



**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>KS2500163</b>		
<b>Client</b>	: <b>Nicola Lakeshore Water Utility Co. Ltd.</b>	<b>Laboratory</b>	: ALS Environmental - Vancouver
<b>Contact</b>	: Kevin Rabbitt	<b>Account Manager</b>	: Caitlin Fountain
<b>Address</b>	: 105 - 1121 McFarlane Way Merritt British Columbia Canada V1K 1B9	<b>Address</b>	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
<b>Telephone</b>	: 250 378 4206	<b>Telephone</b>	: 250 372 3588
<b>Project</b>	: Arsenic Plant B	<b>Date Samples Received</b>	: 15-Jan-2025 10:35
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 17-Jan-2025
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 20-Jan-2025 08:39
<b>Sampler</b>	: Jeff Wike, Nikki Fulford		
<b>Site</b>	: Nicola Lakeshore Water Utility		
<b>Quote number</b>	: Nicola Lakeshore Routine Tests		
<b>No. of samples received</b>	: 1		
<b>No. of samples analysed</b>	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

**Signatories**

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

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, 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).

<i>Unit</i>	<i>Description</i>
mg/L	milligrams 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	Arsenic Plant Tank B	----	----	----	----
					Client sampling date / time	15-Jan-2025 08:20	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	KS2500163-001	----	----	----	----	----
Total Metals						Result	----	----	----	----
<b>Arsenic, total</b>	7440-38-2	E420/VA	0.00010	mg/L	0.00559	----	----	----	----	----

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




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## QUALITY CONTROL INTERPRETIVE REPORT

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<p><b>Work Order</b> : <b>KS2500163</b></p> <p><b>Client</b> : <b>Nicola Lakeshore Water Utility Co. Ltd.</b></p> <p><b>Contact</b> : Kevin Rabbitt</p> <p><b>Address</b> : 105 - 1121 McFarlane Way Merritt BC Canada V1K 1B9</p> <p><b>Telephone</b> : 250 378 4206</p> <p><b>Project</b> : Arsenic Plant B</p> <p><b>PO</b> : ----</p> <p><b>C-O-C number</b> : ----</p> <p><b>Sampler</b> : Jeff Wike, Nikki Fulford</p> <p><b>Site</b> : Nicola Lakeshore Water Utility</p> <p><b>Quote number</b> : Nicola Lakeshore Routine Tests</p> <p><b>No. of samples received</b> : 1</p> <p><b>No. of samples analysed</b> : 1</p>	<p><b>Page</b> : 1 of 5</p> <p><b>Laboratory</b> : ALS Environmental - Kamloops</p> <p><b>Account Manager</b> : Caitlin Fountain</p> <p><b>Address</b> : 1445 McGill Road, Unit 2B Kamloops, British Columbia Canada V2C 6K7</p> <p><b>Telephone</b> : 250 372 3588</p> <p><b>Date Samples Received</b> : 15-Jan-2025 10:35</p> <p><b>Issue Date</b> : 20-Jan-2025 08:39</p>
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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.
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### ***Workorder Comments***

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

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### ***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)***

- No 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(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
<b>HDPE - total (lab preserved)</b> Arsenic Plant Tank B	E420	15-Jan-2025	17-Jan-2025	180 days	2 days	✔	18-Jan-2025	180 days	3 days	✔

### Legend & Qualifier Definitions

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	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Total Metals in Water by CRC ICPMS	E420	1842236	1	19	5.2	5.0	✔
<b>Laboratory Control Samples (LCS)</b>							
Total Metals in Water by CRC ICPMS	E420	1842236	1	19	5.2	5.0	✔
<b>Method Blanks (MB)</b>							
Total Metals in Water by CRC ICPMS	E420	1842236	1	19	5.2	5.0	✔
<b>Matrix Spikes (MS)</b>							
Total Metals in Water by CRC ICPMS	E420	1842236	1	19	5.2	5.0	✔



## Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420  ALS Environmental - Vancouver	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.





## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: KS2500163</b>	<b>Page</b>	: 1 of 3
<b>Client</b>	: Nicola Lakeshore Water Utility Co. Ltd.	<b>Laboratory</b>	: ALS Environmental - Kamloops
<b>Contact</b>	: Kevin Rabbitt	<b>Account Manager</b>	: Caitlin Fountain
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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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia



## 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: **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
<b>Total Metals (QC Lot: 1842236)</b>											
KS2500163-001	Arsenic Plant Tank B	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00559	0.00540	3.31%	20%	----

## 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
<b>Total Metals (QC Lot: 1842236)</b>						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----



### 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**

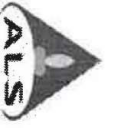
Laboratory Control Sample (LCS) Report									
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1842236)</b>									
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----

### 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 the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level  $\geq$  1x spike level.

Sub-Matrix: **Water**

Matrix Spike (MS) Report										
					Spike	Recovery (%)	Recovery Limits (%)			
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
<b>Total Metals (QCLot: 1842236)</b>										
KS2500174-001	Anonymous	Arsenic, total	7440-38-2	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----



ALS Environmental

Canada Toll Free: 1 800 666 9878

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here (lab use only)

www.alsglobal.com

Contact and company name below will appear on the final report

Report Format / Distribution

Select Report Format:  PDF  EXCEL  EDD (DIGITAL)

Quality Control (QC) Report with Report  YES  NO

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

Select Distribution:  EMAIL  MAIL  FAX

Email 1 or Fax small companies@emconservices.ca

Email 2 tibar@telus.net, nfulford.nhw@emconservices.ca

Email 3 katharine.monamara@interiorhealth.ca

Select Invoice Distribution:  EMAIL  MAIL  FAX

Email 1 or Fax small companies@emconservices.ca

Email 2 tibar@telus.net

Oil and Gas Required Fields (client use)

AF/ECost Center:

Major/Minor Code:

Requisitioner:

Location:

ALS Contact:

ALS Lab Work Order # (lab use only)

ALS Sample # (lab use only)

Sample Identification and/or Coordinates (This description will appear on the report)

Date (dd-mm-yy)

Time (hh:mm)

Sampler:

Sample Type

Are samples taken from a Regulated DW System?  YES  NO

Are samples for human drinking water use?  YES  NO

SHIPPING RELEASE (client use)

Released by:

Date:

Time:

Received by:

Date:

Time:

Received by:

Date:

Time:

Received by:

Date:

Time:

Received by:

Date:

Time:

Received by:

Select Service Level Below - Please confirm all EAP TATs with your AM - surcharges will apply

Regular [R]  Standard TAT if received by 3 pm - Business days - no surcharges apply

4 day [P4]

3 day [P3]

2 day [P2]

EMERGENCY

1 Business day [E1]

Same Day, Weekend or Statutory holiday [E0]

Date and Time Required for all EAP TATs:

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

Analysis Request

Number of Containers

1

Arsenic Only

X

Telephone: +1 250 372 3688

Environmental Division

Kamloops

Work Order Reference

KS2500163

Barcode

Barcode

Barcode

Barcode

Barcode

Barcode

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Sample Condition AS Received (lab use only) section with checkboxes for Frozen, Ice Packs, Cooling Initiated, and temperature fields.

Shipping and Receipt information section with fields for Released by, Date, Time, Received by, Date, Time.