

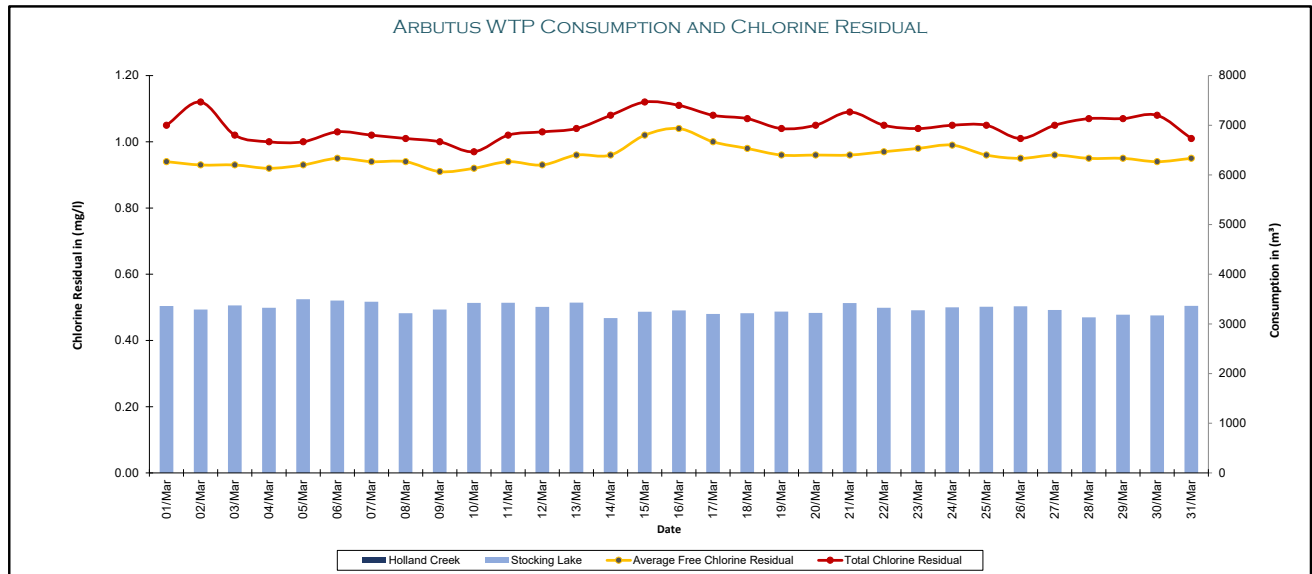
TOWN OF LADYSMITH - ARBUTUS WATER TREATMENT PLANT

MARCH 2025 - MONTHLY REPORT

Date	Daily Flow			Chlorine Residual				CT*	External Lab Testing					
	Stocking Lake	Holland Creek	Combined Flow	Free Min	Free Max	Free Avg	Total		HPC	E.coli	Total Coliforms	Aluminum	THM	HAA
	m³	m³	m³	mg/l	mg/l	mg/l	mg/l		CFU	MPN	MPN	mg/l	mg/l	mg/l
01-Mar	3361	0	3361	0.93	0.96	0.94	1.05	122						
02-Mar	3290	0	3290	0.92	0.94	0.93	1.12	95						
03-Mar	3374	0	3374	0.91	0.95	0.93	1.02	142						
04-Mar	3324	0	3324	0.91	0.93	0.92	1.00	115						
05-Mar	3498	0	3498	0.90	0.93	0.93	1.00	121	< 1	< 1	< 1	0.0071	0.0178	0.0116
06-Mar	3470	0	3470	0.91	0.95	0.95	1.03	153						
07-Mar	3448	0	3448	0.92	0.96	0.94	1.02	264						
08-Mar	3214	0	3214	0.92	1.27	0.94	1.01	281						
09-Mar	3290	0	3290	0.91	0.95	0.91	1.00	230						
10-Mar	3422	0	3422	0.89	0.93	0.92	0.97	127						
11-Mar	3427	0	3427	0.91	0.95	0.94	1.02	126	< 1	< 1	< 1			
12-Mar	3344	0	3344	0.90	0.94	0.93	1.03	110						
13-Mar	3429	0	3429	0.92	0.97	0.96	1.04	83						
14-Mar	3118	0	3118	0.92	0.98	0.96	1.08	137						
15-Mar	3245	0	3245	0.96	1.02	1.02	1.12	138						
16-Mar	3273	0	3273	1.01	1.05	1.04	1.11	119						
17-Mar	3201	0	3201	0.99	1.04	1.00	1.08	155						
18-Mar	3215	0	3215	0.97	1.00	0.98	1.07	96	< 1	< 1	< 1			
19-Mar	3248	0	3248	0.95	0.98	0.96	1.04	137						
20-Mar	3221	0	3221	0.93	0.97	0.96	1.05	121						
21-Mar	3421	0	3421	0.93	0.98	0.96	1.09	118						
22-Mar	3324	0	3324	0.94	0.98	0.97	1.05	123						
23-Mar	3276	0	3276	0.96	0.99	0.98	1.04	95						
24-Mar	3335	0	3335	0.94	1.00	0.99	1.05	211						
25-Mar	3345	0	3345	0.96	1.00	0.96	1.05	142						
26-Mar	3354	0	3354	0.94	0.98	0.95	1.01	124	< 1	< 1	< 1			
27-Mar	3280	0	3280	0.93	0.96	0.96	1.05	162						
28-Mar	3133	0	3133	0.94	0.96	0.95	1.07	176						
29-Mar	3186	0	3186	0.93	0.96	0.95	1.07	74						
30-Mar	3171	0	3171	0.91	0.95	0.94	1.08	133						
31-Mar	3365	0	3365	0.92	0.96	0.95	1.01	138						

*CT - Recorded as the minimum value at the highest daily flow ** Manual Residual were not taken

Total	102602	0	102602											
Average	3310	0	3310	0.93	0.98	0.96	1.05	141	< 1	< 1	< 1	0.0071	0.0178	0.01160



Town of Ladysmith Arbutus DWTP

Monthly LRV and Turbidity Report

03/01/2025 - 04/01/2025

LRV Monthly Average

Asset	Parameter	Health	Avg	Std. Dev	Points	LL	L	%In	% between L and LL	% < LL	Unit
UF 1	LRV		5.0	0.0	33	4.25	4.5	100 %	0 %	0 %	#
UF 2	LRV		5.0	0.0	32	4.25	4.5	100 %	0 %	0 %	#
UF 3	LRV		5.0	0.0	32	4.25	4.5	100 %	0 %	0 %	#

