CERTIFICATE OF ANALYSIS

Work Order	: **WP2332463**	Page	: 1 of 3
Client	: **City of Iqaluit**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Simon Doiron	Account Manager	: Craig Riddell
Address	: 1085 Mivik Street Iqaluit NU Canada X0A 0H0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg MB Canada R2J 3T4
Telephone	: ----	Telephone	: +1 204 255 9720
Project	: CITY OF IQALUIT WWTP - TROUT BIOSASSAY	Date Samples Received	: 13-Dec-2023 11:00
PO	: ----	Date Analysis Commenced	: 14-Dec-2023
C-O-C number	: ----	Issue Date	: 27-Dec-2023 15:16
Sampler	: ----		
Site	: ----		
Quote number	: Trout Bioassay Testing		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Jeremy Byrnes	Senior Analyst	Limnology, Winnipeg, Manitoba
Kelly Stone		Administration, Winnipeg, Manitoba
Rhovee Guevarra		Inorganics, Winnipeg, Manitoba

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
°C	degrees celsius
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

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

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	CITY OF IQALUIT WWTP - EFFLUENT	----	----	----	----
					Client sampling date / time	11-Dec-2023 08:05	----	----	----	----
						WP2332463-001	--------	--------	--------	--------
						Result	----	----	----	----
Field Tests										
pH, field	----	EF001/WP	0.01	pH units		6.73	----	----	----	----
Temperature, field	----	EF001/WP	0.01	°C		14.8	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WP	0.0050	mg/L		27.7	----	----	----	----
Ammonia, un-ionized (as N), field	7664-41-7	EC298A/WP	0.0010	mg/L		0.0399	----	----	----	----
Inorganics										
Chlorine, total	7782-50-5	E326-L/WP	0.020	mg/L		<0.020	----	----	----	----
Bioassays										
Trout bioassay (pass/fail), pH stabilized	----	E862A/WP	-	-		Pass	----	----	----	----

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

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

QUALITY CONTROL REPORT

Work Order	: **WP2332463**	Page	: 1 of 3
Client	: City of Iqaluit	Laboratory	: ALS Environmental - Winnipeg
Contact	: Simon Doiron	Account Manager	: Craig Riddell
Address	: 1085 Mivik Street Iqaluit NU Canada X0A 0H0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	:	Telephone	: +1 204 255 9720
Project	: CITY OF IQALUIT WWTP - TROUT BIOSASSAY	Date Samples Received	: 13-Dec-2023 11:00
PO	: ----	Date Analysis Commenced	: 14-Dec-2023
C-O-C number	: ----	Issue Date	: 27-Dec-2023 15:15
Sampler	: ---- ----		
Site	: ----		
Quote number	: Trout Bioassay Testing		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Jeremy Byrnes	Senior Analyst	Winnipeg Limnology, Winnipeg, Manitoba
Kelly Stone		Winnipeg Administration, Winnipeg, Manitoba
Rhovee Guevarra		Winnipeg Inorganics, Winnipeg, Manitoba

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*
Anions and Nutrients (QC Lot: 1276668)											
WP2332378-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0562	0.0549	2.41%	20%	----
Inorganics (QC Lot: 1276739)											
WP2332463-001	CITY OF IQALUIT WWTP - EFFLUENT	Chlorine, total	7782-50-5	E326-L	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 1276668)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Inorganics (QCLot: 1276739)						
Chlorine, total	7782-50-5	E326-L	0.02	mg/L	<0.020	----

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	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1276668)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.9	85.0	115	----
Inorganics (QCLot: 1276739)									
Chlorine, total	7782-50-5	E326-L	0.02	mg/L	0.2 mg/L	100	75.0	125	----

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 Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1276668)										
WP2332378-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0968 mg/L	0.1 mg/L	96.8	75.0	125	----

