | 8-Aug-19 | 4352 | Large chrysophyceae | 35920 | 6.45 | 7.00 | 7.00 | 179.60 |
| MEL - 0 108 - PC | 8-Aug-19 | 4355 | Chrysochromulina parva Lackey | 71840 | 4.70 | 5.00 | 5.00 | 65.40 |
| MEL - 0 108 - PC | 8-Aug-19 | 4357 | Chrysococcus sp. | 359200 | 18.32 | 4.60 | 4.60 | 51.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 4362 | Kephyrion sp. | 136496 | 1.75 | 2.90 | 2.90 | 12.80 |
| MEL - 0 108 - PC | 8-Aug-19 | 4363 | Spiniferomonas serrata | 21552 | 2.56 | 6.10 | 6.10 | 118.80 |
| MEL - 0 108 - PC | 8-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 400 | 0.42 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 108 - PC | 8-Aug-19 | 4375 | Synura sphagnicola Korschikow | 7184 | 3.76 | 10.00 | 10.00 | 523.60 |
| MEL - 0 108 - PC | 8-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 28736 | 1.23 | 9.10 | 3.00 | 42.90 |
| MEL - 0 108 - PC | 8-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 28736 | 3.76 | 10.00 | 5.00 | 130.90 |
| MEL - 0 108 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 395120 | 89.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 108 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 200 | 0.25 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 43104 | 17.14 | 15.50 | 7.00 | 397.70 |
| MEL - 0 108 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 5400 | 22.14 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 244256 | 55.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 108 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1000 | 3.39 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 21552 | 0.67 | 5.80 | 3.20 | 31.10 |
| MEL - 0 108 - PC | 8-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 208336 | 23.56 | 6.00 | 6.00 | 113.10 |
| MEL - 0 108 - PC | 8-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 108 - PC | 8-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 79024 | 34.37 | 9.40 | 9.40 | 434.90 |
| MEL - 0 108 - PC | 8-Aug-19 | 4414 | Stichogloea spp. | 43104 | 2.17 | 6.00 | 4.00 | 50.30 |
| MEL - 0 108 - PC | 8-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 28736 | 1.11 | 6.00 | 3.50 | 38.50 |
| MEL - 0 108 - PC | 8-Aug-19 | 4437 | Pteridomonas sp. | 93392 | 22.22 | 8.80 | 8.80 | 237.90 |
| MEL - 0 108 - PC | 8-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 2200 | 4.17 | 10.65 | 21.30 | 1897.40 |
| MEL - 0 108 - PC | 8-Aug-19 | 5509 | Cyclotella ocellata Pant. | 43104 | 5.38 | 4.30 | 8.60 | 124.90 |
| MEL - 0 108 - PC | 8-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 50288 | 4.26 | 12.00 | 3.00 | 84.80 |
| MEL - 0 108 - PC | 8-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 3400 | 2.69 | 84.00 | 6.00 | 791.70 |
| MEL - 0 108 - PC | 8-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 14400 | 4.64 | 77.00 | 4.00 | 322.50 |
| MEL - 0 108 - PC | 8-Aug-19 | 5524 | Asterionella formosa Hassall | 4600 | 0.49 | 101.00 | 2.00 | 105.80 |
| MEL - 0 108 - PC | 8-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 57472 | 1.41 | 2.50 | 5.00 | 24.50 |
| MEL - 0 108 - PC | 8-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 1000 | 7.06 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 108 - PC | 8-Aug-19 | 6554 | Rhodomonas minuta Skuja | 57472 | 8.67 | 12.00 | 6.00 | 150.80 |
| MEL - 0 108 - PC | 8-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 6800 | 11.96 | 25.70 | 14.00 | 1758.30 |
| MEL - 0 108 - PC | 8-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 3600 | 2.64 | 21.00 | 10.00 | 733.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 1800 | 4.43 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 7631 | Gymnodinium helveticum Penard | 600 | 14.14 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 108 - PC | 8-Aug-19 | 7632 | Gymnodinium sp. | 1200 | 10.42 | 25.50 | 25.50 | 8682.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 3400 | 12.02 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 108 - PC | 8-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 400 | 3.62 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 108R - PC | 8-Aug-19 | 1073 | Snowella sp | 400 | 0.20 | 0.00 | 0.00 | 500.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 28736 | 0.59 | 3.40 | 3.40 | 20.60 |
| MEL - 0 108R - PC | 8-Aug-19 | 2121 | Oocystis lacustris Chodat | 21552 | 0.61 | 6.00 | 3.00 | 28.30 |
| MEL - 0 108R - PC | 8-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 28736 | 0.14 | 2.10 | 2.10 | 4.80 |
| MEL - 0 108R - PC | 8-Aug-19 | 2164 | Quadrigula closterioides (Bohl.) Printz | 57472 | 0.99 | 11.00 | 2.00 | 17.30 |
| MEL - 0 108R - PC | 8-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 64656 | 1.12 | 11.00 | 2.00 | 17.30 |
| MEL - 0 108R - PC | 8-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 100576 | 22.75 | 18.00 | 4.00 | 226.20 |
| MEL - 0 108R - PC | 8-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1400 | 0.43 | 12.60 | 11.00 | 304.80 |
| MEL - 0 108R - PC | 8-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 28736 | 1.08 | 6.00 | 6.00 | 37.70 |
| MEL - 0 108R - PC | 8-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.10 | 10.00 | 10.00 | 523.60 |
| MEL - 0 108R - PC | 8-Aug-19 | 4351 | Small chrysophyceae | 761504 | 4.26 | 2.20 | 2.20 | 5.60 |
| MEL - 0 108R - PC | 8-Aug-19 | 4352 | Large chrysophyceae | 14368 | 2.58 | 7.00 | 7.00 | 179.60 |
| MEL - 0 108R - PC | 8-Aug-19 | 4355 | Chrysochromulina parva Lackey | 50288 | 3.29 | 5.00 | 5.00 | 65.40 |
| MEL - 0 108R - PC | 8-Aug-19 | 4357 | Chrysococcus sp. | 423856 | 21.62 | 4.60 | 4.60 | 51.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.39 | 8.60 | 8.60 | 333.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 4362 | Kephyrion sp. | 107760 | 1.38 | 2.90 | 2.90 | 12.80 |
| MEL - 0 108R - PC | 8-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.85 | 6.10 | 6.10 | 118.80 |
| MEL - 0 108R - PC | 8-Aug-19 | 4364 | Mallomonas caudata Ivanov | 200 | 1.07 | 40.00 | 16.00 | 5361.70 |
| MEL - 0 108R - PC | 8-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 1000 | 1.05 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 108R - PC | 8-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 50288 | 2.16 | 9.10 | 3.00 | 42.90 |
| MEL - 0 108R - PC | 8-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 28736 | 4.51 | 12.00 | 5.00 | 157.10 |
| MEL - 0 108R - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 337648 | 76.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 108R - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 200 | 0.25 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 64656 | 25.71 | 15.50 | 7.00 | 397.70 |
| MEL - 0 108R - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 4600 | 18.86 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 287360 | 65.00 | 12.00 | 6.00 | 226.20 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 108R - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 800 | 2.71 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 14368 | 0.45 | 5.80 | 3.20 | 31.10 |
| MEL - 0 108R - PC | 8-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 258624 | 29.25 | 6.00 | 6.00 | 113.10 |
| MEL - 0 108R - PC | 8-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 71840 | 31.24 | 9.40 | 9.40 | 434.90 |
| MEL - 0 108R - PC | 8-Aug-19 | 4414 | Stichogloea spp. | 21552 | 1.08 | 6.00 | 4.00 | 50.30 |
| MEL - 0 108R - PC | 8-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 14368 | 0.55 | 6.00 | 3.50 | 38.50 |
| MEL - 0 108R - PC | 8-Aug-19 | 4437 | Pteridomonas sp. | 136496 | 32.47 | 8.80 | 8.80 | 237.90 |
| MEL - 0 108R - PC | 8-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1800 | 3.42 | 10.65 | 21.30 | 1897.40 |
| MEL - 0 108R - PC | 8-Aug-19 | 5509 | Cyclotella ocellata Pant. | 64656 | 8.08 | 4.30 | 8.60 | 124.90 |
| MEL - 0 108R - PC | 8-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 21552 | 1.83 | 12.00 | 3.00 | 84.80 |
| MEL - 0 108R - PC | 8-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 4800 | 3.80 | 84.00 | 6.00 | 791.70 |
| MEL - 0 108R - PC | 8-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 11200 | 3.61 | 77.00 | 4.00 | 322.50 |
| MEL - 0 108R - PC | 8-Aug-19 | 5524 | Asterionella formosa Hassall | 3600 | 0.38 | 101.00 | 2.00 | 105.80 |
| MEL - 0 108R - PC | 8-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 28736 | 0.70 | 2.50 | 5.00 | 24.50 |
| MEL - 0 108R - PC | 8-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 1400 | 9.88 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 108R - PC | 8-Aug-19 | 6554 | Rhodomonas minuta Skuja | 43104 | 6.50 | 12.00 | 6.00 | 150.80 |
| MEL - 0 108R - PC | 8-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 8200 | 14.42 | 25.70 | 14.00 | 1758.30 |
| MEL - 0 108R - PC | 8-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 3800 | 2.79 | 21.00 | 10.00 | 733.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 1400 | 3.45 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 7631 | Gymnodinium helveticum Penard | 600 | 14.14 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 108R - PC | 8-Aug-19 | 7632 | Gymnodinium sp. | 1800 | 15.63 | 25.50 | 25.50 | 8682.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 2200 | 7.78 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 108R - PC | 8-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 800 | 7.24 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 109 - PC | 8-Aug-19 | 1073 | Snowella sp | 600 | 0.30 | 0.00 | 0.00 | 500.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 100576 | 2.07 | 3.40 | 3.40 | 20.60 |
| MEL - 0 109 - PC | 8-Aug-19 | 2121 | Oocystis lacustris Chodat | 43104 | 1.22 | 6.00 | 3.00 | 28.30 |
| MEL - 0 109 - PC | 8-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 21552 | 0.10 | 2.10 | 2.10 | 4.80 |
| MEL - 0 109 - PC | 8-Aug-19 | 2145 | Crucigenia quadrata Morr. | 57472 | 0.08 | 2.00 | 2.00 | 1.40 |
| MEL - 0 109 - PC | 8-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 28736 | 0.50 | 11.00 | 2.00 | 17.30 |
| MEL - 0 109 - PC | 8-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 86208 | 19.50 | 18.00 | 4.00 | 226.20 |
| MEL - 0 109 - PC | 8-Aug-19 | 2178 | Cosmarium sp. | 400 | 0.56 | 20.00 | 20.00 | 1396.30 |
| MEL - 0 109 - PC | 8-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1200 | 0.37 | 12.60 | 11.00 | 304.80 |
| MEL - 0 109 - PC | 8-Aug-19 | 4351 | Small chrysophyceae | 517248 | 2.90 | 2.20 | 2.20 | 5.60 |
| MEL - 0 109 - PC | 8-Aug-19 | 4352 | Large chrysophyceae | 14368 | 2.58 | 7.00 | 7.00 | 179.60 |
| MEL - 0 109 - PC | 8-Aug-19 | 4355 | Chrysochromulina parva Lackey | 114944 | 7.52 | 5.00 | 5.00 | 65.40 |
| MEL - 0 109 - PC | 8-Aug-19 | 4357 | Chrysococcus sp. | 323280 | 16.49 | 4.60 | 4.60 | 51.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 4362 | Kephyrion sp. | 86208 | 1.10 | 2.90 | 2.90 | 12.80 |
| MEL - 0 109 - PC | 8-Aug-19 | 4363 | Spiniferomonas serrata | 14368 | 1.71 | 6.10 | 6.10 | 118.80 |
| MEL - 0 109 - PC | 8-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 200 | 0.21 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 109 - PC | 8-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 21552 | 0.92 | 9.10 | 3.00 | 42.90 |
| MEL - 0 109 - PC | 8-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 71840 | 9.40 | 10.00 | 5.00 | 130.90 |
| MEL - 0 109 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 373568 | 84.50 | 12.00 | 6.00 | 226.20 |
| MEL - 0 109 - PC | 8-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 200 | 0.25 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 57472 | 22.86 | 15.50 | 7.00 | 397.70 |
| MEL - 0 109 - PC | 8-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 2400 | 9.84 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 129312 | 29.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 109 - PC | 8-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1400 | 4.75 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 21552 | 0.67 | 5.80 | 3.20 | 31.10 |
| MEL - 0 109 - PC | 8-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 344832 | 39.00 | 6.00 | 6.00 | 113.10 |
| MEL - 0 109 - PC | 8-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 64656 | 28.12 | 9.40 | 9.40 | 434.90 |
| MEL - 0 109 - PC | 8-Aug-19 | 4414 | Stichogloea spp. | 21552 | 1.08 | 6.00 | 4.00 | 50.30 |
| MEL - 0 109 - PC | 8-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 21552 | 0.83 | 6.00 | 3.50 | 38.50 |
| MEL - 0 109 - PC | 8-Aug-19 | 4437 | Pteridomonas sp. | 64656 | 15.38 | 8.80 | 8.80 | 237.90 |
| MEL - 0 109 - PC | 8-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 4400 | 8.00 | 10.50 | 21.00 | 1818.40 |
| MEL - 0 109 - PC | 8-Aug-19 | 5509 | Cyclotella ocellata Pant. | 21552 | 3.40 | 4.65 | 9.30 | 157.90 |
| MEL - 0 109 - PC | 8-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 143680 | 12.18 | 12.00 | 3.00 | 84.80 |
| MEL - 0 109 - PC | 8-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 9000 | 7.13 | 84.00 | 6.00 | 791.70 |
| MEL - 0 109 - PC | 8-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 2200 | 0.66 | 72.00 | 4.00 | 301.60 |
| MEL - 0 109 - PC | 8-Aug-19 | 5524 | Asterionella formosa Hassall | 7200 | 0.76 | 101.00 | 2.00 | 105.80 |
| MEL - 0 109 - PC | 8-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 79024 | 1.94 | 2.50 | 5.00 | 24.50 |
| MEL - 0 109 - PC | 8-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 1200 | 8.47 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 109 - PC | 8-Aug-19 | 6554 | Rhodomonas minuta Skuja | 129312 | 19.50 | 12.00 | 6.00 | 150.80 |
| MEL - 0 109 - PC | 8-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 7000 | 12.31 | 25.70 | 14.00 | 1758.30 |
| MEL - 0 109 - PC | 8-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 6400 | 4.69 | 21.00 | 10.00 | 733.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 2600 | 6.40 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 7632 | Gymnodinium sp. | 3200 | 27.78 | 25.50 | 25.50 | 8682.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 4000 | 14.14 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 109 - PC | 8-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 800 | 7.24 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 201 - PC | 10-Aug-19 | 2121 | Oocystis lacustris Chodat | 7184 | 0.19 | 5.50 | 3.00 | 25.90 |
| MEL - 0 201 - PC | 10-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 71840 | 1.03 | 9.10 | 2.00 | 14.30 |
| MEL - 0 201 - PC | 10-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 21552 | 4.88 | 18.00 | 4.00 | 226.20 |
| MEL - 0 201 - PC | 10-Aug-19 | 2178 | Cosmarium sp. | 400 | 0.56 | 20.00 | 20.00 | 1396.30 |
| MEL - 0 201 - PC | 10-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1400 | 0.42 | 12.50 | 11.00 | 300.00 |
| MEL - 0 201 - PC | 10-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| MEL - 0 201 - PC | 10-Aug-19 | 2206 | Botryococcus braunii Kutzing | 7184 | 3.76 | 10.00 | 10.00 | 523.60 |
| MEL - 0 201 - PC | 10-Aug-19 | 2247 | Oocystis gigas Archer | 400 | 0.97 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 201 - PC | 10-Aug-19 | 4351 | Small chrysophyceae | 229888 | 1.89 | 2.50 | 2.50 | 8.20 |
| MEL - 0 201 - PC | 10-Aug-19 | 4352 | Large chrysophyceae | 21552 | 3.87 | 7.00 | 7.00 | 179.60 |
| MEL - 0 201 - PC | 10-Aug-19 | 4355 | Chrysochromulina parva Lackey | 71840 | 4.70 | 5.00 | 5.00 | 65.40 |
| MEL - 0 201 - PC | 10-Aug-19 | 4357 | Chrysococcus sp. | 359200 | 22.13 | 4.90 | 4.90 | 61.60 |
| MEL - 0 201 - PC | 10-Aug-19 | 4361 | Kephyrion boreale Skuja | 7184 | 0.77 | 5.90 | 5.90 | 107.50 |
| MEL - 0 201 - PC | 10-Aug-19 | 4362 | Kephyrion sp. | 86208 | 1.22 | 3.00 | 3.00 | 14.10 |
| MEL - 0 201 - PC | 10-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 14368 | 0.60 | 8.90 | 3.00 | 41.90 |
| MEL - 0 201 - PC | 10-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 21552 | 2.82 | 10.00 | 5.00 | 130.90 |
| MEL - 0 201 - PC | 10-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 122128 | 27.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 201 - PC | 10-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 28736 | 11.50 | 15.60 | 7.00 | 400.20 |
| MEL - 0 201 - PC | 10-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 800 | 3.28 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 201 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 237072 | 53.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 201 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1400 | 5.59 | 0.00 | 0.00 | 3990.00 |
| MEL - 0 201 - PC | 10-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 64656 | 2.03 | 5.50 | 3.30 | 31.40 |
| MEL - 0 201 - PC | 10-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 165232 | 18.69 | 6.00 | 6.00 | 113.10 |
| MEL - 0 201 - PC | 10-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 64656 | 29.95 | 9.60 | 9.60 | 463.20 |
| MEL - 0 201 - PC | 10-Aug-19 | 4414 | Stichogloea spp. | 43104 | 2.17 | 6.00 | 4.00 | 50.30 |
| MEL - 0 201 - PC | 10-Aug-19 | 4437 | Pteridomonas sp. | 14368 | 3.19 | 8.60 | 8.60 | 222.00 |
| MEL - 0 201 - PC | 10-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 3800 | 6.52 | 10.30 | 20.60 | 1716.50 |
| MEL - 0 201 - PC | 10-Aug-19 | 5508 | Cyclotella pseudostelligera | 28736 | 15.82 | 7.05 | 14.10 | 550.40 |
| MEL - 0 201 - PC | 10-Aug-19 | 5509 | Cyclotella ocellata Pant. | 21552 | 3.74 | 4.80 | 9.60 | 173.70 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 201 - PC | 10-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 400 | 0.31 | 83.00 | 6.00 | 782.30 |
| MEL - 0 201 - PC | 10-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 200 | 0.06 | 76.00 | 4.00 | 318.30 |
| MEL - 0 201 - PC | 10-Aug-19 | 5524 | Asterionella formosa Hassall | 2400 | 0.26 | 105.00 | 2.00 | 110.00 |
| MEL - 0 201 - PC | 10-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 71840 | 1.76 | 2.50 | 5.00 | 24.50 |
| MEL - 0 201 - PC | 10-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 400 | 2.34 | 15.50 | 31.00 | 5849.40 |
| MEL - 0 201 - PC | 10-Aug-19 | 6554 | Rhodomonas minuta Skuja | 50288 | 4.39 | 10.00 | 5.00 | 87.30 |
| MEL - 0 201 - PC | 10-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1000 | 1.68 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 201 - PC | 10-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1000 | 0.67 | 19.30 | 10.00 | 673.70 |
| MEL - 0 201 - PC | 10-Aug-19 | 7631 | Gymnodinium helveticum Penard | 400 | 9.42 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 201 - PC | 10-Aug-19 | 7632 | Gymnodinium sp. | 1000 | 6.37 | 23.00 | 23.00 | 6370.60 |
| MEL - 0 201 - PC | 10-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1000 | 3.65 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 201 - PC | 10-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 200 | 1.81 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 202 - PC | 10-Aug-19 | 2121 | Oocystis lacustris Chodat | 21552 | 0.56 | 5.50 | 3.00 | 25.90 |
| MEL - 0 202 - PC | 10-Aug-19 | 2127 | Tetraedron minimum (Brunow) Hansgrig | 7184 | 1.25 | 10.00 | 10.00 | 174.50 |
| MEL - 0 202 - PC | 10-Aug-19 | 2143 | Monoraphidium minutum (Nag.) Komarkova-Legnerova | 7184 | 0.45 | 10.00 | 4.00 | 62.80 |
| MEL - 0 202 - PC | 10-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 107760 | 1.54 | 9.10 | 2.00 | 14.30 |
| MEL - 0 202 - PC | 10-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 21552 | 4.88 | 18.00 | 4.00 | 226.20 |
| MEL - 0 202 - PC | 10-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.50 | 11.00 | 300.00 |
| MEL - 0 202 - PC | 10-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| MEL - 0 202 - PC | 10-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.14 | 11.00 | 11.00 | 696.90 |
| MEL - 0 202 - PC | 10-Aug-19 | 2247 | Oocystis gigas Archer | 400 | 0.97 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 202 - PC | 10-Aug-19 | 4351 | Small chrysophyceae | 301728 | 2.47 | 2.50 | 2.50 | 8.20 |
| MEL - 0 202 - PC | 10-Aug-19 | 4355 | Chrysochromulina parva Lackey | 21552 | 1.41 | 5.00 | 5.00 | 65.40 |
| MEL - 0 202 - PC | 10-Aug-19 | 4357 | Chrysococcus sp. | 337648 | 20.80 | 4.90 | 4.90 | 61.60 |
| MEL - 0 202 - PC | 10-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.56 | 8.80 | 8.80 | 356.80 |
| MEL - 0 202 - PC | 10-Aug-19 | 4362 | Kephyrion sp. | 79024 | 1.11 | 3.00 | 3.00 | 14.10 |
| MEL - 0 202 - PC | 10-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 200 | 0.21 | 19.80 | 10.00 | 1036.70 |
| MEL - 0 202 - PC | 10-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 7184 | 0.30 | 8.80 | 3.00 | 41.50 |
| MEL - 0 202 - PC | 10-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 35920 | 4.70 | 10.00 | 5.00 | 130.90 |
| MEL - 0 202 - PC | 10-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 129312 | 29.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 202 - PC | 10-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 7184 | 2.86 | 15.50 | 7.00 | 397.70 |
| MEL - 0 202 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 136496 | 7.71 | 12.00 | 3.00 | 56.50 |
| MEL - 0 202 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 800 | 2.71 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 202 - PC | 10-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 35920 | 1.13 | 5.50 | 3.30 | 31.40 |
| MEL - 0 202 - PC | 10-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 64656 | 7.31 | 6.00 | 6.00 | 113.10 |
| MEL - 0 202 - PC | 10-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 57472 | 26.62 | 9.60 | 9.60 | 463.20 |
| MEL - 0 202 - PC | 10-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 7184 | 0.19 | 5.60 | 3.00 | 26.40 |
| MEL - 0 202 - PC | 10-Aug-19 | 4437 | Pteridomonas sp. | 57472 | 12.76 | 8.60 | 8.60 | 222.00 |
| MEL - 0 202 - PC | 10-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1600 | 2.75 | 10.30 | 20.60 | 1716.50 |
| MEL - 0 202 - PC | 10-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 3.95 | 7.05 | 14.10 | 550.40 |
| MEL - 0 202 - PC | 10-Aug-19 | 5509 | Cyclotella ocellata Pant. | 28736 | 4.99 | 4.80 | 9.60 | 173.70 |
| MEL - 0 202 - PC | 10-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 7184 | 0.51 | 10.00 | 3.00 | 70.70 |
| MEL - 0 202 - PC | 10-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 2400 | 1.88 | 83.00 | 6.00 | 782.30 |
| MEL - 0 202 - PC | 10-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 1000 | 0.32 | 76.00 | 4.00 | 318.30 |
| MEL - 0 202 - PC | 10-Aug-19 | 5524 | Asterionella formosa Hassall | 2400 | 0.26 | 105.00 | 2.00 | 110.00 |
| MEL - 0 202 - PC | 10-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 57472 | 1.41 | 2.50 | 5.00 | 24.50 |
| MEL - 0 202 - PC | 10-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 600 | 3.51 | 15.50 | 31.00 | 5849.40 |
| MEL - 0 202 - PC | 10-Aug-19 | 6554 | Rhodomonas minuta Skuja | 43104 | 3.76 | 10.00 | 5.00 | 87.30 |
| MEL - 0 202 - PC | 10-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 600 | 1.01 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 202 - PC | 10-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1800 | 1.21 | 19.30 | 10.00 | 673.70 |
| MEL - 0 202 - PC | 10-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 200 | 0.47 | 34.00 | 14.00 | 2326.20 |
| MEL - 0 202 - PC | 10-Aug-19 | 6568 | Katablepharis ovalis Skuja | 21552 | 0.99 | 8.10 | 4.00 | 45.80 |
| MEL - 0 202 - PC | 10-Aug-19 | 7632 | Gymnodinium sp. | 1600 | 16.49 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 202 - PC | 10-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1000 | 3.65 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 203 - PC | 10-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 28736 | 0.54 | 3.30 | 3.30 | 18.80 |
| MEL - 0 203 - PC | 10-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 35920 | 0.15 | 2.00 | 2.00 | 4.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 35920 | 0.51 | 9.10 | 2.00 | 14.30 |
| MEL - 0 203 - PC | 10-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 21552 | 4.88 | 18.00 | 4.00 | 226.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 2178 | Cosmarium sp. | 400 | 0.56 | 20.00 | 20.00 | 1396.30 |
| MEL - 0 203 - PC | 10-Aug-19 | 2182 | Euastrum spp. | 200 | 0.37 | 22.00 | 22.00 | 1858.40 |
| MEL - 0 203 - PC | 10-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1600 | 0.48 | 12.50 | 11.00 | 300.00 |
| MEL - 0 203 - PC | 10-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| MEL - 0 203 - PC | 10-Aug-19 | 2206 | Botryococcus braunii Kutzing | 1200 | 0.63 | 10.00 | 10.00 | 523.60 |
| MEL - 0 203 - PC | 10-Aug-19 | 2215 | Tetraedron caudatum (Corda) Hansgrig | 7184 | 0.03 | 3.00 | 3.00 | 4.70 |
| MEL - 0 203 - PC | 10-Aug-19 | 2247 | Oocystis gigas Archer | 200 | 0.48 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 203 - PC | 10-Aug-19 | 4351 | Small chrysophyceae | 517248 | 4.24 | 2.50 | 2.50 | 8.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 4352 | Large chrysophyceae | 14368 | 2.58 | 7.00 | 7.00 | 179.60 |
| MEL - 0 203 - PC | 10-Aug-19 | 4355 | Chrysochromulina parva Lackey | 43104 | 2.82 | 5.00 | 5.00 | 65.40 |
| MEL - 0 203 - PC | 10-Aug-19 | 4357 | Chrysococcus sp. | 366384 | 22.57 | 4.90 | 4.90 | 61.60 |
| MEL - 0 203 - PC | 10-Aug-19 | 4362 | Kephyrion sp. | 71840 | 1.01 | 3.00 | 3.00 | 14.10 |
| MEL - 0 203 - PC | 10-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 200 | 0.21 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 7184 | 0.32 | 9.40 | 3.00 | 44.30 |
| MEL - 0 203 - PC | 10-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 14368 | 1.88 | 10.00 | 5.00 | 130.90 |
| MEL - 0 203 - PC | 10-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 165232 | 37.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 600 | 0.75 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 203 - PC | 10-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 7184 | 2.88 | 15.60 | 7.00 | 400.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 158048 | 35.75 | 12.00 | 6.00 | 226.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1400 | 4.75 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 203 - PC | 10-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 21552 | 0.68 | 5.50 | 3.30 | 31.40 |
| MEL - 0 203 - PC | 10-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 179600 | 20.31 | 6.00 | 6.00 | 113.10 |
| MEL - 0 203 - PC | 10-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 64656 | 29.95 | 9.60 | 9.60 | 463.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 28736 | 0.76 | 5.60 | 3.00 | 26.40 |
| MEL - 0 203 - PC | 10-Aug-19 | 4437 | Pteridomonas sp. | 21552 | 4.78 | 8.60 | 8.60 | 222.00 |
| MEL - 0 203 - PC | 10-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 2600 | 4.46 | 10.30 | 20.60 | 1716.50 |
| MEL - 0 203 - PC | 10-Aug-19 | 5508 | Cyclotella pseudostelligera | 14368 | 8.41 | 7.50 | 14.10 | 585.50 |
| MEL - 0 203 - PC | 10-Aug-19 | 5509 | Cyclotella ocellata Pant. | 28736 | 4.99 | 4.80 | 9.60 | 173.70 |
| MEL - 0 203 - PC | 10-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 43104 | 2.74 | 9.00 | 3.00 | 63.60 |
| MEL - 0 203 - PC | 10-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 6400 | 5.01 | 83.00 | 6.00 | 782.30 |
| MEL - 0 203 - PC | 10-Aug-19 | 5514 | Tabellaria flocculosa (Roth) Kutzing | 200 | 0.28 | 26.80 | 14.00 | 1375.20 |
| MEL - 0 203 - PC | 10-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 800 | 0.25 | 76.00 | 4.00 | 318.30 |
| MEL - 0 203 - PC | 10-Aug-19 | 5524 | Asterionella formosa Hassall | 6400 | 0.70 | 105.00 | 2.00 | 110.00 |
| MEL - 0 203 - PC | 10-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 7184 | 0.18 | 2.50 | 5.00 | 24.50 |
| MEL - 0 203 - PC | 10-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 1400 | 8.19 | 15.50 | 31.00 | 5849.40 |
| MEL - 0 203 - PC | 10-Aug-19 | 6554 | Rhodomonas minuta Skuja | 43104 | 3.76 | 10.00 | 5.00 | 87.30 |
| MEL - 0 203 - PC | 10-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 2200 | 3.85 | 25.60 | 14.00 | 1751.50 |
| MEL - 0 203 - PC | 10-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 400 | 0.27 | 19.30 | 10.00 | 673.70 |
| MEL - 0 203 - PC | 10-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 800 | 1.81 | 33.00 | 14.00 | 2257.80 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 203 - PC | 10-Aug-19 | 6568 | Katablepharis ovalis Skuja | 21552 | 0.96 | 8.00 | 4.00 | 44.70 |
| MEL - 0 203 - PC | 10-Aug-19 | 7632 | Gymnodinium sp. | 1200 | 12.37 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 203 - PC | 10-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1200 | 4.38 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 204 - PC | 10-Aug-19 | 2121 | Oocystis lacustris Chodat | 14368 | 0.37 | 5.50 | 3.00 | 25.90 |
| MEL - 0 204 - PC | 10-Aug-19 | 2143 | Monoraphidium minutum (Nag.) Komarkova-Legnerova | 7184 | 0.42 | 9.40 | 4.00 | 59.10 |
| MEL - 0 204 - PC | 10-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 50288 | 0.72 | 9.10 | 2.00 | 14.30 |
| MEL - 0 204 - PC | 10-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 71840 | 16.25 | 18.00 | 4.00 | 226.20 |
| MEL - 0 204 - PC | 10-Aug-19 | 2182 | Euastrum spp. | 200 | 0.37 | 22.00 | 22.00 | 1858.40 |
| MEL - 0 204 - PC | 10-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.50 | 11.00 | 300.00 |
| MEL - 0 204 - PC | 10-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 14368 | 0.54 | 6.00 | 6.00 | 37.70 |
| MEL - 0 204 - PC | 10-Aug-19 | 2206 | Botryococcus braunii Kutzing | 400 | 0.28 | 11.00 | 11.00 | 696.90 |
| MEL - 0 204 - PC | 10-Aug-19 | 2215 | Tetraedron caudatum (Corda) Hansgrig | 7184 | 0.03 | 3.00 | 3.00 | 4.70 |
| MEL - 0 204 - PC | 10-Aug-19 | 4351 | Small chrysophyceae | 416672 | 3.42 | 2.50 | 2.50 | 8.20 |
| MEL - 0 204 - PC | 10-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| MEL - 0 204 - PC | 10-Aug-19 | 4355 | Chrysochromulina parva Lackey | 7184 | 0.47 | 5.00 | 5.00 | 65.40 |
| MEL - 0 204 - PC | 10-Aug-19 | 4357 | Chrysococcus sp. | 431040 | 26.55 | 4.90 | 4.90 | 61.60 |
| MEL - 0 204 - PC | 10-Aug-19 | 4362 | Kephyrion sp. | 79024 | 1.11 | 3.00 | 3.00 | 14.10 |
| MEL - 0 204 - PC | 10-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 28736 | 1.20 | 8.90 | 3.00 | 41.90 |
| MEL - 0 204 - PC | 10-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 28736 | 3.76 | 10.00 | 5.00 | 130.90 |
| MEL - 0 204 - PC | 10-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 165232 | 37.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 204 - PC | 10-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 600 | 0.75 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 204 - PC | 10-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 600 | 2.46 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 204 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 129312 | 29.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 204 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 3800 | 12.88 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 204 - PC | 10-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 7184 | 0.23 | 5.50 | 3.30 | 31.40 |
| MEL - 0 204 - PC | 10-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 71840 | 8.13 | 6.00 | 6.00 | 113.10 |
| MEL - 0 204 - PC | 10-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 14368 | 0.72 | 6.00 | 4.00 | 50.30 |
| MEL - 0 204 - PC | 10-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 64656 | 29.95 | 9.60 | 9.60 | 463.20 |
| MEL - 0 204 - PC | 10-Aug-19 | 4414 | Stichogloea spp. | 50288 | 2.53 | 6.00 | 4.00 | 50.30 |
| MEL - 0 204 - PC | 10-Aug-19 | 4437 | Pteridomonas sp. | 28736 | 6.38 | 8.60 | 8.60 | 222.00 |
| MEL - 0 204 - PC | 10-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1800 | 3.09 | 10.30 | 20.60 | 1716.50 |
| MEL - 0 204 - PC | 10-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 4.21 | 7.20 | 14.40 | 586.30 |
| MEL - 0 204 - PC | 10-Aug-19 | 5509 | Cyclotella ocellata Pant. | 14368 | 2.44 | 4.70 | 9.60 | 170.10 |
| MEL - 0 204 - PC | 10-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 2800 | 2.19 | 83.00 | 6.00 | 782.30 |
| MEL - 0 204 - PC | 10-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 2000 | 0.64 | 76.00 | 4.00 | 318.30 |
| MEL - 0 204 - PC | 10-Aug-19 | 5518 | Synedra acus Kutzing | 200 | 0.02 | 110.00 | 2.00 | 115.20 |
| MEL - 0 204 - PC | 10-Aug-19 | 5524 | Asterionella formosa Hassall | 2800 | 0.31 | 105.00 | 2.00 | 110.00 |
| MEL - 0 204 - PC | 10-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 43104 | 1.06 | 2.50 | 5.00 | 24.50 |
| MEL - 0 204 - PC | 10-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 800 | 5.99 | 17.50 | 33.00 | 7483.90 |
| MEL - 0 204 - PC | 10-Aug-19 | 6554 | Rhodomonas minuta Skuja | 1321856 | 115.40 | 10.00 | 5.00 | 87.30 |
| MEL - 0 204 - PC | 10-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 600 | 1.01 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 204 - PC | 10-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1000 | 0.67 | 19.30 | 10.00 | 673.70 |
| MEL - 0 204 - PC | 10-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 600 | 1.35 | 33.00 | 14.00 | 2257.80 |
| MEL - 0 204 - PC | 10-Aug-19 | 6568 | Katablepharis ovalis Skuja | 7184 | 0.32 | 8.00 | 4.00 | 44.70 |
| MEL - 0 204 - PC | 10-Aug-19 | 7631 | Gymnodinium helveticum Penard | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 204 - PC | 10-Aug-19 | 7632 | Gymnodinium sp. | 800 | 8.24 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 204 - PC | 10-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1200 | 4.38 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 205 - PC | 10-Aug-19 | 1073 | Snowella sp | 200 | 0.10 | 0.00 | 0.00 | 500.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 2105 | Chlamydomonas spp. | 7184 | 0.16 | 4.60 | 3.00 | 21.70 |
| MEL - 0 205 - PC | 10-Aug-19 | 2113 | Pediastrum duplex Meyen | 200 | 0.53 | 0.00 | 0.00 | 2650.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 2121 | Oocystis lacustris Chodat | 21552 | 0.56 | 5.50 | 3.00 | 25.90 |
| MEL - 0 205 - PC | 10-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 35920 | 0.17 | 2.10 | 2.10 | 4.80 |
| MEL - 0 205 - PC | 10-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 28736 | 0.41 | 9.10 | 2.00 | 14.30 |
| MEL - 0 205 - PC | 10-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 35920 | 8.13 | 18.00 | 4.00 | 226.20 |
| MEL - 0 205 - PC | 10-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 2200 | 0.66 | 12.50 | 11.00 | 300.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 2193 | Staurodesmus paradoxum Meyen | 200 | 0.57 | 26.00 | 24.00 | 2831.60 |
| MEL - 0 205 - PC | 10-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 21552 | 0.81 | 6.00 | 6.00 | 37.70 |
| MEL - 0 205 - PC | 10-Aug-19 | 2206 | Botryococcus braunii Kutzing | 1200 | 0.84 | 11.00 | 11.00 | 696.90 |
| MEL - 0 205 - PC | 10-Aug-19 | 2247 | Oocystis gigas Archer | 400 | 0.97 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 205 - PC | 10-Aug-19 | 4351 | Small chrysophyceae | 359200 | 2.95 | 2.50 | 2.50 | 8.20 |
| MEL - 0 205 - PC | 10-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| MEL - 0 205 - PC | 10-Aug-19 | 4355 | Chrysochromulina parva Lackey | 79024 | 5.17 | 5.00 | 5.00 | 65.40 |
| MEL - 0 205 - PC | 10-Aug-19 | 4357 | Chrysococcus sp. | 653744 | 40.27 | 4.90 | 4.90 | 61.60 |
| MEL - 0 205 - PC | 10-Aug-19 | 4362 | Kephyrion sp. | 107760 | 1.52 | 3.00 | 3.00 | 14.10 |
| MEL - 0 205 - PC | 10-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 1200 | 1.23 | 19.60 | 10.00 | 1026.30 |
| MEL - 0 205 - PC | 10-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 7184 | 0.30 | 8.90 | 3.00 | 41.90 |
| MEL - 0 205 - PC | 10-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 71840 | 9.40 | 10.00 | 5.00 | 130.90 |
| MEL - 0 205 - PC | 10-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 193968 | 43.88 | 12.00 | 6.00 | 226.20 |
| MEL - 0 205 - PC | 10-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 1000 | 1.99 | 0.00 | 0.00 | 1991.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 21552 | 8.57 | 15.50 | 7.00 | 397.70 |
| MEL - 0 205 - PC | 10-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 179600 | 40.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 205 - PC | 10-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1000 | 3.39 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 64656 | 2.06 | 5.60 | 3.30 | 31.90 |
| MEL - 0 205 - PC | 10-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 129312 | 14.63 | 6.00 | 6.00 | 113.10 |
| MEL - 0 205 - PC | 10-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 7184 | 3.33 | 9.60 | 9.60 | 463.20 |
| MEL - 0 205 - PC | 10-Aug-19 | 4414 | Stichogloea spp. | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 205 - PC | 10-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 21552 | 0.57 | 5.60 | 3.00 | 26.40 |
| MEL - 0 205 - PC | 10-Aug-19 | 4437 | Pteridomonas sp. | 21552 | 4.78 | 8.60 | 8.60 | 222.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 4800 | 8.24 | 10.30 | 20.60 | 1716.50 |
| MEL - 0 205 - PC | 10-Aug-19 | 5508 | Cyclotella pseudostelligera | 21552 | 13.17 | 7.30 | 14.60 | 611.10 |
| MEL - 0 205 - PC | 10-Aug-19 | 5509 | Cyclotella ocellata Pant. | 7184 | 1.25 | 4.80 | 9.60 | 173.70 |
| MEL - 0 205 - PC | 10-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 7184 | 0.51 | 10.00 | 3.00 | 70.70 |
| MEL - 0 205 - PC | 10-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 1000 | 0.32 | 76.00 | 4.00 | 318.30 |
| MEL - 0 205 - PC | 10-Aug-19 | 5518 | Synedra acus Kutzing | 200 | 0.02 | 110.00 | 2.00 | 115.20 |
| MEL - 0 205 - PC | 10-Aug-19 | 5524 | Asterionella formosa Hassall | 3600 | 0.40 | 105.00 | 2.00 | 110.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 71840 | 1.76 | 2.50 | 5.00 | 24.50 |
| MEL - 0 205 - PC | 10-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 600 | 3.51 | 15.50 | 31.00 | 5849.40 |
| MEL - 0 205 - PC | 10-Aug-19 | 6554 | Rhodomonas minuta Skuja | 71840 | 6.27 | 10.00 | 5.00 | 87.30 |
| MEL - 0 205 - PC | 10-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1400 | 2.36 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 205 - PC | 10-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1800 | 1.21 | 19.30 | 10.00 | 673.70 |
| MEL - 0 205 - PC | 10-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 200 | 0.47 | 34.00 | 14.00 | 2326.20 |
| MEL - 0 205 - PC | 10-Aug-19 | 7631 | Gymnodinium helveticum Penard | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 205 - PC | 10-Aug-19 | 7632 | Gymnodinium sp. | 7184 | 6.02 | 16.00 | 10.00 | 837.80 |
| MEL - 0 205 - PC | 10-Aug-19 | 7632 | Gymnodinium sp. | 800 | 8.24 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 205 - PC | 10-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1200 | 4.38 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 301 - PC | 9-Aug-19 | 2113 | Pediastrum duplex Meyen | 200 | 0.42 | 0.00 | 0.00 | 2100.00 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 301 - PC | 9-Aug-19 | 2121 | Oocystis lacustris Chodat | 43104 | 1.14 | 5.60 | 3.00 | 26.40 |
| MEL - 0 301 - PC | 9-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 43104 | 0.18 | 2.00 | 2.00 | 4.20 |
| MEL - 0 301 - PC | 9-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 28736 | 0.50 | 11.00 | 2.00 | 17.30 |
| MEL - 0 301 - PC | 9-Aug-19 | 2191 | Staurodesmus cuspidatus (Brebisson and Ralfs) Teiling | 400 | 0.61 | 21.40 | 19.00 | 1518.70 |
| MEL - 0 301 - PC | 9-Aug-19 | 2235 | Ankistrodesmus spiralis Lemmermann | 7184 | 0.40 | 35.00 | 2.00 | 55.00 |
| MEL - 0 301 - PC | 9-Aug-19 | 4351 | Small chrysophyceae | 172416 | 0.97 | 2.20 | 2.20 | 5.60 |
| MEL - 0 301 - PC | 9-Aug-19 | 4352 | Large chrysophyceae | 28736 | 5.16 | 7.00 | 7.00 | 179.60 |
| MEL - 0 301 - PC | 9-Aug-19 | 4355 | Chrysochromulina parva Lackey | 50288 | 3.29 | 5.00 | 5.00 | 65.40 |
| MEL - 0 301 - PC | 9-Aug-19 | 4357 | Chrysococcus sp. | 237072 | 14.60 | 4.90 | 4.90 | 61.60 |
| MEL - 0 301 - PC | 9-Aug-19 | 4362 | Kephyrion sp. | 100576 | 1.29 | 2.90 | 2.90 | 12.80 |
| MEL - 0 301 - PC | 9-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 600 | 0.63 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 301 - PC | 9-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 28736 | 1.23 | 9.10 | 3.00 | 42.90 |
| MEL - 0 301 - PC | 9-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 100576 | 13.17 | 10.00 | 5.00 | 130.90 |
| MEL - 0 301 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 114944 | 26.00 | 12.00 | 6.00 | 226.20 |
| MEL - 0 301 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 800 | 1.00 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 301 - PC | 9-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 301 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 179600 | 40.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 301 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1600 | 5.42 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 301 - PC | 9-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 14368 | 0.37 | 5.50 | 3.00 | 25.90 |
| MEL - 0 301 - PC | 9-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 193968 | 21.94 | 6.00 | 6.00 | 113.10 |
| MEL - 0 301 - PC | 9-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 301 - PC | 9-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 28736 | 12.50 | 9.40 | 9.40 | 434.90 |
| MEL - 0 301 - PC | 9-Aug-19 | 4437 | Pteridomonas sp. | 21552 | 4.78 | 8.60 | 8.60 | 222.00 |
| MEL - 0 301 - PC | 9-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 800 | 1.45 | 10.50 | 21.00 | 1818.40 |
| MEL - 0 301 - PC | 9-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 4.30 | 7.25 | 14.50 | 598.60 |
| MEL - 0 301 - PC | 9-Aug-19 | 5509 | Cyclotella ocellata Pant. | 50288 | 5.85 | 4.20 | 8.40 | 116.40 |
| MEL - 0 301 - PC | 9-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 21552 | 1.83 | 12.00 | 3.00 | 84.80 |
| MEL - 0 301 - PC | 9-Aug-19 | 5514 | Tabellaria flocculosa (Roth) Kutzing | 2800 | 3.86 | 26.90 | 14.00 | 1380.30 |
| MEL - 0 301 - PC | 9-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 600 | 0.19 | 77.00 | 4.00 | 322.50 |
| MEL - 0 301 - PC | 9-Aug-19 | 5523 | Synedra ulna (Nitzsch) Ehrenberg | 200 | 0.48 | 255.00 | 6.00 | 2403.30 |
| MEL - 0 301 - PC | 9-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 21552 | 0.53 | 2.50 | 5.00 | 24.50 |
| MEL - 0 301 - PC | 9-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 200 | 1.41 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 301 - PC | 9-Aug-19 | 6554 | Rhodomonas minuta Skuja | 35920 | 3.01 | 10.00 | 4.90 | 83.80 |
| MEL - 0 301 - PC | 9-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 600 | 1.05 | 25.50 | 14.00 | 1744.60 |
| MEL - 0 301 - PC | 9-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 200 | 0.15 | 21.00 | 10.00 | 733.00 |
| MEL - 0 301 - PC | 9-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 1000 | 2.46 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 301 - PC | 9-Aug-19 | 7631 | Gymnodinium helveticum Penard | 400 | 9.42 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 301 - PC | 9-Aug-19 | 7632 | Gymnodinium sp. | 2000 | 13.76 | 23.60 | 23.60 | 6882.30 |
| MEL - 0 301 - PC | 9-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 600 | 2.12 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 2113 | Pediastrum duplex Meyen | 200 | 0.42 | 0.00 | 0.00 | 2100.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 2121 | Oocystis lacustris Chodat | 43104 | 1.14 | 5.60 | 3.00 | 26.40 |
| MEL - 0 301R - PC | 9-Aug-19 | 2137 | Dictyosphaerium simplex Sukja | 86208 | 0.36 | 2.00 | 2.00 | 4.20 |
| MEL - 0 301R - PC | 9-Aug-19 | 2145 | Crucigenia quadrata Morr. | 28736 | 0.04 | 2.00 | 2.00 | 1.40 |
| MEL - 0 301R - PC | 9-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 21552 | 0.37 | 11.00 | 2.00 | 17.30 |
| MEL - 0 301R - PC | 9-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 200 | 0.06 | 12.90 | 11.00 | 319.50 |
| MEL - 0 301R - PC | 9-Aug-19 | 2235 | Ankistrodesmus spiralis Lemmermann | 14368 | 0.79 | 35.00 | 2.00 | 55.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 4351 | Small chrysophyceae | 107760 | 0.60 | 2.20 | 2.20 | 5.60 |
| MEL - 0 301R - PC | 9-Aug-19 | 4352 | Large chrysophyceae | 21552 | 3.87 | 7.00 | 7.00 | 179.60 |
| MEL - 0 301R - PC | 9-Aug-19 | 4355 | Chrysochromulina parva Lackey | 28736 | 1.88 | 5.00 | 5.00 | 65.40 |
| MEL - 0 301R - PC | 9-Aug-19 | 4357 | Chrysococcus sp. | 258624 | 15.93 | 4.90 | 4.90 | 61.60 |
| MEL - 0 301R - PC | 9-Aug-19 | 4362 | Kephyrion sp. | 64656 | 0.83 | 2.90 | 2.90 | 12.80 |
| MEL - 0 301R - PC | 9-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 600 | 0.63 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 301R - PC | 9-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 64656 | 2.77 | 9.10 | 3.00 | 42.90 |
| MEL - 0 301R - PC | 9-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 100576 | 13.17 | 10.00 | 5.00 | 130.90 |
| MEL - 0 301R - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 100576 | 22.75 | 12.00 | 6.00 | 226.20 |
| MEL - 0 301R - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 1200 | 1.50 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 600 | 2.46 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 222704 | 50.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 301R - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 2000 | 6.78 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 7184 | 0.19 | 5.50 | 3.00 | 25.90 |
| MEL - 0 301R - PC | 9-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 222704 | 25.19 | 6.00 | 6.00 | 113.10 |
| MEL - 0 301R - PC | 9-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 28736 | 12.50 | 9.40 | 9.40 | 434.90 |
| MEL - 0 301R - PC | 9-Aug-19 | 4414 | Stichogloea spp. | 28736 | 1.45 | 6.00 | 4.00 | 50.30 |
| MEL - 0 301R - PC | 9-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 14368 | 0.39 | 5.70 | 3.00 | 26.90 |
| MEL - 0 301R - PC | 9-Aug-19 | 4437 | Pteridomonas sp. | 35920 | 7.97 | 8.60 | 8.60 | 222.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 600 | 1.09 | 10.50 | 21.00 | 1818.40 |
| MEL - 0 301R - PC | 9-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 4.30 | 7.25 | 14.50 | 598.60 |
| MEL - 0 301R - PC | 9-Aug-19 | 5509 | Cyclotella ocellata Pant. | 35920 | 4.18 | 4.20 | 8.40 | 116.40 |
| MEL - 0 301R - PC | 9-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 14368 | 1.22 | 12.00 | 3.00 | 84.80 |
| MEL - 0 301R - PC | 9-Aug-19 | 5514 | Tabellaria flocculosa (Roth) Kutzing | 2200 | 3.04 | 26.90 | 14.00 | 1380.30 |
| MEL - 0 301R - PC | 9-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 1000 | 0.32 | 77.00 | 4.00 | 322.50 |
| MEL - 0 301R - PC | 9-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 50288 | 1.23 | 2.50 | 5.00 | 24.50 |
| MEL - 0 301R - PC | 9-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 200 | 1.41 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 301R - PC | 9-Aug-19 | 6554 | Rhodomonas minuta Skuja | 28736 | 2.41 | 10.00 | 4.90 | 83.80 |
| MEL - 0 301R - PC | 9-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1800 | 3.14 | 25.50 | 14.00 | 1744.60 |
| MEL - 0 301R - PC | 9-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 400 | 0.29 | 21.00 | 10.00 | 733.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 600 | 1.48 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 301R - PC | 9-Aug-19 | 7631 | Gymnodinium helveticum Penard | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 301R - PC | 9-Aug-19 | 7632 | Gymnodinium sp. | 1200 | 8.26 | 23.60 | 23.60 | 6882.30 |
| MEL - 0 301R - PC | 9-Aug-19 | 7632 | Gymnodinium sp. | 200 | 2.83 | 30.00 | 30.00 | 14137.20 |
| MEL - 0 301R - PC | 9-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 600 | 2.12 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 2121 | Oocystis lacustris Chodat | 7184 | 0.19 | 5.60 | 3.00 | 26.40 |
| MEL - 0 302 - PC | 9-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 21552 | 0.37 | 11.00 | 2.00 | 17.30 |
| MEL - 0 302 - PC | 9-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 28736 | 6.50 | 18.00 | 4.00 | 226.20 |
| MEL - 0 302 - PC | 9-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 400 | 0.13 | 12.90 | 11.00 | 319.50 |
| MEL - 0 302 - PC | 9-Aug-19 | 2193 | Staurodesmus paradoxum Meyen | 200 | 0.37 | 23.00 | 20.00 | 1846.60 |
| MEL - 0 302 - PC | 9-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| MEL - 0 302 - PC | 9-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.10 | 10.00 | 10.00 | 523.60 |
| MEL - 0 302 - PC | 9-Aug-19 | 4351 | Small chrysophyceae | 186784 | 1.05 | 2.20 | 2.20 | 5.60 |
| MEL - 0 302 - PC | 9-Aug-19 | 4352 | Large chrysophyceae | 14368 | 2.58 | 7.00 | 7.00 | 179.60 |
| MEL - 0 302 - PC | 9-Aug-19 | 4355 | Chrysochromulina parva Lackey | 165232 | 10.81 | 5.00 | 5.00 | 65.40 |
| MEL - 0 302 - PC | 9-Aug-19 | 4357 | Chrysococcus sp. | 359200 | 22.13 | 4.90 | 4.90 | 61.60 |
| MEL - 0 302 - PC | 9-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.56 | 8.80 | 8.80 | 356.80 |
| MEL - 0 302 - PC | 9-Aug-19 | 4362 | Kephyrion sp. | 143680 | 1.84 | 2.90 | 2.90 | 12.80 |
| MEL - 0 302 - PC | 9-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.66 | 5.60 | 5.60 | 92.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 50288 | 2.16 | 9.10 | 3.00 | 42.90 |
| MEL - 0 302 - PC | 9-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 100576 | 13.17 | 10.00 | 5.00 | 130.90 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 302 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 114944 | 26.00 | 12.00 | 6.00 | 226.20 |
| MEL - 0 302 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 2000 | 2.50 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 186784 | 42.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 302 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1400 | 4.75 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 7184 | 0.22 | 5.60 | 3.20 | 30.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 258624 | 29.25 | 6.00 | 6.00 | 113.10 |
| MEL - 0 302 - PC | 9-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 28736 | 1.45 | 6.00 | 4.00 | 50.30 |
| MEL - 0 302 - PC | 9-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 71840 | 31.24 | 9.40 | 9.40 | 434.90 |
| MEL - 0 302 - PC | 9-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 7184 | 0.22 | 5.60 | 3.20 | 30.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 4436 | Dinobryon attenuatum Hill | 21552 | 3.10 | 11.00 | 5.00 | 144.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 4437 | Pteridomonas sp. | 14368 | 3.19 | 8.60 | 8.60 | 222.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 600 | 1.09 | 10.50 | 21.00 | 1818.40 |
| MEL - 0 302 - PC | 9-Aug-19 | 5509 | Cyclotella ocellata Pant. | 35920 | 4.18 | 4.20 | 8.40 | 116.40 |
| MEL - 0 302 - PC | 9-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 57472 | 4.87 | 12.00 | 3.00 | 84.80 |
| MEL - 0 302 - PC | 9-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 400 | 0.13 | 77.00 | 4.00 | 322.50 |
| MEL - 0 302 - PC | 9-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 64656 | 1.58 | 2.50 | 5.00 | 24.50 |
| MEL - 0 302 - PC | 9-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 200 | 1.41 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 302 - PC | 9-Aug-19 | 6554 | Rhodomonas minuta Skuja | 7184 | 0.60 | 10.00 | 4.90 | 83.80 |
| MEL - 0 302 - PC | 9-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1800 | 3.14 | 25.50 | 14.00 | 1744.60 |
| MEL - 0 302 - PC | 9-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 800 | 0.59 | 21.00 | 10.00 | 733.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 200 | 0.47 | 34.00 | 14.00 | 2326.20 |
| MEL - 0 302 - PC | 9-Aug-19 | 6568 | Katablepharis ovalis Skuja | 14368 | 0.66 | 8.10 | 4.00 | 45.80 |
| MEL - 0 302 - PC | 9-Aug-19 | 7631 | Gymnodinium helveticum Penard | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 302 - PC | 9-Aug-19 | 7632 | Gymnodinium sp. | 800 | 5.51 | 23.60 | 23.60 | 6882.30 |
| MEL - 0 302 - PC | 9-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 800 | 2.83 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 302 - PC | 9-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 200 | 1.81 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 303 - PC | 9-Aug-19 | 1073 | Snowella sp | 200 | 0.10 | 0.00 | 0.00 | 500.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 2121 | Oocystis lacustris Chodat | 21552 | 0.56 | 5.50 | 3.00 | 25.90 |
| MEL - 0 303 - PC | 9-Aug-19 | 2143 | Monoraphidium minutum (Nag.) Komarkova-Legnerova | 7184 | 0.41 | 9.10 | 4.00 | 57.20 |
| MEL - 0 303 - PC | 9-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 28736 | 0.50 | 11.00 | 2.00 | 17.30 |
| MEL - 0 303 - PC | 9-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 43104 | 9.75 | 18.00 | 4.00 | 226.20 |
| MEL - 0 303 - PC | 9-Aug-19 | 2178 | Cosmarium sp. | 400 | 0.56 | 20.00 | 20.00 | 1396.30 |
| MEL - 0 303 - PC | 9-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.60 | 11.00 | 304.80 |
| MEL - 0 303 - PC | 9-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.51 | 17.00 | 17.00 | 2572.40 |
| MEL - 0 303 - PC | 9-Aug-19 | 2247 | Oocystis gigas Archer | 200 | 0.48 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 303 - PC | 9-Aug-19 | 4351 | Small chrysophyceae | 201152 | 1.13 | 2.20 | 2.20 | 5.60 |
| MEL - 0 303 - PC | 9-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| MEL - 0 303 - PC | 9-Aug-19 | 4355 | Chrysochromulina parva Lackey | 100576 | 6.58 | 5.00 | 5.00 | 65.40 |
| MEL - 0 303 - PC | 9-Aug-19 | 4357 | Chrysococcus sp. | 186784 | 11.51 | 4.90 | 4.90 | 61.60 |
| MEL - 0 303 - PC | 9-Aug-19 | 4362 | Kephyrion sp. | 43104 | 0.55 | 2.90 | 2.90 | 12.80 |
| MEL - 0 303 - PC | 9-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 200 | 0.21 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 303 - PC | 9-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 21552 | 0.92 | 9.10 | 3.00 | 42.90 |
| MEL - 0 303 - PC | 9-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 71840 | 9.40 | 10.00 | 5.00 | 130.90 |
| MEL - 0 303 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 186784 | 42.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 303 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 1000 | 1.25 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 229888 | 52.00 | 12.00 | 6.00 | 226.20 |
| MEL - 0 303 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 3000 | 10.17 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 35920 | 1.08 | 5.60 | 3.20 | 30.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 244256 | 27.63 | 6.00 | 6.00 | 113.10 |
| MEL - 0 303 - PC | 9-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 79024 | 34.37 | 9.40 | 9.40 | 434.90 |
| MEL - 0 303 - PC | 9-Aug-19 | 4415 | Bicosoeca lacustris Clark | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 303 - PC | 9-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 14368 | 0.43 | 5.60 | 3.20 | 30.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 4436 | Dinobryon attenuatum Hill | 14368 | 2.07 | 11.00 | 5.00 | 144.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1200 | 2.18 | 10.50 | 21.00 | 1818.40 |
| MEL - 0 303 - PC | 9-Aug-19 | 5509 | Cyclotella ocellata Pant. | 28736 | 3.59 | 4.30 | 8.60 | 124.90 |
| MEL - 0 303 - PC | 9-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 21552 | 1.83 | 12.00 | 3.00 | 84.80 |
| MEL - 0 303 - PC | 9-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 200 | 0.06 | 74.00 | 4.00 | 310.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 5524 | Asterionella formosa Hassall | 400 | 0.04 | 101.00 | 2.00 | 105.80 |
| MEL - 0 303 - PC | 9-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 86208 | 2.11 | 2.50 | 5.00 | 24.50 |
| MEL - 0 303 - PC | 9-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 200 | 1.54 | 17.00 | 34.00 | 7717.30 |
| MEL - 0 303 - PC | 9-Aug-19 | 6554 | Rhodomonas minuta Skuja | 28736 | 2.41 | 10.00 | 4.90 | 83.80 |
| MEL - 0 303 - PC | 9-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 800 | 1.40 | 25.50 | 14.00 | 1744.60 |
| MEL - 0 303 - PC | 9-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 200 | 0.15 | 21.00 | 10.00 | 733.00 |
| MEL - 0 303 - PC | 9-Aug-19 | 7631 | Gymnodinium helveticum Penard | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 303 - PC | 9-Aug-19 | 7632 | Gymnodinium sp. | 400 | 2.75 | 23.60 | 23.60 | 6882.30 |
