Please note that the well has not been purged.

CERTIFICATE OF ANALYSIS

Work Order	: **GP2400980**	Page	: 1 of 5
Client	: **Cash Clients - Grande Prairie**	Laboratory	: ALS Environmental - Grande Prairie
Contact	:	Account Manager	: Wanda Chapella
Address	: 9505 111th Street AB Canada T8V 5W1	Address	: 9505 111 Street Grande Prairie AB Canada T8V 5W1
Telephone	:	Telephone	: 780-539-5196
Project	: ----	Date Samples Received	: 03-Jun-2024 10:15
PO	:	Date Analysis Commenced	: 04-Jun-2024
C-O-C number	: 20-964206	Issue Date	: 10-Jun-2024 21:05
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Alex Drake	Lab Analyst	Inorganics, Edmonton, Alberta
Alex Drake	Lab Analyst	Metals, Edmonton, Alberta
Brooke Miller	Laboratory Analyst	Inorganics, Edmonton, Alberta
Daniel Nguyen	Laboratory Analyst	Metals, Edmonton, Alberta
Leah Yee	Lab Assistant	Inorganics, Edmonton, Alberta
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Sunil Palak	Lab Analyst	Microbiology, Calgary, Alberta

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
%	percent
µS/cm	microsiemens per centimetre
CFU/100mL	colony forming units per hundred millilitres
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Sample Comments

Sample	Client Id	*Comment*
GP2400980-001	Groundwater well 113350	**Sample(s): Exceeded Recommended Holding Time prior to receipt at the lab for Microbiology analysis.**