LRV Daily Values

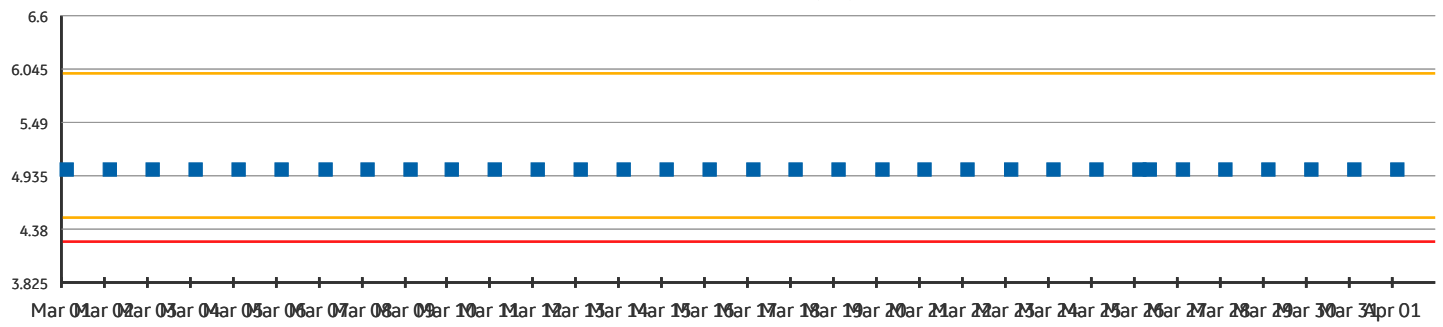
Asset	Parameter	Mar 01	Mar 02	Mar 03	Mar 04	Mar 05	Mar 06	Mar 07	Mar 08	Mar 09	Mar 10	Mar 11	Mar 12
UF 1	LRV	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
UF 2	LRV	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
UF 3	LRV	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

Asset	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19	Mar 20	Mar 21	Mar 22	Mar 23	Mar 24	Mar 25	Mar 26	Mar 27	Mar 28
UF 1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
UF 2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
UF 3	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

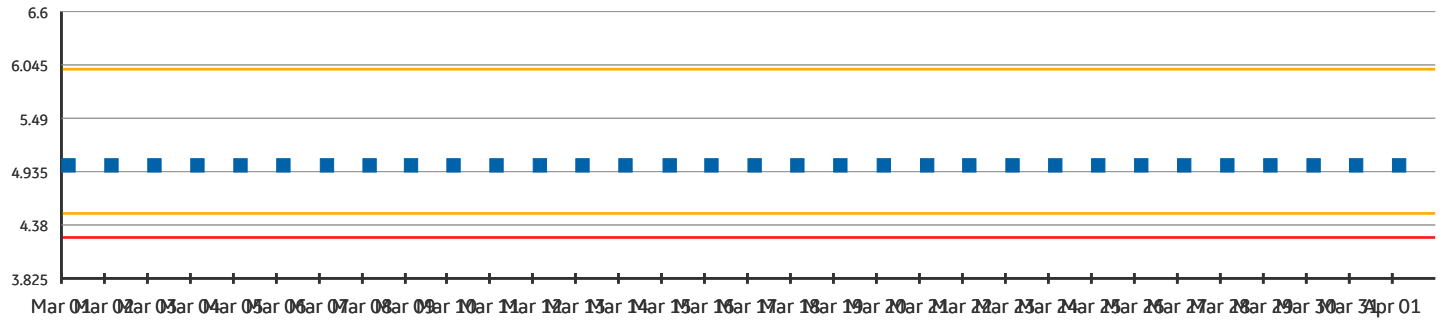
Asset	Mar 29	Mar 30	Mar 31	Apr 01
UF 1	5.0	5.0	5.0	5.0
UF 2	5.0	5.0	5.0	5.0
UF 3	5.0	5.0	5.0	5.0

LRV Raw Data

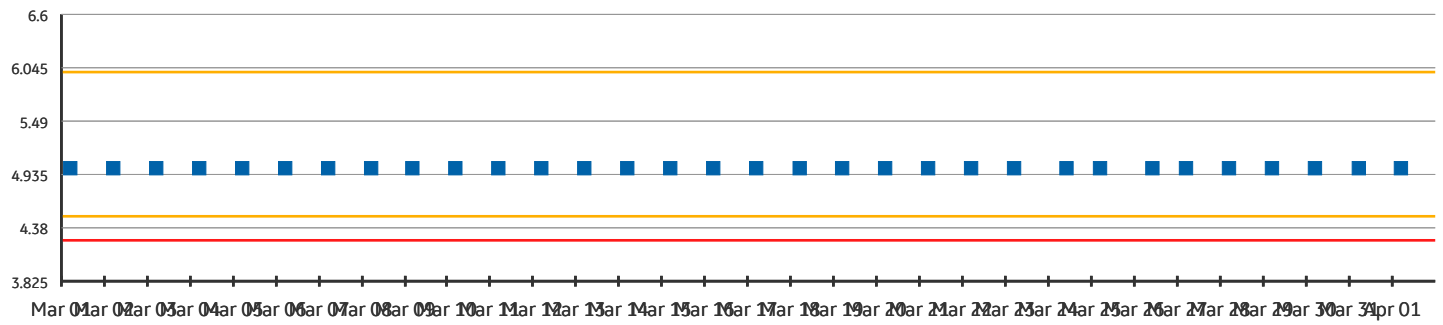
UF 1 - LRV (#)



UF 2 - LRV (#)



UF 3 - LRV (#)



Turbidity Monthly Average

Asset	Parameter	Health	Avg	Std. Dev	Points	H	HH	%In	% between H and HH	% > HH	Unit
UF 1	PermeateTurbidity		0.016	0.0	45157	--	--	100 %	0 %	0 %	NTU
UF 2	PermeateTurbidity		0.015	0.0	45157	--	--	100 %	0 %	0 %	NTU
UF 3	PermeateTurbidity		0.019	0.0	45157	--	--	100 %	0 %	0 %	NTU
UF 1	PermeateTurbidityAfterBP	●	0.017	0.0	382	0.1	0.3	100 %	0 %	0 %	NTU
UF 2	PermeateTurbidityAfterBP	●	0.015	0.0	375	0.1	0.3	100 %	0 %	0 %	NTU
UF 3	PermeateTurbidityAfterBP	●	0.019	0.0	358	0.1	0.3	100 %	0 %	0 %	NTU