| MEL - 0 303 - PC | 9-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1000 | 3.54 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 1073 | Snowella sp | 200 | 0.14 | 0.00 | 0.00 | 700.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 2121 | Oocystis lacustris Chodat | 7184 | 0.19 | 5.50 | 3.00 | 25.90 |
| MEL - 0 304 - PC | 9-Aug-19 | 2154 | Coelastrum microporum Naegeli | 200 | 0.54 | 0.00 | 0.00 | 2680.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 21552 | 0.37 | 11.00 | 2.00 | 17.30 |
| MEL - 0 304 - PC | 9-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 35920 | 8.13 | 18.00 | 4.00 | 226.20 |
| MEL - 0 304 - PC | 9-Aug-19 | 2178 | Cosmarium sp. | 400 | 1.88 | 30.00 | 30.00 | 4712.40 |
| MEL - 0 304 - PC | 9-Aug-19 | 2186 | Xanthidium sp. | 200 | 0.20 | 18.00 | 18.00 | 1017.90 |
| MEL - 0 304 - PC | 9-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1200 | 0.37 | 12.60 | 11.00 | 304.80 |
| MEL - 0 304 - PC | 9-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| MEL - 0 304 - PC | 9-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.51 | 17.00 | 17.00 | 2572.40 |
| MEL - 0 304 - PC | 9-Aug-19 | 4351 | Small chrysophyceae | 387936 | 2.17 | 2.20 | 2.20 | 5.60 |
| MEL - 0 304 - PC | 9-Aug-19 | 4352 | Large chrysophyceae | 14368 | 2.58 | 7.00 | 7.00 | 179.60 |
| MEL - 0 304 - PC | 9-Aug-19 | 4355 | Chrysochromulina parva Lackey | 143680 | 9.40 | 5.00 | 5.00 | 65.40 |
| MEL - 0 304 - PC | 9-Aug-19 | 4357 | Chrysococcus sp. | 201152 | 12.39 | 4.90 | 4.90 | 61.60 |
| MEL - 0 304 - PC | 9-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 21552 | 7.69 | 8.80 | 8.80 | 356.80 |
| MEL - 0 304 - PC | 9-Aug-19 | 4362 | Kephyrion sp. | 71840 | 0.92 | 2.90 | 2.90 | 12.80 |
| MEL - 0 304 - PC | 9-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 79024 | 3.39 | 9.10 | 3.00 | 42.90 |
| MEL - 0 304 - PC | 9-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 71840 | 9.40 | 10.00 | 5.00 | 130.90 |
| MEL - 0 304 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 165232 | 37.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 304 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 800 | 1.00 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 215520 | 48.75 | 12.00 | 6.00 | 226.20 |
| MEL - 0 304 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1600 | 5.42 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 14368 | 0.43 | 5.60 | 3.20 | 30.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 251440 | 28.44 | 6.00 | 6.00 | 113.10 |
| MEL - 0 304 - PC | 9-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 21552 | 9.37 | 9.40 | 9.40 | 434.90 |
| MEL - 0 304 - PC | 9-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 7184 | 0.22 | 5.60 | 3.20 | 30.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 4436 | Dinobryon attenuatum Hill | 35920 | 5.17 | 11.00 | 5.00 | 144.00 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 304 - PC | 9-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1000 | 1.82 | 10.50 | 21.00 | 1818.40 |
| MEL - 0 304 - PC | 9-Aug-19 | 5509 | Cyclotella ocellata Pant. | 7184 | 0.90 | 4.30 | 8.60 | 124.90 |
| MEL - 0 304 - PC | 9-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 14368 | 1.22 | 12.00 | 3.00 | 84.80 |
| MEL - 0 304 - PC | 9-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 600 | 0.18 | 71.00 | 4.00 | 297.40 |
| MEL - 0 304 - PC | 9-Aug-19 | 5524 | Asterionella formosa Hassall | 1800 | 0.19 | 100.00 | 2.00 | 104.70 |
| MEL - 0 304 - PC | 9-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 28736 | 0.70 | 2.50 | 5.00 | 24.50 |
| MEL - 0 304 - PC | 9-Aug-19 | 6554 | Rhodomonas minuta Skuja | 50288 | 4.21 | 10.00 | 4.90 | 83.80 |
| MEL - 0 304 - PC | 9-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1400 | 2.44 | 25.50 | 14.00 | 1744.60 |
| MEL - 0 304 - PC | 9-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1400 | 1.03 | 21.00 | 10.00 | 733.00 |
| MEL - 0 304 - PC | 9-Aug-19 | 7632 | Gymnodinium sp. | 200 | 1.38 | 23.60 | 23.60 | 6882.30 |
| MEL - 0 305 - PC | 9-Aug-19 | 1014 | Chroococcus limneticus Lemmermann | 28736 | 1.47 | 4.60 | 4.60 | 51.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 2105 | Chlamydomonas spp. | 7184 | 0.42 | 7.00 | 4.00 | 58.60 |
| MEL - 0 305 - PC | 9-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 50288 | 0.87 | 11.00 | 2.00 | 17.30 |
| MEL - 0 305 - PC | 9-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 21552 | 4.88 | 18.00 | 4.00 | 226.20 |
| MEL - 0 305 - PC | 9-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.60 | 11.00 | 304.80 |
| MEL - 0 305 - PC | 9-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| MEL - 0 305 - PC | 9-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.29 | 14.00 | 14.00 | 1436.80 |
| MEL - 0 305 - PC | 9-Aug-19 | 2506 | Nephrocytium lunatum W. West | 200 | 0.62 | 0.00 | 0.00 | 3100.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 4351 | Small chrysophyceae | 301728 | 1.69 | 2.20 | 2.20 | 5.60 |
| MEL - 0 305 - PC | 9-Aug-19 | 4352 | Large chrysophyceae | 21552 | 3.87 | 7.00 | 7.00 | 179.60 |
| MEL - 0 305 - PC | 9-Aug-19 | 4355 | Chrysochromulina parva Lackey | 150864 | 9.87 | 5.00 | 5.00 | 65.40 |
| MEL - 0 305 - PC | 9-Aug-19 | 4357 | Chrysococcus sp. | 301728 | 18.59 | 4.90 | 4.90 | 61.60 |
| MEL - 0 305 - PC | 9-Aug-19 | 4362 | Kephyrion sp. | 136496 | 1.75 | 2.90 | 2.90 | 12.80 |
| MEL - 0 305 - PC | 9-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 57472 | 2.47 | 9.10 | 3.00 | 42.90 |
| MEL - 0 305 - PC | 9-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 35920 | 5.64 | 12.00 | 5.00 | 157.10 |
| MEL - 0 305 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 143680 | 32.50 | 12.00 | 6.00 | 226.20 |
| MEL - 0 305 - PC | 9-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 1000 | 1.25 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 237072 | 53.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 305 - PC | 9-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1800 | 6.10 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 35920 | 1.08 | 5.60 | 3.20 | 30.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 222704 | 25.19 | 6.00 | 6.00 | 113.10 |
| MEL - 0 305 - PC | 9-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 21552 | 9.37 | 9.40 | 9.40 | 434.90 |
| MEL - 0 305 - PC | 9-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 7184 | 0.22 | 5.60 | 3.20 | 30.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 4436 | Dinobryon attenuatum Hill | 28736 | 4.14 | 11.00 | 5.00 | 144.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 4437 | Pteridomonas sp. | 14368 | 3.19 | 8.60 | 8.60 | 222.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1200 | 2.18 | 10.50 | 21.00 | 1818.40 |
| MEL - 0 305 - PC | 9-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 3.95 | 7.05 | 14.10 | 550.40 |
| MEL - 0 305 - PC | 9-Aug-19 | 5509 | Cyclotella ocellata Pant. | 50288 | 6.28 | 4.30 | 8.60 | 124.90 |
| MEL - 0 305 - PC | 9-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 71840 | 6.09 | 12.00 | 3.00 | 84.80 |
| MEL - 0 305 - PC | 9-Aug-19 | 5514 | Tabellaria flocculosa (Roth) Kutzing | 600 | 0.86 | 28.00 | 14.00 | 1436.80 |
| MEL - 0 305 - PC | 9-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 600 | 0.18 | 71.00 | 4.00 | 297.40 |
| MEL - 0 305 - PC | 9-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 21552 | 0.53 | 2.50 | 5.00 | 24.50 |
| MEL - 0 305 - PC | 9-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 1000 | 7.06 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 305 - PC | 9-Aug-19 | 6554 | Rhodomonas minuta Skuja | 21552 | 1.81 | 10.00 | 4.90 | 83.80 |
| MEL - 0 305 - PC | 9-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 2000 | 3.49 | 25.50 | 14.00 | 1744.60 |
| MEL - 0 305 - PC | 9-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1600 | 1.17 | 21.00 | 10.00 | 733.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 600 | 1.48 | 36.00 | 14.00 | 2463.00 |
| MEL - 0 305 - PC | 9-Aug-19 | 6568 | Katablepharis ovalis Skuja | 7184 | 0.25 | 7.10 | 4.00 | 35.20 |
| MEL - 0 305 - PC | 9-Aug-19 | 7631 | Gymnodinium helveticum Penard | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 305 - PC | 9-Aug-19 | 7632 | Gymnodinium sp. | 800 | 5.51 | 23.60 | 23.60 | 6882.30 |
| MEL - 0 305 - PC | 9-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 400 | 1.41 | 18.90 | 18.90 | 3535.00 |
| MEL - 0 401 - PC | 14-Aug-19 | 1073 | Snowella sp | 200 | 0.10 | 0.00 | 0.00 | 500.00 |
| MEL - 0 401 - PC | 14-Aug-19 | 2143 | Monoraphidium minutum (Nag.) Komarkova-Legnerova | 7184 | 0.41 | 9.00 | 4.00 | 56.50 |
| MEL - 0 401 - PC | 14-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 64656 | 1.02 | 10.00 | 2.00 | 15.70 |
| MEL - 0 401 - PC | 14-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 35920 | 8.13 | 18.00 | 4.00 | 226.20 |
| MEL - 0 401 - PC | 14-Aug-19 | 2182 | Euastrum spp. | 200 | 0.37 | 22.00 | 22.00 | 1858.40 |
| MEL - 0 401 - PC | 14-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 400 | 0.12 | 12.50 | 11.00 | 300.00 |
| MEL - 0 401 - PC | 14-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 28736 | 1.08 | 6.00 | 6.00 | 37.70 |
| MEL - 0 401 - PC | 14-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.18 | 12.00 | 12.00 | 904.80 |
| MEL - 0 401 - PC | 14-Aug-19 | 4351 | Small chrysophyceae | 201152 | 1.13 | 2.20 | 2.20 | 5.60 |
| MEL - 0 401 - PC | 14-Aug-19 | 4352 | Large chrysophyceae | 50288 | 9.03 | 7.00 | 7.00 | 179.60 |
| MEL - 0 401 - PC | 14-Aug-19 | 4355 | Chrysochromulina parva Lackey | 50288 | 3.29 | 5.00 | 5.00 | 65.40 |
| MEL - 0 401 - PC | 14-Aug-19 | 4357 | Chrysococcus sp. | 395120 | 24.34 | 4.90 | 4.90 | 61.60 |
| MEL - 0 401 - PC | 14-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.56 | 8.80 | 8.80 | 356.80 |
| MEL - 0 401 - PC | 14-Aug-19 | 4362 | Kephyrion sp. | 158048 | 2.23 | 3.00 | 3.00 | 14.10 |
| MEL - 0 401 - PC | 14-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.77 | 5.90 | 5.90 | 107.50 |
| MEL - 0 401 - PC | 14-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 200 | 0.21 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 401 - PC | 14-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 57472 | 2.47 | 9.10 | 3.00 | 42.90 |
| MEL - 0 401 - PC | 14-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 14368 | 1.88 | 10.00 | 5.00 | 130.90 |
| MEL - 0 401 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 122128 | 27.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 401 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 800 | 1.00 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 401 - PC | 14-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 400 | 1.64 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 401 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 344832 | 78.00 | 12.00 | 6.00 | 226.20 |
| MEL - 0 401 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1400 | 4.75 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 401 - PC | 14-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 7184 | 0.23 | 5.90 | 3.20 | 31.60 |
| MEL - 0 401 - PC | 14-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 107760 | 12.19 | 6.00 | 6.00 | 113.10 |
| MEL - 0 401 - PC | 14-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 50288 | 23.29 | 9.60 | 9.60 | 463.20 |
| MEL - 0 401 - PC | 14-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 43104 | 1.39 | 6.00 | 3.20 | 32.20 |
| MEL - 0 401 - PC | 14-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |
| MEL - 0 401 - PC | 14-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1400 | 2.77 | 10.80 | 21.60 | 1978.80 |
| MEL - 0 401 - PC | 14-Aug-19 | 5509 | Cyclotella ocellata Pant. | 43104 | 5.38 | 4.30 | 8.60 | 124.90 |
| MEL - 0 401 - PC | 14-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 28736 | 2.24 | 11.00 | 3.00 | 77.80 |
| MEL - 0 401 - PC | 14-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 800 | 0.24 | 71.00 | 4.00 | 297.40 |
| MEL - 0 401 - PC | 14-Aug-19 | 5524 | Asterionella formosa Hassall | 1000 | 0.10 | 100.00 | 2.00 | 104.70 |
| MEL - 0 401 - PC | 14-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 14368 | 0.35 | 2.50 | 5.00 | 24.50 |
| MEL - 0 401 - PC | 14-Aug-19 | 6554 | Rhodomonas minuta Skuja | 143680 | 12.54 | 10.00 | 5.00 | 87.30 |
| MEL - 0 401 - PC | 14-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1200 | 2.05 | 25.00 | 14.00 | 1710.40 |
| MEL - 0 401 - PC | 14-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 400 | 0.29 | 21.00 | 10.00 | 733.00 |
| MEL - 0 401 - PC | 14-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 200 | 0.45 | 33.00 | 14.00 | 2257.80 |
| MEL - 0 401 - PC | 14-Aug-19 | 6568 | Katablepharis ovalis Skuja | 7184 | 0.32 | 8.00 | 4.00 | 44.70 |
| MEL - 0 401 - PC | 14-Aug-19 | 7632 | Gymnodinium sp. | 200 | 2.55 | 29.00 | 29.00 | 12770.10 |
| MEL - 0 401 - PC | 14-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 600 | 2.19 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 401 - PC | 14-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 200 | 1.81 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 402 - PC | 14-Aug-19 | 2105 | Chlamydomonas spp. | 7184 | 0.14 | 4.10 | 3.00 | 19.30 |
| MEL - 0 402 - PC | 14-Aug-19 | 2112 | Sphaerocystis schroeteri Chodat | 57472 | 0.74 | 2.90 | 2.90 | 12.80 |
| MEL - 0 402 - PC | 14-Aug-19 | 2121 | Oocystis lacustris Chodat | 7184 | 0.19 | 5.60 | 3.00 | 26.40 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 402 - PC | 14-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 71840 | 1.13 | 10.00 | 2.00 | 15.70 |
| MEL - 0 402 - PC | 14-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 7184 | 1.63 | 18.00 | 4.00 | 226.20 |
| MEL - 0 402 - PC | 14-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 400 | 0.12 | 12.50 | 11.00 | 300.00 |
| MEL - 0 402 - PC | 14-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 14368 | 0.54 | 6.00 | 6.00 | 37.70 |
| MEL - 0 402 - PC | 14-Aug-19 | 2206 | Botryococcus braunii Kutzing | 600 | 0.54 | 12.00 | 12.00 | 904.80 |
| MEL - 0 402 - PC | 14-Aug-19 | 4351 | Small chrysophyceae | 567536 | 3.18 | 2.20 | 2.20 | 5.60 |
| MEL - 0 402 - PC | 14-Aug-19 | 4352 | Large chrysophyceae | 21552 | 3.87 | 7.00 | 7.00 | 179.60 |
| MEL - 0 402 - PC | 14-Aug-19 | 4355 | Chrysochromulina parva Lackey | 7184 | 0.47 | 5.00 | 5.00 | 65.40 |
| MEL - 0 402 - PC | 14-Aug-19 | 4357 | Chrysococcus sp. | 459776 | 28.32 | 4.90 | 4.90 | 61.60 |
| MEL - 0 402 - PC | 14-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.56 | 8.80 | 8.80 | 356.80 |
| MEL - 0 402 - PC | 14-Aug-19 | 4361 | Kephyrion boreale Skuja | 7184 | 0.77 | 5.90 | 5.90 | 107.50 |
| MEL - 0 402 - PC | 14-Aug-19 | 4362 | Kephyrion sp. | 114944 | 1.62 | 3.00 | 3.00 | 14.10 |
| MEL - 0 402 - PC | 14-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.73 | 5.80 | 5.80 | 102.20 |
| MEL - 0 402 - PC | 14-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 600 | 0.63 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 402 - PC | 14-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 86208 | 3.70 | 9.10 | 3.00 | 42.90 |
| MEL - 0 402 - PC | 14-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 21552 | 2.82 | 10.00 | 5.00 | 130.90 |
| MEL - 0 402 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 71840 | 16.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 402 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 400 | 0.50 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 402 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 186784 | 42.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 402 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 2200 | 7.46 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 402 - PC | 14-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 35920 | 1.14 | 5.90 | 3.20 | 31.60 |
| MEL - 0 402 - PC | 14-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 43104 | 4.88 | 6.00 | 6.00 | 113.10 |
| MEL - 0 402 - PC | 14-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 122128 | 56.57 | 9.60 | 9.60 | 463.20 |
| MEL - 0 402 - PC | 14-Aug-19 | 4414 | Stichogloea spp. | 14368 | 0.72 | 6.00 | 4.00 | 50.30 |
| MEL - 0 402 - PC | 14-Aug-19 | 4415 | Bicosoeca lacustris Clark | 21552 | 1.63 | 9.00 | 4.00 | 75.40 |
| MEL - 0 402 - PC | 14-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 107760 | 2.84 | 5.60 | 3.00 | 26.40 |
| MEL - 0 402 - PC | 14-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1000 | 1.98 | 10.80 | 21.60 | 1978.80 |
| MEL - 0 402 - PC | 14-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 3.95 | 7.05 | 14.10 | 550.40 |
| MEL - 0 402 - PC | 14-Aug-19 | 5509 | Cyclotella ocellata Pant. | 14368 | 1.79 | 4.30 | 8.60 | 124.90 |
| MEL - 0 402 - PC | 14-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 7184 | 0.56 | 11.00 | 3.00 | 77.80 |
| MEL - 0 402 - PC | 14-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 2200 | 0.65 | 71.00 | 4.00 | 297.40 |
| MEL - 0 402 - PC | 14-Aug-19 | 5524 | Asterionella formosa Hassall | 6800 | 0.71 | 100.00 | 2.00 | 104.70 |
| MEL - 0 402 - PC | 14-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 28736 | 0.70 | 2.50 | 5.00 | 24.50 |
| MEL - 0 402 - PC | 14-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 400 | 2.82 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 402 - PC | 14-Aug-19 | 6554 | Rhodomonas minuta Skuja | 79024 | 6.90 | 10.00 | 5.00 | 87.30 |
| MEL - 0 402 - PC | 14-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1800 | 3.08 | 25.00 | 14.00 | 1710.40 |
| MEL - 0 402 - PC | 14-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 800 | 0.59 | 21.00 | 10.00 | 733.00 |
| MEL - 0 402 - PC | 14-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 400 | 0.85 | 31.00 | 14.00 | 2120.90 |
| MEL - 0 402 - PC | 14-Aug-19 | 7632 | Gymnodinium sp. | 200 | 2.55 | 29.00 | 29.00 | 12770.10 |
| MEL - 0 402 - PC | 14-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 600 | 2.19 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 403 - PC | 14-Aug-19 | 2145 | Crucigenia quadrata Morr. | 28736 | 0.14 | 3.00 | 3.00 | 4.70 |
| MEL - 0 403 - PC | 14-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 21552 | 0.34 | 10.00 | 2.00 | 15.70 |
| MEL - 0 403 - PC | 14-Aug-19 | 2178 | Cosmarium sp. | 200 | 0.28 | 20.00 | 20.00 | 1396.30 |
| MEL - 0 403 - PC | 14-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.50 | 11.00 | 300.00 |
| MEL - 0 403 - PC | 14-Aug-19 | 2206 | Botryococcus braunii Kutzing | 800 | 0.72 | 12.00 | 12.00 | 904.80 |
| MEL - 0 403 - PC | 14-Aug-19 | 2247 | Oocystis gigas Archer | 200 | 0.48 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 403 - PC | 14-Aug-19 | 4351 | Small chrysophyceae | 495696 | 2.78 | 2.20 | 2.20 | 5.60 |
| MEL - 0 403 - PC | 14-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| MEL - 0 403 - PC | 14-Aug-19 | 4355 | Chrysochromulina parva Lackey | 35920 | 2.35 | 5.00 | 5.00 | 65.40 |
| MEL - 0 403 - PC | 14-Aug-19 | 4357 | Chrysococcus sp. | 466960 | 28.76 | 4.90 | 4.90 | 61.60 |
| MEL - 0 403 - PC | 14-Aug-19 | 4362 | Kephyrion sp. | 100576 | 1.42 | 3.00 | 3.00 | 14.10 |
| MEL - 0 403 - PC | 14-Aug-19 | 4370 | Mallomonas akrokomos Asmund and Kristiansen | 7184 | 1.35 | 17.00 | 4.60 | 188.30 |
| MEL - 0 403 - PC | 14-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 64656 | 2.77 | 9.10 | 3.00 | 42.90 |
| MEL - 0 403 - PC | 14-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 50288 | 6.58 | 10.00 | 5.00 | 130.90 |
| MEL - 0 403 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 93392 | 21.13 | 12.00 | 6.00 | 226.20 |
| MEL - 0 403 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 400 | 0.50 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 403 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 186784 | 42.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 403 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1400 | 4.75 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 403 - PC | 14-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 14368 | 0.45 | 5.90 | 3.20 | 31.60 |
| MEL - 0 403 - PC | 14-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 179600 | 20.31 | 6.00 | 6.00 | 113.10 |
| MEL - 0 403 - PC | 14-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 79024 | 36.60 | 9.60 | 9.60 | 463.20 |
| MEL - 0 403 - PC | 14-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 7184 | 0.23 | 6.00 | 3.20 | 32.20 |
| MEL - 0 403 - PC | 14-Aug-19 | 4437 | Pteridomonas sp. | 14368 | 3.19 | 8.60 | 8.60 | 222.00 |
| MEL - 0 403 - PC | 14-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 600 | 1.19 | 10.80 | 21.60 | 1978.80 |
| MEL - 0 403 - PC | 14-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 4.13 | 7.15 | 14.30 | 574.20 |
| MEL - 0 403 - PC | 14-Aug-19 | 5509 | Cyclotella ocellata Pant. | 35920 | 4.49 | 4.30 | 8.60 | 124.90 |
| MEL - 0 403 - PC | 14-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 7184 | 0.46 | 9.00 | 3.00 | 63.60 |
| MEL - 0 403 - PC | 14-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 1200 | 0.36 | 71.00 | 4.00 | 297.40 |
| MEL - 0 403 - PC | 14-Aug-19 | 5524 | Asterionella formosa Hassall | 3200 | 0.34 | 100.00 | 2.00 | 104.70 |
| MEL - 0 403 - PC | 14-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 14368 | 0.35 | 2.50 | 5.00 | 24.50 |
| MEL - 0 403 - PC | 14-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 600 | 3.86 | 16.00 | 32.00 | 6434.00 |
| MEL - 0 403 - PC | 14-Aug-19 | 6554 | Rhodomonas minuta Skuja | 86208 | 7.53 | 10.00 | 5.00 | 87.30 |
| MEL - 0 403 - PC | 14-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 200 | 0.34 | 25.00 | 14.00 | 1710.40 |
| MEL - 0 403 - PC | 14-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1800 | 1.32 | 21.00 | 10.00 | 733.00 |
| MEL - 0 403 - PC | 14-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 200 | 0.45 | 33.00 | 14.00 | 2257.80 |
| MEL - 0 403 - PC | 14-Aug-19 | 7631 | Gymnodinium helveticum Penard | 400 | 9.42 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 403 - PC | 14-Aug-19 | 7632 | Gymnodinium sp. | 200 | 2.55 | 29.00 | 29.00 | 12770.10 |
| MEL - 0 404 - PC | 14-Aug-19 | 1026 | Merismopedia tenuissima Lemmermann | 57472 | 0.57 | 0.00 | 0.00 | 10.00 |
| MEL - 0 404 - PC | 14-Aug-19 | 2105 | Chlamydomonas spp. | 7184 | 0.31 | 5.10 | 4.00 | 42.70 |
| MEL - 0 404 - PC | 14-Aug-19 | 2143 | Monoraphidium minutum (Nag.) Komarkova-Legnerova | 7184 | 0.34 | 7.60 | 4.00 | 47.80 |
| MEL - 0 404 - PC | 14-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 43104 | 0.68 | 10.00 | 2.00 | 15.70 |
| MEL - 0 404 - PC | 14-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 7184 | 1.63 | 18.00 | 4.00 | 226.20 |
| MEL - 0 404 - PC | 14-Aug-19 | 2182 | Euastrum spp. | 200 | 0.37 | 22.00 | 22.00 | 1858.40 |
| MEL - 0 404 - PC | 14-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1600 | 0.48 | 12.50 | 11.00 | 300.00 |
| MEL - 0 404 - PC | 14-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.18 | 12.00 | 12.00 | 904.80 |
| MEL - 0 404 - PC | 14-Aug-19 | 2247 | Oocystis gigas Archer | 400 | 0.97 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 404 - PC | 14-Aug-19 | 4351 | Small chrysophyceae | 395120 | 2.21 | 2.20 | 2.20 | 5.60 |
| MEL - 0 404 - PC | 14-Aug-19 | 4352 | Large chrysophyceae | 14368 | 2.58 | 7.00 | 7.00 | 179.60 |
| MEL - 0 404 - PC | 14-Aug-19 | 4355 | Chrysochromulina parva Lackey | 14368 | 0.94 | 5.00 | 5.00 | 65.40 |
| MEL - 0 404 - PC | 14-Aug-19 | 4357 | Chrysococcus sp. | 323280 | 19.91 | 4.90 | 4.90 | 61.60 |
| MEL - 0 404 - PC | 14-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 14368 | 5.13 | 8.80 | 8.80 | 356.80 |
| MEL - 0 404 - PC | 14-Aug-19 | 4362 | Kephyrion sp. | 86208 | 1.22 | 3.00 | 3.00 | 14.10 |
| MEL - 0 404 - PC | 14-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.77 | 5.90 | 5.90 | 107.50 |
| MEL - 0 404 - PC | 14-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 28736 | 1.23 | 9.10 | 3.00 | 42.90 |
| MEL - 0 404 - PC | 14-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 21552 | 2.82 | 10.00 | 5.00 | 130.90 |
| MEL - 0 404 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 100576 | 22.75 | 12.00 | 6.00 | 226.20 |
| MEL - 0 404 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 400 | 0.50 | 0.00 | 0.00 | 1250.00 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 404 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 143680 | 32.50 | 12.00 | 6.00 | 226.20 |
| MEL - 0 404 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 800 | 2.71 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 404 - PC | 14-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 14368 | 0.45 | 5.90 | 3.20 | 31.60 |
| MEL - 0 404 - PC | 14-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 57472 | 6.50 | 6.00 | 6.00 | 113.10 |
| MEL - 0 404 - PC | 14-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 404 - PC | 14-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 86208 | 39.93 | 9.60 | 9.60 | 463.20 |
| MEL - 0 404 - PC | 14-Aug-19 | 4414 | Stichogloea spp. | 21552 | 1.08 | 6.00 | 4.00 | 50.30 |
| MEL - 0 404 - PC | 14-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 400 | 0.79 | 10.80 | 21.60 | 1978.80 |
| MEL - 0 404 - PC | 14-Aug-19 | 5509 | Cyclotella ocellata Pant. | 21552 | 2.69 | 4.30 | 8.60 | 124.90 |
| MEL - 0 404 - PC | 14-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 35920 | 2.79 | 11.00 | 3.00 | 77.80 |
| MEL - 0 404 - PC | 14-Aug-19 | 5518 | Synedra acus Kutzing | 400 | 0.12 | 74.00 | 4.00 | 310.00 |
| MEL - 0 404 - PC | 14-Aug-19 | 5524 | Asterionella formosa Hassall | 1600 | 0.17 | 100.00 | 2.00 | 104.70 |
| MEL - 0 404 - PC | 14-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 50288 | 1.23 | 2.50 | 5.00 | 24.50 |
| MEL - 0 404 - PC | 14-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 200 | 1.29 | 16.00 | 32.00 | 6434.00 |
| MEL - 0 404 - PC | 14-Aug-19 | 6554 | Rhodomonas minuta Skuja | 50288 | 4.39 | 10.00 | 5.00 | 87.30 |
| MEL - 0 404 - PC | 14-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 600 | 1.03 | 25.00 | 14.00 | 1710.40 |
| MEL - 0 404 - PC | 14-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 600 | 0.44 | 21.00 | 10.00 | 733.00 |
| MEL - 0 404 - PC | 14-Aug-19 | 6568 | Katablepharis ovalis Skuja | 14368 | 0.64 | 8.00 | 4.00 | 44.70 |
| MEL - 0 404 - PC | 14-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1000 | 3.65 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 405 - PC | 14-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 35920 | 0.56 | 10.00 | 2.00 | 15.70 |
| MEL - 0 405 - PC | 14-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 35920 | 8.13 | 18.00 | 4.00 | 226.20 |
| MEL - 0 405 - PC | 14-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.50 | 11.00 | 300.00 |
| MEL - 0 405 - PC | 14-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 14368 | 0.54 | 6.00 | 6.00 | 37.70 |
| MEL - 0 405 - PC | 14-Aug-19 | 2206 | Botryococcus braunii Kutzing | 800 | 0.72 | 12.00 | 12.00 | 904.80 |
| MEL - 0 405 - PC | 14-Aug-19 | 2247 | Oocystis gigas Archer | 200 | 0.48 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 405 - PC | 14-Aug-19 | 4351 | Small chrysophyceae | 308912 | 1.73 | 2.20 | 2.20 | 5.60 |
| MEL - 0 405 - PC | 14-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| MEL - 0 405 - PC | 14-Aug-19 | 4355 | Chrysochromulina parva Lackey | 79024 | 5.17 | 5.00 | 5.00 | 65.40 |
| MEL - 0 405 - PC | 14-Aug-19 | 4357 | Chrysococcus sp. | 402304 | 24.78 | 4.90 | 4.90 | 61.60 |
| MEL - 0 405 - PC | 14-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.56 | 8.80 | 8.80 | 356.80 |
| MEL - 0 405 - PC | 14-Aug-19 | 4362 | Kephyrion sp. | 172416 | 2.43 | 3.00 | 3.00 | 14.10 |
| MEL - 0 405 - PC | 14-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 400 | 0.42 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 405 - PC | 14-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 43104 | 1.85 | 9.10 | 3.00 | 42.90 |
| MEL - 0 405 - PC | 14-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 79024 | 10.34 | 10.00 | 5.00 | 130.90 |
| MEL - 0 405 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 79024 | 17.88 | 12.00 | 6.00 | 226.20 |
| MEL - 0 405 - PC | 14-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 600 | 0.75 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 405 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 179600 | 40.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 405 - PC | 14-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1200 | 4.07 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 405 - PC | 14-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 7184 | 0.23 | 5.90 | 3.20 | 31.60 |
| MEL - 0 405 - PC | 14-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 158048 | 17.88 | 6.00 | 6.00 | 113.10 |
| MEL - 0 405 - PC | 14-Aug-19 | 4403 | Chrysosphaerella longispina Lauterborn | 200 | 1.50 | 0.00 | 0.00 | 7500.00 |
| MEL - 0 405 - PC | 14-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 107760 | 49.91 | 9.60 | 9.60 | 463.20 |
| MEL - 0 405 - PC | 14-Aug-19 | 4414 | Stichogloea spp. | 14368 | 0.72 | 6.00 | 4.00 | 50.30 |
| MEL - 0 405 - PC | 14-Aug-19 | 4437 | Pteridomonas sp. | 14368 | 3.19 | 8.60 | 8.60 | 222.00 |
| MEL - 0 405 - PC | 14-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 600 | 1.19 | 10.80 | 21.60 | 1978.80 |
| MEL - 0 405 - PC | 14-Aug-19 | 5509 | Cyclotella ocellata Pant. | 43104 | 5.38 | 4.30 | 8.60 | 124.90 |
| MEL - 0 405 - PC | 14-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 7184 | 0.56 | 11.00 | 3.00 | 77.80 |
| MEL - 0 405 - PC | 14-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 3200 | 2.65 | 88.00 | 6.00 | 829.40 |
| MEL - 0 405 - PC | 14-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 1200 | 0.36 | 71.00 | 4.00 | 297.40 |
| MEL - 0 405 - PC | 14-Aug-19 | 5524 | Asterionella formosa Hassall | 200 | 0.02 | 100.00 | 2.00 | 104.70 |
| MEL - 0 405 - PC | 14-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 43104 | 1.06 | 2.50 | 5.00 | 24.50 |
| MEL - 0 405 - PC | 14-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 400 | 2.34 | 15.50 | 31.00 | 5849.40 |
| MEL - 0 405 - PC | 14-Aug-19 | 6554 | Rhodomonas minuta Skuja | 64656 | 5.64 | 10.00 | 5.00 | 87.30 |
| MEL - 0 405 - PC | 14-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 800 | 1.37 | 25.00 | 14.00 | 1710.40 |
| MEL - 0 405 - PC | 14-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 200 | 0.15 | 21.00 | 10.00 | 733.00 |
| MEL - 0 405 - PC | 14-Aug-19 | 6568 | Katablepharis ovalis Skuja | 14368 | 0.64 | 8.00 | 4.00 | 44.70 |
| MEL - 0 405 - PC | 14-Aug-19 | 7632 | Gymnodinium sp. | 400 | 5.11 | 29.00 | 29.00 | 12770.10 |
| MEL - 0 405 - PC | 14-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 400 | 1.46 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 501 - PC | 16-Aug-19 | 2121 | Oocystis lacustris Chodat | 35920 | 0.95 | 5.60 | 3.00 | 26.40 |
| MEL - 0 501 - PC | 16-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 28736 | 0.50 | 11.00 | 2.00 | 17.30 |
| MEL - 0 501 - PC | 16-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 14368 | 3.25 | 18.00 | 4.00 | 226.20 |
| MEL - 0 501 - PC | 16-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1000 | 0.30 | 12.60 | 11.00 | 304.80 |
| MEL - 0 501 - PC | 16-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 21552 | 0.81 | 6.00 | 6.00 | 37.70 |
| MEL - 0 501 - PC | 16-Aug-19 | 2206 | Botryococcus braunii Kutzing | 200 | 0.10 | 10.00 | 10.00 | 523.60 |
| MEL - 0 501 - PC | 16-Aug-19 | 2215 | Tetraedron caudatum (Corda) Hansgrig | 21552 | 0.10 | 3.00 | 3.00 | 4.70 |
| MEL - 0 501 - PC | 16-Aug-19 | 2247 | Oocystis gigas Archer | 200 | 0.48 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 501 - PC | 16-Aug-19 | 4351 | Small chrysophyceae | 172416 | 1.41 | 2.50 | 2.50 | 8.20 |
| MEL - 0 501 - PC | 16-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| MEL - 0 501 - PC | 16-Aug-19 | 4355 | Chrysochromulina parva Lackey | 35920 | 2.35 | 5.00 | 5.00 | 65.40 |
| MEL - 0 501 - PC | 16-Aug-19 | 4357 | Chrysococcus sp. | 366384 | 23.96 | 5.00 | 5.00 | 65.40 |
| MEL - 0 501 - PC | 16-Aug-19 | 4362 | Kephyrion sp. | 43104 | 0.74 | 3.20 | 3.20 | 17.20 |
| MEL - 0 501 - PC | 16-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.66 | 5.60 | 5.60 | 92.00 |
| MEL - 0 501 - PC | 16-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 800 | 0.84 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 501 - PC | 16-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 43104 | 1.85 | 9.10 | 3.00 | 42.90 |
| MEL - 0 501 - PC | 16-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 28736 | 3.76 | 10.00 | 5.00 | 130.90 |
| MEL - 0 501 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 100576 | 22.75 | 12.00 | 6.00 | 226.20 |
| MEL - 0 501 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 600 | 0.75 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 501 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 158048 | 35.75 | 12.00 | 6.00 | 226.20 |
| MEL - 0 501 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 600 | 2.03 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 501 - PC | 16-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 21552 | 0.69 | 5.60 | 3.30 | 31.90 |
| MEL - 0 501 - PC | 16-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 35920 | 4.06 | 6.00 | 6.00 | 113.10 |
| MEL - 0 501 - PC | 16-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 57472 | 28.32 | 9.80 | 9.80 | 492.80 |
| MEL - 0 501 - PC | 16-Aug-19 | 4414 | Stichogloea spp. | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 501 - PC | 16-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 7184 | 0.24 | 5.90 | 3.30 | 33.60 |
| MEL - 0 501 - PC | 16-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |
| MEL - 0 501 - PC | 16-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 600 | 1.25 | 11.00 | 22.00 | 2090.70 |
| MEL - 0 501 - PC | 16-Aug-19 | 5509 | Cyclotella ocellata Pant. | 14368 | 1.20 | 3.60 | 7.70 | 83.80 |
| MEL - 0 501 - PC | 16-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 7184 | 0.51 | 10.00 | 3.00 | 70.70 |
| MEL - 0 501 - PC | 16-Aug-19 | 5514 | Tabellaria flocculosa (Roth) Kutzing | 200 | 0.29 | 28.00 | 14.00 | 1436.80 |
| MEL - 0 501 - PC | 16-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 200 | 0.06 | 73.00 | 4.00 | 305.80 |
| MEL - 0 501 - PC | 16-Aug-19 | 5524 | Asterionella formosa Hassall | 1800 | 0.20 | 105.00 | 2.00 | 110.00 |
| MEL - 0 501 - PC | 16-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 35920 | 0.88 | 2.50 | 5.00 | 24.50 |
| MEL - 0 501 - PC | 16-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 800 | 5.64 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 501 - PC | 16-Aug-19 | 6554 | Rhodomonas minuta Skuja | 71840 | 6.27 | 10.00 | 5.00 | 87.30 |
| MEL - 0 501 - PC | 16-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 400 | 0.67 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 501 - PC | 16-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1000 | 0.70 | 20.00 | 10.00 | 698.10 |
| MEL - 0 501 - PC | 16-Aug-19 | 6568 | Katablepharis ovalis Skuja | 7184 | 0.29 | 7.60 | 4.00 | 40.30 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 501 - PC | 16-Aug-19 | 7631 | Gymnodinium helveticum Penard | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 501 - PC | 16-Aug-19 | 7632 | Gymnodinium sp. | 1200 | 12.37 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 501 - PC | 16-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 2000 | 7.30 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 502 - PC | 16-Aug-19 | 2105 | Chlamydomonas spp. | 14368 | 0.28 | 4.10 | 3.00 | 19.30 |
| MEL - 0 502 - PC | 16-Aug-19 | 2121 | Oocystis lacustris Chodat | 7184 | 0.19 | 5.60 | 3.00 | 26.40 |
| MEL - 0 502 - PC | 16-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 14368 | 0.25 | 11.00 | 2.00 | 17.30 |
| MEL - 0 502 - PC | 16-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 14368 | 3.25 | 18.00 | 4.00 | 226.20 |
| MEL - 0 502 - PC | 16-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 400 | 0.12 | 12.60 | 11.00 | 304.80 |
| MEL - 0 502 - PC | 16-Aug-19 | 2193 | Staurodesmus paradoxum Meyen | 200 | 0.50 | 25.00 | 23.00 | 2508.90 |
| MEL - 0 502 - PC | 16-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| MEL - 0 502 - PC | 16-Aug-19 | 2206 | Botryococcus braunii Kutzing | 800 | 0.42 | 10.00 | 10.00 | 523.60 |
| MEL - 0 502 - PC | 16-Aug-19 | 2215 | Tetraedron caudatum (Corda) Hansgrig | 28736 | 0.14 | 3.00 | 3.00 | 4.70 |
| MEL - 0 502 - PC | 16-Aug-19 | 4351 | Small chrysophyceae | 545984 | 4.48 | 2.50 | 2.50 | 8.20 |
| MEL - 0 502 - PC | 16-Aug-19 | 4352 | Large chrysophyceae | 35920 | 6.45 | 7.00 | 7.00 | 179.60 |
| MEL - 0 502 - PC | 16-Aug-19 | 4355 | Chrysochromulina parva Lackey | 35920 | 2.35 | 5.00 | 5.00 | 65.40 |
| MEL - 0 502 - PC | 16-Aug-19 | 4357 | Chrysococcus sp. | 387936 | 25.37 | 5.00 | 5.00 | 65.40 |
| MEL - 0 502 - PC | 16-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.65 | 8.90 | 8.90 | 369.10 |
| MEL - 0 502 - PC | 16-Aug-19 | 4362 | Kephyrion sp. | 107760 | 1.85 | 3.20 | 3.20 | 17.20 |
| MEL - 0 502 - PC | 16-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 400 | 0.42 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 502 - PC | 16-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 35920 | 1.54 | 9.10 | 3.00 | 42.90 |
| MEL - 0 502 - PC | 16-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 64656 | 8.46 | 10.00 | 5.00 | 130.90 |
| MEL - 0 502 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 107760 | 24.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 502 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 400 | 0.50 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 502 - PC | 16-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 400 | 1.64 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 502 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 172416 | 39.00 | 12.00 | 6.00 | 226.20 |
| MEL - 0 502 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1800 | 6.10 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 502 - PC | 16-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 14368 | 0.43 | 5.60 | 3.20 | 30.00 |
| MEL - 0 502 - PC | 16-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 79024 | 8.94 | 6.00 | 6.00 | 113.10 |
| MEL - 0 502 - PC | 16-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 71840 | 35.40 | 9.80 | 9.80 | 492.80 |
| MEL - 0 502 - PC | 16-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |
| MEL - 0 502 - PC | 16-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1600 | 3.35 | 11.00 | 22.00 | 2090.70 |
| MEL - 0 502 - PC | 16-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 3.95 | 7.05 | 14.10 | 550.40 |
| MEL - 0 502 - PC | 16-Aug-19 | 5509 | Cyclotella ocellata Pant. | 14368 | 1.29 | 3.85 | 7.70 | 89.60 |
| MEL - 0 502 - PC | 16-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 7184 | 0.51 | 10.00 | 3.00 | 70.70 |
| MEL - 0 502 - PC | 16-Aug-19 | 5513 | Tabellaria fenestrata (Lyngbye) Kutzing | 3200 | 2.53 | 84.00 | 6.00 | 791.70 |
| MEL - 0 502 - PC | 16-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 200 | 0.06 | 73.00 | 4.00 | 305.80 |
| MEL - 0 502 - PC | 16-Aug-19 | 5518 | Synedra acus Kutzing | 200 | 0.02 | 110.00 | 2.00 | 115.20 |
| MEL - 0 502 - PC | 16-Aug-19 | 5524 | Asterionella formosa Hassall | 800 | 0.09 | 105.00 | 2.00 | 110.00 |
| MEL - 0 502 - PC | 16-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 57472 | 1.41 | 2.50 | 5.00 | 24.50 |
| MEL - 0 502 - PC | 16-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 800 | 5.64 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 502 - PC | 16-Aug-19 | 6554 | Rhodomonas minuta Skuja | 193968 | 16.93 | 10.00 | 5.00 | 87.30 |
| MEL - 0 502 - PC | 16-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1600 | 2.69 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 502 - PC | 16-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 1800 | 1.26 | 20.00 | 10.00 | 698.10 |
| MEL - 0 502 - PC | 16-Aug-19 | 7631 | Gymnodinium helveticum Penard | 1000 | 23.56 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 502 - PC | 16-Aug-19 | 7632 | Gymnodinium sp. | 600 | 6.18 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 502 - PC | 16-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 800 | 2.92 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 503 - PC | 16-Aug-19 | 1014 | Chroococcus limneticus Lemmermann | 57472 | 3.54 | 4.90 | 4.90 | 61.60 |
| MEL - 0 503 - PC | 16-Aug-19 | 2105 | Chlamydomonas spp. | 7184 | 0.14 | 4.20 | 3.00 | 19.80 |
| MEL - 0 503 - PC | 16-Aug-19 | 2143 | Monoraphidium minutum (Nag.) Komarkova-Legnerova | 14368 | 0.85 | 9.40 | 4.00 | 59.10 |
| MEL - 0 503 - PC | 16-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 43104 | 0.75 | 11.00 | 2.00 | 17.30 |
| MEL - 0 503 - PC | 16-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 7184 | 1.63 | 18.00 | 4.00 | 226.20 |
| MEL - 0 503 - PC | 16-Aug-19 | 2178 | Cosmarium sp. | 200 | 0.28 | 20.00 | 20.00 | 1396.30 |
| MEL - 0 503 - PC | 16-Aug-19 | 2182 | Euastrum spp. | 200 | 0.37 | 22.00 | 22.00 | 1858.40 |
| MEL - 0 503 - PC | 16-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1600 | 0.49 | 12.60 | 11.00 | 304.80 |
| MEL - 0 503 - PC | 16-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 14368 | 0.54 | 6.00 | 6.00 | 37.70 |
| MEL - 0 503 - PC | 16-Aug-19 | 2206 | Botryococcus braunii Kutzing | 1400 | 0.73 | 10.00 | 10.00 | 523.60 |
| MEL - 0 503 - PC | 16-Aug-19 | 2215 | Tetraedron caudatum (Corda) Hansgrig | 14368 | 0.07 | 3.00 | 3.00 | 4.70 |
| MEL - 0 503 - PC | 16-Aug-19 | 2247 | Oocystis gigas Archer | 200 | 0.48 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 503 - PC | 16-Aug-19 | 4351 | Small chrysophyceae | 215520 | 1.77 | 2.50 | 2.50 | 8.20 |
| MEL - 0 503 - PC | 16-Aug-19 | 4352 | Large chrysophyceae | 7184 | 1.29 | 7.00 | 7.00 | 179.60 |
| MEL - 0 503 - PC | 16-Aug-19 | 4355 | Chrysochromulina parva Lackey | 21552 | 1.41 | 5.00 | 5.00 | 65.40 |
| MEL - 0 503 - PC | 16-Aug-19 | 4357 | Chrysococcus sp. | 165232 | 10.81 | 5.00 | 5.00 | 65.40 |
| MEL - 0 503 - PC | 16-Aug-19 | 4361 | Kephyrion boreale Skuja | 7184 | 0.77 | 5.90 | 5.90 | 107.50 |
| MEL - 0 503 - PC | 16-Aug-19 | 4362 | Kephyrion sp. | 50288 | 0.86 | 3.20 | 3.20 | 17.20 |
| MEL - 0 503 - PC | 16-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 28736 | 1.23 | 9.10 | 3.00 | 42.90 |
| MEL - 0 503 - PC | 16-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 71840 | 9.40 | 10.00 | 5.00 | 130.90 |
| MEL - 0 503 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 71840 | 16.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 503 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 600 | 0.75 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 503 - PC | 16-Aug-19 | 4384 | Dinobryon bavaricum v vanhoeffenii (Bachmann) Krieger | 200 | 0.82 | 0.00 | 0.00 | 4100.00 |
| MEL - 0 503 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 129312 | 29.25 | 12.00 | 6.00 | 226.20 |
| MEL - 0 503 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1400 | 4.75 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 503 - PC | 16-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 21552 | 0.65 | 5.60 | 3.20 | 30.00 |
| MEL - 0 503 - PC | 16-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 57472 | 6.50 | 6.00 | 6.00 | 113.10 |
| MEL - 0 503 - PC | 16-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 50288 | 24.78 | 9.80 | 9.80 | 492.80 |
| MEL - 0 503 - PC | 16-Aug-19 | 4415 | Bicosoeca lacustris Clark | 7184 | 0.34 | 5.60 | 4.00 | 46.90 |
| MEL - 0 503 - PC | 16-Aug-19 | 4436 | Dinobryon attenuatum Hill | 7184 | 1.03 | 11.00 | 5.00 | 144.00 |
| MEL - 0 503 - PC | 16-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |
| MEL - 0 503 - PC | 16-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 2200 | 4.60 | 11.00 | 22.00 | 2090.70 |
| MEL - 0 503 - PC | 16-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 3.87 | 7.00 | 14.00 | 538.80 |
| MEL - 0 503 - PC | 16-Aug-19 | 5509 | Cyclotella ocellata Pant. | 64656 | 5.79 | 3.85 | 7.70 | 89.60 |
| MEL - 0 503 - PC | 16-Aug-19 | 5518 | Synedra acus Kutzing | 400 | 0.05 | 110.00 | 2.00 | 115.20 |
| MEL - 0 503 - PC | 16-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 57472 | 1.41 | 2.50 | 5.00 | 24.50 |
| MEL - 0 503 - PC | 16-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 600 | 4.23 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 503 - PC | 16-Aug-19 | 6554 | Rhodomonas minuta Skuja | 79024 | 6.90 | 10.00 | 5.00 | 87.30 |
| MEL - 0 503 - PC | 16-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 400 | 0.67 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 503 - PC | 16-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 400 | 0.28 | 20.00 | 10.00 | 698.10 |
| MEL - 0 503 - PC | 16-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 200 | 0.45 | 33.00 | 14.00 | 2257.80 |
| MEL - 0 503 - PC | 16-Aug-19 | 7631 | Gymnodinium helveticum Penard | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 503 - PC | 16-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 400 | 1.46 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 504 - PC | 16-Aug-19 | 1073 | Snowella sp | 1200 | 0.60 | 0.00 | 0.00 | 500.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 14368 | 0.25 | 11.00 | 2.00 | 17.30 |
| MEL - 0 504 - PC | 16-Aug-19 | 2169 | Planctonema lauterbornii Schmidle | 86208 | 19.50 | 18.00 | 4.00 | 226.20 |
| MEL - 0 504 - PC | 16-Aug-19 | 2182 | Euastrum spp. | 400 | 0.74 | 22.00 | 22.00 | 1858.40 |
| MEL - 0 504 - PC | 16-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 1400 | 0.42 | 12.50 | 11.00 | 300.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 2193 | Staurodesmus paradoxum Meyen | 200 | 0.50 | 25.00 | 23.00 | 2508.90 |
| MEL - 0 504 - PC | 16-Aug-19 | 2215 | Tetraedron caudatum (Corda) Hansgrig | 7184 | 0.03 | 3.00 | 3.00 | 4.70 |
| MEL - 0 504 - PC | 16-Aug-19 | 4351 | Small chrysophyceae | 229888 | 1.89 | 2.50 | 2.50 | 8.20 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/L$^{-1}$ | Biomass mg/m$^{-3}$ | Length µ | Width µ | Cell Volume µ$^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 504 - PC | 16-Aug-19 | 4355 | Chrysochromulina parva Lackey | 64656 | 4.23 | 5.00 | 5.00 | 65.40 |
| MEL - 0 504 - PC | 16-Aug-19 | 4357 | Chrysococcus sp. | 474144 | 31.01 | 5.00 | 5.00 | 65.40 |
| MEL - 0 504 - PC | 16-Aug-19 | 4362 | Kephyrion sp. | 64656 | 1.11 | 3.20 | 3.20 | 17.20 |
| MEL - 0 504 - PC | 16-Aug-19 | 4368 | Mallomonas crassisquama (Asmund) Fott | 200 | 0.21 | 20.00 | 10.00 | 1047.20 |
| MEL - 0 504 - PC | 16-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 50288 | 2.16 | 9.10 | 3.00 | 42.90 |
| MEL - 0 504 - PC | 16-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 43104 | 5.64 | 10.00 | 5.00 | 130.90 |
| MEL - 0 504 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 64656 | 14.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 504 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 800 | 1.00 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 165232 | 37.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 504 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 800 | 2.71 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 7184 | 0.22 | 5.60 | 3.20 | 30.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 57472 | 6.50 | 6.00 | 6.00 | 113.10 |
| MEL - 0 504 - PC | 16-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 107760 | 53.10 | 9.80 | 9.80 | 492.80 |
| MEL - 0 504 - PC | 16-Aug-19 | 4414 | Stichogloea spp. | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 504 - PC | 16-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 7184 | 0.22 | 5.60 | 3.20 | 30.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 1800 | 3.76 | 11.00 | 22.00 | 2090.70 |
| MEL - 0 504 - PC | 16-Aug-19 | 5509 | Cyclotella ocellata Pant. | 7184 | 0.64 | 3.85 | 7.70 | 89.60 |
| MEL - 0 504 - PC | 16-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 600 | 0.18 | 73.00 | 4.00 | 305.80 |
| MEL - 0 504 - PC | 16-Aug-19 | 5524 | Asterionella formosa Hassall | 1400 | 0.15 | 105.00 | 2.00 | 110.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 35920 | 0.88 | 2.50 | 5.00 | 24.50 |
| MEL - 0 504 - PC | 16-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 1200 | 8.98 | 17.50 | 33.00 | 7483.90 |
| MEL - 0 504 - PC | 16-Aug-19 | 6554 | Rhodomonas minuta Skuja | 114944 | 10.03 | 10.00 | 5.00 | 87.30 |
| MEL - 0 504 - PC | 16-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1200 | 2.02 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 504 - PC | 16-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 800 | 0.56 | 20.00 | 10.00 | 698.10 |
| MEL - 0 504 - PC | 16-Aug-19 | 6565 | Cryptomonas rostratiformis Skuja | 400 | 0.90 | 33.00 | 14.00 | 2257.80 |
| MEL - 0 504 - PC | 16-Aug-19 | 7632 | Gymnodinium sp. | 200 | 2.06 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 504 - PC | 16-Aug-19 | 7632 | Gymnodinium sp. | 200 | 4.71 | 50.00 | 30.00 | 23561.90 |
| MEL - 0 504 - PC | 16-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1400 | 5.11 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 505 - PC | 16-Aug-19 | 1014 | Chroococcus limneticus Lemmermann | 28736 | 1.77 | 4.90 | 4.90 | 61.60 |
| MEL - 0 505 - PC | 16-Aug-19 | 1073 | Snowella sp | 200 | 0.10 | 0.00 | 0.00 | 500.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 2105 | Chlamydomonas spp. | 7184 | 0.14 | 4.10 | 3.00 | 19.30 |
| MEL - 0 505 - PC | 16-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 14368 | 0.25 | 11.00 | 2.00 | 17.30 |
| MEL - 0 505 - PC | 16-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 800 | 0.24 | 12.60 | 11.00 | 304.80 |
| MEL - 0 505 - PC | 16-Aug-19 | 2199 | Spondylosium planum (Wolle) W. and G.S. West | 7184 | 0.27 | 6.00 | 6.00 | 37.70 |
| MEL - 0 505 - PC | 16-Aug-19 | 2206 | Botryococcus braunii Kutzing | 400 | 0.71 | 15.00 | 15.00 | 1767.10 |
| MEL - 0 505 - PC | 16-Aug-19 | 4351 | Small chrysophyceae | 395120 | 3.24 | 2.50 | 2.50 | 8.20 |
| MEL - 0 505 - PC | 16-Aug-19 | 4352 | Large chrysophyceae | 50288 | 9.03 | 7.00 | 7.00 | 179.60 |
| MEL - 0 505 - PC | 16-Aug-19 | 4355 | Chrysochromulina parva Lackey | 50288 | 3.29 | 5.00 | 5.00 | 65.40 |
| MEL - 0 505 - PC | 16-Aug-19 | 4357 | Chrysococcus sp. | 409488 | 26.78 | 5.00 | 5.00 | 65.40 |
| MEL - 0 505 - PC | 16-Aug-19 | 4358 | Chrysostephanosphaera globulifera Scherffel | 7184 | 2.56 | 8.80 | 8.80 | 356.80 |
| MEL - 0 505 - PC | 16-Aug-19 | 4362 | Kephyrion sp. | 186784 | 3.21 | 3.20 | 3.20 | 17.20 |
| MEL - 0 505 - PC | 16-Aug-19 | 4363 | Spiniferomonas serrata | 7184 | 0.77 | 5.90 | 5.90 | 107.50 |
| MEL - 0 505 - PC | 16-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 64656 | 2.77 | 9.10 | 3.00 | 42.90 |
| MEL - 0 505 - PC | 16-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 35920 | 4.70 | 10.00 | 5.00 | 130.90 |
| MEL - 0 505 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 64656 | 14.63 | 12.00 | 6.00 | 226.20 |
| MEL - 0 505 - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 600 | 0.75 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 193968 | 43.88 | 12.00 | 6.00 | 226.20 |
| MEL - 0 505 - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 2000 | 6.78 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 28736 | 0.86 | 5.60 | 3.20 | 30.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 64656 | 7.31 | 6.00 | 6.00 | 113.10 |
| MEL - 0 505 - PC | 16-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 57472 | 28.32 | 9.80 | 9.80 | 492.80 |
| MEL - 0 505 - PC | 16-Aug-19 | 4414 | Stichogloea spp. | 28736 | 1.45 | 6.00 | 4.00 | 50.30 |
| MEL - 0 505 - PC | 16-Aug-19 | 4415 | Bicosoeca lacustris Clark | 7184 | 0.40 | 5.00 | 4.60 | 55.40 |
| MEL - 0 505 - PC | 16-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 14368 | 0.43 | 5.60 | 3.20 | 30.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 2800 | 5.85 | 11.00 | 22.00 | 2090.70 |
| MEL - 0 505 - PC | 16-Aug-19 | 5508 | Cyclotella pseudostelligera | 7184 | 4.39 | 7.30 | 14.60 | 611.10 |
| MEL - 0 505 - PC | 16-Aug-19 | 5509 | Cyclotella ocellata Pant. | 43104 | 3.86 | 3.85 | 7.70 | 89.60 |
| MEL - 0 505 - PC | 16-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 7184 | 0.51 | 10.00 | 3.00 | 70.70 |
| MEL - 0 505 - PC | 16-Aug-19 | 5515 | Fragilaria crotonensis Kitton | 200 | 0.06 | 74.00 | 4.00 | 310.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 5518 | Synedra acus Kutzing | 200 | 0.02 | 110.00 | 2.00 | 115.20 |
| MEL - 0 505 - PC | 16-Aug-19 | 5524 | Asterionella formosa Hassall | 3200 | 0.35 | 105.00 | 2.00 | 110.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 43104 | 1.06 | 2.50 | 5.00 | 24.50 |
| MEL - 0 505 - PC | 16-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 200 | 1.41 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 505 - PC | 16-Aug-19 | 6554 | Rhodomonas minuta Skuja | 79024 | 6.90 | 10.00 | 5.00 | 87.30 |
| MEL - 0 505 - PC | 16-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 800 | 1.35 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 505 - PC | 16-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 400 | 0.28 | 20.00 | 10.00 | 698.10 |
| MEL - 0 505 - PC | 16-Aug-19 | 6568 | Katablepharis ovalis Skuja | 7184 | 0.32 | 8.00 | 4.00 | 44.70 |
| MEL - 0 505 - PC | 16-Aug-19 | 7632 | Gymnodinium sp. | 400 | 4.12 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 505 - PC | 16-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1600 | 5.84 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 505 - PC | 16-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 400 | 3.62 | 30.00 | 24.00 | 9047.80 |
| MEL - 0 505R - PC | 16-Aug-19 | 2167 | Elakatothrix gelatinosa Willen | 50288 | 0.87 | 11.00 | 2.00 | 17.30 |
| MEL - 0 505R - PC | 16-Aug-19 | 2187 | Staurodesmus extensus (Andersson) Teiling | 400 | 0.12 | 12.60 | 11.00 | 304.80 |
| MEL - 0 505R - PC | 16-Aug-19 | 2206 | Botryococcus braunii Kutzing | 400 | 0.71 | 15.00 | 15.00 | 1767.10 |
| MEL - 0 505R - PC | 16-Aug-19 | 2247 | Oocystis gigas Archer | 400 | 0.97 | 18.00 | 16.00 | 2412.70 |
| MEL - 0 505R - PC | 16-Aug-19 | 4351 | Small chrysophyceae | 294544 | 2.42 | 2.50 | 2.50 | 8.20 |
| MEL - 0 505R - PC | 16-Aug-19 | 4352 | Large chrysophyceae | 43104 | 7.74 | 7.00 | 7.00 | 179.60 |
| MEL - 0 505R - PC | 16-Aug-19 | 4355 | Chrysochromulina parva Lackey | 35920 | 2.35 | 5.00 | 5.00 | 65.40 |
| MEL - 0 505R - PC | 16-Aug-19 | 4357 | Chrysococcus sp. | 495696 | 32.42 | 5.00 | 5.00 | 65.40 |
| MEL - 0 505R - PC | 16-Aug-19 | 4357 | Chrysococcus sp. | 14368 | 5.13 | 8.80 | 8.80 | 356.80 |
| MEL - 0 505R - PC | 16-Aug-19 | 4362 | Kephyrion sp. | 208336 | 3.58 | 3.20 | 3.20 | 17.20 |
| MEL - 0 505R - PC | 16-Aug-19 | 4363 | Spiniferomonas serrata | 21552 | 2.32 | 5.90 | 5.90 | 107.50 |
| MEL - 0 505R - PC | 16-Aug-19 | 4378 | Dinobryon borgei Lemmermann | 43104 | 1.85 | 9.10 | 3.00 | 42.90 |
| MEL - 0 505R - PC | 16-Aug-19 | 4381 | Dinobryon mucronatom Nygaard | 28736 | 3.76 | 10.00 | 5.00 | 130.90 |
| MEL - 0 505R - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 79024 | 17.88 | 12.00 | 6.00 | 226.20 |
| MEL - 0 505R - PC | 16-Aug-19 | 4383 | Dinobryon bavaricum Imhof | 200 | 0.25 | 0.00 | 0.00 | 1250.00 |
| MEL - 0 505R - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 165232 | 37.38 | 12.00 | 6.00 | 226.20 |
| MEL - 0 505R - PC | 16-Aug-19 | 4388 | Dinobryon sertularia Ehrenberg | 1600 | 5.42 | 0.00 | 0.00 | 3390.00 |
| MEL - 0 505R - PC | 16-Aug-19 | 4396 | Chrysolykos skuja (Nauwerck) Willen | 21552 | 0.65 | 5.60 | 3.20 | 30.00 |
| MEL - 0 505R - PC | 16-Aug-19 | 4401 | Uroglena volvox Ehrenberg | 50288 | 5.69 | 6.00 | 6.00 | 113.10 |
| MEL - 0 505R - PC | 16-Aug-19 | 4411 | Bitrichia chodatii (Reverdin) Chodat | 7184 | 0.36 | 6.00 | 4.00 | 50.30 |
| MEL - 0 505R - PC | 16-Aug-19 | 4413 | Chrysochromulina laurentiana Kling | 57472 | 28.32 | 9.80 | 9.80 | 492.80 |
| MEL - 0 505R - PC | 16-Aug-19 | 4414 | Stichogloea spp. | 14368 | 0.72 | 6.00 | 4.00 | 50.30 |
| MEL - 0 505R - PC | 16-Aug-19 | 4415 | Bicosoeca lacustris Clark | 7184 | 0.40 | 5.00 | 4.60 | 55.40 |
| MEL - 0 505R - PC | 16-Aug-19 | 4418 | Salpingoeca frequentissima (Zach.) Lemmermann | 23707 | 0.22 | 2.00 | 3.00 | 9.40 |
| MEL - 0 505R - PC | 16-Aug-19 | 4437 | Pteridomonas sp. | 7184 | 1.59 | 8.60 | 8.60 | 222.00 |

