CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	:	**HA2603951**			
Client	:	**Aim Pumps & Filtration Ltd.**	Laboratory	:	ALS Environmental - Halifax
Contact	:	Mark Verge	Account Manager	:	Mi Win
Address	:	3-644 Portland St Suite 319 Dartmouth Nova Scotia Canada B2W 6C4	Address	:	13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	:	902-209-3410	Telephone	:	+1 902 707 4888
Project	:	101 Orchid	Date Samples Received	:	25-Jun-2026 11:53
PO	:	----	Date Analysis Commenced	:	26-Jun-2026
C-O-C number	:	----	Issue Date	:	30-Jun-2026 17:43
Sampler	:	----			
Site	:	----			
Quote number	:	2025 SOA			
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
- Guideline Comparison

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*
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jiaxi Wang	Supervisor - Water Chemistry	Inorganics, Dartmouth, Nova Scotia
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
101 Orchid ----	Water	Chloride	Based on taste and potential for corrosion in the distribution system.	CDWG	AO	259 mg/L	250 mg/L

Key:

CDWG	Canada Guidelines for Canadian Drinking Water Quality (JAN, 2023)
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentrations
OG	Operational Guidance

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
µS/cm	microsiemens per centimetre

>: greater than.

<: less than.

Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

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.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Analytical Results

SubMatrix: Drinking Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 101 Orchid ---- / Client sampling date / time: 25-Jun-2026 11:20 HA2603951-001	CDWG AO	CDWG MAC	CDWG OG	---- ----	---- ----
Physical Tests										
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WT	1.2	mg/L	32.2	----	----	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WT	1.0	mg/L	<0.6	----	----	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WT	1.0	mg/L	<0.3	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L	26.4	----	----	----	----	----
Colour, apparent	----	E330/WT	2.0	CU	<2.0	15 CU	----	----	----	----
Conductivity	----	E100/WT	1.0	µS/cm	931	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WT	0.50	mg/L	<0.50	----	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/WT	0.01	-	Incalculable	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/WT	0.01	-	Incalculable	----	----	----	----	----
pH	----	E108/HA	0.10	pH units	7.58	----	----	7 - 10.5 pH units	----	----
pH, saturation (@ 20°C)	----	EC105A/WT	0.01	pH units	Incalculable	----	----	----	----	----
pH, saturation (@ 4°C)	----	EC105A/WT	0.01	pH units	Incalculable	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L	476 DLDS	500 mg/L	----	----	----	----
Turbidity	----	E121/WT	0.10	NTU	0.22	1 NTU	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L	0.0558	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L	259 DLDS	250 mg/L	----	----	----	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L	<0.040 DLDS	----	1.5 mg/L	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L	<0.040 DLDS	----	10 mg/L	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0032	mg/L	<0.045	----	10 mg/L	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L	<0.020 DLDS	----	1 mg/L	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L	0.251	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L	2.00 DLDS	500 mg/L	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/WT	0.50	mg/L	0.78	----	----	----	----	----
Ion Balance										
Anion sum	----	EC101A/WT	0.10	meq/L	7.88	----	----	----	----	----
Cation sum (total)	----	EC101A/WT	0.10	meq/L	4.84	----	----	----	----	----
Ion balance (cations/anions)	----	EC101A/WT	0.01	%	61.4	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/WT	0.0030	mg/L	0.0097	----	2.9 mg/L	0.1 mg/L	----	----
Antimony, total	7440-36-0	E420/WT	0.00010	mg/L	<0.00010	----	0.006 mg/L	----	----	----
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L	<0.00010	----	0.01 mg/L	----	----	----

