

## **CERTIFICATE OF ANALYSIS**

KS2501329 **Work Order** 

Client Nicola Lakeshore Water Utility Co. Ltd. Contact

Kevin Rabbitt

: 105 - 1121 McFarlane Way Address

Merritt British Columbia Canada V1K 1B9

250 378 4206 Telephone **Project** Arsenic Plant B

PO

C-O-C number

Jeff Wike, Nikki Fulford Sampler : Nicola Lakeshore Water Utility Site : Nicola Lakeshore Routine Tests Quote number

No. of samples received : 1 : 1 No. of samples analysed

Laboratory : ALS Environmental - Kamloops

: Caitlin Fountain **Account Manager** 

Address : 1445 McGill Road, Unit 2B Kamloops BC Canada V2C 6K7

250 372 3588 Telephone Date Samples Received : 16-Apr-2025 10:10 Date Analysis Commenced : 19-Apr-2025

: 22-Apr-2025 09:09 Issue Date

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

#### **Signatories**

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11. Signatories Laboratory Department Dan Gebert Supervisor - Metals Mercury & Speciation Metals, Burnaby, British Columbia

alsglobal.com Page: 1 of 3

Work Order : KS2501329

Client : Nicola Lakeshore Water Utility Co. Ltd.

Project : Arsenic Plant B



#### **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

<: 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.

Work Order : KS2501329
Client : Nicola Lakeshore Water Utility Co. Ltd.
Project : Arsenic Plant B



# Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client	sample ID	Arsenic Plant Tank B	 	 
			Client sampling	date / time	16-Apr-2025 07:40	 	 
Analyte	CAS Number	Method/Lab	LOR	Unit	KS2501329-001	 	 
					Result	 	 
Total Metals							
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00484	 	 

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



# **QUALITY CONTROL INTERPRETIVE REPORT**

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Client Nicola Lakeshore Water Utility Co. Ltd. Laboratory : ALS Environmental - Kamloops

Contact : Kevin Rabbitt **Account Manager** : Caitlin Fountain

Address Address : 105 - 1121 McFarlane Way : 1445 McGill Road, Unit 2B

Merritt BC Canada V1K 1B9 Kamloops, British Columbia Canada V2C 6K7

Telephone :250 378 4206 Telephone : 250 372 3588 Project : Arsenic Plant B **Date Samples Received** : 16-Apr-2025 10:10

PO Issue Date : 22-Apr-2025 09:07

Sampler : Jeff Wike. Nikki Fulford Site : Nicola Lakeshore Water Utility

Quote number : Nicola Lakeshore Routine Tests

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

C-O-C number

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) ■ No Analysis Holding Time Outliers exist.

# Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

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Client : Nicola Lakeshore Water Utility Co. Ltd.

Project : Arsenic Plant B



# **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: **x** = Holding time exceedance ; ✓ = Within Holding Time

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Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Arsenic Plant Tank B	E420	16-Apr-2025	19-Apr-2025	180 days	3 days	<b>√</b>	21-Apr-2025	180 days	3 days	<b>√</b>

#### **Legend & Qualifier Definitions**

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

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Project : Arsenic Plant B



# **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	n: 🗴 = QC freque	ency outside spe	ecification; ✓ = 0	QC frequency wit	hin specification.
Quality Control Sample Type			Co	unt		Frequency (%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Total Metals in Water by CRC ICPMS	E420	1956044	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Total Metals in Water by CRC ICPMS	E420	1956044	1	20	5.0	5.0	✓
Method Blanks (MB)							
Total Metals in Water by CRC ICPMS	E420	1956044	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Total Metals in Water by CRC ICPMS	E420	1956044	1	20	5.0	5.0	✓

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Project : Arsenic Plant B



# **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	Water	EPA 200.2/6020B	Water samples are digested with nitric and hydrochloric acids, and analyzed by
	ALS Environmental -		(mod)	Collision/Reaction Cell ICPMS.
	Vancouver			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

# **ALS Canada Ltd.**



# **QUALITY CONTROL REPORT**

Work Order : KS2501329

Client : Nicola Lakeshore Water Utility Co. Ltd.

Contact : Kevin Rabbitt

Address : 105 - 1121 McFarlane Way

Merritt BC Canada V1K 1B9

Telephone : 250 378 4206

Project : Arsenic Plant B

PO :----C-O-C number :----

Sampler ; Jeff Wike, Nikki Fulford

Site : Nicola Lakeshore Water Utility

Quote number : Nicola Lakeshore Routine Tests

No. of samples received : 1
No. of samples analysed : 1

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Laboratory : ALS Environmental - Kamloops

Account Manager : Caitlin Fountain

Address : 1445 McGill Road, Unit 2B

Kamloops, British Columbia Canada V2C 6K7

Telephone : 250 372 3588

Date Samples Received : 16-Apr-2025 10:10

Date Analysis Commenced : 19-Apr-2025

Issue Date : 22-Apr-2025 09:10

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

Dan Gebert Supervisor - Metals Mercury & Speciation Vancouver Metals, Burnaby, British Columbia

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Client : Nicola Lakeshore Water Utility Co. Ltd.

Project : Arsenic Plant B



#### 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							Labora	tory Duplicate (D	UP) 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 Lo	t: 1956044)										
VA25A8459-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00791	0.00796	0.719%	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
Total Metals (QCLot: 1956044)					
Arsenic, total	7440-38-2 E420	0.0001	mg/L	<0.00010	

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Project : Arsenic Plant B



## 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 Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1956044)									
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	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 >= 1x spike level.

Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCI	_ot: 1956044)									
VA25A8459-002	Anonymous	Arsenic, total	7440-38-2	E420	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	



# Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 15 -

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ALS) Environmental

Canada Toll Free: 1 800 668 9878

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