Table G1-1. Phytoplankton species data, Meliadine study lakes, 2019.

| Station | Date | Species code | Species name | Density cells/$L^{-1}$ | Biomass $mg/m^{-3}$ | Length µ | Width µ | Cell Volume $\mu^3$ |
|---|---|---|---|---|---|---|---|---|
| MEL - 0 505R - PC | 16-Aug-19 | 5507 | Cyclotella stelligera Cleve and Grunow | 2200 | 4.60 | 11.00 | 22.00 | 2090.70 |
| MEL - 0 505R - PC | 16-Aug-19 | 5508 | Cyclotella pseudostelligera | 14368 | 8.78 | 7.30 | 14.60 | 611.10 |
| MEL - 0 505R - PC | 16-Aug-19 | 5509 | Cyclotella ocellata Pant. | 64656 | 5.79 | 3.85 | 7.70 | 89.60 |
| MEL - 0 505R - PC | 16-Aug-19 | 5511 | Rhizosolenia eriense H.L. Smith | 21552 | 1.52 | 10.00 | 3.00 | 70.70 |
| MEL - 0 505R - PC | 16-Aug-19 | 5518 | Synedra acus Kutzing | 200 | 0.02 | 110.00 | 2.00 | 115.20 |
| MEL - 0 505R - PC | 16-Aug-19 | 5524 | Asterionella formosa Hassall | 1600 | 0.18 | 105.00 | 2.00 | 110.00 |
| MEL - 0 505R - PC | 16-Aug-19 | 5551 | Cyclotella michiganiana Skvortzow | 64656 | 1.58 | 2.50 | 5.00 | 24.50 |
| MEL - 0 505R - PC | 16-Aug-19 | 5720 | Cyclotella bodanica Eulenst. | 600 | 4.23 | 16.50 | 33.00 | 7056.20 |
| MEL - 0 505R - PC | 16-Aug-19 | 6554 | Rhodomonas minuta Skuja | 100576 | 8.78 | 10.00 | 5.00 | 87.30 |
| MEL - 0 505R - PC | 16-Aug-19 | 6558 | Cryptomonas erosa Ehrenberg | 1200 | 2.02 | 24.60 | 14.00 | 1683.10 |
| MEL - 0 505R - PC | 16-Aug-19 | 6562 | Cryptomonas reflexa (Marsson) Skuja | 200 | 0.14 | 20.00 | 10.00 | 698.10 |
| MEL - 0 505R - PC | 16-Aug-19 | 6568 | Katablepharis ovalis Skuja | 7184 | 0.32 | 8.00 | 4.00 | 44.70 |
| MEL - 0 505R - PC | 16-Aug-19 | 7632 | Gymnodinium sp. | 800 | 8.24 | 27.00 | 27.00 | 10306.00 |
| MEL - 0 505R - PC | 16-Aug-19 | 7639 | Peridinium pusillum (Penard) Lemmermann | 1200 | 4.38 | 19.10 | 19.10 | 3648.40 |
| MEL - 0 505R - PC | 16-Aug-19 | 7641 | Peridinium aciculiferum Lemmermann | 400 | 3.62 | 30.00 | 24.00 | 9047.80 |

