Completed in September as was was not tested in Aug 2023

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Kaizen Lab<br>Unit 288 2880 45 Ave SE<br>Calgary, AB T2B 3M1 | | |
| **ATTENTION** | General Reporting | **WORK ORDER** | 23I2565 |
| **PO NUMBER** | 125932 | **RECEIVED / TEMP** | 2023-09-21 12:10 / 15.3°C |
| **PROJECT** | 333704_SUB1 | **REPORTED** | 2023-09-26 07:42 |
| **PROJECT INFO** | | **COC NUMBER** | No # |

**Introduction:**

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

*Big Picture Sidekicks*

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

*We've Got Chemistry*

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

*Ahead of the Curve*

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

*By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions*

*If you have any questions or concerns, please contact me at TeamCaro@caro.ca*

**Authorized By:**

Team CARO
Client Service Representative

CARO ANALYTICAL SERVICES

# TEST RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Kaizen Lab | **WORK ORDER** | 23I2565 |
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| Analyte | Result | Guideline | RL | Units | Analyzed | Qualifier |
|---|---|---|---|---|---|---|
| **SRRUC Enter Distro (333704) (23I2565-01) \| Matrix: Water \| Sampled: 2023-09-20 09:30** | | | | | | |
| ***Calculated Parameters*** | | | | | | |
| Chloramines | **0.0200** | MAC = 3 | 0.0200 | mg/L | N/A | |
| ***General Parameters*** | | | | | | |
| Chlorine, Total | **0.40** | None Required | 0.02 | mg/L | 2023-09-25 | HT2 |
| Chlorine, Free | **0.38** | N/A | 0.02 | mg/L | 2023-09-25 | HT2 |

**Sample Qualifiers:**

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

# APPENDIX 1: SUPPORTING INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Kaizen Lab | **WORK ORDER** | 23I2565 |
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| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|---|---|---|---|
| Chlorine, Free in Water | SM 4500-Cl G (2021) | Colorimetry (DPD) | ✓ | Edmonton |
| Chlorine, Total in Water | SM 4500-Cl G (2021) | Colorimetry (DPD) | ✓ | Edmonton |

**Glossary of Terms:**

| | |
|---|---|
| RL | Reporting Limit (default) |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |

**Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (Health Canada, September 2022)

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

**General Comments:**

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: TeamCaro@caro.ca

*Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.*

# APPENDIX 2: QUALITY CONTROL RESULTS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Kaizen Lab | **WORK ORDER** | 23I2565 |
| **PROJECT** | 333704_SUB1 | **REPORTED** | 2023-09-26 07:42 |

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in “batches” and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

| Analyte | Result | RL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| ***General Parameters, Batch B3I2452*** | | | | | | | | | | |
| **Blank (B3I2452-BLK1)** | | | | Prepared: 2023-09-25, Analyzed: 2023-09-25 | | | | | | |
| Chlorine, Total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Chlorine, Free | < 0.02 | 0.02 | mg/L | | | | | | | |
| **Duplicate (B3I2452-DUP1)** | | | | **Source: 23I2565-01** | Prepared: 2023-09-25, Analyzed: 2023-09-25 | | | | | |
| Chlorine, Total | 0.41 | 0.02 | mg/L | | 0.40 | | | 2 | 10 | |
| Chlorine, Free | 0.38 | 0.02 | mg/L | | 0.38 | | | < 1 | 20 | |
| **Reference (B3I2452-SRM1)** | | | | Prepared: 2023-09-25, Analyzed: 2023-09-25 | | | | | | |
| Chlorine, Total | 1.59 | 0.02 | mg/L | 1.59 | | 100 | 91.2-108.8 | | | |
| Chlorine, Free | 1.59 | 0.02 | mg/L | 1.59 | | 100 | 91.2-108.8 | | | |



Caring About Results, Obviously.