



CERTIFICATE OF ANALYSIS

REPORTED TO Kaleden Irrigation District
119 Ponderosa Avenue
Kaleden, BC V0H 1K0

ATTENTION Mike Snair

PO NUMBER

PROJECT Comprehensive

PROJECT INFO

WORK ORDER 22C3341

RECEIVED / TEMP 2022-03-24 08:20 / 5.8°C

REPORTED 2022-03-31 16:19

COC NUMBER No Number

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.

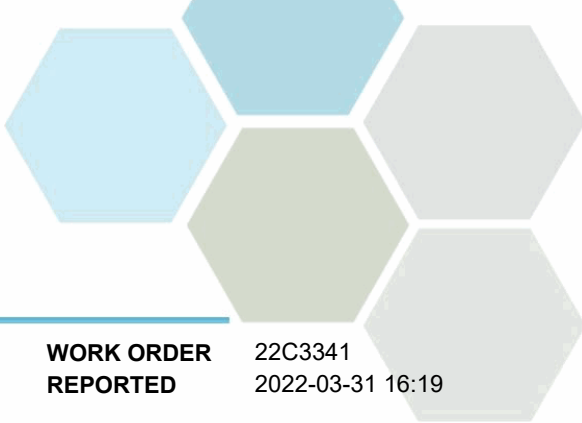
If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

Team CARO
Client Service Representative

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TEST RESULTS

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| Analyte | Result | Guideline | RL Units | Analyzed | Qualifier |
|---------|--------|-----------|----------|----------|-----------|
|---------|--------|-----------|----------|----------|-----------|

119 Ponderose (Pump-Hse) (22C3341-01) | Matrix: Water | Sampled: 2022-03-23 11:30

Anions

| | | | | | |
|----------------|---------|-----------|------------|------------|--|
| Chloride | 7.87 | AO ≤ 250 | 0.10 mg/L | 2022-03-25 | |
| Fluoride | 0.20 | MAC = 1.5 | 0.10 mg/L | 2022-03-25 | |
| Nitrate (as N) | < 0.010 | MAC = 10 | 0.010 mg/L | 2022-03-25 | |
| Nitrite (as N) | < 0.010 | MAC = 1 | 0.010 mg/L | 2022-03-25 | |
| Sulfate | 29.6 | AO ≤ 500 | 1.0 mg/L | 2022-03-25 | |

Calculated Parameters

| | | | | | |
|----------------------------|-------|---------------|-------------|------------|--|
| Hardness, Total (as CaCO3) | 120 | None Required | 0.500 mg/L | N/A | |
| Langelier Index | 0.3 | N/A | -5.0 | 2022-03-31 | |
| Nitrogen, Organic | 0.149 | N/A | 0.0500 mg/L | N/A | |
| Solids, Total Dissolved | 170 | AO ≤ 500 | 1.00 mg/L | N/A | |

General Parameters

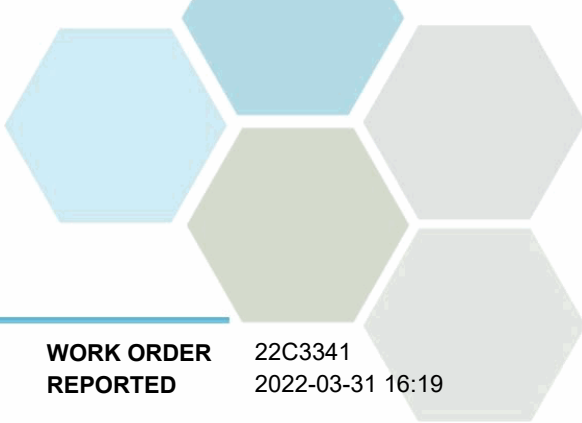
| | | | | | |
|--|----------|---------------|---------------|------------|-----|
| Alkalinity, Total (as CaCO3) | 124 | N/A | 1.0 mg/L | 2022-03-29 | |
| Alkalinity, Phenolphthalein (as CaCO3) | < 1.0 | N/A | 1.0 mg/L | 2022-03-29 | |
| Alkalinity, Bicarbonate (as CaCO3) | 124 | N/A | 1.0 mg/L | 2022-03-29 | |
| Alkalinity, Carbonate (as CaCO3) | < 1.0 | N/A | 1.0 mg/L | 2022-03-29 | |
| Alkalinity, Hydroxide (as CaCO3) | < 1.0 | N/A | 1.0 mg/L | 2022-03-29 | |
| Ammonia, Total (as N) | < 0.050 | None Required | 0.050 mg/L | 2022-03-30 | |
| Carbon, Total Organic | 4.47 | N/A | 0.50 mg/L | 2022-03-28 | |
| Colour, True | < 5.0 | AO ≤ 15 | 5.0 CU | 2022-03-29 | HT1 |
| Conductivity (EC) | 281 | N/A | 2.0 µS/cm | 2022-03-29 | |
| Cyanide, Total | < 0.0020 | MAC = 0.2 | 0.0020 mg/L | 2022-03-30 | |
| Nitrogen, Total Kjeldahl | 0.149 | N/A | 0.050 mg/L | 2022-03-30 | |
| pH | 8.11 | 7.0-10.5 | 0.10 pH units | 2022-03-29 | HT2 |
| Phosphorus, Total (as P) | 0.0202 | N/A | 0.0050 mg/L | 2022-03-31 | |
| Temperature, at pH | 23.0 | N/A | °C | 2022-03-29 | HT2 |
| Turbidity | 0.84 | OG < 1 | 0.10 NTU | 2022-03-25 | |
| UV Transmittance @ 254 nm - Unfiltered | 87.5 | N/A | 0.10 % T | 2022-03-25 | |