SubMatrix: Drinking Water
(Matrix: Water **)**

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 101 Orchid ---- / Client sampling date / time: 25-Jun-2026 11:20 HA2603951-001	CDWG AO	CDWG MAC	CDWG OG	---- ----	---- ----
Total Metals										
Barium, total	7440-39-3	E420/WT	0.00010	mg/L	0.00028	----	2 mg/L	----	----	----
Beryllium, total	7440-41-7	E420/WT	0.000020	mg/L	<0.000020	----	----	----	----	----
Bismuth, total	7440-69-9	E420/WT	0.000050	mg/L	0.000227	----	----	----	----	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L	0.107	----	5 mg/L	----	----	----
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L	<0.0000050	----	0.007 mg/L	----	----	----
Calcium, total	7440-70-2	E420/WT	0.100	mg/L	<0.100	----	----	----	----	----
Cesium, total	7440-46-2	E420/WT	0.000010	mg/L	<0.000010	----	----	----	----	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L	<0.00050	----	0.05 mg/L	----	----	----
Cobalt, total	7440-48-4	E420/WT	0.00010	mg/L	<0.00010	----	----	----	----	----
Copper, total	7440-50-8	E420/WT	0.00050	mg/L	<0.00050	1 mg/L	2 mg/L	----	----	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L	0.012	0.1 mg/L	----	----	----	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L	<0.000050	----	0.005 mg/L	----	----	----
Lithium, total	7439-93-2	E420/WT	0.0010	mg/L	<0.0010	----	----	----	----	----
Magnesium, total	7439-95-4	E420/WT	0.0050	mg/L	0.0121	----	----	----	----	----
Manganese, total	7439-96-5	E420/WT	0.00010	mg/L	0.00043	0.02 mg/L	0.12 mg/L	----	----	----
Molybdenum, total	7439-98-7	E420/WT	0.000050	mg/L	<0.000050	----	----	----	----	----
Nickel, total	7440-02-0	E420/WT	0.00050	mg/L	<0.00050	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/WT	0.050	mg/L	0.265	----	----	----	----	----
Potassium, total	7440-09-7	E420/WT	0.050	mg/L	1.78	----	----	----	----	----
Rubidium, total	7440-17-7	E420/WT	0.00020	mg/L	0.00033	----	----	----	----	----
Selenium, total	7782-49-2	E420/WT	0.000050	mg/L	<0.000050	----	0.05 mg/L	----	----	----
Silicon (as SiO2), total	7631-86-9	EC420.SiO2/WT	0.25	mg/L	5.07	----	----	----	----	----
Silicon, total	7440-21-3	E420/WT	0.10	mg/L	2.37	----	----	----	----	----
Silver, total	7440-22-4	E420/WT	0.000010	mg/L	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420/WT	0.050	mg/L	110	200 mg/L	----	----	----	----
Strontium, total	7440-24-6	E420/WT	0.00020	mg/L	0.00041	----	7 mg/L	----	----	----
Sulfur, total	7704-34-9	E420/WT	0.50	mg/L	<0.50	----	----	----	----	----
Tellurium, total	13494-80-9	E420/WT	0.00020	mg/L	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420/WT	0.000010	mg/L	<0.000010	----	----	----	----	----
Thorium, total	7440-29-1	E420/WT	0.00010	mg/L	<0.00010	----	----	----	----	----
Tin, total	7440-31-5	E420/WT	0.00010	mg/L	<0.00010	----	----	----	----	----
Titanium, total	7440-32-6	E420/WT	0.00030	mg/L	<0.00030	----	----	----	----	----
Tungsten, total	7440-33-7	E420/WT	0.00010	mg/L	<0.00010	----	----	----	----	----

SubMatrix: Drinking Water
(Matrix: Water **)**

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 101 Orchid ---- / Client sampling date / time: 25-Jun-2026 11:20 HA2603951-001	CDWG AO	CDWG MAC	CDWG OG	---- ----	---- ----
Total Metals										
Uranium, total	7440-61-1	E420/WT	0.000010	mg/L	<0.000010	----	0.02 mg/L	----	----	----
Vanadium, total	7440-62-2	E420/WT	0.00050	mg/L	<0.00050	----	----	----	----	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L	<0.0030	5 mg/L	----	----	----	----
Zirconium, total	7440-67-7	E420/WT	0.00020	mg/L	<0.00020	----	----	----	----	----

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

No Breaches Found

CERTIFICATE OF ANALYSIS

Work Order	:	**HA2603951**			
Client	:	**Aim Pumps & Filtration Ltd.**	Laboratory	:	ALS Environmental - Halifax
Contact	:	Mark Verge	Account Manager	:	Mi Win
Address	:	3-644 Portland St Suite 319 Dartmouth Nova Scotia Canada B2W 6C4	Address	:	13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	:	902-209-3410	E-mail	:	mi.mumuwin@alsglobal.com
Project	:	101 Orchid	Telephone	:	+1 902 707 4888
PO	:	----	Date Samples Received	:	25-Jun-2026 11:53
C-O-C number	:	----	Date Analysis Commenced	:	26-Jun-2026
Sampler	:	----	Issue Date	:	30-Jun-2026 17:42
Site	:	----			
Quote number	:	2025 SOA			
No. of samples received	:	1			
No. of samples analysed	:	1			

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- General Comments
- Analytical Results

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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*
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jiaxi Wang	Supervisor - Water Chemistry	Inorganics, Dartmouth, Nova Scotia
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario

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*
-	no units
%	percent
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
µS/cm	microsiemens per centimetre

<: 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.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Analytical Results

Sub-Matrix: Drinking Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 101 Orchid ----	----	----	----	----
					Client sampling date / time: 25-Jun-2026 11:20	----	----	----	----
					HA2603951-001	----	----	----	----
					Result	----	----	----	----
Physical Tests									
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WT	1.2	mg/L	32.2	----	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WT	1.0	mg/L	<0.6	----	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WT	1.0	mg/L	<0.3	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L	26.4	----	----	----	----
Colour, apparent	----	E330/WT	2.0	CU	<2.0	----	----	----	----
Conductivity	----	E100/WT	1.0	µS/cm	931	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WT	0.50	mg/L	<0.50	----	----	----	----
Langelier index (@ 20°C)	----	EC105A/WT	0.01	-	Incalculable	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/WT	0.01	-	Incalculable	----	----	----	----
pH	----	E108/HA	0.10	pH units	7.58	----	----	----	----
pH, saturation (@ 20°C)	----	EC105A/WT	0.01	pH units	Incalculable	----	----	----	----
pH, saturation (@ 4°C)	----	EC105A/WT	0.01	pH units	Incalculable	----	----	----	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L	476 DLDS	----	----	----	----
Turbidity	----	E121/WT	0.10	NTU	0.22	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L	0.0558	----	----	----	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L	259 DLDS	----	----	----	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L	<0.040 DLDS	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L	<0.040 DLDS	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0032	mg/L	<0.045	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L	<0.020 DLDS	----	----	----	----