Turbidity Daily Averages

[illegible]

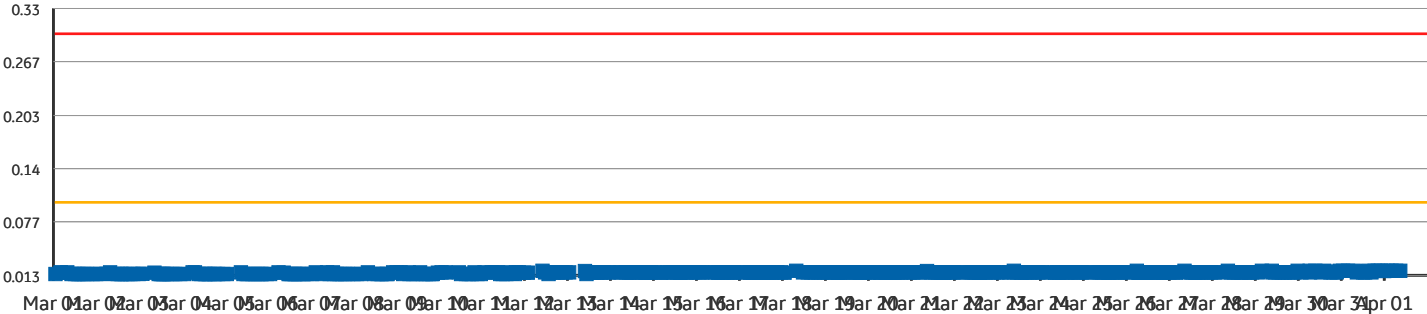
Asset	Parameter	Mar 01	Mar 02	Mar 03	Mar 04	Mar 05	Mar 06	Mar 07	Mar 08	Mar 09	Mar 10	Mar 11
UF 1	PermeateTurbidityAfterBP	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.016	0.016	0.016	0.016
UF 2	PermeateTurbidityAfterBP	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
UF 3	PermeateTurbidityAfterBP	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019

Asset	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 19	Mar 20	Mar 21	Mar 22	Mar 23	Mar 24	Mar 25	Mar 26
UF 1	0.016	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
UF 2	0.015	0.015	0.015	0.015	0.015	0.016	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
UF 3	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
UF 1	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
UF 2	0.015	0.015	0.015	0.015	0.015	0.016	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
UF 3	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.02	0.019	0.019	0.02

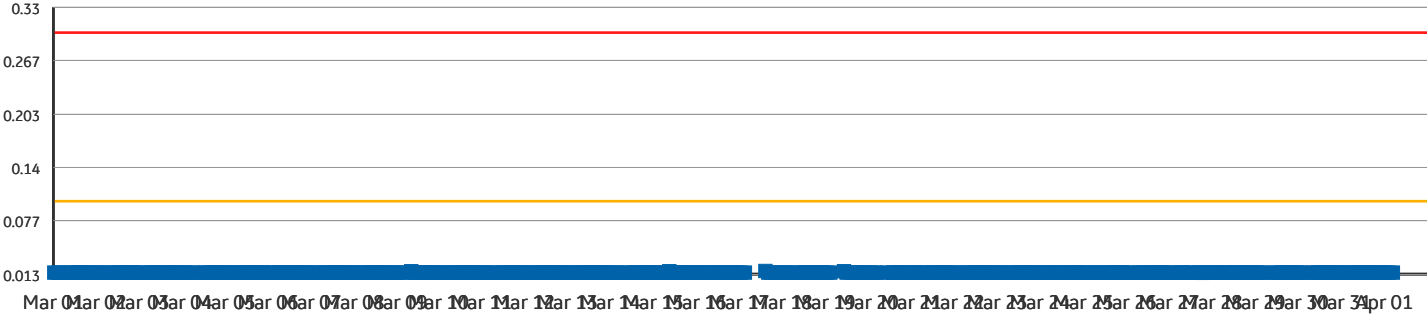
Asset	Mar 27	Mar 28	Mar 29	Mar 30	Mar 31	Apr 01
UF 1	0.017	0.017	0.017	0.017	0.017	0.017
UF 2	0.015	0.015	0.015	0.015	0.015	0.015
UF 3	0.019	0.019	0.019	0.019	0.02	0.021
UF 1	0.017	0.017	0.017	0.018	0.018	0.019
UF 2	0.015	0.015	0.015	0.015	0.015	0.015
UF 3	0.02	0.02	0.021	0.021	0.021	0.021

Turbidity Raw Data

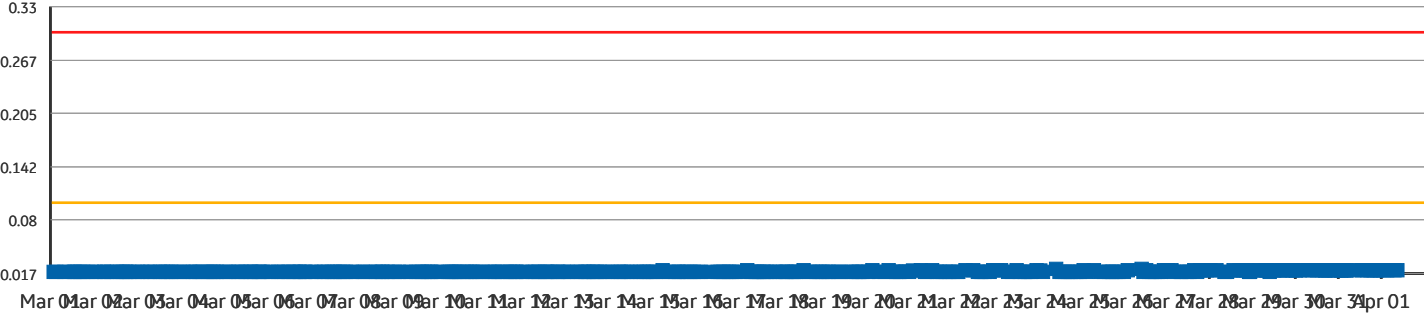
UF 1 - PermeateTurbidityAfterBP (NTU)



UF 2 - PermeateTurbidityAfterBP (NTU)



UF 3 - PermeateTurbidityAfterBP (NTU)



CERTIFICATE OF ANALYSIS

Work Order	: VA25A4910		
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith British Columbia Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Monthly Sampling	Date Samples Received	: 06-Mar-2025 10:20
PO	: 10880	Date Analysis Commenced	: 07-Mar-2025
C-O-C number	: ----	Issue Date	: 12-Mar-2025 09:15
Sampler	: ----		
Site	: Town of Ladysmith		
Quote number	: Town of Ladysmith Standing Offer		
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
- Surrogate Control Limits

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Stephanie Pinheiro	Team Leader - LCMS	LCMS, 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
mg/L	milligrams per litre
µg/L	micrograms per litre

<: 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.