# Appendix G2
# 2019 Phytoplankton Taxonomy Database

Table G2-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2019.

| Area-Replicate | Date | Phytoplankton Biomass ($mg/m^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2019*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL -0101 - PC | 8-Aug-19 | 0.3 | 30 | 295 | 28 | 28 | 63 | 445 |
| MEL -0106 - PC | 8-Aug-19 | 0.3 | 14 | 254 | 21 | 35 | 62 | 387 |
| MEL -0107 - PC | 8-Aug-19 | 0.4 | 26 | 242 | 35 | 38 | 79 | 421 |
| MEL -0108 - PC | 8-Aug-19 | 0.3 | 19 | 320 | 30 | 28 | 40 | 437 |
| MEL -0109 - PC | 8-Aug-19 | 0.3 | 24 | 279 | 43 | 43 | 49 | 439 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***5.4*** | ***65*** | ***7.4*** | ***8.1*** | ***14*** | |
| **MEL-02** | | | | | | | | |
| MEL -0201 - PC | 10-Aug-19 | 0 | 12 | 196 | 31 | 6.7 | 21 | 267 |
| MEL -0202 - PC | 10-Aug-19 | 0 | 10 | 124 | 20 | 7.4 | 20 | 182 |
| MEL -0203 - PC | 10-Aug-19 | 0 | 8.9 | 174 | 35 | 11 | 17 | 245 |
| MEL -0204 - PC | 10-Aug-19 | 0 | 19 | 168 | 20 | 119 | 17 | 344 |
| MEL -0205 - PC | 10-Aug-19 | 0.1 | 14 | 187 | 29 | 10 | 23 | 264 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***4.9*** | ***65*** | ***10*** | ***12*** | ***7.6*** | |
| **MEL-03** | | | | | | | | |
| MEL -0301 | 9-Aug-19 | 0 | 3.2 | 154 | 20 | 6.7 | 25 | 209 |
| MEL -0302 | 9-Aug-19 | 0 | 7.9 | 202 | 13 | 5.5 | 15 | 243 |
| MEL -0303 | 9-Aug-19 | 0.10 | 13 | 206 | 11 | 4.0 | 11 | 245 |
| MEL -0304 | 9-Aug-19 | 0.14 | 12 | 185 | 5.0 | 7.7 | 1.4 | 212 |
| MEL -0305 | 9-Aug-19 | 1.5 | 7.6 | 181 | 27 | 8.2 | 12 | 237 |
| ***Percent Density or Biomass*** | | ***0.15*** | ***3.9*** | ***81*** | ***6.7*** | ***2.8*** | ***5.6*** | |
| **MEL-04** | | | | | | | | |
| MEL -0401 | 14-Aug-19 | 0.1 | 11 | 200 | 11 | 16 | 6.6 | 244 |
| MEL -0402 | 14-Aug-19 | 0 | 5.0 | 183 | 13 | 11 | 4.7 | 217 |
| MEL -0403 | 14-Aug-19 | 0 | 2.2 | 177 | 15 | 9.6 | 12 | 216 |
| MEL -0404 | 14-Aug-19 | 0.6 | 4.9 | 144 | 9.1 | 6.5 | 3.6 | 168 |
| MEL -0405 | 14-Aug-19 | 0 | 11 | 187 | 14 | 7.8 | 6.6 | 226 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***3.2*** | ***83*** | ***5.8*** | ***4.8*** | ***3.1*** | |
| **MEL-05** | | | | | | | | |
| MEL -0501 - PC | 16-Aug-19 | 0 | 6.5 | 133 | 10 | 7.9 | 24 | 182 |
| MEL -0502 - PC | 16-Aug-19 | 0 | 5.4 | 172 | 19 | 21 | 33 | 249 |
| MEL -0503 - PC | 16-Aug-19 | 3.5 | 6.3 | 114 | 20 | 8.3 | 6.2 | 159 |
| MEL -0504 - PC | 16-Aug-19 | 0.6 | 21 | 164 | 15 | 14 | 12 | 226 |
| MEL -0505 - PC | 16-Aug-19 | 1.9 | 1.6 | 163 | 18 | 8.8 | 14 | 206 |
| ***Percent Density or Biomass*** | | ***0.59*** | ***4.0*** | ***73*** | ***7.9*** | ***5.8*** | ***8.7*** | |
| ***All 2019 Locations Relative Density or Biomass (%)*** | | ***<0.1*** | ***4.5*** | ***72*** | ***7.7*** | ***7.0*** | ***8.7*** | |

Table G2-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2019.

| Area-Replicate | Date | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2019*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL -0101 - PC | 8-Aug-19 | 600 | 304,528 | 2,363,952 | 149,712 | 38,952 | 7,800 | 2,865,544 |
| MEL -0106 - PC | 8-Aug-19 | 600 | 144,680 | 2,181,752 | 110,592 | 40,952 | 8,400 | 2,486,976 |
| MEL -0107 - PC | 8-Aug-19 | 800 | 231,488 | 2,334,416 | 164,864 | 91,040 | 10,200 | 2,832,808 |
| MEL -0108 - PC | 8-Aug-19 | 600 | 239,472 | 2,715,368 | 176,464 | 69,672 | 5,600 | 3,207,176 |
| MEL -0109 - PC | 8-Aug-19 | 600 | 339,248 | 2,267,160 | 268,256 | 145,312 | 8,000 | 3,028,576 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***8.7*** | ***82*** | ***6.0*** | ***2.7*** | ***0.28*** | |
| **MEL-02** | | | | | | | | |
| MEL -0201 - PC | 10-Aug-19 | 0 | 117,144 | 1,553,944 | 129,328 | 52,288 | 2,600 | 1,855,304 |
| MEL -0202 - PC | 10-Aug-19 | 0 | 173,816 | 1,286,936 | 108,576 | 67,256 | 2,600 | 1,639,184 |
| MEL -0203 - PC | 10-Aug-19 | 0 | 140,096 | 1,683,256 | 111,192 | 68,056 | 2,400 | 2,005,000 |
| MEL -0204 - PC | 10-Aug-19 | 0 | 166,632 | 1,535,192 | 75,056 | 1,331,240 | 2,200 | 3,110,320 |
| MEL -0205 - PC | 10-Aug-19 | 200 | 155,064 | 1,935,896 | 117,960 | 75,240 | 9,384 | 2,293,744 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***6.9*** | ***73*** | ***5.0*** | ***15*** | ***0.18*** | |
| **MEL-03** | | | | | | | | |
| MEL -0301 | 9-Aug-19 | 0 | 122,728 | 1,281,952 | 105,176 | 37,720 | 3,000 | 1,550,576 |
| MEL -0302 | 9-Aug-19 | 0 | 65,456 | 1,749,312 | 159,248 | 24,352 | 2,000 | 2,000,368 |
| MEL -0303 | 9-Aug-19 | 200 | 102,176 | 1,455,568 | 138,496 | 29,736 | 1,600 | 1,727,776 |
| MEL -0304 | 9-Aug-19 | 200 | 74,040 | 1,705,208 | 53,688 | 53,088 | 200 | 1,886,424 |
| MEL -0305 | 9-Aug-19 | 28,736 | 87,408 | 1,719,976 | 154,264 | 32,936 | 1,400 | 2,024,720 |
| ***Percent Density or Biomass*** | | ***0.32*** | ***4.9*** | ***86*** | ***6.6*** | ***1.9*** | ***<0.1*** | |
| **MEL-04** | | | | | | | | |
| MEL -0401 | 14-Aug-19 | 200 | 137,296 | 1,626,384 | 89,408 | 152,664 | 1,000 | 2,006,952 |
| MEL -0402 | 14-Aug-19 | 0 | 166,232 | 1,906,960 | 67,872 | 82,024 | 800 | 2,223,888 |
| MEL -0403 | 14-Aug-19 | 0 | 52,288 | 1,804,984 | 70,256 | 88,408 | 600 | 2,016,536 |
| MEL -0404 | 14-Aug-19 | 57,472 | 67,056 | 1,337,424 | 110,360 | 65,856 | 1,000 | 1,639,168 |
| MEL -0405 | 14-Aug-19 | 0 | 88,008 | 1,661,904 | 98,992 | 80,024 | 800 | 1,929,728 |
| ***Percent Density or Biomass*** | | ***0.59*** | ***5.2*** | ***85*** | ***4.5*** | ***4.8*** | ***<0.1*** | |
| **MEL-05** | | | | | | | | |
| MEL -0501 - PC | 16-Aug-19 | 0 | 123,528 | 1,101,152 | 61,072 | 80,424 | 3,400 | 1,369,576 |
| MEL -0502 - PC | 16-Aug-19 | 0 | 87,608 | 1,676,872 | 93,008 | 197,368 | 2,400 | 2,057,256 |
| MEL -0503 - PC | 16-Aug-19 | 57,472 | 104,176 | 921,752 | 132,512 | 80,024 | 600 | 1,296,536 |
| MEL -0504 - PC | 16-Aug-19 | 1,200 | 109,760 | 1,352,392 | 48,104 | 117,344 | 1,800 | 1,630,600 |
| MEL -0505 - PC | 16-Aug-19 | 28,936 | 29,936 | 1,676,472 | 107,176 | 87,408 | 2,400 | 1,932,328 |
| ***Percent Density or Biomass*** | | ***1.1*** | ***5.5*** | ***81*** | ***5.3*** | ***6.8*** | ***0.13*** | |
| ***All 2019 Locations Relative Density or Biomass (%)*** | | ***2666*** | ***51422*** | ***642220*** | ***43503*** | ***47817*** | ***1232*** | |

# Appendix G3
# 2018 Phytoplankton Taxonomy Database

Table G3-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2018.

| Area-Replicate | Date | Phytoplankton Biomass ($mg/m^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2018*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL -0101 | 22-Aug-18 | 1.5 | 28 | 165 | 61 | 42 | 41 | 339 |
| MEL -0106 | 22-Aug-18 | 0.6 | 24 | 180 | 56 | 59 | 38 | 356 |
| MEL -0107 | 21-Aug-18 | 7.3 | 25 | 139 | 61 | 46 | 58 | 336 |
| MEL -0108 | 22-Aug-18 | 0.5 | 21 | 141 | 70 | 45 | 19 | 297 |
| MEL -0109 | 21-Aug-18 | 0.8 | 40 | 166 | 63 | 58 | 38 | 367 |
| ***Percent Density or Biomass*** | | ***0.62*** | ***8.2*** | ***47*** | ***18*** | ***15*** | ***11*** | |
| **MEL-02** | | | | | | | | |
| MEL -0202 | 31-Aug-18 | 0 | 8.3 | 36 | 35 | 5.5 | 21 | 105 |
| MEL -0203 | 18-Aug-18 | 0 | 34 | 156 | 29 | 51 | 60 | 329 |
| MEL -0205 | 18-Aug-18 | 0.2 | 27 | 120 | 31 | 32 | 38 | 247 |
| MEL -0206 | 31-Aug-18 | 1.3 | 17 | 57 | 40 | 15 | 12 | 143 |
| MEL -0208 | 15-Aug-18 | 0 | 13 | 109 | 38 | 27 | 22 | 209 |
| ***Percent Density or Biomass*** | | ***0.14*** | ***9.6*** | ***46*** | ***17*** | ***13*** | ***15*** | |
| **MEL-03** | | | | | | | | |
| MEL -0301 | 20-Aug-18 | 0 | 28 | 193 | 18 | 33 | 33 | 306 |
| MEL -0302 | 26-Aug-18 | 0.15 | 16 | 144 | 17 | 44 | 32 | 254 |
| MEL -0303 | 20-Aug-18 | 0 | 9.6 | 187 | 18 | 32 | 55 | 301 |
| MEL -0304 | 26-Aug-18 | 0.89 | 14 | 173 | 15 | 60 | 5.8 | 268 |
| MEL -0305 | 26-Aug-18 | 0.44 | 22 | 158 | 21 | 35 | 15 | 252 |
| ***Percent Density or Biomass*** | | ***0.11*** | ***6.6*** | ***62*** | ***6.5*** | ***15*** | ***10*** | |
| **MEL-04** | | | | | | | | |
| MEL -0401 | 2-Sep-18 | 0 | 32 | 120 | 21 | 32 | 25 | 228 |
| MEL -0402 | 2-Sep-18 | 0 | 31 | 131 | 27 | 49 | 13 | 250 |
| MEL -0403 | 2-Sep-18 | 4.9 | 7.8 | 125 | 15 | 63 | 12 | 227 |
| MEL -0405 | 2-Sep-18 | 0 | 21 | 132 | 18 | 57 | 28 | 256 |
| ***Percent Density or Biomass*** | | ***0.51*** | ***9.5*** | ***53*** | ***8.4*** | ***21*** | ***8.1*** | |
| **MEL-05** | | | | | | | | |
| MEL -0501 | 1-Sep-18 | 0 | 17 | 131 | 16 | 27 | 19 | 209 |
| MEL -0502 | 30-Aug-18 | 0 | 11 | 70 | 36 | 16 | 23 | 155 |
| MEL -0503 | 29-Aug-18 | 0 | 19 | 85 | 22 | 29 | 7.9 | 162 |
| MEL -0504 | 30-Aug-18 | 0.6 | 25 | 68 | 25 | 14 | 8.5 | 140 |
| MEL -0505 | 29-Aug-18 | 2.3 | 9.1 | 72 | 25 | 16 | 6.2 | 132 |
| ***Percent Density or Biomass*** | | ***0.36*** | ***10*** | ***53*** | ***16*** | ***13*** | ***8.0*** | |
| ***All 2018 Locations Relative Density or Biomass (%)*** | | ***0.36*** | ***8.5*** | ***52*** | ***13*** | ***15*** | ***11*** | |

Table G3-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2018.

| Area-Replicate | Date | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | TOTAL |
| ***2018*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL -0101 | 22-Aug-18 | 29,336 | 683,680 | 2,321,032 | 448,784 | 179,032 | 4,800 | 3,666,664 |
| MEL -0106 | 22-Aug-18 | 800 | 690,864 | 2,450,744 | 343,792 | 267,640 | 4,400 | 3,758,240 |
| MEL -0107 | 21-Aug-18 | 1,000 | 698,848 | 2,227,440 | 367,712 | 147,312 | 5,800 | 3,448,112 |
| MEL -0108 | 22-Aug-18 | 600 | 339,448 | 2,163,384 | 319,904 | 168,064 | 2,600 | 2,994,000 |
| MEL -0109 | 21-Aug-18 | 1,000 | 620,424 | 2,385,488 | 424,448 | 213,568 | 4,200 | 3,649,128 |
| ***Percent Density or Biomass*** | | ***0.19*** | ***17*** | ***66*** | ***11*** | ***5.6*** | ***0.12*** | |
| **MEL-02** | | | | | | | | |
| MEL -0202 | 31-Aug-18 | 0 | 252,240 | 538,800 | 366,032 | 3,200 | 2,600 | 1,162,872 |
| MEL -0203 | 18-Aug-18 | 0 | 598,272 | 1,998,352 | 215,352 | 229,320 | 7,200 | 3,048,496 |
| MEL -0205 | 18-Aug-18 | 200 | 367,584 | 2,004,336 | 272,024 | 164,248 | 11,384 | 2,819,776 |
| MEL -0206 | 31-Aug-18 | 28,736 | 260,624 | 820,576 | 279,456 | 88,008 | 1,800 | 1,479,200 |
| MEL -0208 | 15-Aug-18 | 0 | 196,168 | 1,401,480 | 261,088 | 134,712 | 3,600 | 1,997,048 |
| ***Percent Density or Biomass*** | | ***0.28*** | ***16*** | ***64*** | ***13*** | ***5.9*** | ***0.25*** | |
| **MEL-03** | | | | | | | | |
| MEL -0301 | 20-Aug-18 | 0 | 195,368 | 2,746,488 | 153,080 | 184,800 | 3,400 | 3,283,136 |
| MEL -0302 | 26-Aug-18 | 200 | 239,272 | 1,933,696 | 139,912 | 251,656 | 4,000 | 2,568,736 |
| MEL -0303 | 20-Aug-18 | 0 | 138,696 | 3,313,424 | 118,760 | 191,384 | 5,600 | 3,767,864 |
| MEL -0304 | 26-Aug-18 | 28,736 | 159,648 | 2,150,416 | 73,856 | 359,416 | 1,600 | 2,773,672 |
| MEL -0305 | 26-Aug-18 | 200 | 175,616 | 2,364,536 | 129,128 | 205,952 | 2,600 | 2,878,032 |
| ***Percent Density or Biomass*** | | ***0.19*** | ***5.9*** | ***82*** | ***4.0*** | ***7.8*** | ***0.11*** | |
| **MEL-04** | | | | | | | | |
| MEL -0401 | 2-Sep-18 | 0 | 143,096 | 1,904,960 | 130,328 | 203,552 | 2,000 | 2,383,936 |
| MEL -0402 | 2-Sep-18 | 0 | 260,424 | 1,811,168 | 81,640 | 326,080 | 1,200 | 2,480,512 |
| MEL -0403 | 2-Sep-18 | 1,400 | 181,400 | 1,810,768 | 162,648 | 426,456 | 800 | 2,583,472 |
| MEL -0405 | 2-Sep-18 | 0 | 296,144 | 2,054,824 | 135,312 | 390,336 | 2,600 | 2,879,216 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***8.5*** | ***73*** | ***4.9*** | ***13*** | ***<0.1*** | |
| **MEL-05** | | | | | | | | |
| MEL -0501 | 1-Sep-18 | 0 | 145,280 | 2,400,056 | 108,376 | 174,016 | 1,200 | 2,828,928 |
| MEL -0502 | 30-Aug-18 | 0 | 118,744 | 1,078,800 | 206,768 | 75,240 | 1,200 | 1,480,752 |
| MEL -0503 | 29-Aug-18 | 0 | 176,216 | 1,056,248 | 229,704 | 182,200 | 800 | 1,645,168 |
| MEL -0504 | 30-Aug-18 | 800 | 232,088 | 1,070,816 | 167,448 | 74,040 | 600 | 1,545,792 |
| MEL -0505 | 29-Aug-18 | 15,168 | 159,848 | 1,020,128 | 232,504 | 88,608 | 400 | 1,516,656 |
| ***Percent Density or Biomass*** | | ***0.18*** | ***9.2*** | ***73*** | ***10*** | ***6.6*** | ***<0.1*** | |
| ***All 2018 Locations Relative Density or Biomass (%)*** | | ***1843*** | ***124878*** | ***767124*** | ***91454*** | ***80563*** | ***1301*** | |

# Appendix G4
# 2017 Phytoplankton Taxonomy Database

Table G4-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2017.

| Area-Replicate | Date | Phytoplankton Biomass (mg/m$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2017*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 16-Jul-17 | 0.8 | 12 | 439 | 26 | 23 | 100 | 600 |
| MEL - 0102 | 16-Jul-17 | 0 | 21 | 319 | 39 | 23 | 58 | 460 |
| MEL - 0103 | 16-Jul-17 | 0 | 11 | 369 | 32 | 23 | 52 | 486 |
| MEL - 0104 | 16-Jul-17 | 0.1 | 22 | 400 | 36 | 22 | 55 | 534 |
| MEL - 0105 | 16-Jul-17 | 0.5 | 16 | 359 | 32 | 14 | 57 | 479 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***3.2*** | ***74*** | ***6.5*** | ***4.1*** | ***13*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 9-Aug-17 | 0.1 | 24 | 164 | 21 | 30 | 55 | 293 |
| MEL - 0102 | 9-Aug-17 | 0.8 | 22 | 171 | 8.7 | 37 | 19 | 259 |
| MEL - 0103 | 9-Aug-17 | 0.1 | 9.5 | 200 | 29 | 44 | 60 | 342 |
| MEL - 0104 | 9-Aug-17 | 0.1 | 9.7 | 195 | 9.2 | 53 | 82 | 349 |
| MEL - 0105 | 9-Aug-17 | 0.7 | 31 | 212 | 16 | 27 | 50 | 337 |
| ***Percent Density or Biomass*** | | ***0.11*** | ***6.1*** | ***60*** | ***5.2*** | ***12*** | ***17*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 4-Sep-17 | 0 | 7.8 | 103 | 46 | 23 | 17 | 198 |
| MEL - 0102 | 4-Sep-17 | 0 | 14 | 105 | 28 | 12 | 31 | 190 |
| MEL - 0103 | 4-Sep-17 | 0.15 | 7.8 | 76 | 35 | 12 | 39 | 169 |
| MEL - 0104 | 4-Sep-17 | 0 | 9.5 | 111 | 32 | 16 | 34 | 203 |
| MEL - 0105 | 4-Sep-17 | 0 | 21 | 64 | 29 | 7.5 | 36 | 158 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***6.6*** | ***50*** | ***19*** | ***7.7*** | ***17*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 23-Jul-17 | 0 | 11 | 196 | 8.3 | 18 | 27 | 262 |
| MEL - 0202 | 23-Jul-17 | 0 | 15 | 254 | 5.5 | 12 | 9.9 | 296 |
| MEL - 0203 | 23-Jul-17 | 5.4 | 3.3 | 333 | 7.6 | 15 | 41 | 405 |
| MEL - 0204 | 23-Jul-17 | 0 | 9.2 | 244 | 9.0 | 11 | 16 | 288 |
| MEL - 0205 | 23-Jul-17 | 0 | 13 | 222 | 13 | 9.3 | 15 | 272 |
| ***Percent Density or Biomass*** | | ***0.36*** | ***3.4*** | ***82*** | ***2.9*** | ***4.3*** | ***7.2*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 11-Aug-17 | 0.2 | 15 | 121 | 19 | 33 | 21 | 209 |
| MEL - 0202 | 11-Aug-17 | 0.3 | 16 | 116 | 22 | 36 | 18 | 208 |
| MEL - 0203 | 11-Aug-17 | 11 | 24 | 127 | 9.7 | 34 | 13 | 219 |
| MEL - 0204 | 11-Aug-17 | 0.1 | 59 | 147 | 17 | 40 | 28 | 292 |
| MEL - 0205 | 11-Aug-17 | 0 | 14 | 101 | 8.0 | 37 | 22 | 181 |
| ***Percent Density or Biomass*** | | ***1.0*** | ***12*** | ***55*** | ***6.9*** | ***16*** | ***9.3*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 5-Sep-17 | 0.1 | 8.7 | 72 | 27 | 8.8 | 17 | 134 |
| MEL - 0202 | 5-Sep-17 | 0 | 12 | 76 | 17 | 5.0 | 9.4 | 120 |
| MEL - 0203 | 5-Sep-17 | 0.1 | 12 | 87 | 25 | 9.6 | 22 | 156 |
| MEL - 0204 | 5-Sep-17 | 0.02 | 7.4 | 67 | 25 | 5.8 | 13 | 117 |
| MEL - 0205 | 5-Sep-17 | 0 | 15 | 91 | 24 | 11 | 15 | 157 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***8.0*** | ***57*** | ***17*** | ***5.9*** | ***11*** | |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 21-Jul-17 | 0 | 6.1 | 185 | 7.8 | 11 | 6.7 | 216 |
| MEL - 0302 | 21-Jul-17 | 0 | 4.9 | 158 | 9.9 | 16 | 21 | 210 |
| MEL - 0303 | 21-Jul-17 | 0.3 | 3.8 | 201 | 8.2 | 16 | 15 | 244 |
| MEL - 0304 | 21-Jul-17 | 0 | 5.2 | 184 | 4.7 | 8.0 | 22 | 224 |
| MEL - 0305 | 21-Jul-17 | 0.0 | 1.8 | 208 | 8.1 | 11 | 8.9 | 238 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***1.9*** | ***83*** | ***3.4*** | ***5.4*** | ***6.5*** | |

Table G4-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2017.

| Area-Replicate | Date | Phytoplankton Biomass (mg/m$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 13-Aug-17 | 0 | 5.3 | 137 | 4.2 | 28 | 27 | 203 |
| MEL - 0302 | 13-Aug-17 | 0 | 9.2 | 120 | 6.5 | 36 | 30 | 202 |
| MEL - 0303 | 13-Aug-17 | 0 | 8.2 | 122 | 5.3 | 23 | 21 | 181 |
| MEL - 0304 | 13-Aug-17 | 0.1 | 5.2 | 151 | 7.3 | 20 | 12 | 195 |
| MEL - 0305 | 13-Aug-17 | 0.9 | 13 | 150 | 13 | 34 | 37 | 248 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***4.0*** | ***66*** | ***3.6*** | ***14*** | ***12*** | |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 1-Sep-17 | 0 | 7.0 | 109 | 20 | 20 | 12 | 167 |
| MEL - 0302 | 1-Sep-17 | 0 | 2.8 | 72 | 11 | 5.6 | 4.0 | 95 |
| MEL - 0303 | 1-Sep-17 | 0.2 | 8.4 | 98 | 10 | 6.7 | 13 | 137 |
| MEL - 0304 | 1-Sep-17 | 0 | 8.9 | 104 | 12 | 5.3 | 20 | 150 |
| MEL - 0305 | 1-Sep-17 | 0 | 7.6 | 95 | 13 | 10 | 20 | 146 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***5.0*** | ***69*** | ***9.4*** | ***6.9*** | ***9.9*** | |
| **MEL-04** | | | | | | | | |
| MEL - 0401 | 15-Aug-17 | 0 | 7.3 | 102 | 8.1 | 49 | 5.9 | 173 |
| MEL - 0402 | 15-Aug-17 | 19 | 8.2 | 119 | 11 | 37 | 6.4 | 202 |
| MEL - 0403 | 15-Aug-17 | 0 | 5.2 | 111 | 10 | 55 | 10 | 192 |
| MEL - 0404 | 15-Aug-17 | 39 | 10 | 130 | 10 | 32 | 12 | 233 |
| MEL - 0405 | 15-Aug-17 | 0.4 | 8.6 | 142 | 3.9 | 35 | 14 | 204 |
| ***Percent Density or Biomass*** | | ***5.8*** | ***4.0*** | ***60*** | ***4.4*** | ***21*** | ***4.9*** | |
| **MEL-05** | | | | | | | | |
| MEL - 0501 | 12-Aug-17 | 0.2 | 9.5 | 156 | 13 | 57 | 19 | 255 |
| MEL - 0502 | 12-Aug-17 | 0 | 14 | 156 | 15 | 28 | 13 | 226 |
| MEL - 0503 | 12-Aug-17 | 0 | 11 | 128 | 9.7 | 38 | 11 | 197 |
| MEL - 0504 | 12-Aug-17 | 0 | 8.2 | 124 | 10 | 35 | 19 | 197 |
| MEL - 0505 | 12-Aug-17 | 0 | 4.3 | 130 | 7.3 | 52 | 10 | 204 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***4.3*** | ***64*** | ***5.1*** | ***19*** | ***6.7*** | |
| ***All 2017 Locations Relative Density or Biomass (%)*** | | ***<0.1*** | ***5.2*** | ***68*** | ***7.3*** | ***7.5*** | ***12*** | |

Table G4-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2017.

| Area-Replicate | Date | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2017*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 16-Jul-17 | 28,936 | 72,840 | 4,195,272 | 283,824 | 165,648 | 63,936 | 4,810,456 |
| MEL - 0102 | 16-Jul-17 | 0 | 158,848 | 3,415,016 | 401,016 | 206,952 | 7,400 | 4,189,232 |
| MEL - 0103 | 16-Jul-17 | 0 | 80,624 | 3,560,896 | 293,224 | 220,720 | 23,368 | 4,178,832 |
| MEL - 0104 | 16-Jul-17 | 200 | 187,384 | 3,730,712 | 315,792 | 144,896 | 8,800 | 4,387,784 |
| MEL - 0105 | 16-Jul-17 | 600 | 144,080 | 3,662,856 | 352,080 | 119,344 | 7,200 | 4,286,160 |
| ***Percent Density or Biomass*** | | ***0.14*** | ***2.9*** | ***85*** | ***7.5*** | ***3.9*** | ***0.51*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 9-Aug-17 | 200 | 259,824 | 1,905,560 | 108,824 | 196,768 | 8,200 | 2,479,376 |
| MEL - 0102 | 9-Aug-17 | 1,400 | 210,936 | 2,027,688 | 55,536 | 239,272 | 25,552 | 2,560,384 |
| MEL - 0103 | 9-Aug-17 | 200 | 131,512 | 1,913,344 | 105,656 | 270,608 | 9,200 | 2,430,520 |
| MEL - 0104 | 9-Aug-17 | 200 | 138,096 | 2,108,912 | 85,256 | 348,832 | 19,984 | 2,701,280 |
| MEL - 0105 | 9-Aug-17 | 1,200 | 339,848 | 2,357,552 | 137,560 | 162,248 | 15,584 | 3,013,992 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***8.2*** | ***78*** | ***3.7*** | ***9.2*** | ***0.60*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 4-Sep-17 | 0 | 130,712 | 1,315,672 | 237,824 | 173,016 | 8,784 | 1,866,208 |
| MEL - 0102 | 4-Sep-17 | 0 | 223,104 | 1,466,936 | 228,624 | 80,424 | 5,200 | 2,004,288 |
| MEL - 0103 | 4-Sep-17 | 200 | 151,664 | 1,279,552 | 197,520 | 86,608 | 5,400 | 1,720,944 |
| MEL - 0104 | 4-Sep-17 | 0 | 245,056 | 1,509,240 | 248,656 | 115,544 | 10,184 | 2,128,680 |
| MEL - 0105 | 4-Sep-17 | 0 | 332,664 | 798,024 | 183,936 | 44,704 | 11,784 | 1,371,112 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***12*** | ***70*** | ***12*** | ***5.5*** | ***0.45*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 23-Jul-17 | 0 | 66,656 | 1,821,352 | 150,680 | 196,368 | 5,400 | 2,240,456 |
| MEL - 0202 | 23-Jul-17 | 0 | 73,640 | 2,505,232 | 56,688 | 110,960 | 9,384 | 2,755,904 |
| MEL - 0203 | 23-Jul-17 | 21,552 | 137,496 | 3,015,696 | 71,656 | 160,448 | 8,000 | 3,414,848 |
| MEL - 0204 | 23-Jul-17 | 0 | 66,456 | 2,503,032 | 65,672 | 109,960 | 3,400 | 2,748,520 |
| MEL - 0205 | 23-Jul-17 | 0 | 81,624 | 2,237,224 | 125,544 | 81,024 | 2,400 | 2,527,816 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***3.2*** | ***89*** | ***5.0*** | ***3.2*** | ***<0.1*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 11-Aug-17 | 200 | 274,992 | 1,465,736 | 156,664 | 197,568 | 16,568 | 2,111,728 |
| MEL - 0202 | 11-Aug-17 | 600 | 324,280 | 1,523,408 | 88,624 | 224,904 | 17,568 | 2,179,384 |
| MEL - 0203 | 11-Aug-17 | 28,736 | 389,536 | 1,466,536 | 27,352 | 217,920 | 2,400 | 2,132,480 |
| MEL - 0204 | 11-Aug-17 | 200 | 353,816 | 1,553,544 | 101,192 | 254,640 | 11,784 | 2,275,176 |
| MEL - 0205 | 11-Aug-17 | 0 | 153,064 | 1,394,496 | 61,872 | 219,520 | 5,200 | 1,834,152 |
| ***Percent Density or Biomass*** | | ***0.28*** | ***14*** | ***70*** | ***4.1*** | ***11*** | ***0.51*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 5-Sep-17 | 200 | 80,624 | 776,672 | 129,776 | 51,688 | 3,600 | 1,042,560 |
| MEL - 0202 | 5-Sep-17 | 0 | 64,856 | 784,856 | 205,784 | 29,536 | 2,600 | 1,087,632 |
| MEL - 0203 | 5-Sep-17 | 200 | 81,824 | 922,952 | 134,760 | 52,288 | 18,368 | 1,210,392 |
| MEL - 0204 | 5-Sep-17 | 200 | 51,488 | 763,704 | 174,696 | 37,120 | 4,600 | 1,031,808 |
| MEL - 0205 | 5-Sep-17 | 0 | 152,464 | 979,624 | 125,424 | 66,256 | 3,400 | 1,327,168 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***7.6*** | ***74*** | ***14*** | ***4.2*** | ***0.57*** | |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 21-Jul-17 | 0 | 36,720 | 1,934,296 | 96,192 | 88,608 | 1,400 | 2,157,216 |
| MEL - 0302 | 21-Jul-17 | 0 | 50,888 | 1,783,632 | 95,008 | 152,464 | 3,800 | 2,085,792 |
| MEL - 0303 | 21-Jul-17 | 600 | 36,520 | 2,207,288 | 132,112 | 139,296 | 2,600 | 2,518,416 |
| MEL - 0304 | 21-Jul-17 | 0 | 52,088 | 2,307,664 | 67,656 | 60,072 | 11,184 | 2,498,664 |
| MEL - 0305 | 21-Jul-17 | 200 | 22,352 | 2,157,800 | 145,480 | 109,360 | 3,000 | 2,438,192 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***1.5*** | ***90*** | ***4.3*** | ***3.4*** | ***0.29*** | |