Analytical Results

Sub-Matrix: Drinking Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 101 Orchid ----	----	----	----	----
					Client sampling date / time: 25-Jun-2026 11:20	----	----	----	----
					HA2603951-001	----	----	----	----
					Result	----	----	----	----
Anions and Nutrients									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L	0.251	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L	2.00 DLDS	----	----	----	----
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/WT	0.50	mg/L	0.78	----	----	----	----
Ion Balance									
Anion sum	----	EC101A/WT	0.10	meq/L	7.88	----	----	----	----
Cation sum (total)	----	EC101A/WT	0.10	meq/L	4.84	----	----	----	----
Ion balance (cations/anions)	----	EC101A/WT	0.01	%	61.4	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/WT	0.0030	mg/L	0.0097	----	----	----	----
Antimony, total	7440-36-0	E420/WT	0.00010	mg/L	<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L	<0.00010	----	----	----	----
Barium, total	7440-39-3	E420/WT	0.00010	mg/L	0.00028	----	----	----	----
Beryllium, total	7440-41-7	E420/WT	0.000020	mg/L	<0.000020	----	----	----	----
Bismuth, total	7440-69-9	E420/WT	0.000050	mg/L	0.000227	----	----	----	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L	0.107	----	----	----	----
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L	<0.0000050	----	----	----	----
Calcium, total	7440-70-2	E420/WT	0.100	mg/L	<0.100	----	----	----	----
Cesium, total	7440-46-2	E420/WT	0.000010	mg/L	<0.000010	----	----	----	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/WT	0.00010	mg/L	<0.00010	----	----	----	----

Analytical Results

Sub-Matrix: Drinking Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 101 Orchid ----	----	----	----	----
					Client sampling date / time: 25-Jun-2026 11:20	----	----	----	----
					HA2603951-001	----	----	----	----
					Result	----	----	----	----
Total Metals									
Copper, total	7440-50-8	E420/WT	0.00050	mg/L	<0.00050	----	----	----	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L	0.012	----	----	----	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L	<0.000050	----	----	----	----
Lithium, total	7439-93-2	E420/WT	0.0010	mg/L	<0.0010	----	----	----	----
Magnesium, total	7439-95-4	E420/WT	0.0050	mg/L	0.0121	----	----	----	----
Manganese, total	7439-96-5	E420/WT	0.00010	mg/L	0.00043	----	----	----	----
Molybdenum, total	7439-98-7	E420/WT	0.000050	mg/L	<0.000050	----	----	----	----
Nickel, total	7440-02-0	E420/WT	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/WT	0.050	mg/L	0.265	----	----	----	----
Potassium, total	7440-09-7	E420/WT	0.050	mg/L	1.78	----	----	----	----
Rubidium, total	7440-17-7	E420/WT	0.00020	mg/L	0.00033	----	----	----	----
Selenium, total	7782-49-2	E420/WT	0.000050	mg/L	<0.000050	----	----	----	----
Silicon (as SiO2), total	7631-86-9	EC420.SiO2/WT	0.25	mg/L	5.07	----	----	----	----
Silicon, total	7440-21-3	E420/WT	0.10	mg/L	2.37	----	----	----	----
Silver, total	7440-22-4	E420/WT	0.000010	mg/L	<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/WT	0.050	mg/L	110	----	----	----	----
Strontium, total	7440-24-6	E420/WT	0.00020	mg/L	0.00041	----	----	----	----
Sulfur, total	7704-34-9	E420/WT	0.50	mg/L	<0.50	----	----	----	----
Tellurium, total	13494-80-9	E420/WT	0.00020	mg/L	<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/WT	0.000010	mg/L	<0.000010	----	----	----	----
Thorium, total	7440-29-1	E420/WT	0.00010	mg/L	<0.00010	----	----	----	----

Analytical Results

Sub-Matrix: Drinking Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	101 Orchid ----	----	----	----	----
					Client sampling date / time	25-Jun-2026 11:20	----	----	----	----
						HA2603951-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Tin, total	7440-31-5	E420/WT	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/WT	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/WT	0.00010	mg/L		<0.00010	----	----	----	----
Uranium, total	7440-61-1	E420/WT	0.000010	mg/L		<0.000010	----	----	----	----
Vanadium, total	7440-62-2	E420/WT	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L		<0.0030	----	----	----	----
Zirconium, total	7440-67-7	E420/WT	0.00020	mg/L		<0.00020	----	----	----	----

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

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Quality Control Interpretive Report

Work Order	:	**HA2603951**		
Client	:	Aim Pumps & Filtration Ltd.	Laboratory	: ALS Environmental - Halifax
Contact	:	Mark Verge	Account Manager	: Mi Win
Address	:	3-644 Portland St Suite 319 Dartmouth NS Canada B2W 6C4	Address	: 13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	:	902-209-3410	Telephone	: +1 902 707 4888
Project	:	101 Orchid	Date Samples Received	: 25-Jun-2026 11:53
PO	:	----	Issue Date	: 30-Jun-2026 17:42
C-O-C number	:	----		
Sampler	:	----		
Site	:	----		
Quote number	:	2025 SOA		
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 Services 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 Laboratory Control Sample Duplicate (LCSD) outliers occur
- No Matrix Spike outliers occur.
- No Matrix Spike Duplicate (MSD) 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.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