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WP2332463**	Page	: 1 of 5
Client	: **City of Iqaluit**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Simon Doiron	Account Manager	: Craig Riddell
Address	: 1085 Mivik Street Iqaluit NU Canada X0A 0H0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: ----	Telephone	: +1 204 255 9720
Project	: CITY OF IQALUIT WWTP - TROUT BIOSASSAY	Date Samples Received	: 13-Dec-2023 11:00
PO	: ----	Issue Date	: 27-Dec-2023 15:14
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Trout Bioassay Testing		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- 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* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) CITY OF IQALUIT WWTP - EFFLUENT	E298	11-Dec-2023	14-Dec-2023	28 days	3 days	✓	14-Dec-2023	28 days	3 days	✓
Bioassays : Trout Bioassay Pass/Fail pH stabilized										
HDPE Pail CITY OF IQALUIT WWTP - EFFLUENT	E862A	11-Dec-2023	----	----	----		14-Dec-2023	5 days	3 days	✓
Field Tests : Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Amber glass (hydrochloric acid) CITY OF IQALUIT WWTP - EFFLUENT	EF001	11-Dec-2023	----	----	----		14-Dec-2023	----	3 days	
Inorganics : Total Chlorine (Residual) by DPD Colourimetry										
Amber glass CITY OF IQALUIT WWTP - EFFLUENT	E326-L	11-Dec-2023	----	----	----		14-Dec-2023	0.25 hrs	75 hrs	× EHTR-FM

Legend & Qualifier Definitions

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Ammonia by Fluorescence	E298	1276668	1	16	6.2	5.0	✓
Total Chlorine (Residual) by DPD Colourimetry	E326-L	1276739	1	1	100.0	5.0	✓
Laboratory Control Samples (LCS)							
Ammonia by Fluorescence	E298	1276668	1	16	6.2	5.0	✓
Total Chlorine (Residual) by DPD Colourimetry	E326-L	1276739	1	1	100.0	5.0	✓
Method Blanks (MB)							
Ammonia by Fluorescence	E298	1276668	1	16	6.2	5.0	✓
Total Chlorine (Residual) by DPD Colourimetry	E326-L	1276739	1	1	100.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1276668	1	16	6.2	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
Ammonia by Fluorescence	E298 ALS Environmental - Winnipeg	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Chlorine (Residual) by DPD Colourimetry	E326-L ALS Environmental - Winnipeg	Water	APHA 4500-Cl G (mod)	Chlorine (residual), as free or total, is analyzed using the DPD colourimetric method. The recommended hold time for this test is 15 minutes and field testing is recommended when determining Chlorine concentrations at the time of sampling. Chlorine if present in a sample container after sampling can be rapidly consumed by any inorganic or organic matter in the sample and dissipates rapidly into headspace. Laboratory results may be requested when chlorine concentrations that may be present at the time of laboratory analysis are required for the interpretation of other laboratory analysis where the presence of Chlorine may affect results. e.g. laboratory toxicity testing
Trout Bioassay Pass/Fail pH stabilized	E862A ALS Environmental - Winnipeg	Water	EPS 1/RM/50, EPS 1/RM/13	Rainbow trout are introduced into a single 100% concentration of the test sample. The pH of the test sample is controlled throughout the exposure period to minimize the potential impact of residual ammonia toxicity due to pH drift caused by the loss of carbon dioxide during aeration. When the sample is lethal to greater than 50% of the organisms, the sample fails to meet the toxicity criteria.
Un-ionized and Ionized Ammonia (Calculation) (Field Temperature and pH)	EC298A ALS Environmental - Winnipeg	Water	CCME CWQG Ammonia	Un-ionized ammonia is calculated from test results for total ammonia, field temperature and pH, and is expressed in units of mg/L "as N".
Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Winnipeg	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Winnipeg	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

pH Stabilized Rainbow Trout Bioassay Test Report - Pass/Fail

Sample ID:	WP2332463-001

Summary Results

96-hour Pass/Fail:	PASS

Sample Information

Sample Origin:	City of Iqaluit
Sample Description:	City of Iqaluit WWTP - Effluent
Sampling Date and Time:	11-Dec-23 08:05
Sampling Method:	Grab
Sampled By:	Not Provided
Container(s) Description:	2 x 10L Polyethylene Pails
Sample Volume:	20L
Date and Time Received:	13-Dec-23 11:00
Transit Irregularities:	None
Storage Temperature (°C):	15