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

Client sample ID					Treated Water (post reservoir)	----	----	----	----
Client sampling date / time					05-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A4910-001	----	----	----	----
Result					----	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0071	----	----	----	----
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4	E611B/VA	1.0	µg/L	1.3	----	----	----	----
Bromoform	75-25-2	E611B/VA	1.0	µg/L	<1.0	----	----	----	----
Chloroform	67-66-3	E611B/VA	1.0	µg/L	16.5	----	----	----	----
Dibromochloromethane	124-48-1	E611B/VA	1.0	µg/L	<1.0	----	----	----	----
Trihalomethanes [THMs], total	----	E611B/VA	2.0	µg/L	17.8	----	----	----	----
Volatile Organic Compounds [THMs] Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611B/VA	1.0	%	86.8	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611B/VA	1.0	%	99.2	----	----	----	----
Haloacetic Acids									
Bromochloroacetic acid	5589-96-8	E750/WT	1.00	µg/L	<1.00	----	----	----	----
Dibromoacetic acid	631-64-1	E750/WT	1.00	µg/L	<1.00	----	----	----	----
Dichloroacetic acid	79-43-6	E750/WT	1.00	µg/L	5.47	----	----	----	----
Monobromoacetic acid	79-08-3	E750/WT	1.00	µg/L	<1.00	----	----	----	----
Monochloroacetic acid	79-11-8	E750/WT	1.00	µg/L	<1.00	----	----	----	----
Trichloroacetic acid	76-03-9	E750/WT	1.00	µg/L	6.12	----	----	----	----
Haloacetic acids, total [HAA5]	n/a	E750/WT	5.00	µg/L	11.6	----	----	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA25A4910	Page	: 1 of 5
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith BC Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Monthly Sampling	Date Samples Received	: 06-Mar-2025 10:20
PO	: 10880	Issue Date	: 12-Mar-2025 09:15
C-O-C number	: ----		
Sampler	: ----		
Site	: Town of Ladysmith		
Quote number	: Town of Ladysmith Standing Offer_V2		
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 Matrix Spike Duplicate (MSD) outliers occur - please see following pages for full details.
- 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)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

CERTIFICATE OF ANALYSIS

Work Order	: VA25A4909		
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith British Columbia Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Weekly Sampling	Date Samples Received	: 06-Mar-2025 10:20
PO	: 10880	Date Analysis Commenced	: 06-Mar-2025
C-O-C number	: ----	Issue Date	: 11-Mar-2025 11:43
Sampler	: ----		
Site	: Town of Ladysmith		
Quote number	: Town of Ladysmith Standing Offer		
No. of samples received	: 4		
No. of samples analysed	: 4		

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Microbiology, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia



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
CFU/mL	colony forming units per millilitre
CU	colour units (1 cu = 1 mg/l pt)
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
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.

Workorder Comments

Sample(s) 004: Exceeded Recommended Holding Time prior to receipt at the lab for HPC analysis.



Analytical Results

Sub-Matrix: Water
 (Matrix: Water)

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water	DAF Effluent	UF Effluent	Treated Water (post reservoir)	----
Client sampling date / time					05-Mar-2025 10:30	05-Mar-2025 10:30	05-Mar-2025 10:30	05-Mar-2025 10:30	----	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A4909-001	VA25A4909-002	VA25A4909-003	VA25A4909-004	----	
					Result	Result	Result	Result	----	
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	----	----	----	18.4	----	
Colour, true	----	E329/VA	5.0	CU	----	----	----	<5.0	----	
Conductivity	----	E100/VA	2.0	µS/cm	----	----	----	69.5	----	
pH	----	E108/VA	0.10	pH units	----	----	----	7.52	----	
Turbidity	----	E121/VA	0.10	NTU	----	----	----	<0.10	----	
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	2.91	1.34	1.32	----	----	
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	3.34	1.37	1.16	----	----	
Microbiological Tests										
Heterotrophic plate count [HPC]	----	E020/VA	1	CFU/mL	----	----	----	<1	----	
Coliforms, Escherichia coli [E. coli]	----	E010/VA	1	MPN/100 mL	----	----	----	<1	----	
Coliforms, total	----	E010/VA	1	MPN/100 mL	----	----	----	<1	----	

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA25A4909	Page	: 1 of 7
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith BC Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Weekly Sampling	Date Samples Received	: 06-Mar-2025 10:20
PO	: 10880	Issue Date	: 11-Mar-2025 11:42
C-O-C number	: ----		
Sampler	: ----		
Site	: Town of Ladysmith		
Quote number	: Town of Ladysmith Standing Offer_V2		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

- No Quality Control Sample Frequency Outliers occur.

CERTIFICATE OF ANALYSIS

Work Order : **VA25A5365**
Client : **Town of Ladysmith**
Contact : Shawn Baker
Address : 410 Esplanade PO Box 220
Ladysmith British Columbia Canada V9G 1A2
Telephone : ----
Project : ----
PO : PO #10940
C-O-C number : ----
Sampler : ----
Site : Town of Ladysmith
Quote number : Town of Ladysmith Standing Offer
No. of samples received : 4
No. of samples analysed : 4

Laboratory : ALS Environmental - Vancouver
Account Manager : Kevin Bhikadia
Address : 8081 Lougheed Highway
Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 12-Mar-2025 11:29
Date Analysis Commenced : 12-Mar-2025
Issue Date : 19-Mar-2025 11:29

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Lindsay Gung	Supervisor - Water Chemistry	Microbiology, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia

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
CFU/mL	colony forming units per millilitre
CU	colour units (1 cu = 1 mg/l pt)
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
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.