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	ALS Sample ID	QC Lot	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 : Ammonia by Fluorescence												
Amber glass total (sulfuric acid)												
101 Orchid	001	2677738	E298	25-Jun-2026	26-Jun-2026	28 days	1 days	✓	27-Jun-2026	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC												
HDPE												
101 Orchid	001	2677801	E235.Cl	25-Jun-2026	26-Jun-2026	28 days	1 days	✓	27-Jun-2026	28 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)												
HDPE												
101 Orchid	001	2677806	E378-U	25-Jun-2026	26-Jun-2026	3 days	1 days	✓	29-Jun-2026	3 days	4 days	× EHT
Anions and Nutrients : Fluoride in Water by IC												
HDPE												
101 Orchid	001	2677802	E235.F	25-Jun-2026	26-Jun-2026	28 days	1 days	✓	27-Jun-2026	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC												
HDPE												
101 Orchid	001	2677798	E235.NO3	25-Jun-2026	26-Jun-2026	3 days	1 days	✓	27-Jun-2026	3 days	2 days	✓

Matrix: Water

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

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC												
HDPE												
101 Orchid	001	2677799	E235.NO2	25-Jun-2026	26-Jun-2026	3 days	1 days	✓	27-Jun-2026	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC												
HDPE												
101 Orchid	001	2677800	E235.SO4	25-Jun-2026	26-Jun-2026	28 days	1 days	✓	27-Jun-2026	28 days	2 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)												
Amber glass total (sulfuric acid)												
101 Orchid	001	2677739	E355-L	25-Jun-2026	26-Jun-2026	28 days	1 days	✓	29-Jun-2026	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration												
HDPE												
101 Orchid	001	2677803	E290	25-Jun-2026	26-Jun-2026	14 days	1 days	✓	27-Jun-2026	14 days	2 days	✓
Physical Tests : Colour (Apparent) by Spectrometer												
HDPE												
101 Orchid	001	2680518	E330	25-Jun-2026	----	----	----		29-Jun-2026	48 hrs	95 hrs	× EHT
Physical Tests : Conductivity in Water												
HDPE												
101 Orchid	001	2677805	E100	25-Jun-2026	26-Jun-2026	28 days	1 days	✓	27-Jun-2026	28 days	2 days	✓
Physical Tests : pH by Meter												
HDPE												
101 Orchid	001	2675814	E108	25-Jun-2026	26-Jun-2026	0.25 hrs	22 hrs	× EHTR-FM	26-Jun-2026	0.25 hrs	27 hrs	× EHTR-FM

Matrix: Water

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

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry												
HDPE												
101 Orchid	001	2680596	E162	25-Jun-2026	----	----	----		29-Jun-2026	7 days	4 days	✓
Physical Tests : Turbidity by Nephelometry												
HDPE												
101 Orchid	001	2676075	E121	25-Jun-2026	----	----	----		26-Jun-2026	3 days	1 days	✓
Total Metals : Total Metals in Water by CRC ICPMS												
HDPE total (nitric acid)												
101 Orchid	001	2676059	E420	25-Jun-2026	26-Jun-2026	180 days	1 days	✓	26-Jun-2026	180 days	1 days	✓

Legend & Qualifier Definitions

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

EHT: Exceeded ALS recommended hold time prior to analysis.

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 / Lab	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Conductivity in Water	E100 / WT	2677805	1	8	12.5	5.0	✓
pH by Meter	E108 / HA	2675814	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121 / WT	2676075	1	20	5.0	5.0	✓
TDS by Gravimetry	E162 / WT	2680596	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl / WT	2677801	1	14	7.1	5.0	✓
Fluoride in Water by IC	E235.F / WT	2677802	1	6	16.7	5.0	✓
Nitrite in Water by IC	E235.NO2 / WT	2677799	1	6	16.7	5.0	✓
Nitrate in Water by IC	E235.NO3 / WT	2677798	1	6	16.7	5.0	✓
Sulfate in Water by IC	E235.SO4 / WT	2677800	1	7	14.3	5.0	✓
Alkalinity Species by Titration	E290 / WT	2677803	1	6	16.7	5.0	✓
Ammonia by Fluorescence	E298 / WT	2677738	1	2	50.0	5.0	✓
Colour (Apparent) by Spectrometer	E330 / WT	2680518	1	14	7.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L / WT	2677739	1	1	100.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U / WT	2677806	1	1	100.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420 / WT	2676059	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100 / WT	2677805	1	8	12.5	5.0	✓
pH by Meter	E108 / HA	2675814	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121 / WT	2676075	1	20	5.0	5.0	✓
TDS by Gravimetry	E162 / WT	2680596	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl / WT	2677801	1	14	7.1	5.0	✓
Fluoride in Water by IC	E235.F / WT	2677802	1	6	16.7	5.0	✓
Nitrite in Water by IC	E235.NO2 / WT	2677799	1	6	16.7	5.0	✓
Nitrate in Water by IC	E235.NO3 / WT	2677798	1	6	16.7	5.0	✓
Sulfate in Water by IC	E235.SO4 / WT	2677800	1	7	14.3	5.0	✓
Alkalinity Species by Titration	E290 / WT	2677803	1	6	16.7	5.0	✓
Ammonia by Fluorescence	E298 / WT	2677738	1	2	50.0	5.0	✓