Qualifiers

Qualifier	*Description*
DLDS	*Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Groundwater well 113350	----	----	----	----
					Client sampling date / time: 02-Jun-2024 15:00	----	----	----	----
					GP2400980-001	--------	--------	--------	--------
					Result	----	----	----	----
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/EO	1.0	mg/L	195	----	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/EO	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/EO	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/EO	1.0	mg/L	160	----	----	----	----
Conductivity	----	E100/EO	1.0	µS/cm	4510	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/EO	0.50	mg/L	1380	----	----	----	----
pH	----	E108/EO	0.10	pH units	6.22 RRV	----	----	----	----
Solids, total dissolved [TDS], calculated	----	EC103.B/EO	1.0	mg/L	4280	----	----	----	----
Turbidity	----	E121/EO	0.10	NTU	339 RRV	----	----	----	----
Anions and Nutrients									
Chloride	16887-00-6	E235.Cl/EO	0.50	mg/L	38.7	----	----	----	----
Fluoride	16984-48-8	E235.F/EO	0.020	mg/L	0.583	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/EO	0.020	mg/L	<0.100	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/EO	0.0032	mg/L	<0.112	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/EO	0.010	mg/L	<0.050	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/EO	0.30	mg/L	2860	----	----	----	----
Microbiological Tests									
Coliforms, thermotolerant [fecal]	----	E012.FC/CG	1	CFU/100mL	<5 DLM	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/CG	1	MPN/100mL	<5 DLM	----	----	----	----
Coliforms, total	----	E010/CG	1	MPN/100mL	<5 DLM	----	----	----	----
Ion Balance									
Ion balance (cations/anions)	----	EC101A/EO	0.01	%	103	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/EO	0.0030	mg/L	0.119	----	----	----	----
Antimony, total	7440-36-0	E420/EO	0.00010	mg/L	0.00048	----	----	----	----
Arsenic, total	7440-38-2	E420/EO	0.00010	mg/L	0.00128	----	----	----	----
Barium, total	7440-39-3	E420/EO	0.00010	mg/L	0.0245	----	----	----	----
Beryllium, total	7440-41-7	E420/EO	0.000020	mg/L	0.000042	----	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Groundwater well 113350	----	----	----	----
					Client sampling date / time	02-Jun-2024 15:00	----	----	----	----
					GP2400980-001	--------	--------	--------	--------	--------
					Result	----	----	----	----	----
Total Metals										
Bismuth, total	7440-69-9	E420/EO	0.000050	mg/L		<0.000100 DLDS	----	----	----	----
Boron, total	7440-42-8	E420/EO	0.010	mg/L		1.23	----	----	----	----
Cadmium, total	7440-43-9	E420/EO	0.0000050	mg/L		0.0000172	----	----	----	----
Calcium, total	7440-70-2	E420/EO	0.050	mg/L		255	----	----	----	----
Cesium, total	7440-46-2	E420/EO	0.000010	mg/L		0.000166	----	----	----	----
Chromium, total	7440-47-3	E420/EO	0.00050	mg/L		0.00168	----	----	----	----
Cobalt, total	7440-48-4	E420/EO	0.00010	mg/L		0.00218	----	----	----	----
Copper, total	7440-50-8	E420/EO	0.00050	mg/L		0.00345	----	----	----	----
Iron, total	7439-89-6	E420/EO	0.010	mg/L		194	----	----	----	----
Lead, total	7439-92-1	E420/EO	0.000050	mg/L		0.000596	----	----	----	----
Lithium, total	7439-93-2	E420/EO	0.0010	mg/L		1.14	----	----	----	----
Magnesium, total	7439-95-4	E420/EO	0.0050	mg/L		180	----	----	----	----
Manganese, total	7439-96-5	E420/EO	0.00010	mg/L		14.9	----	----	----	----
Mercury, total	7439-97-6	E508/EO	0.0000050	mg/L		0.0000137	----	----	----	----
Molybdenum, total	7439-98-7	E420/EO	0.000050	mg/L		0.000271	----	----	----	----
Nickel, total	7440-02-0	E420/EO	0.00050	mg/L		0.00946	----	----	----	----
Phosphorus, total	7723-14-0	E420/EO	0.050	mg/L		0.270	----	----	----	----
Potassium, total	7440-09-7	E420/EO	0.050	mg/L		5.06	----	----	----	----
Rubidium, total	7440-17-7	E420/EO	0.00020	mg/L		0.00572	----	----	----	----
Selenium, total	7782-49-2	E420/EO	0.000050	mg/L		<0.000100 DLDS	----	----	----	----
Silicon, total	7440-21-3	E420/EO	0.10	mg/L		7.88	----	----	----	----
Silver, total	7440-22-4	E420/EO	0.000010	mg/L		0.000027	----	----	----	----
Sodium, total	7440-23-5	E420/EO	0.050	mg/L		703	----	----	----	----
Strontium, total	7440-24-6	E420/EO	0.00020	mg/L		2.19	----	----	----	----
Sulfur, total	7704-34-9	E420/EO	0.50	mg/L		1090	----	----	----	----
Tellurium, total	13494-80-9	E420/EO	0.00020	mg/L		<0.00040 DLDS	----	----	----	----
Thallium, total	7440-28-0	E420/EO	0.000010	mg/L		<0.000020 DLDS	----	----	----	----
Thorium, total	7440-29-1	E420/EO	0.00010	mg/L		<0.00020 DLDS	----	----	----	----
Tin, total	7440-31-5	E420/EO	0.00010	mg/L		0.00066	----	----	----	----
Titanium, total	7440-32-6	E420/EO	0.00030	mg/L		0.00261	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Groundwater well 113350	----	----	----	----
					Client sampling date / time	02-Jun-2024 15:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		GP2400980-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Tungsten, total	7440-33-7	E420/EO	0.00010	mg/L		0.00020	----	----	----	----
Uranium, total	7440-61-1	E420/EO	0.000010	mg/L		0.000026	----	----	----	----
Vanadium, total	7440-62-2	E420/EO	0.00050	mg/L		<0.00100 DLDS	----	----	----	----
Zinc, total	7440-66-6	E420/EO	0.0030	mg/L		0.0394	----	----	----	----
Zirconium, total	7440-67-7	E420/EO	0.00020	mg/L		<0.00040 DLDS	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **GP2400980**	Page	: 1 of 8
Client	: **Cash Clients - Grande Prairie**	Laboratory	: ALS Environmental - Grande Prairie
Contact	:	Account Manager	: Wanda Chapella
Address	: 9505 111th Street AB Canada T8V 5W1	Address	: 9505 111 Street Grande Prairie, Alberta Canada T8V 5W1
Telephone	:	Telephone	: 780-539-5196
Project	: ----	Date Samples Received	: 03-Jun-2024 10:15
PO	: ----	Issue Date	: 10-Jun-2024 20:59
C-O-C number	: 20-964206		
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Chloride in Water by IC										
HDPE Groundwater well 113350	E235.Cl	02-Jun-2024	04-Jun-2024	28 days	2 days	✓	04-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Groundwater well 113350	E235.F	02-Jun-2024	04-Jun-2024	28 days	2 days	✓	04-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE Groundwater well 113350	E235.NO3	02-Jun-2024	04-Jun-2024	3 days	2 days	✓	04-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE Groundwater well 113350	E235.NO2	02-Jun-2024	04-Jun-2024	3 days	2 days	✓	04-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Groundwater well 113350	E235.SO4	02-Jun-2024	04-Jun-2024	28 days	2 days	✓	04-Jun-2024	28 days	2 days	✓