Table G4-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2017.

| Area-Replicate | Date | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 13-Aug-17 | 0 | 137,696 | 1,310,288 | 26,352 | 189,184 | 18,768 | 1,682,288 |
| MEL - 0302 | 13-Aug-17 | 0 | 131,312 | 1,396,296 | 54,088 | 252,640 | 4,600 | 1,838,936 |
| MEL - 0303 | 13-Aug-17 | 0 | 166,032 | 1,480,504 | 66,656 | 146,080 | 3,600 | 1,863,072 |
| MEL - 0304 | 13-Aug-17 | 200 | 102,176 | 1,684,056 | 54,688 | 124,128 | 10,984 | 1,976,232 |
| MEL - 0305 | 13-Aug-17 | 200 | 109,360 | 1,950,464 | 67,072 | 217,920 | 5,400 | 2,350,416 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***4.9*** | ***84*** | ***2.8*** | ***7.9*** | ***0.38*** | |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 1-Sep-17 | 0 | 86,808 | 1,243,632 | 99,608 | 137,096 | 2,200 | 1,569,344 |
| MEL - 0302 | 1-Sep-17 | 0 | 36,120 | 970,240 | 70,456 | 80,024 | 1,000 | 1,157,840 |
| MEL - 0303 | 1-Sep-17 | 200 | 73,840 | 1,100,352 | 50,504 | 43,704 | 4,600 | 1,273,200 |
| MEL - 0304 | 1-Sep-17 | 0 | 95,192 | 814,192 | 84,824 | 29,736 | 3,200 | 1,027,144 |
| MEL - 0305 | 1-Sep-17 | 0 | 87,208 | 1,043,680 | 114,760 | 66,056 | 3,200 | 1,314,904 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***7.8*** | ***79*** | ***8.5*** | ***4.1*** | ***0.27*** | |
| **MEL-04** | | | | | | | | |
| MEL - 0401 | 15-Aug-17 | 0 | 146,280 | 1,351,392 | 47,504 | 318,696 | 1,000 | 1,864,872 |
| MEL - 0402 | 15-Aug-17 | 57,472 | 131,112 | 1,523,408 | 53,888 | 231,688 | 1,000 | 1,998,568 |
| MEL - 0403 | 15-Aug-17 | 0 | 116,344 | 1,523,608 | 76,040 | 368,984 | 2,000 | 2,086,976 |
| MEL - 0404 | 15-Aug-17 | 114,944 | 231,688 | 1,667,888 | 69,456 | 210,136 | 7,784 | 2,301,896 |
| MEL - 0405 | 15-Aug-17 | 200 | 181,000 | 1,761,680 | 38,720 | 231,888 | 2,200 | 2,215,688 |
| ***Percent Density or Biomass*** | | ***2.5*** | ***9.1*** | ***76*** | ***2.4*** | ***9.8*** | ***0.22*** | |
| **MEL-05** | | | | | | | | |
| MEL - 0501 | 12-Aug-17 | 400 | 196,368 | 2,012,720 | 119,944 | 364,200 | 10,384 | 2,704,016 |
| MEL - 0502 | 12-Aug-17 | 0 | 319,096 | 1,776,048 | 126,128 | 183,600 | 2,200 | 2,407,072 |
| MEL - 0503 | 12-Aug-17 | 0 | 102,776 | 1,444,584 | 46,104 | 240,872 | 3,200 | 1,837,536 |
| MEL - 0504 | 12-Aug-17 | 0 | 159,448 | 1,660,304 | 48,904 | 225,904 | 9,984 | 2,104,544 |
| MEL - 0505 | 12-Aug-17 | 0 | 108,760 | 1,329,840 | 67,456 | 321,496 | 1,800 | 1,829,352 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***6.8*** | ***76*** | ***3.0*** | ***14*** | ***0.30*** | |
| ***All 2017 Locations Relative Density or Biomass (%)*** | | ***903*** | ***56370*** | ***729558*** | ***57313*** | ***54024*** | ***3863*** | |

# Appendix G5
# 2016 Phytoplankton Taxonomy Database

Table G5-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2016.

| Area-Replicate | Date | Phytoplankton Biomass (mg/m$^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2016*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 21-Jul-16 | 0 | 4.6 | 244 | 70 | 15 | 31 | 364 |
| MEL - 0102 | 21-Jul-16 | 0 | 19 | 388 | 73 | 15 | 56 | 551 |
| MEL - 0103 | 21-Jul-16 | 0 | 9.1 | 311 | 84 | 12 | 76 | 493 |
| MEL - 0104 | 22-Jul-16 | 0 | 8.6 | 337 | 101 | 18 | 47 | 511 |
| MEL - 0105 | 22-Jul-16 | 0.3 | 8.6 | 331 | 109 | 32 | 47 | 529 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***2.0*** | ***66*** | ***18*** | ***3.8*** | ***10*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 11-Aug-16 | 0.2 | 23 | 229 | 15 | 24 | 25 | 315 |
| MEL - 0102 | 11-Aug-16 | 13 | 18 | 231 | 13 | 25 | 29 | 328 |
| MEL - 0103 | 11-Aug-16 | 0.6 | 26 | 227 | 5.8 | 28 | 52 | 339 |
| MEL - 0104 | 11-Aug-16 | 0.2 | 24 | 301 | 28 | 36 | 58 | 446 |
| MEL - 0105 | 11-Aug-16 | 0 | 16 | 227 | 13 | 18 | 50 | 324 |
| ***Percent Density or Biomass*** | | ***0.80*** | ***6.1*** | ***69*** | ***4.2*** | ***7.5*** | ***12*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 10-Sep-16 | 0 | 5.0 | 393 | 16 | 25 | 72 | 512 |
| MEL - 0102 | 10-Sep-16 | 0 | 7.6 | 405 | 16 | 34 | 40 | 502 |
| MEL - 0103 | 10-Sep-16 | 0.40 | 6.7 | 367 | 19 | 22 | 39 | 456 |
| MEL - 0104 | 10-Sep-16 | 0.51 | 11 | 389 | 19 | 31 | 71 | 521 |
| MEL - 0105 | 10-Sep-16 | 0 | 12 | 350 | 26 | 27 | 106 | 522 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***1.7*** | ***76*** | ***3.8*** | ***5.5*** | ***13*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 23-Jul-16 | 2.5 | 9.2 | 357 | 49 | 27 | 20 | 465 |
| MEL - 0202 | 23-Jul-16 | 0 | 1.4 | 49 | 11 | 4.0 | 1.3 | 66 |
| MEL - 0203 | 23-Jul-16 | 12 | 13 | 289 | 32 | 20 | 27 | 394 |
| MEL - 0204 | 23-Jul-16 | 1.3 | 8.7 | 347 | 48 | 23 | 25 | 453 |
| MEL - 0205 | 23-Jul-16 | 5.5 | 6.2 | 398 | 39 | 28 | 19 | 495 |
| ***Percent Density or Biomass*** | | ***1.1*** | ***2.0*** | ***77*** | ***9.6*** | ***5.5*** | ***4.9*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 11-Aug-16 | 0 | 16 | 102 | 31 | 29 | 14 | 192 |
| MEL - 0202 | 11-Aug-16 | 0.3 | 11 | 127 | 54 | 31 | 19 | 243 |
| MEL - 0203 | 11-Aug-16 | 1.0 | 11 | 173 | 22 | 32 | 66 | 304 |
| MEL - 0204 | 11-Aug-16 | 0 | 17 | 121 | 24 | 48 | 28 | 237 |
| MEL - 0205 | 11-Aug-16 | 0 | 13 | 171 | 29 | 42 | 30 | 285 |
| ***Percent Density or Biomass*** | | ***0.10*** | ***5.4*** | ***55*** | ***13*** | ***14*** | ***12*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 11-Sep-16 | 2.8 | 6.1 | 182 | 36 | 27 | 41 | 295 |
| MEL - 0202 | 11-Sep-16 | 0.6 | 10 | 195 | 26 | 28 | 25 | 285 |
| MEL - 0203 | 11-Sep-16 | 5.0 | 8.7 | 197 | 29 | 22 | 46 | 306 |
| MEL - 0204 | 11-Sep-16 | 0 | 8.5 | 245 | 19 | 29 | 33 | 333 |
| MEL - 0205 | 11-Sep-16 | 0 | 5.5 | 177 | 22 | 29 | 34 | 268 |
| ***Percent Density or Biomass*** | | ***0.57*** | ***2.6*** | ***67*** | ***8.9*** | ***9.0*** | ***12*** | |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 26-Jul-16 | 5.5 | 2.9 | 207 | 10 | 19 | 33 | 277 |
| MEL - 0302 | 26-Jul-16 | 0.7 | 11 | 211 | 34 | 18 | 27 | 302 |
| MEL - 0303 | 26-Jul-16 | 1.4 | 4.5 | 280 | 21 | 28 | 26 | 360 |
| MEL - 0304 | 26-Jul-16 | 0 | 4.7 | 282 | 11 | 16 | 24 | 338 |
| MEL - 0305 | 26-Jul-16 | 2.1 | 7.1 | 215 | 23 | 24 | 47 | 318 |
| ***Percent Density or Biomass*** | | ***0.61*** | ***1.9*** | ***75*** | ***6.2*** | ***6.5*** | ***9.8*** | |

Table G5-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2016.

| Area-Replicate | Date | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2016*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 21-Jul-16 | 0 | 58,672 | 2,444,760 | 753,800 | 37,536 | 5,800 | 3,300,568 |
| MEL - 0102 | 21-Jul-16 | 0 | 187,584 | 3,718,944 | 848,592 | 98,792 | 8,400 | 4,862,312 |
| MEL - 0103 | 21-Jul-16 | 0 | 158,648 | 3,154,792 | 993,656 | 96,792 | 10,400 | 4,414,488 |
| MEL - 0104 | 22-Jul-16 | 0 | 79,624 | 3,354,544 | 965,952 | 59,688 | 5,800 | 4,465,608 |
| MEL - 0105 | 22-Jul-16 | 200 | 79,824 | 3,387,880 | 1,300,832 | 129,744 | 5,000 | 4,903,480 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***2.6*** | ***73*** | ***22*** | ***1.9*** | ***0.16*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 11-Aug-16 | 200 | 246,856 | 2,122,280 | 95,824 | 150,880 | 5,800 | 2,621,840 |
| MEL - 0102 | 11-Aug-16 | 114,944 | 245,856 | 2,746,688 | 140,112 | 163,048 | 11,384 | 3,422,032 |
| MEL - 0103 | 11-Aug-16 | 3,000 | 325,080 | 1,987,484 | 93,208 | 150,480 | 12,984 | 2,572,236 |
| MEL - 0104 | 11-Aug-16 | 400 | 239,472 | 2,452,344 | 136,344 | 201,568 | 15,184 | 3,045,312 |
| MEL - 0105 | 11-Aug-16 | 0 | 231,088 | 2,430,592 | 130,944 | 85,624 | 7,400 | 2,885,648 |
| ***Percent Density or Biomass*** | | ***0.81*** | ***8.9*** | ***81*** | ***4.1*** | ***5.2*** | ***0.36*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 10-Sep-16 | 0 | 80,424 | 2,372,120 | 111,640 | 138,312 | 8,400 | 2,711,096 |
| MEL - 0102 | 10-Sep-16 | 0 | 97,792 | 2,458,128 | 161,712 | 173,432 | 5,400 | 2,896,464 |
| MEL - 0103 | 10-Sep-16 | 400 | 73,840 | 1,814,168 | 223,016 | 155,264 | 4,800 | 2,271,688 |
| MEL - 0104 | 10-Sep-16 | 200 | 195,768 | 2,221,656 | 224,784 | 159,464 | 23,568 | 2,825,440 |
| MEL - 0105 | 10-Sep-16 | 0 | 277,392 | 2,343,784 | 222,184 | 109,376 | 34,552 | 2,987,288 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***5.3*** | ***82*** | ***6.9*** | ***5.4*** | ***0.56*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 23-Jul-16 | 12,600 | 101,976 | 3,529,960 | 485,376 | 116,360 | 5,200 | 4,251,472 |
| MEL - 0202 | 23-Jul-16 | 0 | 32,736 | 668,112 | 58,688 | 72,040 | 400 | 831,976 |
| MEL - 0203 | 23-Jul-16 | 114,944 | 144,680 | 2,948,656 | 461,392 | 112,360 | 2,600 | 3,784,632 |
| MEL - 0204 | 23-Jul-16 | 7,184 | 73,840 | 3,064,000 | 364,416 | 92,808 | 4,400 | 3,606,648 |
| MEL - 0205 | 23-Jul-16 | 43,704 | 101,376 | 3,250,184 | 340,664 | 107,976 | 2,800 | 3,846,704 |
| ***Percent Density or Biomass*** | | ***1.1*** | ***2.6*** | ***84*** | ***8.9*** | ***2.8*** | ***<0.1*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 11-Aug-16 | 0 | 238,472 | 1,530,792 | 81,456 | 172,232 | 9,584 | 2,032,536 |
| MEL - 0202 | 11-Aug-16 | 7,384 | 152,464 | 1,537,976 | 101,208 | 185,400 | 4,600 | 1,989,032 |
| MEL - 0203 | 11-Aug-16 | 14,968 | 174,016 | 1,855,672 | 41,136 | 181,816 | 18,800 | 2,286,408 |
| MEL - 0204 | 11-Aug-16 | 0 | 239,872 | 1,596,048 | 69,472 | 288,976 | 6,000 | 2,200,368 |
| MEL - 0205 | 11-Aug-16 | 0 | 187,784 | 1,847,688 | 125,344 | 235,904 | 18,368 | 2,415,088 |
| ***Percent Density or Biomass*** | | ***0.20*** | ***9.1*** | ***77*** | ***3.8*** | ***9.7*** | ***0.53*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 11-Sep-16 | 400 | 58,472 | 1,753,312 | 92,472 | 134,512 | 6,200 | 2,045,368 |
| MEL - 0202 | 11-Sep-16 | 400 | 88,808 | 1,771,264 | 149,912 | 136,712 | 3,400 | 2,150,496 |
| MEL - 0203 | 11-Sep-16 | 129,312 | 86,808 | 1,714,992 | 141,360 | 112,760 | 7,400 | 2,192,632 |
| MEL - 0204 | 11-Sep-16 | 0 | 108,760 | 1,874,240 | 112,592 | 164,048 | 3,600 | 2,263,240 |
| MEL - 0205 | 11-Sep-16 | 0 | 65,656 | 1,685,056 | 54,920 | 170,432 | 4,600 | 1,980,664 |
| ***Percent Density or Biomass*** | | ***1.2*** | ***3.8*** | ***83*** | ***5.2*** | ***6.8*** | ***0.24*** | |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 26-Jul-16 | 200 | 101,976 | 1,639,768 | 87,824 | 105,376 | 10,784 | 1,945,928 |
| MEL - 0302 | 26-Jul-16 | 14,368 | 296,144 | 1,740,544 | 102,408 | 118,544 | 3,200 | 2,275,208 |
| MEL - 0303 | 26-Jul-16 | 14,768 | 101,176 | 2,547,152 | 112,176 | 197,168 | 10,184 | 2,982,624 |
| MEL - 0304 | 26-Jul-16 | 0 | 158,248 | 2,263,576 | 99,992 | 96,792 | 4,000 | 2,622,608 |
| MEL - 0305 | 26-Jul-16 | 35,920 | 133,912 | 1,826,152 | 74,256 | 162,648 | 4,600 | 2,237,488 |
| ***Percent Density or Biomass*** | | ***0.74*** | ***6.0*** | ***84*** | ***3.6*** | ***5.3*** | ***0.18*** | |

Table G5-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2016.

| Area-Replicate | Date | Phytoplankton Biomass ($mg/m^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 12-Aug-16 | 0 | 7.7 | 160 | 13 | 17 | 9.8 | 208 |
| MEL - 0302 | 12-Aug-16 | 0.4 | 11 | 166 | 16 | 16 | 9.3 | 218 |
| MEL - 0303 | 12-Aug-16 | 0 | 13 | 176 | 8.8 | 39 | 12 | 249 |
| MEL - 0304 | 12-Aug-16 | 0.3 | 14 | 163 | 5.9 | 25 | 28 | 236 |
| MEL - 0305 | 12-Aug-16 | 0 | 13 | 157 | 7.6 | 32 | 32 | 241 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***5.1*** | ***71*** | ***4.5*** | ***11*** | ***7.9*** | |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 12-Sep-16 | 0 | 11 | 183 | 37 | 31 | 25 | 287 |
| MEL - 0302 | 13-Sep-16 | 0 | 6.6 | 184 | 26 | 15 | 10 | 242 |
| MEL - 0303 | 13-Sep-16 | 0 | 6.3 | 131 | 15 | 16 | 12 | 180 |
| MEL - 0304 | 22-Sep-16 | 0 | 3.1 | 257 | 18 | 12 | 15 | 305 |
| MEL - 0306 | 22-Sep-16 | 0 | 1.8 | 155 | 22 | 22 | 18 | 217 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***2.4*** | ***74*** | ***9.6*** | ***7.7*** | ***6.5*** | |
| **MEL-04** | | | | | | | | |
| MEL - 0401 | 14-Aug-16 | 0.9 | 8.7 | 101 | 6.5 | 28 | 14 | 159 |
| MEL - 0402 | 14-Aug-16 | 0.3 | 14 | 124 | 12 | 32 | 10 | 192 |
| MEL - 0403 | 14-Aug-16 | 0 | 4.6 | 27 | 9.4 | 1.3 | 0 | 42 |
| MEL - 0404 | 14-Aug-16 | 0.3 | 12 | 145 | 12 | 31 | 3.6 | 204 |
| MEL - 0405 | 14-Aug-16 | 0.8 | 7.7 | 117 | 19 | 28 | 8.3 | 181 |
| ***Percent Density or Biomass*** | | ***0.27*** | ***6.0*** | ***66*** | ***7.5*** | ***15*** | ***4.6*** | |
| **MEL-05** | | | | | | | | |
| MEL - 0501 | 16-Aug-16 | 0 | 12 | 195 | 25 | 82 | 38 | 352 |
| MEL - 0502 | 16-Aug-16 | 0.3 | 6.3 | 103 | 9.5 | 41 | 29 | 190 |
| MEL - 0503 | 16-Aug-16 | 1.8 | 7.1 | 137 | 6.8 | 36 | 3.4 | 192 |
| MEL - 0504 | 16-Aug-16 | 0 | 10 | 115 | 18 | 35 | 9.1 | 186 |
| MEL - 0505 | 16-Aug-16 | 1.1 | 20 | 118 | 15 | 44 | 15 | 214 |
| ***Percent Density or Biomass*** | | ***0.28*** | ***4.9*** | ***59*** | ***6.5*** | ***21*** | ***8.4*** | |
| ***All 2016 Locations Relative Density or Biomass (%)*** | | ***0.44*** | ***2.9*** | ***70*** | ***9.1*** | ***6.8*** | ***11*** | |

Table G5-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2016.

| Area-Replicate | Date | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 12-Aug-16 | 0 | 100,976 | 1,632,168 | 15,384 | 110,160 | 1,000 | 1,859,688 |
| MEL - 0302 | 12-Aug-16 | 7,184 | 191,184 | 1,575,696 | 86,024 | 103,776 | 2,000 | 1,965,864 |
| MEL - 0303 | 12-Aug-16 | 0 | 213,736 | 1,625,584 | 105,176 | 296,544 | 2,600 | 2,243,640 |
| MEL - 0304 | 12-Aug-16 | 7,184 | 303,128 | 1,525,008 | 53,288 | 191,184 | 4,600 | 2,084,392 |
| MEL - 0305 | 12-Aug-16 | 0 | 181,000 | 1,798,800 | 96,592 | 187,600 | 20,968 | 2,284,960 |
| ***Percent Density or Biomass*** | | ***0.16*** | ***11*** | ***76*** | ***3.4*** | ***8.7*** | ***0.59*** | |
| **MEL-03** | | | | | | | | |
| MEL - 0301 | 12-Sep-16 | 0 | 137,696 | 1,699,424 | 328,496 | 217,920 | 16,568 | 2,400,104 |
| MEL - 0302 | 13-Sep-16 | 0 | 66,056 | 1,850,488 | 81,272 | 88,608 | 2,400 | 2,088,824 |
| MEL - 0303 | 13-Sep-16 | 0 | 123,528 | 1,403,680 | 68,672 | 109,960 | 1,800 | 1,707,640 |
| MEL - 0304 | 22-Sep-16 | 0 | 43,904 | 2,466,512 | 189,632 | 87,608 | 2,000 | 2,789,656 |
| MEL - 0306 | 22-Sep-16 | 0 | 22,352 | 1,618,400 | 144,928 | 139,296 | 3,200 | 1,928,176 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***1.4*** | ***87*** | ***7.1*** | ***4.8*** | ***0.11*** | |
| **MEL-04** | | | | | | | | |
| MEL - 0401 | 14-Aug-16 | 14,568 | 216,920 | 949,488 | 32,336 | 181,200 | 2,400 | 1,396,912 |
| MEL - 0402 | 14-Aug-16 | 7,184 | 288,760 | 1,438,800 | 91,608 | 213,736 | 8,184 | 2,048,272 |
| MEL - 0403 | 14-Aug-16 | 0 | 188,143 | 634,952 | 96,053 | 24,923 | 0 | 944,070 |
| MEL - 0404 | 14-Aug-16 | 7,184 | 208,736 | 1,346,208 | 71,856 | 212,736 | 400 | 1,847,120 |
| MEL - 0405 | 14-Aug-16 | 21,552 | 253,640 | 1,366,360 | 62,072 | 203,352 | 7,984 | 1,914,960 |
| ***Percent Density or Biomass*** | | ***0.76*** | ***12*** | ***72*** | ***3.6*** | ***11*** | ***0.22*** | |
| **MEL-05** | | | | | | | | |
| MEL - 0501 | 16-Aug-16 | 0 | 153,864 | 2,158,000 | 100,992 | 498,928 | 5,800 | 2,917,584 |
| MEL - 0502 | 16-Aug-16 | 7,184 | 129,912 | 1,350,792 | 56,088 | 260,440 | 10,584 | 1,815,000 |
| MEL - 0503 | 16-Aug-16 | 35,920 | 165,932 | 1,495,672 | 48,304 | 248,856 | 1,800 | 1,996,484 |
| MEL - 0504 | 16-Aug-16 | 0 | 123,928 | 1,243,432 | 41,720 | 192,384 | 3,000 | 1,604,464 |
| MEL - 0505 | 16-Aug-16 | 21,552 | 266,608 | 1,165,608 | 62,072 | 281,992 | 3,200 | 1,801,032 |
| ***Percent Density or Biomass*** | | ***0.63*** | ***11*** | ***71*** | ***3.0*** | ***14*** | ***0.18*** | |
| ***All 2016 Locations Relative Density or Biomass (%)*** | | ***3987*** | ***40411*** | ***616056*** | ***73935*** | ***37702*** | ***2286*** | |

# Appendix G6
# 2013 & 2015 Phytoplankton Taxonomy Database

Table G6-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2013 and 2015.

| Area-Replicate | Date | Phytoplankton Biomass ($mg/m^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2013*** | | | | | | | | |
| **DP-01** | | | | | | | | |
| DP01 -P -1S | 14-Aug-13 | 7.9 | 6.6 | 79 | 16 | 21 | 15 | 146 |
| DP01 -P -2S | 14-Aug-13 | 4.2 | 5.3 | 73 | 18 | 39 | 9.5 | 149 |
| DP01 -P -3S | 14-Aug-13 | 2.9 | 5.5 | 105 | 16 | 23 | 5.0 | 157 |
| DP01 -P -4S | 14-Aug-13 | 2.3 | 7.6 | 71 | 22 | 28 | 35 | 165 |
| DP01 -P -5S | 14-Aug-13 | 2.3 | 4.3 | 86 | 15 | 27 | 14 | 149 |
| ***Percent Density or Biomass*** | | ***2.6*** | ***3.8*** | ***54*** | ***11*** | ***18*** | ***10*** | |
| ***2015*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 19-Jul-15 | 0 | 1.7 | 480 | 36 | 21 | 96 | 634 |
| MEL - 0102 | 19-Jul-15 | 1.1 | 2.9 | 486 | 49 | 22 | 96 | 657 |
| MEL - 0103 | 19-Jul-15 | 1.3 | 17 | 503 | 60 | 18 | 63 | 663 |
| MEL - 0104 | 19-Jul-15 | 0.2 | 3.1 | 441 | 52 | 31 | 105 | 632 |
| MEL - 0105 | 18-Jul-15 | 0 | 0.8 | 411 | 39 | 19 | 78 | 551 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***0.82*** | ***74*** | ***7.5*** | ***3.5*** | ***14*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 14-Aug-15 | 0 | 9.3 | 182 | 19 | 14 | 65 | 290 |
| MEL - 0102 | 14-Aug-15 | 1.6 | 32 | 239 | 31 | 20 | 27 | 352 |
| MEL - 0103 | 14-Aug-15 | 1.1 | 17 | 206 | 79 | 20 | 41 | 364 |
| MEL - 0104 | 14-Aug-15 | 0 | 34 | 241 | 23 | 18 | 34 | 350 |
| MEL - 0105 | 15-Aug-15 | 0 | 25 | 185 | 17 | 16 | 84 | 327 |
| ***Percent Density or Biomass*** | | ***0.16*** | ***7.0*** | ***63*** | ***10.0*** | ***5.2*** | ***15*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 19-Sep-15 | 0 | 8.0 | 133 | 41 | 44 | 23 | 249 |
| MEL - 0102 | 19-Sep-15 | 0.5 | 8.4 | 156 | 43 | 36 | 39 | 285 |
| MEL - 0104 | 19-Sep-15 | 0 | 13 | 182 | 33 | 29 | 44 | 301 |
| MEL - 0105 | 19-Sep-15 | 0.2 | 8.6 | 194 | 36 | 45 | 59 | 343 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***3.2*** | ***56*** | ***13*** | ***13*** | ***14*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 21-Jul-15 | 0.3 | 8.5 | 426 | 56 | 18 | 76 | 585 |
| MEL - 0202 | 21-Jul-15 | 0 | 5.8 | 471 | 56 | 14 | 65 | 613 |
| MEL - 0203 | 21-Jul-15 | 0.1 | 11 | 534 | 55 | 18 | 56 | 675 |
| MEL - 0204 | 21-Jul-15 | 0 | 4.1 | 441 | 31 | 30 | 42 | 547 |
| MEL - 0205 | 21-Jul-15 | 0 | 3.2 | 512 | 40 | 21 | 35 | 611 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***1.1*** | ***79*** | ***7.8*** | ***3.3*** | ***9.1*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 16-Aug-15 | 0 | 19 | 117 | 15 | 17 | 33 | 201 |
| MEL - 0202 | 16-Aug-15 | 0.1 | 15 | 152 | 26 | 40 | 28 | 262 |
| MEL - 0203 | 16-Aug-15 | 0 | 18 | 150 | 18 | 42 | 23 | 251 |
| MEL - 0204 | 16-Aug-15 | 0.40 | 15 | 102 | 15 | 35 | 11 | 178 |
| MEL - 0205 | 17-Aug-15 | 2.1 | 22 | 111 | 28 | 30 | 15 | 208 |
| ***Percent Density or Biomass*** | | ***0.24*** | ***8.1*** | ***57*** | ***9.3*** | ***15*** | ***10.0*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 10-Sep-15 | 3.2 | 27 | 151 | 17 | 32 | 40 | 271 |
| MEL - 0202 | 10-Sep-15 | 0.6 | 18 | 163 | 20 | 19 | 14 | 234 |
| MEL - 0203 | 10-Sep-15 | 0 | 21 | 112 | 13 | 18 | 18 | 182 |
| MEL - 0204 | 10-Sep-15 | 0 | 20 | 134 | 19 | 19 | 15 | 208 |
| MEL - 0205 | 10-Sep-15 | 0.7 | 34 | 146 | 32 | 31 | 17 | 260 |
| ***Percent Density or Biomass*** | | ***0.39*** | ***10*** | ***61*** | ***8.7*** | ***10*** | ***9.0*** | |
| ***All 2013 and 2015 Locations Relative Density or Biomass (%)*** | | ***0.28*** | ***3.8*** | ***68*** | ***9.0*** | ***7.3*** | ***12*** | |

Table G6-1. Phytoplankton density, biomass, and diversity by major taxa group, Meliadine Lake, 2013 and 2015.

| Area-Replicate | Date | Phytoplankton Density (cells/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Cyanophyte | Chlorophyte | Chrysophyte | Diatom | Cryptophyte | Dinoflagellate | **TOTAL** |
| ***2013*** | | | | | | | | |
| **DP-01** | | | | | | | | |
| DP01 -P -1S | 14-Aug-13 | 153,864 | 404,104 | 1,524,208 | 103,608 | 199,768 | 1,200 | 2,386,752 |
| DP01 -P -2S | 14-Aug-13 | 89,408 | 289,360 | 1,415,248 | 88,640 | 387,352 | 800 | 2,270,808 |
| DP01 -P -3S | 14-Aug-13 | 17,768 | 302,928 | 1,654,920 | 153,680 | 249,456 | 400 | 2,379,152 |
| DP01 -P -4S | 14-Aug-13 | 3,600 | 346,032 | 1,022,728 | 125,776 | 252,456 | 2,200 | 1,752,792 |
| DP01 -P -5S | 14-Aug-13 | 10,984 | 316,896 | 1,459,352 | 96,624 | 327,880 | 1,200 | 2,212,936 |
| ***Percent Density or Biomass*** | | ***2.5*** | ***15*** | ***64*** | ***5.2*** | ***13*** | ***<0.1*** | |
| ***2015*** | | | | | | | | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 19-Jul-15 | 0 | 36,120 | 4,336,168 | 455,272 | 101,792 | 7,000 | 4,936,352 |
| MEL - 0102 | 19-Jul-15 | 28,736 | 36,320 | 4,615,944 | 643,872 | 97,808 | 6,600 | 5,429,280 |
| MEL - 0103 | 19-Jul-15 | 28,936 | 61,072 | 4,599,776 | 702,512 | 92,608 | 5,400 | 5,490,304 |
| MEL - 0104 | 19-Jul-15 | 200 | 57,872 | 3,795,568 | 579,984 | 127,544 | 8,600 | 4,569,768 |
| MEL - 0105 | 18-Jul-15 | 0 | 21,752 | 3,586,632 | 431,536 | 81,640 | 6,800 | 4,128,760 |
| ***Percent Density or Biomass*** | | ***0.24*** | ***0.87*** | ***85*** | ***11*** | ***2.0*** | ***0.14*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 14-Aug-15 | 0 | 166,832 | 1,890,792 | 271,624 | 68,056 | 5,800 | 2,403,104 |
| MEL - 0102 | 14-Aug-15 | 28,736 | 331,264 | 2,425,608 | 345,480 | 86,424 | 5,600 | 3,223,312 |
| MEL - 0103 | 14-Aug-15 | 28,736 | 216,720 | 2,088,560 | 317,528 | 126,128 | 6,600 | 2,784,272 |
| MEL - 0104 | 14-Aug-15 | 0 | 287,960 | 2,337,200 | 175,864 | 85,824 | 5,000 | 2,891,848 |
| MEL - 0105 | 15-Aug-15 | 0 | 152,864 | 1,726,160 | 191,600 | 64,672 | 9,200 | 2,144,496 |
| ***Percent Density or Biomass*** | | ***0.43*** | ***8.6*** | ***78*** | ***9.7*** | ***3.2*** | ***0.24*** | |
| **MEL-01** | | | | | | | | |
| MEL - 0101 | 19-Sep-15 | 0 | 302,328 | 1,885,808 | 298,160 | 305,728 | 3,600 | 2,795,624 |
| MEL - 0102 | 19-Sep-15 | 200 | 181,800 | 2,065,408 | 281,344 | 194,184 | 3,200 | 2,726,336 |
| MEL - 0104 | 19-Sep-15 | 0 | 139,896 | 2,509,616 | 307,912 | 184,800 | 4,400 | 3,146,624 |
| MEL - 0105 | 19-Sep-15 | 400 | 111,960 | 2,236,824 | 301,216 | 272,208 | 12,384 | 2,934,992 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***3.8*** | ***76*** | ***10*** | ***9.3*** | ***0.42*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 21-Jul-15 | 400 | 58,272 | 3,540,544 | 557,232 | 59,488 | 12,184 | 4,228,120 |
| MEL - 0202 | 21-Jul-15 | 0 | 37,320 | 4,101,696 | 695,512 | 76,840 | 19,168 | 4,930,736 |
| MEL - 0203 | 21-Jul-15 | 200 | 37,720 | 4,031,456 | 708,712 | 78,640 | 6,200 | 4,862,928 |
| MEL - 0204 | 21-Jul-15 | 0 | 29,336 | 3,546,928 | 494,344 | 145,896 | 3,400 | 4,219,904 |
| MEL - 0205 | 21-Jul-15 | 0 | 57,672 | 4,225,424 | 517,928 | 81,640 | 3,200 | 4,885,864 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***0.95*** | ***84*** | ***13*** | ***1.9*** | ***0.19*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 16-Aug-15 | 0 | 155,264 | 1,236,048 | 125,944 | 76,840 | 9,784 | 1,603,880 |
| MEL - 0202 | 16-Aug-15 | 200 | 232,888 | 1,639,152 | 156,880 | 236,688 | 9,584 | 2,275,392 |
| MEL - 0203 | 16-Aug-15 | 0 | 202,552 | 1,638,952 | 194,600 | 220,336 | 5,400 | 2,261,840 |
| MEL - 0204 | 16-Aug-15 | 400 | 168,432 | 1,244,432 | 69,488 | 250,456 | 1,800 | 1,735,008 |
| MEL - 0205 | 17-Aug-15 | 1,600 | 221,720 | 1,308,488 | 217,568 | 184,400 | 2,600 | 1,936,376 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***10.0*** | ***72*** | ***7.8*** | ***9.9*** | ***0.30*** | |
| **MEL-02** | | | | | | | | |
| MEL - 0201 | 10-Sep-15 | 200 | 159,648 | 1,784,032 | 132,344 | 190,584 | 10,584 | 2,277,592 |
| MEL - 0202 | 10-Sep-15 | 7,384 | 137,296 | 1,742,728 | 98,024 | 118,544 | 8,984 | 2,112,960 |
| MEL - 0203 | 10-Sep-15 | 0 | 188,584 | 1,445,384 | 148,712 | 109,560 | 22,752 | 1,914,992 |
| MEL - 0204 | 10-Sep-15 | 0 | 152,864 | 1,496,872 | 159,696 | 111,360 | 16,168 | 1,936,960 |
| MEL - 0205 | 10-Sep-15 | 600 | 246,656 | 1,591,664 | 130,776 | 176,816 | 1,800 | 2,148,312 |
| ***Percent Density or Biomass*** | | ***<0.1*** | ***9.8*** | ***76*** | ***7.1*** | ***7.1*** | ***0.44*** | |
| ***All 2013 and 2015 Locations Relative Density or Biomass (%)*** | | ***3341*** | ***48557*** | ***678519*** | ***85323*** | ***45022*** | ***1906*** | |

# APPENDIX H
# CHLOROPHYLL-A AND SECCHI DEPTH DATA

# Appendix H1
# 2019 Chlorophyll-a (University of Alberta)

UNIVERSITY OF ALBERTA
Biogeochemical Analytical Service Laboratory

# Analytical Report

**Date Reported On:** October 22, 2019

**ATTN:** Dan Gorton

**Reported To:** Agnico Ealge

**Date Received:** September 09, 2019

**Project Name:** AEM Meliadine 2019
**Client Name:** Agnico Ealge
**Billing Address or Speed Code:**
Rankin Inlet, NU, X0C 0G0

**Other Information:** Not available.

**Comments:** Not available.

**Reviewed by:**

**Alvin Kwan, BSc.**
**Quality Assurance Officer**

**Approved by:**

**Mingsheng Ma, Ph. D**
**Laboratory Manager**

RESULTS RELAY TO SAMPLE AS RECEIVED. THIS TEST REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY.