Matrix: Water

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method / Lab*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS)							
Colour (Apparent) by Spectrometer	E330 / WT	2680518	1	14	7.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L / WT	2677739	1	1	100.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U / WT	2677806	1	1	100.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420 / WT	2676059	1	9	11.1	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100 / WT	2677805	1	8	12.5	5.0	✓
Turbidity by Nephelometry	E121 / WT	2676075	1	20	5.0	5.0	✓
TDS by Gravimetry	E162 / WT	2680596	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl / WT	2677801	1	14	7.1	5.0	✓
Fluoride in Water by IC	E235.F / WT	2677802	1	6	16.7	5.0	✓
Nitrite in Water by IC	E235.NO2 / WT	2677799	1	6	16.7	5.0	✓
Nitrate in Water by IC	E235.NO3 / WT	2677798	1	6	16.7	5.0	✓
Sulfate in Water by IC	E235.SO4 / WT	2677800	1	7	14.3	5.0	✓
Alkalinity Species by Titration	E290 / WT	2677803	1	6	16.7	5.0	✓
Ammonia by Fluorescence	E298 / WT	2677738	1	2	50.0	5.0	✓
Colour (Apparent) by Spectrometer	E330 / WT	2680518	1	14	7.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L / WT	2677739	1	1	100.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U / WT	2677806	1	1	100.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420 / WT	2676059	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl / WT	2677801	1	14	7.1	5.0	✓
Fluoride in Water by IC	E235.F / WT	2677802	1	6	16.7	5.0	✓
Nitrite in Water by IC	E235.NO2 / WT	2677799	1	6	16.7	5.0	✓
Nitrate in Water by IC	E235.NO3 / WT	2677798	1	6	16.7	5.0	✓
Sulfate in Water by IC	E235.SO4 / WT	2677800	1	7	14.3	5.0	✓
Ammonia by Fluorescence	E298 / WT	2677738	1	2	50.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L / WT	2677739	1	1	100.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U / WT	2677806	1	1	100.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420 / WT	2676059	1	9	11.1	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
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	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.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Colour (Apparent) by Spectrometer	E330 ALS Environmental - Waterloo	Water	APHA 2120 C (mod)	Colour (Apparent) is measured in an unfiltered sample spectrophotometrically using the single wavelength method. The colour contribution of settleable solids are not included in the result. This method is intended for potable waters. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Conductivity in Water	E100 ALS Environmental - Waterloo	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.
Conductivity Screen (Internal Use Only)	ES100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Fluoride in Water by IC	E235.F ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 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 hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.
Ion Balance using Total Metals	EC101A ALS Environmental - Waterloo	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).
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	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 - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
pH by Meter	E108 ALS Environmental - Halifax	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.
Saturation Index using Laboratory pH (Ca-T)	EC105A ALS Environmental - Waterloo	Water	APHA 2330B	Langelier Index provides an indication of scale formation potential at a given pH and temperature, and is calculated as per APHA 2330B Saturation Index. Positive values indicate oversaturation with respect to CaCO3. Negative values indicate undersaturation of CaCO3. This calculation uses laboratory pH measurements and provides estimates of Langelier Index at temperatures of 4, 15, 20, 25, 66, and 77°C. Ryznar Stability Index is an alternative index used for scale formation and corrosion potential.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	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 Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Total Silicon as Silica (Calculation)	EC420.SiO2 ALS Environmental - Waterloo	Water	N/A	Total Silicon (as SiO2) is a calculated parameter. Total Silicon (as SiO2 mg/L) = 2.139 x Total Silicon (mg/L).
Turbidity by Nephelometry	E121 ALS Environmental - Waterloo	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
Preparation Methods	***Method / Lab***	***Matrix***	***Method Reference***	***Method Descriptions***
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Autotitrator	EP108-TITR ALS Environmental - Waterloo	Water		Sample preparation for parameters analysed by Autotitrator
Preparation for Ion Chromatography	EP235-IC ALS Environmental - Waterloo	Water		Sample preparation for ion chromatography

Preparation for Orthophosphate	EP378-PO4 ALS Environmental - Waterloo	Water	APHA 4500-P E (mod)	Sample preparation for orthophosphate analysis
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Waterloo	Water		Preparation for Total Organic Carbon by Combustion
Total Metals Water Digestion	EP420 ALS Environmental - Waterloo	Water	EPA 200.2 (mod)	Water samples are digested with HNO3 and HCl to liberate "total recoverable" metals.