Analytical Results

Sub-Matrix: Water
 (Matrix: Water)

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Raw Water	DAF Effluent	UF Effluent	Treated Water (post reservoir)	----
Client sampling date / time					11-Mar-2025 10:30	11-Mar-2025 10:30	11-Mar-2025 10:30	11-Mar-2025 10:30	----	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A5365-001	VA25A5365-002	VA25A5365-003	VA25A5365-004	----	
					Result	Result	Result	Result	----	
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	----	----	----	17.9	----	
Colour, true	----	E329/VA	5.0	CU	----	----	----	<5.0	----	
Conductivity	----	E100/VA	2.0	µS/cm	----	----	----	75.8	----	
pH	----	E108/VA	0.10	pH units	----	----	----	7.43	----	
Turbidity	----	E121/VA	0.10	NTU	----	----	----	<0.10	----	
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	3.14	1.24	1.24	----	----	
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	2.90	1.24	1.08	----	----	
Microbiological Tests										
Heterotrophic plate count [HPC]	----	E020/VA	1	CFU/mL	----	----	----	<1	----	
Coliforms, Escherichia coli [E. coli]	----	E010/VA	1	MPN/100 mL	----	----	----	<1	----	
Coliforms, total	----	E010/VA	1	MPN/100 mL	----	----	----	<1	----	

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA25A5365	Page	: 1 of 7
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith BC Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 12-Mar-2025 11:29
PO	: PO #10940	Issue Date	: 19-Mar-2025 11:28
C-O-C number	: ----		
Sampler	: ----		
Site	: Town of Ladysmith		
Quote number	: Town of Ladysmith Standing Offer_V2		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

- No Quality Control Sample Frequency Outliers occur.

CERTIFICATE OF ANALYSIS

Work Order	: VA25A5978		
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith British Columbia Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Weekly Sampling	Date Samples Received	: 19-Mar-2025 11:00
PO	: PO #10880	Date Analysis Commenced	: 19-Mar-2025
C-O-C number	: ----	Issue Date	: 24-Mar-2025 12:29
Sampler	: ----		
Site	: Town of Ladysmith		
Quote number	: Town of Ladysmith Standing Offer		
No. of samples received	: 4		
No. of samples analysed	: 4		

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Microbiology, Burnaby, British Columbia



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
CFU/mL	colony forming units per millilitre
CU	colour units (1 cu = 1 mg/l pt)
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
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.



Analytical Results

Sub-Matrix: Water
 (Matrix: Water)

					Client sample ID	Raw Water	DAF Effluent	UF Effluent	Treated Water (post reservoir)	----
					Client sampling date / time	18-Mar-2025 10:45	18-Mar-2025 10:45	18-Mar-2025 10:45	18-Mar-2025 10:45	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A5978-001	VA25A5978-002	VA25A5978-003	VA25A5978-004	VA25A5978-004	----
					Result	Result	Result	Result	Result	----
Physical Tests										
Alkalinity, total (as CaCO ₃)	----	E290/VA	1.0	mg/L	----	----	----	17.5	----	----
Colour, true	----	E329/VA	5.0	CU	----	----	----	<5.0	----	----
Conductivity	----	E100/VA	2.0	µS/cm	----	----	----	68.5	----	----
pH	----	E108/VA	0.10	pH units	----	----	----	7.47	----	----
Turbidity	----	E121/VA	0.10	NTU	----	----	----	<0.10	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	2.97	1.36	1.36	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	3.10	1.48	1.38	----	----	----
Microbiological Tests										
Heterotrophic plate count [HPC]	----	E020/VA	1	CFU/mL	----	----	----	<1	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/VA	1	MPN/100 mL	----	----	----	<1	----	----
Coliforms, total	----	E010/VA	1	MPN/100 mL	----	----	----	<1	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA25A5978	Page	: 1 of 7
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith BC Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Weekly Sampling	Date Samples Received	: 19-Mar-2025 11:00
PO	: PO #10880	Issue Date	: 24-Mar-2025 12:29
C-O-C number	: ----		
Sampler	: ----		
Site	: Town of Ladysmith		
Quote number	: Town of Ladysmith Standing Offer_V2		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

- No Quality Control Sample Frequency Outliers occur.

CERTIFICATE OF ANALYSIS

Work Order	: VA25A6218		
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220	Address	: 8081 Lougheed Highway
	Ladysmith British Columbia Canada V9G 1A2		Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Yearly Sampling	Date Samples Received	: 20-Mar-2025 10:30
PO	: 10880	Date Analysis Commenced	: 21-Mar-2025
C-O-C number	: ----	Issue Date	: 31-Mar-2025 14:28
Sampler	: ----		
Site	: RFP Tender No. 2022-IS-20 Extension		
Quote number	: Town of Ladysmith Standing Offer		
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
- Surrogate Control Limits

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Natalia Bobretsova		Limnology, Winnipeg, Manitoba
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Rebecca Sit	Supervisor - Organics Extractions	Organics, Burnaby, British Columbia
Sanja Risticovic	Department Manager - LCMS	LCMS, Waterloo, Ontario
Stephanie Pinheiro	Team Leader - LCMS	LCMS, 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
cells/mL	cells per millilitre
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre

<: 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
VA25A6218-001	Treated Water (post reservoir)	No blue-green algae observed. VA25A6218-001- E716A/716B-L analysis- Glyphosate-RRR- LOR raised to 1 as ALS LOR is changed to 1 for all analytes of this analysis.

Qualifiers

Qualifier	Description
BGHT	5-day hold time for preserved samples is considered best practice to prevent population density change. For identification and quantitation purposes, preserved samples are stable for at least 6 months as per APHA 10200B
RRR	Refer to report comments for issues regarding this analysis.
SUR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

Client sample ID					Treated Water (post reservoir)	----	----	----	----
Client sampling date / time					19-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	----	----	----	----
Result					----	----	----	----	----
Physical Tests									
Hardness (as CaCO ₃), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	9.99	----	----	----	----
pH	----	E108/VA	0.10	pH units	7.49	----	----	----	----
Anions and Nutrients									
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	8.57	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	<0.0050	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	----	----	----	----
Sulfate (as SO ₄)	14808-79-8	E235.SO4/VA	0.30	mg/L	2.02	----	----	----	----
Cyanides									
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L	<0.0050	----	----	----	----
Taxonomy									
Blue-green algae cell count, total	----	E921A/WP	1	cells/mL	<1 RRR, BGHT	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0094	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00308	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.018	----	----	----	----