UNIVERSITY OF ALBERTA
Biogeochemical Analytical Service Laboratory

# Algae Parameters

| UA-BASL Sample ID | Received Date | Site Info | Sampling Date | Analyzed Date | **Chlorophyll-a (µg/L)** |
|---|---|---|---|---|---|
| 223728 | 9/9/2019 | MEL-01-01-PC | 08/08/2019 | 10/17/2019 | 0.73 |
| 223729 | 9/9/2019 | MEL-01-01-PC | 08/08/2019 | 10/17/2019 | 0.90 |
| 223730 | 9/9/2019 | MEL-01-01-PC | 08/08/2019 | 10/17/2019 | 0.84 |
| 223731 | 9/9/2019 | MEL-01-06-PC | 08/08/2019 | 10/17/2019 | 0.58 |
| 223732 | 9/9/2019 | MEL-01-06-PC | 08/08/2019 | 10/17/2019 | 0.88 |
| 223733 | 9/9/2019 | MEL-01-06-PC | 08/08/2019 | 10/17/2019 | 0.80 |
| 223734 | 9/9/2019 | MEL-01-07-PC | 08/08/2019 | 10/17/2019 | 0.77 |
| 223735 | 9/9/2019 | MEL-01-07-PC | 08/08/2019 | 10/17/2019 | 0.84 |
| 223736 | 9/9/2019 | MEL-01-07-PC | 08/08/2019 | 10/17/2019 | 0.93 |
| 223737 | 9/9/2019 | MEL-01-08-PC | 08/08/2019 | 10/17/2019 | 0.87 |
| 223738 | 9/9/2019 | MEL-01-08-PC | 08/08/2019 | 10/17/2019 | 0.64 |
| 223739 | 9/9/2019 | MEL-01-08-PC | 08/08/2019 | 10/17/2019 | 0.65 |
| 223740 | 9/9/2019 | MEL-01-09-PC | 08/08/2019 | 10/17/2019 | 0.82 |
| 223741 | 9/9/2019 | MEL-01-09-PC | 08/08/2019 | 10/17/2019 | 0.91 |
| 223742 | 9/9/2019 | MEL-01-09-PC | 08/08/2019 | 10/17/2019 | 0.82 |
| 223743 | 9/9/2019 | MEL-02-01-PC | 08/10/2019 | 10/17/2019 | 0.19 |
| 223744 | 9/9/2019 | MEL-02-01-PC | 08/10/2019 | 10/17/2019 | 0.18 |
| 223745 | 9/9/2019 | MEL-02-01-PC | 08/10/2019 | 10/17/2019 | 0.17 |
| 223746 | 9/9/2019 | MEL-02-02-PC | 08/10/2019 | 10/17/2019 | <0.04 |
| 223747 | 9/9/2019 | MEL-02-02-PC | 08/10/2019 | 10/17/2019 | 0.09 |
| 223748 | 9/9/2019 | MEL-02-02-PC | 08/10/2019 | 10/17/2019 | 0.17 |
| 223749 | 9/9/2019 | MEL-02-03-PC | 08/10/2019 | 10/17/2019 | 0.25 |
| 223750 | 9/9/2019 | MEL-02-03-PC | 08/10/2019 | 10/17/2019 | 0.26 |
| 223751 | 9/9/2019 | MEL-02-03-PC | 08/10/2019 | 10/17/2019 | 0.21 |
| 223752 | 9/9/2019 | MEL-02-04-PC | 08/10/2019 | 10/17/2019 | 0.19 |
| 223753 | 9/9/2019 | MEL-02-04-PC | 08/10/2019 | 10/17/2019 | 0.24 |
| 223754 | 9/9/2019 | MEL-02-04-PC | 08/10/2019 | 10/17/2019 | 0.23 |
| 223755 | 9/9/2019 | MEL-02-05-PC | 08/10/2019 | 10/17/2019 | 0.30 |
| 223756 | 9/9/2019 | MEL-02-05-PC | 08/10/2019 | 10/17/2019 | 0.20 |
| 223757 | 9/9/2019 | MEL-02-05-PC | 08/10/2019 | 10/17/2019 | 0.26 |
| 223758 | 9/9/2019 | MEL-03-01-PC | 08/09/2019 | 10/17/2019 | 0.08 |
| 223759 | 9/9/2019 | MEL-03-01-PC | 08/09/2019 | 10/17/2019 | 0.07 |
| 223760 | 9/9/2019 | MEL-03-01-PC | 08/09/2019 | 10/17/2019 | 0.01 |
| 223761 | 9/9/2019 | MEL-03-02-PC | 08/09/2019 | 10/17/2019 | 0.03 |
| Reportable Detection Limit (µg/L) | | | | | 0.04 |

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| UA-BASL Sample ID | Received Date | Site Info | Sampling Date | Analyzed Date | **Chlorophyll-a (µg/L)** |
|---|---|---|---|---|---|
| 223762 | 9/9/2019 | MEL-03-02-PC | 08/09/2019 | 10/17/2019 | 0.12 |
| 223763 | 9/9/2019 | MEL-03-02-PC | 08/09/2019 | 10/17/2019 | 0.02 |
| 223764 | 9/9/2019 | MEL-03-03-PC | 08/09/2019 | 10/17/2019 | 0.02 |
| 223765 | 9/9/2019 | MEL-03-03-PC | 08/09/2019 | 10/17/2019 | 0.03 |
| 223766 | 9/9/2019 | MEL-03-03-PC | 08/09/2019 | 10/17/2019 | 0.03 |
| 223767 | 9/9/2019 | MEL-03-04-PC | 08/09/2019 | 10/17/2019 | 0.03 |
| 223768 | 9/9/2019 | MEL-03-04-PC | 08/09/2019 | 10/17/2019 | 0.04 |
| 223769 | 9/9/2019 | MEL-03-04-PC | 08/09/2019 | 10/17/2019 | 0.02 |
| 223770 | 9/9/2019 | MEL-03-05-PC | 08/09/2019 | 10/17/2019 | 0.05 |
| 223771 | 9/9/2019 | MEL-03-05-PC | 08/09/2019 | 10/17/2019 | <0.04 |
| 223772 | 9/9/2019 | MEL-03-05-PC | 08/09/2019 | 10/17/2019 | <0.04 |
| 223773 | 9/9/2019 | MEL-04-01-PC | 08/14/2019 | 10/17/2019 | 0.09 |
| 223774 | 9/9/2019 | MEL-04-01-PC | 08/14/2019 | 10/17/2019 | 0.18 |
| 223775 | 9/9/2019 | MEL-04-01-PC | 08/14/2019 | 10/17/2019 | 0.23 |
| 223776 | 9/9/2019 | MEL-04-02-PC | 08/14/2019 | 10/17/2019 | 0.10 |
| 223777 | 9/9/2019 | MEL-04-02-PC | 08/14/2019 | 10/17/2019 | 0.19 |
| 223778 | 9/9/2019 | MEL-04-02-PC | 08/14/2019 | 10/17/2019 | 0.15 |
| 223779 | 9/9/2019 | MEL-04-03-PC | 08/14/2019 | 10/17/2019 | 0.11 |
| 223780 | 9/9/2019 | MEL-04-03-PC | 08/14/2019 | 10/17/2019 | 0.12 |
| 223781 | 9/9/2019 | MEL-04-03-PC | 08/14/2019 | 10/17/2019 | 0.18 |
| 223782 | 9/9/2019 | MEL-04-04-PC | 08/14/2019 | 10/17/2019 | 0.20 |
| 223783 | 9/9/2019 | MEL-04-04-PC | 08/14/2019 | 10/17/2019 | 0.13 |
| 223784 | 9/9/2019 | MEL-04-04-PC | 08/14/2019 | 10/17/2019 | 0.11 |
| 223785 | 9/9/2019 | MEL-04-05-PC | 08/14/2019 | 10/17/2019 | 0.28 |
| 223786 | 9/9/2019 | MEL-04-05-PC | 08/14/2019 | 10/17/2019 | 0.13 |
| 223787 | 9/9/2019 | MEL-04-05-PC | 08/14/2019 | 10/17/2019 | 0.21 |
| 223788 | 9/9/2019 | MEL-05-01-PC | 08/16/2019 | 10/17/2019 | 0.18 |
| 223789 | 9/9/2019 | MEL-05-01-PC | 08/16/2019 | 10/17/2019 | 0.18 |
| 223790 | 9/9/2019 | MEL-05-01-PC | 08/16/2019 | 10/17/2019 | 0.23 |
| 223791 | 9/9/2019 | MEL-05-02-PC | 08/16/2019 | 10/17/2019 | 0.26 |
| 223792 | 9/9/2019 | MEL-05-02-PC | 08/16/2019 | 10/17/2019 | 0.36 |
| 223793 | 9/9/2019 | MEL-05-02-PC | 08/16/2019 | 10/17/2019 | 0.31 |
| 223794 | 9/9/2019 | MEL-05-03-PC | 08/16/2019 | 10/17/2019 | <0.04 |
| 223795 | 9/9/2019 | MEL-05-03-PC | 08/16/2019 | 10/17/2019 | <0.04 |
| 223796 | 9/9/2019 | MEL-05-03-PC | 08/16/2019 | 10/17/2019 | <0.04 |
| 223797 | 9/9/2019 | MEL-05-04-PC | 08/16/2019 | 10/17/2019 | 0.04 |
| 223798 | 9/9/2019 | MEL-05-04-PC | 08/16/2019 | 10/17/2019 | 0.07 |
| Reportable Detection Limit (µg/L) | | | | | 0.04 |

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| UA-BASL Sample ID | Received Date | Site Info | Sampling Date | Analyzed Date | **Chlorophyll-a (µg/L)** |
|---|---|---|---|---|---|
| 223799 | 9/9/2019 | MEL-05-04-PC | 08/16/2019 | 10/17/2019 | 0.02 |
| 223800 | 9/9/2019 | MEL-05-05-PC | 08/16/2019 | 10/17/2019 | <0.04 |
| 223801 | 9/9/2019 | MEL-05-05-PC | 08/16/2019 | 10/17/2019 | <0.04 |
| 223802 | 9/9/2019 | MEL-05-05-PC | 08/16/2019 | 10/17/2019 | 0.08 |
| 223803 | 9/9/2019 | B7-01-PC | 08/08/2019 | 10/17/2019 | 0.63 |
| 223804 | 9/9/2019 | B7-01-PC | 08/08/2019 | 10/17/2019 | 0.59 |
| 223805 | 9/9/2019 | B7-01-PC | 08/08/2019 | 10/17/2019 | 0.55 |
| 223806 | 9/9/2019 | B7-02-PC | 08/08/2019 | 10/17/2019 | 0.56 |
| 223807 | 9/9/2019 | B7-02-PC | 08/08/2019 | 10/17/2019 | 0.68 |
| 223808 | 9/9/2019 | B7-02-PC | 08/08/2019 | 10/17/2019 | 0.55 |
| 223809 | 9/9/2019 | B7-03-PC | 08/08/2019 | 10/17/2019 | 0.43 |
| 223810 | 9/9/2019 | B7-03-PC | 08/08/2019 | 10/17/2019 | 0.61 |
| 223811 | 9/9/2019 | B7-03-PC | 08/08/2019 | 10/17/2019 | 0.40 |
| 223812 | 9/9/2019 | A8-01-PC | 08/12/2019 | 10/17/2019 | 0.79 |
| 223813 | 9/9/2019 | A8-01-PC | 08/12/2019 | 10/17/2019 | 0.90 |
| 223814 | 9/9/2019 | A8-01-PC | 08/12/2019 | 10/17/2019 | 0.75 |
| 223815 | 9/9/2019 | A8-02-PC | 08/12/2019 | 10/17/2019 | 0.57 |
| 223816 | 9/9/2019 | A8-02-PC | 08/12/2019 | 10/17/2019 | 0.77 |
| 223817 | 9/9/2019 | A8-02-PC | 08/12/2019 | 10/17/2019 | 0.56 |
| 223818 | 9/9/2019 | A8-03-PC | 08/12/2019 | 10/17/2019 | 1.11 |
| 223819 | 9/9/2019 | A8-03-PC | 08/12/2019 | 10/17/2019 | 0.90 |
| 223820 | 9/9/2019 | A8-03-PC | 08/12/2019 | 10/17/2019 | 1.11 |
| 223821 | 9/9/2019 | D7-01-PC | 08/14/2019 | 10/17/2019 | 1.50 |
| 223822 | 9/9/2019 | D7-01-PC | 08/14/2019 | 10/17/2019 | 1.69 |
| 223823 | 9/9/2019 | D7-01-PC | 08/14/2019 | 10/17/2019 | 1.84 |
| 223824 | 9/9/2019 | D7-02-PC | 08/14/2019 | 10/17/2019 | 1.44 |
| 223825 | 9/9/2019 | D7-02-PC | 08/14/2019 | 10/17/2019 | 1.42 |
| 223826 | 9/9/2019 | D7-02-PC | 08/14/2019 | 10/17/2019 | 1.51 |
| 223827 | 9/9/2019 | D7-03-PC | 08/14/2019 | 10/17/2019 | 1.31 |
| 223828 | 9/9/2019 | D7-03-PC | 08/14/2019 | 10/17/2019 | 1.65 |
| 223829 | 9/9/2019 | D7-03-PC | 08/14/2019 | 10/17/2019 | 1.45 |
| 223830 | 9/9/2019 | AUG-DUP-01-PC | 08/14/2019 | 10/17/2019 | 1.77 |
| 223831 | 9/9/2019 | AUG-DUP-01-PC | 08/14/2019 | 10/17/2019 | 3.10 |
| 223832 | 9/9/2019 | AUG-DUP-01-PC | 08/14/2019 | 10/17/2019 | 1.51 |
| 223833 | 9/9/2019 | AUG-DUP-02-PC | 08/12/2019 | 10/17/2019 | 0.70 |
| 223834 | 9/9/2019 | AUG-DUP-02-PC | 08/12/2019 | 10/17/2019 | 0.62 |
| | | Reportable Detection Limit (µg/L) | | | 0.04 |

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| UA-BASL Sample ID | Received Date | Site Info | Sampling Date | Analyzed Date | **Chlorophyll-a (µg/L)** |
|---|---|---|---|---|---|
| 223835 | 9/9/2019 | AUG-DUP-02-PC | 08/12/2019 | 10/17/2019 | 0.64 |
| 223836 | 9/9/2019 | AUG-DUP-03-PC | 08/09/2019 | 10/17/2019 | 0.02 |
| 223837 | 9/9/2019 | AUG-DUP-03-PC | 08/09/2019 | 10/17/2019 | 0.06 |
| 223838 | 9/9/2019 | AUG-DUP-03-PC | 08/09/2019 | 10/17/2019 | 0.08 |
| 223839 | 9/9/2019 | AUG-DUP-04-PC | 08/14/2019 | 10/17/2019 | 0.14 |
| 223840 | 9/9/2019 | AUG-DUP-04-PC | 08/14/2019 | 10/17/2019 | 0.11 |
| 223841 | 9/9/2019 | AUG-DUP-04-PC | 08/14/2019 | 10/17/2019 | 0.18 |
| 223842 | 9/9/2019 | MEL-BLANK-01 | 08/31/2019 | 10/17/2019 | <0.04 |
| 223843 | 9/9/2019 | MEL-BLANK-02 | 08/31/2019 | 10/17/2019 | <0.04 |
| 223844 | 9/9/2019 | MEL-BLANK-03 | 08/31/2019 | 10/17/2019 | <0.04 |
| Reportable Detection Limit (µg/L) | | | | | 0.04 |

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# Method of Analysis

| Laboratory Method | Reference | Method | Instrument |
|---|---|---|---|
| Determination of Chlorophyll a in Water by Fluorometry | *Welschmeyer, N.A. 1994. Fluorometric Analysis of chlorophyll a in the presence of chlorophyll b and pheopigments. Limnol. Oceanogr., 39(8), 1994, 1985-1992. (Modified) | | Shimadzu RF-1501 Spectrofluorophotometer |

***** REFERENCE METHOD MODIFIED.

# Appendix H2
# Meliadine Lake Chlorophyll-a Database (2013, 2015-2019)

| lake | area_rep | sample | station | year | Month | year_month | replicate | chl-a | MDL_flag | QA_sample | flag | flag_note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A8 | A8 | 1 | A8-01 | 2015 | August | 2015-8 | 1 | 2.019 | | | | |
| A8 | A8 | 1 | A8-01 | 2015 | August | 2015-8 | 2 | 1.874 | | | | |
| A8 | A8 | 1 | A8-01 | 2015 | August | 2015-8 | 3 | 1.98 | | | | |
| A8 | A8 | 2 | A8-02 | 2015 | August | 2015-8 | 1 | 1.722 | | | | |
| A8 | A8 | 2 | A8-02 | 2015 | August | 2015-8 | 2 | 1.502 | | | | |
| A8 | A8 | 2 | A8-02 | 2015 | August | 2015-8 | 3 | 1.937 | | | | |
| A8 | A8 | 3 | A8-03 | 2015 | August | 2015-8 | 1 | 2.267 | | | | |
| A8 | A8 | 3 | A8-03 | 2015 | August | 2015-8 | 2 | 2.287 | | | | |
| A8 | A8 | 3 | A8-03 | 2015 | August | 2015-8 | 3 | 2.437 | | | | |
| B7 | B7 | 1 | B7-01 | 2015 | August | 2015-8 | 1 | 1.436 | | | | |
| B7 | B7 | 1 | B7-01 | 2015 | August | 2015-8 | 2 | 1.238 | | | | |
| B7 | B7 | 1 | B7-01 | 2015 | August | 2015-8 | 3 | 1.59 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2015 | August | 2015-8 | 1 | 0.737 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2015 | August | 2015-8 | 2 | 0.866 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2015 | August | 2015-8 | 3 | 0.702 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2015 | August | 2015-8 | 1 | 0.954 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2015 | August | 2015-8 | 2 | 0.862 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2015 | August | 2015-8 | 3 | 0.84 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2015 | August | 2015-8 | 1 | 0.889 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2015 | August | 2015-8 | 2 | 0.751 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2015 | August | 2015-8 | 3 | | MDL | | Remove | No MDL value reported |
| MEL | MEL-01 | 4 | MEL-01-04 | 2015 | August | 2015-8 | 1 | 0.877 | | | | |
| MEL | MEL-01 | 4 | MEL-01-04 | 2015 | August | 2015-8 | 2 | 0.899 | | | | |
| MEL | MEL-01 | 4 | MEL-01-04 | 2015 | August | 2015-8 | 3 | 0.973 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2015 | August | 2015-8 | 1 | 0.927 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2015 | August | 2015-8 | 2 | 0.861 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2015 | August | 2015-8 | 3 | 0.883 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2015 | August | 2015-8 | 1 | 0.392 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2015 | August | 2015-8 | 2 | 0.412 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2015 | August | 2015-8 | 3 | 0.32 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2015 | August | 2015-8 | 1 | 0.349 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2015 | August | 2015-8 | 2 | 0.349 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2015 | August | 2015-8 | 3 | 0.381 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2015 | August | 2015-8 | 1 | 0.533 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2015 | August | 2015-8 | 2 | 0.327 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2015 | August | 2015-8 | 3 | 0.547 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2015 | August | 2015-8 | 1 | 0.42 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2015 | August | 2015-8 | 2 | 0.573 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2015 | August | 2015-8 | 3 | 0.409 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2015 | August | 2015-8 | 1 | 0.544 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2015 | August | 2015-8 | 2 | 0.569 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2015 | August | 2015-8 | 3 | 0.551 | | | | |
| A8 | A8 | 1 | A8-01 | 2016 | August | 2016-8 | 1 | 1.857 | | | | |
| A8 | A8 | 1 | A8-01 | 2016 | August | 2016-8 | 2 | 1.923 | | | | |
| A8 | A8 | 1 | A8-01 | 2016 | August | 2016-8 | 3 | 2.101 | | | | |
| A8 | A8 | 2 | A8-02 | 2016 | August | 2016-8 | 1 | 2.112 | | | | |
| A8 | A8 | 2 | A8-02 | 2016 | August | 2016-8 | 2 | 2.185 | | | | |
| A8 | A8 | 2 | A8-02 | 2016 | August | 2016-8 | 3 | 2.302 | | | | |
| A8 | A8 | 4 | A8-04 | 2016 | August | 2016-8 | 1 | 2.2 | | | | |
| A8 | A8 | 4 | A8-04 | 2016 | August | 2016-8 | 2 | 1.961 | | | | |
| A8 | A8 | 4 | A8-04 | 2016 | August | 2016-8 | 3 | 2.072 | | | | |
| B7 | B7 | 1 | B7-01 | 2016 | August | 2016-8 | 1 | 2.984 | | | | |
| B7 | B7 | 1 | B7-01 | 2016 | August | 2016-8 | 2 | 2.762 | | | | |
| B7 | B7 | 1 | B7-01 | 2016 | August | 2016-8 | 3 | 2.731 | | | | |
| B7 | B7 | 2 | B7-02 | 2016 | August | 2016-8 | 1 | 3.236 | | | | |
| B7 | B7 | 2 | B7-02 | 2016 | August | 2016-8 | 2 | 2.987 | | | | |
| B7 | B7 | 2 | B7-02 | 2016 | August | 2016-8 | 3 | 3.408 | | | | |
| B7 | B7 | 3 | B7-03 | 2016 | August | 2016-8 | 1 | 3.039 | | | | |
| B7 | B7 | 3 | B7-03 | 2016 | August | 2016-8 | 2 | 3.388 | | | | |
| B7 | B7 | 3 | B7-03 | 2016 | August | 2016-8 | 3 | 3.373 | | | | |
| D7 | D7 | 1 | D7-01 | 2016 | August | 2016-8 | 1 | 3.804 | | | | |
| D7 | D7 | 1 | D7-01 | 2016 | August | 2016-8 | 2 | 3.474 | | | | |
| D7 | D7 | 1 | D7-01 | 2016 | August | 2016-8 | 3 | 3.542 | | | | |
| D7 | D7 | 2 | D7-02 | 2016 | August | 2016-8 | 1 | 3.866 | | | | |
| D7 | D7 | 2 | D7-02 | 2016 | August | 2016-8 | 2 | 3.906 | | | | |
| D7 | D7 | 2 | D7-02 | 2016 | August | 2016-8 | 3 | 3.433 | | | | |
| D7 | D7 | 3 | D7-03 | 2016 | August | 2016-8 | 1 | 4.197 | | | | |
| D7 | D7 | 3 | D7-03 | 2016 | August | 2016-8 | 2 | 4.209 | | | | |
| D7 | D7 | 3 | D7-03 | 2016 | August | 2016-8 | 3 | 3.723 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2016 | August | 2016-8 | 1 | 2.269 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2016 | August | 2016-8 | 2 | 1.653 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2016 | August | 2016-8 | 3 | 1.912 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2016 | August | 2016-8 | 1 | 2.044 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2016 | August | 2016-8 | 2 | 2.063 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2016 | August | 2016-8 | 3 | 2.134 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2016 | August | 2016-8 | 1 | 1.65 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2016 | August | 2016-8 | 2 | 1.895 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2016 | August | 2016-8 | 3 | 2.259 | | | | |
| MEL | MEL-01 | 4 | MEL-01-04 | 2016 | August | 2016-8 | 1 | 1.851 | | | | |
| MEL | MEL-01 | 4 | MEL-01-04 | 2016 | August | 2016-8 | 2 | 1.781 | | | | |
| MEL | MEL-01 | 4 | MEL-01-04 | 2016 | August | 2016-8 | 3 | 1.809 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2016 | August | 2016-8 | 1 | 1.334 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2016 | August | 2016-8 | 2 | 1.932 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2016 | August | 2016-8 | 3 | 1.597 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2016 | August | 2016-8 | 1 | 1.263 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2016 | August | 2016-8 | 2 | 0.337 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2016 | August | 2016-8 | 3 | 1.086 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2016 | August | 2016-8 | 1 | 0.91 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2016 | August | 2016-8 | 2 | 1.208 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2016 | August | 2016-8 | 3 | 1 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2016 | August | 2016-8 | 1 | 1.197 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2016 | August | 2016-8 | 2 | 1.372 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2016 | August | 2016-8 | 3 | 1.206 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2016 | August | 2016-8 | 1 | 1.271 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2016 | August | 2016-8 | 2 | 1.325 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2016 | August | 2016-8 | 3 | 1.184 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2016 | August | 2016-8 | 1 | 1.322 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2016 | August | 2016-8 | 2 | 1.249 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2016 | August | 2016-8 | 3 | 1.289 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2016 | August | 2016-8 | 1 | 0.763 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2016 | August | 2016-8 | 2 | 0.693 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2016 | August | 2016-8 | 3 | 0.748 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2016 | August | 2016-8 | 1 | 0.46 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2016 | August | 2016-8 | 2 | 0.659 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2016 | August | 2016-8 | 3 | 0.744 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2016 | August | 2016-8 | 1 | 0.65 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2016 | August | 2016-8 | 2 | 0.757 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2016 | August | 2016-8 | 3 | 0.708 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2016 | August | 2016-8 | 1 | 0.701 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2016 | August | 2016-8 | 2 | 0.822 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2016 | August | 2016-8 | 3 | 0.574 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2016 | August | 2016-8 | 1 | 0.824 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2016 | August | 2016-8 | 2 | 0.879 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2016 | August | 2016-8 | 3 | 0.965 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2016 | August | 2016-8 | 1 | 0.78 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2016 | August | 2016-8 | 2 | 0.826 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2016 | August | 2016-8 | 3 | 0.818 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02 | 2016 | August | 2016-8 | 1 | 0.866 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02 | 2016 | August | 2016-8 | 2 | 0.901 | | | | |

| lake | area_rep | sample | station | year | Month | year_month | replicate | chl-a | MDL_flag | QA_sample | flag | flag_note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEL | MEL-04 | 2 | MEL-04-02 | 2016 | August | 2016-8 | 3 | 0.863 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03 | 2016 | August | 2016-8 | 1 | 0.891 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03 | 2016 | August | 2016-8 | 2 | 0.965 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03 | 2016 | August | 2016-8 | 3 | 0.946 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04 | 2016 | August | 2016-8 | 1 | 1.083 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04 | 2016 | August | 2016-8 | 2 | 1 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04 | 2016 | August | 2016-8 | 3 | 0.943 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2016 | August | 2016-8 | 1 | 1.092 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2016 | August | 2016-8 | 2 | 1.008 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2016 | August | 2016-8 | 3 | 0.915 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2016 | August | 2016-8 | 1 | 1.401 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2016 | August | 2016-8 | 2 | 1.206 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2016 | August | 2016-8 | 3 | 1.178 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2016 | August | 2016-8 | 1 | 1.235 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2016 | August | 2016-8 | 2 | 1.296 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2016 | August | 2016-8 | 3 | 1.112 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03 | 2016 | August | 2016-8 | 1 | 1.02 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03 | 2016 | August | 2016-8 | 2 | 1.079 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03 | 2016 | August | 2016-8 | 3 | 1.048 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2016 | August | 2016-8 | 1 | 1.044 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2016 | August | 2016-8 | 2 | 0.9 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2016 | August | 2016-8 | 3 | 0.974 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2016 | August | 2016-8 | 1 | 1.134 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2016 | August | 2016-8 | 2 | 0.984 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2016 | August | 2016-8 | 3 | 0.868 | | | | |
| A8 | A8 | 1 | A8-01 | 2017 | August | 2017-8 | 1 | 0.92 | | | | |
| A8 | A8 | 1 | A8-01 | 2017 | August | 2017-8 | 2 | 0.92 | | | | |
| A8 | A8 | 1 | A8-01 | 2017 | August | 2017-8 | 3 | 0.95 | | | | |
| A8 | A8 | 2 | A8-02 | 2017 | August | 2017-8 | 1 | 3.11 | | | | |
| A8 | A8 | 2 | A8-02 | 2017 | August | 2017-8 | 2 | 0.96 | | | | |
| A8 | A8 | 2 | A8-02 | 2017 | August | 2017-8 | 3 | 0.89 | | | | |
| A8 | A8 | 3 | A8-03 | 2017 | August | 2017-8 | 1 | 1.46 | | | | |
| A8 | A8 | 3 | A8-03 | 2017 | August | 2017-8 | 2 | 1.44 | | | | |
| A8 | A8 | 3 | A8-03 | 2017 | August | 2017-8 | 3 | 0.32 | | | | |
| B7 | B7 | 1 | B7-01 | 2017 | August | 2017-8 | 1 | 1.03 | | | | |
| B7 | B7 | 1 | B7-01 | 2017 | August | 2017-8 | 2 | 1.18 | | | | |
| B7 | B7 | 1 | B7-01 | 2017 | August | 2017-8 | 3 | 1.16 | | | | |
| B7 | B7 | 2 | B7-02 | 2017 | August | 2017-8 | 1 | 1.15 | | | | |
| B7 | B7 | 2 | B7-02 | 2017 | August | 2017-8 | 2 | 1.27 | | | | |
| B7 | B7 | 2 | B7-02 | 2017 | August | 2017-8 | 3 | 1.38 | | | | |
| B7 | B7 | 3 | B7-03 | 2017 | August | 2017-8 | 1 | 1.4 | | | | |
| B7 | B7 | 3 | B7-03 | 2017 | August | 2017-8 | 2 | 1.56 | | | | |
| B7 | B7 | 3 | B7-03 | 2017 | August | 2017-8 | 3 | 1.47 | | | | |
| D7 | D7 | 1 | D7-01 | 2017 | August | 2017-8 | 1 | 2.47 | | | | |
| D7 | D7 | 1 | D7-01 | 2017 | August | 2017-8 | 2 | 2.32 | | | | |
| D7 | D7 | 1 | D7-01 | 2017 | August | 2017-8 | 3 | 1.94 | | | | |
| D7 | D7 | 2 | D7-02 | 2017 | August | 2017-8 | 1 | 2.16 | | | | |
| D7 | D7 | 2 | D7-02 | 2017 | August | 2017-8 | 2 | 2.29 | | | | |
| D7 | D7 | 2 | D7-02 | 2017 | August | 2017-8 | 3 | 2.18 | | | | |
| D7 | D7 | 3 | D7-03 | 2017 | August | 2017-8 | 1 | 2.26 | | | | |
| D7 | D7 | 3 | D7-03 | 2017 | August | 2017-8 | 2 | 2.25 | | | | |
| D7 | D7 | 3 | D7-03 | 2017 | August | 2017-8 | 3 | 2.39 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2017 | August | 2017-8 | 1 | 1.44 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2017 | August | 2017-8 | 2 | 1.7 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2017 | August | 2017-8 | 3 | 1.56 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2017 | August | 2017-8 | 1 | 1.47 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2017 | August | 2017-8 | 2 | 1.42 | | | | |
| MEL | MEL-01 | 2 | MEL-01-02 | 2017 | August | 2017-8 | 3 | 1.52 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2017 | August | 2017-8 | 1 | 1.34 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2017 | August | 2017-8 | 2 | 1.27 | | | | |
| MEL | MEL-01 | 3 | MEL-01-03 | 2017 | August | 2017-8 | 3 | 1.39 | | | | |
| MEL | MEL-01 | 4 | MEL-01-04 | 2017 | August | 2017-8 | 1 | 1.55 | | | | |
| MEL | MEL-01 | 4 | MEL-01-04 | 2017 | August | 2017-8 | 2 | 1.67 | | | | |
| MEL | MEL-01 | 4 | MEL-01-04 | 2017 | August | 2017-8 | 3 | 1.59 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2017 | August | 2017-8 | 1 | 1.45 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2017 | August | 2017-8 | 2 | 1.4 | | | | |
| MEL | MEL-01 | 5 | MEL-01-05 | 2017 | August | 2017-8 | 3 | 1.48 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2017 | August | 2017-8 | 1 | 0.66 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2017 | August | 2017-8 | 2 | 0.66 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01 | 2017 | August | 2017-8 | 3 | 0.65 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2017 | August | 2017-8 | 1 | 0.59 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2017 | August | 2017-8 | 2 | 0.65 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2017 | August | 2017-8 | 3 | 0.58 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2017 | August | 2017-8 | 1 | 0.6 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2017 | August | 2017-8 | 2 | 0.52 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2017 | August | 2017-8 | 3 | 0.51 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2017 | August | 2017-8 | 1 | 0.59 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2017 | August | 2017-8 | 2 | 0.63 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04 | 2017 | August | 2017-8 | 3 | 0.62 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2017 | August | 2017-8 | 1 | 0.72 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2017 | August | 2017-8 | 2 | 0.64 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2017 | August | 2017-8 | 3 | 0.46 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2017 | August | 2017-8 | 1 | 0.6 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2017 | August | 2017-8 | 2 | 0.64 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2017 | August | 2017-8 | 3 | 0.64 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2017 | August | 2017-8 | 1 | 0.62 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2017 | August | 2017-8 | 2 | 0.69 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2017 | August | 2017-8 | 3 | 0.61 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2017 | August | 2017-8 | 1 | 0.43 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2017 | August | 2017-8 | 2 | 0.51 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2017 | August | 2017-8 | 3 | 0.53 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2017 | August | 2017-8 | 1 | 0.51 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2017 | August | 2017-8 | 2 | 0.57 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2017 | August | 2017-8 | 3 | 0.57 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2017 | August | 2017-8 | 1 | 0.58 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2017 | August | 2017-8 | 2 | 0.51 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2017 | August | 2017-8 | 3 | 0.58 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2017 | August | 2017-8 | 1 | 0.52 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2017 | August | 2017-8 | 2 | 0.66 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2017 | August | 2017-8 | 3 | 0.49 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02 | 2017 | August | 2017-8 | 1 | 0.52 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02 | 2017 | August | 2017-8 | 2 | 0.54 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02 | 2017 | August | 2017-8 | 3 | 0.54 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03 | 2017 | August | 2017-8 | 1 | 0.71 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03 | 2017 | August | 2017-8 | 2 | 0.63 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03 | 2017 | August | 2017-8 | 3 | 0.71 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04 | 2017 | August | 2017-8 | 1 | 0.66 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04 | 2017 | August | 2017-8 | 2 | 0.61 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04 | 2017 | August | 2017-8 | 3 | 0.62 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2017 | August | 2017-8 | 1 | 0.67 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2017 | August | 2017-8 | 2 | 0.64 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2017 | August | 2017-8 | 3 | 0.68 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2017 | August | 2017-8 | 1 | 0.62 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2017 | August | 2017-8 | 2 | 0.63 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2017 | August | 2017-8 | 3 | 0.6 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2017 | August | 2017-8 | 1 | 0.58 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2017 | August | 2017-8 | 2 | 0.49 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2017 | August | 2017-8 | 3 | 0.6 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03 | 2017 | August | 2017-8 | 1 | 0.68 | | | | |

| lake | area_rep | sample | station | year | Month | year_month | replicate | chl-a | MDL_flag | QA_sample | flag | flag_note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEL | MEL-05 | 3 | MEL-05-03 | 2017 | August | 2017-8 | 2 | 0.6 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03 | 2017 | August | 2017-8 | 3 | 0.59 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2017 | August | 2017-8 | 1 | 0.56 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2017 | August | 2017-8 | 2 | 0.54 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2017 | August | 2017-8 | 3 | 0.55 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2017 | August | 2017-8 | 1 | 0.56 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2017 | August | 2017-8 | 2 | 0.55 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2017 | August | 2017-8 | 3 | 0.56 | | | | |
| A8 | A8 | 1 | A8-01 | 2018 | August | 2018-8 | 1 | 1.22 | | | | |
| A8 | A8 | 1 | A8-01 | 2018 | August | 2018-8 | 2 | 1.14 | | | | |
| A8 | A8 | 1 | A8-01 | 2018 | August | 2018-8 | 3 | 1.25 | | | | |
| A8 | A8 | 2 | A8-02 | 2018 | August | 2018-8 | 1 | 1.06 | | | | |
| A8 | A8 | 2 | A8-02 | 2018 | August | 2018-8 | 2 | 1.01 | | | | |
| A8 | A8 | 2 | A8-02 | 2018 | August | 2018-8 | 3 | 1 | | | | |
| A8 | A8 | 3 | A8-03 | 2018 | August | 2018-8 | 1 | 1.09 | | | | |
| A8 | A8 | 3 | A8-03 | 2018 | August | 2018-8 | 2 | 1.35 | | | | |
| A8 | A8 | 3 | A8-03 | 2018 | August | 2018-8 | 3 | 1.26 | | | | |
| B7 | B7 | 1 | B7-01 | 2018 | August | 2018-8 | 1 | 1.32 | | | | |
| B7 | B7 | 1 | B7-01 | 2018 | August | 2018-8 | 2 | 1.59 | | | | |
| B7 | B7 | 1 | B7-01 | 2018 | August | 2018-8 | 3 | 1 | | | | |
| B7 | B7 | 2 | B7-02 | 2018 | August | 2018-8 | 1 | 1.87 | | | | |
| B7 | B7 | 2 | B7-02 | 2018 | August | 2018-8 | 2 | 1.94 | | | | |
| B7 | B7 | 2 | B7-02 | 2018 | August | 2018-8 | 3 | 1.84 | | | | |
| B7 | B7 | 3 | B7-03 | 2018 | August | 2018-8 | 1 | 1.62 | | | | |
| B7 | B7 | 3 | B7-03 | 2018 | August | 2018-8 | 2 | 1.58 | | | | |
| B7 | B7 | 3 | B7-03 | 2018 | August | 2018-8 | 3 | 2.26 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2018 | August | 2018-8 | 1 | 2.05 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2018 | August | 2018-8 | 2 | 1.86 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01 | 2018 | August | 2018-8 | 3 | 1.73 | | | | |
| MEL | MEL-01 | 6 | MEL-01-06 | 2018 | August | 2018-8 | 1 | 1.82 | | | | |
| MEL | MEL-01 | 6 | MEL-01-06 | 2018 | August | 2018-8 | 2 | 1.81 | | | | |
| MEL | MEL-01 | 6 | MEL-01-06 | 2018 | August | 2018-8 | 3 | 1.87 | | | | |
| MEL | MEL-01 | 7 | MEL-01-07 | 2018 | August | 2018-8 | 1 | 1.97 | | | | |
| MEL | MEL-01 | 7 | MEL-01-07 | 2018 | August | 2018-8 | 2 | 1.95 | | | | |
| MEL | MEL-01 | 7 | MEL-01-07 | 2018 | August | 2018-8 | 3 | 1.85 | | | | |
| MEL | MEL-01 | 8 | MEL-01-08 | 2018 | August | 2018-8 | 1 | 2.09 | | | | |
| MEL | MEL-01 | 8 | MEL-01-08 | 2018 | August | 2018-8 | 2 | 1.99 | | | | |
| MEL | MEL-01 | 8 | MEL-01-08 | 2018 | August | 2018-8 | 3 | 2.03 | | | | |
| MEL | MEL-01 | 9 | MEL-01-09 | 2018 | August | 2018-8 | 1 | 1.94 | | | | |
| MEL | MEL-01 | 9 | MEL-01-09 | 2018 | August | 2018-8 | 2 | 1.95 | | | | |
| MEL | MEL-01 | 9 | MEL-01-09 | 2018 | August | 2018-8 | 3 | 1.81 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2018 | August | 2018-8 | 1 | 0.7 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2018 | August | 2018-8 | 2 | 0.76 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02 | 2018 | August | 2018-8 | 3 | 0.78 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2018 | August | 2018-8 | 1 | 0.92 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2018 | August | 2018-8 | 2 | 1.05 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03 | 2018 | August | 2018-8 | 3 | 1.1 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2018 | August | 2018-8 | 1 | 0.8 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2018 | August | 2018-8 | 2 | 0.84 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05 | 2018 | August | 2018-8 | 3 | 0.82 | | | | |
| MEL | MEL-02 | 6 | MEL-02-06 | 2018 | August | 2018-8 | 1 | 0.72 | | | | |
| MEL | MEL-02 | 6 | MEL-02-06 | 2018 | August | 2018-8 | 2 | 0.71 | | | | |
| MEL | MEL-02 | 6 | MEL-02-06 | 2018 | August | 2018-8 | 3 | 1.17 | | | | |
| MEL | MEL-02 | 8 | MEL-02-08 | 2018 | August | 2018-8 | 1 | 0.9 | | | | |
| MEL | MEL-02 | 8 | MEL-02-08 | 2018 | August | 2018-8 | 2 | 0.96 | | | | |
| MEL | MEL-02 | 8 | MEL-02-08 | 2018 | August | 2018-8 | 3 | 0.99 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2018 | August | 2018-8 | 1 | 0.74 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2018 | August | 2018-8 | 2 | 0.69 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01 | 2018 | August | 2018-8 | 3 | 0.65 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2018 | August | 2018-8 | 1 | 0.55 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2018 | August | 2018-8 | 2 | 0.58 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02 | 2018 | August | 2018-8 | 3 | 0.59 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2018 | August | 2018-8 | 1 | 0.69 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2018 | August | 2018-8 | 2 | 0.69 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03 | 2018 | August | 2018-8 | 3 | 0.67 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2018 | August | 2018-8 | 1 | 0.61 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2018 | August | 2018-8 | 2 | 0.56 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04 | 2018 | August | 2018-8 | 3 | 0.6 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2018 | August | 2018-8 | 1 | 0.53 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2018 | August | 2018-8 | 2 | 0.48 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05 | 2018 | August | 2018-8 | 3 | 0.57 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2018 | August | 2018-8 | 1 | 0.64 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2018 | August | 2018-8 | 2 | 0.62 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01 | 2018 | August | 2018-8 | 3 | 0.64 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02 | 2018 | August | 2018-8 | 1 | 0.56 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02 | 2018 | August | 2018-8 | 2 | 0.55 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02 | 2018 | August | 2018-8 | 3 | 0.55 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03 | 2018 | August | 2018-8 | 1 | 0.55 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03 | 2018 | August | 2018-8 | 2 | 0.62 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2018 | August | 2018-8 | 1 | 0.56 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2018 | August | 2018-8 | 2 | 0.58 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05 | 2018 | August | 2018-8 | 3 | 0.56 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2018 | August | 2018-8 | 1 | 0.63 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2018 | August | 2018-8 | 2 | 0.62 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01 | 2018 | August | 2018-8 | 3 | 0.62 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2018 | August | 2018-8 | 1 | 0.57 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2018 | August | 2018-8 | 2 | 0.55 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02 | 2018 | August | 2018-8 | 3 | 0.61 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03 | 2018 | August | 2018-8 | 1 | 0.5 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03 | 2018 | August | 2018-8 | 2 | 0.47 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03 | 2018 | August | 2018-8 | 3 | 0.48 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2018 | August | 2018-8 | 1 | 0.63 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2018 | August | 2018-8 | 2 | 0.61 | | | | |
| MEL | MEL-05 | 4 | MEL-05-04 | 2018 | August | 2018-8 | 3 | 0.6 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2018 | August | 2018-8 | 1 | 0.62 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2018 | August | 2018-8 | 2 | 0.6 | | | | |
| MEL | MEL-05 | 5 | MEL-05-05 | 2018 | August | 2018-8 | 3 | 0.64 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01-PC | 2019 | August | 2019-8 | 1 | 0.73 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01-PC | 2019 | August | 2019-8 | 2 | 0.9 | | | | |
| MEL | MEL-01 | 1 | MEL-01-01-PC | 2019 | August | 2019-8 | 3 | 0.84 | | | | |
| MEL | MEL-01 | 6 | MEL-01-06-PC | 2019 | August | 2019-8 | 1 | 0.58 | | | | |
| MEL | MEL-01 | 6 | MEL-01-06-PC | 2019 | August | 2019-8 | 2 | 0.88 | | | | |
| MEL | MEL-01 | 6 | MEL-01-06-PC | 2019 | August | 2019-8 | 3 | 0.8 | | | | |
| MEL | MEL-01 | 7 | MEL-01-07-PC | 2019 | August | 2019-8 | 1 | 0.77 | | | | |
| MEL | MEL-01 | 7 | MEL-01-07-PC | 2019 | August | 2019-8 | 2 | 0.84 | | | | |
| MEL | MEL-01 | 7 | MEL-01-07-PC | 2019 | August | 2019-8 | 3 | 0.93 | | | | |
| MEL | MEL-01 | 8 | MEL-01-08-PC | 2019 | August | 2019-8 | 1 | 0.87 | | | | |
| MEL | MEL-01 | 8 | MEL-01-08-PC | 2019 | August | 2019-8 | 2 | 0.64 | | | | |
| MEL | MEL-01 | 8 | MEL-01-08-PC | 2019 | August | 2019-8 | 3 | 0.65 | | | | |
| MEL | MEL-01 | 9 | MEL-01-09-PC | 2019 | August | 2019-8 | 1 | 0.82 | | | | |
| MEL | MEL-01 | 9 | MEL-01-09-PC | 2019 | August | 2019-8 | 2 | 0.91 | | | | |
| MEL | MEL-01 | 9 | MEL-01-09-PC | 2019 | August | 2019-8 | 3 | 0.82 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01-PC | 2019 | August | 2019-8 | 1 | 0.19 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01-PC | 2019 | August | 2019-8 | 2 | 0.18 | | | | |
| MEL | MEL-02 | 1 | MEL-02-01-PC | 2019 | August | 2019-8 | 3 | 0.17 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02-PC | 2019 | August | 2019-8 | 1 | 0.04 | MDL | | | |
| MEL | MEL-02 | 2 | MEL-02-02-PC | 2019 | August | 2019-8 | 2 | 0.09 | | | | |
| MEL | MEL-02 | 2 | MEL-02-02-PC | 2019 | August | 2019-8 | 3 | 0.17 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03-PC | 2019 | August | 2019-8 | 1 | 0.25 | | | | |