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QUALITY CONTROL REPORT

Work Order	: **HA2603951**		
Client	: Aim Pumps & Filtration Ltd.	Laboratory	: ALS Environmental - Halifax
Contact	: Mark Verge	Account Manager	: Mi Win
Address	: 3-644 Portland St Suite 319 Dartmouth NS Canada B2W 6C4	Address	: 13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	: 902-209-3410	Telephone	: +1 902 707 4888
Project	: 101 Orchid	Date Samples Received	: 25-Jun-2026 11:53
PO	: ----	Date Analysis Commenced	: 26-Jun-2026
C-O-C number	: ----	Issue Date	: 30-Jun-2026 17:41
Sampler	: ----		
Site	: ----		
Quote number	: 2025 SOA		
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 Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

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*
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Jiaxi Wang	Supervisor - Water Chemistry	Halifax Inorganics, Dartmouth, Nova Scotia
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology 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
# =Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

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

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: Drinking Water

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Anions and Nutrients(QC Lot: 2677738)											
HA2603951-001	101 Orchid	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0558	0.0578	3.52 %	20%	---
Anions and Nutrients(QC Lot: 2677806)											
HA2603951-001	101 Orchid	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0100	mg/L	0.251	0.251	0.0877 %	20%	---
Organic / Inorganic Carbon(QC Lot: 2677739)											
HA2603951-001	101 Orchid	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.78	0.69	0.08	Diff <2x LOR	---

Sub-Matrix: Groundwater

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests(QC Lot: 2676075)											
HA2603800-001	Anonymous	Turbidity	----	E121	0.10	NTU	2.50	2.52	0.398 %	15%	---
Physical Tests(QC Lot: 2680596)											
HA2603831-001	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	82	76	6	Diff <2x LOR	---

Sub-Matrix: Surface Water

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests(QC Lot: 2680518)											
HA2603134-021	Anonymous	Colour, apparent	----	E330	4.0	CU	246	249	0.921 %	20%	---

Sub-Matrix: Wastewater

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests(QC Lot: 2675814)											
HA2603098-001	Anonymous	pH	----	E108	0.10	pH units	7.51	7.55	0.531 %	4%	---

Sub-Matrix: Water

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests(QC Lot: 2677805)											
WT2618105-001	Anonymous	Conductivity	----	E100	1.0	µS/cm	5.76 mS/cm	5790	0.519 %	10%	---

Sub-Matrix: Well Water

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests(QC Lot: 2677803)											
HA2603946-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	4.1	3.7	0.4	Diff <2x LOR	---
Anions and Nutrients(QC Lot: 2677798)											
HA2603941-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.401	0.399	0.362 %	20%	---
Anions and Nutrients(QC Lot: 2677799)											
HA2603941-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	---
Anions and Nutrients(QC Lot: 2677800)											
HA2603941-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	8.07	7.99	1.01 %	20%	---
Anions and Nutrients(QC Lot: 2677801)											
HA2603941-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	83.6	83.8	0.235 %	20%	---
Anions and Nutrients(QC Lot: 2677802)											
HA2603941-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.035	0.034	0.001	Diff <2x LOR	---
Total Metals(QC Lot: 2676059)											
HA2603941-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0081	0.0080	0.00008	Diff <2x LOR	---
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.78 µg/L	0.00078	0.000001	Diff <2x LOR	---
		Barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	---
		Boron, total	7440-42-8	E420	0.010	mg/L	0.018	0.018	0.0003	Diff <2x LOR	---
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	---
		Calcium, total	7440-70-2	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000029	0.000030	0.000001	Diff <2x LOR	---
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00704	0.00703	0.223 %	20%	---
		Iron, total	7439-89-6	E420	0.010	mg/L	67 µg/L	0.067	0.0008	Diff <2x LOR	---
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.340 µg/L	0.000338	0.000002	Diff <2x LOR	---
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	---
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	---

Sub-Matrix: Well Water

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals(QC Lot: 2676059)											
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.37 µg/L	0.00033	0.00005	Diff <2x LOR	---
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000152	0.000157	0.000004	Diff <2x LOR	---
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
		Potassium, total	7440-09-7	E420	0.050	mg/L	0.117	0.116	0.0007	Diff <2x LOR	---
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00042	0.00046	0.00004	Diff <2x LOR	---
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000073	0.000077	0.000004	Diff <2x LOR	---
		Silicon, total	7440-21-3	E420	0.10	mg/L	4.32	4.34	0.516 %	20%	---
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	---
		Sodium, total	7440-23-5	E420	0.050	mg/L	92.2	92.2	0.0322 %	20%	---
		Strontium, total	7440-24-6	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Sulfur, total	7704-34-9	E420	0.50	mg/L	2.95	2.86	0.09	Diff <2x LOR	---
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	---
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	---
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Uranium, total	7440-61-1	E420	0.000010	mg/L	1.62 µg/L	0.00165	1.89 %	20%	---
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0150	0.0150	0.00006	Diff <2x LOR	---
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests(QC Lot: 2675814)						
pH	----	E108	----	pH units	----	----
Physical Tests(QC Lot: 2676075)						
Turbidity	----	E121	0.1	NTU	<0.10	----