Test Information

Test Organism:	Oncorhynchus mykiss
Test Description:	Acute, 96-hour, Static, Pass/Fail
pH Stabilization Technique:	pH Controller
Reference Method(s):	EPS 1/RM/13, 2nd Ed. Dec. 2000, with 2007 and 2016 amendments, Environment Canada EPS 1/RM/50, March 2008, Environment Canada - wastewater effluent STB 1/RM/59, June 2018, ECCC - pulp and paper effluent
Performed By:	KS/SR
Starting Date and Time:	14-Dec-23 12:40
Deviations from Reference Method:	None

Initial Parameters

Observations

Colour:	Brown		
Odour:	High		
Turbidity:	High		
Solids:	High		
Hardness (mg/L):	2.0 mL Titration Solution/ 50 mL of Sample x 1000 = 40		
Temperature (°C):	14.8	Thermometer	S/N 210615826
Dissolved Oxygen (mg/L):	1.95	YSI Dissolved Oxygen Meter	S/N 15M102668
Conductivity (µS/cm):	418	VWR Portable Conductivity Meter	S/N 51071543
pH (5.5-8.5 pH units):	6.73	VWR SympHony pH Meter	S/N D01908
Total Ammonia (mg/L):	27.7		
Un-ionized Ammonia (mg/L):	0.0399		
Total Chlorine (mg/L):	<0.020		
pH Adjustment:	Not adjusted before initializing test		

Pre-Aeration

Aeration Time (minutes):	120	
Sample Test Concentration (v/v):	100%	0%
Aeration Rate (5.5-7.5 mL/min/L):	6.2±0.3	6.2±0.3
D.O. Before Pre-Aeration (%):	19.0	98.3
D.O. After Pre-Aeration (target 70-100%):	65.0	98.3

Test Organism Data

Lot Number:	25/10/23 T3
Weekly Mortality Preceeding Test (%):	0
Sample Size:	10

Conditions Common to All Concentrations During Test

Source of Holding/Dilution Water:	Dechlorinated UV Treated City of Winnipeg Tap Water
Container Description:	20 L Polyethylene Pail with Liner
Aeration Method:	Compressed air bubbled through silica-glass air diffuser
Aeration Rate (5.5-7.5 mL/min/L):	(as set during pre-aeration above; visually inspected daily; no changes required during test)
CO_2 Gas Mix:	Pure CO_2
Test Solution Volume (L):	20
Test Solution Depth (cm):	34
Number of Test Organisms per Container:	10
Loading Density (g/L):	0.25

Conditions During Test

pH Controller Position	Conc. (% v/v)	Temperature (˚C) (15 ± 1˚C)					Dissolved Oxygen (mg/L)				
		0h	24h	48h	72h	96h	0h	24h	48h	72h	96h
A2	0	14	n/a	n/a	n/a	14	10.07	n/a	n/a	n/a	9.98
A1	100	14	n/a	n/a	n/a	14	6.66	n/a	n/a	n/a	9.69

Concentration (% v/v)	Instantaneous pH (pH_i ± 0.3 units)						Average pH (pH_i ± 0.2 units)
	pH_i	0h	24h	48h	72h	96h	
0	7.21	7.19	7.29	7.32	7.49	7.31	7.32
100	6.73	6.73	6.91	6.84	6.84	6.85	6.83

Concentration (% v/v)	Additional pH Readings Taken During Test (pH units)														
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
100	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Conc. (% v/v)	Conductivity (µS/cm)	Number of Fish Dead				Number of Fish Stressed			
	0h	24h	48h	72h	96h	24h	48h	72h	96h
0	281	0	0	0	0	0	0	0	0
100	419	0	0	0	0	0	0	0	0