Microbiological Parameters

| | | | | | |
|------------------|-----|---------|--------------|------------|--|
| Coliforms, Total | < 1 | MAC = 0 | 1 CFU/100 mL | 2022-03-24 | |
| E. coli | < 1 | MAC = 0 | 1 CFU/100 mL | 2022-03-24 | |

Total Metals

| | | | | | |
|-----------------|------------|---------------|---------------|------------|--|
| Aluminum, total | < 0.0050 | OG < 0.1 | 0.0050 mg/L | 2022-03-31 | |
| Antimony, total | < 0.00020 | MAC = 0.006 | 0.00020 mg/L | 2022-03-31 | |
| Arsenic, total | < 0.00050 | MAC = 0.01 | 0.00050 mg/L | 2022-03-31 | |
| Barium, total | 0.0204 | MAC = 2 | 0.0050 mg/L | 2022-03-31 | |
| Boron, total | < 0.0500 | MAC = 5 | 0.0500 mg/L | 2022-03-31 | |
| Cadmium, total | < 0.000010 | MAC = 0.005 | 0.000010 mg/L | 2022-03-31 | |
| Calcium, total | 31.9 | None Required | 0.20 mg/L | 2022-03-31 | |
| Chromium, total | < 0.00050 | MAC = 0.05 | 0.00050 mg/L | 2022-03-31 | |
| Cobalt, total | < 0.00010 | N/A | 0.00010 mg/L | 2022-03-31 | |



TEST RESULTS

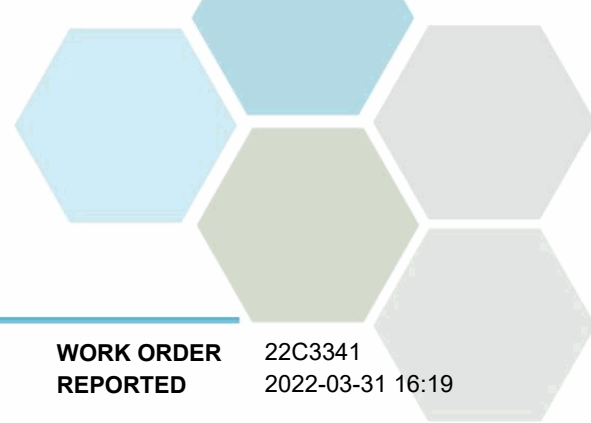
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| Analyte | Result | Guideline | RL Units | Analyzed | Qualifier |
|---|----------------|---------------|---------------|------------|-----------|
| 119 Ponderose (Pump-Hse) (22C3341-01) Matrix: Water Sampled: 2022-03-23 11:30, Continued | | | | | |
| <i>Total Metals, Continued</i> | | | | | |
| Copper, total | 0.00379 | MAC = 2 | 0.00040 mg/L | 2022-03-31 | |
| Iron, total | 0.011 | AO ≤ 0.3 | 0.010 mg/L | 2022-03-31 | |
| Lead, total | < 0.00020 | MAC = 0.005 | 0.00020 mg/L | 2022-03-31 | |
| Magnesium, total | 9.87 | None Required | 0.010 mg/L | 2022-03-31 | |
| Manganese, total | 0.00532 | MAC = 0.12 | 0.00020 mg/L | 2022-03-31 | |
| Mercury, total | < 0.000010 | MAC = 0.001 | 0.000010 mg/L | 2022-03-30 | |
| Molybdenum, total | 0.00345 | N/A | 0.00010 mg/L | 2022-03-31 | |
| Nickel, total | < 0.00040 | N/A | 0.00040 mg/L | 2022-03-31 | |
| Potassium, total | 2.48 | N/A | 0.10 mg/L | 2022-03-31 | |
| Selenium, total | < 0.00050 | MAC = 0.05 | 0.00050 mg/L | 2022-03-31 | |
| Sodium, total | 13.0 | AO ≤ 200 | 0.10 mg/L | 2022-03-31 | |
| Strontium, total | 0.294 | MAC = 7 | 0.0010 mg/L | 2022-03-31 | |
| Uranium, total | 0.00235 | MAC = 0.02 | 0.000020 mg/L | 2022-03-31 | |
| Zinc, total | < 0.0040 | AO ≤ 5 | 0.0040 mg/L | 2022-03-31 | |

Sample Qualifiers:

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.