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests(QC Lot: 2677803)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.8	----
Physical Tests(QC Lot: 2677805)						
Conductivity	----	E100	1	µS/cm	1.9	----
Physical Tests(QC Lot: 2680518)						
Colour, apparent	----	E330	2	CU	<2.0	----
Physical Tests(QC Lot: 2680596)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients(QC Lot: 2677738)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients(QC Lot: 2677798)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients(QC Lot: 2677799)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients(QC Lot: 2677800)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients(QC Lot: 2677801)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients(QC Lot: 2677802)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients(QC Lot: 2677806)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon(QC Lot: 2677739)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals(QC Lot: 2676059)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals(QC Lot: 2676059)						
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests(QC Lot: 2675814)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests(QC Lot: 2676075)									
Turbidity	----	E121	0.1	NTU	200 NTU	95.0	85.0	115	----
Physical Tests(QC Lot: 2677803)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	113	85.0	115	----
Physical Tests(QC Lot: 2677805)									
Conductivity	----	E100	1	µS/cm	1409 µS/cm	97.7	90.0	110	----
Physical Tests(QC Lot: 2680518)									
Colour, apparent	----	E330	2	CU	25 CU	97.7	85.0	115	----
Physical Tests(QC Lot: 2680596)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	103	85.0	115	----
Anions and Nutrients(QC Lot: 2677738)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	104	85.0	115	----
Anions and Nutrients(QC Lot: 2677798)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	97.9	90.0	110	----
Anions and Nutrients(QC Lot: 2677799)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	94.4	90.0	110	----
Anions and Nutrients(QC Lot: 2677800)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	96.4	90.0	110	----
Anions and Nutrients(QC Lot: 2677801)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	98.5	90.0	110	----
Anions and Nutrients(QC Lot: 2677802)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	104	90.0	110	----
Anions and Nutrients(QC Lot: 2677806)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	99.4	80.0	120	----
Organic / Inorganic Carbon(QC Lot: 2677739)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	101	80.0	120	----
Total Metals(QC Lot: 2676059)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	0.1 mg/L	97.7	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	0.05 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.0125 mg/L	101	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.005 mg/L	93.1	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	0.05 mg/L	99.4	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	90.9	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	100	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	2.5 mg/L	97.1	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.0025 mg/L	103	80.0	120	----

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals(QC Lot: 2676059)									
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.0125 mg/L	99.1	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.0125 mg/L	98.9	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.0125 mg/L	98.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	102	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	101	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.0125 mg/L	88.5	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	2.5 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.0125 mg/L	99.7	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.0125 mg/L	98.5	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.025 mg/L	97.8	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	0.5 mg/L	104	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	2.5 mg/L	99.6	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.005 mg/L	100	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	99.3	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	0.5 mg/L	93.8	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	2.5 mg/L	99.9	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.0125 mg/L	99.3	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	2.5 mg/L	90.9	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.005 mg/L	96.8	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	0.05 mg/L	100	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.005 mg/L	97.7	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.025 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.0125 mg/L	95.5	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.005 mg/L	100	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.0002 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.025 mg/L	99.7	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	98.8	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.005 mg/L	97.8	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for

Sub-Matrix: Drinking Water

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Anions and Nutrients(QC Lot: 2677738)										
HA2603951-001	101 Orchid	Ammonia, total (as N)	7664-41-7	E298	0.113 mg/L	0.1 mg/L	113	75.0	125	---
Anions and Nutrients(QC Lot: 2677798)										
HA2603941-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.46 mg/L	2.5 mg/L	98.4	75.0	125	---
Anions and Nutrients(QC Lot: 2677799)										
HA2603941-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.483 mg/L	0.5 mg/L	96.5	75.0	125	---
Anions and Nutrients(QC Lot: 2677800)										
HA2603941-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	95.5 mg/L	100 mg/L	95.5	75.0	125	---
Anions and Nutrients(QC Lot: 2677801)										
HA2603941-001	Anonymous	Chloride	16887-00-6	E235.Cl	98.0 mg/L	100 mg/L	98.0	75.0	125	---
Anions and Nutrients(QC Lot: 2677802)										
HA2603941-001	Anonymous	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	---
Anions and Nutrients(QC Lot: 2677806)										
HA2603951-001	101 Orchid	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	ND	----	ND	70.0	130	---
Organic / Inorganic Carbon(QC Lot: 2677739)										
HA2603951-001	101 Orchid	Carbon, total organic [TOC]	----	E355-L	4.96 mg/L	5 mg/L	99.2	70.0	130	---
Total Metals(QC Lot: 2676059)										
HA2603944-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0959 mg/L	0.1 mg/L	95.9	70.0	130	---
		Antimony, total	7440-36-0	E420	0.0510 mg/L	0.05 mg/L	102	70.0	130	---
		Arsenic, total	7440-38-2	E420	0.0515 mg/L	0.05 mg/L	103	70.0	130	---
		Barium, total	7440-39-3	E420	0.0121 mg/L	0.0125 mg/L	96.4	70.0	130	---
		Beryllium, total	7440-41-7	E420	0.00451 mg/L	0.005 mg/L	90.2	70.0	130	---
		Bismuth, total	7440-69-9	E420	0.0489 mg/L	0.05 mg/L	97.8	70.0	130	---
		Boron, total	7440-42-8	E420	0.046 mg/L	0.05 mg/L	91.0	70.0	130	---
		Cadmium, total	7440-43-9	E420	0.00518 mg/L	0.005 mg/L	104	70.0	130	---
		Calcium, total	7440-70-2	E420	2.40 mg/L	2.5 mg/L	96.2	70.0	130	---
		Cesium, total	7440-46-2	E420	0.00257 mg/L	0.0025 mg/L	103	70.0	130	---
		Chromium, total	7440-47-3	E420	0.0124 mg/L	0.0125 mg/L	98.8	70.0	130	---
		Cobalt, total	7440-48-4	E420	0.0125 mg/L	0.0125 mg/L	99.8	70.0	130	---
		Copper, total	7440-50-8	E420	ND	----	ND	70.0	130	---
		Iron, total	7439-89-6	E420	0.051 mg/L	0.05 mg/L	101	70.0	130	---
		Lead, total	7439-92-1	E420	0.0246 mg/L	0.025 mg/L	98.3	70.0	130	---
		Lithium, total	7439-93-2	E420	0.0112 mg/L	0.0125 mg/L	89.9	70.0	130	---
		Magnesium, total	7439-95-4	E420	2.50 mg/L	2.5 mg/L	100	70.0	130	---
		Manganese, total	7439-96-5	E420	0.0125 mg/L	0.0125 mg/L	100.0	70.0	130	---
		Molybdenum, total	7439-98-7	E420	0.0126 mg/L	0.0125 mg/L	101	70.0	130	---
		Nickel, total	7440-02-0	E420	0.0245 mg/L	0.025 mg/L	98.1	70.0	130	---
		Phosphorus, total	7723-14-0	E420	0.506 mg/L	0.5 mg/L	101	70.0	130	---