| lake | area_rep | sample | station | year | Month | year_month | replicate | chl-a | MDL_flag | QA_sample | flag | flag_note |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEL | MEL-02 | 3 | MEL-02-03-PC | 2019 | August | 2019-8 | 2 | 0.26 | | | | |
| MEL | MEL-02 | 3 | MEL-02-03-PC | 2019 | August | 2019-8 | 3 | 0.21 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04-PC | 2019 | August | 2019-8 | 1 | 0.19 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04-PC | 2019 | August | 2019-8 | 2 | 0.24 | | | | |
| MEL | MEL-02 | 4 | MEL-02-04-PC | 2019 | August | 2019-8 | 3 | 0.23 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05-PC | 2019 | August | 2019-8 | 1 | 0.3 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05-PC | 2019 | August | 2019-8 | 2 | 0.2 | | | | |
| MEL | MEL-02 | 5 | MEL-02-05-PC | 2019 | August | 2019-8 | 3 | 0.26 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01-PC | 2019 | August | 2019-8 | 1 | 0.08 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01-PC | 2019 | August | 2019-8 | 2 | 0.07 | | | | |
| MEL | MEL-03 | 1 | MEL-03-01-PC | 2019 | August | 2019-8 | 3 | 0.01 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02-PC | 2019 | August | 2019-8 | 1 | 0.03 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02-PC | 2019 | August | 2019-8 | 2 | 0.12 | | | | |
| MEL | MEL-03 | 2 | MEL-03-02-PC | 2019 | August | 2019-8 | 3 | 0.02 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03-PC | 2019 | August | 2019-8 | 1 | 0.02 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03-PC | 2019 | August | 2019-8 | 2 | 0.03 | | | | |
| MEL | MEL-03 | 3 | MEL-03-03-PC | 2019 | August | 2019-8 | 3 | 0.03 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04-PC | 2019 | August | 2019-8 | 1 | 0.03 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04-PC | 2019 | August | 2019-8 | 2 | 0.04 | | | | |
| MEL | MEL-03 | 4 | MEL-03-04-PC | 2019 | August | 2019-8 | 3 | 0.02 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05-PC | 2019 | August | 2019-8 | 1 | 0.05 | | | | |
| MEL | MEL-03 | 5 | MEL-03-05-PC | 2019 | August | 2019-8 | 2 | 0.04 | MDL | | | |
| MEL | MEL-03 | 5 | MEL-03-05-PC | 2019 | August | 2019-8 | 3 | 0.04 | MDL | | | |
| MEL | MEL-04 | 1 | MEL-04-01-PC | 2019 | August | 2019-8 | 1 | 0.09 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01-PC | 2019 | August | 2019-8 | 2 | 0.18 | | | | |
| MEL | MEL-04 | 1 | MEL-04-01-PC | 2019 | August | 2019-8 | 3 | 0.23 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02-PC | 2019 | August | 2019-8 | 1 | 0.1 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02-PC | 2019 | August | 2019-8 | 2 | 0.19 | | | | |
| MEL | MEL-04 | 2 | MEL-04-02-PC | 2019 | August | 2019-8 | 3 | 0.15 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03-PC | 2019 | August | 2019-8 | 1 | 0.11 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03-PC | 2019 | August | 2019-8 | 2 | 0.12 | | | | |
| MEL | MEL-04 | 3 | MEL-04-03-PC | 2019 | August | 2019-8 | 3 | 0.18 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04-PC | 2019 | August | 2019-8 | 1 | 0.2 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04-PC | 2019 | August | 2019-8 | 2 | 0.13 | | | | |
| MEL | MEL-04 | 4 | MEL-04-04-PC | 2019 | August | 2019-8 | 3 | 0.11 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05-PC | 2019 | August | 2019-8 | 1 | 0.28 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05-PC | 2019 | August | 2019-8 | 2 | 0.13 | | | | |
| MEL | MEL-04 | 5 | MEL-04-05-PC | 2019 | August | 2019-8 | 3 | 0.21 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01-PC | 2019 | August | 2019-8 | 1 | 0.18 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01-PC | 2019 | August | 2019-8 | 2 | 0.18 | | | | |
| MEL | MEL-05 | 1 | MEL-05-01-PC | 2019 | August | 2019-8 | 3 | 0.23 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02-PC | 2019 | August | 2019-8 | 1 | 0.26 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02-PC | 2019 | August | 2019-8 | 2 | 0.36 | | | | |
| MEL | MEL-05 | 2 | MEL-05-02-PC | 2019 | August | 2019-8 | 3 | 0.31 | | | | |
| MEL | MEL-05 | 3 | MEL-05-03-PC | 2019 | August | 2019-8 | 1 | 0.04 | MDL | | | Different filter type |
| MEL | MEL-05 | 3 | MEL-05-03-PC | 2019 | August | 2019-8 | 2 | 0.04 | MDL | | | Different filter type |
| MEL | MEL-05 | 3 | MEL-05-03-PC | 2019 | August | 2019-8 | 3 | 0.04 | MDL | | | Different filter type |
| MEL | MEL-05 | 4 | MEL-05-04-PC | 2019 | August | 2019-8 | 1 | 0.04 | | | | Different filter type |
| MEL | MEL-05 | 4 | MEL-05-04-PC | 2019 | August | 2019-8 | 2 | 0.07 | | | | Different filter type |
| MEL | MEL-05 | 4 | MEL-05-04-PC | 2019 | August | 2019-8 | 3 | 0.02 | | | | Different filter type |
| MEL | MEL-05 | 5 | MEL-05-05-PC | 2019 | August | 2019-8 | 1 | 0.04 | MDL | | | Different filter type |
| MEL | MEL-05 | 5 | MEL-05-05-PC | 2019 | August | 2019-8 | 2 | 0.04 | MDL | | | Different filter type |
| MEL | MEL-05 | 5 | MEL-05-05-PC | 2019 | August | 2019-8 | 3 | 0.08 | | | | Different filter type |
| B7 | B7 | 1 | B7-01-PC | 2019 | August | 2019-8 | 1 | 0.63 | | | | |
| B7 | B7 | 1 | B7-01-PC | 2019 | August | 2019-8 | 2 | 0.59 | | | | |
| B7 | B7 | 1 | B7-01-PC | 2019 | August | 2019-8 | 3 | 0.55 | | | | |
| B7 | B7 | 2 | B7-02-PC | 2019 | August | 2019-8 | 1 | 0.56 | | | | |
| B7 | B7 | 2 | B7-02-PC | 2019 | August | 2019-8 | 2 | 0.68 | | | | |
| B7 | B7 | 2 | B7-02-PC | 2019 | August | 2019-8 | 3 | 0.55 | | | | |
| B7 | B7 | 3 | B7-03-PC | 2019 | August | 2019-8 | 1 | 0.43 | | | | |
| B7 | B7 | 3 | B7-03-PC | 2019 | August | 2019-8 | 2 | 0.61 | | | | |
| B7 | B7 | 3 | B7-03-PC | 2019 | August | 2019-8 | 3 | 0.4 | | | | |
| A8 | A8 | 1 | A8-01-PC | 2019 | August | 2019-8 | 1 | 0.79 | | | | |
| A8 | A8 | 1 | A8-01-PC | 2019 | August | 2019-8 | 2 | 0.9 | | | | |
| A8 | A8 | 1 | A8-01-PC | 2019 | August | 2019-8 | 3 | 0.75 | | | | |
| A8 | A8 | 2 | A8-02-PC | 2019 | August | 2019-8 | 1 | 0.57 | | | | |
| A8 | A8 | 2 | A8-02-PC | 2019 | August | 2019-8 | 2 | 0.77 | | | | |
| A8 | A8 | 2 | A8-02-PC | 2019 | August | 2019-8 | 3 | 0.56 | | | | |
| A8 | A8 | 3 | A8-03-PC | 2019 | August | 2019-8 | 1 | 1.11 | | | | |
| A8 | A8 | 3 | A8-03-PC | 2019 | August | 2019-8 | 2 | 0.9 | | | | |
| A8 | A8 | 3 | A8-03-PC | 2019 | August | 2019-8 | 3 | 1.11 | | | | |
| D7 | D7 | 1 | D7-01-PC | 2019 | August | 2019-8 | 1 | 1.5 | | | | |
| D7 | D7 | 1 | D7-01-PC | 2019 | August | 2019-8 | 2 | 1.69 | | | | |
| D7 | D7 | 1 | D7-01-PC | 2019 | August | 2019-8 | 3 | 1.84 | | | | |
| D7 | D7 | 2 | D7-02-PC | 2019 | August | 2019-8 | 1 | 1.44 | | | | |
| D7 | D7 | 2 | D7-02-PC | 2019 | August | 2019-8 | 2 | 1.42 | | | | |
| D7 | D7 | 2 | D7-02-PC | 2019 | August | 2019-8 | 3 | 1.51 | | | | |
| D7 | D7 | 3 | D7-03-PC | 2019 | August | 2019-8 | 1 | 1.31 | | | | |
| D7 | D7 | 3 | D7-03-PC | 2019 | August | 2019-8 | 2 | 1.65 | | | | |
| D7 | D7 | 3 | D7-03-PC | 2019 | August | 2019-8 | 3 | 1.45 | | | | |
| D7 | D7 | 1 | AUG-DUP-01-PC | 2019 | August | 2019-8 | 1 | 1.77 | | DUP | | |
| D7 | D7 | 1 | AUG-DUP-01-PC | 2019 | August | 2019-8 | 2 | 3.1 | | DUP | | |
| D7 | D7 | 1 | AUG-DUP-01-PC | 2019 | August | 2019-8 | 3 | 1.51 | | DUP | | |
| A8 | A8 | 1 | AUG-DUP-02-PC | 2019 | August | 2019-8 | 1 | 0.7 | | DUP | | |
| A8 | A8 | 1 | AUG-DUP-02-PC | 2019 | August | 2019-8 | 2 | 0.62 | | DUP | | |
| A8 | A8 | 1 | AUG-DUP-02-PC | 2019 | August | 2019-8 | 3 | 0.64 | | DUP | | |
| MEL | MEL-03 | 2 | AUG-DUP-03-PC | 2019 | August | 2019-8 | 1 | 0.02 | | DUP | | |
| MEL | MEL-03 | 2 | AUG-DUP-03-PC | 2019 | August | 2019-8 | 2 | 0.06 | | DUP | | |
| MEL | MEL-03 | 2 | AUG-DUP-03-PC | 2019 | August | 2019-8 | 3 | 0.08 | | DUP | | |
| MEL | MEL-04 | 5 | AUG-DUP-04-PC | 2019 | August | 2019-8 | 1 | 0.14 | | DUP | | |
| MEL | MEL-04 | 5 | AUG-DUP-04-PC | 2019 | August | 2019-8 | 2 | 0.11 | | DUP | | |
| MEL | MEL-04 | 5 | AUG-DUP-04-PC | 2019 | August | 2019-8 | 3 | 0.18 | | DUP | | |
| BLANK | BLANK | 1 | MEL-BLANK-01 | 2019 | August | 2019-8 | 1 | 0.04 | MDL | BLANK | | |
| BLANK | BLANK | 2 | MEL-BLANK-02 | 2019 | August | 2019-8 | 2 | 0.04 | MDL | BLANK | | |
| BLANK | BLANK | 3 | MEL-BLANK-03 | 2019 | August | 2019-8 | 3 | 0.04 | MDL | BLANK | | |

# Appendix H3
# Meliadine Lake Secchi Depth Database (2013, 2015-2019)

Appendix H3. Secchi data collected the Meliadine Lake AEMP, years 2015 - 2019.

| year | area_rep | Secchi Depth (in meters) | | |
|---|---|---|---|---|
| | | N | Mean | SE |
| 2015 | MEL-01 | 5 | 6 | 0.2 |
| 2015 | MEL-02 | 5 | 6.4 | 0.4 |
| 2016 | MEL-01 | 5 | 7 | 0 |
| 2016 | MEL-02 | 5 | 7 | 0 |
| 2016 | MEL-03 | 5 | 7.2 | 0.2 |
| 2016 | MEL-04 | 5 | 7.2 | 0.2 |
| 2016 | MEL-05 | 5 | 7.4 | 0.2 |
| 2017 | MEL-01 | 5 | 7.6 | 0.5 |
| 2017 | MEL-02 | 5 | 8.5 | 0.3 |
| 2017 | MEL-03 | 5 | 7.9 | 0.4 |
| 2017 | MEL-04 | 5 | 8.6 | 0.4 |
| 2017 | MEL-05 | 5 | 8.9 | 0.5 |
| 2018 | MEL-01 | 5 | 6.4 | 0.2 |
| 2018 | MEL-02 | 5 | 6.5 | 0.2 |
| 2018 | MEL-03 | 5 | 6.6 | 0.3 |
| 2018 | MEL-04 | 5 | 6.9 | 0.2 |
| 2018 | MEL-05 | 5 | 7 | 0.1 |
| 2019 | MEL-01 | 15 | 4.7 | 0.1 |
| 2019 | MEL-02 | 15 | 7.5 | 0.39 |
| 2019 | MEL-03 | 15 | 7.3 | 0.13 |
| 2019 | MEL-04 | 5 | 7 | 0 |
| 2019 | MEL-05 | 5 | 9 | 0.4 |

# APPENDIX I
# ALS CERTIFICATES OF ANALYSIS – 2019 DEPTH-INTEGRATED NUTRIENT DATA

Agnico-Eagle - Meliadine Gold Project
ATTN: ERIC FRANZ
PO Box 99
Rankin Inlet NU X0C 0G0

Date Received: 16-AUG-19
Report Date: 30-AUG-19 14:53 (MT)
Version: FINAL

Client Phone: 819-759-3555

# Certificate of Analysis

## Lab Work Order #: L2330135

Project P.O. #: NOT SUBMITTED
Job Reference: MEL
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

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# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330135-1 MEL-01-01-PC | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 14:10 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 16-AUG-19 | R4759094 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 3.11 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0029 | | 0.0010 | mg/L | | 22-AUG-19 | R4768651 |
| Phosphorus (P)-Total | 0.0133 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0131 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.404 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 3.00 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.023 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-2 MEL-01-06-PC | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 18:40 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 16-AUG-19 | R4759094 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 2.97 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0027 | | 0.0010 | mg/L | | 22-AUG-19 | R4768651 |
| Phosphorus (P)-Total | 0.0113 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0060 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.406 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 3.09 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-3 MEL-01-07-PC | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 16:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 16-AUG-19 | R4759094 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 3.30 | | 0.50 | mg/L | | 21-AUG-19 | R4764669 |
| Orthophosphate-Dissolved (as P) | 0.0093 | | 0.0030 | mg/L | | 22-AUG-19 | R4766695 |
| Phosphorus (P)-Total | 0.0204 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330135-3 MEL-01-07-PC | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 16:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Phosphorus (P)-Total Dissolved | 0.0218 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.401 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | 0.21 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 3.26 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.025 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | 0.21 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-4 MEL-01-08-PC | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 17:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 16-AUG-19 | R4759094 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 3.44 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0146 | | 0.0030 | mg/L | | 22-AUG-19 | R4766695 |
| Phosphorus (P)-Total | 0.0225 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0171 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.399 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 3.31 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.026 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-5 MEL-01-09-[C | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 15:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.014 | | 0.010 | mg/L | | 16-AUG-19 | R4759094 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 3.04 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0101 | | 0.0030 | mg/L | | 22-AUG-19 | R4766695 |
| Phosphorus (P)-Total | 0.0205 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0141 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.393 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 3.07 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330135-5 MEL-01-09-[C | | | | | | | |
| Sampled By: AAE on 08-AUG-19 @ 15:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.033 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-6 MEL-02-01-PC | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 09:30 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.031 | | 0.010 | mg/L | | 16-AUG-19 | R4759094 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 3.06 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4768651 |
| Phosphorus (P)-Total | 0.0059 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Phosphorus (P)-Total Dissolved | 0.0037 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Silica, Reactive (as SiO2) | 0.276 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.79 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.023 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-7 MEL-02-02-PC | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:04 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.014 | | 0.010 | mg/L | | 16-AUG-19 | R4759094 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 3.10 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0017 | | 0.0010 | mg/L | | 29-AUG-19 | R4778180 |
| Phosphorus (P)-Total | 0.0194 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0013 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Silica, Reactive (as SiO2) | 0.273 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.98 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.021 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330135-7 MEL-02-02-PC | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:04 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-8 MEL-02-03-PC | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 10:52 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 16-AUG-19 | R4759094 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 2.87 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4768651 |
| Phosphorus (P)-Total | 0.0053 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0037 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Silica, Reactive (as SiO2) | 0.271 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.82 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-9 MEL-02-04-PC | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 11:32 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 19-AUG-19 | R4760488 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 3.14 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0013 | | 0.0010 | mg/L | | 22-AUG-19 | R4768651 |
| Phosphorus (P)-Total | 0.0110 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0034 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Silica, Reactive (as SiO2) | 0.279 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | 0.21 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 3.22 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | 0.21 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-10 MEL-02-05-PC | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330135-10 MEL-02-05-PC | | | | | | | |
| Sampled By: AAE on 10-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 19-AUG-19 | R4760488 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 3.16 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4768651 |
| Phosphorus (P)-Total | 0.0042 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Phosphorus (P)-Total Dissolved | 0.0011 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Silica, Reactive (as SiO2) | 0.282 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.99 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-11 MEL-03-01-PC | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 12:45 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 19-AUG-19 | R4760488 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 2.59 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0228 | | 0.0030 | mg/L | | 22-AUG-19 | R4766695 |
| Phosphorus (P)-Total | 0.0101 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0095 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.223 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.46 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-12 MEL-03-02-PC | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 19-AUG-19 | R4760488 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 2.55 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4768651 |
| Phosphorus (P)-Total | 0.0053 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0080 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330135-12 MEL-03-02-PC | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| Silica, Reactive (as SiO2) | 0.222 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.56 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.026 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-13 MEL-03-03-PC | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:00 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.016 | | 0.010 | mg/L | | 19-AUG-19 | R4760488 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 2.45 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0073 | | 0.0030 | mg/L | | 22-AUG-19 | R4766695 |
| Phosphorus (P)-Total | 0.0139 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0138 | | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.226 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.64 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-14 MEL-03-04-PC | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 19-AUG-19 | R4760488 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 2.44 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0100 | | 0.0030 | mg/L | | 22-AUG-19 | R4766695 |
| Phosphorus (P)-Total | 0.0120 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0201 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.221 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.49 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2330135-14 MEL-03-04-PC | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 15:35 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-15 MEL-03-05-PC | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 16:22 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 19-AUG-19 | R4760488 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 2.46 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | 0.0103 | | 0.0030 | mg/L | | 22-AUG-19 | R4766695 |
| Phosphorus (P)-Total | 0.0133 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0200 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.219 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.51 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.023 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |
| L2330135-16 AUG-DUP-03-PC | | | | | | | |
| Sampled By: AAE on 09-AUG-19 @ 13:57 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.010 | | 0.010 | mg/L | | 19-AUG-19 | R4760488 |
| Diss. Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Dissolved Organic Carbon | 2.82 | | 0.50 | mg/L | | 20-AUG-19 | R4762075 |
| Orthophosphate-Dissolved (as P) | <0.0010 | | 0.0010 | mg/L | | 22-AUG-19 | R4768651 |
| Phosphorus (P)-Total | 0.0113 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Phosphorus (P)-Total Dissolved | 0.0185 | RRV | 0.0030 | mg/L | | 20-AUG-19 | R4762204 |
| Silica, Reactive (as SiO2) | 0.217 | | 0.010 | mg/L | | 20-AUG-19 | R4765142 |
| Total Kjeldahl Nitrogen | <0.20 | | 0.20 | mg/L | 20-AUG-19 | 21-AUG-19 | R4762450 |
| Total Organic Carbon | 2.60 | | 0.50 | mg/L | | 20-AUG-19 | R4762093 |
| **Nitrogen Total** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 17-AUG-19 | R4761937 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 21-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 17-AUG-19 | R4761937 |
| **Total Nitrogen Calculated** | | | | | | | |
| Total Nitrogen | <0.20 | | 0.20 | mg/L | | 21-AUG-19 | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Sample Parameter Qualifier Key:**

| Qualifier | Description |
|---|---|
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RRV | Reported Result Verified By Repeat Analysis |

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |
| Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |
| Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| DKN-WP | Water | Dissolved Kjeldahl Nitrogen | APHA 4500 NorgD (modified) |
| Aqueous samples are filtered through a 0.45 um filter prior to preservation and then digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection. | | | |
| ETL-N-TOT-ANY-WP | Water | Total Nitrogen Calculated | Calculated |
| N-TOTKJ-WP | Water | Total Kjeldahl Nitrogen | APHA 4500 NorgD (modified) |
| Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection. | | | |
| NH3-COL-WP | Water | Ammonia by colour | APHA 4500 NH3 F |
| Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically. | | | |
| NO2+NO3-CALC-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-IC-N-WP | Water | Nitrite in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| NO3-IC-N-WP | Water | Nitrate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample. | | | |
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. | | | |
| P-TD-COL-WP | Water | Phosphorus, Total Dissolved | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapated from APHA METHOD 4500-P "Phosphorus". Total Phosphorous is determined colourmetricaly after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter. | | | |
| P-TD-L-COL-WP | Water | Phosphorus, Total Dissolved | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter. | | | |
| PO4-DO-COL-WP | Water | Phosphate Ortho Dissolved in Water | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapated from APHA METHOD 4500-P " Phosphorus ". Dissolved Ortho Phosphorous is determined colourmetricaly on a sample that has been lab or field filtered through a 0.45 micron filter. | | | |
| PO4-DO-L-COL-WP | Water | Phosphate Ortho Dissolved in Water | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. | | | |
| SIO2-L-COL-WP | Water | Reactive Silica by colour | APHA 4500 SIO2 |
| This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 "Silica". Molybdate Reactive Silica is determined by analysis of the sample using the heteropoly blue colourimetric method. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
PO Box 99
Rankin Inlet NU X0C 0G0
Contact: ERIC FRANZ

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4762075** | | | | | | | | |
| **WG3138980-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 106.5 | | % | | 80-120 | 20-AUG-19 |
| **WG3138980-6 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 107.5 | | % | | 80-120 | 20-AUG-19 |
| **WG3138980-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 20-AUG-19 |
| **WG3138980-5 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 20-AUG-19 |
| **WG3138980-8 MS** | | **L2330135-8** | | | | | | |
| Dissolved Organic Carbon | | | 106.3 | | % | | 70-130 | 20-AUG-19 |
| **Batch R4764669** | | | | | | | | |
| **WG3140150-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 108.1 | | % | | 80-120 | 21-AUG-19 |
| **WG3140150-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 21-AUG-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4762093** | | | | | | | | |
| **WG3138986-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 107.7 | | % | | 80-120 | 20-AUG-19 |
| **WG3138986-6 LCS** | | | | | | | | |
| Total Organic Carbon | | | 106.5 | | % | | 80-120 | 20-AUG-19 |
| **WG3138986-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 20-AUG-19 |
| **WG3138986-5 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 20-AUG-19 |
| **WG3138986-8 MS** | | **L2330135-9** | | | | | | |
| Total Organic Carbon | | | 108.1 | | % | | 70-130 | 20-AUG-19 |
| **DKN-WP** | **Water** | | | | | | | |
| **Batch R4762450** | | | | | | | | |
| **WG3137572-3 DUP** | | **L2330135-1** | | | | | | |
| Diss. Kjeldahl Nitrogen | | <0.20 | <0.20 | RPD-NA | mg/L | N/A | 20 | 21-AUG-19 |
| **WG3137572-2 LCS** | | | | | | | | |
| Diss. Kjeldahl Nitrogen | | | 95.2 | | % | | 75-125 | 21-AUG-19 |
| **WG3137572-1 MB** | | | | | | | | |
| Diss. Kjeldahl Nitrogen | | | <0.20 | | mg/L | | 0.2 | 21-AUG-19 |
| **WG3137572-4 MS** | | **L2330135-1** | | | | | | |
| Diss. Kjeldahl Nitrogen | | | 108.1 | | % | | 70-130 | 21-AUG-19 |
| **N-TOTKJ-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **N-TOTKJ-WP** | **Water** | | | | | | | |
| **Batch R4762450** | | | | | | | | |
| **WG3137557-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 100.0 | | % | | 75-125 | 21-AUG-19 |
| **WG3137557-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.20 | | mg/L | | 0.2 | 21-AUG-19 |
| **NH3-COL-WP** | **Water** | | | | | | | |
| **Batch R4759094** | | | | | | | | |
| **WG3136960-18 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 100.3 | | % | | 85-115 | 16-AUG-19 |
| **WG3136960-17 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.010 | | mg/L | | 0.01 | 16-AUG-19 |
| **Batch R4760488** | | | | | | | | |
| **WG3138056-2 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 99.3 | | % | | 85-115 | 19-AUG-19 |
| **WG3138056-1 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.010 | | mg/L | | 0.01 | 19-AUG-19 |
| **NO2-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4761937** | | | | | | | | |
| **WG3135926-6 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.8 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-5 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.010 | | mg/L | | 0.01 | 17-AUG-19 |
| **NO3-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4761937** | | | | | | | | |
| **WG3135926-6 LCS** | | | | | | | | |
| Nitrate (as N) | | | 99.7 | | % | | 90-110 | 17-AUG-19 |
| **WG3135926-5 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.020 | | mg/L | | 0.02 | 17-AUG-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4762204** | | | | | | | | |
| **WG3137144-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 101.8 | | % | | 80-120 | 20-AUG-19 |
| **WG3137144-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 20-AUG-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4771318** | | | | | | | | |
| **WG3144882-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 87.8 | | % | | 80-120 | 28-AUG-19 |
| **WG3144882-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 28-AUG-19 |
| **P-TD-COL-WP** | **Water** | | | | | | | |
| **Batch R4762204** | | | | | | | | |
| **WG3137127-3 DUP** | | **L2330135-1** | | | | | | |
| Phosphorus (P)-Total | Dissolved | 0.0131 | 0.0133 | | mg/L | 2.0 | 20 | 20-AUG-19 |
| **WG3137127-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | 101.2 | | % | | 80-120 | 20-AUG-19 |
| **WG3137127-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | <0.0030 | | mg/L | | 0.003 | 20-AUG-19 |
| **WG3137127-4 MS** | | **L2330135-2** | | | | | | |
| Phosphorus (P)-Total | Dissolved | | 98.1 | | % | | 70-130 | 20-AUG-19 |
| **P-TD-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4771318** | | | | | | | | |
| **WG3144888-2 LCS** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | 83.6 | | % | | 80-120 | 28-AUG-19 |
| **WG3144888-1 MB** | | | | | | | | |
| Phosphorus (P)-Total | Dissolved | | <0.0010 | | mg/L | | 0.001 | 28-AUG-19 |
| **PO4-DO-COL-WP** | **Water** | | | | | | | |
| **Batch R4766695** | | | | | | | | |
| **WG3141704-2 LCS** | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 99.5 | | % | | 80-120 | 22-AUG-19 |
| **WG3141704-1 MB** | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0030 | | mg/L | | 0.003 | 22-AUG-19 |
| **PO4-DO-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4768651** | | | | | | | | |
| **WG3143442-3 DUP** | | **L2330135-1** | | | | | | |
| Orthophosphate-Dissolved (as P) | | 0.0029 | 0.0032 | | mg/L | 7.9 | 20 | 22-AUG-19 |
| **WG3143442-2 LCS** | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 83.0 | | % | | 80-120 | 22-AUG-19 |
| **WG3143442-1 MB** | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 22-AUG-19 |
| **WG3143442-4 MS** | | **L2330135-1** | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 117.4 | | % | | 70-130 | 22-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **PO4-DO-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4778180** | | | | | | | | |
| **WG3148514-2 LCS** | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 97.1 | | % | | 80-120 | 29-AUG-19 |
| **WG3148514-1 MB** | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 29-AUG-19 |
| **SIO2-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4765142** | | | | | | | | |
| **WG3140781-3 DUP** | | **L2330135-13** | | | | | | |
| Silica, Reactive (as SiO2) | | 0.226 | 0.225 | | mg/L | 0.6 | 20 | 20-AUG-19 |
| **WG3140781-2 LCS** | | | | | | | | |
| Silica, Reactive (as SiO2) | | | 102.9 | | % | | 85-115 | 20-AUG-19 |
| **WG3140781-1 MB** | | | | | | | | |
| Silica, Reactive (as SiO2) | | | <0.010 | | mg/L | | 0.01 | 20-AUG-19 |
| **WG3140781-4 MS** | | **L2330135-13** | | | | | | |
| Silica, Reactive (as SiO2) | | | N/A | MS-B | % | | - | 20-AUG-19 |

**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 3 | 08-AUG-19 16:35 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 4 | 08-AUG-19 17:50 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 5 | 08-AUG-19 15:45 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 6 | 10-AUG-19 09:30 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 7 | 10-AUG-19 10:04 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 8 | 10-AUG-19 10:52 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 9 | 10-AUG-19 11:32 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 10 | 10-AUG-19 12:23 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 11 | 09-AUG-19 12:45 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 12 | 09-AUG-19 13:57 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 13 | 09-AUG-19 15:00 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 14 | 09-AUG-19 15:35 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 15 | 09-AUG-19 16:22 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 16 | 09-AUG-19 13:57 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| Nitrite in Water by IC | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 3 | 08-AUG-19 16:35 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 4 | 08-AUG-19 17:50 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 5 | 08-AUG-19 15:45 | 17-AUG-19 16:00 | 3 | 9 | days | EHTR |
| | 6 | 10-AUG-19 09:30 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 7 | 10-AUG-19 10:04 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 8 | 10-AUG-19 10:52 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 9 | 10-AUG-19 11:32 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 10 | 10-AUG-19 12:23 | 17-AUG-19 16:00 | 3 | 7 | days | EHTR |
| | 11 | 09-AUG-19 12:45 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 12 | 09-AUG-19 13:57 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 13 | 09-AUG-19 15:00 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 14 | 09-AUG-19 15:35 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 15 | 09-AUG-19 16:22 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| | 16 | 09-AUG-19 13:57 | 17-AUG-19 16:00 | 3 | 8 | days | EHTR |
| Phosphate Ortho Dissolved in Water | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 22-AUG-19 13:00 | 3 | 14 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 22-AUG-19 13:00 | 3 | 14 | days | EHTR |
| | 3 | 08-AUG-19 16:35 | 22-AUG-19 13:00 | 3 | 14 | days | EHTR |
| | 4 | 08-AUG-19 17:50 | 22-AUG-19 13:00 | 3 | 14 | days | EHTR |
| | 5 | 08-AUG-19 15:45 | 22-AUG-19 13:00 | 3 | 14 | days | EHTR |
| | 6 | 10-AUG-19 09:30 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |
| | 7 | 10-AUG-19 10:04 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |
| | 8 | 10-AUG-19 10:52 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |
| | 9 | 10-AUG-19 11:32 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |
| | 10 | 10-AUG-19 12:23 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |
| | 11 | 09-AUG-19 12:45 | 22-AUG-19 13:00 | 3 | 13 | days | EHTR |
| | 12 | 09-AUG-19 13:57 | 22-AUG-19 13:00 | 3 | 13 | days | EHTR |
| | 13 | 09-AUG-19 15:00 | 22-AUG-19 13:00 | 3 | 13 | days | EHTR |
| | 14 | 09-AUG-19 15:35 | 22-AUG-19 13:00 | 3 | 13 | days | EHTR |
| | 15 | 09-AUG-19 16:22 | 22-AUG-19 13:00 | 3 | 13 | days | EHTR |
| | 16 | 09-AUG-19 13:57 | 22-AUG-19 13:00 | 3 | 13 | days | EHTR |
| Phosphate Ortho Dissolved in Water | | | | | | | |
| | 1 | 08-AUG-19 14:10 | 22-AUG-19 13:00 | 3 | 14 | days | EHTR |
| | 2 | 08-AUG-19 18:40 | 22-AUG-19 13:00 | 3 | 14 | days | EHTR |
| | 6 | 10-AUG-19 09:30 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |
| | 7 | 10-AUG-19 10:04 | 29-AUG-19 14:00 | 3 | 19 | days | EHTR |
| | 8 | 10-AUG-19 10:52 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |

**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Anions and Nutrients** | | | | | | | |
| Phosphate Ortho Dissolved in Water | | | | | | | |
| | 9 | 10-AUG-19 11:32 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |
| | 10 | 10-AUG-19 12:23 | 22-AUG-19 13:00 | 3 | 12 | days | EHTR |
| | 12 | 09-AUG-19 13:57 | 22-AUG-19 13:00 | 3 | 13 | days | EHTR |
| | 16 | 09-AUG-19 13:57 | 22-AUG-19 13:00 | 3 | 13 | days | EHTR |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2330135 were received on 16-AUG-19 09:05.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

Chain of Custody / Analytical Request Form

L2330135-COFC

COC # _____

Page 1 of 2

| Report To | | | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | Azimuth Consulting Group | [x] PDF [x] Excel [ ] Digital [ ] Fax | | (•) Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | Email 1: | efranz@azimuthgroup.ca | ( ) Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 2: | mjosee.banville@agnicoeagle.com | ( ) Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 3: | | ( ) Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | | | |
| Invoice To | Same as Report ? [x] Yes [ ] No | Client / Project Information | | Analysis Request |
| Hardcopy of Invoice with Report? | [ ] Yes [x] No | Job #: | Meliadine AEMP – Phytoplankton Study | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q57496 | |
| Lab Work Order # (lab use only) | | ALS Contact: | Judy Dalmaijer | Sampler: Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | Non-Preserved Nutrients | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | F | | F | P | F/P | P | | | |
| 1 | MEL-01-01-PC | 08-Aug-19 | 14:10 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 2 | MEL-01-06-PC | 08-Aug-19 | 18:40 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 3 | MEL-01-07-PC | 08-Aug-19 | 16:35 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 4 | MEL-01-08-PC | 08-Aug-19 | 17:50 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 5 | MEL-01-09-PC | 08-Aug-19 | 15:45 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 6 | MEL-02-01-PC | 10-Aug-19 | 9:30 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 7 | MEL-02-02-PC | 10-Aug-19 | 10:04 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 8 | MEL-02-03-PC | 10-Aug-19 | 10:52 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 9 | MEL-02-04-PC | 10-Aug-19 | 11:32 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 10 | MEL-02-05-PC | 10-Aug-19 | 12:23 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 11 | MEL-03-01-PC | 09-Aug-19 | 12:45 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 12 | MEL-03-02-PC | 09-Aug-19 | 13:57 | Surface Water | | | | | | | | X | X | | X | | 3 |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Non-Preserved Nutrients: TN, dissolved, nitrogen, total Kjeldahl nitrogen (TKN), dissolved Kjeldahl nitrogen, total ammonia, nitrate, nitrite, TP, dissolved phosphorus, dissolved orthophosphate, and reactive silica

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Bethany Hodgins | 12-Aug-19 | 8:00 | QG | Aug16/19 | 9:05 | 18.6 °C | CEL | | 10:24 | |

GENF 20.00 Front

ALS Environmental

L2330135-COFC

COC # _____



| Report To | | | | Report Format / Distribution | | | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|---|---|---|---|
| Company: | Azimuth Consulting Group | | | ☑ S... | | | | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | | | ☑ PDF | ☑ Excel | ☐ Digital | ☐ Fax | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | | | Email 1: | efranz@azimuthgroup.ca | | | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | | | Email 2: | mjosee.banville@agnicoeagle.com | | | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 | Fax: | | Email 3: | | | | |
| Invoice To | Same as Report ? | ☑ Yes | ☐ No | Client / Project Information | | | | |
| Hardcopy of Invoice with Report? | | ☐ Yes | ☑ No | Job #: | Meliadine AEMP - Surface Water | | | |
| Company: | | | | PO / AFE: | | | | |
| Contact: | | | | LSD: | | | | |
| Address: | | | | | | | | |
| Phone: | | Fax: | | Quote #: | Q57496 | | | |
| Lab Work Order # (lab use only) | | | | ALS Contact: | Judy Dalmaijer | Sampler: | Azimuth Agnico Eagle | |

**Analysis Request**

Please indicate below Filtered, Preserved or both (F, P, F/P)

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | Non-Preserved Nutrients | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | F | | F | P | F/P | P | | | |
| 13 | MEL-03-03-PC | 09-Aug-19 | 15:00 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 14 | MEL-03-04-PC | 09-Aug-19 | 15:35 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 15 | MEL-03-05-PC | 09-Aug-19 | 16:22 | Surface Water | | | | | | | | X | X | | X | | 3 |
| 16 | AUG-DUP-03-PC | 09-Aug-19 | 13:57 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Confirm the list of parameters on the Quote.