APPENDIX 1: SUPPORTING INFORMATION

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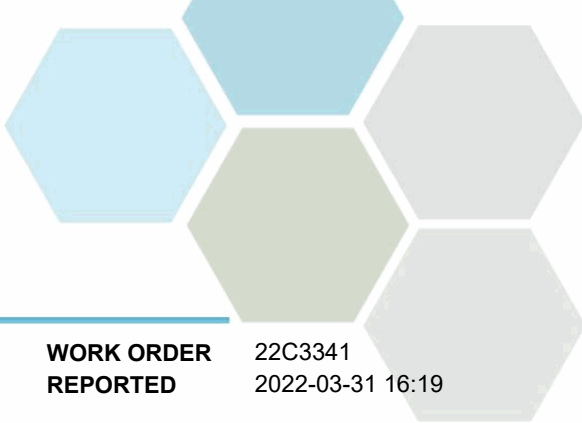
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| Analysis Description | Method Ref. | Technique | Accredited | Location |
|---|--|--|------------|----------|
| Alkalinity in Water | SM 2320 B* (2017) | Titration with H2SO4 | ✓ | Kelowna |
| Ammonia, Total in Water | SM 4500-NH3 G* (2017) | Automated Colorimetry (Phenate) | ✓ | Kelowna |
| Anions in Water | SM 4110 B (2017) | Ion Chromatography | ✓ | Kelowna |
| Carbon, Total Organic in Water | SM 5310 B (2017) | Combustion, Infrared CO2 Detection | ✓ | Kelowna |
| Coliforms, Total in Water | SM 9222* (2017) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| Colour, True in Water | SM 2120 C (2017) | Spectrophotometry (456 nm) | ✓ | Kelowna |
| Conductivity in Water | SM 2510 B (2017) | Conductivity Meter | ✓ | Kelowna |
| Cyanide, SAD in Water | ASTM D7511-12 | Flow Injection with In-Line UV Digestion and Amperometry | ✓ | Kelowna |
| E. coli in Water | SM 9222* (2017) | Membrane Filtration / Chromocult Agar | ✓ | Kelowna |
| Hardness in Water | SM 2340 B* (2017) | Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est) | ✓ | N/A |
| Langelier Index in Water | SM 2330 B (2017) | Calculation | | N/A |
| Mercury, total in Water | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | ✓ | Richmond |
| Nitrogen, Total Kjeldahl in Water | SM 4500-Norg D* (2017) | Block Digestion and Flow Injection Analysis | ✓ | Kelowna |
| pH in Water | SM 4500-H+ B (2017) | Electrometry | ✓ | Kelowna |
| Phosphorus, Total in Water | SM 4500-P B.5* (2011) / SM 4500-P F (2017) | Persulfate Digestion / Automated Colorimetry (Ascorbic Acid) | ✓ | Kelowna |
| Solids, Total Dissolved in Water | SM 1030 E (2017) | SM 1030 E (2011) | | N/A |
| Total Metals in Water | EPA 200.2 / EPA 6020B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) | ✓ | Richmond |
| Transmittance at 254 nm - Unfiltered in Water | SM 5910 B* (2017) | Ultraviolet Absorption | ✓ | Kelowna |
| Turbidity in Water | SM 2130 B (2017) | Nephelometry | ✓ | Kelowna |

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

| | |
|------------|---|
| RL | Reporting Limit (default) |
| % T | Percent Transmittance |
| < | Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors |
| °C | Degrees Celcius |
| AO | Aesthetic Objective |
| CFU/100 mL | Colony Forming Units per 100 millilitres |
| CU | Colour Units (referenced against a platinum cobalt standard) |
| MAC | Maximum Acceptable Concentration (health based) |
| mg/L | Milligrams per litre |
| NTU | Nephelometric Turbidity Units |
| OG | Operational Guideline (treated water) |
| pH units | pH < 7 = acidic, pH > 7 = basic |
| µS/cm | Microsiemens per centimetre |
| ASTM | ASTM International Test Methods |
| EPA | United States Environmental Protection Agency Test Methods |
| SM | Standard Methods for the Examination of Water and Wastewater, American Public Health Association |



APPENDIX 1: SUPPORTING INFORMATION

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General Comments:

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