Sub-Matrix: **Drinking Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Total Metals(QC Lot: 2676059)										
		Potassium, total	7440-09-7	E420	2.47 mg/L	2.5 mg/L	98.8	70.0	130	---
		Rubidium, total	7440-17-7	E420	0.00494 mg/L	0.005 mg/L	98.8	70.0	130	---
		Selenium, total	7782-49-2	E420	0.0508 mg/L	0.05 mg/L	102	70.0	130	---
		Silicon, total	7440-21-3	E420	ND	----	ND	70.0	130	---
		Silver, total	7440-22-4	E420	0.00491 mg/L	0.005 mg/L	98.2	70.0	130	---
		Sodium, total	7440-23-5	E420	ND	----	ND	70.0	130	---
		Strontium, total	7440-24-6	E420	0.0125 mg/L	0.0125 mg/L	99.9	70.0	130	---
		Sulfur, total	7704-34-9	E420	ND	----	ND	70.0	130	---
		Tellurium, total	13494-80-9	E420	0.00494 mg/L	0.005 mg/L	98.7	70.0	130	---
		Thallium, total	7440-28-0	E420	0.0484 mg/L	0.05 mg/L	96.8	70.0	130	---
		Thorium, total	7440-29-1	E420	0.00498 mg/L	0.005 mg/L	99.7	70.0	130	---
		Tin, total	7440-31-5	E420	0.0257 mg/L	0.025 mg/L	103	70.0	130	---
		Titanium, total	7440-32-6	E420	0.0121 mg/L	0.0125 mg/L	96.5	70.0	130	---
		Tungsten, total	7440-33-7	E420	0.00504 mg/L	0.005 mg/L	101	70.0	130	---
		Uranium, total	7440-61-1	E420	0.000259 mg/L	0.0002 mg/L	104	70.0	130	---
		Vanadium, total	7440-62-2	E420	0.0250 mg/L	0.025 mg/L	100.0	70.0	130	---
		Zinc, total	7440-66-6	E420	0.0254 mg/L	0.025 mg/L	102	70.0	130	---
		Zirconium, total	7440-67-7	E420	0.00504 mg/L	0.005 mg/L	101	70.0	130	---

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division Halifax

Work Order Reference HA2603951

Telephone : +1 902 707 4888

Report To	Contact and company name below will appear on the final report
Company:	AIM PUMPS AND FILTRATION LTD
Contact:	Mark Verge
Phone:	902-433-0010
	Company address below will appear on the final report
Street:	3-644 Portland Street Suite 319
City/Province:	Dartmouth, NS
Postal Code:	B2W 6C4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

☑ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax aimpumpsltd@gmail.com

Email 2 aimpumps@bellaliant.net

Email 3

Invoice Recipients

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☒ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, st

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please contac

Analysis Reques

Project Information		Oil and Gas Required Fields (client use)	
ALS Client Code / QUOTE #:	AIMP100 / 2025 SOA	AFE/Cost Center:	PO#
Job / Project #:	101 Orchid	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):	HA2603951	ALS Contact:	Sampler:

ALS Sample # (ALS 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	Total Metals in Water	Dissolved Metals in Water	Total Mercury in Water	Total Coliforms + E.coli (MPN)	Total Coliforms + E.coli (P/A)	VOCs in Water	General Chemistry Package in Water	General Chemistry + Total Metals	General Chemisty + Dissolved Metals	Dissolved Mercury	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	101 Orchid	25-06-26	11:20	W	4								1					

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Canada Guidelines for Canadian Drinking Water Quality (JAN, 2023)
Are samples for human consumption/ use? ☑ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☒ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
15							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: Tyler Verge	Date: 25-06-26	Time: 11:53	Received by:	Date: 25 June 2026	Time: 11:53	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

MAY 2023 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**.