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Bethany Hodgins | 12-Aug-19 | 8:00 | QG | Aug16/19 | 9:05 | 18.6 °C | CEL | | 10:24 | |

Agnico-Eagle - Meliadine Gold Project
ATTN: ERIC FRANZ
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8

Date Received: 21-AUG-19
Report Date: 06-SEP-19 13:57 (MT)
Version: FINAL

Client Phone: 604-730-1220

# Certificate of Analysis

## Lab Work Order #: L2332591

Project P.O. #: NOT SUBMITTED
Job Reference: MELIADINE AEMP - PHYTOPLANKTON STUDY
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332591-1 MEL-04-01-PC | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:05 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 22-AUG-19 | R4766152 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0052 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.21 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Phosphorus (P)-Total | 0.0050 | | 0.0010 | mg/L | | 26-AUG-19 | R4768595 |
| Total Kjeldahl Nitrogen | 0.225 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Total Organic Carbon | 2.37 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| L2332591-2 MEL-04-02-PC | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 22-AUG-19 | R4766152 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0112 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.26 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Phosphorus (P)-Total | 0.0074 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.300 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Total Organic Carbon | 2.22 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| L2332591-3 MEL-04-03-PC | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 12:20 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 22-AUG-19 | R4766152 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0074 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.25 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Phosphorus (P)-Total | 0.0094 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.205 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Total Organic Carbon | 2.32 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| L2332591-4 MEL-04-04-PC | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2332591-4 MEL-04-04-PC | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 11:50 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.020 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 22-AUG-19 | R4766152 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0075 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.58 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Phosphorus (P)-Total | 0.0147 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.269 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Total Organic Carbon | 2.67 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| L2332591-5 MEL-04-05-PC | | | | | | | |
| Sampled By: AAE on 14-AUG-19 @ 10:06 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 22-AUG-19 | R4766152 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0089 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.10 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Phosphorus (P)-Total | 0.0104 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.285 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Total Organic Carbon | 2.34 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |
| L2332591-6 AUG-DUP-04-PC | | | | | | | |
| Sampled By: AAE on 14-AUG-19 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 22-AUG-19 | R4766152 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 23-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 22-AUG-19 | R4766152 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.14 | | 0.50 | mg/L | | 28-AUG-19 | R4775378 |
| Phosphorus (P)-Total | 0.0175 | | 0.0030 | mg/L | | 22-AUG-19 | R4765948 |
| Total Kjeldahl Nitrogen | 0.187 | | 0.050 | mg/L | 04-SEP-19 | 05-SEP-19 | R4784575 |
| Total Organic Carbon | 2.31 | | 0.50 | mg/L | | 28-AUG-19 | R4775374 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |
| Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |
| Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| NH3-F-ED | Water | Ammonia in Water by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. | | | |
| NO2+NO3-CALC-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-IC-N-WP | Water | Nitrite in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| NO3-IC-N-WP | Water | Nitrate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample. | | | |
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. | | | |
| TKN-L-F-ED | Water | TKN (as N) by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8
Contact: ERIC FRANZ

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4775378** | | | | | | | | |
| **WG3146825-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 103.3 | | % | | 80-120 | 28-AUG-19 |
| **WG3146825-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 28-AUG-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4775374** | | | | | | | | |
| **WG3146967-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.6 | | % | | 80-120 | 28-AUG-19 |
| **WG3146967-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 28-AUG-19 |
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4782163** | | | | | | | | |
| **WG3150395-6 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 108.5 | | % | | 85-115 | 04-SEP-19 |
| **WG3150395-5 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| **NO2-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4766152** | | | | | | | | |
| **WG3140205-10 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.3 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-2 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.2 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-1 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.010 | | mg/L | | 0.01 | 22-AUG-19 |
| **WG3140205-9 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.010 | | mg/L | | 0.01 | 22-AUG-19 |
| **NO3-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4766152** | | | | | | | | |
| **WG3140205-10 LCS** | | | | | | | | |
| Nitrate (as N) | | | 98.2 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-2 LCS** | | | | | | | | |
| Nitrate (as N) | | | 98.1 | | % | | 90-110 | 22-AUG-19 |
| **WG3140205-1 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.020 | | mg/L | | 0.02 | 22-AUG-19 |
| **WG3140205-9 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.020 | | mg/L | | 0.02 | 22-AUG-19 |
| **P-T-COL-WP** | **Water** | | | | | | | |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **P-T-COL-WP** | **Water** | | | | | | | |
| **Batch R4765948** | | | | | | | | |
| **WG3139455-10 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 102.2 | | % | | 80-120 | 22-AUG-19 |
| **WG3139455-9 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0030 | | mg/L | | 0.003 | 22-AUG-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4768595** | | | | | | | | |
| **WG3141997-6 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 92.2 | | % | | 80-120 | 26-AUG-19 |
| **WG3141997-5 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 26-AUG-19 |
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4784575** | | | | | | | | |
| **WG3151534-14 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 106 | | % | | 75-125 | 05-SEP-19 |
| **WG3151534-13 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 05-SEP-19 |

# Quality Control Report



**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

# Quality Control Report



**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC | | | | | | | |
| | 1 | 14-AUG-19 11:05 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 2 | 14-AUG-19 12:50 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 3 | 14-AUG-19 12:20 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 4 | 14-AUG-19 11:50 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 5 | 14-AUG-19 10:06 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 6 | 14-AUG-19 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| Nitrite in Water by IC | | | | | | | |
| | 1 | 14-AUG-19 11:05 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 2 | 14-AUG-19 12:50 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 3 | 14-AUG-19 12:20 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 4 | 14-AUG-19 11:50 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 5 | 14-AUG-19 10:06 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |
| | 6 | 14-AUG-19 | 22-AUG-19 12:30 | 3 | 8 | days | EHTR |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2332591 were received on 21-AUG-19 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

L2332591-COFC

COC # _____

Page 1 of 1

| Report To | | Report Format / Distribution | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | Azimuth Consulting Group | ☑ Standard ☐ Other | | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | ☑ PDF ☑ Excel ☐ Digital ☐ Fax | | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 1: efranz@azimuthgroup.ca | | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 2: mjosee.banville@agncioeagle.com | | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | Email 3: | | |
| Invoice To | Same as Report ? ☑ Yes ☐ No | Client / Project Information | | Analysis Request |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Meliadine AEMP – Phytoplankton Study | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q57496 | |
| Lab Work Order # (lab use only) | | ALS Contact: | Judy Dalmaijer | Sampler: Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | Non-Preserved Nutrients | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | F | | F | P | F/P | P | | | |
| | MEL-04-01-PC | 14-Aug-19 | 11:05 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | MEL-04-02-PC | 14-Aug-19 | 12:50 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | MEL-04-03-PC | 14-Aug-19 | 12:20 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | MEL-04-04-PC | 14-Aug-19 | 11:50 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | MEL-04-05-PC | 14-Aug-19 | 10:06 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | AUG-DUP-04-PC | - | - | Surface Water | | | | | | | | X | X | | X | | 3 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Non-Preserved Nutrients: TN, dissolved, nitrogen, total Kjeldahl nitrogen (TKN), dissolved Kjeldahl nitrogen, total ammonia, nitrate, nitrite, TP, dissolved phosphorus, dissolved orthophosphate, and reactive silica

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: | Time: | Temperature: | Verified by: | Date: | Time: | Observations: Yes / No ? If Yes add SIF |
| Bethany Hodgins | 15-Aug-19 | 8:00 | | AUG 21 2019 | 900 | 19.8 °C | | AUG 21 2019 | 900 | |

GENF 20.00 Front

Agnico-Eagle - Meliadine Gold Project
ATTN: ERIC FRANZ
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8

Date Received: 23-AUG-19
Report Date: 11-SEP-19 08:46 (MT)
Version: FINAL

Client Phone: 604-730-1220

# Certificate of Analysis

## Lab Work Order #: L2334503

Project P.O. #: NOT SUBMITTED
Job Reference: MELIADINE AEMP - PHYTOPLANKTON STUDY
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334503-1 MEL-05-01-PC | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:49 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 23-AUG-19 | R4772009 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0292 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.35 | | 0.50 | mg/L | | 05-SEP-19 | R4784284 |
| Phosphorus (P)-Total | 0.0026 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Total Kjeldahl Nitrogen | 0.229 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Total Organic Carbon | 2.35 | | 0.50 | mg/L | | 05-SEP-19 | R4784285 |
| L2334503-2 MEL-05-02-PC | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 14:18 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 23-AUG-19 | R4772009 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0094 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.37 | | 0.50 | mg/L | | 05-SEP-19 | R4784284 |
| Phosphorus (P)-Total | 0.0026 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Total Kjeldahl Nitrogen | 0.256 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Total Organic Carbon | 2.33 | | 0.50 | mg/L | | 05-SEP-19 | R4784285 |
| L2334503-3 MEL-05-03-PC | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 13:15 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | 0.095 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | 0.095 | | 0.070 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 23-AUG-19 | R4772009 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.42 | | 0.50 | mg/L | | 05-SEP-19 | R4784284 |
| Phosphorus (P)-Total | 0.0035 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Total Kjeldahl Nitrogen | 0.242 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Total Organic Carbon | 2.48 | | 0.50 | mg/L | | 05-SEP-19 | R4784285 |
| L2334503-4 MEL-05-04-PC | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters | Result | Qualifier* | D.L. | Units | Extracted | Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| L2334503-4 MEL-05-04-PC | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:31 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 23-AUG-19 | R4772009 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | <0.0050 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.51 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Phosphorus (P)-Total | 0.0027 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Total Kjeldahl Nitrogen | 0.184 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Total Organic Carbon | 2.34 | | 0.50 | mg/L | | 04-SEP-19 | R4783547 |
| L2334503-5 MEL-05-05-PC | | | | | | | |
| Sampled By: AAE on 16-AUG-19 @ 12:23 | | | | | | | |
| Matrix: SURFACE WATER | | | | | | | |
| **Nitrate + Nitrite** | | | | | | | |
| **Nitrate in Water by IC** | | | | | | | |
| Nitrate (as N) | <0.020 | | 0.020 | mg/L | | 23-AUG-19 | R4772009 |
| **Nitrate+Nitrite** | | | | | | | |
| Nitrate and Nitrite as N | <0.070 | | 0.070 | mg/L | | 30-AUG-19 | |
| **Nitrite in Water by IC** | | | | | | | |
| Nitrite (as N) | <0.010 | | 0.010 | mg/L | | 23-AUG-19 | R4772009 |
| **Miscellaneous Parameters** | | | | | | | |
| Ammonia, Total (as N) | 0.0059 | | 0.0050 | mg/L | | 04-SEP-19 | R4782163 |
| Dissolved Organic Carbon | 2.39 | | 0.50 | mg/L | | 04-SEP-19 | R4783541 |
| Phosphorus (P)-Total | 0.0021 | | 0.0010 | mg/L | | 28-AUG-19 | R4771318 |
| Total Kjeldahl Nitrogen | 0.221 | | 0.050 | mg/L | 09-SEP-19 | 10-SEP-19 | R4795131 |
| Total Organic Carbon | 2.51 | | 0.50 | mg/L | | 05-SEP-19 | R4784285 |

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# Reference Information

**Test Method References:**

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| C-DOC-HTC-WP | Water | Dissolved Organic Carbon by Combustion | APHA 5310 B-WP |
| Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| C-TOC-HTC-WP | Water | Total Organic Carbon by Combustion | APHA 5310 B-WP |
| Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer. | | | |
| NH3-F-ED | Water | Ammonia in Water by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al. | | | |
| NO2+NO3-CALC-WP | Water | Nitrate+Nitrite | CALCULATION |
| NO2-IC-N-WP | Water | Nitrite in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| NO3-IC-N-WP | Water | Nitrate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| P-T-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample. | | | |
| P-T-L-COL-WP | Water | Phosphorus, Total | APHA 4500 P PHOSPHORUS-L |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. | | | |
| TKN-L-F-ED | Water | TKN (as N) by Fluorescence | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection. | | | |

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| WP | ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA |
| ED | ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA |

**Chain of Custody Numbers:**

**GLOSSARY OF REPORT TERMS**

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*
*mg/kg - milligrams per kilogram based on dry weight of sample*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*
*mg/L - unit of concentration based on volume, parts per million.*
*< - Less than.*
*D.L. - The reporting limit.*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

# Quality Control Report



Client: Agnico-Eagle - Meliadine Gold Project
218-2902 WEST BROADWAY
VANCOUVER BC V6K 2G8
Contact: ERIC FRANZ

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **C-DOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4783541** | | | | | | | | |
| **WG3152640-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 104.0 | | % | | 80-120 | 04-SEP-19 |
| **WG3152640-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| **Batch R4784284** | | | | | | | | |
| **WG3153615-2 LCS** | | | | | | | | |
| Dissolved Organic Carbon | | | 101.9 | | % | | 80-120 | 05-SEP-19 |
| **WG3153615-1 MB** | | | | | | | | |
| Dissolved Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 05-SEP-19 |
| **C-TOC-HTC-WP** | **Water** | | | | | | | |
| **Batch R4783547** | | | | | | | | |
| **WG3152654-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.8 | | % | | 80-120 | 04-SEP-19 |
| **WG3152654-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 04-SEP-19 |
| **Batch R4784285** | | | | | | | | |
| **WG3153618-2 LCS** | | | | | | | | |
| Total Organic Carbon | | | 101.9 | | % | | 80-120 | 05-SEP-19 |
| **WG3153618-1 MB** | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 05-SEP-19 |
| **NH3-F-ED** | **Water** | | | | | | | |
| **Batch R4782163** | | | | | | | | |
| **WG3150395-10 LCS** | | | | | | | | |
| Ammonia, Total (as N) | | | 109.6 | | % | | 85-115 | 04-SEP-19 |
| **WG3150395-9 MB** | | | | | | | | |
| Ammonia, Total (as N) | | | <0.0050 | | mg/L | | 0.005 | 04-SEP-19 |
| **NO2-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4772009** | | | | | | | | |
| **WG3141426-19 DUP** | | **L2334503-1** | | | | | | |
| Nitrite (as N) | | <0.010 | <0.010 | RPD-NA | mg/L | N/A | 20 | 23-AUG-19 |
| **WG3141426-14 LCS** | | | | | | | | |
| Nitrite (as N) | | | 100.7 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-18 LCS** | | | | | | | | |
| Nitrite (as N) | | | 101.4 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-13 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.010 | | mg/L | | 0.01 | 23-AUG-19 |
| **WG3141426-17 MB** | | | | | | | | |
| Nitrite (as N) | | | <0.010 | | mg/L | | 0.01 | 23-AUG-19 |

# Quality Control Report



| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---|---|---|---|---|---|---|---|---|
| **NO2-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4772009** | | | | | | | | |
| **WG3141426-20 MS** | | **L2334503-1** | | | | | | |
| Nitrite (as N) | | | 107.9 | | % | | 75-125 | 23-AUG-19 |
| **NO3-IC-N-WP** | **Water** | | | | | | | |
| **Batch R4772009** | | | | | | | | |
| **WG3141426-19 DUP** | | **L2334503-1** | | | | | | |
| Nitrate (as N) | | <0.020 | <0.020 | RPD-NA | mg/L | N/A | 20 | 23-AUG-19 |
| **WG3141426-14 LCS** | | | | | | | | |
| Nitrate (as N) | | | 98.0 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-18 LCS** | | | | | | | | |
| Nitrate (as N) | | | 98.6 | | % | | 90-110 | 23-AUG-19 |
| **WG3141426-13 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.020 | | mg/L | | 0.02 | 23-AUG-19 |
| **WG3141426-17 MB** | | | | | | | | |
| Nitrate (as N) | | | <0.020 | | mg/L | | 0.02 | 23-AUG-19 |
| **WG3141426-20 MS** | | **L2334503-1** | | | | | | |
| Nitrate (as N) | | | 106.6 | | % | | 75-125 | 23-AUG-19 |
| **P-T-L-COL-WP** | **Water** | | | | | | | |
| **Batch R4771318** | | | | | | | | |
| **WG3144882-6 LCS** | | | | | | | | |
| Phosphorus (P)-Total | | | 86.0 | | % | | 80-120 | 28-AUG-19 |
| **WG3144882-5 MB** | | | | | | | | |
| Phosphorus (P)-Total | | | <0.0010 | | mg/L | | 0.001 | 28-AUG-19 |
| **TKN-L-F-ED** | **Water** | | | | | | | |
| **Batch R4795131** | | | | | | | | |
| **WG3156365-2 LCS** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | 103 | | % | | 75-125 | 10-SEP-19 |
| **WG3156365-1 MB** | | | | | | | | |
| Total Kjeldahl Nitrogen | | | <0.050 | | mg/L | | 0.05 | 10-SEP-19 |

# Quality Control Report



**Legend:**

| | |
|---|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

**Sample Parameter Qualifier Definitions:**

| Qualifier | Description |
|---|---|
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

# Quality Control Report



**Hold Time Exceedances:**

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|---|---|---|---|---|---|---|---|
| **Anions and Nutrients** | | | | | | | |
| Nitrate in Water by IC | | | | | | | |
| | 1 | 16-AUG-19 13:49 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 2 | 16-AUG-19 14:18 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 3 | 16-AUG-19 13:15 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 4 | 16-AUG-19 12:31 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 5 | 16-AUG-19 12:23 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| Nitrite in Water by IC | | | | | | | |
| | 1 | 16-AUG-19 13:49 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 2 | 16-AUG-19 14:18 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 3 | 16-AUG-19 13:15 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 4 | 16-AUG-19 12:31 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |
| | 5 | 16-AUG-19 12:23 | 23-AUG-19 11:45 | 3 | 7 | days | EHTR |

**Legend & Qualifier Definitions:**

| | |
|---|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2334503 were received on 23-AUG-19 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

---

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

# Chain of Custody / Analytical Request Form

L2334503-COFC

COC # _____

Page 1 of 1

| Report To | | | | Service Requested (Rush for routine analysis subject to availability) |
|---|---|---|---|---|
| Company: | Azimuth Consulting Group | ☑PDF | ☐ | ◉ Regular (Standard Turnaround Times - Business Days) |
| Contact: | Eric Franz | | | ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT |
| Address: | 218-2902 West Broadway | Email 1: | efranz@azimuthgroup.ca | ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT |
| | Vancouver, BC V6K2G8 | Email 2: | mjosee.banville@agncioeagle.com | ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT |
| Phone: | 604-730-1220 Fax: | Email 3: | | |
| **Invoice To** | Same as Report ? ☑ Yes ☐ No | **Client / Project Information** | | **Analysis Request** |
| Hardcopy of Invoice with Report? | ☐ Yes ☑ No | Job #: | Meliadine AEMP – Phytoplankton Study | Please indicate below Filtered, Preserved or both (F, P, F/P) |
| Company: | | PO / AFE: | | |
| Contact: | | LSD: | | |
| Address: | | | | |
| Phone: | Fax: | Quote #: | Q57496 | |
| Lab Work Order # (lab use only) | | **ALS Contact:** | Judy Dalmaijer | **Sampler:** Azimuth Agnico Eagle |

| Sample # | Sample Identification (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Agnico Routine Parameters | TSS (1 mg/L) | Cyanides (T, Free, and Weak) | Total mercury | Dissolved mercury | Total Metals | Dissolved Metals | TOC, Ammonia, TKN, Total P | DOC | Radium-226 | Non-Preserved Nutrients | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | P | | F | | F | P | F/P | P | | | |
| | MEL-05-01-PC | 16-Aug-19 | 1:49 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | MEL-05-02-PC | 16-Aug-19 | 2:18 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | MEL-05-03-PC | 16-Aug-19 | 1:15 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | MEL-05-04-PC | 16-Aug-19 | 12:31 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | MEL-05-05-PC | 16-Aug-19 | 12:23 | Surface Water | | | | | | | | X | X | | X | | 3 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

**Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details**

Non-Preserved Nutrients: TN, dissolved, nitrogen, total Kjeldahl nitrogen (TKN), dissolved Kjeldahl nitrogen, total ammonia, nitrate, nitrite, TP, dissolved phosphorus, dissolved orthophosphate, and reactive silica

**Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.**

**By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.**

**Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.**

| SHIPMENT RELEASE (client use) | | | SHIPMENT RECEPTION (lab use only) | | | | SHIPMENT VERIFICATION (lab use only) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Released by: | Date (dd-mmm-yy) | Time (hh-mm) | Received by: | Date: AUG 23 2019 | Time: 900 | Temperature: 19.2°C | Verified by: | Date: AUG 23 2019 | Time: 900 | Observations: Yes / No If Yes add SIF |
| Bethany Hodgins | 19-Aug-19 | 8:00 | | | | | | | | |

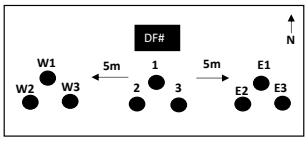
GENF 20.00 Front

# APPENDIX J
# MAY 2019 SNOW PACK SURVEY AND CHEMISTRY DATA

**Ratpor Tube Radius = 2.7 cm**

**SNOCOR 5**

| Sample | Depth (cm) | SPD/SWE | Total Depth (cm) | Snow Volume (cm3) | Total Mass (g or ml) | Snow Density | SWE |
|---|---|---|---|---|---|---|---|
| 1 | 8 | SWE | 158 | 3619 | 1172 | 32% | 51.1741 |
| 2 | 5 | SWE | | | | | |
| 3 | 17 | SWE | | | | | |
| E1 | 15 | SWE | | | | | |
| E2 | 13 | SWE | | | | | |
| E3 | 10 | SWE | | | | | |
| W1 | 33 | SWE | | | | | |
| W2 | 19 | SWE | | | | | |
| W3 | 38 | SWE | | | | | |
| 10 | 24 | SPD | | | | | |
| 11 | 10 | SPD | | | | | |
| 12 | 23 | SPD | | | | | |




**SNOCOR 4**

| Sample | Depth (cm) | SPD/SWE | Total Depth (cm) | Snow Volume (cm3) | Total Mass (g or ml) | Snow Density | SWE |
|---|---|---|---|---|---|---|---|
| 1 | 47 | SWE | 119 | 2725 | 978 | 36% | 42.7033 |
| 2 | 72 | SWE | | | | | |
| 3 | 69 | SPD | | | | | |
| E1 | 55 | SPD | | | | | |
| E2 | 64 | SPD | | | | | |
| E3 | 87 | SPD | | | | | |
| W1 | 71 | SPD | | | | | |
| W2 | 78 | SPD | | | | | |
| W3 | 60 | SPD | | | | | |

**SNOCOR 6**

| Sample | Depth (cm) | SPD/SWE | Total Depth (cm) | Snow Volume (cm3) | Total Mass (g or ml) | Snow Density | SWE |
|---|---|---|---|---|---|---|---|
| 1 | 14 | SWE | 98 | 2244 | 760 | 34% | 33.18457 |
| 2 | 11 | SWE | | | | | |
| 3 | 0 | SPD | | | | | |
| E1 | 0 | SPD | | | | | |
| E2 | 0 | SPD | | | | | |
| E3 | 0 | SPD | | | | | |
| W1 | 11 | SWE | | | | | |
| W2 | 10 | SWE | | | | | |
| W3 | 8 | SWE | | | | | |
| 10 | 8 | SWE | | | | | |
| 11 | 9 | SWE | | | | | |
| 12 | 9 | SWE | | | | | |
| 13 | 9 | SWE | | | | | |
| 14 | 9 | SWE | | | | | |

**SNOCOR 7**

| Sample | Depth (cm) | SPD/SWE | Total Depth (cm) | Snow Volume (cm3) | Total Mass (g or ml) | Snow Density | SWE |
|---|---|---|---|---|---|---|---|
| 1 | 13 | SWE | 127 | 2909 | 1183 | 41% | 51.6544 |
| 2 | 1 | SWE | | | | | |
| 3 | 9 | SWE | | | | | |
| E1 | 30 | SWE | | | | | |
| E2 | 18 | SWE | | | | | |
| E3 | 20 | SWE | | | | | |
| W1 | 11 | SWE | | | | | |
| W2 | 12 | SWE | | | | | |
| W3 | 13 | SWE | | | | | |

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 664696
Your Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your C.O.C. #: na

**Attention: Alexandre Gauthier**

Agnico-Eagle
Meliadine Mine
Rankin Inlet, NU
CANADA X0C 0G0

**Report Date: 2019/05/29**
Report #: R5730482
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B9D9352**
**Received: 2019/05/24, 09:45**

Sample Matrix: Water
# Samples Received: 4

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Reference |
|---|---|---|---|---|---|
| Total Metals Analysis by Axial ICP | 4 | 2019/05/28 | 2019/05/28 | CAM SOP-00408 | EPA 6010D m |
| Total Suspended Solids | 4 | 2019/05/27 | 2019/05/28 | CAM SOP-00428 | SM 23 2540D m |
| Volume of Sample Received | 4 | 2019/05/28 | 2019/05/28 | | |

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 664696
Your Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your C.O.C. #: na

**Attention: Alexandre Gauthier**

Agnico-Eagle
Meliadine Mine
Rankin Inlet, NU
CANADA X0C 0G0

**Report Date: 2019/05/29**
Report #: R5730482
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B9D9352**
**Received: 2019/05/24, 09:45**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Cristina (Maria) Bacchus, Project Manager
Email: CBacchus@maxxam.ca
Phone# (905)817-5763
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B9D9352
Report Date: 2019/05/29

Agnico-Eagle
Client Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your P.O. #: 664696
Sampler Initials: MG

## RESULTS OF ANALYSES OF WATER

| Maxxam ID | | JUO148 | JUO149 | JUO150 | JUO151 | | |
|---|---|---|---|---|---|---|---|
| Sampling Date | | 2019/05/11 | 2019/05/11 | 2019/05/11 | 2019/05/11 | | |
| COC Number | | na | na | na | na | | |
| | UNITS | SN0C0R4 | SN0C0R5 | SN0C0R6 | SN0C0R7 | RDL | QC Batch |
| **Charge/Prep Analysis** | | | | | | | |
| Volume of sample | ml | 480 | 450 | 170 | 500 | 1 | 6143780 |
| **Inorganics** | | | | | | | |
| Total Suspended Solids | mg/L | 10 | <10 | <10 | <10 | 10 | 6142142 |

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch



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Maxxam Job #: B9D9352
Report Date: 2019/05/29

Agnico-Eagle
Client Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your P.O. #: 664696
Sampler Initials: MG

## ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

| Maxxam ID | | JUO148 | JUO149 | JUO150 | JUO151 | | |
|---|---|---|---|---|---|---|---|
| Sampling Date | | 2019/05/11 | 2019/05/11 | 2019/05/11 | 2019/05/11 | | |
| COC Number | | na | na | na | na | | |
| | UNITS | SN0C0R4 | SN0C0R5 | SN0C0R6 | SN0C0R7 | RDL | QC Batch |
| **Metals** | | | | | | | |
| Total Aluminum (Al) | mg/L | 0.2 | <0.1 | <0.1 | 0.2 | 0.1 | 6143519 |
| Total Antimony (Sb) | mg/L | <0.02 | <0.02 | <0.02 | <0.02 | 0.02 | 6143519 |
| Total Arsenic (As) | mg/L | 0.02 | <0.01 | <0.01 | 0.02 | 0.01 | 6143519 |
| Total Barium (Ba) | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | 6143519 |
| Total Beryllium (Be) | mg/L | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0005 | 6143519 |
| Total Bismuth (Bi) | mg/L | <0.05 | <0.05 | <0.05 | <0.05 | 0.05 | 6143519 |
| Total Boron (B) | mg/L | <0.02 | <0.02 | <0.02 | <0.02 | 0.02 | 6143519 |
| Total Cadmium (Cd) | mg/L | <0.002 | <0.002 | <0.002 | <0.002 | 0.002 | 6143519 |
| Total Calcium (Ca) | mg/L | 1.6 | 0.8 | 0.4 | 0.9 | 0.1 | 6143519 |
| Total Chromium (Cr) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 | 6143519 |
| Total Cobalt (Co) | mg/L | <0.002 | <0.002 | <0.002 | <0.002 | 0.002 | 6143519 |
| Total Copper (Cu) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 | 6143519 |
| Total Iron (Fe) | mg/L | 0.60 | 0.15 | 0.19 | 0.43 | 0.02 | 6143519 |
| Total Lead (Pb) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 | 6143519 |
| Total Magnesium (Mg) | mg/L | 0.27 | 0.22 | 0.16 | 0.29 | 0.05 | 6143519 |
| Total Manganese (Mn) | mg/L | 0.013 | 0.021 | 0.015 | 0.014 | 0.001 | 6143519 |
| Total Molybdenum (Mo) | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | 6143519 |
| Total Nickel (Ni) | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | 6143519 |
| Total Phosphorus (P) | mg/L | <0.05 | <0.05 | <0.05 | <0.05 | 0.05 | 6143519 |
| Total Potassium (K) | mg/L | 0.1 | 0.3 | 0.2 | 0.4 | 0.1 | 6143519 |
| Total Selenium (Se) | mg/L | <0.02 | <0.02 | <0.02 | <0.02 | 0.02 | 6143519 |
| Total Silicon (Si) | mg/L | 0.34 | 0.13 | 0.15 | 0.22 | 0.02 | 6143519 |
| Total Silver (Ag) | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 | 6143519 |
| Total Sodium (Na) | mg/L | 0.6 | 0.9 | 0.6 | 1.1 | 0.1 | 6143519 |
| Total Strontium (Sr) | mg/L | 0.007 | 0.004 | 0.002 | 0.004 | 0.001 | 6143519 |
| Total Sulphur (S) | mg/L | 0.23 | 0.27 | 0.19 | 0.28 | 0.05 | 6143519 |
| Total Tin (Sn) | mg/L | <0.02 | <0.02 | <0.02 | <0.02 | 0.02 | 6143519 |
| Total Titanium (Ti) | mg/L | 0.007 | <0.005 | <0.005 | <0.005 | 0.005 | 6143519 |
| Total Vanadium (V) | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | 6143519 |
| Total Zinc (Zn) | mg/L | <0.005 | 0.073 | 0.032 | <0.005 | 0.005 | 6143519 |
| Total Zirconium (Zr) | mg/L | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | 6143519 |

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Maxxam Job #: B9D9352
Report Date: 2019/05/29

Agnico-Eagle
Client Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your P.O. #: 664696
Sampler Initials: MG

## TEST SUMMARY

**Maxxam ID:** JUO148
**Sample ID:** SN0C0R4
**Matrix:** Water

**Collected:** 2019/05/11
**Shipped:**
**Received:** 2019/05/24

| Test Description | Instrumentation | Batch | Extracted | Date Analyzed | Analyst |
|---|---|---|---|---|---|
| Total Metals Analysis by Axial ICP | ICPX | 6143519 | 2019/05/28 | 2019/05/28 | Archana Patel |
| Total Suspended Solids | BAL | 6142142 | 2019/05/27 | 2019/05/28 | Nilam Borole |
| Volume of Sample Received | | 6143780 | 2019/05/28 | 2019/05/28 | Walt Wang |

**Maxxam ID:** JUO149
**Sample ID:** SN0C0R5
**Matrix:** Water

**Collected:** 2019/05/11
**Shipped:**
**Received:** 2019/05/24

| Test Description | Instrumentation | Batch | Extracted | Date Analyzed | Analyst |
|---|---|---|---|---|---|
| Total Metals Analysis by Axial ICP | ICPX | 6143519 | 2019/05/28 | 2019/05/28 | Archana Patel |
| Total Suspended Solids | BAL | 6142142 | 2019/05/27 | 2019/05/28 | Nilam Borole |
| Volume of Sample Received | | 6143780 | 2019/05/28 | 2019/05/28 | Walt Wang |

**Maxxam ID:** JUO150
**Sample ID:** SN0C0R6
**Matrix:** Water

**Collected:** 2019/05/11
**Shipped:**
**Received:** 2019/05/24

| Test Description | Instrumentation | Batch | Extracted | Date Analyzed | Analyst |
|---|---|---|---|---|---|
| Total Metals Analysis by Axial ICP | ICPX | 6143519 | 2019/05/28 | 2019/05/28 | Archana Patel |
| Total Suspended Solids | BAL | 6142142 | 2019/05/27 | 2019/05/28 | Nilam Borole |
| Volume of Sample Received | | 6143780 | 2019/05/28 | 2019/05/28 | Walt Wang |

**Maxxam ID:** JUO151
**Sample ID:** SN0C0R7
**Matrix:** Water

**Collected:** 2019/05/11
**Shipped:**
**Received:** 2019/05/24

| Test Description | Instrumentation | Batch | Extracted | Date Analyzed | Analyst |
|---|---|---|---|---|---|
| Total Metals Analysis by Axial ICP | ICPX | 6143519 | 2019/05/28 | 2019/05/28 | Archana Patel |
| Total Suspended Solids | BAL | 6142142 | 2019/05/27 | 2019/05/28 | Nilam Borole |
| Volume of Sample Received | | 6143780 | 2019/05/28 | 2019/05/28 | Walt Wang |



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Maxxam Job #: B9D9352
Report Date: 2019/05/29

Agnico-Eagle
Client Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your P.O. #: 664696
Sampler Initials: MG

## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 16.0°C |

**Results relate only to the items tested.**



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Maxxam Job #: B9D9352
Report Date: 2019/05/29

## QUALITY ASSURANCE REPORT

Agnico-Eagle
Client Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your P.O. #: 664696
Sampler Initials: MG

| | | | Matrix Spike | | SPIKED BLANK | | Method Blank | | RPD | | QC Standard | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QC Batch | Parameter | Date | % Recovery | QC Limits | % Recovery | QC Limits | Value | UNITS | Value (%) | QC Limits | % Recovery | QC Limits |
| 6142142 | Total Suspended Solids | 2019/05/28 | | | | | <10 | mg/L | 13 | 25 | 97 | 85 - 115 |
| 6143519 | Total Aluminum (Al) | 2019/05/28 | 93 | 80 - 120 | 98 | 80 - 120 | <0.1 | mg/L | NC | 20 | | |
| 6143519 | Total Antimony (Sb) | 2019/05/28 | 105 | 80 - 120 | 103 | 80 - 120 | <0.02 | mg/L | NC | 20 | | |
| 6143519 | Total Arsenic (As) | 2019/05/28 | 103 | 80 - 120 | 99 | 80 - 120 | <0.01 | mg/L | NC | 20 | | |
| 6143519 | Total Barium (Ba) | 2019/05/28 | 95 | 80 - 120 | 97 | 80 - 120 | <0.005 | mg/L | | | | |
| 6143519 | Total Beryllium (Be) | 2019/05/28 | 95 | 80 - 120 | 96 | 80 - 120 | <0.0005 | mg/L | | | | |
| 6143519 | Total Bismuth (Bi) | 2019/05/28 | 96 | 80 - 120 | 99 | 80 - 120 | <0.05 | mg/L | | | | |
| 6143519 | Total Boron (B) | 2019/05/28 | 97 | 80 - 120 | 97 | 80 - 120 | <0.02 | mg/L | | | | |
| 6143519 | Total Cadmium (Cd) | 2019/05/28 | 99 | 80 - 120 | 97 | 80 - 120 | <0.002 | mg/L | NC | 20 | | |
| 6143519 | Total Calcium (Ca) | 2019/05/28 | NC | 80 - 120 | 96 | 80 - 120 | <0.1 | mg/L | | | | |
| 6143519 | Total Chromium (Cr) | 2019/05/28 | 96 | 80 - 120 | 96 | 80 - 120 | <0.01 | mg/L | NC | 20 | | |
| 6143519 | Total Cobalt (Co) | 2019/05/28 | 93 | 80 - 120 | 99 | 80 - 120 | <0.002 | mg/L | NC | 20 | | |
| 6143519 | Total Copper (Cu) | 2019/05/28 | 100 | 80 - 120 | 98 | 80 - 120 | <0.01 | mg/L | 4.0 | 20 | | |
| 6143519 | Total Iron (Fe) | 2019/05/28 | 94 | 80 - 120 | 98 | 80 - 120 | <0.02 | mg/L | | | | |
| 6143519 | Total Lead (Pb) | 2019/05/28 | 92 | 80 - 120 | 99 | 80 - 120 | <0.01 | mg/L | NC | 20 | | |
| 6143519 | Total Magnesium (Mg) | 2019/05/28 | NC | 80 - 120 | 96 | 80 - 120 | <0.05 | mg/L | | | | |
| 6143519 | Total Manganese (Mn) | 2019/05/28 | 95 | 80 - 120 | 97 | 80 - 120 | <0.001 | mg/L | NC | 20 | | |
| 6143519 | Total Molybdenum (Mo) | 2019/05/28 | 98 | 80 - 120 | 99 | 80 - 120 | <0.005 | mg/L | NC | 20 | | |
| 6143519 | Total Nickel (Ni) | 2019/05/28 | 91 | 80 - 120 | 98 | 80 - 120 | <0.005 | mg/L | NC | 20 | | |
| 6143519 | Total Phosphorus (P) | 2019/05/28 | 105 | 80 - 120 | 97 | 80 - 120 | <0.05 | mg/L | NC | 20 | | |
| 6143519 | Total Potassium (K) | 2019/05/28 | NC | 80 - 120 | 97 | 80 - 120 | <0.1 | mg/L | | | | |
| 6143519 | Total Selenium (Se) | 2019/05/28 | 106 | 80 - 120 | 102 | 80 - 120 | <0.02 | mg/L | NC | 20 | | |
| 6143519 | Total Silicon (Si) | 2019/05/28 | 99 | 80 - 120 | 95 | 80 - 120 | <0.02 | mg/L | | | | |
| 6143519 | Total Silver (Ag) | 2019/05/28 | 94 | 80 - 120 | 94 | 80 - 120 | <0.01 | mg/L | NC | 20 | | |
| 6143519 | Total Sodium (Na) | 2019/05/28 | NC | 80 - 120 | 94 | 80 - 120 | <0.1 | mg/L | | | | |
| 6143519 | Total Strontium (Sr) | 2019/05/28 | NC | 80 - 120 | 98 | 80 - 120 | <0.001 | mg/L | | | | |
| 6143519 | Total Sulphur (S) | 2019/05/28 | NC | 80 - 120 | 99 | 80 - 120 | <0.05 | mg/L | | | | |
| 6143519 | Total Tin (Sn) | 2019/05/28 | 96 | 80 - 120 | 101 | 80 - 120 | <0.02 | mg/L | NC | 20 | | |
| 6143519 | Total Titanium (Ti) | 2019/05/28 | 98 | 80 - 120 | 96 | 80 - 120 | <0.005 | mg/L | NC | 20 | | |
| 6143519 | Total Vanadium (V) | 2019/05/28 | 99 | 80 - 120 | 98 | 80 - 120 | <0.005 | mg/L | | | | |
| 6143519 | Total Zinc (Zn) | 2019/05/28 | 103 | 80 - 120 | 102 | 80 - 120 | <0.005 | mg/L | 1.5 | 20 | | |



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Maxxam Job #: B9D9352
Report Date: 2019/05/29

## QUALITY ASSURANCE REPORT(CONT'D)

Agnico-Eagle
Client Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your P.O. #: 664696
Sampler Initials: MG

| | | | Matrix Spike | | SPIKED BLANK | | Method Blank | | RPD | | QC Standard | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QC Batch | Parameter | Date | % Recovery | QC Limits | % Recovery | QC Limits | Value | UNITS | Value (%) | QC Limits | % Recovery | QC Limits |
| 6143519 | Total Zirconium (Zr) | 2019/05/28 | | | | | <0.005 | mg/L | | | | |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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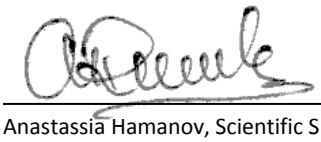
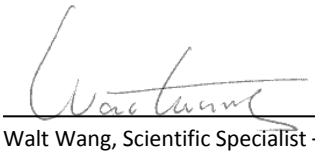
Agnico-Eagle
Client Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your P.O. #: 664696
Sampler Initials: MG

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Anastassia Hamanov, Scientific Specialist



Walt Wang, Scientific Specialist – Inorganic

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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Agnico-Eagle
Client Project #: DUSTFALL MONIOTRING
Site Location: MELIADINE PROJECT, NUNAVUT
Your P.O. #: 664696
Sampler Initials: MG

## Exceedence Summary Table – Metal Mining Effluent Reg

### Result Exceedences

| Sample ID | Maxxam ID | Parameter | Criteria | Result | DL | Units |
|---|---|---|---|---|---|---|
| No Exceedences | | | | | | |

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.


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