Analytical Results

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID					Treated Water (post reservoir)	----	----	----	----
Client sampling date / time					19-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	----	----	----	----
					Result	----	----	----	----
Total Metals									
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	3.23	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	<0.010	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	<0.0010	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	0.468	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00104	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.000135	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	----	----	----	----
Potassium, total	9/7/7440 12:00:00 AM	E420/VA	0.050	mg/L	0.231	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00054	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	1.86	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	10.1	----	----	----	----



Analytical Results

Sub-Matrix: Water
 (Matrix: Water)

					Client sample ID	Treated Water (post reservoir)	----	----	----	----
					Client sampling date / time	19-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	Result	----	----	----	----
Total Metals										
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0102	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	<0.50	----	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	<0.0030	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Chloromethane	74-87-3	E611N/VA	5.0	µg/L	<5.0	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611N/VA	0.50	µg/L	<0.50	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611N/VA	1.5	µg/L	<1.5	----	----	----	----	----



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

					Client sample ID	Treated Water (post reservoir)	----	----	----	----
					Client sampling date / time	19-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	Result	----	----	----	----
Volatile Organic Compounds										
Tetrachloroethane, 1,1,1,2-	630-20-6	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611N/VA	0.20	µg/L	<0.20	----	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Trichlorofluoromethane	75-69-4	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Chloroethane	75-00-3	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloromethane	75-09-2	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Tetrachloroethylene	127-18-4	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Trichloroethylene	79-01-6	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Vinyl chloride	75-01-4	E611N/VA	0.40	µg/L	<0.40	----	----	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611N/VA	0.50	µg/L	<0.50	----	----	----	----	----
Butadiene, 1,3-	106-99-0	E611N/VA	0.20	µg/L	<0.20	----	----	----	----	----
Cymene, p-	99-87-6	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

					Client sample ID	Treated Water (post reservoir)	----	----	----	----
					Client sampling date / time	19-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	----	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds [Fuels]										
Decane, n-	124-18-5	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611N/VA	0.20	µg/L	<0.20	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Ethylbenzene	100-41-4	E611N/VA	0.50	µg/L	<0.50	----	----	----	----	----
Hexane, n-	110-54-3	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Isopropylbenzene	98-82-8	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611N/VA	0.50	µg/L	<0.50	----	----	----	----	----
Methylcyclohexane	108-87-2	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Propylbenzene, n-	103-65-1	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Styrene	100-42-5	E611N/VA	0.50	µg/L	<0.50	----	----	----	----	----
Toluene	108-88-3	E611N/VA	0.40	µg/L	<0.40	----	----	----	----	----
Trimethylbenzene, 1,2,4-	95-63-6	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Trimethylbenzene, 1,3,5-	108-67-8	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611N/VA	0.40	µg/L	<0.40	----	----	----	----	----
Xylene, o-	95-47-6	E611N/VA	0.30	µg/L	<0.30	----	----	----	----	----
Xylenes, total	1330-20-7	E611N/VA	0.50	µg/L	<0.50	----	----	----	----	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611N/VA	1.0	µg/L	1.4	----	----	----	----	----
Bromoform	75-25-2	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----
Chloroform	67-66-3	E611N/VA	1.0	µg/L	14.3	----	----	----	----	----
Dibromochloromethane	124-48-1	E611N/VA	1.0	µg/L	<1.0	----	----	----	----	----



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

Client sample ID					Treated Water (post reservoir)	----	----	----	----
Client sampling date / time					19-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	----	----	----	----
					Result	----	----	----	----
Hydrocarbons									
VHw (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	----	----	----	----
VPHw	----	EC580A/VA	100	µg/L	<100	----	----	----	----
Hydrocarbons Surrogates									
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/V A	1.0	%	102	----	----	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611N/VA	1.0	%	100	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611N/VA	1.0	%	104	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L	<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L	<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L	<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L	<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L	<0.010	----	----	----	----



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

					Client sample ID	Treated Water (post reservoir)				
					Client sampling date / time	19-Mar-2025 10:30				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001					
					Result					
Polycyclic Aromatic Hydrocarbons										
Fluorene	86-73-7	E641A/VA	0.010	µg/L	<0.010	----	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L	<0.010	----	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L	<0.010	----	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/VA	0.015	µg/L	<0.015	----	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L	<0.010	----	----	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L	<0.050	----	----	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L	<0.020	----	----	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L	<0.010	----	----	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L	<0.050	----	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A/VA	0.010	µg/L	<0.010	----	----	----	----	----
PAHs, high molecular weight (BC AWQ)	n/a	E641A/VA	0.030	µg/L	<0.030	----	----	----	----	----
PAHs, low molecular weight (BC AWQ)	n/a	E641A/VA	0.060	µg/L	<0.060	----	----	----	----	----
PAHs, total (EPA 16)	n/a	E641A/VA	0.065	µg/L	<0.065	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%	100	----	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%	104	----	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%	101	----	----	----	----	----
Disinfectant By-Products										
Bromate	15541-45-4	E722A/WT	0.30	µg/L	0.56	----	----	----	----	----
Chlorate	14866-68-3	E409.CLO3/W T	0.010	mg/L	0.034	----	----	----	----	----
Chlorite	14998-27-7	E409.CLO2/W T	0.010	mg/L	<0.010	----	----	----	----	----



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

					Client sample ID	Treated Water (post reservoir)				
					Client sampling date / time	19-Mar-2025 10:30				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001					
					Result					
Disinfectant By-Products										
Perchlorate	7601-90-3	E722A/WT	0.20	µg/L	<0.20					
Semi-Volatile Organics										
Nitrosodimethylamine, N- [NDMA]	62-75-9	E725-T/WT	0.00090	µg/L	<0.00090					
Per- and Polyfluoroalkyl Substances (PFAS)										
Perfluorooctanesulfonic acid [PFOS]	1763-23-1	E745/WT	0.020	µg/L	<0.020					
Perfluorooctanoic acid [PFOA]	335-67-1	E745/WT	0.020	µg/L	<0.020					
Per- and Polyfluoroalkyl Substances (PFAS) Surrogates										
Perfluorooctanesulfonic acid [13C8-PFOS]	2265893-05-6	E745/WT	0.01	%	99.6					
Chlorinated Phenolics										
Chlorophenol, 2-	95-57-8	E651A/VA	0.050	µg/L	<0.050					
Chlorophenol, 3-	108-43-0	E651A/VA	0.050	µg/L	<0.050					
Chlorophenol, 4-	106-48-9	E651A/VA	0.050	µg/L	<0.050					
Dichlorophenol, 2,3-	576-24-9	E651A/VA	0.050	µg/L	<0.050					
Dichlorophenol, 2,4- + 2,5-	----	E651A/VA	0.050	µg/L	<0.050					
Dichlorophenol, 2,6-	87-65-0	E651A/VA	0.050	µg/L	<0.050					
Dichlorophenol, 3,4-	95-77-2	E651A/VA	0.050	µg/L	<0.050					
Dichlorophenol, 3,5-	591-35-5	E651A/VA	0.050	µg/L	<0.050					
Methylphenol, 4-chloro-3-	59-50-7	E651A/VA	0.10	µg/L	<0.10					
Pentachlorophenol [PCP]	87-86-5	E651A/VA	0.10	µg/L	<0.10					
Tetrachlorophenol, 2,3,4,5-	4901-51-3	E651A/VA	0.10	µg/L	<0.10					
Tetrachlorophenol, 2,3,4,6-	58-90-2	E651A/VA	0.10	µg/L	<0.10					