Control Fish Information at End of Test

Mean Fork Length (mm):	39
Lower Range Fork Length (mm):	35
Upper Range Fork Length (mm):	43
Mean Wet Weight (g):	0.50

Mortality and Stressed Behaviour Information

Conc. (% v/v)	Mean Number of Fish at End of Test		Mean Rate of Fish at End of Test (%)	
	Dead	**Stressed**	**Dead**	**Stressed**
0	0	0	0	0
100	0	0	0	0

Reference Toxicant Test Results

Reference Toxicant:	Zinc Sulfate
Date Reference Toxicant Initiated:	5-Dec-23
Recent 96h Reference Toxicant Test LC50 (mg/L Zinc):	1.31
Lower 95% Confidence Limit (mg/L Zinc):	1.08
Upper 95% Confidence Limit (mg/L Zinc):	1.68
Historic Geometric Mean LC50 (mg/L Zinc):	0.57
Lower 95% Confidence Limit (mg/L Zinc):	0.25
Upper 95% Confidence Limit (mg/L Zinc):	1.32
Method of Calculation:	Stephan LC50 Program, Probit
Confirmed by Graph:	Yes

Sublethal Biological Effects

No Sublethal Biological Effect Observed.

Observations/Comments

No Toxicity Observed.

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

Canada Toll Free: 1 800 668 9878

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Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company: CITY OF IQALUIT (CASH145)	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☐ Routine [R] if received by 3pm M-F - no surcharges apply
Contact: SIMON DOIRON	Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Company address below will appear on the final report	☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
Street: Iqaluit WWTP 1085 Mivik Street	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
City/Province: Iqaluit, NU	Email 1 or Fax: s.doiron@iqaluit.ca , e.kayode@iqaluit.ca	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
Postal Code: X0A 0H0	Email 2: murray.amirault@colliersprojectleaders.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Invoice To: Same as Report To ☐ YES ☐ NO	Email 3: s.turner@iqaluit.ca	Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.
Copy of Invoice with Report ☐ YES ☐ NO	**Invoice Recipients**	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
Company: CASH145	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please contact your AM to confirm availability.
Contact:	Email 1 or Fax: t.oram@iqaluit.ca	
	Email 2: s.doiron@iqaluit.ca	

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Client Code / QUOTE #: CASH145

Job / Project #: City of Iqaluit WWTP - Trout Bioassay

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

ALS Lab Work Order # (ALS use only):

Analysis Request

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below												SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
						Trout-Pass / Fail Bioassay (E861A)	$592.5b with GST included													
	City of Iqaluit WWTP - Effluent (Trout P/F Bioassay)	11-12-23	8:05am	WW		✓														

Environmental Division Winnipeg
Work Order Reference
WP2332463

Telephone : +1 204 255 9720

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

SAMPLE RECEIPT DETAILS (ALS use only)

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

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
				Dec 13 23	11:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

MAY 2023 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Sample intake						
Client:	IQuest					
Cheque Enclosed with CoC		Yes		No		
Priority/Emergency Required (circle one)		Yes		No		
Time Sensitive Hold Time (circle one)		Yes		No		
Matrix (circle one)		Water	Soil/solid	Air	Biota	Other
# of Bottles received:						
Green/White		Yellow/Black				
Purple/White		Light blue/White				
Warm red/White		Orange/Black				
Dark Green/White		Dark Blue/White				
Grey/black		Black/white				
Other:						
Additional Comments:	Expail					

Login Check	Check yes if you have verified the following:	
	Yes	N/A
Received date/time		
Project/PO/LSD		
Quote/Office match CoC		
Sample IDs/Description		
Sample Date/time		
Sales Items as per CoC		
Express Due Dates		
Client due date matches ALS Due date		
Client recipient emails		
Guidelines/thresholds added		
Billing/payment recorded		
~~Field data entered~~		
Sub-contracting Forms Printed		
SUBCO/Chromatograph added to client contacts for required analysis		
Are sub-samples required?		
Has a SIF been submitted for this WO?		
Has the SIF been resolved?		