Microbiological Tests : Thermotolerant (Fecal) Coliform (MF-mFC)										
Sterile HDPE (Sodium thiosulphate) Groundwater well 113350	E012.FC	02-Jun-2024	----	----	----		04-Jun-2024	30 hrs	42 hrs	× EHTL
Microbiological Tests : Total Coliforms and E. coli (Enzyme Substrate)										
Sterile HDPE (Sodium thiosulphate) Groundwater well 113350	E010	02-Jun-2024	----	----	----		04-Jun-2024	30 hrs	42 hrs	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : Alkalinity Species by Titration										
HDPE										
Groundwater well 113350	E290	02-Jun-2024	04-Jun-2024	14 days	2 days	✓	04-Jun-2024	14 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE										
Groundwater well 113350	E100	02-Jun-2024	04-Jun-2024	28 days	2 days	✓	04-Jun-2024	28 days	2 days	✓
Physical Tests : pH by Meter										
HDPE										
Groundwater well 113350	E108	02-Jun-2024	04-Jun-2024	0.25 hrs	47 hrs	× EHTR-FM	04-Jun-2024	0.25 hrs	50 hrs	× EHTR-FM
Physical Tests : Turbidity by Nephelometry										
HDPE										
Groundwater well 113350	E121	02-Jun-2024	----	----	----		05-Jun-2024	3 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
Groundwater well 113350	E508	02-Jun-2024	05-Jun-2024	28 days	3 days	✓	05-Jun-2024	28 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
Groundwater well 113350	E420	02-Jun-2024	06-Jun-2024	180 days	4 days	✓	06-Jun-2024	180 days	4 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: ✗ = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1475311	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1475006	1	20	5.0	5.0	✓
Conductivity in Water	E100	1475310	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1475003	1	19	5.2	5.0	✓
Nitrate in Water by IC	E235.NO3	1475004	1	19	5.2	5.0	✓
Nitrite in Water by IC	E235.NO2	1475005	1	19	5.2	5.0	✓
pH by Meter	E108	1475309	2	37	5.4	5.0	✓
Sulfate in Water by IC	E235.SO4	1475007	1	19	5.2	5.0	✓
Thermotolerant (Fecal) Coliform (MF-mFC)	E012.FC	1477448	1	11	9.0	5.0	✓
Total Coliforms and E. coli (Enzyme Substrate)	E010	1477360	1	14	7.1	10.0	✗
Total Mercury in Water by CVAAS	E508	1476370	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1476592	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1476597	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1475311	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1475006	1	20	5.0	5.0	✓
Conductivity in Water	E100	1475310	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1475003	1	19	5.2	5.0	✓
Nitrate in Water by IC	E235.NO3	1475004	1	19	5.2	5.0	✓
Nitrite in Water by IC	E235.NO2	1475005	1	19	5.2	5.0	✓
pH by Meter	E108	1475309	1	37	2.7	5.0	✗
Sulfate in Water by IC	E235.SO4	1475007	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1476370	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1476592	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1476597	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1475311	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1475006	1	20	5.0	5.0	✓
Conductivity in Water	E100	1475310	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1475003	1	19	5.2	5.0	✓
Nitrate in Water by IC	E235.NO3	1475004	1	19	5.2	5.0	✓
Nitrite in Water by IC	E235.NO2	1475005	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1475007	1	19	5.2	5.0	✓
Thermotolerant (Fecal) Coliform (MF-mFC)	E012.FC	1477448	1	11	9.0	5.0	✓
Total Coliforms and E. coli (Enzyme Substrate)	E010	1477360	1	14	7.1	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Mercury in Water by CVAAS	E508	1476370	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1476592	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1476597	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	1475006	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1475003	1	19	5.2	5.0	✓
Nitrate in Water by IC	E235.NO3	1475004	1	19	5.2	5.0	✓
Nitrite in Water by IC	E235.NO2	1475005	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1475007	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1476370	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1476592	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Coliforms and E. coli (Enzyme Substrate)	E010 ALS Environmental - Calgary	Water	APHA 9223 (mod)	The enzyme substrate test simultaneously detects Total Coliforms and E. coli in a 100 mL sample after incubation at 35.0 ±0.5°C for either 18 or 24 hours (dependent on reagent used).
Thermotolerant (Fecal) Coliform (MF-mFC)	E012.FC ALS Environmental - Calgary	Water	APHA 9222 D (mod)	Following filtration (0.45 µm), and incubation at 44.5 ±0.2°C for 22-26 hours, colonies exhibiting characteristic morphology of the target organism are enumerated and confirmed.
Conductivity in Water	E100 ALS Environmental - Edmonton	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Edmonton	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Edmonton	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
Chloride in Water by IC	E235.Cl ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Edmonton	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Edmonton	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Edmonton	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Edmonton	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Edmonton	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed in $CaCO_3$ equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Ion Balance using Total Metals	EC101A ALS Environmental - Edmonton	Water	APHA 1030E	Cation Sum (using total metals), Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation) from Total Metals	EC103.B ALS Environmental - Edmonton	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Total Metals species are used. Minor ions are included where data is present. Samples with particulate are not appropriate for this calculation. This calculation is typically used for drinking waters or potable waters with a turbidity <1NTU
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Edmonton	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).