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

					Client sample ID	Treated Water (post reservoir)				
					Client sampling date / time	19-Mar-2025 10:30				
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001					
					Result					
Chlorinated Phenolics										
Tetrachlorophenol, 2,3,5,6-	935-95-5	E651A/VA	0.10	µg/L	<0.10					
Trichlorophenol, 2,3,4-	15950-66-0	E651A/VA	0.10	µg/L	<0.10					
Trichlorophenol, 2,3,5-	933-78-8	E651A/VA	0.10	µg/L	<0.10					
Trichlorophenol, 2,3,6-	933-75-5	E651A/VA	0.10	µg/L	<0.10					
Trichlorophenol, 2,4,5-	95-95-4	E651A/VA	0.10	µg/L	<0.10					
Trichlorophenol, 2,4,6-	88-06-2	E651A/VA	0.10	µg/L	<0.10					
Trichlorophenol, 3,4,5-	609-19-8	E651A/VA	0.10	µg/L	<0.10					
Phenolics Surrogates										
Chlorophenol-d4, 2-	93951-73-6	E651A/VA	0.1	%	104					
Dichlorophenol-d3, 2,4-	93951-74-7	E651A/VA	0.1	%	103					
Tribromophenol, 2,4,6-	118-79-6	E651A/VA	0.1	%	125					
Organochlorine Pesticides										
Toxaphene, total	8001-35-2	E660C/WT	0.50	µg/L	<0.50					
Organochlorine Pesticides Surrogates										
Decachlorobiphenyl	2051-24-3	E660C/WT	0.1	%	151 ^{SUR-ND}					
Tetrachloro-m-xylene	877-09-8	E660C/WT	0.1	%	131 ^{SUR-ND}					
Herbicides										
Acetic acid, 2-methyl-4-chlorophenoxy-[MCPA]	94-74-6	E706A/WT	0.050	µg/L	<0.050					
Alachlor	15972-60-8	E755/WT	0.050	µg/L	<0.050					
Ametryn	834-12-8	E755/WT	0.025	µg/L	<0.025					
Asulam	3337-71-1	E706A/WT	0.010	µg/L	<0.010					



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

					Client sample ID	Treated Water (post reservoir)	----	----	----	----
					Client sampling date / time	19-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	----	----	----	----	----
						Result	----	----	----	----
Herbicides										
Atrazine	1912-24-9	E755/WT	0.050	µg/L	<0.050	----	----	----	----	----
Atrazine + N-dealkylated metabolites	----	E755/WT	0.10	µg/L	<0.10	----	----	----	----	----
Atrazine-desethyl	6190-65-4	E755/WT	0.025	µg/L	<0.025	----	----	----	----	----
Brodifacoum	56073-10-0	E706A/WT	0.010	µg/L	<0.010	----	----	----	----	----
Bromacil	314-40-9	E706A/WT	0.10	µg/L	<0.10	----	----	----	----	----
Bromoxynil	1689-84-5	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Butanoic acid, 4-(4-chloro-2-methylphenoxy)- [MCPB]	94-81-5	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Clopyralid	1702-17-6	E706A/WT	0.10	µg/L	<0.10	----	----	----	----	----
Cyanazine	21725-46-2	E755/WT	0.10	µg/L	<0.10	----	----	----	----	----
Dicamba	1918-00-9	E706A/WT	0.10	µg/L	<0.10	----	----	----	----	----
Dichlorophenoxy(2,4-)butyric acid, 4- [2,4-DB]	94-82-6	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Dichlorophenoxyacetic acid, 2,4- [2,4-D]	94-75-7	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Dichloroprop [2,4-DP]	120-36-5	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Diclofop-methyl	51338-27-3	E755/WT	0.10	µg/L	<0.10	----	----	----	----	----
Diflufenican	83164-33-4	E706A/WT	0.010	µg/L	<0.010	----	----	----	----	----
Dinoseb	88-85-7	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Diquat (ion)	2764-72-9	E723A/WT	1.0	µg/L	<1.0	----	----	----	----	----
Ethalfuralin	55283-68-6	E756/WT	0.10	µg/L	<0.10	----	----	----	----	----
Fluazifop-p-butyl	79241-46-6	E755/WT	0.025	µg/L	<0.025	----	----	----	----	----
Glyphosate	1071-83-6	E716B-L/WT	0.10	µg/L	<1.00 ^{RRR}	----	----	----	----	----
Linuron	330-55-2	E706A/WT	0.10	µg/L	<0.10	----	----	----	----	----



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Treated Water (post reservoir)	----	----	----	----
Client sampling date / time					19-Mar-2025 10:30	----	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	----	----	----	----	----
					Result	----	----	----	----	----
Herbicides										
Mecoprop [MCPPE]	95-65-2	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Metolachlor	51218-45-2	E755/WT	0.025	µg/L	<0.025	----	----	----	----	----
Metribuzin	21087-64-9	E755/WT	0.10	µg/L	<0.10	----	----	----	----	----
Nicarbazin	330-95-0	E706A/WT	0.010	µg/L	<0.010	----	----	----	----	----
Oryzalin	19044-88-3	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Paraquat (as dichloride)	1910-42-5	E723A/WT	1.0	µg/L	<1.0	----	----	----	----	----
Picloram	2/1/1918 12:00:00 AM	E706A/WT	0.10	µg/L	<0.10	----	----	----	----	----
Prometon	1610-18-0	E755/WT	0.025	µg/L	<0.025	----	----	----	----	----
Prometryn	7287-19-6	E755/WT	0.025	µg/L	<0.025	----	----	----	----	----
Propanil	709-98-8	E706A/WT	0.010	µg/L	<0.010	----	----	----	----	----
Propazine	139-40-2	E755/WT	0.025	µg/L	<0.025	----	----	----	----	----
Simazine	122-34-9	E755/WT	0.10	µg/L	<0.10	----	----	----	----	----
Terbacil	5902-51-2	E706A/WT	0.010	µg/L	<0.010	----	----	----	----	----
Terbutryn	886-50-0	E755/WT	0.025	µg/L	<0.025	----	----	----	----	----
Triallate	2303-17-5	E755/WT	0.10	µg/L	<0.10	----	----	----	----	----
Trichlorophenoxyacetic acid, 2,4,5- [2,4,5-T]	93-76-5	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Trichlorophenoxypropionic acid, 2,4,5- [2,4,5-TP]	93-72-1	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Triclopyr	55335-06-3	E706A/WT	0.050	µg/L	<0.050	----	----	----	----	----
Trifluralin	1582-09-8	E756/WT	0.10	µg/L	<0.10	----	----	----	----	----
Herbicides Surrogates										
Dichlorophenylacetic acid, 2,4-	19719-28-9	E706A/WT	1.0	%	92.8	----	----	----	----	----



Analytical Results

Sub-Matrix: Water
 (Matrix: Water)

Client sample ID					Treated Water (post reservoir)	----	----	----	----
Client sampling date / time					19-Mar-2025 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6218-001	----	----	----	----
					Result	----	----	----	----
Insecticides									
Azinphos-methyl	86-50-0	E755/WT	0.10	µg/L	<0.10	----	----	----	----
Bendiocarb	22781-23-3	E755/WT	0.025	µg/L	<0.025	----	----	----	----
Carbaryl	63-25-2	E755/WT	0.050	µg/L	<0.050	----	----	----	----
Carbofuran	1563-66-2	E755/WT	0.025	µg/L	<0.025	----	----	----	----
Chlorpyrifos	2921-88-2	E756/WT	0.10	µg/L	<0.10	----	----	----	----
Diazinon	333-41-5	E755/WT	0.025	µg/L	<0.025	----	----	----	----
Dimethoate	60-51-5	E755/WT	0.050	µg/L	<0.050	----	----	----	----
Malathion	121-75-5	E755/WT	0.025	µg/L	<0.025	----	----	----	----
Parathion	56-38-2	E756/WT	0.10	µg/L	<0.10	----	----	----	----
Parathion-methyl	298-00-0	E756/WT	0.10	µg/L	<0.10	----	----	----	----
Phorate	298-02-2	E755/WT	0.25	µg/L	<0.25	----	----	----	----
Temephos	3383-96-8	E755/WT	0.25	µg/L	<0.25	----	----	----	----
Terbufos	13071-79-9	E755/WT	0.50	µg/L	<0.50	----	----	----	----
Nitrosamines Surrogates									
Nitrosodimethylamine-d6, N-	17829-05-9	E725-T/WT	0.00090	%	99.8	----	----	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA25A6218	Page	: 1 of 15
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith BC Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Yearly Sampling	Date Samples Received	: 20-Mar-2025 10:30
PO	: 10880	Issue Date	: 31-Mar-2025 14:29
C-O-C number	: ----		
Sampler	: ----		
Site	: RFP Tender No. 2022-IS-20 Extension		
Quote number	: Town of Ladysmith Standing Offer_V2		
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
- Matrix Spike outliers occur - please see following pages for full details.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

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

- No Quality Control Sample Frequency Outliers occur.

CERTIFICATE OF ANALYSIS

Work Order	: VA25A6714		
Client	: Town of Ladysmith	Laboratory	: ALS Environmental - Vancouver
Contact	: Shawn Baker	Account Manager	: Kevin Bhikadia
Address	: 410 Esplanade PO Box 220 Ladysmith British Columbia Canada V9G 1A2	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Arbutus Water Treatment Plant - Weekly Sampling	Date Samples Received	: 27-Mar-2025 11:55
PO	: 10940	Date Analysis Commenced	: 27-Mar-2025
C-O-C number	: ----	Issue Date	: 01-Apr-2025 15:41
Sampler	: ----		
Site	: Town of Ladysmith		
Quote number	: Town of Ladysmith Standing Offer		
No. of samples received	: 4		
No. of samples analysed	: 4		

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Caitlin Macey	Team Leader - Inorganics	Microbiology, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia



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
CFU/mL	colony forming units per millilitre
CU	colour units (1 cu = 1 mg/l pt)
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
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.

Workorder Comments

Sample Treated Water (post reservoir): HPC Exceeded Recommended Holding Time prior to receipt at the lab for Microbiology analysis. Testing will proceed unless notified otherwise.

Qualifiers

Qualifier	Description
RRV	Reported result verified by repeat analysis.



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

					Client sample ID	Raw Water	Treated Water (post reservoir)	----	----	----
					Client sampling date / time	26-Mar-2025 10:30	26-Mar-2025 10:30	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6714-001	VA25A6714-004	----	----	----	----
					Result	Result	----	----	----	----
Physical Tests										
Alkalinity, total (as CaCO ₃)	----	E290/VA	1.0	mg/L	----	19.3	----	----	----	----
Colour, true	----	E329/VA	5.0	CU	----	<5.0 ^{RRV}	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm	----	69.7	----	----	----	----
pH	----	E108/VA	0.10	pH units	----	7.58	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	----	<0.10	----	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	3.09	----	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	2.88	----	----	----	----	----
Microbiological Tests										
Heterotrophic plate count [HPC]	----	E020/VA	1	CFU/mL	----	<1	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	E010/VA	1	MPN/100 mL	----	<1	----	----	----	----
Coliforms, total	----	E010/VA	1	MPN/100 mL	----	<1	----	----	----	----

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

Analytical Results

Sub-Matrix: Effluent

(Matrix: Water)

					Client sample ID	DAF Effluent	UF Effluent	----	----	----
					Client sampling date / time	26-Mar-2025 10:30	26-Mar-2025 10:30	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA25A6714-002	VA25A6714-003	----	----	----	----
					Result	Result	----	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	1.50	1.65	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	1.30	1.16	----	----	----	----

Work Order : VA25A6714
Client : Town of Ladysmith
Project : Arbutus Water Treatment Plant - Weekly Sampling



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